United States Government Accountability Office

Testimony
Before the Subcommittee on Oversight and Investigations, Committee on Veterans' Affairs, House of Representatives

For Release on Delivery
Expected at 10:00 a.m. EDT
Tuesday, March 25, 2014

INFORMATION SECURITY

VA Needs to Address Long-Standing Challenges

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GAO-14-469T

Chairman Coffman, Ranking Member Kirkpatrick, and Members of the Subcommittee:

Thank you for inviting me to participate in today's hearing on information security at the Department of Veterans Affairs (VA). In 1997, we first designated information security as a government-wide high-risk issue and continued to do so in the most recent update to our high-risk series.[1] Effective information security is essential to protecting the availability, confidentiality, and integrity of the information residing on federal information systems. Moreover, as we have reported since the 1990s,[2] VA has faced challenges in safeguarding personal information.

My testimony today will discuss long-standing challenges VA has experienced in effectively implementing security controls over its systems and information, as well as comment on a draft bill being considered by the Subcommittee to improve information security at VA. In preparing this testimony, we relied on our previously published work in this area, as well as an analysis of recent VA Office of Inspector General (OIG) and VA reports related to the department's information security program and data from the U.S. Computer Emergency Readiness Team (U.S.CERT) related to reported information security incidents. We also analyzed the draft bill in light of existing federal requirements and best practices for information security. All the work supporting this testimony was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings 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 memorials. According to VA, its employees maintain the largest integrated health care system in the nation for approximately 6 million patients, provide compensation and benefits for about 4 million veterans and beneficiaries, and maintain about

[1]GAO, *High-Risk Series: An Update*, GAO-13-283 (Washington, D.C.: Feb. 14, 2013).

[2]See the list of related GAO products at the end of this statement.

3 million gravesites at 164 properties. The use of information technology (IT) is crucial to the department's ability to provide these benefits and services, but without adequate protections, VA's systems and information are vulnerable to those with malicious intentions who wish to exploit the information.

Federal Agencies Face an Array of Cyber-Based Threats

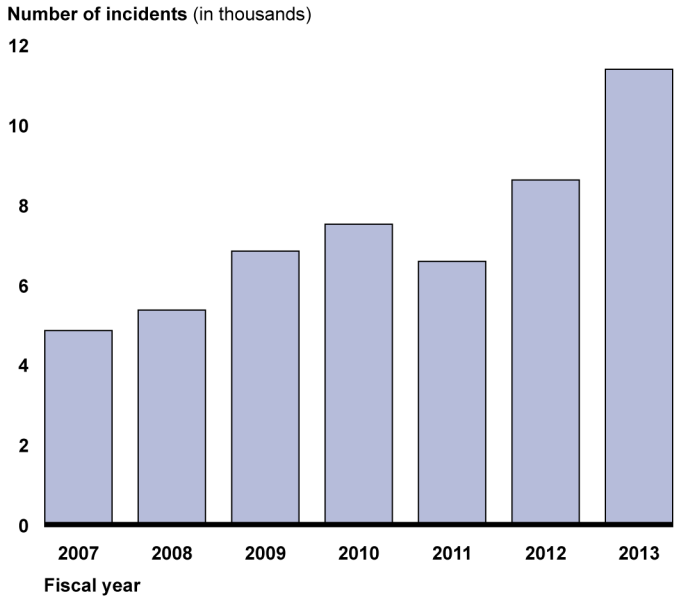
The evolving array of cyber-based threats can jeopardize the confidentiality, integrity, and availability of federal information systems and the information they contain. These threats can be unintentional or intentional. Unintentional threats can be caused by natural disasters; defective equipment; or the actions of careless, inattentive, or untrained employees that inadvertently disrupt systems. Intentional threats include both targeted and untargeted attacks from a variety of sources. These include disgruntled employees, criminal groups, hackers, and foreign nations engaged in espionage and information warfare. Such threat sources vary in terms of the types and capabilities of the actors, their willingness to act, and their motives.

These threat sources make use of various techniques to compromise information or adversely affect computers, software, networks, an organization's operation, an industry, or the Internet itself. Such techniques include, among others, denial-of-service attacks and malicious software codes or programs. The unique nature of cyber-based attacks can vastly enhance their reach and impact, resulting in the loss of sensitive information and damage to economic and national security, the loss of privacy, identity theft, and the compromise of proprietary information or intellectual property. The increasing number of incidents reported by federal agencies has further underscored the need to manage and bolster the security of the government's information systems.

VA Has Reported an Increasing Number of Information Security Incidents

The number of incidents affecting VA's information, computer systems, and networks has generally risen over the last several years. Specifically, in fiscal year 2007, the department reported 4,834 information security incidents to US-CERT; in fiscal year 2013, it reported 11,382 incidents. These included incidents related to unauthorized access, denial-of-service attacks; installation of malicious code; improper usage of computing resources; and scans, probes, and attempted access, among others. Figure 1 shows the overall increase in the total number of incidents VA reported to US-CERT for fiscal year 2007 through 2013.

Figure 1: VA Information Security Incidents Reported to US-CERT, Fiscal Years 2007-2013



Source: US-CERT.

In addition, reports of incidents affecting VA's systems and information highlight the serious impact that inadequate information security can have on, among other things, the confidentiality, integrity, and availability of veterans' personal information. For example:

- According to a VA official, in January 2014 a software defect in VA's eBenefits system improperly allowed users to view the personal information of other veterans. According to this official, this defect potentially allowed almost 5,400 users to view data of over 1,300 veterans and/or their dependents.
- In May 2010, it was reported that VA officials had notified lawmakers of breaches involving the personal data of thousands of veterans, which had resulted from the theft of an unencrypted laptop computer from a VA contractor and a separate incident at a VA facility.[3]

[3]See http://www.federaltimes.com/article/20100514/CONGRESS01/5140301/.

Federal Law and Policies Establish Information Security Responsibilities for Agencies

To help protect against threats to federal systems, the Federal Information Security Management Act of 2002 (FISMA)[4] sets forth a comprehensive framework for ensuring the effectiveness of information security controls over information resources that support federal operations and assets. The framework creates a cycle of risk management activities necessary for an effective security program. In order to ensure the implementation of this framework, FISMA assigns specific responsibilities to agencies, the Office of Management and Budget (OMB), the National Institute of Standards and Technology (NIST), and agency inspectors general.

Specifically, each agency is required to develop, document, and implement an agency-wide information security program and to report annually to OMB, selected congressional committees, and the Comptroller General on the adequacy of its information security policies, procedures, practices, and compliance with requirements. For its part, OMB is required to develop and oversee the implementation of polices, principles, standards, and guidelines on information security in federal agencies. It is also responsible for reviewing, at least annually, and approving or disapproving agency information security programs. NIST's responsibilities include the development of security standards and guidance. Finally, inspectors general are required to evaluate annually the information security program and practices of their agency and submit the results to OMB.

Further, Congress enacted the Veterans Benefits, Health Care, and Information Technology Act of 2006[5] after a serious loss of data earlier that year revealed weaknesses in VA's handling of personal information. Under the act, VA's chief information officer is responsible for establishing, maintaining, and monitoring department-wide information security policies, procedures, control techniques, training, and inspection requirements as elements of the department's information security program. It also reinforced the need for VA to establish and carry out the responsibilities outlined in FISMA, and included provisions to further

[4]FISMA was enacted as title III of the E-Government Act of 2002, Pub. L. No. 107-347, 116 Stat. 2899, 2946 (Dec. 17, 2002).

[5]Veterans Benefits, Health Care, and Information Technology Act of 2006, Pub. L. No. 109-461, 120 Stat. 3403, 3450 (Dec. 22, 2006). See also GAO, *Privacy: Lessons Learned about Data Breach Notification*, GAO-07-657 (Washington, D.C.: Apr. 30, 2007).

protect veterans and service members from the misuse of their sensitive personal information and to inform Congress regarding security incidents involving the loss of that information.

VA Continues to Face Long-Standing Challenges in Effectively Implementing Its Information Security Program

Information security remains a long-standing challenge for the department. Specifically, VA has consistently had weaknesses in major information security control areas. For fiscal years 2007 through 2013, deficiencies were reported in each of the five major categories of information security controls as defined in our *Federal Information System Controls Audit Manual*.[6]

Table 1: Control Weaknesses for Fiscal Years 2007 – 2013

Security control category	2007	2008	2009	2010	2011	2012	2013
Access control	✓	✓	✓	✓	✓	✓	✓
Configuration management	✓	✓	✓	✓	✓	✓	✓
Segregation of duties	✓	✓	✓	✓	✓	✓	✓
Contingency planning	✓	✓	✓	✓	✓	✓	✓
Security management	✓	✓	✓	✓	✓	✓	✓

Source: GAO analysis based on VA and Inspector General reports.

Access controls ensure that only authorized individuals can read, alter, or delete data.

Configuration management controls provide assurance that only authorized software programs are implemented.

Segregation of duties reduces the risk that one individual can independently perform inappropriate actions without detection.

[6]GAO, *Federal Information System Controls Audit Manual (FISCAM),* GAO-09-232G (Washington, D.C.: February 2009).

Contingency planning includes continuity of operations, which provides for the prevention of significant disruptions of computer-dependent operations.

Security management includes an agency-wide information security program to provide the framework for ensuring that risks are understood and that effective controls are selected and properly implemented.

In fiscal year 2013, for the 12th year in a row, VA's independent auditor reported that inadequate information system controls over financial systems constituted a material weakness.[7] Specifically, the auditor noted that while VA had made improvements in some aspects of its security program, it continued to have control deficiencies in security management, access controls, configuration management, and contingency planning. In particular, the auditor identified significant technical weaknesses in databases, servers, and network devices that support transmitting financial and sensitive information between VA's medical centers, regional offices, and data centers. According to the auditor, this was the result of an inconsistent application of vendor patches that could jeopardize the data integrity and confidentiality of VA's financial and sensitive information.

In addition, the VA OIG reported in 2013 that development of an effective information security program and system security controls continued to be a major management challenge for the department. The OIG noted that VA had taken steps to, for example, establish a program for continuous monitoring and implement standardized security controls across the enterprise. However, the OIG continued to identify weaknesses in the department's security controls and noted that improvements were needed in key controls to prevent unauthorized access, alteration, or destruction of major applications and general support systems.

[7]See U.S. Department of Veterans Affairs, *2013 Performance and Accountability Report* (Washington, D.C.: Dec. 16, 2013). A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis. A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis.

These more recent findings are consistent with the challenges VA has historically faced in implementing an effective information security program. In a number of products issued beginning in 1998, we have identified wide-ranging, often recurring deficiencies in the department's information security controls.[8] These weaknesses existed, in part, because VA had not fully implemented key components of a comprehensive information security program. The persistence of similar weaknesses over 16 years later indicates the need for stronger, more focused management attention and action to ensure that VA fully implements a robust security program.

In addition, we have recently reported on issues regarding the protection of personally identifiable information (PII) at federal agencies, including VA. In December 2013, we issued a report on our review of agency practices in responding to data breaches involving PII.[9] Specifically, we determined the extent to which selected agencies had developed and implemented policies and procedures for responding to breaches involving PII.

Regarding VA, we found that the department had addressed relevant management and operational practices in its data breach response policies and procedures. In addition, it had implemented its policies and procedures by preparing breach reports and performing risk assessments for cases of data breach. However, VA had not documented the rationale for all its risk determinations, documented the number of individuals affected by breaches, consistently notified individuals affected by high-risk breaches, consistently offered credit monitoring to affected individuals, or consistently documented lessons learned from PII breaches. Accordingly, we recommended that VA take specific steps to address these weaknesses. VA agreed with some, but not all, of these recommendations. We maintained that all our recommendations were warranted.

In January 2014 we reported on selected agencies'—including VA's—compliance with amendments to the Privacy Act of 1974 that addressed

[8]See the related products page at the end of this statement for a list of relevant GAO products dealing with VA's information security.

[9]GAO, *Information Security: Agency Responses to Breaches of Personally Identifiable Information Need to Be More Consistent,* GAO-14-34 (Washington, D.C.: Dec. 9, 2013).

the computerized matching of personal information for purposes of determining eligibility for federal benefits programs.[10] Under these amendments, agencies are required to establish formal agreements with other agencies to share data for computer matching, conduct cost-benefit analyses of such agreements, and establish data integrity boards to review and report on agency computer matching activities.

Specifically regarding VA, we found that the department generally established computer matching agreements for its matching activities and conducted cost-benefit analyses of proposed matching programs. However, the completeness of these analyses varied in that they did not always include key costs and benefits needed to determine the value of a computer matching program. We noted that VA's guidance for developing cost-benefit guidance did not call for including key elements. We recommended that VA revise its guidance on cost-benefit analyses and ensure that its data integrity board review the analyses to make sure they include cost savings information. VA concurred and described steps it would take to implement our recommendations.

Consideration of Proposed Legislation to Improve VA's Information Security

The Subcommittee is considering draft legislation that is intended to improve VA's information security. The draft bill addresses governance of the department's information security program and security controls for the department's information systems. It requires the Secretary of Veterans Affairs to improve the transparency and coordination of the information security program and to ensure the security of the department's critical network infrastructure, computers and servers, operating systems, and web applications, as well as its Veterans Health Information Systems and Technology Architecture system, from vulnerabilities that could affect the confidentiality of veterans' sensitive personal information. For each of these elements of VA's computing environment, the draft bill identifies specific security-related actions and activities that VA is required to perform.

Many of the actions and activities specified in the proposed legislation are sound information security practices and consistent with federal guidelines, if implemented on a risk-based basis. FISMA requires

[10]GAO, *Computer Matching Act: OMB and Selected Agencies Need to Ensure Consistent Implementation*, GAO-14-44 (Washington, D.C.: Jan. 13, 2014).

agencies to implement policies and procedures that are based on risk assessments, cost-effectively reduce information security risks to an acceptable level, and ensure that information security is addressed throughout the life cycle of each agency information system. The provisions in the draft bill may prompt VA to refocus its efforts on actions that are necessary to improve the security over its information systems and information.

In a dynamic environment where innovations in technology and business practices supplant the status quo, control activities that are appropriate today may not be appropriate in the future. Emphasizing that specific security-related actions should be taken based on risk could help ensure that VA is better able to meet the objectives outlined in the draft bill. Doing this would allow for the natural evolution of security practices as circumstances warrant and may also prevent the department from focusing exclusively on performing the specified actions in the draft bill to the detriment of performing other essential security activities.

In summary, VA's history of long-standing challenges in implementing an effective information security program has continued, with the department exhibiting weaknesses in all major categories of security controls in fiscal year 2013. These challenges have been further highlighted by recent determinations that weaknesses in information security have contributed to a material weakness in VA's internal controls over financial reporting and continue to constitute a major management challenge for the department. While the draft legislation being considered by the Subcommittee may prod VA into taking needed corrective actions, emphasizing that these should be taken based on risk can provide the flexibility needed to respond to an ever-changing technology and business environment.

Chairman Coffman, Ranking Member Kirkpatrick, and Members of the Subcommittee, this concludes my statement today. I would be happy to answer any questions you may have.

Contact and Acknowledgments

If you have any questions concerning this statement, please contact Gregory C. Wilshusen at (202) 512-6244 or wilshuseng@gao.gov or Nabajyoti Barkakati at (202) 512-4499 or barkakatin@gao.gov. Other individuals who made key contributions to this statement include Jeffrey L. Knott and Anjalique Lawrence (assistant directors), Jennifer R. Franks, Lee McCracken, and Tyler Mountjoy.

Related GAO Products

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