



Testimony  
Before the Subcommittee on Military  
Construction, Veterans Affairs, and  
Related Agencies, Committee on  
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# ELECTRONIC HEALTH RECORDS

## VA's Efforts Raise Concerns about Interoperability Goals and Measures, Duplication with DOD, and Future Plans

Statement of Valerie C. Melvin, Director  
Information Management and Technology Resources  
Issues

# GAO Highlights

Highlights of [GAO-16-807T](#), a testimony before the Subcommittee on Military Construction, Veterans Affairs, and Related Agencies, Committee on Appropriations, U.S. Senate

## Why GAO Did This Study

VA operates one of the nation's largest health care systems, serving millions of veterans each year. For almost two decades, the department has undertaken a patchwork of initiatives with DOD to increase interoperability between their respective electronic health record systems. During much of this time, VA has also been planning to modernize its system. While the department has made progress in these efforts, it has also faced significant information technology challenges that contributed to GAO's designation of VA health care as a high risk area.

This statement summarizes GAO's August 2015 report (GAO-15-530) on VA's efforts to achieve interoperability with DOD's electronic health records system. It also summarizes key content from GAO's reports on duplication, overlap, and fragmentation of federal government programs. Lastly, this statement provides updated information on VA's actions in response to GAO's recommendation calling for an interoperability and electronic health record system plan.

## What GAO Recommends

In prior reports, GAO has made numerous recommendations to VA to improve the modernization of its IT systems. Among other things, GAO has recommended that VA address challenges associated with interoperability, develop goals and metrics to determine the extent to which the modernized systems are achieving interoperability, and address shortcomings with planning. VA generally agreed with GAO's recommendations.

View [GAO-16-807T](#). For more information, contact Valerie C. Melvin at (202) 512-6304 [melvinv@gao.gov](mailto:melvinv@gao.gov).

July 13, 2016

## ELECTRONIC HEALTH RECORDS

### VA's Efforts Raise Concerns about Interoperability Goals and Measures, Duplication with DOD, and Future Plans

#### What GAO Found

Even as the Department of Veterans Affairs (VA) has undertaken numerous initiatives with the Department of Defense (DOD) that were intended to advance the ability of the two departments to share electronic health records, the departments have not identified outcome-oriented goals and metrics to clearly define what they aim to achieve from their interoperability efforts. In an August 2015 report, GAO recommended that the two departments establish a time frame for identifying outcome-oriented metrics, define related goals as a basis for determining the extent to which the departments' systems are achieving interoperability, and update their guidance accordingly. Since that time, VA has established a performance architecture program that has begun to define an approach for identifying outcome-oriented metrics focused on health outcomes in selected clinical areas and has begun to establish baseline measurements. GAO is continuing to monitor VA's and DOD's efforts to define metrics and report on the interoperability results achieved between the departments.

Following an unsuccessful attempt to develop a joint system with DOD, VA switched tactics and moved forward with an effort to modernize its current system separately from DOD's planned acquisition of a commercially available electronic health record system. The department took this course of action even though, in May 2010, it identified 10 areas of health care business needs in common with those of DOD. Further, the results of a 2008 study pointed out that more than 97 percent of inpatient requirements for electronic health record systems are common to both departments. GAO noted that the departments' plans to separately modernize their systems were duplicative and recommended that their decisions should be justified by comparing the costs and schedules of alternate approaches. The departments agreed with GAO's recommendations and stated that their initial comparison indicated that separate systems would be more cost effective. However, the departments have not provided a comparison of the estimated costs of their current and previous approaches. Further, both departments developed schedules that indicated their separate modernization efforts will not be completed until after the 2017 planned completion date for the previous joint system approach.

VA has developed a number of plans to support its development of its electronic health record system, called VistA, including a plan for interoperability and a road map describing functional capabilities to be deployed through fiscal year 2018. According to the road map, the first set of capabilities was delivered by the end of September 2014 and included a foundation for future functionality, such as an enhanced graphical user interface and enterprise messaging infrastructure. However, a recent independent assessment of health information technology (IT) at VA reported that lengthy delays in modernizing VistA had resulted in the system becoming outdated. Further, this study questioned whether the modernization program can overcome a variety of risks and technical issues that have plagued prior VA initiatives of similar size and complexity. Although VA's Under Secretary for Health has asserted that the department will complete the VistA Evolution program in fiscal year 2018, the Chief Information Officer has indicated that the department is reconsidering how best to meet its future electronic health record system needs.

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Chairman Kirk, Ranking Member Tester, and Members of the Subcommittee:

Thank you for inviting me to testify at today's hearing on the Department of Veterans Affairs' (VA) electronic health record system—the Veterans Health Information Systems and Technology Architecture (VistA)—and the department's progress toward achieving interoperability with the Department of Defense (DOD). For almost two decades, VA has been working with DOD to advance electronic health record interoperability between their systems, in an attempt to achieve the seamless sharing of health care data and make patient data more readily available to health care providers, reduce medical errors, and streamline administrative functions. Also, for much of this same time period, VA has been planning and taking steps toward the modernization of its electronic health record system, with the intent of ensuring that the department can effectively deliver care for the millions of veterans and others that it serves.

Since 2001, we have issued a number of reports that addressed VA's progress, in conjunction with DOD, toward achieving interoperable electronic health records between their separate systems,<sup>1</sup> as well as its project with DOD to jointly develop a shared electronic health record system.<sup>2</sup> In addition, we have reported on actions that VA has taken with regard to modernizing its electronic health record system.<sup>3</sup> While the

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<sup>1</sup>GAO, *Electronic Health Records: Outcome-Oriented Metrics and Goals Needed to Gauge DOD's and VA's Progress in Achieving Interoperability*, [GAO-15-530](#) (Washington, D.C.: Aug. 13, 2015); *Opportunities to Reduce Potential Duplication in Government Programs, Save Tax Dollars, and Enhance Revenue*, [GAO-11-318SP](#) (Washington, D.C.: Mar. 1, 2011); *Electronic Health Records: DOD and VA Should Remove Barriers and Improve Efforts to Meet Their Common System Needs*, [GAO-11-265](#) (Washington, D.C.: Feb. 2, 2011); *Electronic Health Records: DOD and VA Interoperability Efforts are Ongoing; Program Office Needs to Implement Recommended Improvements*, [GAO-10-332](#) (Washington, D.C.: Jan. 28, 2010); *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); and *Computer-Based Patient Records: Better Planning and Oversight By VA, DOD, and IHS Would Enhance Health Data Sharing*, [GAO-01-459](#) (Washington, D.C.: Apr. 30, 2001).

<sup>2</sup>GAO, *Electronic Health Records: VA and DOD Need to Support Cost and Schedule Claims, Develop Interoperability Plans, and Improve Collaboration*, [GAO-14-302](#) (Washington, D.C.: Feb. 27, 2014).

<sup>3</sup>GAO, *Veterans Affairs: Health Information System Far from Complete; Improved Project Planning and Oversight Needed*, [GAO-08-805](#) (Washington, D.C.: Jun. 30, 2008).

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department has made progress in these efforts, it has also faced significant information technology challenges that contributed to our designation of VA health care as a high risk area.<sup>4</sup>

At your invitation, my testimony today summarizes our key findings and concerns from this overall body of work. Specifically, in developing this testimony, we relied on our previous reports, as well as information that we obtained and reviewed on VA's actions in response to our previous recommendations. The reports cited throughout this statement include detailed information on the scope and methodology for our reviews.

The work upon which this statement is based was conducted 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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## Background

VA operates one of the largest health care systems in America, providing care to millions of veterans and their families each year. The department's health information system—VistA—serves an essential role in helping the department to fulfill its health care delivery mission. Specifically, VistA is an integrated medical information system that was developed in-house by the department's clinicians and information technology (IT) personnel, and has been in operation since the early 1980s.<sup>5</sup> The system consists of 104 separate computer applications, including 56 health provider applications; 19 management and financial applications; 8 registration, enrollment, and eligibility applications; 5 health data applications; and 3 information and education applications. Within VistA, an application called the Computerized Patient Record System enables the department to create and manage an individual electronic health record for each VA patient.

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<sup>4</sup>GAO, *High Risk Series: An Update*, [GAO-15-290](#) (Washington, D.C.: Feb. 11, 2015).

<sup>5</sup>VistA began operation in 1983 as the Decentralized Hospital Computer Program. In 1996, the name of the system was changed to VistA.

Electronic health records are particularly crucial for optimizing the health care provided to veterans, many of whom may have health records residing at multiple medical facilities within and outside the United States. Taking these steps toward interoperability—that is, collecting, storing, retrieving, and transferring veterans’ health records electronically—is significant to improving the quality and efficiency of care. One of the goals of interoperability is to ensure that patients’ electronic health information is available from provider to provider, regardless of where it originated or resides.

Since 1998, VA has undertaken a patchwork of initiatives with DOD to allow the departments’ health information systems to exchange information and increase interoperability.<sup>6</sup> Among others, these have included initiatives to share viewable data in the two departments’ existing (legacy) systems, link and share computable data between the departments’ updated health data repositories, and jointly develop a single integrated system that would be used by both departments. Table 1 summarizes a number of these key initiatives.

**Table 1: History of the Departments of Veterans Affairs’ and Defense’s Electronic Health Record Interoperability Initiatives**

Initiative	Year begun	Description
Government Computer-Based Patient Record	1998	This interface was expected to compile requested patient health information in a temporary, “virtual” record that could be displayed on a user’s computer screen.
Federal Health Information Exchange	2002	The Government Computer-Based Patient Record initiative was narrowed in scope to focus on enabling the Department of Defense (DOD) to electronically transfer service members’ health information to the Department of Veterans Affairs (VA) upon their separation from active duty. The resulting initiative, completed in 2004, was renamed the Federal Health Information Exchange. This capability is currently used by the departments to transfer data from DOD to VA.
Bidirectional Health Information Exchange	2004	This capability provides clinicians at both departments with viewable access to records on shared patients. It is currently used by VA and DOD to view data stored in both departments’ health information systems.
Clinical Data Repository/Health Data Repository Initiative	2004	This interface links DOD’s Clinical Data Repository and VA’s Health Data Repository to achieve a two-way exchange of health information.

<sup>6</sup>DOD uses a separate electronic health record system, the Armed Forces Health Longitudinal Technology Application, which consists of multiple legacy medical information systems developed from customized commercial software applications.

Initiative	Year begun	Description
Virtual Lifetime Electronic Record	2009	To streamline the transition of electronic medical, benefits, and administrative information between the departments, this initiative enabled access to electronic records for service members as they transition from military to veteran status and throughout their lives. It also expands the departments' health information-sharing capabilities by enabling access to private-sector health data.
Joint Federal Health Care Center	2010	The Captain James A. Lovell Federal Health Care Center was a 5-year demonstration project to integrate DOD and VA facilities in the North Chicago, Illinois, area. It is the first integrated federal health care center for use by beneficiaries of both departments, with an integrated DOD-VA workforce, a joint funding source, and a single line of governance.

Source: GAO summary of prior work and department documentation | GAO-16-807T.

In addition to the initiatives mentioned in table 1, VA has worked in conjunction with DOD to respond to provisions in the *National Defense Authorization Act for Fiscal Year 2008*,<sup>7</sup> which required the departments to jointly develop and implement fully interoperable electronic health record systems or capabilities in 2009. Yet, even as the departments undertook numerous interoperability and modernization initiatives, they faced significant challenges and slow progress. For example, VA's and DOD'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.

In March 2011, the secretaries of VA and DOD announced that they would develop a new, joint integrated electronic health record system (referred to as iEHR). This was intended to replace the departments' separate systems with a single common system, thus sidestepping many of the challenges they had previously encountered in trying to achieve interoperability. However, in February 2013, about 2 years after initiating iEHR, the secretaries announced that the departments were abandoning plans to develop a joint system, due to concerns about the program's cost, schedule, and ability to meet deadlines. The Interagency Program Office (IPO), put in place to be accountable for VA's and DOD's efforts to

<sup>7</sup>Pub. L. No. 110-181, § 1635, 122 Stat. 3, 460-463 (2008).

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achieve interoperability,<sup>8</sup> reported spending about \$564 million on iEHR between October 2011 and June 2013.

In light of VA and DOD not implementing a solution that allowed for the seamless electronic sharing of health care data, the *National Defense Authorization Act for Fiscal Year 2014*<sup>9</sup> included requirements pertaining to the implementation, design, and planning for interoperability between the departments' electronic health record systems. Among other actions, provisions in the act directed each department to (1) ensure that all health care data contained in their systems (VA's VistA and DOD's Armed Forces Health Longitudinal Technology Application, referred to as AHLTA) complied with national standards and were computable in real time by October 1, 2014; and (2) deploy modernized electronic health record software to support clinicians while ensuring full standards-based interoperability by December 31, 2016.

In August 2015, we reported that VA, in conjunction with DOD, had engaged in several near-term efforts focused on expanding interoperability between their existing electronic health record systems. For example, the departments had analyzed data related to 25 "domains" identified by the Interagency Clinical Informatics Board and mapped health data in their existing systems to standards identified by the IPO. The departments also had expanded the functionality of their Joint Legacy Viewer—a tool that allows clinicians to view certain health care data from both departments in a single interface.

More recently, in April 2016, VA and DOD certified that all health care data in their systems complied with national standards and were computable in real time. However, VA acknowledged that it did not expect to complete a number of key activities related to its electronic health record system until sometime after the December 31, 2016, statutory deadline for deploying modernized electronic health record software with interoperability. Specifically, the department stated that deployment of a

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<sup>8</sup>The *National Defense Authorization Act for Fiscal Year 2008* called for the departments to set up an interagency program office to be a single point of accountability to implement fully interoperable electronic health record systems or capabilities by September 30, 2009. This office was chartered in January 2009.

<sup>9</sup>Pub. L. No. 113-66, Div. A, Title VII, § 713, 127 Stat. 672, 794-798 (Dec. 26, 2013).

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modernized VistA system at all locations and for all users is not planned until 2018.

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## Together with DOD and the Interagency Program Office, VA Needs to Develop Goals and Metrics for Assessing Interoperability

Even as VA has undertaken numerous initiatives with DOD that were intended to advance electronic health record interoperability, a significant concern is that these departments have not identified outcome-oriented goals and metrics to clearly define what they aim to achieve from their interoperability efforts, and the value and benefits these efforts are expected to yield. As we have stressed in our prior work and guidance,<sup>10</sup> assessing the performance of a program should include measuring its outcomes in terms of the results of products or services. In this case, such outcomes could include improvements in the quality of health care or clinician satisfaction. Establishing outcome-oriented goals and metrics is essential to determining whether a program is delivering value.

The IPO is responsible for monitoring and reporting on VA's and DOD's progress in achieving interoperability and coordinating with the departments to ensure that these efforts enhance health care services. Toward this end, the office issued guidance that identified a variety of process-oriented metrics to be tracked, such as the percentage of health data domains that have been mapped to national standards. The guidance also identified metrics to be reported that relate to tracking the amounts of certain types of data being exchanged between the departments, using existing capabilities. This would include, for example, laboratory reports transferred from DOD to VA via the Federal Health Information Exchange and patient queries submitted by providers through the Bidirectional Health Information Exchange.

Nevertheless, in our August 2015 report, we noted that the IPO had not specified outcome-oriented metrics and goals that could be used to gauge the impact of the interoperable health record capabilities on the departments' health care services. At that time, the acting director of the

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<sup>10</sup>GAO, *Electronic Health Record Programs: Participation Has Increased, but Action Needed to Achieve Goals, Including Improved Quality of Care*, [GAO-14-207](#) (Washington, D.C.: March 6, 2014); *Designing Evaluations: 2012 Revision*, [GAO-12-208G](#) (Washington, D.C.: Jan. 31, 2012); *Performance Measurement and Evaluation: Definitions and Relationships*, [GAO-11-646SP](#) (Washington, D.C.: May 2, 2011); and *Executive Guide: Effectively Implementing the Government Performance and Results Act*, [GAO/IGD-96-118](#) (Washington, D.C.: June 1, 1996).



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IPO stated that the office was working to identify metrics that would be more meaningful, such as metrics on the quality of a user's experience or on improvements in health outcomes. However, the office had not established a time frame for completing the outcome-oriented metrics and incorporating them into the office's guidance.

In the report, we stressed that using an effective outcome-based approach could provide the two departments with a more accurate picture of their progress toward achieving interoperability, and the value and benefits generated. Accordingly, we recommended that the departments, working with the IPO, establish a time frame for identifying outcome-oriented metrics; define related goals as a basis for determining the extent to which the departments' modernized electronic health record systems are achieving interoperability; and update IPO guidance accordingly.

Both departments concurred with our recommendations. Further, since that time, VA has established a performance architecture program that has begun to define an approach for identifying outcome-oriented metrics focused on health outcomes in selected clinical areas, and it also has begun to establish baseline measurements. We intend to continue monitoring the department's efforts to determine how these metrics define and report on the results achieved by interoperability between the departments.

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## VA's Plan to Modernize VistA Raises Concern about Duplication with DOD's Electronic Health Record System Acquisition

Following the termination of the iEHR initiative, VA moved forward with an effort to modernize VistA separately from DOD's planned acquisition of a commercially available electronic health record system. The department took this course of action even though it has many health care business needs in common with those of DOD. For example, in May 2010, VA (and DOD) issued a report on medical IT to Congressional committees that identified 10 areas—inpatient documentation, outpatient documentation, pharmacy, laboratory, order entry and management, scheduling, imaging and radiology, third-party billing, registration, and data sharing—in which the departments have common business needs.<sup>11</sup> Further, the results of a 2008 study pointed out that over 97 percent of inpatient requirements for electronic health record systems are common to both departments.<sup>12</sup>

We also issued several prior reports regarding the plans for separate systems, in which we noted that the departments did not substantiate their claims that VA's VistA modernization, together with DOD's acquisition of a new system, would be achieved faster and at less cost than developing a single, joint system. Moreover, we noted that the departments' plans to modernize their two separate systems were duplicative and stressed that their decisions should be justified by comparing the costs and schedules of alternate approaches.<sup>13</sup>

We recommended that VA and DOD develop cost and schedule estimates that would include all elements of their approach (i.e., modernizing both departments' health information systems and

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<sup>11</sup>Department of Defense and Department of Veterans Affairs Joint Executive Council and Health Executive Council, *Report to Congress on Department of Defense and Department of Veterans Affairs Medical Information Technology*, required by the explanatory statement accompanying Department of Defense Appropriations Act 2010 (Public Law 111-118).

<sup>12</sup>Booz Allen Hamilton, *Report on the Analysis of Solutions for a Joint DoD-VA Inpatient EHR and Next Steps*, Task Order W81XWH-07-F-0353: Joint DoD-VA Inpatient Electronic Health Record (EHR) Project Support, July 2008.

<sup>13</sup>GAO, *Electronic Health Records: VA and DOD Need to Support Cost and Schedule Claims, Develop Interoperability Plans, and Improve Collaboration*, [GAO-14-302](#) (Washington, D.C.: Feb. 27, 2014). See also GAO, *2014 Annual Report: Additional Opportunities to Reduce Fragmentation, Overlap, and Duplication and Achieve Other Financial Benefits*, [GAO-14-343SP](#) (Washington, D.C.: Apr. 8, 2014), and *2015 Annual Report: Additional Opportunities to Reduce Fragmentation, Overlap, and Duplication and Achieve Other Financial Benefits*, [GAO-15-404SP](#) (Washington, D.C.: Apr. 14, 2015).

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establishing interoperability between them) and compare them with estimates of the cost and schedule for developing a single, integrated system. If the planned approach for separate systems was projected to cost more or take longer, we recommended that the departments provide a rationale for pursuing such an approach.

VA, as well as DOD, agreed with our recommendations and stated that an initial comparison had indicated that the approach involving separate systems would be more cost effective. However, as of June 2016, the departments had not provided us with a comparison of the estimated costs of their current and previous approaches. Further, with respect to their assertions that separate systems could be achieved faster, both departments had developed schedules which indicated that their separate modernization efforts are not expected to be completed until after the 2017 planned completion date for the previous single-system approach.

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## VA Has Begun to Implement VistA Modernization Plans amid Uncertainty about Its Approach; the Department Is Currently Reconsidering How to Proceed

As VA has proceeded with its program to modernize VistA (known as VistA Evolution), the department has developed a number of plans to support its efforts. These include an interoperability plan and a road map describing functional capabilities to be deployed through fiscal year 2018. Specifically, these documents describe the department's approach for modernizing its existing electronic health record system through the VistA Evolution program, while helping to facilitate interoperability with DOD's system and the private sector. For example, the *VA Interoperability Plan*, issued in June 2014, describes activities intended to improve VistA's technical interoperability,<sup>14</sup> such as standardizing the VistA software across the department to simplify sharing data.

In addition, the *VistA 4 Roadmap*, last revised in February 2015, describes four sets of functional capabilities that are expected to be incrementally deployed during fiscal years 2014 through 2018 to modernize the VistA system and enhance interoperability. According to the road map, the first set of capabilities was delivered by the end of September 2014 and included access to the Joint Legacy Viewer and a

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<sup>14</sup>Technical interoperability refers to the ability of multiple systems to be able to transmit data back and forth.

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foundation for future functionality, such as an enhanced graphical user interface and enterprise messaging infrastructure.

Another interoperable capability that is expected to be incrementally delivered over the course of the VistA modernization program is the enterprise health management platform.<sup>15</sup> The department has stated that this platform is expected to provide clinicians with a customizable view of a health record that can integrate data from VA, DOD, and third-party providers. Also, when fully deployed, VA expects the enterprise health management platform to replace the Joint Legacy Viewer.

However, a recent independent assessment of health IT at VA reported that lengthy delays in modernizing VistA had resulted in the system becoming outdated.<sup>16</sup> Further, this study questioned whether the VistA Evolution program to modernize the electronic health record system can overcome a variety of risks and technical issues that have plagued prior VA initiatives of similar size and complexity. For example, the study raised questions regarding the lack of any clear advances made during the past decade and the increasing amount of time needed for VA to release new health IT capabilities. Given the concerns identified, the study recommended that VA assess the cost versus benefits of various alternatives for delivering the modernized capabilities, such as commercially available off-the-shelf electronic health record systems, open source systems, and the continued development of VistA.

In speaking about this matter, VA's Under Secretary for Health has asserted that the department will follow through on its plans to complete the VistA Evolution program in fiscal year 2018. However, the Chief Information Officer has also indicated that the department is taking a step back in reconsidering how best to meet its electronic health record system needs beyond fiscal year 2018. As such, VA's approach to addressing its electronic health record system needs remains uncertain.

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<sup>15</sup>The enterprise health management platform is a graphical user interface that is intended to present patient information to support medical care to the veteran from a standardized set of information, regardless of where the veteran receives care. Clinical information captured at the point of care is made available to all authorized providers across the enterprise.

<sup>16</sup>*Independent Assessment of the Health Care Delivery Systems and Management Processes of the Department of Veteran Affairs, Integrated Report* (Sept. 1, 2015).

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In summary, VA's approach to pursuing electronic health record interoperability with DOD has resulted in an increasing amount of standardized health data and has made an integrated view of that data available to department clinicians. Nevertheless, a modernized VA electronic health record system that is fully interoperable with DOD's system is still years away. Thus, important questions remain about when VA intends to define the extent of interoperability it needs to provide the highest possible quality of care to its patients, as well as how and when the department intends to achieve this extent of interoperability with DOD. In addition, VA's unsuccessful efforts over many years to modernize its VistA system raise concern about how the department can continue to justify the development and operation of an electronic health record system that is separate from DOD's system, even though the departments have common system needs. Finally, VA's recent reconsideration of its approach to modernizing VistA raises uncertainty about how it intends to accomplish this important endeavor.

Chairman Kirk, Ranking Member Tester, and Members of the Subcommittee, this concludes my prepared statement. I would be pleased to respond to any questions that you may have.

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## Contact and Acknowledgments

If you or your staff have any questions about this testimony, please contact Valerie C. Melvin at (202) 512-6304 or [melvinv@gao.gov](mailto:melvinv@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this testimony statement. GAO staff who made key contributions to this statement are Mark T. Bird (Assistant Director), Jennifer Stavros-Turner (Analyst in Charge), Rebecca Eyler, Nancy Glover, Jacqueline Mai, and Scott Pettis.

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U.S. Government Accountability Office, 441 G Street NW, Room 7149  
Washington, DC 20548

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## Strategic Planning and External Liaison

James-Christian Blockwood, Managing Director, [spel@gao.gov](mailto:spel@gao.gov), (202) 512-4707  
U.S. Government Accountability Office, 441 G Street NW, Room 7814,  
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