OVERSIGHT OF IT AND CYBERSECURITY AT THE DEPARTMENT OF VETERANS AFFAIRS

HEARING

BEFORE THE

SUBCOMMITTEE ON
INFORMATION TECHNOLOGY

OF THE

COMMITTEE ON OVERSIGHT
AND GOVERNMENT REFORM
HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTEENTH CONGRESS

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C O N T E N T S

OVERSIGHT OF IT AND CYBERSECURITY AT THE DEPARTMENT OF VETERANS AFFAIRS

Thursday, December 7, 2017

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON INFORMATION TECHNOLOGY,
COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM,
Washington, D.C.

The subcommittee met, pursuant to call, at 2:38 p.m., in Room 2154, Rayburn House Office Building, Hon. Will Hurd [chairman of the subcommittee] presiding.

Present: Representatives Hurd, Amash, Gianforte, Kelly, Lynch, Connolly, and Krishnamoorthi.

Mr. HURD. The Subcommittee on Information Technology will come to order. And without objection, the chair is authorized to declare a recess at any time.

Good afternoon. Thank you for being here today.

Seventy-six years ago to the day, Japan launched a sneak attack on the U.S. naval base at Pearl Harbor. By the time the sun had set on that infamous day, 2,335 U.S. servicemen had been killed and 1,143 had been wounded. The next day, the United States of America declared war on Japan. Three days later, the world was at war. Over 16 million Americans eventually served in that war, the so-called war to end all wars. There are only around 624,000 World War II veterans left. Most are in their 90s. I want to take this opportunity today to thank all of them for their service and their courage.

Sadly, that war did not end all wars. In 2016, Gulf War veterans became the largest group of veterans at over 7 million. The total number of veterans enrolled in VA's healthcare system rose from 7.9 million to almost 9 million for fiscal year 2006 through fiscal year 2016. The total veteran population currently stands at 20 million people, 20 million of our fellow citizens who are willing to put their lives on the line for this country and for the rest of us. And for that sacrifice, we should honor our promise to provide them with world-class health care.

But the modernization of the VA's legacy technology has been a persistent concern that is affecting millions of veterans. A veteran should be able to go from active duty on base to the VA to a private-sector provider seamlessly. The health records should be available and up-to-date no matter where the veteran chooses to get health care. A fully functional modernized healthcare information system is the goal, and today, we are going to talk about some of the specifics on how the VA will modernize and upgrade its infor-

mation systems and how we can learn from past mistakes so that this time it is going to be a success.

But let's be honest. There is not a track record of successes here. As a result of a GAO review requested by this committee back in May of 2016, we have learned that during fiscal years 2011 to 2016, VA obligated about $1 billion for previous VistA modernization contracts. Seven hundred and forty million went to 15 key contractors. Without objection, I would like to enter into the record a chart from GAO that lists the 15 contractors and the amount they received to work on VistA modernization and interoperable electronic health records. So moved.

Mr. HURD. On that list of 15 contractors is the Cerner Corporation, which was recently chosen by the VA to provide an electronic health record that will be interoperable with the Department of Defense and then ultimately be interoperable with the private sector. Also on the list are the Mitre Corporation and Booz Allen Hamilton. According to the GAO, these companies have been awarded program management contracts to develop planning and support for the electronic health record modernization effort.

Given the amount of money spent on VistA modernization, the lack of return on that investment, we have concerns about this rollout. It needs to succeed. The whole country is rooting for the VA to succeed. Previous initiatives to modernize VistA and to develop and interoperable electronic health record with the Department of Defense have been full of missed deadlines, cost overruns, and failures to produce. According to the GAO, from 2011 to 2016, the VA spent about $1 billion for contractors' activities on their health information technology systems.

Additionally, veterans have had difficulties with scheduling appointments for far too long. The VA has been trying and failing to develop a scheduling system that is compatible with VistA since 2000. That is 17 years spent working on developing a scheduling system. It is a whole lot of money, a whole lot of time, and very little to show for it.

VA Secretary Shulkin has said that the VA, and I quote, "should focus on the things veterans need us to focus on and work with companies who know how to do this better than we do," end of quote. The Secretary is absolutely right. The technology and tools to improve the VA's technology and cybersecurity exist. What is required is strong leadership at the VA to make the tough decisions about pursuing that technology. Our veterans deserve a state-of-the-art scheduling system, they deserve an interoperable and longitudinal electronic health record, and they deserve good quality information technology at the agency that exists to serve the ones who served.

I am looking forward to our hearing today. I am looking forward to hearing from our witnesses about the future of modernization, improvement, and technology at the VA.

Mr. HURD. And now, as always, it is my pleasure to recognize my friend Robin Kelly for her opening statement.

Ms. KELLY. Thank you, Mr. Chairman.

Information technology is critical to improving the service and performance of the Federal Government. This is especially true at the Department of Veterans Affairs, which is one of the largest in-

tegrated healthcare systems in the United States, serving millions of veterans and their families. The VA's goal for modernizing its healthcare IT is full of interoperability, which would allow seamless sharing of health information between the VA and the Department of Defense, as well as private healthcare providers.

The VA is now in its fourth attempt since 2001 to modernize its healthcare IT system. The record has not been good. The VA abandoned two earlier attempts at spending billions of dollars. This summer, the VA announced that it would scrap its third attempt in favor of acquiring the same healthcare IT system as the DOD. I do not know what we should make of that since the VA previously abandoned the same approach four years ago.

Chairman Hurd and I requested that GAO examine the VA's modernization efforts because of these red flags. We discovered that, right now, the VA is relying on 138 contractors to help it modernize. Some of them are the very same contractors VA had hired and fired after their previous attempts had failed. In fact, 34 through 38 repeat contractors make up about $793 million of the $1.1 billion of the contractual obligations related to modernization between fiscal years 2011 through 2016. This raises serious concerns. Every change in strategy delays actually modernizing and makes it harder on veterans who rely on the agency for health care. We need to understand whether these changes are justified.

I want to hear today what the agency is doing to hold this army of contractors accountable. I also want to hear about the progress made toward its interoperability and improving the ability to track patient outcomes. Getting these efforts right and improving VA operations and information security are essential to regaining the trust and confidence of the American public that the VA is taking care of our nation's veterans.

Thank you so much. Thank you for being here, and thank you, Mr. Chair.

Mr. HURD. The gentlelady yields back.

And I now am pleased to introduce our witnesses: Mr. Scott Blackburn, acting chief information officer at the VA; Mr. Dominic Cussatt, is that correct, sir? He is the CISO at the Department of Veterans Affairs, the chief information security officer; Mr. Bill James, the deputy assistant secretary for the Enterprise Program Management Office at the Department of Veterans Affairs; and Mr. John Windom, program executive for Electronic Health Records Modernization at the Department of Veterans Affairs; and the person that wins the award for most times testifying in front of OGR, Mr. David Powner, director of IT Management Issues at the U.S. Government Accountability Office.

Welcome to you all. And pursuant to committee rules, all witnesses will be sworn in before you testify, so please rise and raise your right hand.

[Witnesses sworn.]

Mr. HURD. Thank you. Please let the record reflect that all witnesses answered in the affirmative.

And in order to allow time for discussion, please limit your testimony to five minutes. I recognize there are only can be two statements. And your entire written statement is going to be made part of the record. As a reminder, the clock in front of you shows your

remaining time. The light will turn yellow when you have 30 seconds left, and the red when your time is up. Please also remember to press the button to turn your microphone on before speaking.

We are going to actually start with Mr. Powner. Mr. Powner, it is always a pleasure to have you here, sir. No-shave November is over, just for the record. And you are now recognized for five minutes, sir.

WITNESS STATEMENTS

STATEMENT OF DAVID A. POWNER

Mr. POWNER. Chairman Hurd, Ranking Member Kelly, and members of the subcommittee, thank you for inviting GAO to testify on VA's FITARA progress and their efforts to modernize their aging electronic health records system.

Technology can help make improvements so that ultimately our veterans will face shorter wait times to schedule care, receive higher-quality care, and have claims processed quicker and more accurately. The Department will spend over $4 billion on IT this year. That makes them the fifth-highest IT spender in the government. Of the $4 billion, only about $360 million goes towards developing or acquiring new systems. The remaining goes towards operational systems and payroll. Many of these operational systems are old, inefficient, and difficult to maintain. In addition to its 30-plus-year-old medical information system known as VistA, VA has an accounting system and a claims processing system that are both more than 50 years old.

In 2015, GAO added two new areas to our high-risk list: managing VA health care and managing IT acquisitions and operations, which both highlight concerns with VA's IT management, including past failures where hundreds of millions of dollars were wasted.

Turning to VA's FITARA progress, VA has historically done a good job planning for incremental development and continues to do so. Also to their credit they are only one of seven agencies to have a complete software license inventory. The area that needs the most work is data center optimization. VA has closed about 40 of its 415 centers, saved just over $20 million, and reports meeting one of OMB's five optimization metrics. Their closure savings and optimization metrics all fall short of OMB's goals. VA needs to consider more comprehensive data center optimization strategy that coincides with their new approach of reducing the 130 instances of VistA.

Now turning to the EHR modernization initiative, I will briefly summarize the work we did for you looking at contractors involved in previous VA EHR efforts, current plans for the new approach, and suggestions for success moving forward. My written statement provides details on specific contractors and the amounts obligated to VA's EHR efforts over the previous six years.

Here are the highlights: VA obligated approximately $1.1 billion to 138 contractors between 2011 and 2016. About $740 million or almost 70 percent of this went to 15 contractors. Clearly, we did not get the return needed to modernize electronic health records with these previous efforts, but that's water over the dam. What's important now is how can we improve contractor oversight, per-

formance, and delivery with the new effort. The decision by Secretary Shulkin in June to go with the same commercial electronic health records system as DOD is a good one. Contract award is expected this month. Plans are to follow within 90 days, and we understand that initial deployment is expected within 18 months with subsequent deployments to occur over the next 10 years.

This is a massive undertaking, and I'd like to mention five keys to success. One, continuity of leadership and Executive Office of the President involvement. This continuity includes the Secretary, CIO, and others. Of particular concern is VA's CIO tenure, which is less than two years. They have had nine CIOs since 2004. Since leadership change is inevitable, having White House involvement could help mitigate setbacks associated with this. The current administration has several EOP offices whose involvement can help with this important acquisition. This includes the Office of Innovation and the American Tech Council. We also think that the Federal CIO's involvement is important.

Number two, governance in building a robust Program Management Office. We understand that both interagency governance is planned, as is governance run by VA's Deputy Secretary. In addition, it is important that the PMO ensure better collaboration between the Veterans Health Administration and the CIO shop than has occurred historically. Also, this PMO needs to have a strong focus on contract management to ensure that contractors have high levels of productivity, quality, and delivery.

Number three, business change management. A major issue with Federal agencies adopting commercial products is their unwillingness to change their business processes. This is definitely a high-risk area for VA.

Number four, leveraging lessons from DOD. Since DOD is ahead of VA, learning from their experience is essential.

And lastly, number five, building in appropriate cyber security measures. VA's FISMA audit shows several cyber areas that need strengthening. Many of these are extremely important to the new EHR acquisition, including controls associated with network security and controls for monitoring systems hosted by contractors.

Mr. Chairman, this concludes my statement. I look forward to your questions.

[Prepared statement of Mr. Powner follows:]

United States Government Accountability Office

GAO

Testimony

Before the Subcommittee on Information Technology, Committee on Oversight and Government Reform, House of Representatives

For Release on Delivery
Expected at 2:00 p.m ET
Thursday, December 7, 2017

VETERANS AFFAIRS INFORMATION TECHNOLOGY

Historical Perspective on Health System Modernization Contracts and Update on Efforts to Address Key FITARA-Related Areas

Statement of David A. Powner, Director
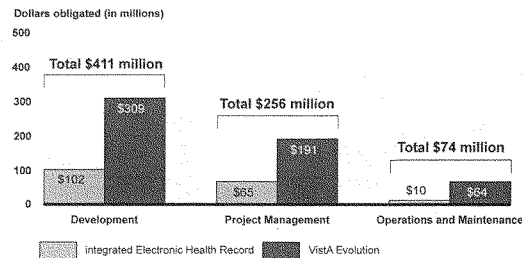Information Technology Management Issues

GAO Highlights

VETERANS AFFAIRS INFORMATION TECHNOLOGY

Historical Perspective on Health System Modernization Contracts and Update on Efforts to Address Key FITARA-Related Areas

Why GAO Did This Study

The use of IT is crucial to helping VA effectively serve the nation's veterans and, each year, the department spends billions of dollars on its information systems and assets. However, VA has faced challenges spanning a number of critical initiatives related to modernizing its major systems. To improve all major federal agencies' acquisitions and hold them accountable for reducing duplication and achieving cost savings, in December 2014 Congress enacted federal IT acquisition reform legislation (commonly referred to as the *Federal Information Technology Acquisition Reform Act*, or FITARA).

GAO was asked to summarize its previous and ongoing work regarding VA's history of efforts to modernize VistA, including past use of contractors, and the department's recent effort to acquire a commercial electronic health record system to replace VistA. GAO was also asked to provide an update on VA's progress in key FITARA-related areas, including (1) data center consolidation and optimization, (2) incremental system development practices, and (3) software license management. VA generally agreed with the information upon which this statement is based.

What GAO Recommends

GAO has made multiple recommendations to VA aimed at improving the department's IT management. VA has generally agreed with the recommendations and begun taking responsive actions.

View GAO-18-267T. For more information, contact David A. Powner at (202) 512-9286 or pownerd@gao.gov.

What GAO Found

For nearly two decades, the Department of Veterans Affairs (VA) has undertaken multiple efforts to modernize its health information system—the Veterans Health Information Systems and Technology Architecture (known as VistA). Two of VA's most recent efforts included the Integrated Electronic Health Record (iEHR) program, a joint program with the Department of Defense (DOD) intended to replace separate systems used by VA and DOD with a single system; and the VistA Evolution program, which was to modernize VistA with additional capabilities and a better interface for all users. VA has relied extensively on assistance from contractors for these efforts. VA obligated over $1.1 billion for contracts with 138 contractors during fiscal years 2011 through 2016 for iEHR and VistA Evolution. Contract data showed that the 15 key contractors that worked on both programs accounted for $741 million of the funding obligated for system development, project management, and operations and maintenance to support the two programs (see figure). VA recently announced that it intends to change its VistA modernization approach and acquire the same electronic health record system that DOD is implementing.

Funding Obligated to Key VistA Modernization Contractors for 2011-2016

Dollars obligated (in millions)

Total $411 million — Development
- $309 (Integrated Electronic Health Record / VistA Evolution)
- $102

Total $256 million — Project Management
- $191
- $65

Total $74 million — Operations and Maintenance
- $10
- $64

Legend: Integrated Electronic Health Record, VistA Evolution

Source: GAO analysis of Veterans Affairs contract data on iEHR and VistA Evolution. | GAO-18-267T

With respect to key FITARA-related areas, the department has reported progress on consolidating and optimizing its data centers, although this progress has fallen short of targets set by the Office of Management and Budget. VA has also reported $23.61 million in data center-related cost savings, yet does not expect to realize further savings from additional closures. In addition, VA's Chief Information Officer (CIO) certified the use of adequate incremental development for 10 of the department's major IT investments; however, VA has not yet updated its policy and process for CIO certification as GAO recommended. Finally, VA has issued a software licensing policy and has generated an inventory of its software licenses to inform future investment decisions.

Chairman Hurd, Ranking Member Kelly, and Members of the Subcommittee:

Thank you for the opportunity to participate in today's hearing on the information technology (IT) efforts of the Department of Veterans Affairs (VA). As you know, the use of IT is crucial to helping VA effectively serve the nation's veterans and, each year, the department spends billions of dollars on its information systems and assets.

Over many years, however, VA has experienced challenges in managing its IT projects and programs, which, in turn, has contributed to questions about the efficiency and effectiveness of the department's operations. These challenges have spanned a number of critical initiatives related to modernizing major systems within the department, including its electronic health information system—the Veterans Health Information Systems and Technology Architecture (VistA). We have previously reported on the challenges that the department has faced in managing this system, as well as other aspects of its IT.[1]

Further, given the challenges that federal agencies, including VA, have long encountered in managing IT acquisitions, in December 2014 Congress enacted federal IT acquisition reform legislation (commonly referred to as the *Federal Information Technology Acquisition Reform Act*,

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[1]GAO, *Information Technology: Further Implementation of FITARA Related Recommendations Is Needed to Better Manage Acquisitions and Operations*, GAO-18-234T (Washington, D.C.: Nov. 15, 2017); *Information Technology Reform: Agencies Need to Improve Certification of Incremental Development*, GAO-18-148 (Washington, D.C.: Nov. 7, 2017); *Information Technology: Sustained Management Attention to the Implementation of FITARA Is Needed to Better Manage Acquisitions and Operations*, GAO-17-686T (Washington, D.C.: June 13, 2017); *Data Center Optimization: Agencies Need to Address Challenges and Improve Progress to Achieve Cost Savings Goals*, GAO-17-448 (Washington, D.C.: Aug. 15, 2017); *Veterans Affairs: Improved Management Processes Are Necessary for IT Systems That Better Support Health Care*, GAO-17-384 (Washington, D.C.: June 21, 2017); *Data Center Optimization: Agencies Need to Complete Plans to Address Inconsistencies in Reported Savings*, GAO-17-388 (Washington, D.C.: May 18, 2017); *Information Technology Reform: Agencies Need to Increase Their Use of Incremental Development Practices*, GAO-16-469 (Washington, D.C.: Aug. 16, 2016).; *Data Center Consolidation: Agencies Making Progress, but Planned Savings Goals Need to Be Established [Reissued on March 4, 2016]*, GAO-16-323 (Washington, D.C.: Mar. 3, 2016); *Federal Software Licenses: Better Management Needed to Achieve Significant Savings Government-Wide*, GAO-14-413 (Washington, D.C.: May 22, 2014); and *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).

or FITARA).[2] This law was intended to improve agencies' acquisitions and enable Congress to hold agencies accountable for reducing duplication and achieving cost savings.

At your request, my testimony today summarizes our work that has examined VA's history of efforts to modernize its health information system, VistA, including past uses of contractors across multiple modernization initiatives, and the department's plan to acquire a commercial electronic health record system to replace VistA. In addition, the testimony provides an update on VA's progress in key FITARA-related areas, including (1) data center consolidation and optimization, (2) incremental system development practices, and (3) software license management.

In developing this testimony, we relied on our previously published reports that discussed the history of the department's VistA modernization efforts, as well as the department's efforts regarding data center consolidation and optimization, incremental system development practices, and software license management. We also considered information provided by the department on its actions in response to our previous recommendations in these areas. The reports cited throughout this statement include detailed information on the scope and methodology for our prior reviews.

Further, the statement summarizes key findings from a draft report that is based on our ongoing review of selected VistA modernization contracts and the department's recent efforts to acquire a commercial electronic health record system. This draft report is currently with VA for its comments. We anticipate issuing the final report in January 2018.

For our ongoing review of the VistA modernization efforts, we obtained available data from VA on the associated contracts, related dollar obligations, and expected contractor activities for modernization tasks. In this regard, VA was able to provide the requested data for two

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[2]*Carl Levin and Howard P. 'Buck' McKeon National Defense Authorization Act for Fiscal Year 2015*, Pub. L. No. 113-291, div. A, title VIII, subtitle D, 128 Stat. 3292, 3438-3450 (Dec. 19, 2014).

modernization initiatives with activities that spanned the time period from fiscal year 2011 through fiscal year 2016.[3]

To determine the key contractors for the two modernization initiatives, we first identified all of the contractors that worked on the initiatives. We then ranked the contractors according to the total dollars obligated for contracts that each contractor had been awarded. We designated the top 15 ranked contractors, in terms of dollars obligated, as key contractors. We assessed the reliability of the contract data we received from VA and determined that the data were sufficiently reliable for the purposes of our review.

To determine VA's current plans for modernizing VistA, we reviewed draft program schedules, organization charts, congressional testimonies of the VA Secretary, a White House press conference transcript, departmental press releases, and the department's justification for awarding a non-competitive contract for a commercial off-the-shelf (COTS) electronic health record system. We also met with senior VA officials to obtain updated information on the efforts.

The work upon which this statement is based is being or was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audits 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.

Background

VA's mission is to promote the health, welfare, and dignity of all veterans in recognition of their service to the nation by ensuring that they receive medical care, benefits, social support, and lasting memorials. In carrying out this mission, the department operates one of the largest health care delivery systems in America, providing health care to millions of veterans and their families at more than 1,500 facilities.

The department's three major components—the Veterans Health Administration (VHA), the Veterans Benefits Administration (VBA), and

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[3]VA was unable to provide data on VistA modernization contracts prior to fiscal year 2011 because the department's records retention policy does not require it to maintain such data.

the National Cemetery Administration (NCA)—are primarily responsible for carrying out its mission. More specifically, VHA provides health care services, including primary care and specialized care, and it performs research and development to improve veterans' needs. VBA provides a variety of benefits to veterans and their families, including disability compensation, educational opportunities, assistance with home ownership, and life insurance. Further, NCA provides burial and memorial benefits to veterans and their families.

Collectively, the three components rely on approximately 340,000 employees to provide services and benefits. These employees work in VA's Washington, D.C. headquarters, as well as 170 medical centers, approximately 750 community-based outpatient clinics, 300 veterans centers, 56 regional offices, and more than 130 cemeteries situated throughout the nation.

VA Relies Extensively on IT

The use of IT is critically important to VA's efforts to provide benefits and services to veterans. As such, the department operates and maintains an IT infrastructure that is intended to provide the backbone necessary to meet the day-to-day operational needs of its medical centers, veteran-facing systems, benefits delivery systems, memorial services, and all other systems supporting the department's mission. The infrastructure is to provide for data storage, transmission, and communications requirements necessary to ensure the delivery of reliable, available, and responsive support to all VA staff offices and administration customers, as well as veterans.

According to department data as of October 2016, there were 576 active or in-development systems in VA's inventory of IT systems.[4] These systems are intended to be used for the determination of benefits, benefits claims processing, and access to health records, among other services.[5] VHA is the parent organization for 319 of these systems.[5] Of the

[4] According to VA Directive 6404, a system in the department inventory must (1) contain a combination of IT hardware, software, or information management capabilities; (2) be funded and operationally managed by VA; (3) be hosted in a shared computing environment (e.g., data center, cloud facility, medical center); (4) not be an infrastructure or software subcomponent (e.g., servers, network routers, storage) required to support a system; and (5) not be a medical device (e.g., cardiology equipment, medical lasers, and endoscope) categorized under the VA Medical Device Nomenclature System.

[5] The parent organization is the highest level functional organization within VA that is associated with the business sponsor for a system.

319 systems, 244 were considered mission-related and provide capabilities related to veterans' health care delivery. For example, VHA's systems provide capabilities to establish and maintain electronic health records that health care providers and other clinical staff use to view patient information in inpatient, outpatient, and long-term care settings.

VistA serves an essential role in helping the department to fulfill its health care delivery mission. Specifically, VistA is an integrated medical information system for all veterans' health information. It was developed in-house by the department's clinicians and IT personnel and has been in operation since the early 1980s.[6] As such, the system has long been vital to helping ensure the quality of health care received by the nation's veterans and their dependents.

VistA is comprised of more than 200 applications that assist in the delivery of health care and perform other important functions within the department, including financial management, enrollment, and registration. Some of these applications have been in operation for over 30 years and, according to VA, have become increasingly difficult and costly to maintain. As such, the department has expended extensive resources to modernize the system and increase its ability to allow for the viewing or exchange of patient information with the Department of Defense (DOD) and private sector health providers. In addition, as we recently reported, VHA has unaddressed needs that indicate its current health IT systems, including VistA, do not fully support the organization's business functions.[7] Specifically, about 39 percent of all requests related to health IT needs have remained unaddressed after more than 5 years.

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 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

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[6]VistA began operation in 1983 as the Decentralized Hospital Computer Program. In 1996, the name of the system was changed to VistA.

[7]GAO, *Veterans Affairs: Improved Management Processes Are Necessary for IT Systems That Better Support Health Care*, GAO-17-384 (Washington, D.C.: June 21, 2017).

available from provider to provider, regardless of where it originated or resides.

VA Manages IT Resources Centrally

Since 2007, VA has been operating a centralized organization, the Office of Information and Technology (OI&T), in which most key functions intended for effective management of IT are performed. This office is led by the Assistant Secretary for Information and Technology—VA's Chief Information Officer (CIO). The office is responsible for providing strategy and technical direction, guidance, and policy related to how IT resources are to be acquired and managed for the department, and for working closely with its business partners—such as VHA—to identify and prioritize business needs and requirements for IT systems. Among other things, OI&T has responsibility for managing the majority of VA's IT-related functions, including the maintenance and modernization of VistA.[8] As of 2016, OI&T was comprised of more than 15,000 staff, with more than half of these positions filled by contractors.[9]

VA Requested Nearly $4.1 Billion for Fiscal Year 2018

For fiscal year 2018, the department's budget request included nearly $4.1 billion for IT.[10] The department requested approximately $359 million for new systems development or modernization efforts, approximately $2.5 billion for maintaining existing systems, and approximately $1.2 billion for payroll and administration. For example, in its fiscal year 2018 budget submission, the department requested appropriations to support five IT portfolios, including the development and operations and maintenance for programs and projects related to the:

- Medical portfolio, which provides technology solutions to deliver modern, high-quality medical care capabilities to veterans ($944.2 million);

- Benefit portfolio, which addresses the technology needs managed by the Veterans Benefit Administration ($296.9 million);

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[8]VistA is a joint program with OI&T and VHA.

[9]Specifically, we reported in 2016 that OI&T performed key IT-related functions with the support of nearly 7,300 federal employees and approximately 7,800 contractor staff: GAO, *VA IT Management: Organization Is Largely Centralized; Additional Actions Could Improve Human Capital Practices and Systems Development Processes*, GAO-16-403 (Washington, D.C.: Aug. 17, 2016).

[10]VA has a single, consolidated IT appropriation that is submitted and managed by OI&T.

- Memorial Affairs portfolio, which provides support for the modernization of applications and services for National Cemeteries at 133 locations nationwide ($24.5 million);

- Corporate portfolio, which consists of back office operations supporting the major business lines and department management ($270.6 million); and

- Enterprise IT, which provides the underlying infrastructure to enable the other portfolios to operate and includes such things as cybersecurity, data centers, cloud services, telephony, enterprise software, and data connectivity ($1.289 billion).

VA's Management of IT Has Contributed to High-Risk Designations

In 2015, we designated *VA Health Care* as a high-risk area for the federal government and, currently, we continue to be concerned about the department's ability to ensure that its resources are being used cost-effectively and efficiently to improve veterans' timely access to health care.[11] In part, we identified limitations in the capacity of VA's existing systems, including the outdated, inefficient nature of certain systems and a lack of system interoperability—that is, the ability to exchange and use electronic health information—as contributors to the department's IT challenges related to health care. These challenges present risks to the timeliness, quality, and safety of the health care. While we recently reported that the department has begun to demonstrate leadership commitment to addressing IT challenges, more work remains.[12]

Also, in February 2015, we added *Improving the Management of IT Acquisitions and Operations* to our list of high-risk areas.[13] Specifically, federal IT investments too frequently fail or incur cost overruns and schedule slippages while contributing little to mission-related outcomes. We have previously testified that the federal government has spent billions of dollars on failed IT investments, including, for example, VA's Scheduling Replacement Project, which was terminated in September

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[11]GAO maintains a high-risk program to focus attention on government operations that it identifies as high risk due to their greater vulnerabilities to fraud, waste, abuse, and mismanagement or the need for transformation to address economy, efficiency, or effectiveness challenges. VA's issues were highlighted in our 2015 High-Risk Report, GAO, *High-Risk Series: An Update*, GAO-15-290 (Washington, D.C.: Feb. 11, 2015) and 2017 update, GAO, *High-Risk Series: Progress on Many High-Risk Areas, While Substantial Efforts Needed on Others*, GAO-17-317 (Washington, D.C.: Feb. 15, 2017).

[12]GAO-17-317.

[13]GAO-15-290.

2009 after spending an estimated $127 million over 9 years;[14] and its Financial and Logistics Integrated Technology Enterprise program, which was intended to be delivered by 2014 at a total estimated cost of $609 million, but was terminated in October 2011 due to challenges in managing the program.[15]

This high-risk area highlighted several critical IT initiatives in need of additional congressional oversight, including (1) reviews of troubled projects; (2) efforts to increase the use of incremental development; (3) efforts to provide transparency relative to the cost, schedule, and risk levels for major IT investments; (4) reviews of agencies' operational investments; (5) data center consolidation; and (6) efforts to streamline agencies' portfolios of investments. We noted that agencies' implementation of these initiatives was inconsistent and that more work remained to demonstrate progress in achieving IT acquisition and operation outcomes.

We also recently issued an update to our high-risk report and noted that, while progress has been made in addressing the high-risk area of IT acquisitions and operations, significant work remains to be completed.[16] For example, we noted, among other things, that additional work was needed to establish action plans for federal agencies to modernize or replace obsolete systems. Specifically, we pointed out that many federal systems use outdated software languages and hardware, which has increased spending on operations and maintenance of technology investments.

VA was among a handful of departments with one or more archaic legacy systems. As discussed in our recent report on legacy systems used by federal agencies, we identified 2 of the department's systems as being

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[14]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).

[15]GAO, *Information Technology: Actions Needed to Fully Establish Program Management Capability for VA's Financial and Logistics Initiative*, GAO-10-40 (Washington, D.C.: Oct. 26, 2009).

[16]GAO-17-317.

over 50 years old, and among the 10 oldest investments and/or systems that were reported by 12 selected agencies.[17]

- Personnel and Accounting Integrated Data (PAID)—This 53-year old system automates time and attendance for employees, timekeepers, payroll, and supervisors. It is written in Common Business Oriented Language (COBOL), a programming language developed in the late 1950s and early 1960s, and runs on IBM mainframes.
- Benefits Delivery Network (BDN)—This 51-year old system tracks claims filed by veterans for benefits, eligibility, and dates of death. It is a suite of COBOL mainframe applications.

Ongoing uses of antiquated systems, such as PAID and BDN, contribute to agencies spending a large, and increasing, proportion of their IT budgets on operations and maintenance of systems that have outlived their effectiveness and are consuming resources that outweigh their benefits. Accordingly, we have recommended that VA identify and plan to modernize or replace its legacy systems. The department concurred with our recommendation and stated that it plans to retire and replace PAID with the Human Resources Information System Shared Service Center in 2017. The department also stated that it has general plans to roll the capabilities of BDN into another system and to retire BDN in 2018.

FITARA Is Intended to Help VA and Other Agencies Improve Their Acquisitions of IT

Congress enacted federal IT acquisition reform legislation (commonly referred to as the *Federal Information Technology Acquisition Reform Act*, or FITARA) in December 2014. This legislation was intended to improve agencies' acquisitions of IT and enable Congress to monitor agencies' progress and hold them accountable for reducing duplication and achieving cost savings. The law applies to VA and other covered agencies.[18] It includes specific requirements related to seven areas,

[17]GAO, *Information Technology: Federal Agencies Need to Address Aging Legacy Systems,* GAO-16-468 (Washington, D.C.: May 25, 2016).

[18]The provisions apply to the agencies covered by the Chief Financial Officers Act of 1990, 31 U.S.C. § 901(b). These agencies are the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, Housing and Urban Development, Justice, Labor, State, the Interior, the Treasury, Transportation, and Veterans Affairs; the Environmental Protection Agency, General Services Administration, National Aeronautics and Space Administration, National Science Foundation, Nuclear Regulatory Commission, Office of Personnel Management, Small Business Administration, Social Security Administration, and U.S. Agency for International Development. However, FITARA has generally limited application to the Department of Defense.

including data center consolidation and optimization, agency CIO authority, and government-wide software purchasing.[19]

- **Federal data center consolidation initiative (FDCCI).** Agencies are required to provide the Office of Management and Budget (OMB) with a data center inventory, a strategy for consolidating and optimizing their data centers (to include planned cost savings), and quarterly updates on progress made. The law also requires OMB to develop a goal for how much is to be saved through this initiative, and provide annual reports on cost savings achieved.[20]

- **Agency CIO authority enhancements.** CIOs at covered agencies are required to (1) approve the IT budget requests of their respective agencies, (2) certify that IT investments are adequately implementing incremental development, as defined in capital planning guidance issued by OMB, (3) review and approve contracts for IT, and (4) approve the appointment of other agency employees with the title of CIO.

- **Government-wide software purchasing program.** The General Services Administration is to develop a strategic sourcing initiative to enhance government-wide acquisition and management of software. In doing so, the law requires that, to the maximum extent practicable, the General Services Administration should allow for the purchase of a software license agreement that is available for use by all executive branch agencies as a single user. Expanding upon FITARA, the *Making Electronic Government Accountable by Yielding Tangible Efficiencies Act of 2016*, or the "MEGABYTE Act," further enhanced CIOs' management of software licenses by requiring agency CIOs to establish an agency software licensing policy and a comprehensive

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[19]FITARA also includes requirements for covered agencies to enhance the transparency and improve risk management of IT investments, annually review IT investment portfolios, expand training and use of IT acquisition cadres, and compare their purchases of services and supplies to what is offered under the federal strategic sourcing initiative that the General Services Administration is to develop. The Federal Strategic Sourcing Initiative is a program established by the General Services Administration and the Department of the Treasury to address government-wide opportunities to strategically source commonly purchased goods and services and eliminate duplication of efforts across agencies.

[20]In November 2017, the *FITARA Enhancement Act of 2017* was enacted into law to extend the sunset date for the data center provisions of FITARA. The law's data center consolidation and optimization provisions currently expire on October 1, 2020. Pub. L. No. 115-88 (Nov. 21, 2017).

software license inventory to track and maintain licenses, among other requirements.[21]

In June 2015, OMB released guidance describing how agencies are to implement FITARA.[22] This guidance is intended to, among other things:

- assist agencies in aligning their IT resources with statutory requirements;

- establish government-wide IT management controls that will meet the law's requirements, while providing agencies with flexibility to adapt to unique agency processes and requirements;

- clarify the CIO's role and strengthen the relationship between agency CIOs and bureau CIOs; and

- strengthen CIO accountability for IT costs, schedules, performance, and security.

VA Has Pursued Four VistA Modernization Initiatives Since 2001, with About a Billion Dollars Obligated for Contractors' Activities During Fiscal Years 2011 through 2016

In our draft report that is currently with VA for comments, we discuss the history of VA's efforts to modernize its health information system, VistA. These four efforts—HealtheVet, the integrated Electronic Health Record (iEHR), VistA Evolution, and the Electronic Health Record Modernization (EHRM)—reflect varying approaches that the department has considered to achieve a modernized health care system over the course of nearly two decades. The modernization efforts are described as follows.

HealtheVet

In 2001, VA undertook its first VistA modernization project, the HealtheVet initiative, with the goals of standardizing the department's health care system and eliminating the approximately 130 different systems used by its field locations at that time. HealtheVet was scheduled to be fully implemented by 2018 at a total estimated development and deployment cost of about $11 billion. As part of the effort, the department had planned to develop or enhance specific areas of system functionality through six projects, which were to be completed between 2006 and 2012. Specifically, these projects were to provide capabilities to support

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[21]Pub. L. No. 114-210 130 Stat. 824 (July 29, 2016).

[22]OMB, *Management and Oversight of Federal Information Technology*, Memorandum M-15-14 (Washington, D.C.: June 10, 2015).

VA's Health Data Repository and Patient Financial Services System, as well as the Laboratory, Pharmacy, Imaging, and Scheduling functions.

In June 2008, we reported that the department had made progress on the HealtheVet initiative, but noted issues with project planning and governance.[23] In June 2009, the Secretary of Veterans Affairs announced that VA would stop financing failed projects and improve the management of its IT development projects. Subsequently, in August 2010, the department reported that it had terminated the HealtheVet initiative.

iEHR

In February 2011, VA began its second modernization initiative, the iEHR program, in conjunction with DOD. The program was intended to replace the two separate electronic health record systems used by the two departments with a single, shared system. Moreover, because both departments would be using the same system, this approach was expected to largely sidestep the challenges that had been encountered in trying to achieve interoperability between their two separate systems.

Initial plans called for the development of a single, joint system consisting of 54 clinical capabilities to be delivered in six increments between 2014 and 2017. Among the agreed-upon capabilities to be delivered were those supporting laboratory, anatomic pathology, pharmacy, and immunizations. According to VA and DOD, the single iEHR system had an estimated life cycle cost of $29 billion through the end of fiscal year 2029.

However, in February 2013, the Secretaries of VA and DOD announced that they would not continue with their joint development of a single electronic health record system. This decision resulted from an assessment of the iEHR program that the secretaries had requested in December 2012 because of their concerns about the program facing challenges in meeting deadlines, costing too much, and taking too long to deliver capabilities. In 2013, the departments abandoned their plan to develop the integrated system and stated that they would again pursue separate modernization efforts.

[23]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)

VistA Evolution

In December 2013, VA initiated its VistA Evolution program as a joint effort of VHA and OI&T that was to be completed by the end of fiscal year 2018. The program was to be comprised of a collection of projects and efforts focused on improving the efficiency and quality of veterans' health care by modernizing the department's health information systems, increasing the department's data exchange and interoperability with DOD and private sector health care partners, and reducing the time it takes to deploy new health information management capabilities. Further, the program was intended to result in lower costs for system upgrades, maintenance, and sustainment. According to the department's March 2017 cost estimate, VistA Evolution was to have a life cycle cost of about $4 billion through fiscal year 2028.

Since initiating VistA Evolution in December 2013, VA has completed a number of key activities that were called for in its plans. For example, the department delivered capabilities, such as the ability for health providers to have an integrated, real-time view of electronic health record data through the Joint Legacy Viewer, as well as the ability for health care providers to view sensitive DOD notes and highlight abnormal test results for patients.[24] VA also initiated work to standardize VistA across the 130 VA facilities and released enhancements to its legacy scheduling, pharmacy, and immunization systems. In addition, the department released the enterprise Health Management Platform, which is a web-based user interface that assembles patient clinical data from all VistA instances and DOD.

Although VistA Evolution is ongoing, VA is currently in the process of revising its plan for the program as a result of the department recently announcing its pursuit of a fourth VistA modernization program (discussed below). For example, the department determined that it would no longer pursue additional development or deployment of the enterprise Health Management Platform—a major VistA Evolution component—because the new modernization program is envisioned to provide similar capabilities.

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[24]The Joint Legacy Viewer was developed jointly by VA and DOD and is a tool that provides a real-time, integrated, categorized, and chronological view of electronic health record information contained in existing VA and DOD systems.

EHRM

In June 2017, the VA Secretary announced a significant shift in the department's approach to modernizing VistA. Specifically, rather than continue to use VistA, the Secretary stated that the department plans to acquire the same electronic health record system that DOD is implementing. In this regard, DOD has contracted with the Cerner Corporation to provide a new integrated electronic health record system.[25] According to the Secretary, VA has chosen to acquire this same product because it would allow all of VA's and DOD's patient data to reside in one system, thus enabling seamless care between the department and DOD without the manual and electronic exchange and reconciliation of data between two separate systems.

The VA Secretary added that this fourth modernization initiative is intended to minimize customization and system differences that currently exist within the department's medical facilities, and ensure the consistency of processes and practices within VA and DOD. When fully operational, the system is intended to be the single source for patients to access their medical history and for clinicians to use that history in real time at any VA or DOD medical facility, which may result in improved health care outcomes. According to VA's Chief Technology Officer, Cerner is expected to provide integration, configuration, testing, deployment, hosting, organizational change management, training, sustainment, and licenses necessary to deploy the system in a manner that meets the department's needs.

To expedite the acquisition, in June 2017, the Secretary signed a "Determination and Findings," which noted a public interest exception to the requirement for full and open competition, and authorized VA to issue a solicitation directly to the Cerner Corporation.[26] According to the Secretary, VA expects to award a contract to Cerner in December 2017, and deployment of the new system is anticipated to begin 18 months after the contract has been signed.
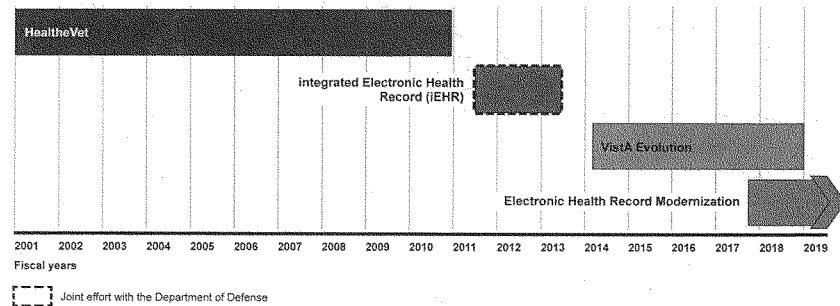
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[25]In July 2015, DOD awarded a $4.3 billion contract to the Cerner Corporation for a new integrated electronic health record system, known as MHS GENESIS. The transition to the new system began in February 2017 in the Pacific Northwest region of the United States and is expected to be completed in 2022.

[26]FAR, 48 C.F.R. § 6.302-7.

VA's Executive Director for the Electronic Health Records Modernization System stated that the department intends to incrementally deploy the new system to its medical facilities. Each facility is expected to continue using VistA until the new system has been deployed at that location. All VA medical facilities are anticipated to have the new system implemented within 7 to 8 years after the first deployment.

Figure 1 shows a timeline of the four efforts that VA has pursued to modernize VistA since 2001.

Figure 1: Timeline of the Department of Veterans Affairs Four Efforts to Modernize VistA Since 2001

HealtheVet

integrated Electronic Health Record (iEHR)

VistA Evolution

Electronic Health Record Modernization

2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019

Fiscal years

Joint effort with the Department of Defense

Source: GAO analysis of Department of Veterans Affairs data. | GAO-18-267T

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VA Obligated about $1.1 Billion for VistA Modernization Contracts During Fiscal Years 2011 through 2016

For iEHR and VistA Evolution, the two modernization initiatives for which VA could provide contract data,[27] the department obligated approximately $1.1 billion for contracts with 138 different contractors during fiscal years 2011 through 2016.[28] Specifically, the department obligated approximately $224 million and $880 million, respectively, for contracts associated with these efforts. Of the 138 contractors, 34 of them performed work supporting both iEHR and VistA Evolution. The remaining 104 contractors worked exclusively on either iEHR or VistA Evolution.

Funding for the 34 contractors that worked on both iEHR and VistA Evolution totaled about $793 million of the $1.1 billion obligated for contracts on the two initiatives. Obligations for contracts awarded to the top 15 of these 34 contractors (which we designated as key contractors) accounted for about $741 million (about 67 percent) of the total obligated for contracts on the two initiatives. The remaining 123 contractors were obligated about $364 million for their contracts.

The 15 key contractors were obligated about $564 million and $177 million for VistA Evolution and iEHR contracts, respectively. Table 1 identifies the key contractors and their obligated dollar totals for the two efforts.

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[27]VA was not able to provide contract data related to the HealtheVet effort. The department indicated that it could not verify any HealtheVet vendors receiving payments because the time frame for the contracts falls outside the scope of record retention years required by applicable regulations. According to the *Federal Acquisition Regulation*, government agencies are only required to retain contract records for six years after the final payment (48 C.F.R. § 4.805). HealtheVet was terminated in August 2010.

[28]The 138 different contractors that supported iEHR and VistA Evolution in fiscal years 2011 through 2016 were obligated funds for a total of 783 contract actions, which included awards of new contracts, modifications to previously awarded contracts, and issuance of task orders on indefinite delivery, indefinite quantity contracts.

Table 1: Key Contractors and the Amounts (in millions) Obligated to Each for Contracts on iEHR and VistA Evolution from 2011-2016

Key contractor name	iEHR	VistA Evolution	Total
ASM Research	$18.1	$144.5	$162.6
Systems Made Simple, Inc.	9.5	82.6	92.0
HP Enterprise Services, LLC	24.3	57.6	81.9
Harris Corporation	39.3	34.0	73.3
Technatomy Corporation	18.4	46.7	65.0
Booz Allen Hamilton, Inc.	7.8	53.6	61.4
The MITRE Corporation	6.3	35.6	41.8
SBG Technology Solutions	6.3	24.8	31.1
LongView International Technology Solutions, Inc.	11.9	15.8	27.7
By Light Professional IT Services, LLC	4.4	23.3	27.7
Business Information Technology Solutions, Inc.	10.4	13.8	24.2
Systems Research and Applications Corporation	3.0	15.3	18.3
Cerner Corporation	6.3	7.1	13.4
CACI International, Inc.	6.3	4.4	10.7
Open Source Electronic Health Record Agent, Inc.	4.9	4.6	9.5
Total for 15 key contractors	**177.1**	**563.8**	**740.9**

Source: GAO analysis of agency data | GAO-18-267T

Additionally, we determined that, of the $741 million obligated to the key contractors, $411 million (about 55 percent) was obligated for contracts supporting the development of new system capabilities, $256 million (about 35 percent) was obligated for contracts supporting project management activities, and $74 million (about 10 percent) was obligated for contracts supporting operations and maintenance for iEHR and VistA Evolution. VA obligated funds to all 15 of the key contractors for system development, 13 of the key contractors for project management, and 12 of the key contractors for operations and maintenance. Figure 2 shows the amounts obligated for each of these areas.

Figure 2: Amounts of Funding Obligated to the 15 Key Contractors for iEHR and VistA Evolution Development, Project Management, and Operations and Maintenance from 2011 through 2016
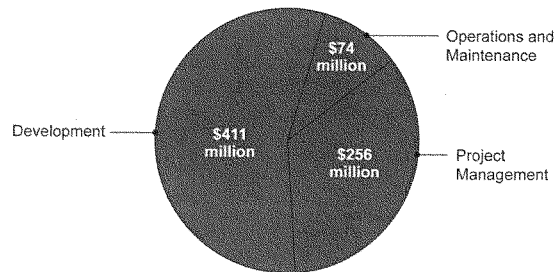
Source: GAO analysis of Veterans Affairs contract data on iEHR and VistA Evolution. | GAO-18-267T

Further, based on the key contractors' documentation, for the iEHR program, VA obligated $102 million for development, $65 million for project management, and $10 million for operations and maintenance. For the VistA Evolution Program, VA obligated $309 million for development, $191 million for project management, and $64 million for operations and maintenance. Figure 3 shows the amounts obligated for contracts on the VistA Evolution and iEHR programs for development, project management, and operations and maintenance.

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Figure 3: Amounts of Funding Obligated to Key Contractors Supporting the VistA Evolution and iEHR Programs for Development, Project Management, and Operations and Maintenance for 2011-2016
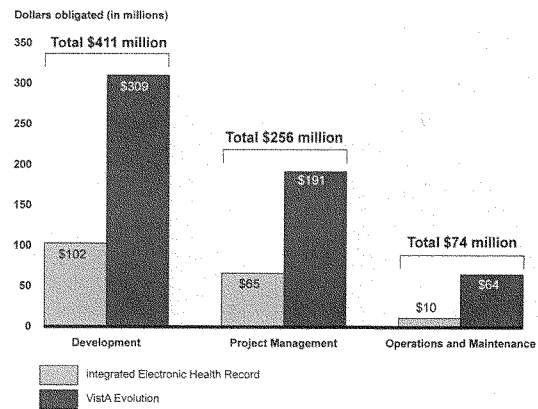
Source: GAO analysis of Veterans Affairs contract data on iEHR and VistA Evolution. | GAO-18-267T

In addition, table 2 shows the amounts that each of the 15 key contractors were obligated for the three types of contract activities performed on iEHR and VistA Evolution.

Table 2: Key Contractors and the Amounts the Department of Veterans Affairs (VA) Obligated to Contracts Supporting iEHR and VistA Evolution for Development, Project Management, and Operations and Maintenance During 2011-2016

Key contractor name	VistA Modernization effort	Types of expected contractor activities		
		Development	Project management	Operations and maintenance
ASM Research	iEHR	$18.1	$0	$0
	VistA Evolution	142.9	0.2	1.4
Systems Made Simple, Inc.	iEHR	2.9	2.9	3.7
	VistA Evolution	10.2	59.4	13.0
HP Enterprise Services, LLC	iEHR	14.8	7.1	2.3
	VistA Evolution	37.4	15.5	4.7
Harris Corporation	iEHR	32.4	4.5	2.4
	VistA Evolution	27.0	.1	6.9
Technatomy Corporation	iEHR	0	18.4	0
	VistA Evolution	17.2	17.1	12.4
Booz Allen Hamilton, Inc.	iEHR	3.1	4.7	0
	VistA Evolution	28.3	24.5	0.8
The MITRE Corporation	iEHR	0.6	5.6	0
	VistA Evolution	5.4	30.2	0
SBG Technology Solutions	iEHR	0	6.3	0
	VistA Evolution	1.1	23.7	0
LongView International Technology Solutions, Inc.	iEHR	5.8	4.5	1.7
	VistA Evolution	7.2	5.3	3.3
By Light Professional IT Services, LLC	iEHR	4.4	0	0
	VistA Evolution	12.0	2.4	8.9

Key contractor name	VistA Modernization effort	Types of expected contractor activities		
		Development	Project management	Operations and maintenance
Business Information Technology Solutions, Inc.	iEHR	2.5	7.9	0
	VistA Evolution	2.0	11.9	0
Systems Research and Applications Corporation	iEHR	2.2	0.6	0.2
	VistA Evolution	14.0	1.0	0.3
Cerner Corporation	iEHR	3.8	2.2	0.3
	VistA Evolution	0	0	7.1
CACI International, Inc.	iEHR	6.3	0	0
	VistA Evolution	4.0	0	.4
Open Source Electronic Health Record Agent, Inc.	iEHR	4.9	0	0
	VistA Evolution	0	0	4.6
Totals for 15 key contractors		**410.6**	**255.9**	**74.4**

Source: GAO analysis of VA contract data on iEHR and VistA Evolution. I GAO-18-267T

VA Is in the Process of Developing Plans for Its Latest VistA Modernization Initiative

Industry best practices and IT project management principles stress the importance of sound planning for system modernization projects.[29] These plans should identify key aspects of a project, such as the scope, responsible organizations, costs, schedules, and risks. Additionally, planning should begin early in the project's lifecycle and be updated as the project progresses.

Since the VA Secretary announced that the department would acquire the same electronic health record system as DOD, VA has begun planning for the transition from VistA Evolution to EHRM. However, the department is still early in its efforts, pending the contract award. In this regard, the department has begun developing plans that are intended to guide the new EHRM program. For example, the department has developed a preliminary description of the organizations that are to be responsible for governing the EHRM program. Further, the VA Secretary announced in congressional testimony in November 2017, a key reporting responsibility for the program—stating that the Executive Director for the Electronic Health Records Modernization System will report directly to the department's Deputy Secretary. In addition, the department has developed a preliminary timeline for deploying its new electronic health record system to VA's medical facilities, and a 90-day schedule that depicts key program activities. The department also has begun documenting the EHRM program risks.

Beyond the aforementioned planning activities undertaken thus far, the Executive Director stated that the department intends to complete a full suite of planning and acquisition management documents to guide the program, including a life cycle cost estimate and an integrated master schedule to establish key milestones over the life of the project. To this end, the Executive Director told us that VA has awarded two program management contracts to support the development of these plans to MITRE Corporation and Booz Allen Hamilton.

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[29]See, for example, Institute of Electrical and Electronics Engineers, *IEEE/EIA Guide for Information Technology*, IEEE/EIA 12207.1-1997 (April 1998); OMB, *Management of Federal Information Resources*, Circular No. A-130 (Washington, D.C.: Nov. 28, 2000); GAO, *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, GAO-09-3SP (Washington, D.C.: March 2009); GAO, *Schedule Assessment Guide: Best Practices for Project Schedules—Exposure Draft*, GAO-12-120G (Washington, D.C.: May 2012).

According to the Executive Director, VA also has begun reviewing the *VistA Evolution Roadmap*, which is the key plan that the department has used to guide VistA Evolution since 2014. This review is expected to result in an updated plan that is to prioritize any remaining VistA enhancements needed to support the transition from VistA Evolution to the new system. According to the Executive Director, the department intends to complete the development of its plans for EHRM within 90 days after award of the Cerner contract, which is anticipated to occur in December 2017.

Further, beyond the development of plans, VA has begun to staff an organizational structure for the modernization initiative, with the Under Secretary of Health and the Assistant Secretary for Information and Technology (VA's Chief Information Officer) designated as executive sponsors. It has also appointed a Chief Technology Officer from OI&T, and a Chief Medical Officer from VHA, both of whom are to report to the Executive Director.

VA's efforts to develop plans for EHRM and to staff an organization to manage the program encompass key aspects of project planning that are important to ensuring effective management of the department's latest modernization initiative. However, the department remains early in its modernization planning efforts, many of which are dependent on the system acquisition contract award, which has not yet occurred. The department's continued dedication to completing and effectively executing the planning activities that it has identified will be essential to helping minimize program risks and guide this latest electronic health record modernization initiative to a successful outcome—one which VA, for almost two decades, has yet to achieve.

VA's Progress toward Consolidating and Optimizing Data Centers and Addressing Other Key FITARA-Related Area Falls Short of Performance Targets

Beyond managing its system modernization efforts, such as VistA, VA has to ensure the effective implementation of the IT acquisition requirements called for in FITARA. Pursuant to FITARA, in August 2016, the Federal CIO issued a memorandum that announced the Data Center Optimization Initiative (DCOI).[30] According to OMB, this new initiative supersedes and builds on the results of FDCCI, and is also intended to improve the performance of federal data centers in areas such as facility utilization and power usage.

Among other things, DCOI requires 24 federal departments and agencies, including VA, to develop plans and report on strategies (referred to as DCOI strategic plans) to consolidate inefficient infrastructure, optimize existing facilities, improve security posture, and achieve costs savings.[31] Further, the memorandum establishes a set of five data center optimization metrics and performance targets intended to measure agency's progress in the areas of (1) server utilization and automated monitoring, (2) energy metering, (3) power usage effectiveness, (4) facility utilization, and (5) virtualization.[32] The guidance also indicates that OMB is to maintain a public dashboard that will display consolidation-related costs savings and optimization performance information for the agencies.

However, in a series of reports that we issued from July 2011 through August 2017,[33] we noted that, while data center consolidation could potentially save the federal government billions of dollars, weaknesses existed in several areas, including agencies' data center consolidation

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[30]OMB, *Data Center Optimization Initiative (DCOI)*, Memorandum M-16-19 (Washington, D.C.: Aug. 1, 2016).

[31]The 24 agencies that FITARA requires to participate in DCOI are the Departments of Agriculture, Commerce, Defense, Education, Energy, Health and Human Services, Homeland Security, Housing and Urban Development, the Interior, Justice, Labor, State, Transportation, the Treasury, and Veterans Affairs; the Environmental Protection Agency; General Services Administration; National Aeronautics and Space Administration; National Science Foundation; Nuclear Regulatory Commission; Office of Personnel Management; Small Business Administration; Social Security Administration; and U.S. Agency for International Development.

[32]OMB guidance established targets for agencies to reduce annual data center costs by at least 25 percent by the end of fiscal year 2018. Virtualization is a technology that allows multiple software-based machines with different operating systems, to run in isolation, side-by-side, on the same physical machine.

[33]GAO-17-448, GAO-17-388, GAO-16-323, GAO-14-713, GAO-13-378, GAO-12-742, and GAO-11-565.

plans, data center optimization, and OMB's tracking and reporting on related cost savings. Further, we previously reported that VA's progress toward closing data centers, and realizing the associated cost savings, lagged behind that of other covered agencies.[34]

More recently, VA reported a total inventory of 415 data centers, of which 39 had been closed as of August 2017.[35] While the department anticipates another 10 data centers will be closed by the end of fiscal year 2018, these closures fall short of the targets set by OMB. Specifically, even if VA meets all of its planned targets for closure, it will only close about 9 percent of its tiered data centers and about 18.7 percent of its non-tiered data centers by the end of fiscal year 2018, which is short of the respective 25 and 60 percent targets set by OMB.[36] Further, while VA has reported $23.61 million in data center-related cost savings and avoidances for 2012 through August 2017, the department does not expect to realize further savings from the additional 10 data center closures in the next year.

In addition, in August 2017 we reported that agencies needed to address challenges in optimizing their data centers in order to achieve cost savings.[37] Specifically, we noted that, according to the 24 agencies' data center consolidation initiative strategic plans as of April 2017, most agencies were not planning to meet OMB's optimization targets by the end of fiscal year 2018.

As of February 2017, VA reported meeting one of the five data center optimization metrics related to power usage effectiveness. Also, the department's data center optimization strategic plan indicates that the department plans to meet three of the five metrics by the end of fiscal year 2018. Further, while OMB directed agencies to replace manual

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[34]GAO-17-408T.

[35]VA reported this data in its August 2017 inventory update to OMB.

[36]OMB's guidance directed agencies to categorize their data centers as either a tiered data center or a non-tiered data center. The guidance also directed agencies to close at least 25 percent of tiered data centers and at least 60 percent of non-tiered data centers by the end of fiscal year 2018. OMB guidance defines a tiered data center as one that uses each of the following: a separate physical space for IT infrastructure, an uninterruptible power supply, a dedicated cooling system or zone, and a backup power generator for a prolonged power outage. According to OMB, all other data centers shall be considered non-tiered.

[37]GAO-17-448.

collection and reporting of metrics with automated tools no later than fiscal year 2018, VA had only implemented automated tools at 6 percent of its data centers.

VA's CIO Has Certified Adequate Incremental Development for Its Major IT Investments for Fiscal Year 2017, but Needs to Update Related Policy

OMB has emphasized the need to deliver investments in smaller parts, or increments, in order to reduce risk, deliver capabilities more quickly, and facilitate the adoption of emerging technologies. In 2010, it called for agencies' major investments to deliver functionality every 12 months and, since 2012, every 6 months. Subsequently, FITARA codified a requirement that agency CIOs certify that IT investments are adequately implementing incremental development, as defined in the capital planning guidance issued by OMB.[38] Later OMB guidance on the law's implementation—issued in June 2015—directed agency CIOs to define processes and policies for their agencies which ensure that they certify that IT resources are adequately implementing incremental development.[39]

Between May 2014 and November 2017, we reported on agencies' efforts to utilize incremental development practices for selected major investments.[40] In November 2017, we noted that agencies reported that 62 percent of major IT software development investments were certified by the agency CIO as using adequate incremental development in fiscal year 2017, as required by FITARA. VA's CIO certified the use of adequate incremental development for all 10 of its major IT investments. However, VA had not yet updated the department's policy and process for the CIO's certification of major IT investments' adequate use of incremental development, in accordance with OMB's guidance on the implementation of FITARA as we recommended. The department stated that it plans to address our recommendation to establish a policy and that the policy is targeted for completion in 2017.

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[38]40 U.S.C. § 11319(b)(1)(B)(ii).

[39]OMB, Memorandum M-15-14.

[40]GAO, *Information Technology Reform: Agencies Need to Improve Certification of Incremental Development*, GAO-18-148 (Washington, D.C.: Nov. 7, 2017); GAO-16-469; and *Information Technology: Agencies Need to Establish and Implement Incremental Development Policies*, GAO-14-361 (Washington, D.C.: May 1, 2014).

VA Has Made Progress in Developing and Using a Comprehensive Inventory of Software Licenses

Federal agencies engage in thousands of licensing agreements annually. Effective management of software licenses can help organizations avoid purchasing too many licenses that result in unused software. In addition, effective management can help avoid purchasing too few licenses, which results in noncompliance with license terms and causes the imposition of additional fees. Federal agencies are responsible for managing their IT investment portfolios, including the risks from their major information system initiatives, in order to maximize the value of these investments to the agency.

OMB developed a policy that requires agencies to conduct an annual, agency-wide IT portfolio review to, among other things, reduce commodity IT spending. Such areas of spending could include software licenses. We previously identified seven elements that a comprehensive software licensing policy should address:[41]

- identify clear roles, responsibilities, and central oversight authority within the department for managing enterprise software license agreements and commercial software licenses;

- establish a comprehensive inventory (at least 80 percent of software license spending and/or enterprise licenses in the department) by identifying and collecting information about software license agreements using automated discovery and inventory tools;

- regularly track and maintain software licenses to assist the agency in implementing decisions throughout the software license management life cycle;

- analyze software usage and other data to make cost-effective decisions;

- provide training relevant to software license management;

- establish goals and objectives of the software license management program; and

- consider the software license management life-cycle phases (i.e., requisition, reception, deployment and maintenance, retirement, and disposal phases) to implement effective decision making and incorporate existing standards, processes, and metrics.

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[41]GAO, *Federal Software Licenses: Better Management Needed to Achieve Significant Savings Government-Wide*, GAO-14-413 (Washington, D.C.: May 22, 2014).

We previously made recommendations to VA to (1) develop an agency-wide comprehensive policy for the management of software licenses that includes guidance for using analysis to better inform investment decision making, (2) employ a centralized software license management approach that is coordinated and integrated with key personnel, (3) establish a comprehensive inventory of software licenses using automated tools, (4) track and maintain a comprehensive inventory of software licenses using automated tools and metrics, (5) analyze agency-wide software license data to identify opportunities to reduce costs and better inform investment decision making, and (6) provide software license management training to appropriate personnel.[42]

Consistent with our recommendation, in July 2015, VA issued a comprehensive software licensing policy that addressed weaknesses we previously identified. The department also issued a directive that documents VA's software license management policy and responsibilities for central management of agency-wide software licenses, consistent with our recommendations. By implementing our recommendations, VA should be better positioned to consistently and cost-effectively manage software throughout the agency.

In August 2017, the department also provided documentation showing that it had generated a comprehensive inventory of software licenses using automated tools for the majority of agency software license spending or enterprise-wide licenses. This inventory can serve to reduce redundant applications and help identify other cost saving opportunities.

Further, the department implemented a solution to analyze agency-wide software license data, including usage and costs. This solution should allow VA to identify cost saving opportunities and inform future investment decisions. In addition, the department has provided information indicating that appropriate personnel receive software license management training.

In conclusion, VA has made extensive use of numerous contractors and has obligated more than $1 billion for contracts that supported two of four VistA modernization programs that the department has initiated. VA has recently begun the fourth modernization program in which it plans to replace VistA with the same commercially available electronic health

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[42]GAO-14-413.

record system that is used by DOD. However, the department's latest modernization effort is in the early stages of planning and is dependent on the system acquisition contract award in December 2017. VA's completion and effective execution of plans will be essential to guiding this latest electronic health record modernization initiative to a successful outcome.

Beyond VistA, the department continues to make progress on key FITARA-related initiatives. Although the department has made progress in the area of software licensing, additional actions in the areas of data center consolidation and optimization, as well as incremental system development can better position VA to effectively manage its IT. We plan to continue to monitor the department's progress on these important activities.

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

GAO Contact and Staff Acknowledgments

If you or your staffs have any questions about this testimony, please contact David A. Powner at (202) 512-9286 or pownerd@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 Bird (Assistant Director), Jacqueline Mai (Analyst in Charge), Justin Booth, Chris Businsky, Rebecca Eyler, Paris Hawkins, Valerie Hopkins, Brandon S. Pettis, Jennifer Stavros-Turner, Eric Trout, Christy Tyson, Eric Winter, and Charles Youman.

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Mr. HURD. Thank you, sir.

Mr. Blackburn, I have been advised you are going to speak for the entire VA team. You are now recognized for five minutes. Welcome.

STATEMENT OF SCOTT BLACKBURN

Mr. BLACKBURN. Will do. Chairman Hurd, Ranking Member Kelly, members of the subcommittee, thank you very much for the opportunity to discuss OIT transformation with an emphasis on IT modernization, cybersecurity, FISMA and FITARA compliance, and the electronic health record management initiative.

I'm accompanied by Mr. James, Mr. Cussatt, and Mr. Windom, and then also available to answer questions behind me as Mr. John Short, executive director of Information Technology Systems Modernization.

Also, thank you all for the opportunity to meet with you one-on-one. The feedback we received was very positive, very constructive, and we really appreciate that. We especially appreciate your interest to help ensure we get the electronic health record modernization effort off on the right foot, along with other pressing VA matters.

VA is in the midst of a turnaround. Trust was broken in 2014, and helping re-earn that trust is why I left the private sector to join the VA in November of 2014. This is personal to me as a disabled veteran and as one of five siblings who are all either veterans or still serving today in uniform.

Our first quarterly survey to measure veteran trust two years ago revealed that only 47 percent of veterans said that they trusted the VA to fulfill our country's commitment to veterans. Today, that number is 69 percent with an uptick in each of the last seven quarters. OIT has played a major role in that improvement. And while 69 percent is great compared to where we started, that still means that 31 percent of veterans do not trust VA, which means we still have a long way to go, and OIT will play an even more important role closing that gap.

We have a comprehensive IT modernization plan, which is the foundation for reducing reliance on the VA legacy systems. We will leverage modern technology such as telehealth, cloud, robotics, machine learning, mobile, digital services, and blockchain. We will stop or migrate 240 of our 299 current projects and leverage a buy-first strategy, getting us out of the software development business and ensuring we are positioned to manage the influx of new technologies and innovations.

I'd like to highlight four areas which align with the Secretary's priorities. Number one, the selection of the new electronic health record is a major step for VA. A veteran will have one single longitudinal lifetime medical record. That means a single common system from the time of enlistment or commission throughout their service and the remainder of their life as a veteran. We realize implementing Cerner Millennium across the country's largest integrated healthcare system will not be easy, but we strongly believe it is the right thing to do. Our new electronic health records system will enable VA to keep pace with the improvements in health IT and cybersecurity, which the current system VistA is unable to do.

Continuing to maintain VistA is costly. Transition solutions for nearly all VistA modules have been identified with the majority to be replaced by the Cerner solution.

Number two, modernizing our scheduling systems is something I am extremely passionate about as a veteran who's received treatment at the Washington, D.C., VA Medical Center. This is an area where we have made improvements, but much more must be done.

Number three, another OIT commitment is modernizing the legacy COBOL-based financial management system to standardize and improve accounting and acquisition services.

And number four involves our benefits delivery network, BDN, and modernizing BDN will ensure that VBA-wide—that's our benefits administration—wide monthly payment and processing of 4 million checks remains feasible and that veterans receive benefits quickly.

Additionally, VA cybersecurity program enables data protection in the face of threats and is committed to safeguarding veteran information. We have recently achieved various program capability and policy milestones to advance cybersecurity to include just a few hours ago receiving from the Federal CIO this memo closing 11 open cyber stat activities with OMB.

VA received a B-plus grade from your FITARA scorecard, and while we are proud of that score, we acknowledge that our data center consolidation, as Mr. Powner noted, is nowhere near where it needs to be, and we are working to fix it. The establishment of an OIT-based strategic sourcing division will ensure FITARA compliance for all IT acquisitions.

Thank you again, Chairman and Ranking Member, for the opportunity to discuss OIT's transformation efforts. As a note, if there are any questions that are acquisitions-sensitive to our EHR efforts, we will not be able to discuss those in a public session, but we can provide those—that information to you in a closed session at a later date.

Ensuring a safe and secure environment for veteran information and improving their experiences our goal. I look forward to your questions.

[Prepared statement of Mr. Blackburn follows:]

AMENDED PASSBACK

**STATEMENT OF
MR. SCOTT BLACKBURN
EXECUTIVE IN CHARGE FOR INFORMATION AND TECHNOLOGY
OFFICE OF INFORMATION AND TECHNOLOGY
DEPARTMENT OF VETERANS AFFAIRS (VA)
BEFORE THE
SUBCOMMITTEE ON INFORMATION TECHNOLOGY
COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM
U.S. HOUSE OF REPRESENTATIVES**

December 7, 2017

Good morning, Chairman Hurd, Ranking Member Kelly, and Distinguished Members of the Subcommittee. Thank you for providing me with this opportunity to discuss the progress that the Department of Veterans Affairs (VA) Office of Information and Technology (OIT) is making towards its transformation efforts with an emphasis on Information Technology (IT) modernization; Enterprise Cybersecurity Strategy; Federal Information Security Modernization Act (FISMA), and Federal Information Technology Acquisition Reform Act (FITARA) compliance; and the Electronic Health Record Modernization (EHRM) initiative. I am pleased to be accompanied today by Mr. Bill James, Deputy Assistant Secretary for the Enterprise Program Management Office (EPMO), Mr. Dominic Cussatt, Chief Information Security Officer, Mr. John Short, Executive Director for Information Technology Systems Modernization, and Mr. John Windom, Program Executive for Electronic Health Record Modernization.

The health, safety, and welfare of our Veterans are among our highest national priorities. As one of five siblings who are Veterans or still serving in uniform and who are all at least fourth generation U.S. military Veterans, I take personal pride every day in fulfilling VA's sacred mission, which was passed down to us by President Abraham Lincoln more than 150 years ago, to care for those who "have borne the battle" and for their families and survivors. VA, and OIT, is in the middle of a turnaround. Trust was broken in 2014; helping re-earn that trust is why I left the private sector to join VA in November 2014. When we started a quarterly survey to measure Veteran trust of VA 2 years ago, only 47 percent of Veterans said they trust VA to fulfill our Nation's

commitment to Veterans. Today, that number is 69 percent, and we have seen an uptick in each of the last seven quarters. OIT has played a major role in that improvement and will only play an even more important role as we continue to modernize and regain the trust of all Veterans. We are proud of our progress, but we clearly still have a lot of work to do.

This is not the first time OIT leadership has appeared before the Subcommittee. On March 16, 2016, my predecessor, Ms. LaVerne Council, discussed the progress OIT was making to better serve our business partners, our Veterans, and examined VA's implementation of FISMA and FITARA, as well as specific information technology (IT) investments. My testimony will build on this, covering a number of the subject areas raised previously and will provide you with a glimpse into the significant progress we have made since that time.

IT MODERNIZATION

Our comprehensive IT Plan is the foundation for reducing our reliance on legacy systems and creating new capabilities for a modern VA by leveraging cloud, digital platforms, while incorporating other modern and innovative technologies like expanded telehealth, robotics, artificial Intelligence, mobile devices, machine learning, Blockchain, and digital services to increase access, engagement, and interoperability. Through this plan, we will stop or migrate 240 of our 299 projects and leverage a buy-first strategy – getting us out of the software development business and ensuring we are positioned to manage the influx of new technologies. In OIT, we are committed to the following efforts, which align with the Secretary's initiatives to provide greater choice and transparency for Veterans, modernize systems, focus resources more effective and efficiently, improve timeliness of services, and prevent Veteran suicides.

First and foremost is our Electronic Health Record (EHR) Modernization effort, which is a major White House initiative, and has received a fair amount of media and Congressional interest. In arriving at his decision on our Next-Generation EHR for VA, the Secretary reviewed numerous studies, reports, and commissions on this topic,

including the recent Commission on Care report. He also spent considerable time talking to clinicians and consulting with Chief Executive Officers from leading health systems to solicit their own thoughts.

This led the Secretary to announce that VA will begin to work toward a single common solution by adopting a new EHR system, using the same state-of-the-art solution currently being deployed by the Department of Defense (DoD). The selection of a new EHR strategy is a major step forward for VA and is a critical component of our strategic commitments. We hope to very soon finalize and sign a contract with Cerner Corporation to begin this work with our first pilot sites located in Washington State, leveraging the work and lessons learned from DoD and Cerner. With regard to the standardization of VistA over the past 18 months, the clinically validated data extraction work was conducted by the BISL CDW team, and the data migration planning started in August 2016. These efforts will help make the Cerner rollout in 18 months more successful.

As we proceed in a thoughtful and deliberate manner, our teams will incorporate critical lessons and experiences learned from the visionaries and users of our legacy VistA system and DoD's lessons learned from deploying the same Cerner solution to contribute to building the most advanced, integrated EHR in the Nation. This path forward will make a big difference for Veterans everywhere and will provide VA clinicians modern tools to deliver the seamless care Veterans deserve. Having an EHR that can follow our Veterans during their health and treatment is one of the most important things we can do to ensure their safety, health, and general well-being. The adoption of the same system between VA and DoD will allow for all patient data to reside in a common system, so there will be a seamless link between the Departments without the manual or electronic exchange of information. A Veteran will now be able to have a single common system from the time of enlistment or commission throughout their life, with one single lifetime record. There will never be a need to go back and forth between Departments and say, "records are not there for me", or "my doctor is not able to have input into what the DoD is doing." This is because VA and DoD's interoperable

EHR system is based on a single instance and database, so all DoD records will be available to VA as soon as they are available to DoD.

Today, VA and DoD share more medical information than any two health care organizations in the country. We have developed and deployed, in close collaboration with DoD, the Joint Legacy Viewer (JLV) to enable this data sharing capability. The JLV is available to all clinicians in every VA facility and is a web-based user interface that provides clinicians with an intuitive display of DoD and VA health care data on a single screen. As of November 1, 2017, the latest data identified 89,623 DoD and 332,586 VA users. Between May 2013 and October 2017, almost 8 million medical records have been viewed through JLV. The outcomes of VA and DoD joint development on JLV is a clear demonstration of the business outcomes the two agencies can deliver through deep collaboration and integration. While JLV is very valuable, the proposed new EHR will add and improve the capabilities we have today in JLV. This will allow VA and DoD to build on the success of JLV by having a single instance of a Veterans record.

A second commitment involves modernizing the Benefits Delivery Network (BDN). A 50-plus year old COBOL-based legacy system, BDN is the primary database and payment system for VA's education benefit programs and is something that supports Veterans every day. Modernizing the BDN will ensure that Veterans Benefits Administration (VBA)-wide financial payment and processing of 4 million checks each month remains feasible and those Veterans continue to receive the benefits they have earned in a timely manner. BDN has generally had a successful payment history for over 40 years.

A third commitment is our continuing effort to Improve Enterprise Cybersecurity. VA's Enterprise Cybersecurity Strategy will ensure that Veteran data is secure, available, and safe from cyber threats. Safeguarding Veteran information and VA data is essential to providing quality health care, benefits, and services to our Nation's Veterans. More specific details associated with our Enterprise Cybersecurity Strategy can be found later in this testimony.

Our fourth commitment extends to modernizing the Department's scheduling systems – which as a patient who receives treatment at the Washington DC VA Medical Center, Orange Clinic - is something I am very passionate about. This is an area where we have made improvements but still have a long way to go. We now have VistA Scheduling Enhancement (VSE) upgrades fully implemented in 130 of 158 sites, improving the interface for the schedulers so they easily view appointment times and reduce scheduling errors. Just in the past month, we have seen online scheduling increase 5 times due to recent improvements (4,541 appointments scheduled online between 11/09/17-11/30/17);this capability is currently in place at more than 100 sites. Medical Appointment Scheduling System (MASS) in being piloted in Columbus, Ohio; and the Faster Care for Veterans Act test installs have been successfully completed in Minneapolis, Minnesota; Salt Lake City, Utah; and Bedford, Massachusetts. As Cerner deploys to each site, it will be converted to Cerner's resource based Scheduling System. Earlier this year, the Secretary launched a new access and quality tool known as "Access to Care." This web-based site was developed for Veterans and their families to see in real-time the wait times at local VA facilities and VA hospital ratings in comparison with private hospitals in their area. This information empowers Veterans to choose the time and place they receive their care. Not only will this web-site take in and process complex data, but it will make these data transparent to Veterans. We will continue improving transparency via the Access to Care site as we receive feedback from Veterans, employees, Veterans Service Organizations, and Congress.

In addition to scheduling software, we are making strides with our technology and business partners. We completed a proof of concept for the Digital Health Platform, now called the Digital Veteran Platform, or DVP, marking an entirely new approach to health care. DVP is a revolutionary concept in health care information technology management that enables interoperability among systems much more efficiently than traditional system integration efforts. DVP will allow commercial application developers to create solutions that connect internal and external care providers to support comprehensive seamless Veteran care across organizational boundaries and clinical

systems. Further, DVP will create an open, accessible platform that can be used not only for Veterans' care, but also for advanced knowledge sharing, clinical decision support, technical expertise and process interoperability with organizations through the US care delivery system by simplifying access to the largest data set of clinical data anywhere. This will accelerate the discovery and development of new clinical pathways for the benefit of the Veterans and community at large.

Another significant OIT commitment is modernizing the legacy Financial Management System to standardize and improve accounting and acquisition activities across the VA enterprise. VA has a clear and urgent need to address multiple legacy platforms used today in our finance and accounting mission critical functions. We are working to adopt and implement a commercial, cloud-hosted, integrated financial and acquisitions system. This transformation effort will increase the transparency, accuracy, timeliness, and reliability of financial information. The result will be improved fiscal accountability to American taxpayers and improved care and services to our Veterans.

ENTERPRISE CYBERSECURITY STRATEGY (ECSS)

VA, our core constituents, and our external partners are subject to a wide variety of cyber threats. Given the high degree of connectivity, interdependence, and reliance on integrated open platform technology, meeting cybersecurity challenges requires strategic attention and collaboration across the VA ecosystem. The purpose of the Enterprise Cyber Security Strategy, also known as ECSS, is to guide agency-wide cybersecurity planning and risk-based decision making. ECSS directs VA leadership to act as cybersecurity resource stewards to identify and articulate requirements, standards, and opportunities for transformative cybersecurity improvements.

Within OIT, we are committed to protecting Veteran information, VA data, and limiting access to only those with the proper authority. This commitment requires us to think agency-wide about security holistically. ECSS promotes collaboration, enables data protection, and provides resiliency in the face of a broad spectrum of threats through the realization of the following five strategic cybersecurity goals:

- **Veteran Information and VA Data are Protected:** Data protection is an essential VA function that involves people, processes, and technology. VA must identify its high-value assets (HVA); understand its business processes and system interactions so that security and privacy protections can be applied commensurate with risk and enhance awareness of safe information handling practices so that the VA workforce, Veterans, and partners are equipped to help protect VA data and Veteran information.

- **VA's Cyberspace Ecosystem is Resilient to Threats:** VA needs to maintain critical functions in the face of inevitable breaches. While defense in depth remains essential, we as an organization must also be resilient. Implementing the appropriate policies, procedures, and technologies provides VA with the ability to maintain continuity of operations both during and after a cyber event, as well as evolving VA's resiliency to better adapt to advanced cyber threats.

- **VA Information Systems and Infrastructure are Protected:** VA identifies and strengthens its mission critical systems and infrastructure, modernizes IT, and employs an integrated, resilient architecture. VA is also committed to leveraging cloud and Federal shared services. VA not only integrates cybersecurity protections into VA information systems and networks but also verifies that business associates are appropriately implementing protections within their systems.

- **A Secure Operational Environment Supports Effective Operations:** For VA to operate effectively in the cybersecurity domain, a secure operational environment is necessary. Such an environment is realized through efficient, agile acquisitions that help VA keep pace with evolving cyber threats and technological innovations, operates transparently and, to the extent possible, seamlessly and is enabled by integration of information security capabilities and outcomes across enterprise governance, business operations, and technology architecture frameworks.

- **VA Recruits, Develops, and Retains a Talented Cybersecurity and Privacy Workforce:** Strong cybersecurity capabilities require a cybersecurity workforce

that is agile, multifunctional, dynamic, and flexible to adapt to an ever-changing threat environment. VA's workforce planning capability and framework provide VA the data it needs to make fact-based decisions on cyber and privacy workforce recruitment, development, and retention.

To achieve this end, our Office of Information Security (OIS) manages cybersecurity risk through VA's Enterprise Cybersecurity Strategy Program, or ECSP, to enable VA to securely fulfill our mission and protect VA information systems.

As part of the ECSP, VA's Enterprise Cybersecurity Strategy is being refreshed to include the reinforcement of VA's strategic goals and objectives that inform cybersecurity behaviors at VA. Our principles include, but are not limited to, patient safety, holistic risk management, adaptive defense and cyber resiliency, security, and privacy integration, shared services, and IT modernization.

With the establishment of the ECSP, we are embarking on a change in mindset of how to manage cyber risk. Through the ECSP, we will make prioritized, defensible decisions related to the implementation of cybersecurity projects (that may be technical or procedure-based), align programmatic activities with the National Institute of Standards and Technology (NIST) Cybersecurity Framework (CSF), and create an integrated and transparent program across each level of the program, which includes Government-wide statutory requirements, VA policy and implementation guidance, organizational cybersecurity capabilities, mission/business processes, and the information system level.

As part of our Enterprise Cybersecurity Strategy Team (ECST), we have recently focused on the following:

- Plans of Action created in response to the fiscal year (FY) 2015 Office of Inspector General (OIG) FISMA audit.

- Eight Strategic Domains created as a result of VA's 2015 Enterprise Cybersecurity Strategy following the release of the Office of Management and Budget (OMB) Cybersecurity Implementation Plan on October 30, 2015.

VA's ECSP is another step forward in VA's commitment to safeguarding Veteran information and VA data within a complex environment. Our strategy establishes an ambitious yet carefully-crafted approach to cybersecurity and privacy protections that helps VA to execute its mission of providing quality health care, benefits, and services to Veterans, while delivering on our promise to keep Veteran information and VA data safe and secure.

Recent OIS Accomplishments

Through ECST, we have been able to achieve various program, capability, and policy milestones on the path to further advancing the VA cybersecurity program:

From a programmatic perspective:

a. We have established a plan to transition from the ECST to ECSP to enable proactive cyber risk management through the prioritization of cybersecurity projects and alignment to the NIST CSF.
b. We formally established an Information Security Continuous Monitoring (ISCM) Strategy, as well as an Integrated Project Team (IPT) Charter for management oversight, implementation, and operation of the program.

With regard to capability milestones:

a. We continue to develop a risk-scoring model, which is designed to advance VA's implementation of the NIST Risk Management Framework (RMF) and assist with prioritizing risk across security and privacy control families in support of proactive cybersecurity risk management.
b. Since the middle of 2015, we have reduced the number of elevated privileged user accounts for employees and contractors by 96 percent.

c. We have developed a new end-user driven site map and updated design to support adoption of the VA Knowledge Service as the single authoritative source of VA control policy and implementation guidance.

d. Within the Knowledge Service, we have also developed an interactive Security Controls Explorer to provide OIT stakeholders (e.g., System Owners, Information Security Officers) with implementation guidance for applying the NIST RMF to VA information systems.

e. We created a process for VA to consistently analyze planned software implementations against the One-VA Technical Reference Model, used as a technology roadmap and tool for supporting OIT, prior to project initiation.

f. We implemented a process to annually test contingency plans and failover capabilities for applications and general support systems based on system/site categorization levels.

g. We updated the Assessment and Authorization process by focusing on increasing system owner accountability for systems nearing Authority to Operate (ATO) expiration.

h. We also created an organizational library of security incidents with root cause analyses and corrective actions for educational/response references for future incidents.

With respect to revising policies and guidelines:

a. We have developed a cloud security framework that aligns with the NIST CSF.

b. We have also instituted a new firewall policy to cover new technologies in coordination with the Office of Cybersecurity Policy and Compliance.

c. We have published Directive and Handbook 6513, Secure External Connections, which governs the process for managing and continuously monitoring VA connections.

FISMA AND FITARA COMPLIANCE

FISMA Update

Through OIS, we currently manage a Cybersecurity Policy and Reporting Requirements Matrix which tracks FISMA submissions by VA. Through this matrix, we are able to organize and track cybersecurity policies, public laws, and NIST Special Publications guidance, Federal Information Processing Standards, Internal/Interagency Reports. The matrix also tracks VA's recurring reporting requirements that are submitted to Government-wide authorities such as Congress, the Department of Homeland Security (DHS), and OMB, and is updated when new rules, regulations, and recommendations are published.

VA is able to leverage the Cybersecurity Policy and Reporting Requirements Matrix to follow FISMA guidelines and laws in accordance with the following:

- OMB Memorandum M-17-05, Fiscal Year 2016-2017 Guidance on Federal Information Security and Privacy Management Requirements;
- OMB Memorandum M-17-25, Reporting Guidance on the Executive Order of Strengthening the Cybersecurity of Federal Networks and Critical Infrastructure;
- The recent Executive Order on Strengthening the Cybersecurity of Federal Networks and Critical Infrastructure;
- The Federal Information Security Modernization Act, or FISMA, of 2014;
- The E-Government Act of 2002;
- The FY 2017 FISMA Chief Information Officer (CIO) Metrics (October 2016); and
- The FY 2017 FISMA OIG Metrics (April 2017).

As of October 31, 2017, we have reported our FISMA Maturity Model responses to DHS, including Information Security Continuous Monitoring (ISCM), Risk Management, Configuration Management, Contingency Planning, Identity and Access Management, Incident Response, and Security Training.

In response to the 2017 OIG FISMA Audit, OIT is currently conducting an analysis of the FY 2017 audit findings in order to determine the appropriate remediation measure to take. In addition, OIS has mapped our recent FY 2017 OIG findings to NIST security and privacy controls in order to identify the controls which were commonly aligned to findings within the audit. By this mapping exercise, OIS will be able to discern the controls that require more attention and prioritize future projects based on this information. In preparation for future audit cycles, OIS is planning to develop detailed control implementation guidance for high-risk controls, providing the field with the knowledge base they will need to successful execute controls on a day-to-day basis. As the control implementation guidance is developed, it will be incorporated into the VA RMF Knowledge Service (KS); the KS will serve as the single authoritative source of VA control policy and implementation guidance.

FITARA Progress

For the third consecutive rating period, VA received a B+ grade from the House Committee on Oversight and Government Reform FITARA scorecard. While we are pleased by our score, we are not satisfied and are seeking ways to improve upon that grade. Our goal is to raise the score to an "A," and we are taking steps to achieve this milestone. One of those steps is the establishment of an OIT-based Strategic Sourcing division to ensure FITARA compliance for all IT acquisitions. Strategic Sourcing practices will improve speed to market, compliance and quality for IT solutions, provide VA with access to industry innovation, and empower employees who have the deepest understanding of the work to deliver the best solution, at the best value, to the Veteran.

The IT Operations and Services (ITOPS) division within OIT supported acquisition and asset management improvements that directly tie to the A grade that VA

received in Software Inventory, a subcategory in the scorecard. In addition, ITOPS continues its Data Center Consolidation effort to merge and close data centers at VA facilities throughout the country in accordance with OMB's Data Center Optimization Initiative memorandum, which mandated a freeze on the development of new data centers and a consolidation of the rest. This year, the team closed 23 data centers. The team plans to close another 91 by the end of FY 2018. The benefits of the Data Center Consolidation effort include increased system security, reliability, and efficiency; enhanced cybersecurity; and the opportunity to introduce innovative and cost-saving technological advances to VA systems. These improvements will allow VA employees to spend less time managing the infrastructure and more time on customer-focused activities that better serve Veterans.

As OIT continues to build the Strategic Sourcing division and its capabilities, and continues to make progress in data center consolidation, VA will remain a Government leader in compliance with this legislation and VA's FITARA score will continue to improve.

ELECTRONIC HEALTH RECORD MODERNIZATION INITIATIVE

On June 5, 2017, Secretary Shulkin announced his decision to adopt the same EHR system as DoD, which at its core is about improving VA services and significantly enhancing the coordination of care for Veterans who receive medical care not only from VA, but DoD and our community partners. Having a Veteran's complete and accurate health record in a single common EHR system is critical to that care and to patient safety. This new EHR system will enable VA to keep pace with the improvements in health information technology and cyber security which the current system, VistA, is unable to do. In addition, the new EHR will support the critical need for VA to effectively and efficiently share patient data with DoD and community partners.

With Congress' urging, VA and DoD have been working together for over 17 years on EHR issues. While we have established some interoperability between VA

and DoD for key aspects of the health record, seamless care is fundamentally constrained by ever-changing information on sharing standards, separate chains of command, complex governance, and a host of related complexities requiring constant lifecycle maintenance resulting from separate implementation schedules, program offices, and funding appropriation.

Despite previous efforts, we still do not have the ability to trade information to seamlessly execute a shared plan of care for our Veteran patients. Without improved and consistently implemented national interoperability standards, VA and DoD will continue to face significant challenges in providing the highest quality of care for our Veterans.

For these reasons, the Secretary decided that VA would adopt the same EHR system as DoD, which at its core consists of Cerner's Millennium EHR. Adopting Cerner's EHR system, which the Secretary believes is in the Veterans' and the public's interest, will ultimately result in all patient data residing in one common system. It will enable seamless care between the Departments without the current manual and electronic exchange and reconciliation of data between two separate systems. It will also result in better service to our Veterans because transitioning Service members will have their medical records at VA on day one.

Replacing VistA is a Must

Continuing to maintain VistA is more costly in the long-run and will not meet full interoperability. To bring VistA up to where it needs to be is our most expensive option. VA would have to spend roughly $19 billion over 10 years to upgrade and maintain VistA to industry standards, and this still would not provide all the needed enhancements and upgrades and interoperability with DoD. In addition, VA currently has fewer programmers than it did when VistA was designed and will be much more expensive to maintain on an ongoing basis as compared to a more modern Commercial

Off-the-Shelf (COTS) solution. VistA is in many ways like the car that we love and don't want to trade in, though it is now costing us way too much money to maintain.

The current VistA system is made up of 130 instances of the VistA EHR. Even if VA were to make the required upgrades to VistA, it still would not be able to deliver all the capabilities that the new Cerner EHR system will include, specifically a single common system to provide seamless care with DoD, and improved integrated interoperability with community providers via health information exchanges.

VA Will Leverage DoD's Efforts

Throughout our negotiations with Cerner, VA has been able to leverage lessons learned from DoD. VA is approximately three times the size of DoD's health care system. VA has 2.5 times more facilities (1,675 vs. 665); 3.7 times more interfaces (102 vs. 27); and triple the licensed users. In addition, VA's patient population will necessitate the purchase of a greater number of services and capability requirements, including greater health care interoperability and information exchange nationally, which will improve interoperability with community providers.

Efficiencies as a Result of EHR Modernization

VA will find considerable savings/efficiencies across our existing systems. Transition solutions for nearly all (138 of 143) VistA modules have been identified; the majority of which will be replaced directly by Cerner as part of our EHR modernization effort. The Cerner solution and VistA EHR will be operating simultaneously for an extended period of time with the appropriate decommissioning plan of VistA to ensure no disruption of services to our Veterans during the transition of capabilities from VistA to our modernized EHR.

The VA EHRM Team is working hand-in-hand with their DoD counterparts to ensure that seamless care and information exchange objectives are fully realized.

Efforts include the exchange of lessons learned, alignment of EHRM deployment schedules to support early interoperability successes and the establishment of an interagency governance board to promote configuration management control and long-term adherence to interoperability objectives.

Adoption of Cybersecurity Enhancements

Within the breadth of VA's migration to a new EHR system, we are actively assessing the need for VA to adopt significant cybersecurity enhancements, and we intend to leverage the architecture, tools, and processes that have already been put in place to protect DoD data, to include both physical and virtual separation from commercial clients. We are coordinating with DoD on near-term activities regarding agency reciprocity for the EHR system ATO, EHR data, and a VA-DoD reciprocity task force. VA has undertaken activities that will further align VA RMF and Assessment and Authorization processes to current DoD practices. These activities include but are not limited to the following:

- RMF collaboration, to include the sharing and analysis of: security and privacy controls, ATO documentation, and security artifacts;
- Drafting an ATO reciprocity memo to include the EHR system and other ancillary partnership efforts between VA and DoD;
- Collaboration with DoD on the EHR architecture and risk tolerance levels;
- Acquisition of the eMASS Governance, Risk Management, and Compliance tool, of which DoD currently uses; and
- Establishment of the VA RMF Knowledge Service (KS) similar to DoD. The KS will contain security policies and guidance, as well as new NIST security control implementation and assessment procedures.

Oversight and Transparency

VA will provide full transparency in this project, including an Initial Operating Capability milestone and other decision points prior to full deployment. We would also like to request establishment of a separate new appropriation account for EHRM costs. A separate account would allow all EHRM costs to be captured in one place, provide full transparency of and accountability for resources, and enhance EHRM implementation. Finally, this is being managed differently than past efforts. First, this is a Secretary-Level initiative, with the Deputy Secretary overseeing the new governance structure, which includes OIT and VHA. Additionally, we are using a buy vs. build strategy to implement proven technology from an industry leader. Finally, we are leveraging lessons-learned from DoD as well as private sector expertise in a way that has not been done before.

CONCLUSION

Mr. Chairman and Madam Ranking Member, this concludes my testimony. Thank you again for the opportunity to discuss with you today the progress that the VA OIT is making towards its transformation efforts. Throughout this transformation, our number one priority has and will be always the Veteran. Ensuring a safe and secure environment for their information and improving their experience is our goal. I look forward to answering your questions.

Mr. HURD. Thank you, Mr. Blackburn.

And before we turn to Mr. Gianforte for the first round of questions, Mr. Cussatt, we know what a CISO does. Mr. James and Mr. Windom, can I get you all to explain to the committee what your exact role is, who you report to directly? Just take 30 seconds.

Mr. JAMES. Yes, Chairman, thank you. The Enterprise Program Management Office inside the CIO's organization at the VA, we're the control tower for all of the projects, the ongoing projects with the exception of the EHR project, which has its own BEO. So we track all the project's costs, schedule performance that are ongoing today in the IT organization.

Mr. HURD. And who is your direct supervisor?

Mr. JAMES. Scott Blackburn, sir.

Mr. HURD. Got you. Mr. Windom?

Mr. WINDOM. Sir, recently retired, Captain John Windom, 33 years United States Navy. I was a program manager that oversaw the DOD successful acquisition of the Cerner Millennium product. I was brought over in uniform about six months ago at the request of Secretary Shulkin from Secretary Mattis to kick off if you will the DNF activities and negotiations with Cerner. I've been leading that and now in a retired capacity as a—as the executive overseeing the entire electronic health record modernization, direct report to the Deputy Secretary, and so he is who I consider my boss.

Mr. HURD. Well, welcome. It is good to have you here.

Mr. WINDOM. Thank you.

Mr. HURD. It is a mess, and we are glad we have you on board to work on this project.

Mr. WINDOM. Great to be here, sir.

Mr. HURD. The distinguished gentleman from Montana is now recognized for five minutes.

Mr. GIANFORTE. Okay. Thank you, Mr. Chairman. I want to thank each of you for being here. This is a critically important topic for us to be discussing. In Montana, we are the second-largest per capita of citizens that have served in the military. And as I travel the State, the number-one issue I hear is health care from the VA in every single meeting, so I appreciate you being here.

And in a rural State like Montana, it can take hours to drive to a VA hospital or clinic, so scheduling becomes extremely important, particularly advanced notice. It could take three days to go to an appointment and come back again. So, as we have heard, clearly we can do better, and I appreciate your efforts in that regard.

I come from a software background. I have done literally thousands of enterprise-class deployments. One particular one was for the Air Force Personnel Center. It was their entire records systems for processing all the stuff, so have some experience. And that handled all active-duty and all retired Air Force personnel, so it was of some scale.

You have shared that this new Cerner system, Mr. Blackburn, will be $10 billion and 10 years to complete. Is that correct?

Mr. BLACKBURN. That's correct, sir.

Mr. GIANFORTE. Okay. I haven't been through a lot of sales cycles on the software side. If I had walked into a boardroom and asked for $10 billion and 10 years before we could get a system deployed, honestly, I would have gotten laughed out of the boardroom. It is

difficult to fathom it could take that long. And comparing my own experience with the Air Force system that we deployed, granted, the entire VA is larger, but what you are proposing is not 10 times more expensive, it is not 100 times more expensive, it is 1,000 times more expensive, three orders of magnitude, which provides some level of sticker shock.

Where I want to focus my questioning, Mr. Blackburn, is just on what steps you are taking to minimize the cost and get functionality in the field so that we can retire this VistA system and move on. So the first area I want to speak about is just customization of applications. When large enterprise-class applications are customized, they tend to become brittle. Integrations don't work as well. What percentage—and one measure of that is how much of the total fee is going into customization versus licenses versus operation and maintenance. Can you share with me a little bit of how that $10 billion breaks out between license and customization?

Mr. BLACKBURN. Well, first of all, thank you for the one-on-one time. That was very productive, and I really appreciate it.

This is going to be the largest implementation of a healthcare system, EHR, ever, and it's going to be a really big undertaking. The key difference between previous efforts is we're going to be buying the commercial off-the-shelf solution and absolutely minimizing the customization.

I'll ask Mr. Windom to kind of get into some of the specifics there.

Mr. WINDOM. Sir, I appreciate your question, appreciate the opportunity.

The—I need to make sure there are some facts brought to the table. Number one is the VA is three times larger than DOD. We awarded the contract for DOD at $4.33 billion, and so the complexity is deemed about four times larger in that we have well over 100 interfaces. DOD had approximately 25 to 27 interfaces.

The $10 billion is not what's needed at contract award. The $10 billion is for the duration of the contract. And I'm really not at liberty to talk about specifics of the price negotiation. We'll gladly come brief you in whatever detail you'd like personally and give you a complete breakdown of the pricing structure.

Mr. GIANFORTE. So just in the initial acquisition, what percentage is professional services versus license?

Mr. WINDOM. The—sir, that would be crossing me over to Procurement Integrity Act because I would be giving you contract values. Again, sir, prepared to give you that granularity in a private session outside ——

Mr. GIANFORTE. Okay.

Mr. WINDOM.—the public forum, so I apologize. I guess ——

Mr. GIANFORTE. I think with a number that large we are just asking to understand.

Mr. WINDOM. Well ——

Mr. GIANFORTE. And, Mr. Blackburn then, if we—one of the recommendations from the GAO here was item 3 to redesign business process to conform with commercial off-the-shelf software as a way to bring costs down and reliability. What business process redesign efforts are you undertaking inside VA to conform with best prac-

tices and maybe leave behind some of those 30-year-old processes and pick up new ones that are available to us?

Mr. BLACKBURN. Well, one of the big issues that we have is we have different processes at each one of our 168 medical centers, and so we're not standardized right now across our own medical system. What this will force us to do is standardize across our medical system and then also in line with the workflows of DOD in order to implement this off-the-shelf solution.

Mr. GIANFORTE. And, Mr. James, is that a primary focus of the PMO in doing business process redesign to bring conformity across the ——

Mr. JAMES. Congressman, that would be better addressed by the PEO Mr. Windom.

Mr. WINDOM. Sir, my primary responsibility is program management oversight, as you alluded to. You get what you inspect, not expect. I have led to a number of multibillion-dollar programs and understanding that though we have selected a phenomenal partner in Cerner or will award a contract, we've got to have the mechanisms in place to oversee their efforts to protect the taxpayers' interest and obviously the interest of our veterans. So our Program Management Office is going to consist of what I believe is you need physics, physicists to grade physics homework. So we're going to have the full breadth of clinical capabilities and technological capabilities at our disposal to oversee the implementation, sir.

Mr. GIANFORTE. Okay. Well, I would encourage you that as much standardization would be ——

Mr. WINDOM. Yes, sir.

Mr. GIANFORTE.—helpful in keeping the cost down.

The last point I just want to ask Mr. Blackburn is we have heard before this committee a number of other agencies testify about the cost savings increase in reliability and speed to deployment when solutions are in the cloud. What percentage of the Cerner system will be native in-the-cloud technology?

Mr. BLACKBURN. The—Mr. Windom will probably have the best information for that, but it's the majority.

Mr. WINDOM. Sir, so we're involving with technology. As you know, there are a number of inhibitors associated with the movement of PII data into the cloud. I can assure you we're working ——

Mr. GIANFORTE. So is there a percentage?

Mr. WINDOM. Sir, I don't have a percentage, but we're going to be on premise and in the cloud simultaneously in delivering that support. What the ——

Mr. GIANFORTE. We have had other agencies testify that there are 100 percent in the cloud now.

Mr. WINDOM. That's not the case, sir.

Mr. GIANFORTE. Okay. Well ——

Mr. WINDOM. That would not be the case for us.

Mr. GIANFORTE.—I just want to—I will just finish up. I have run past my time. Thank you, Mr. Chairman. It is just the work you are doing is critically important for our veterans. They are not— we all know they are not being served well today. Let's work together to make this happen.

Mr. BLACKBURN. Absolutely. Absolutely, sir.

Mr. GIANFORTE. I yield back.

Mr. HURD. The gentleman yields back. Now, I recognize the ranking member for her first five minutes of questions.

Ms. KELLY. Thank you, Mr. Chair.

The number-one mission of the VA is to care for our veterans, and a central part of that mission in delivering quality healthcare generally is tracking outcomes. The ability to track outcomes help both prevention and treatment. Mr. Blackburn, the VA cannot properly care for our veterans and track outcomes without the ability to communicate with DOD and share information. Can DOD and the VA currently exchange patient health data between one another?

Mr. BLACKBURN. Thank you, Ranking Member Kelly, and thank you also for our one-on-one session.

The—yes. The answer is yes, that we currently can. My doctor in the Orange Clinic of the Washington VAMC, we have something called Joint Legacy Viewer in—which allows clinicians within DOD and VA to be able to see each other's medical records. It's not perfect. It's read-only. It's as good as it could possibly get it. I think we have roughly almost 8 million or so medical records that have been viewed on Joint Legacy Viewer.

Ms. KELLY. Thank you. Do all users have access to interoperable electronic health records, the system?

Mr. BLACKBURN. The—I think most. John Short, is that all? All.

Ms. KELLY. All? Okay, great.

Mr. BLACKBURN. Yes.

Ms. KELLY. VistA evolution showed progress in achieving the ability to share data between DOD and VA. In June of this year, however, the Secretary announced that the VA would now acquire the same health system as the DOD. This is a rather remarkable shift since it was previously planned that DOD and VA would have the same healthcare system and that efforts were abandoned. Why is the VA going back to this plan that it previously abandoned, and why does it believe this is the best course of action at this time?

Mr. BLACKBURN. The—maintaining our current VistA system is not an option. It will be incredibly costly. Matter of fact, we had a third-party estimate that took a look at it and estimated it would be roughly up to $19 billion to maintain and to upgrade our current VistA system. And that would not get us the seamless interoperability of—that we're looking for with veterans. With—by moving to the same exact product, the same exact instance that DOD has, it will all be one record. It will be DOD doctors and VA doctors going into the exact same record, which will make that seamless.

Currently, as a veteran, most of my records as a soldier were on paper. Those were lost when my parents' basement was flooded, so my VA doctor does not have that information. That will not be the case for my kids when they go to serve.

Ms. KELLY. Okay. And, Mr. Blackburn, will the transition away from the health management platform that was the key part of the VistA evolution affect the interoperability with the Department of Defense?

Mr. BLACKBURN. Please repeat the question.

Ms. KELLY. Will the transition away from the health management platform that was a key part of VistA ——

Mr. BLACKBURN. Yes.

Ms. KELLY.—evolution, will that affect the interoperability with the Department of Defense?

Mr. BLACKBURN. We will maintain that ability on Cerner to be able to view those records within the Joint Legacy Viewer, so we will not lose that data. That will be a key part of our implementation.

Ms. KELLY. And what is your timeline?

Mr. BLACKBURN. The timeline overall for implementation of Cerner is roughly 10 years ——

Ms. KELLY. And ——

Mr. BLACKBURN.—for the entire thing.

Ms. KELLY. And what are you doing to achieve interoperability with healthcare providers outside of the VA and DOD?

Mr. BLACKBURN. That's a great question, and that's actually something that we're working with the Office of American Innovation and the White House on. The Cerner solution, that will give us interoperability within the VA, first of all. Second, it will give us interoperability with the DOD because it's the same record. And then thirdly, the—Cerner has a CommonWell solution in which they have their network of private hospitals that that will—but it won't give us 100 percent. No solution right now will give us 100 percent with the private sector. That solution does not exist right now, but I think that would be a longer-term goal for our country so that it would be completely seamless. And that's actually a problem that we're working with the White House on.

Ms. KELLY. Okay. Thank you. In previous testimony before this committee GAO has stated that agencies need, and I quote, "To define what they aim to accomplish through these efforts and identify meaningful outcome-oriented goals and metrics." DOD and VA, do you agree with GAO's assessment that outcome-oriented goals would help measure progress toward interoperability and hold your departments accountable for their progress?

Mr. BLACKBURN. Absolutely. Absolutely agree.

Ms. KELLY. And what do—well, what does your respective agency aim to achieve regarding improved health outcomes and delivery from your interoperability efforts?

Mr. BLACKBURN. Ask Mr. Windom for specifics there.

Mr. WINDOM. The metrics—the right metrics, ma'am, I would offer are our primary concerns, so KPPs, SLRs, SLAs, things that we can use to clearly identify that we are achieving our quality goals on behalf of our beneficiaries.

We've got what's called a quality assurance surveillance plan as part of the contract. Those contracting officer representatives, quality assurance representatives will be overseeing the delivery of those metrics as the product is being rolled out to ensure that we're in fact getting what we paid for. So there's a myriad of metrics that add value that are not only aligned with the commercial standards that kind of reduce that customized problem that we often have when implemented business systems but also to leverage what's important within the VA with regards to value metrics. So a combination of the two, ma'am, and we use the quality assurance surveillance plan as that tool to oversee those metrics.

Ms. KELLY. Can I just ask one more question?

When I asked about how you are working with outside ——

Mr. BLACKBURN. Yes.

Ms. KELLY.—entities, now in the State of Illinois I believe they passed legislation where a veteran could go to another hospital or at least they were working on it.

Mr. BLACKBURN. Yes.

Ms. KELLY. How many States is it, do you know, that ——

Mr. BLACKBURN. The whole ——

Ms. KELLY.—can do that? The whole ——

Mr. BLACKBURN. The whole country. That's the Veterans Choice Program, which has not been perfect. I know in Montana it has not been good. It's been terrible. But that's something that we're working on, and actually, there's draft proposals of bills in place to improve that program right now.

Ms. KELLY. Okay. Is this—like where I live in the suburbs or the south suburbs of Chicago and where the VA hospitals are ——

Mr. BLACKBURN. Yes.

Ms. KELLY.—downtown and west, so it is an effort to get there, not like Montana but ——

Mr. BLACKBURN. Yes. So, ma'am, I'm actually a good example. I get my primary care at the Washington VAMC, but I get physical therapy through the Veterans Choice Program in Bethesda closer to where I live. The—and it makes a big difference.

Ms. KELLY. Okay. Thank you.

Mr. BLACKBURN. Yes.

Mr. HURD. All right. I recognize myself ——

Mr. CONNOLLY. I am sorry, Mr. Chairman. Did I just hear Maryland, not Virginia?

Mr. BLACKBURN. That is correct, Mr. Connolly.

Mr. CONNOLLY. Oh, my Lord. All right.

Mr. HURD. Bad move, Mr. Blackburn.

I recognize myself for five minutes, and I yield to the gentleman from Montana.

Mr. GIANFORTE. Okay. Thank you, Mr. Chairman.

I just want to continue the conversation a little bit. And, Mr. Blackburn, you testified again this Cerner implementation, $10 billion, 10 years, and I understand the VistA system then has to stay in place for that entire period of time. And as I understand the cost to—annual cost currently for the system is between 800 and $900 million a year. Is that correct?

Mr. BLACKBURN. Roughly. Roughly. It's multiple hundreds of millions of dollars, way too expensive.

Mr. GIANFORTE. And aspects of that system are pretty long in the tooth, is that correct? It has been around a long time?

Mr. BLACKBURN. Oh, it's been around for about 40 years.

Mr. GIANFORTE. And it is not working that well?

Mr. BLACKBURN. It has worked for 40 years, but it's not sustainable. It can't go forward into the future.

Mr. GIANFORTE. It has lost its luster at a minimum ——

Mr. BLACKBURN. It has.

Mr. GIANFORTE.—the 40 years. So here is my—one strategy I have seen used in the private sector when you have these massive boil-the-ocean kind of projects like the one we are undertaking that is 10 years and $10 billion is to use on an interim basis best-of-

breed technologies to pick off high-value components that may be excessively costly or of high value in terms of functionality. You mentioned scheduling.

Mr. BLACKBURN. Yes.

Mr. GIANFORTE. It happens that I had served on a board of directors of a medical scheduling company. I am not here to advocate for them, but we did scheduling for tens of thousands of doctors across the United States completely in the cloud. If you were able to spend a small amount of money to do something and then throw it away when utopia arrives in 10 years, have you considered strategies like this to use best-of-breed technology on an interim basis to deliver more value to our vets in the short term and save operation and maintenance costs out of this $8–900 million a year you are spending on VistA?

Mr. BLACKBURN. We have. And scheduling's been a massive issue for us. As a matter of fact, we have a board, a visual that shows what our previous scheduling system looked like, right? This is what doctors had to go and use. What we're currently doing right now in 151 out of our 158 facilities is we've moved under Mr. James, who has lead this program, to what we're calling VSE, VistA—it's an upgraded VistA GUI system on top of that. That is a shorter-term bridge as one of the efforts we've done on there. There are also a couple of other efforts that we have. One is an online scheduling application, again, a homegrown system, so ——

Mr. GIANFORTE. Okay.

Mr. BLACKBURN.—the VSE system is homegrown.

Mr. GIANFORTE. To what extent have you looked at commercial off-the-shelf ——

Mr. BLACKBURN. Yes.

Mr. GIANFORTE.—best-of-breed applications to pick off either high-cost or high-value components of VistA just on an interim— I mean, because 10 years is a long time. I am not sure any of us are going to be sitting here in 10 years, but we are going to have veterans looking for services. To what extent have you implemented that sort of strategy?

Mr. BLACKBURN. Yes. Mr. James, do you want to talk a little bit about that?

Mr. JAMES. Sure. We've looked at that over and over again, and we can apply, for example, with the VSE, VistA scheduling enhancement outlook like GUIDANCE, that type of best-of-breed at the top layer, but the problem comes when you have to interface it to the 130 different versions of VistA across the country, each one of which has 140 to 150 old ——

Mr. GIANFORTE. Does that ——

Mr. JAMES.—applications.

Mr. GIANFORTE. That VistA GUI, does that work on mobile devices?

Mr. BLACKBURN. Yes. Yes, sir.

Mr. GIANFORTE. And it works on a web browser?

Mr. JAMES. Yes, sir.

Mr. GIANFORTE. So a veteran can access it from anywhere?

Mr. JAMES. Yes, sir.

Mr. GIANFORTE. And is that deployed in Montana?

Mr. JAMES. I believe it is. I'd have to confirm ——

Mr. BLACKBURN. It's currently deployed in 110 of our sites. We'll have to check and make sure Fort Harris ——

Mr. GIANFORTE. I am more interested—I ask more from the perspective of a rural State ——

Mr. BLACKBURN. Yes.

Mr. GIANFORTE.—that has a lot of veterans. So I would just encourage you to do that. And just in our conversation, to summarize, I think—and you have mentioned these things. I would just encourage you, minimize customization.

Mr. BLACKBURN. Yes.

Mr. GIANFORTE. Change business practices to standardize them so you are not doing the customization. Get to the cloud. That is where the puck is going to be.

Mr. BLACKBURN. Yes.

Mr. GIANFORTE. We need to skate there. And then I would highly encourage you to look at best-of-breed commercial off-the-shelf apps as gap-fillers between now and utopia that is going to show up in 10 years from now.

Mr. BLACKBURN. Absolutely. I appreciate that feedback.

Mr. GIANFORTE. And, Mr. Chairman, I yield back.

Mr. HURD. Reclaiming my time. Mr. Powner, there is a lot of conversations going on, a lot of topics hit. Do you have any opinion on the comments so far?

Mr. POWNER. Yes. I think clearly the word minimize is—that's a scary word, okay, because we've heard minimize customization with a lot of commercial products in the Federal Government, and that's—minimize means a range of activities. I think you want to really try to almost eliminate customization. You're going to change your business processes anyway significantly, so go full bore and eliminate.

Mr. HURD. Thank you, Mr. Powner.

Now, it is a pleasure to recognize my friend from the Commonwealth of Virginia, Mr. Connolly, for your round of questions.

Mr. CONNOLLY. I thank my friend from Texas, Mr. Chairman. Thank you.

And welcome. And Mr. Blackburn was also—you made the rounds, and good for you.

Mr. BLACKBURN. Thank you.

Mr. CONNOLLY. Mr. Powner, let's begin by—can you summarize what kind of performance did we see in the FITARA scorecard for VA this time?

Mr. POWNER. Well, on the FITARA scorecard overall B-plus. They've consistently scored well on incremental development to their credit. Software licensing, they were one of seven agencies to have that inventory and do something with it, so those areas are very strong. The one area that everyone acknowledges that they have a lot of work to do is on data center optimization. They fall far short of OMB's goals on closures, savings, and also with the optimization metrics.

Mr. CONNOLLY. And, by the way, just putting that in context, if I am correct, GAO reported that, as of August 2017, we have identified a total of 12,062 data centers. That is 2,000 more than a year ago.

Mr. POWNER. Yes, we've been back and forth on the total number here. A lot of that's attributed to Treasury where you've ——

Mr. CONNOLLY. Those people ——

Mr. POWNER. They had a number in the inventory, off the inventory. They're back in the inventory, so now we are up to about 12,000. The good news government-wide is we've closed almost half of those, close to 6,000, so that's the good news.

Mr. CONNOLLY. Right. Okay. And let me see. And, Mr. Blackburn, if I understand your inventory, you have got 415 data centers, correct?

Mr. BLACKBURN. Roughly. I think we started with 386, but it's an awful lot, way too many.

Mr. CONNOLLY. And you have closed only 39 as of August?

Mr. BLACKBURN. I had 24 but the—roughly correct.

Mr. CONNOLLY. Mr. Powner, do you want to comment on that?

Mr. POWNER. My numbers are close to about 40 of the 415 ——

Mr. CONNOLLY. Right.

Mr. POWNER.—as of August.

Mr. CONNOLLY. I mean, I am kind of following his numbers, but ——

Mr. POWNER. Sure.

Mr. CONNOLLY.—if your performance is even less stellar ——

Mr. POWNER. I have even less closures.

Mr. CONNOLLY. All right. Now, in our conversation you set a metric for yourself, and do you want to share that with us? So let's call the number somewhere around 400 data centers.

Mr. BLACKBURN. Yes.

Mr. CONNOLLY. What do you want to get it down to and in what time frame?

Mr. BLACKBURN. We would like to get down to 14 core data centers by the end of 2020. In addition to that, we would have 42 special-purpose data centers. These are things like for our mail-order pharmacy and things of that nature, but even that to me feels it might be a little high, so I would like to go and kind of scrub those with my team. But that would be our goal by the end of 2020.

Mr. CONNOLLY. That is a pretty strong stretch goal to go from 400-plus to 20. Mr. Powner, realistic goal?

Mr. POWNER. I believe—here's what's—that makes it realistic. When you look at the 130 instances of VistA and a lot of the data centers are co-located at these facilities, I think the data center consolidation really needs to go hand-in-hand with this migration to the commercial Cerner product. That's where there's a real opportunity to save a lot of money in the data center area. We're spending a lot of money, but we can get a huge return from a data center point of view.

Mr. CONNOLLY. What is the estimated savings if Mr. Blackburn achieves this goal in three years for the data center consolidation? Any estimate?

Mr. POWNER. I don't have a good estimate on that.

Mr. CONNOLLY. Are you operating on any kind of assumption it will save us X?

Mr. BLACKBURN. I haven't been able to get an estimate yet. I think that's one of the reasons why we have such a low grade on FITARA.

Mr. CONNOLLY. Yes, I think that is really important both for ——

Mr. BLACKBURN. Yes.

Mr. CONNOLLY.—incentivization and maybe more important now that MGT, the bill we have been working on collectively here, hopefully will be law soon.

Mr. BLACKBURN. By Tuesday.

Mr. CONNOLLY. By Tuesday. And that obviously allows you to be reinvesting in yourself with the savings effectuated pursuant to FITARA. So we—among other things, but I mean I would hope that is an incentive for people.

Mr. BLACKBURN. Absolutely. We're very excited about that, and I think the more positive incentives like MGT that can put in place where we can reinvest those savings, we're extremely excited, and that will really help us.

Mr. CONNOLLY. Mr. James, I see you affirming that. You are welcome to comment.

Mr. JAMES. Yes, Congressman. I'm from your district so I can dig Scott out of ——

Mr. CONNOLLY. Excuse me.

Mr. JAMES.—his Maryland hole.

Mr. CONNOLLY. This man is only deputy assistant. He needs a promotion.

Mr. JAMES. Congressman, the reason I share the excitement in that act is that our Secretary has challenged us to go find—ask industry for some innovative ideas, share-in-savings types of ideas where we put in some seed money, they find savings, and then we share the benefits. We win, they win. And the seed money could come from that particular act, and so we're—we have a runway in front of us that, with that act, I think we can make some headway.

Mr. CONNOLLY. And you have raised the Secretary, and that is good to hear, too. Can you talk a little bit, both you and Mr. Blackburn, anyone else who wants to as well, but one of the things Mr. Hurd, Ms. Kelly, and Mr. Meadows and I are concerned about frankly is the organization chart. Who reports to whom? How high up in the hierarchy is the CIO? Because we feel that if you don't have the ear of the boss, it is all fascinating but no guarantee anyone is going to pay the kind of qualitative attention we demand, we want. We think that the CIO has just got to be an empowered person and everyone needs to know it. So comment a little bit about what is the relationship with the Secretary?

Mr. BLACKBURN. Yes.

Mr. CONNOLLY. Let's stipulate the Secretary is wonderful and walks on water. We will stipulate that, but what is the working relationship and what does it look like on the organization chart so the somebody like us, it would leap out right away or it wouldn't?

Mr. BLACKBURN. So on the organizational chart the CIO reports directly to the Deputy Secretary at the VA. The ——

Mr. CONNOLLY. Which is Mr. James?

Mr. BLACKBURN. Which is Mr. Tom Bowman is the Deputy Secretary.

Mr. CONNOLLY. Okay.

Mr. BLACKBURN. The ——

Mr. CONNOLLY. Oh, I'm sorry, you said Deputy Secretary.

Mr. BLACKBURN. Yes.

Mr. CONNOLLY. Right.

Mr. BLACKBURN. Yes. Yes. So CIO reports to—I report to Tom Bowman. The—Secretary Shulkin is incredibly hands-on involved. He and I have a great relationship. I was the interim deputy secretary until Mr. Bowman came on board. He has been very, very hands-on and active. He is the one that personally made the decision to go to the commercial off-the-shelf solution with Cerner. He is very comfortable with technology and a big proponent of what we're doing.

Mr. CONNOLLY. Sure. And you concur, Mr. James?

Mr. JAMES. Yes. Yes, Congressman.

Mr. CONNOLLY. All right. Anyone else want to comment?

So, Mr. Powner, we are going to be back here in a year or so hopefully with a different grade that is an improved grade because of data center consolidation. Do you agree?

Mr. POWNER. Let's hope so.

Mr. CONNOLLY. All righty. Thank you all so much for being here. I do hope—I want to underscore Mr. Hurd, my presence here, and Ms. Kelly and Mr. Meadows—who couldn't join us today—I don't mean to leave you out. I am just talking about the ranking member and the chair. We are committed on a bipartisan basis to make this happen, so we have got your back, but we will also—we are more than willing to create pressure and stress where it is needed to improve performance because we are very serious about FITARA and the other related bills. So thank you for being here and thanks for your commitment, which I think is robust, and I like that in government, so thank you.

Mr. BLACKBURN. Thank you, sir.

Mr. HURD. I now recognize myself again for five minutes of questions. And to follow up on what my friend from Virginia was talking about, about the question on coordinating data centers with the Cerner rollout, and everybody was shaking their head as if this is a good idea. And my question is are we coordinating the closure of data centers with the Cerner rollout? Mr. Blackburn, maybe that goes to you.

Mr. BLACKBURN. We are, and I'll yield to Mr. Windom to talk about the Cerner rollout.

Mr. WINDOM. Yes, sir. Mr. Chairman, the Cerner solution has a platform called Healthy Intent. That's its primary data management hosting element that we intend to move our data into obviously in a controlled and properly risk-mitigated fashion such that we don't compromise that care being delivered. We are going to make sure that we—that data is where we want it to be and usable before we shut anything down. That's why I believe that our data consolidation plan is feasible because we are moving that data very similar to the DOD solution into the Healthy Intent platform that gives us again that seamless movement of data across DOD and VA environments.

Mr. HURD. So how long will VistA and the new electronic health records system coexist?

Mr. WINDOM. Sir, let me—so you have a relative—the DOD— when we awarded the DOD contract, it's a seven-year rollout for about a third of the size of the VA population, 1,600 facilities on VA side, about 600-plus including ships and expeditionary plat-

forms on the DOD side. In addition, we have 318,000 users relative to about 112,000 users on the DOD side. So the answer to your question is is that the plan is going to be to roll this out, VistA has to run simultaneously with the new solution. That's part of the acquisition curve and that we have to keep that solution delivering today.

Mr. HURD. Mr. Windom ——

Mr. WINDOM. Yes, sir.

Mr. HURD.—I understand, and your job is hard.

Mr. WINDOM. Yes, sir.

Mr. HURD. Nobody questions that. Nobody questions that. But the difficulty you are going to have is what I would call the incompetence of previous activity, right? And so you are the new man, and you have the right credentials to do this, but this is the frustration when you see this has been going on for a long time because we are solving the problem. So the first—if the veteran leaves DOD in, let's say, 2019 and they transition to the VA, he or she will be moving to the VistA system, is that correct?

Mr. WINDOM. Potentially. And I say that because one of the reasons for our deployment schedule is we're—we intended to align as much as possible to the deployment schedule of DOD ——

Mr. HURD. Yes.

Mr. WINDOM.—because we want to demonstrate interoperability to you immediately.

Mr. HURD. So ——

Mr. WINDOM. So it depends would be the answer.

Mr. HURD. And let's get to interoperability. We are going to be here for a while. The JLV is not interoperability. Has anybody at this panel set with doctors in a facility and had them walk you through the JLV? Mr. Windom?

Mr. WINDOM. Yes, sir. I was DOD when we only were moving 50 records.

Mr. HURD. Yes.

Mr. WINDOM. Now, we're moving tens of thousands if not hundreds of thousands ——

Mr. HURD. So ——

Mr. WINDOM.—so yes, sir, the answer is yes, sir.

Mr. HURD. So you understand the problem. And so we talk about JLV like we have already achieved interoperability. We haven't. It is the equivalent of using microfiche, and so the fact that, yes, it is the right decision to go to one system, but that one—so the people that are going to benefit are potentially—we are seven years away from that. And yes, Healthy Intent is the data platform that you're going to be using on Cerner, but what VA and DOD have not proven they can do is to integrate that data in one view.

And so my concern is this is still a problem of data interoperability because we have to take all the data that has been gathered from VistA and make sure it is viewable through Cerner. And there is nothing to date that makes me feel comfortable that we know we can do that. And we are sitting here saying, yes, it is a big— the largest software sale ever in the history of the planet, right? Like I get how big of a deal it is, but, number one, why the hell are there 130 versions of VistA? Now, Mr. Windom, I know that is not your problem. That is not your problem. But, Mr. Blackburn,

can you give me some—like how has that been allowed to continue? I don't even know what that means. How would you have 130 versions of the same program operating in one organization?

Mr. BLACKBURN. So my understanding of that—and VistA started around the time I was born, so this decision dates back to me being a toddler—was—the idea at the time was local innovation. VistA was built by doctors, for doctors. Still to this day it actually rates as a—doctors rate it as the most user-friendly electronic health record.

Mr. HURD. It was groundbreaking ——

Mr. BLACKBURN. Yes.

Mr. HURD.—when it started.

Mr. BLACKBURN. Yes.

Mr. HURD. Yes. I would agree with that.

Mr. BLACKBURN. And they ——

Mr. HURD. But 130 versions later is pretty crummy.

Mr. BLACKBURN. You're exactly correct, and that means, you know, if I go—if I'm getting seen in—right now in Washington, they can't—it's difficult if I go to another instance for that data to flow seamlessly.

Mr. HURD. So what processes were in place or not in place that allowed that behavior to continue? Because if we don't first identify why that behavior was allowed to happen, we are not going to be able to prevent it in the future.

Mr. BLACKBURN. The philosophy at the time was we're going to push the power of how to run the hospital to the electronic health record and their workflow to the local hospitals.

Mr. HURD. Sure.

Mr. BLACKBURN. So there's the joke if you've seen one VA, you've seen one VA. They run completely differently, and then they map their health record to how they were run. What we are—what we are going to do is standardize workflows and not allow that to happen. And matter of fact, DOD and VA will have the exact same workflows.

Mr. HURD. Now, it is pretty clear from the limited time we have in with Mr. Windom that he is high speed, low drag, and my question, Mr. Windom, when will we be able to demonstrate for one record that we can get the data from a VistA EHR and view it through a Cerner application? When will we be able to demonstrate the ability to do that for one?

Mr. WINDOM. Sir, the timeline for what we call initial operating capability, which we anticipate for Pacific Northwest is less than 18 months. So we expect to be able to demonstrate interoperability. Obviously, we will be doing it in a laboratory environment where will be able to demonstrate a record, but we want to show you in a real-time environment. And so prior to full deployment, we will have achieved IOC at these various sites, sir.

Mr. HURD. The last time we had this conversation with your predecessors, my question was, at its core, this is not a hard challenge. You map one data element to another data element. L name maps to last name, full name maps to F name. Have we done that mapping?

Mr. WINDOM. Sir, that alignment—we've got a comprehensive data management strategy. You know, your points are right on

point if you will in that we are not going to put JLV data into the Healthy Intent platform. That data is being reconciled such that we have transactional capability to move data ——

Mr. HURD. Sure.

Mr. WINDOM.—to process data between DOD and VA, so it's not just—we know—JLV was a—was an interim fix. JLV access will exist as we transition because we don't want to destroy that existing continuity of data. But the Healthy Intent, it's just not going to be load JLV into Healthy Intent. It's going to have manipulatable data, transactional data that supports the movement of information across the DOD and the VA enterprise, sir.

Mr. HURD. So is the data architecture of VistA version 1 different from VistA version 130? So are you working with 130 different data sets?

Mr. WINDOM. Yes, sir. That would be accurate.

Mr. HURD. That is crazy.

I would like to now recognize Mr. Connolly.

Mr. CONNOLLY. Thank you, Mr. Chairman. Just to humanize what you are talking about, Mr. Chairman, Mr. Blackburn, I think you shared with me your own personal experience in terms of health records. Could you remind me, so you come from Massachusetts, God's country, right ——

Mr. BLACKBURN. Right.

Mr. CONNOLLY.—except for Virginia.

Mr. BLACKBURN. Yes.

Mr. CONNOLLY. And your files were in ——

Mr. BLACKBURN. Partners Health Care, so Mass General Hospital ——

Mr. CONNOLLY. Right. Okay.

Mr. BLACKBURN.—Beth Israel.

Mr. CONNOLLY. And you need to have someone here look at them, right?

Mr. BLACKBURN. Yes, so I—and I lived in Cleveland for 10 years, so I have medical information in the Cleveland Clinic. Obviously, I was a soldier in the Army. I get my care at the VA. I get some of my care at NovaCare. The—last summer, I broke my arm and got rushed to the hospital at a Johns Hopkins Hospital, so all my data, my healthcare data is spread out over all these different healthcare systems that do not necessarily talk to each other.

Mr. CONNOLLY. So how did that affect in any material way the quality of care you were given?

Mr. BLACKBURN. Oh, it affects it drastically. The—you know, when I came here and enrolled in the Washington VAMC, I actually brought a large paper file from the Cleveland Clinic that I printed out to my doctor, and he was very appreciative of that. The—it's very difficult for them to tell me—to be able to see things like x-rays from when I broke my arm, what shots I've had. You have to fill out paperwork over and over again.

Mr. CONNOLLY. Which an electronic record-keeping system ought to obviate?

Mr. BLACKBURN. As long as they talk to each other.

Mr. CONNOLLY. But they have got to be compatible, which it goes to interoperability, right, Mr. Windom?

Mr. WINDOM. Yes, sir.

Mr. CONNOLLY. Well, as we heard, it is not just a nice thing to do, and it is not even just that it saves money. It also affects quality of care of the veterans we serve ——

Mr. BLACKBURN. Yes.

Mr. CONNOLLY.—so there is a real imperative here. I thank you. Thank you, Mr. Chairman.

Mr. HURD. The distinguished gentleman from Montana is recognized.

Mr. GIANFORTE. Thank you, Mr. Chairman.

Mr. Blackburn, you had said that scheduling is a particular area of focus ——

Mr. BLACKBURN. Yes.

Mr. GIANFORTE.—for you, so a very simple question. Does the VA currently have a commercial off-the-shelf scheduling pilot in production?

Mr. BLACKBURN. We have two. So we have one as mandated by the Faster Care for Veterans Act. We actually—it's in test mode right now. I believe it just went live just a few days ago in three VA hospitals: Minneapolis; Salt Lake City; and Bedford, Massachusetts. We also have a pilot going on in Columbus, Ohio, with a solution called MASS, which is an Epic-based, resource-based scheduling system.

Mr. GIANFORTE. Okay. So Epic is really a competitor with Cerner?

Mr. BLACKBURN. They are.

Mr. GIANFORTE. Yes, so you are deploying Epic as well as Cerner?

Mr. BLACKBURN. The Epic is in pilot mode in Columbus. We—that was actually—that was put in place before the Secretary made the Cerner decision.

Mr. GIANFORTE. Okay. So that will be phased out and converted to Cerner?

Mr. BLACKBURN. Depending on how the pilot—we haven't made that final decision yet, but we will be making that in the spring.

Mr. GIANFORTE. Okay. So we have VistA that is 30 years old. We are rolling out a $10 billion Cerner project. We are also rolling out a competitor in the Epic system. I thought I was going to ask about scheduling, but this gives me more concern. Why wouldn't you just shut that project down now that you have made the decision to go with Cerner?

Mr. BLACKBURN. That was one of the options.

Mr. GIANFORTE. Is this ——

Mr. BLACKBURN. We just haven't made the final decision.

Mr. GIANFORTE. Is this taxpayer dollars being well spent on a project that is going to get—I, honestly—frankly, I just don't understand that decision.

On the scheduling, you say you have just been live a short period of time. Do you have any initial analysis of the functionality of this OPSS system that is piloted versus the lipstick that was put on the pig on VistA?

Mr. BLACKBURN. Mr. James?

Mr. JAMES. Yes, Congressman. The Faster Care for Veterans Act specifies seven capabilities that must be provided by the OPSS system, and today, our PM tells me that the OPSS system meets those

seven requirements. The other part of the Faster Care for Veterans Act requires a Mitre in the IVNV mode to assess other similar types of scheduling, homebrewed systems if you will into VA, and that one is far. And that also has those seven capabilities.

Mr. GIANFORTE. Okay. So you're just getting started with that pilot. What is your first review period of the pilot? Is it in 90 days or so?

Mr. JAMES. Sir, the Secretary must certify according to the law that it provides those seven capabilities by December 31 at those three sites, and we believe that it is operating today, but that's just today. We have some time. Then, subsequent to that certification, we have to have an independent validation verification of those seven capabilities. That's also in the law by an FFRDC. In this case, that's Mitre. So that'll happen after the Secretary certifies on—by December 31.

Mr. GIANFORTE. Okay. Well, Mr. Chairman, I would just suggest that maybe we ask for some feedback on this pilot. We have been advocating—earlier, I advocated for commercial off-the-shelf scheduling applications. This OPSS didn't come up in that earlier discussion. It sounds like we are live in a number of cities. We ought to know in 90 days if it is working or not and is it better than the lipstick we are putting on VistA that is costing us so much money. So I thank you for sharing that additional information. I yield back.

Mr. HURD. I recognize myself for five minutes.

Mr. James, MGT, what do you need to do in order to ensure that you have a working capital fund, an MGT working capital fund to take advantage of the savings that Mr. Blackburn and Mr. Windom are going to realize through their efforts?

Mr. JAMES. Thank you. Thank you, Mr. Chairman. I'm not the finance guy in OINT. I believe we do have today some working capital fund mechanisms in place that we already use. My expectation is that MGT would either complement those or augment those or be part of those. I can come back with additional information.

Mr. HURD. Who would be the person that would set that up so Mr. Blackburn has his MGT working capital fund?

Mr. JAMES. Chairman, they're—inside our CIO organization we have a finance organization that's dedicated to managing our appropriation every year, so that is our—internally, we call that ITRM. That's our CFO if you will for our CIO organization. He would have that responsibility.

Mr. HURD. Well, will you please deliver a message to him that this committee is interested in ensuring that Mr. Blackburn has a—or Mr. Blackburn's replacement has a working capital fund from MGT because there is going to be a whole lot of modernization going on in the VA. There is going to be savings that are being realized, and because it is such a massive enterprise, that will be able to help Mr. Windom hopefully beat that 10-year clock ——

Mr. JAMES. Sure.

Mr. HURD.—of getting this implemented.

Mr. Cussatt, we haven't even gotten to you because there are so many questions about the actual deployment. How are you ensuring when this deployment is being done, that all the appropriate

cybersecurity tools and functions are activated and live to ultimately protect the health data of our veterans?

Mr. CUSSATT. Thank you, Chairman. So it's—I see it as my job as the CISO for the VA to ensure that cybersecurity is not a barrier to interoperability and information-sharing but instead it's an enabler of it.

So I came from DOD. I was there for 12 years in the CIO's office, and we rewrote all the DOD policy to better employ the NIST standards. And in the year-and-a-half I've been at VA, we've done the same at VA. So we are ——

Mr. HURD. So, Mr. Cussatt, are we going to have a written policy on application security for the Cerner implementation?

Mr. CUSSATT. I believe the Cerner application will benefit from the policy we have writ large for VA that applies to all the systems. We're trying not to build a one—a single instant solution for it. We want to build something that's going to benefit us across the Department and be interoperable with DOD.

Mr. HURD. So, gentlemen, there are so many questions here. Mr. Powner, before I close, do you have any further insights on the rest of the conversations that have been going on today?

Mr. POWNER. Just a comment about the scheduling situation. I mean, you have VSE, we have pilots going on, we clearly have a module with Cerner. What needs to occur in the scheduling area is direction forward. What's the plan? There needs to be a clear plan because right now, it's duplicative. There's no other way—it's duplicative. And it's okay to pilot and do things and test all this, but we ultimately need a plan going forward that's a solid plan with the right solution.

Mr. HURD. Good copy, Mr. Powner. One of the things that I feel good about is that I love that many of the folks intimately involved in this are veterans. You understand the type of sacrifices your compatriots have made. You understand the interest that this service is to many of our veterans.

But I would say you all are actually doing something that can be life-altering for a lot of folks. A $10 billion project to integrate 130 different data sets and achieving true interoperability, this will be the model. If we are able to integrate DOD in VA, the two largest healthcare providers in the world, then we are going to be able to integrate to every other system.

And so the VA is going to be back in setting the curve and being on the cutting edge because you all have achieved the ability to do a true longitudinal record so everybody is going to be able to have better health outcomes because every doctor they go to, they are going to be able to see every other time they went to the doctor. We are going to be able to do virtualized research cohorts based on this information because it is in the cloud and we are going to be able to access it. Mr. Cussatt is going to make sure it is protected and anonymized, and then we are going to be able to bring drugs, lifesaving drugs to market faster. And so this is the opportunity that we have here, and if we can't do it in 10 years with $10 billion, then it is never going to get done.

And so I think you all recognize and understand this issue. This committee is going to continue to provide oversight and continue to get into the weeds. It is great having the talent of folks like my

friend from Montana and the gentleman from the Commonwealth of Virginia. We are not going to stop.

So thank you all for being here. Mr. Powner, it is always great having you here. This is an important issue, and I know many of my friends around the country are hoping you all succeed. And we are going to continue to make sure we are doing our part to make sure you have the tools to be successful. So I thank you all for appearing before us today.

The hearing record will remain open for two weeks for any member to submit a written opening statement or questions for the record. And if there is no further business, without objection, the subcommittee stands adjourned.

[Whereupon, at 3:50 p.m., the subcommittee was adjourned.]

APPENDIX

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Material Submitted for the Hearing Record

Congress of the United States
House of Representatives

Opening Statement
Ranking Member Robin Kelly
Hearing on "Oversight of IT and Cybersecurity at the Department of Veterans Affairs"
December 7, 2017

Thank you, Mr. Chairman.

Information technology is critical to improving the service and performance of the federal government. This is especially true at the Department of Veterans Affairs, which is one of the largest integrated healthcare systems in the United States, serving millions of veterans and their families.

The VA's goal for modernizing its healthcare IT is full interoperability, which would allow seamless sharing of health information between the VA and the Department of Defense, as well as private healthcare providers.

The VA is now on its fourth attempt since 2001 to modernize its healthcare IT system.

The record has not been good. The VA abandoned two earlier attempts after spending billions of dollars. This summer the VA announced that it would scrap its third attempt in favor of acquiring the same healthcare IT system as the DOD.

I do not know what we should make of that, since the VA previously abandoned this same approach four years ago.

Chairman Hurd and I requested that GAO examine the VA's modernization efforts because of these red flags.

We discovered that right now the VA is relying on 138 contractors to help it modernize. Some of them are the very same contractors VA had hired and fired, after their previous attempts had failed.

In fact, 34 of the 38 repeat contractors make up about $793 million of the $1.1 billion of the contractual obligations related to modernization between fiscal years 2011 through 2016.

This raises serious concerns. This change in strategy delays actually modernizing and makes it harder on veterans who rely on the agency for healthcare. We need to understand whether these changes are justified.

I want to hear today what the agency is doing to hold this army of contractors accountable. I also want to hear about the progress made towards interoperability and improving the ability to track patient outcomes.

Getting these efforts right and improving VA operations and information security are essential to regaining the trust and confidence of the American public that the VA is taking care of our Nation's veterans.

Thank you, Mr. Chairman.

Contact: Jennifer Werner, Communications Director, (202) 226-5181.

Oversight of IT and Cybersecurity at the Department of Veterans Affairs
House Committee on Oversight and Government Reform
Subcommittee on Information Technology
2:00 PM, Thursday December 7, 2017
2154 RHOB
Rep. Gerald E. Connolly (D-VA)

Mr. Chairman, thank you for hold today's important oversight hearing on the information technology (IT) systems at the Department of Veterans' Affairs (VA), including the agency's grade on the most recent Federal Information Technology Acquisition Reform Act (FITARA) scorecard, the agency's modernization efforts, and the development of an interoperable electronic health records system.

On the most recent FITARA Scorecard, the VA received a grade of B+, scoring A's in the categories of "agency CIO authority enhancements" and "software licensing." However, the VA received a failing grade on the data center optimization initiative. According to the Government Accountability Office (GAO), the VA's progress toward closing data centers and realizing the associated cost savings lagged behind that of other covered agencies." The VA has 415 data centers and as of August 2017, only 39 of those centers have closed. In its testimony, GAO also noted that the VA anticipates another 10 data centers will be closed by the end of fiscal year 2018. These numbers fall well short of the target set by OMB, which calls for a total of 130 data center closures at the agency. The VA must do more to consolidate and optimize its data centers and use the cost savings to reinvest in the enterprise and upgrade its legacy IT systems.

Despite a B+ grade on the FITARA Scorecard, for the 18th straight year, the Department of Veterans' Affairs Office of Inspector General (OIG) designated the VA's cybersecurity a material weakness this past June. In response to the OIG's findings the VA Office of Information and Technology noted that it has made significant progress across all 33 of the IG's recommendations. As the VA continues its seemingly endless Electronic Health Record (EHR) Modernization effort, it must significantly improve its cybersecurity posture and work quickly to ensure that patches and vulnerabilities are closed in a timely manner. I look forward to hearing more about the agency's progress towards closing the IG's recommendations and whether the VA expects cybersecurity to remain a material weakness after the Federal Information Security Modernization Act (FISMA) Audit for Fiscal Year 2017.

The cybersecurity and information technology modernization challenges faced by the VA are not helped by the leadership changes at the Office of Information and Technology. Today's witness, Mr. Scott Blackburn, has the title of Acting CIO but has only been in that position for the past two months. The previous Acting CIO retired in October after only ten months in the

position. When I met with Mr. Blackburn earlier this week, he understood the importance and benefits of data center consolidation and IT modernization, specifically the Electronic Health Record Modernization Initiative. However, Mr. Blackburn is only filling in until the President nominates and the Senate confirms a permanent CIO. While I hope Mr. Blackburn can ably lead the Office of Information and Technology until a permanent CIO is in place, there is no replacement for permanent and sustained leadership, especially during this critical time.

Finally, I would like to raise my concerns with documented problems at the DC VA Medical Center. Earlier this year, the VA OIG found serious and troubling deficiencies at the Medical Center that placed patients at unnecessary risk. Among several concerning problems, the OIG found that there was no effective digital inventory system for managing the availability of medical equipment and supplies used for patient care, that there was no effective system to ensure that supplies and equipment that were subject to patient safety recalls were not used on patients, and that 18 of the 25 sterile satellite storage areas for supplies were dirty. These problems are completely unacceptable. While the Office of Information and Technology is not responsible for these problems, it can be an asset in implementing an effective digital inventory management system. It is important that the Office of Information and Technology is involved in all of the agency's IT related decisions in order to ensure that any new system is compatible with existing systems and that they can talk to each other. If the new inventory system at DC VA is not compatible with existing VA systems, then the VA will not be able to resolve issues raised by the OIG.

Table 1: Key Contractors and the Amounts (in millions) Obligated to Each for Contracts on iEHR and VistA Evolution from 2011-2016

Key contractor name	iEHR	VistA Evolution	Total
ASM Research	$18.1	$144.5	$162.6
Systems Made Simple, Inc.	9.5	82.6	$92.0
HP Enterprise Services, LLC	24.3	57.6	81.9
Harris Corporation	39.3	34.0	73.3
Technatomy Corporation	18.4	46.7	65.0
Booz Allen Hamilton, Inc.	7.8	53.6	61.4
The MITRE Corporation	6.3	35.6	41.8
SBG Technology Solutions	6.3	24.8	31.1
LongView International Technology Solutions, Inc.	11.9	15.8	27.7
By Light Professional IT Services, LLC	4.4	23.3	27.7
Business Information Technology Solutions, Inc.	10.4	13.8	24.2
Systems Research and Applications Corporation	3.0	15.3	18.3
Cerner Corporation	6.3	7.1	13.4
CACI International, Inc.	6.3	4.4	10.7
Open Source Electronic Health Record Agent, Inc.	4.9	4.6	9.5
Total for 15 key contractors	**177.1**	**563.8**	**740.9**

Source: GAO analysis of VA contract data on iEHR and VistA Evolution. I GAO-18-208

Table 2: Key Contractors and the Amounts the Department of Veterans Affairs (VA) Obligated to Contracts Supporting iEHR and VistA Evolution for Development, Project Management, and Operations and Maintenance During 2011-2016

Key contractor name	VistA Modernization effort	Types of expected contractor activities		
		Development	Project management	Operations and maintenance
ASM Research	iEHR	$18.1	$0	$0
	VistA Evolution	142.9	0.2	1.4
Systems Made Simple, Inc.	iEHR	2.9	2.9	3.7
	VistA Evolution	10.2	59.4	13.0
HP Enterprise Services, LLC	iEHR	14.8	7.1	2.3
	VistA Evolution	37.4	15.5	4.7
Harris Corporation	iEHR	32.4	4.5	2.4
	VistA Evolution	27.0	.1	6.9
Technatomy Corporation	iEHR	0	18.4	0
	VistA Evolution	17.2	17.1	12.4
Booz Allen Hamilton, Inc.	iEHR	3.1	4.7	
	VistA Evolution	28.3	24.5	0.8
The MITRE Corporation	iEHR	0.6	5.6	0
	VistA Evolution	5.4	30.2	0
SBG Technology Solutions	iEHR	0	6.3	0
	VistA Evolution	1.1	23.7	0
LongView International Technology Solutions, Inc.	iEHR	5.8	4.5	1.7
	VistA Evolution	7.2	5.3	3.3
By Light Professional IT Services, LLC	iEHR	4.4	0	0
	VistA Evolution	12.0	2.4	8.9

Business Information Technology Solutions, Inc.	iEHR	2.5	7.9	0
	VistA Evolution	2.0	11.9	0
Systems Research and Applications Corporation	iEHR	2.2	0.6	0.2
	VistA Evolution	14.0	1.0	0.3
Cerner Corporation	iEHR	3.8	2.2	0.3
	VistA Evolution	0	0	7.1
CACI International, Inc.	iEHR	6.3	0	0
	VistA Evolution	4.0	0	.4
Open Source Electronic Health Record Agent, Inc.	iEHR	4.9	0	0
	VistA Evolution	0	0	4.6
Totals for 15 key contractors		**410.6**	**255.9**	**74.4**

Source: GAO analysis of VA contract data on iEHR and VistA Evolution. I GAO-18-208