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February 2011

ELECTRONIC HEALTH RECORDS

DOD and VA Should Remove Barriers and Improve Efforts to Meet Their Common System Needs

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February 2011

ELECTRONIC HEALTH RECORDS

DOD and VA Should Remove Barriers and Improve Efforts to Meet Their Common System Needs

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Highlights

Highlights of GAO-11-265, a report to congressional committees

Why GAO Did This Study

The Department of Defense (DOD) and the Department of Veterans Affairs (VA) operate two of the nation's largest health care systems. To do so, both departments rely on electronic health record systems to create, maintain, and manage patient health information. DOD and VA are currently undertaking initiatives to modernize their respective systems, jointly establish the Virtual Lifetime Electronic Record (VLER), and develop joint information technology (IT) capabilities for the James A. Lovell Federal Health Care Center (FHCC). In light of these efforts, GAO was asked to (1) identify any barriers that DOD and VA face in modernizing their electronic health record systems to jointly address their common health care business needs, and (2) identify lessons learned from DOD's and VA's efforts to jointly develop VLER and to meet the health care information needs for the FHCC. To do this, GAO analyzed departmental reviews and other documentation and interviewed DOD and VA officials.

What GAO Recommends

GAO is recommending that DOD and VA take steps to improve their joint strategic planning, enterprise architecture, and IT investment management to address their common health care business needs. GAO is also recommending that the departments strengthen their joint IT system planning efforts for VLER and the FHCC. Commenting on a draft of this report, DOD, VA, and the DOD/VA Interagency Program Office concurred with GAO's recommendations.

View GAO-11-265 or key components. For more information, contact Valerie C. Melvin at (202) 512-6304 or melvinv@gao.gov.

What GAO Found

DOD and VA face barriers in three key IT management areas—strategic planning, enterprise architecture, and investment management—and, as a result, lack mechanisms for identifying and implementing efficient and effective IT solutions to jointly address their common health care system needs. First, the departments have been unable to articulate explicit plans, goals, and timeframes for jointly addressing the health IT requirements common to both departments' electronic health record systems. For example, DOD's and VA's joint strategic plan does not discuss how or when the departments propose to identify and develop joint health IT solutions, and department officials have not yet determined whether the IT capabilities developed for the FHCC can or will be implemented at other DOD and VA medical facilities. Second, although DOD and VA have taken steps toward developing and maintaining artifacts related to a joint health architecture (i.e., a description of business processes and supporting technologies), the architecture is not sufficiently mature to guide the departments' joint health IT modernization efforts. For example, the departments have not defined how they intend to transition from their current architecture to a planned future state. Third, DOD and VA have not established a joint process for selecting IT investments based on criteria that consider cost, benefit, schedule, and risk elements, which would help to ensure that the chosen solution both meets the departments' common health IT needs and provides better value and benefits to the government as a whole. These barriers result in part from DOD's and VA's decision to focus on developing VLER, modernizing their separate electronic health record systems, and developing IT capabilities for the FHCC, rather than determining the most efficient and effective approach to jointly addressing their common requirements. Because DOD and VA continue to pursue their existing health information sharing efforts without fully establishing the key IT management capabilities described above, they may be missing opportunities to successfully deploy joint solutions to address their common health care business needs.

DOD's and VA's experiences in developing VLER and IT capabilities for the FHCC offer important lessons that the departments can use to improve their management of these ongoing efforts. Specifically, the departments can improve the likelihood of successfully meeting their goal to implement VLER nationwide by the end of 2012 by developing an approved plan that is consistent with effective IT project management principles. Also, DOD and VA can improve their continuing effort to develop and implement new IT system capabilities for the FHCC by developing a plan that defines the project's scope, estimated cost, and schedule in accordance with established best practices. Unless DOD and VA address these lessons, the departments will jeopardize their ability to deliver expected capabilities to support their joint health IT needs.

Contents

Abbreviations

AHLTA	Armed Forces Health Longitudinal Technology Application
BHIE	Bidirectional Health Information Exchange
CHDR	Clinical Data Repository/Health Data Repository
DOD	Department of Defense
FHCC	Federal Health Care Center
FHIE	Federal Health Information Exchange
IT	information technology
LDSI	Laboratory Data Sharing Interface
MHS	Military Health System
VA	Department of Veterans Affairs
VistA	Veterans Health Information Systems and Technology Architecture
VHA	Veterans Health Administration
VLER	Virtual Lifetime Electronic Record

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Accountability * Integrity * Reliability

United States Government Accountability Office
Washington, DC 20548

February 2, 2011

The Honorable Thad Cochran
The Honorable Daniel Inouye
United States Senate

The Honorable C.W. Bill Young
Chairman
The Honorable Norman D. Dicks
Ranking Member
Subcommittee on Defense
Committee on Appropriations
House of Representatives

The Department of Defense (DOD) and the Department of Veterans Affairs (VA) operate two of the nation's largest health care systems, providing health care to service members and veterans at estimated annual costs of about $49 billion and $48 billion, respectively. To do so, both departments rely on electronic health record systems to create, maintain, and manage patient health information. DOD uses multiple legacy health systems, including its outpatient system—the Armed Forces Health Longitudinal Technology Application (AHLTA)—which are supplemented with paper-based records. VA uses an integrated medical information system, the Veterans Health Information Systems and Technology Architecture (VistA), which includes electronic health records and consists of over 100 separate computer applications.

Congress has long expressed an interest in DOD's and VA's efforts to improve their health information exchange capabilities, and has urged the departments to identify common health information technology (IT) requirements and business processes as they continue to modernize their

health IT systems. As we have previously reported,[1] the departments have increased electronic health record interoperability[2] using a patchwork of initiatives involving DOD and VA systems. The departments have recognized that, despite interoperability gains over the last decade, more work is needed to meet clinicians' evolving needs for exchanging health information between the systems.

Currently, DOD and VA are engaged in two high-profile collaborative initiatives that are dependent on their ability to fully share electronic health information. First, in response to the President's April 2009 announcement, the departments began planning the Virtual Lifetime Electronic Record (VLER) initiative which is intended to streamline the transition of electronic medical, benefits, and administrative information between DOD and VA and support the transition of military personnel to veteran status, and throughout their lives. VLER is further intended to expand the departments' health information sharing capabilities by enabling access to private sector health data as well. In addition, the James A. Lovell Federal Health Care Center (FHCC) in North Chicago, Illinois, is to be the first DOD/VA medical facility operated under a single line of authority to manage and deliver medical and dental care for veterans, new Naval recruits, active duty military personnel, retirees, and dependents. This new center, including initial supporting IT system capabilities, became operational in late December 2010, with additional system capabilities to be implemented through December 2011.

At the same time, DOD and VA have both identified the need to modernize their electronic health record systems. As they have undertaken these modernizations, the departments have studied and reported on the potential to pursue joint solutions to the many health care system needs

[1]GAO, *Electronic Health Records: DOD and VA Have Increased Their Sharing of Health Information, but More Work Remains*, GAO-08-954 (Washington, D.C.: July 28, 2008); *Electronic Health Records: DOD's and VA's Sharing of Information Could Benefit from Improved Management*, GAO-09-268 (Washington, D.C.: Jan. 28, 2009); *Electronic Health Records: Program Office Improvements Needed to Strengthen Management of VA and DOD Efforts to Achieve Full Interoperability*, GAO-09-895T (Washington, D.C.: July 14, 2009); *Electronic Health Records: DOD and VA Efforts to Achieve Full Interoperability Are Ongoing; Program Office Management Needs Improvement*, GAO-09-775 (Washington, D.C.: July 28, 2009); and *Electronic Health Records: DOD and VA Interoperability Efforts Are Ongoing; Program Office Needs to Implement Recommended Improvements*, GAO-10-332 (Washington, D.C.: January 28, 2010).

[2]Interoperability is the ability for different information systems or components to exchange information and to use the information that has been exchanged.

that DOD and VA have in common. For example, an August 2008 study that the departments funded identified alternative approaches they could use to achieve a high degree of interoperability by working toward a joint DOD and VA inpatient electronic health record system. Further, in May 2010, the departments reported to Congress that they were committed to assessing all possible common capability development for their next generation of electronic health record systems.

Because of the importance of comprehensive health information in providing optimal medical care to service members and veterans, you requested that we

- identify any barriers that DOD and VA face in modernizing their electronic health record systems to jointly address their common health care business needs, and
- identify lessons learned from DOD's and VA's efforts to jointly develop VLER and to meet the health care information needs for the FHCC.

On December 1, 2010, we provided your offices with briefing slides that outlined the results of our study. The purpose of this report is to provide the published briefing slides to you and to officially transmit our recommendations to the Secretaries of Defense and Veterans Affairs. The slides, which discuss our scope and methodology, are included in appendix I.

We conducted our work in support of this performance audit at DOD's Military Health System offices and VA's headquarters in the Washington, D.C., metropolitan area and at the departments' medical facilities in North Chicago, Illinois, from December 2009 to January 2011 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.

In summary, our study highlighted the following:

- Although our prior work has shown that having and using a strategic plan, enterprise architecture, and IT investment management process are critical to effectively modernizing major IT systems, DOD and VA have not sufficiently established these fundamental management capabilities to

guide their joint health IT efforts. In particular, DOD and VA have not articulated explicit plans, goals, and time frames for jointly addressing the health IT requirements common to both departments' electronic health record systems, and the departments' joint strategic plan does not discuss how or when DOD and VA propose to identify and develop joint solutions to address their common health IT needs. In addition, although DOD and VA have taken steps toward developing and maintaining artifacts related to a joint health architecture (i.e., a description of business processes and supporting technologies), the architecture is not sufficiently mature to guide the departments' joint health IT modernization efforts. For example, the departments have not defined how they intend to transition from their current architecture to a planned future state. Furthermore, DOD and VA have not established a joint process for selecting IT investments based on criteria that consider cost, benefit, schedule, and risk elements, which limits their ability to pursue joint health IT solutions that both meet their needs and provide better value and benefits to the government as a whole. These barriers can be attributed to, among other things, the departments' decision to continue with their existing efforts—VLER, separate electronic health record modernizations, and developing IT capabilities for the FHCC—rather than determining the best approach to jointly addressing their common requirements. Without these key IT management capabilities in place, the departments will continue to face barriers to identifying and implementing efficient and effective IT solutions to jointly address their common health care needs.

- DOD's and VA's experiences in developing VLER and IT capabilities for the FHCC offer important lessons that the departments can use to improve their management of these ongoing efforts. Specifically, the departments can improve the likelihood of successfully meeting their goal to implement VLER nationwide by the end of 2012 by developing an approved integrated master schedule, master program plan, and performance metrics consistent with effective IT project management principles. Also, DOD and VA can improve their continuing effort to develop and implement new IT system capabilities for the FHCC by developing a project plan that defines the scope, estimated cost, and budget in accordance with established best practices. Unless the departments address these lessons, their ability to effectively deliver capabilities to support their joint health IT needs is uncertain.

Conclusions

DOD and VA face barriers in three key IT management areas—strategic planning, enterprise architecture, and IT investment management—that can be problematic for departments that have undertaken major IT efforts. First, the departments' joint strategic plan does not discuss how the departments intend to address their common requirements and they have not articulated a potential approach or timeline for working together to meet their common health IT needs. Second, DOD's and VA's joint health architecture, which could guide the departments in the identification and development of common IT solutions, is not sufficiently mature to provide such direction. Third, the departments have not established a process or criteria for selecting IT investments that best support their many common electronic health record requirements. These barriers result in part from the departments' decision to focus on developing VLER, modernizing their separate electronic health record systems, and developing IT capabilities for the FHCC, rather than determining the most efficient and effective approach to jointly addressing their common requirements. Because the departments continue to pursue their existing health information sharing efforts without fully establishing the key IT management capabilities described above, DOD and VA may be missing other opportunities to deploy joint solutions to address their common health care business needs.

DOD's and VA's efforts to jointly develop VLER and the FHCC's IT capabilities offer important lessons that the departments can use to improve these endeavors. Specifically, these efforts highlight the importance of effective project planning to the successful development and implementation of capabilities needed to care for service members and veterans as these and the departments' future joint projects move forward.

Recommendations for Executive Action

To ensure that DOD and VA efficiently and effectively modernize their electronic health record systems to jointly address their common health care business needs, we recommend that the Secretaries of Defense and Veterans Affairs direct the Joint Executive Council to take the following three actions:

- Revise the departments' joint strategic plan to include information discussing their electronic health record system modernization efforts and how those efforts will address the departments' common health care business needs.

- Further develop the departments' joint health architecture to include their planned future (i.e., "to be") state and a sequencing plan for how they intend to transition from their current state to the next generation of electronic health record capabilities.

- Define and implement a process, including criteria that considers costs, benefits, schedule, and risks, for identifying and selecting joint IT investments to meet the departments' common health care business needs.

We also recommend that the Secretaries of Defense and Veterans Affairs strengthen their ongoing efforts to establish VLER and the joint IT system capabilities for the FHCC by developing plans that include scope definition, cost and schedule estimation, and project plan documentation and approval.

Agency Comments and Our Evaluation

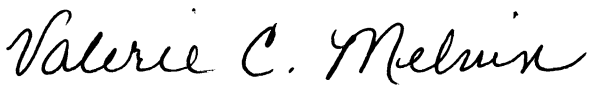
We received written comments on a draft of this report from the Assistant Secretary of Defense for Health Affairs, the VA Chief of Staff, and the Director of the DOD/VA Interagency Program Office. In the comments, DOD concurred with our recommendations; VA generally agreed with our conclusions and concurred with our recommendations; and the DOD/VA Interagency Program Office concurred with our overall findings and recommendations. Additionally, DOD and VA described actions the departments took subsequent to our December 1, 2010 briefing. Specifically, they stated that the departments' senior leaders were briefed on the DOD-VA Joint Action Plan towards a common platform and that the departments established and staffed teams to investigate and analyze electronic health record system collaboration. Further, the DOD/VA Interagency Program Office provided information about ongoing efforts to plan and manage VLER. These efforts include the departments' development of a concept of operations that is intended to serve as a master program plan and is to be completed in February 2011. The Director also stated that the departments have begun reporting performance metrics for the VLER pilot currently being conducted in Tidewater, Virginia, and that schedules, project plans, and performance measures have been developed for the next VLER pilot, which is to take place in the Spokane area of Washington state. If the departments fully implement our recommendations, they should be better positioned to modernize their electronic health record systems to jointly address their common health care business needs.

DOD, VA, and the DOD/VA Interagency Program Office also provided technical comments, which we incorporated as appropriate. Comments

from the Departments of Defense and Veterans Affairs, and the DOD/VA Interagency Program Office are reproduced in appendices II, III, and IV, respectively.

We are sending copies of this report to the Secretaries of Defense and Veterans Affairs and other appropriate congressional committees. Copies of this report will also be available at no charge on GAO's Web site at http://www.gao.gov.

Should you or your staffs have any 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. GAO staff who made major contributions to this report are listed in appendix V.



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

Appendix I: Briefing for Staff Members of Congressional Committees

Electronic Health Records: DOD and VA Should Remove Barriers and Improve Efforts to Meet Their Common System Needs

Briefing for Staff Members of Congressional Committees

December 1, 2010

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Introduction

The Department of Defense (DOD) and the Department of Veterans Affairs (VA) operate two of the nation's largest health care systems, providing health care to service members and veterans at estimated annual costs of about $49 billion and $48 billion, respectively. To do so, both departments rely on electronic health record systems to create, maintain, and manage patient health information.

- DOD's health care operation supports service members at over 700 hospitals, clinics, and other facilities around the world. To provide access to patient information, DOD uses multiple legacy health systems, including its outpatient system—the Armed Forces Health Longitudinal Technology Application (AHLTA); DOD's medical information systems are supplemented with paper-based records.
- VA's Veterans Health Administration (VHA) has over 1,500 facilities (e.g., hospitals and clinics) throughout the United States. In contrast to DOD, VA has one integrated medical information system, the Veterans Health Information Systems and Technology Architecture (VistA).

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Introduction

Because the departments collect, store, and process health information in different systems, providing seamless, comprehensive access to information that is necessary to optimally treat patients is a challenge for DOD and VA, particularly as patients transition from service member to veteran status. The departments have thus far attempted to meet this challenge through increasing electronic health record interoperability—generally the ability of systems to exchange data—using a patchwork of initiatives between DOD and VA systems. The departments recognize that, despite interoperability gains over the last decade, more work is needed to meet clinicians' evolving needs for exchanging health information between the departments' systems.

Building on DOD's and VA's efforts to increase electronic heath record interoperability, in April 2009 the President announced that the departments would work together to define and build the Virtual Lifetime Electronic Record (VLER) to streamline the transition of electronic medical, benefits, and administrative information between the two departments. VLER is intended to enable access to all electronic records for service members as they transition from military to veteran status, and throughout their lives. Further, VLER is to expand the departments' health information sharing capabilities by enabling access to private sector health data as well.

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Introduction

In addition, DOD and VA have both identified the need to modernize their electronic health record systems. As they have undertaken these modernizations, the departments have studied and reported on the potential to pursue joint solutions to the many health care system needs that DOD and VA have in common. For example, an August 2008 study that the departments funded identified alternative approaches they could use to achieve a high degree of interoperability[1] by working toward a joint DOD and VA inpatient electronic heath record system. Further, in May 2010, the departments reported to Congress that they were committed to assessing all possible common capability development for their next generation of electronic health record systems.[2]

Apart from their VLER and electronic health record modernization efforts, consolidation of the Naval Health Clinic, Great Lakes, and the North Chicago VA Medical Center to form the James A. Lovell Federal Health Care Center (FHCC) has prompted the departments to work toward implementing electronic health record system components to support the provision of health care to service members and veterans in a joint setting. This new center is expected to be operational in late December 2010, with the supporting system capabilities being implemented between December 2010 and December 2011.

[1] Interoperability is the ability for different information systems or components to exchange information and to use the information that has been exchanged.
[2] Joint Executive Council and Health Executive Council, *Report to Congress on Department of Defense and Department of Veterans Affairs Medical Information Technology* (Washington, D.C., May 21, 2010).

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Objectives

Because of the importance of comprehensive health information in providing optimal medical care to service members and veterans, the Chairmen and Ranking Members of the cognizant Senate and House of Representatives Appropriations Subcommittees requested that we

- identify any barriers that DOD and VA face in modernizing their electronic health record systems to jointly address their common health care business needs, and
- identify lessons learned from DOD's and VA's efforts to jointly develop VLER and to meet the health care information needs for the FHCC.

Appendix I lists the congressional requesters.

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Scope and Methodology

To identify any barriers that DOD and VA face in modernizing their electronic health record systems, we

- evaluated reports in which DOD, VA, and a consultant identified the commonality of the departments' health care missions and supporting system needs;
- reviewed DOD and VA's joint strategic plan and analyzed the extent to which the plan and supporting documents discuss common health care needs and information technology (IT) system solutions to meeting those needs;
- reviewed the departments' joint health enterprise architecture and assessed the architecture's content based on accepted definitions of completeness, as described in our architecture management guide;[3]
- evaluated DOD's and VA's IT investment policies, processes, and organization charters to determine whether the departments have established and used criteria for selecting joint IT investments; and

[3] GAO, *Organizational Transformation: A Framework for Assessing and Improving Enterprise Architecture Management (Version 2.0),* GAO-10-846G (Washington, D.C.: August 2010).

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Scope and Methodology

- discussed the departments' joint health care mission and system needs, strategic plan, enterprise architecture, and IT investment management with officials in DOD's Military Health System, VHA, and the DOD/VA Interagency Program Office.

To identify lessons learned from DOD's and VA's efforts to jointly develop VLER and to meet the IT system needs for the FHCC, we

- assessed available project plans and associated documentation such as a schedule and performance metrics for VLER against effective project planning practices;
- visited the Naval Health Clinic, Great Lakes, and the North Chicago VA Medical Center and discussed their missions, operations, systems, IT needs, and plans for development of the FHCC information technology system with managers and clinicians;
- compared available project management documentation for the FHCC initiative, including funding proposals and an integrated master schedule, with industry standards, effective practices, and disciplined processes for effective project management; and
- discussed VLER and the FHCC initiative with DOD and VA officials.

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Scope and Methodology

We conducted this performance audit at DOD's Military Health System offices and VA's headquarters in the Washington, D.C., metropolitan area and at the departments' medical facilities in North Chicago, Illinois, from December 2009 to November 2010 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.

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Results in Brief

Although our prior work has shown that having and using a strategic plan, enterprise architecture, and IT investment management process are critical to effectively modernizing major IT systems, DOD and VA have not sufficiently established these fundamental management capabilities. In particular, the departments lack a specific plan for when and how they intend to address their common health IT requirements, do not have a sufficiently mature joint health enterprise architecture to guide their mutual IT initiatives, and do not have a joint IT investment management process in place to identify and pursue common health IT solutions. These weaknesses can be attributed to, among other things, the departments' decision to continue with their existing efforts rather than determining the best approach to jointly addressing their common requirements. Without having and using these IT management capabilities, the departments are impeded in identifying and implementing efficient and effective IT solutions to jointly address their common health care needs.

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Results in Brief

DOD's and VA's experiences in developing VLER and IT capabilities offer important lessons that the departments can use to improve their management of these ongoing efforts. Specifically, the departments can improve their effort to implement VLER nationwide by the end of 2012 by developing a plan that is consistent with effective IT project management principles. Also, DOD and VA can improve their continuing effort to develop and implement new IT system capabilities for the FHCC by developing a project plan in accordance with established best practices. Unless the departments address these lessons, their ability to deliver expected capabilities to support their joint health IT needs is uncertain.

To ensure that DOD and VA address barriers they face in modernizing their electronic health record systems to jointly meet their common health care business needs, we are making recommendations for the revision of their strategic plan, further developing their joint enterprise architecture, and defining and executing a joint IT investment management process. To address lessons learned that we have identified from DOD's and VA's efforts to develop VLER and joint IT system capabilities to support the FHCC, we recommend that the departments address the project management weaknesses identified in this briefing.

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Results in Brief

In oral comments on a draft of these briefing slides, DOD and VA officials including the Military Health System's Director for External Relationship Management and the Veterans Health Administration's Deputy Chief Officer for Health Systems generally agreed with our recommendations and provided additional information and technical comments, which we incorporated in the briefing as appropriate.

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Background

DOD and VA operate two of the nation's largest health care systems, providing health care and other services and benefits to active service members, veterans, and their families and dependents.

DOD's Military Health System (MHS) is responsible for providing comprehensive medical care during military operations, as well as responding to natural disasters and humanitarian crises around the globe. With about 135,000 employees and an annual budget of about $49 billion, MHS provides health care services to 9.6 million active duty service members, their families, and other eligible beneficiaries.

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Background

Within VA, the VHA has about 255,000 employees and, in fiscal year 2010, was appropriated $48 billion to support its medical care and research mission. VHA provides primary care, specialized care, and related medical and social support services to the nation's veterans and their families. VHA provides health care to approximately 6 million patients at 153 VA medical centers and more than 1,300 outpatient clinics and centers nationwide.

VHA's health care centers are organized into Veterans Integrated Service Networks which oversee the operations of the various medical centers and treatment facilities within their assigned geographic areas.

Background

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 and outside the United States. Therefore, electronic health records are particularly crucial for optimizing the health care provided to military personnel and veterans. 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.

Furthermore, electronic health records are essential to providing quality care to DOD's and VA's 3.5 million shared patients—that is, those who receive health care and services from both departments. Under the departments' policies for providing health care services, veterans and active duty service members may, for example, receive outpatient care from VA clinicians and be hospitalized at a military treatment facility.

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Background

Both DOD and VA rely on complex electronic health record systems to collect, store, and retrieve information on patients in their care.

- DOD currently relies primarily on AHLTA, which makes use of multiple legacy information systems that the department developed from commercial software products that were customized for specific uses. For example, the Composite Health Care System, which was formerly the department's primary health information system, is used to capture pharmacy, radiology, and laboratory order management.[4] To provide capabilities not currently supported by AHLTA, the department also uses additional systems, such as Essentris (formerly called the Clinical Information System), a commercial product customized to support inpatient treatment at military medical facilities. According to a department official, DOD currently uses Essentris to support 83 percent of inpatient beds in its medical facilities.

  The department has been modernizing AHLTA and is currently conducting an analysis of alternatives on its next iteration of the system, called EHR Way Ahead. For fiscal year 2011, DOD has requested $302 million to pursue the EHR Way Ahead initiative.

[4] According to DOD, Composite Health Care System applications are now accessed through its modernized health information system, AHLTA.

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Background

- VA relies on VistA, which includes electronic health records and, as a result of its decentralized development approach, consists of over 100 separate computer applications. These include health provider applications; management and financial applications; crosscutting applications such as patient data exchange; registration, enrollment, and eligibility applications; health data applications; and information and education applications. These applications have been further customized at all VA sites where they are deployed and some are more than 20 years old.

  In 2001, VA began an initiative called HealtheVet to modernize VistA. However, the department experienced problems and delays in delivering HealtheVet capabilities and in August 2010 reported that it had stopped the initiative. Nevertheless, VA requested $347 million in fiscal year 2011 funding to continue with several projects related to VistA modernization, including a health data repository and an eHealth portal to enable veterans to manage their personal health information.

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Background

Key to making health care information electronically available is the ability to share that information among health care providers—that is, interoperability. If electronic health records conform to interoperability standards, they can be managed and consulted by authorized clinicians and staff across more than one health care organization—such as MHS and VHA—thus providing patients and their caregivers the necessary information required for optimal care.

For more than a decade, DOD and VA have progressed in their efforts to improve interoperability between the departments' systems to provide optimal health care to military personnel and veterans.

The departments' efforts to share information among their existing systems have historically focused on four key projects:

- The Federal Health Information Exchange (FHIE), begun in 2001 and enhanced through its completion in 2004, enables DOD to electronically transfer service members' electronic health information to VA when the members leave active duty.

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Background

- The Bidirectional Health Information Exchange (BHIE) was established in 2004 to allow clinicians at both departments viewable access to health information 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.[5] The interface also allows DOD sites to see previously inaccessible data, such as inpatient documentation from Essentris, at other DOD sites.
- The Clinical Data Repository/Health Data Repository (CHDR)[6] interface, implemented in September 2006, linked the departments' separate repositories of standardized data to enable a two-way exchange of computable outpatient pharmacy and medication allergy information.
- The Laboratory Data Sharing Interface (LDSI), a project established in 2004, allows DOD and VA facilities to share laboratory resources. This interface allows the departments to communicate orders for lab tests and their results electronically.

[5] 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.
[6] The name CHDR, pronounced "cheddar," combines the names of these two repositories.

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Background

DOD and VA have established a number of executive-level organizations to define the strategic direction for a range of their health care collaborative efforts, and to oversee the implementation of these efforts. In 2002, the departments established the Joint Executive Council to, among other things, develop a strategic planning process for the departments' joint efforts, facilitate opportunities to enhance sharing, and remove barriers that impede collaboration.[7] Through this strategic plan, the Council communicates the departments' strategic direction for joint initiatives related to health care and benefits—as well as establishes the priorities and processes for implementing these initiatives—to the Secretaries of DOD and VA, and to Congress.

In addition, the Health Executive Council, an interagency council under the Joint Executive Council, is responsible for formulating VA and DOD joint policies that relate to health care, facilitating the exchange of patient information, and ensuring patient safety.[8] The Health Executive Council is further comprised of 13 issue-specific workgroups, including one devoted to information management/information technology issues.

[7] The Joint Executive Council is comprised of the Deputy Secretary of Veterans Affairs; the Under Secretary of Defense for Personnel and Readiness; and the co-chairs of joint councils on health, benefits, and capital planning. The council meets on a quarterly basis.
[8] The Health Executive Council is co-chaired by VA's Under Secretary for Health and DOD's Assistant Secretary of Defense for Health Affairs. DOD membership also includes the surgeons general for the military services. The council meets bimonthly.

Background

Both Congress and the Executive Branch have long expressed an interest in DOD's and VA's efforts to improve their health information exchange capabilities, and have urged the departments to identify common health IT requirements and business processes as they continue to modernize their health IT systems. For example:

- In May 2003, a presidential task force recommended that the departments identify common health information requirements so they can work together to reengineer their business processes and systems to improve interoperability and efficiency.[9]
- In July 2007, the Dole-Shalala Commission recommended that DOD and VA work quickly to make patient data more accessible to clinicians and health professionals by creating a fully interoperable information system to meet their long-term needs.[10]

[9] *President's Task Force to Improve Health Care Delivery for Our Nation's Veterans* (May 26, 2003).
[10] *Serve, Support, Simplify: Report of the President's Commission on Care for America's Returning Wounded Warriors* (July 30, 2007).

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Background

- The National Defense Authorization Act for Fiscal Year 2008[11] further required that DOD and VA jointly develop and implement electronic health record systems or capabilities that allow for full interoperability of personal health care information between the departments by September 30, 2009. The act required the departments to establish a joint interagency program office under the Joint Executive Council to serve as a single point of accountability for their joint health IT efforts. In January 2009, the departments established such an office to act as a single point of accountability for DOD's and VA's joint efforts to develop and implement electronic health record systems or capabilities to enable full interoperability of the departments' health care information. Currently, the office is responsible for integrating DOD's and VA's program management plans and activities—such as requirements, schedules, costs, and performance measures—for their joint health IT initiatives.

The departments have also initiated activities to determine how they might jointly address common health business needs. Specifically:

[11] Pub. L. No. 110-181, Sec. 1635 (2008).

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Background

- In 2007, the Joint Executive Council commissioned a two-phase study on the feasibility of implementing a joint VA/DOD inpatient electronic health record system, and potential alternatives for doing so. The study team reported in January 2008 that a joint inpatient electronic health record was feasible, based on finding that over 97 percent of inpatient functional requirements were common to both DOD and VA. The second phase of the study recommended that the departments commit to a joint service-oriented architecture[12]strategy—including an ongoing joint investment in a common architecture and a strong architecture governance structure—and outlined steps the departments would need to take to move toward this framework. In October 2008, the departments accepted these recommendations.
- In May 2010, DOD submitted, in coordination with VA, a report to Congress on the status of their efforts to identify joint health IT requirements relative to their electronic health record modernization efforts. In this report, the departments noted that they shared 10 of 13 core health IT requirements and identified 7 high-level capabilities for potential shared acquisition or development. The departments also described at a high level how they could move forward in identifying potential joint IT solutions.

[12] A service-oriented architecture approach is intended to identify and promote the shared use of common business capabilities across the enterprise, reduce redundancy, increase integration, and enable organizations to respond quickly to new business requirements. Under this approach, business functions and applications are defined and designed as discrete and reusable capabilities or services that may be under the control of different organizations.

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Background

In addition, the departments have been engaged in two high-profile collaborative initiatives that are dependent on their ability to fully share electronic health information. The FHCC in North Chicago, Illinois, is to be the first DOD/VA medical facility operated under a single line of authority—led by a Director from VA and a Deputy Director from the Navy—to manage and deliver medical and dental care. The FHCC is to serve both DOD and VA patient populations, including veterans, new Naval recruits, active duty military personnel, retirees, and dependents. DOD and VA are estimating that clinical operations at the facility will start at the end of December 2010.

Because the ability to share and exchange patient information is essential to the mission of the FHCC, the departments have been working together to develop an IT solution with capabilities beyond those provided by FHIE, BHIE, and CHDR. Based on input from FHCC stakeholders and clinicians, the departments decided to pursue development of 3 IT capabilities,[13] as summarized in table 1.

[13] According to department officials, DOD and VA decided to develop these capabilities in parallel, where each departments' IT organization creates, tests, and deploys enterprise quality software in their respective department, then jointly tests and deploys the software at the FHCC.

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Background

Table 1: FHCC IT Capabilities under Development

Capability	Description	Expected delivery date[a]
Single patient registration	Registers, verifies eligibility, and updates basic patient information in AHLTA and VISTA through a single user interface.	December 2010
Single sign on with patient context management	Allows users to use a single credential (e.g., user name and password, a DOD Common Access Card, or a Homeland Security Presidential Directive-12 Personal Identity Verification badge) to access a patient's record in DOD and VA medical applications within the FHCC.	December 2010
Orders portability:	Enables clinicians to place and manage various clinical orders (as noted below) from either AHLTA or VistA, updates the status in both systems, and returns the results to the original ordering system.	
–Consults/referrals		To be determined[b]
–Pharmacy		December 2011[c]
–Radiology		December 2010
–Laboratory		December 2010
–Allergy[d]		July 2011

Source: GAO analysis of DOD and VA data.

[a] Date for full solution implementation, as of November 2010.

[b] DOD and VA are developing business requirements. As a workaround, the departments will maintain existing AHLTA and VistA processes for this capability.

[c] An interim business process solution for orders portability—pharmacy is planned to be delivered in December 2010.

[d] Orders portability—allergy is a required capability identified by the departments in August 2010 when an issue was found with the planned orders portability—pharmacy capability.

Background

In addition, the departments have expressed interest in developing future capabilities for the FHCC, including outpatient appointment scheduling and workload management.
To fund DOD and VA's joint IT projects for the FHCC, the departments relied on two grants—totaling $109.5 million—from the DOD/VA Health Care Sharing Incentive Fund (known to the departments as the Joint Incentive Fund).[14]

- In fiscal year 2008, the departments submitted a proposal to guide their IT project management and requirements development efforts for the FHCC, and received an award for a total of $9.5 million.
- In fiscal year 2009, DOD and VA submitted another proposal to support activities related to developing the IT solution, and received an award for $100 million.

As of September 2010, the departments estimated that the FHCC joint IT project will cost approximately $111 million.

[14] The DOD/VA Health Care Sharing Incentive Fund was authorized by Congress in the Bob Stump National Defense Authorization Act of 2003, Pub. L. No. 107-314, Sec. 721 (38 U.S.C. Sec. 8111(d)). The purpose of this fund is to provide seed money for creative sharing initiatives at facility, regional, and national levels to facilitate the mutually beneficial coordination, use, or exchange of health care resources, with the goal of improving the access to, and quality and cost-effectiveness of, the health care provided to beneficiaries of both departments.

Background

In response to the President's April 2009 announcement, the departments began planning the VLER initiative, which is intended to enable DOD, VA, and the private sector to share medical, benefits, and administrative information to support the transition of military personnel to veteran status. According to the departments, the goal of VLER is to ultimately enable clinicians to access all electronic records for service members as they transition from military to veteran status, and throughout their lives.

To implement initial VLER capabilities, the departments are embarking on an incremental series of 6-month pilots to deploy a set of health data exchange capabilities between existing electronic health record systems at local sites around the country.[15] DOD and VA are both utilizing software that allows AHLTA and VistA to exchange information through the Department of Health and Human Services' Nationwide Health Information Network,[16] which allows the departments to share information with each other and private sector entities capable of information exchange. The first pilot in San Diego, California, which started in August 2009, resulted in DOD, VA, and Kaiser Permanente being able to share a limited set of test patient data.

[15] Currently, the departments are focusing on the exchange of health information for the pilots, and not benefits and administrative data.
[16] The Nationwide Health Information Network is defined as a set of standards, services, and policies that enable the secure exchange of health information over the Internet.

Background

Since March 2010, DOD and VA have been jointly conducting another pilot in the Tidewater area of southeastern Virginia. This pilot is planned to last until January 2011 and is focusing on sharing the same data as the San Diego pilot plus additional laboratory data. The departments have stated that additional pilots are planned for the second quarter of fiscal year 2011. The goal for nationwide deployment of the VLER initiative is at or before the end of 2012.

The departments have not yet developed cost estimates for the entire initiative. DOD informed us that it planned to spend $33.6 million in fiscal year 2010, and $61.9 million in fiscal year 2011. VA stated that it planned to spend $23.5 million in fiscal year 2010, and has submitted a budget request of $52 million for fiscal year 2011.

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Background

Between July 2008 and January 2010, we issued a series of reports[17] on the departments' efforts to develop fully interoperable electronic health record systems or capabilities as required by the Fiscal Year 2008 National Defense Authorization Act. In those reports, we described their progress and highlighted issues that the departments needed to address to achieve full electronic health record interoperability. Specifically, while the departments reported that they had met six interoperability objectives to further increase their sharing of electronic health information, we noted that the interagency program office was not yet positioned to function as a single point of accountability for the implementation of interoperable electronic health record systems or capabilities. Our final report, in January 2010, reiterated that DOD and VA needed to implement our previous recommendations to establish project plans, schedules, and performance measures for the interagency program office to effectively oversee and manage the departments' delivery of interoperable capabilities, including VLER.[18]

[17] GAO, *Electronic Health Records: DOD and VA Have Increased Their Sharing of Health Information, but More Work Remains*, GAO-08-954 (Washington, D.C.: July 28, 2008); *Electronic Health Records: DOD's and VA's Sharing of Information Could Benefit from Improved Management*, GAO-09-268 (Washington, D.C.: Jan. 28, 2009); *Electronic Health Records: Program Office Improvements Needed to Strengthen Management of VA and DOD Efforts to Achieve Full Interoperability*, GAO-09-895T (Washington, D.C.: July 14, 2009); *Electronic Health Records: DOD and VA Efforts to Achieve Full Interoperability Are Ongoing; Program Office Management Needs Improvement*, GAO-09-775 (Washington, D.C.: July 28, 2009); and *Electronic Health Records: DOD and VA Interoperability Efforts are Ongoing; Program Office Needs to Implement Recommended Improvements*, GAO-10-332 (Washington, D.C.: January 28, 2010).

[18] GAO-10-332.

Background

We have also reported on the departments' ongoing efforts to modernize their individual electronic health record systems and found that they have been met with limited success:

- In June 2008,[19] we reported that between 2001 and 2007, VA spent almost $600 million on its HealtheVet initiative, which at the time was comprised of eight major software development projects. Among other things, we found that the department lacked a comprehensive project management plan to guide the substantial amount of work remaining on HealtheVet, including an integrated schedule and an independent cost estimate, and recommended the department take action to address these issues to reduce the risk to the HealtheVet initiative.

[19] GAO, *Veterans Affairs: Health Information System Modernization Far from Complete; Improved Project Planning and Oversight Needed,* GAO-08-805 (Washington, D.C.: June 30, 2008).

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Background

- In May 2010,[20] we reported on VA's efforts to replace VistA's scheduling system, which was to be the first application completed as part of the HealtheVet initiative. The department had decided to terminate the scheduling replacement project in 2009, after 9 years of planning and spending an estimated $127 million, with the intention of starting over. We found that the project was hindered by ineffective oversight and weaknesses in key project management areas, including acquisition planning, requirements development, and risk management. We recommended that VA take six actions to improve its project management processes prior to another attempt at replacing its scheduling system. VA generally agreed with our recommendations.

[20] GAO, *Information Technology: Management Improvements Are Essential to VA's Second Effort to Replace Its Outpatient Scheduling System*, GAO-10-579 (Washington, D.C.: May 27, 2010).

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Background

- DOD has faced challenges in its efforts to modernize its current medical information system, AHLTA. In October 2010,[21] we reported that the department's 13-year, $2 billion initiative to modernize AHLTA had failed to include key planned system capabilities and had not met users' expectations for system usability, availability, and speed. We noted that weaknesses in the department's acquisition management and planning processes—including lack of comprehensive plans to guide both system acquisition and engineering, and incomplete requirements—contributed to AHLTA having fewer capabilities than originally expected, experiencing persistent performance problems, and not fully meeting the needs of users. DOD is working to address these issues through planned system performance improvements and functionality enhancements to stabilize AHLTA through 2015 and serve as a bridge to the new electronic health record system the department intends to acquire. Given that DOD is now pursuing a new electronic health record system, we recommended that the department take a number actions to help ensure that it has disciplined and effective processes in place to manage the acquisition of further electronic health record system capabilities.

[21] GAO, *Information Technology: Opportunities Exist to Improve Management of DOD's Electronic Health Record Initiative,* GAO-11-50 (Washington, D.C.: October 6, 2010).

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Results
Barriers to Addressing Common Requirements

DOD and VA Face Barriers in Addressing Common Health Care System Needs

Our prior work has shown that success in modernizing major IT systems depends on having and using a set of IT management capabilities, including strategic planning, the use of an enterprise architecture, and IT investment management. However, DOD and VA lack specific plans for when and how they intend to address their common health IT requirements, do not have a joint health enterprise architecture to guide their joint IT initiatives, and do not have joint IT investment management processes in place to identify and pursue common health IT solutions. These weaknesses result in part from the departments' decision to focus on (1) VLER, (2) their separate electronic health record system modernizations, and (3) development of IT capabilities for the FHCC rather than determining the best approach to jointly addressing their common requirements. Without key IT management capabilities in place, the departments are impeded in identifying and implementing efficient and effective IT solutions to jointly address their common needs.

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Results
Barriers to Addressing Common Requirements

DOD and VA Have Not Yet Formulated Specific Plans for When and How the Departments Intend to Address Their Joint Electronic Health Record System Needs

We have previously reported on the importance of strategic planning to guide major IT initiatives and modernization efforts. In addition to outlining an organization's mission, key business processes, IT challenges, and guiding principles, a strategic plan serves as a single voice for communicating goals and objectives to stakeholders.

DOD's and VA's success in identifying and implementing joint IT solutions has been hindered by an inability to articulate explicit plans, goals, and time frames for meeting their common health IT needs. For example:

- In April 2010, the Joint Executive Council released its joint strategic plan for fiscal years 2010-2012, which is intended to describe the departments' strategic direction for joint efforts related to health care, including IT.[22] The plan states that the departments have directed their information-sharing efforts toward planning for and

[22] The joint strategic plan describes the integrated information sharing goal as enabling the exchange of health and benefits data using secure and interoperable IT systems. Note that interoperability is the ability of two or more systems or components to exchange information and use the information that has been exchanged.

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Barriers to Addressing Common Requirements

developing VLER[23] and that they intend to maintain the status quo of their current interoperability initiatives until VLER is sufficiently mature. However, the plan does not discuss either when or how DOD and VA propose to identify and develop joint solutions to address the health IT requirements common to both departments' electronic health record systems.

- In May 2010, the departments submitted a report to Congress in which they stated that they recognized the economic and strategic benefits of working together to meet their common health IT needs. The departments stated that they intended to identify opportunities for joint IT development or acquisition—through, for example, DOD's analysis of alternatives process—as they continued to develop their individual plans for electronic health record modernization. Although the report affirms the departments' intention to work together to meet their common health IT needs, it does not provide insight or specific details on the departments' agreed-upon plans or time frames for pursuing joint IT solutions. Furthermore, DOD and VA officials have stated that the departments intend to acquire or develop common components for their respective electronic health record "where it makes sense," though they have not articulated when and how such activities would occur.

[23] As previously mentioned, VLER's ultimate goal is to enable DOD, VA, and the private sector to exchange health, benefits, and administrative information using the Nationwide Health Information Network. Department officials have stated that VLER is intended to eventually replace some of the departments' current interoperability capabilities, such as BHIE.

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Results

Barriers to Addressing Common Requirements

- DOD and VA officials have not yet determined whether the IT capabilities developed for the FHCC can or will be implemented at the departments' other medical facilities. Specifically, department officials have noted that the IT effort to establish interoperability capabilities between the departments' electronic health record systems at the FHCC is a pilot project.[24] After 5 years, the departments intend to evaluate whether the FHCC's IT solution can be applied to other sites, or if VLER is sufficiently mature to fulfill the departments' needs for sharing medical information. Thus, the departments have delayed determining whether the FHCC IT solution has the potential to address the departments' common health IT needs, beyond those that are specific to the FHCC.

[24] The departments consider the entire FHCC effort—including the integrated governance structure and health business operations, as well as the IT—a pilot project.

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Barriers to Addressing Common Requirements

DOD and VA have not yet formulated specific plans to address their joint electronic health record system requirements because they have placed priority on addressing their immediate needs including VLER, separate electronic health record system modernizations, and development of IT capabilities for the FHCC. However, until DOD and VA define a specific plan for how they intend to address their common electronic health record system requirements, they are not positioned to identify and develop joint solutions to meet their common needs. In addition, until DOD and VA develop specific plans, stakeholders will be left with an incomplete view of how the departments intend to meet their common health IT needs in an efficient and effective manner.

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Results
Barriers to Addressing Common Requirements

DOD and VA's Joint Health Architecture Is Not Sufficiently Mature to Guide Identification and Development of Common IT Solutions

An enterprise architecture is a blueprint for organizational change defined in models that describe in both business and technology terms how an entity operates today (i.e., "as is") and how it intends to operate in the future (i.e., "to be"); it also includes a plan for transitioning to this future state. Specifically, an enterprise architecture describes an organization's interrelated business processes and business rules, information needs and flows, work locations and users, as well as the technologies—the hardware, software, data, communications, and security attributes—needed to support its business.

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Results

Barriers to Addressing Common Requirements

We have long promoted the use of architectures to guide systems modernization efforts, in part because an architecture can greatly increase the chances that organizations' operational and IT environments will be configured to fully support their missions. Similarly, Congress, the Office of Management and Budget, and the federal Chief Information Officers Council have also stressed the importance of an architecture-centric approach to IT modernization through legislation and guidance.[25]

Recognizing the importance of enterprise architecture in addressing the challenges associated with implementing joint health IT initiatives, DOD and VA established the Health Architecture Interagency Group—an advisory subgroup within the Health Executive Council—in 2005. The group serves as the architectural governance body for joint DOD and VA health IT initiatives, and is responsible for overseeing the departments' efforts to develop a joint health architecture strategy. Among other things, the group works to identify opportunities for joint IT procurement and development and is to perform architecture reviews of joint DOD/VA health IT initiatives.

[25] See, for example, 40 U.S.C. §11315; the E-Government Act of 2002, 44 U.S.C. §3602; and the Chief Information Officers Council, *A Practical Guide to Federal Enterprise Architecture*, Version 1.0 (February 2001).

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Results
Barriers to Addressing Common Requirements

Although VA and DOD are engaged in health-related enterprise architecture activities and have established an interagency governance body to manage the development of a joint health architecture, they have not yet established a joint health architecture to guide their efforts to address their common health care needs.

As we have previously reported,[26] DOD and VA each have ongoing enterprise architecture efforts. These include activities to define and develop architectures for their respective health business areas. For example, DOD continues to develop an architecture for MHS which describes its activities, business processes, and data. VA has begun documenting its health business processes and has drafted architecture-related tools such as a health business reference model.

[26] See, for example, GAO, *DOD Business Systems Modernization: Military Departments Need to Strengthen Management of Enterprise Architecture Programs*, GAO-08-519 (Washington, D.C.: May 12, 2008); *Enterprise Architecture: Leadership Remains Key to Establishing and Leveraging Architectures for Organizational Transformation*, GAO-06-831 (Washington, D.C.: August 14, 2006); *DOD Business Systems Modernization: Long-standing Weaknesses in Enterprise Architecture Development Need to Be Addressed,* GAO-05-702 (Washington, D.C.: July 22, 2005); *Information Technology: Leadership Remains Key to Agencies Making Progress on Enterprise Architecture Efforts*, GAO-04-40 (Washington, D.C.: November 17, 2003).

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Barriers to Addressing Common Requirements

In addition to their individual enterprise architecture efforts, the departments have taken steps to improve their collaboration on enterprise architecture sharing initiatives related to health care. Specifically, DOD's and VA's Health Architecture Interagency Group has created several artifacts related to a joint health architecture, including

- a DOD/VA Target Health Standards Profile, a collection of annually updated technical, data, and security standards that DOD and VA are required to comply with as they develop joint health IT solutions;
- a matrix that identifies current DOD and VA health information exchanges, as well as the policies, data, and standards governing these exchanges; and
- a document intended to provide an overview of the departments' joint health architecture, including a governance framework, standards, and the "as is" and "to be" architectures required to help the departments realize their shared health IT goals.

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Results

Barriers to Addressing Common Requirements

Although the departments have taken steps toward developing and maintaining artifacts related to a joint health architecture, the artifacts themselves do not comprise an architecture capable of guiding the departments' joint health IT modernization efforts. For example, the joint health architecture overview document describes the governance organizations established to promote DOD/VA health efforts, yet it does not identify which of these organizations is ultimately responsible and accountable for the departments' joint health architecture. In addition, although the document outlines at a high level the "as is" architecture in terms of business and technical attributes of current DOD/VA interoperability efforts, the "to be" architecture does not describe the departments' planned future state relative to their business or technical needs. The document describes the departments' "to be" architecture only in terms of the status of DOD and VA's six interoperability objectives, which the departments report they have already met, and states their intentions to pursue VLER and participate in the Nationwide Health Information Network. Furthermore, the document lacks information on how the departments intend to transition from their current architecture to a planned future state—a key component of an enterprise architecture.

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Results

Barriers to Addressing Common Requirements

DOD and VA officials recognize that their joint health architecture is not sufficiently mature to guide the identification and development of common IT solutions. The Health Architecture Interagency Group co-chair characterized the joint health architecture as a large-scale, strategic effort that the departments plan to refine in the future. Further, the departments' joint health architecture overview states that DOD and VA plan to improve their architecture to include information about health information sharing initiatives. Nevertheless, until DOD and VA have an understanding of the common business processes and technologies that a joint health architecture could provide, the departments will continue to lack an essential tool for jointly addressing their common health IT needs.

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Results
Barriers to Addressing Common Requirements

The Absence of Processes to Identify Joint IT System Investments Limits DOD's and VA's Ability to Pursue Common Health IT Solutions

IT investment management is a process for linking IT investment decisions to an organization's strategic objectives and business plans that focuses on selecting, controlling, and evaluating investments in a manner that minimizes risks while maximizing the return on investment. Among other things, GAO's IT investment management guidance[27] states that agencies should establish a structured project selection process that includes cost, benefit, schedule, and risk elements, and qualitative measures for comparing and prioritizing alternative information systems investment projects; and that identifies and addresses possible IT investments and proposals that are conflicting, strategically unlinked, or redundant.

[27] GAO, *Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity*, GAO-04-394G (Washington, D.C.: March 2004).

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Results

Barriers to Addressing Common Requirements

Although DOD and VA have a number of organizations with responsibilities that relate to identifying and managing joint efforts—including IT—the departments lack joint IT investment management processes to help these organizations effectively fulfill their responsibilities.

The Joint Executive Council and its subgroups have various responsibilities for managing joint IT initiatives. Specifically, the Council's responsibilities include

- identifying and overseeing implementation of changes in policies, procedures, and practices that promote mutually beneficial coordination or sharing of services and resources between the two departments; and
- identifying and assessing other opportunities for the coordination and sharing of services and resources between the departments that would provide improved delivery of services for DOD and VA beneficiaries.

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Results
Barriers to Addressing Common Requirements

Additionally, the Health Executive Council is responsible for identifying opportunities (policy, operations, and capital planning) to enhance mutually beneficial coordination, and has established workgroups that are responsible for identifying and developing joint VA/DOD IT initiatives. In particular, the Information Management/Information Technology workgroup is responsible for developing interfaces and implementing standards to improve the exchange of health data between DOD and VA. Additionally, the departments' Health Architecture Interagency Group has responsibility to seek "joint procurements and/or building of applications, where appropriate" and to "explore convergence of DOD and VA health information technology applications."

Even though the establishment of these groups partially addresses the Joint Executive Council's responsibilities to manage DOD's and VA's joint IT initiatives, the Council has not taken the additional step to establish a joint process for selecting IT investments based on criteria that consider cost, benefit, schedule, and risk elements. Without establishing and using a process for selecting joint IT solutions, DOD and VA are impeded in identifying and selecting solutions that both meet their common health IT needs and provide better value and benefits to the government as a whole.

Results
Lessons Learned

Lessons Learned Provide Opportunities for DOD and VA to Improve Ongoing Collaborative Efforts

DOD's and VA's experiences in developing VLER and IT system capabilities for the FHCC offer important lessons that the departments can use to improve their management of these efforts. First, the departments can improve their effort to implement VLER nationwide by the end of 2012 by developing a plan to guide the endeavor. Second, DOD and VA can improve their continuing effort to develop and implement new IT system capabilities for the FHCC by developing a project plan in accordance with established best practices. Unless the departments address these lessons, their ability to deliver expected capabilities to support their joint health IT needs is uncertain.

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Results
Lessons Learned

VLER Is Proceeding without a Comprehensive Plan for Achieving Nationwide Implementation

Effective project planning is dependent on completing a number of key activities, including defining the scope of the project, establishing a schedule, and—based on these inputs—developing a project plan. Recognizing the importance of planning and oversight of the VLER initiative, the departments designated the Interagency Program Office as the single point of accountability for the coordination and oversight of VLER in September 2009.[28] To fulfill this role, the office is responsible for activities such as developing and maintaining an integrated master schedule, a master program plan, and performance metrics for VLER, in coordination with DOD and VA.

Although DOD and VA have identified a high-level approach for implementing VLER and designated the Interagency Program Office as the single point of accountability for the effort, they have yet to develop a comprehensive plan to guide the nationwide implementation of VLER as the stated deadline for achieving nationwide implementation by the end of 2012 approaches. Moreover, the departments have completed one VLER pilot project and the initial phase of another without attending to key planning activities that are necessary to guide the overall initiative.

[28] The Interagency Program Office's mission is to serve as the single point of accountability for the coordination and oversight of Joint Executive Council-approved IT projects, data, and information sharing activities—including the VLER.

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Results
Lessons Learned

Shortly after VLER was announced in April 2009, DOD, VA, and the Interagency Program Office began working to define and plan for the initiative. In June 2009, the departments adopted a phased implementation strategy for VLER consisting of a series of 6-month pilot projects to exchange clinical health data, which began in August 2009.[29] Each VLER pilot project is intended to build upon the technical capabilities of its predecessor, resulting in a set of baseline capabilities to inform project planning and guide the implementation of VLER nationwide. However, the departments have not completed a plan that identifies the target set of capabilities that they intend to demonstrate in the pilot projects and then implement on a nationwide basis at all domestic DOD and VA sites by the end of 2012.

In addition, the Interagency Program Office has not developed an approved integrated master schedule, master program plan, or performance metrics for the VLER initiative, as outlined in the office's charter. In November 2010, department officials asserted that the Interagency Program Office was in the process of developing a master program plan, which is expected to be approved in late 2011.

[29] The Joint Executive Council approved this phased strategy for VLER in June 2009.

Results
Lessons Learned

Recently, Interagency Program Office officials stated that they have been focusing on developing individual schedules, project plans, and performance measures for each pilot effort. The office has developed a schedule and a project plan for the VLER pilot currently being conducted in Tidewater, Virginia, although it did not establish approved performance metrics before the pilot became operational. In addition, the office has not yet established a schedule, project plan, and performance measures for the next pilot project, which is scheduled to begin in January 2011.

Unless DOD, VA, and the Interagency Program Office complete a project plan for VLER, the departments jeopardize the implementation of the capabilities they need to effectively share medical information with each other and the private sector by the end of 2012.

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Results
Lessons Learned

Project Planning for the FHCC IT System Was Not Complete

Industry best practices and IT project management principles stress the importance of sound planning for any project, particularly an effort of the magnitude and complexity of the FHCC.[30] Among other things, planning activities should include (1) defining project scope using a work breakdown structure, (2) estimating project cost based on the work breakdown structure, and (3) establishing a budget for project resources and schedule for project tasks. The above activities should be followed by documenting their results in a project plan that is approved by those responsible for implementing the plan. Carrying out these activities helps to ensure that projects deliver planned capabilities.

Although DOD and VA performed various planning activities for the FHCC IT system, these activities were generally not completed in accordance with effective practices and do not help the departments effectively meet the FHCC's IT needs.

[30] See Institute of Electrical and Electronics Engineers (IEEE), *IEEE/EIA Guide for Information Technology*, IEEE/EIA 12207.1-1997 (April 1998) and Carnegie Mellon Software Engineering Institute, *Capability Maturity Model Integration for Acquisition*, Version 1.2 (November 2007).

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Results
Lessons Learned

- *Defining scope:* The departments did not define the project's scope using a work breakdown structure that identified the detailed activities that need to be completed to develop and implement the FHCC IT system. DOD and VA officials stated that the Joint Incentive Fund[31] proposals described the scope of the project; however, the proposals provide only a high-level description of the project. Without developing a project scope definition that identified all detailed activities, the departments were not positioned to reliably estimate the project's cost and schedule.

- *Estimating cost:* The project cost was not estimated using a work breakdown structure. DOD and VA estimated that the FHCC IT system would cost $100 million over 3 years. Officials from the departments characterized this estimate as "high-level" and stated that it was based on their experiences with previous development efforts. However, by not basing their estimate on a work breakdown structure, DOD and VA may not have reliably determined the total cost of the FHCC IT system.

[31] As mentioned previously, the Joint Incentive Fund is used by the departments to provide seed money for creative sharing initiatives at facility, regional, and national levels to facilitate the mutually beneficial coordination, use, or exchange of health care resources.

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Results
Lessons Learned

- *Establishing a budget and schedule:* A budget for requesting necessary project resources and for tracking project tasks based on the cost estimate was not created. A joint baseline schedule that could be used to track performance of the project was not created until 1 month after the departments began development work. Without timely development of a budget and schedule, DOD and VA did not have a basis for reliably determining their progress toward delivering planned IT capabilities.

DOD and VA recognized the importance of having a project plan and included a funding request to develop such a plan, along with a request for money to perform requirements development, in their December 2007 proposal to obtain support from the Joint Incentive Fund. However, the departments used the funds they received in June 2008 only for requirements development to the exclusion of project planning. In lieu of preparing a project plan based on the effective practices described above, the departments, according to DOD and VA officials, are using a collection of documents that they asserted constitute their project plan. Specifically, DOD officials stated that they use project documentation (such as design reviews and project status briefings) to guide its portion of the effort while VA uses a project plan that describes its portion of the IT development effort. However, this approach does not provide an integrated and comprehensive plan that documents DOD's and VA's commitments to completing development of IT system capabilities for the FHCC.

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Results
Lessons Learned

Without performing effective project planning, DOD and VA have not formalized their shared project commitments and have jeopardized the departments' ability to fully and timely provide the IT system capabilities the FHCC needs.

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Conclusions

DOD and VA face barriers in three key IT management areas—strategic planning, enterprise architecture, and IT investment management—that can be problematic for departments that have undertaken major IT efforts. First, the departments' joint strategic plan does not discuss how the departments intend to address their common requirements and they have not articulated a potential approach or timeline for working together to meet their common health IT needs. Second, DOD's and VA's joint health architecture, which could guide the departments in the identification and development of common IT solutions, is not sufficiently mature to provide such direction. Third, the departments have not established a process or criteria for selecting IT investments that best support their many common electronic health record requirements. These barriers result in part from the departments' decision to focus on developing a Virtual Lifetime Electronic Record, modernizing their separate electronic health record systems, and developing IT capabilities for the Federal Health Care Center, rather than determining the most efficient and effective approach to jointly addressing their common requirements. Because the departments continue to pursue their existing health information-sharing efforts without fully establishing the key IT management capabilities described above, DOD and VA may be missing other opportunities to deploy joint solutions to address their common health care business needs.

Conclusions

DOD's and VA's efforts to jointly develop VLER and the FHCC's IT capabilities offer important lessons that the departments can use to improve these endeavors. Specifically, these efforts highlight the importance of effective project planning to the successful development and implementation of capabilities needed to care for service members and veterans as these and the departments' future joint projects move forward.

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Recommendations for Executive Action

To ensure that DOD and VA efficiently and effectively modernize their electronic health record systems to jointly address their common health care business needs, we recommend that the Secretaries of Defense and Veterans Affairs direct the Joint Executive Council to take the following actions:

- Revise the departments' joint strategic plan to include information discussing their electronic health record system modernization efforts and how those efforts will address the departments' common health care business needs.
- Further develop the departments' joint health architecture to include their planned future (i.e., "to be") state and a sequencing plan for how they intend to transition from their current state to the next generation of electronic health record capabilities.
- Define and implement a process, including criteria that considers costs, benefits, schedule, and risks, for identifying and selecting joint IT investments to meet the departments' common health care business needs.

We recommend that the Secretaries of Defense and Veterans Affairs strengthen their ongoing efforts to establish the Virtual Lifetime Electronic Record and the joint IT system capabilities for the Federal Health Care Center, by developing plans that include scope definition, cost and schedule estimation, and project plan documentation and approval.

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Agency Comments and Our Evaluation

In oral comments on a draft of these briefing slides, DOD and VA officials, including the Military Health System's Director for External Relationship Management and the Veterans Health Administration's Deputy Chief Officer for Health Systems, generally agreed with our recommendations. The officials stated that the departments are focused on addressing their common health care system needs while also performing the departments' unique missions. In addition, the departments provided technical comments, which we incorporated in the briefing as appropriate.

Appendix I: Congressional Requesters

The Honorable Daniel Inouye
Chairman
Subcommittee on Defense
Committee on Appropriations
United States Senate

The Honorable Thad Cochran
Vice Chairman
Subcommittee on Defense
Committee on Appropriations
United States Senate

The Honorable Tim Johnson
Chairman
Subcommittee on Military Construction,
Veterans Affairs, and Related Agencies
Committee on Appropriations
United States Senate

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

The Honorable Norman D. Dicks
Chairman
Subcommittee on Defense
Committee on Appropriations
House of Representatives

The Honorable C.W. Bill Young
Ranking Member
Subcommittee on Defense
Committee on Appropriations
House of Representatives

Appendix II: Comments from the Department of Defense

THE ASSISTANT SECRETARY OF DEFENSE

1200 DEFENSE PENTAGON
WASHINGTON, DC 20301-1200

HEALTH AFFAIRS

JAN 20 2011

Ms. Valerie C. Melvin
Director, Information Management
and Human Capital 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 in the Government Accountability Office (GAO) Draft Report GAO-11-265, "DoD and VA Should Remove Barriers and Improve Efforts to Meet their Common System Needs," December 2010, (Engagement Code 310960). DoD acknowledges receipt of the draft report and will address each of the recommendations and ensure appropriate measures are carried out effectively. Enclosed are suggested technical comments and corrections to GAO's draft report. Please note that since the closing date of GAO's discovery phase for this report, the Departments have made significant collaborative progress in electronic health record (EHR) planning.

On December 4, 2010, the Principal Advisor, EHR, to the Assistant Secretary of Defense, Health Affairs, and the Senior Advisor to the Secretary and Chief Technology Officer, Department of Veterans Affairs (VA), briefed the DoD-VA Joint Action Plan towards a common platform to the Vice Chairman of the Joint Chiefs of Staff and the Departments' Deputy Secretaries. Subsequently, the DoD-VA EHR Senior Coordinating Group established and staffed a collaborative structure for investigating and analyzing key objectives for the EHR planning efforts. Six teams were identified: Enterprise Architecture Team; Data Interoperability Team; Business Process Team; Systems Capabilities Team; Presentation Layer Team; and Mission Requirements & Performance Outcomes Team. The DoD-VA EHR Senior Coordinating Group intends to report collective team findings in early 2011.

Thank you for the opportunity to review and comment on the draft report. The points of contact for additional information are Ms. Lois Kellett and Mr. Gunther Zimmerman. Ms. Kellett may be reached at Lois.Kellett@tma.osd.mil, or (703) 681-8836. Mr. Zimmerman may be reached at Gunther.Zimmerman@tma.osd.mil, or (703) 681-4360.

Sincerely,

Jonathan Woodson, M.D.

Enclosure:
As stated

GAO DRAFT REPORT-DATED DECEMBER 2010
GAO-11-265 (ENGAGEMENT CODE 310960)

"DoD and VA Should Remove Barriers and Improve Efforts to Meet their Common System Needs"

Department of Defense Comments to GAO Recommendations

RECOMMENDATION: Revise the Departments' Joint Strategic Plan (JSP) to include information discussing their electronic health record (EHR) system modernization efforts, and how those efforts will address the Departments' common health care business needs.

Department of Defense (DoD) Response: Concur. DoD, in collaboration with the Department of Veterans Affairs (VA), will revise the VA/DoD Joint Executive Council (JEC) JSP for Fiscal Year (FY) 2011–2013 to reflect EHR system modernization efforts.

RECOMMENDATION: Further develop the Departments' joint health architecture to include their planned future (i.e., "to be") state and a sequencing plan for how they intend to transition from their current state to the next generation of EHRs.

DoD Response: Concur. DoD, in collaboration with VA, will update the DoD/VA Shared Health Architecture to include the "to be" state and explain how the departments intend to transition from the current state to the next generation of EHRs.

RECOMMENDATION: Define and implement a process, including criteria that considers costs, benefits, schedule, and risks, for identifying and selecting joint information technology (IT) investments to meet the Departments' common health care business needs.

DoD Response: Concur. DoD, in collaboration with VA, will define and implement a process for identifying and selecting joint IT investments to meet the Departments' common health care business needs.

Appendix III: Comments from the Department of Veterans Affairs

DEPARTMENT OF VETERANS AFFAIRS
Washington DC 20420

January 20, 2011

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

Dear Ms. Melvin:

The Department of Veterans Affairs (VA) has reviewed the Government Accountability Office's (GAO) draft report, ***"ELECTRONIC HEALTH RECORDS: DOD and VA Should Remove Barriers and Improve Efforts to Meet their Common System Needs***" (GAO-11-265), and generally agrees with GAO's conclusions and concurs with GAO's recommendations to the Department.

The enclosure specifically addresses GAO's recommendations and provides technical comments to the draft report. VA appreciates the opportunity to comment on your draft report.

Sincerely,

John R. Gingrich
Chief of Staff

Enclosure

Enclosure

Department of Veterans Affairs (VA) Comments to
Government Accountability Office (GAO) Draft Report
ELECTRONIC HEALTH RECORDS: DOD and VA Should Remove Barriers and Improve Efforts to Meet their Common Needs (GAO-11-265)

GAO recommendation: To ensure that DOD and VA efficiently and effectively modernize their electronic health record systems to jointly address their common health care business needs, we recommend that the Secretaries of Defense and Veterans Affairs direct the Joint Executive Council to take the following actions:

Recommendation 1: Revise the departments' joint strategic plan to include information discussing their electronic health record system modernization efforts and how those efforts will address the department's common health care business needs.

VA Response: Concur. VA is revising its Electronic Health Record (EHR) modernization plan to focus on business drivers that require a modernized EHR along with the functional requirements of the provider and information requirements of the consumers to allow them to be more involved in their care. In the process of designing the new plan, VA is working collaboratively with the Department of Defense (DoD) to identify joint solutions. VA, in collaboration with DoD, will revise the VA/DoD Joint Executive Council Joint Strategic Plan for fiscal year (FY) 2011 – 2013 to reflect EHR system modernization efforts.

Target Completion Date: to be determined upon further discussion with DoD.

Recommendation 2: Further develop the departments' joint health architecture to include their planned future (i.e., "to be") state and a sequencing plan for how they intend to transition from their current state to the next generation of electronic health record capabilities.

VA Response: Concur. VA and DoD have identified similarities in our future planned architectures and are currently working together at the business process, enterprise architecture, system capabilities and data model levels to identify opportunities for joint solutions. VA, in collaboration with DoD, will update the DoD/VA Shared Health Architecture to include the "to be" state and explain how the Departments intend to transition from the current state to the next generation EHR.

Target Completion Date: to be determined upon further discussion with DoD.

Recommendation 3: Define and implement a process, including criteria that considers costs, benefits, scheduled, and risks, for identifying and selecting joint IT investments to meet the departments' common health care business needs.

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Enclosure

Department of Veterans Affairs (VA) Comments to
Government Accountability Office (GAO) Draft Report
ELECTRONIC HEALTH RECORDS: DOD and VA Should Remove Barriers and Improve Efforts to Meet their Common Needs (GAO-11-265)

VA Response: Concur. As VA and DoD complete the analysis of the scope of a common EHR way forward, a rough estimate of costs and schedule is planned for completion. VA, in collaboration with DoD, will define and implement a process for identifying and selecting joint IT investments to meet the departments' common health care business needs.

Target Completion Date: to be determined upon further discussion with DoD.

Recommendation 4: Strengthen their on-going efforts to establish VLER and the Joint IT system capabilities for the FHCC by developing plans that include scope definition, costs and schedule estimation, and project plan documentation and approval.

VA Response: Concur. VA considers the Federal Health Care Center project plan, including scope definition, to be very detailed and well documented. As the project moves forward, these plans will be extended and strengthened. The VA cost estimate to date is on target and within budget. It is reported to the Veterans Health Administration and the Assistant Secretary for Information Technology and others at least every two months or upon request. Project documentation, software development processes, networks, security, and deployment follow all VA Office of Information and Technology (OIT) Program Management Accountability System requirements and are fully documented. At the time of the interviews for this report, OIT considers the VLER plan as in the development process. The VA VLER Enterprise Program Management Office (EMPO) has conducted many interdisciplinary and interagency meetings to determine and finalize the scope and timing of releases. The VA VLER EPMO is currently actively collaborating with DoD and the Interagency Program Office to finalize the VLER Concept of Operations.

Target Completion Date: to be determined upon further discussion with DoD.

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Appendix IV: Comments from the DOD/VA Interagency Program Office

DoD/VA INTERAGENCY PROGRAM OFFICE
1700 NORTH MOORE STREET
ARLINGTON, VA 22209

01-24-2011 A10:42

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

Dear Ms. Melvin:

This is the DoD/VA Interagency Program Office's (IPO) response to the recommendations enclosed in the Government Accountability Office (GAO) Draft Report, "ELECTRONIC HEALTH RECORDS: DoD and VA Should Remove Barriers and Improve Efforts to Meet their Common System Needs," (Project No. GAO-11-265, GAO Code 310960).

IPO 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 point of contact for additional information is Mr. Ryan Cool, Ryan.Cool@osd.mil, 703-696-3636.

Sincerely,

Debra M. Filippi

Debra M. Filippi
Director
DoD/VA Interagency Program Office

Enclosures:
As stated

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

Valerie C. Melvin, (202) 512-6304 or melvinv@gao.gov

Staff Acknowledgments

In addition to the contact named above, Mark T. Bird (Assistant Director), Bradley Becker, Jeremy Brodsky, Heather A. Collins, Rebecca Eyler, Jacqueline Mai, Lee McCracken, Sylvia Shanks, and Adam Vodraska made key contributions to this report.

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