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VETERANS AFFAIRS COMPUTER SYSTEMS

Action Underway Yet Much Work Remains To Resolve Year 2000 Crisis

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Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to discuss the progress being made by the federal government and, in particular, the Department of Veterans Affairs (VA), in making sure that its automated information systems are ready for the upcoming century change. As you know, we testified before the Subcommittee earlier this summer, at which time our report was released detailing the activities of one VA component,[1] the Veterans Benefits Administration (VBA), to make its systems Year 2000 compliant.[2]

As requested, my testimony today will first summarize federal progress in addressing the Year 2000 problem and will then examine VA and its major components. My statement will discuss action taken by VA as a whole, and steps taken by VBA in response to recommendations contained in our recent report. We have just begun a detailed review of the Veterans Health Administration's (VHA) Year 2000 activities; consequently, my testimony in this area will be limited to results to date.

Federal Agency Progress: Efforts Must Be Expedited

As we testified in July,[3] time is running out for agencies and the pace needs to be accelerated if widespread systems problems are to be avoided as the Year 2000 approaches. We stressed in our testimony that the Office of Management and Budget (OMB) and key federal agencies need to move with more urgency. Among the other related issues we noted was that increased attention was required on validation and testing of Year 2000 solutions, data interfaces and exchanges, and contingency planning.

OMB's most current Year 2000 progress report on the federal government's efforts, released last week, again demonstrates that although federal agencies are generally making progress toward achieving Year 2000 compliance, the overall pace of that progress is too slow.[4] Based on individual agency reports, 75 percent of the agencies' approximately 8,500 mission-critical systems remain to be repaired or replaced, and the total

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[1]Along with VBA, the other two major VA components are the Veterans Health Administration and the National Cemetery System.

[2]Veterans Benefits Computer Systems: Uninterrupted Delivery of Benefits Depends on Timely Correction of Year-2000 Problems (GAO/T-AIMD-97-114, June 26, 1997) and Veterans Benefits Computer Systems: Risks of VBA's Year-2000 Efforts (GAO/AIMD-97-79, May 30, 1997).

[3]Year 2000 Computing Crisis: Time Is Running Out for Federal Agencies to Prepare for the New Millennium (GAO/T-AIMD-97-129, July 10, 1997), before the Subcommittee on Government Management, Information and Technology, House Committee on Government Reform and Oversight, and the Subcommittee on Technology, House Committee on Science.

[4]Progress on Year 2000 Conversion, U.S. Office of Management and Budget, August 15, 1997.

cost estimate has risen to $3.8 billion, up $1 billion from the previous quarterly report.[5]

According to OMB, reports of several of the agencies were disappointing; consequently, it placed agencies in one of three categories, depending upon evidence of progress. In the first category are four agencies that OMB found had "insufficient evidence of progress."[6] For these agencies, OMB established a "rebuttable presumption going into the Fiscal Year 1999 budget formulation process this Fall that we [OMB] will not fund requests for information technology investments unless they are directly related to fixing the year 2000 problem."

OMB's second category contains 12 other agencies for which it cited "evidence of progress but also concerns." These agencies were put on notice that continued funding for information technology investments would be contingent on continued progress.[7] Finally, for the eight remaining agencies that according to OMB, appear to be making progress—and this includes VA—funding requests will be handled in the usual manner, although progress at all agencies will be reevaluated on the basis of their next quarterly reports, due November 15.[8]

We are encouraged by OMB's statements and believe they reflect an increased urgency to address the Year 2000 issue. Further, we note that in its report, OMB states that it plans to address other issues that we raised in our July testimony.[9]

- OMB emphasized that proper validation of changes was critical to success. It stated that it planned to meet with agencies over the coming months to discuss the adequacy of scheduled timetables for completing validation.
- OMB said it would discuss with agencies the preparedness of communications interfaces with systems external to the federal

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[5]Getting Federal Computers Ready for 2000: Progress Report, U.S. Office of Management and Budget, May 15, 1997.

[6]These are the Departments of Agriculture, Education, and Transportation and the Agency for International Development.

[7]These are the Departments of Commerce, Defense, Energy, Health and Human Services, the Interior, Justice, and the Treasury and the Environmental Protection Agency, Federal Emergency Management Agency, National Aeronautics and Space Administration, Office of Personnel Management, and Small Business Administration.

[8]Along with VA, this category encompasses the Departments of Housing and Urban Development, Labor, and State and the General Services Administration, National Science Foundation, Nuclear Regulatory Commission, and Social Security Administration.

[9]GAO/T-AIMD-97-129.

government, including those of state and local governments and the private sector.

- OMB asked agencies for a summary of the contingency plan for any mission-critical system that was reported behind schedule in two consecutive quarterly reports so that it could summarize such plans in future reports to the Congress.

We look forward to implementation of these key activities as we continue monitoring OMB's leadership of the federal government's Year 2000 effort.

VA: The Stakes Are High

VA is very vulnerable to the impact of the new millennium because of the large number of veterans and their dependents that it serves; this is why it is so important that VA's systems be made compliant in time to avoid disruption to the benefits and services on which millions of Americans depend. Our past and current work at VA indicates that the Department recognizes the urgency of its task, and it has made progress. But much remains to be done if it is to avoid the widespread computer failures that unmodified systems could bring. If left uncorrected, the types of possible problems that could occur include but are not limited to late or inaccurate benefits payments, lack of patient scheduling for hospital treatments, and misinterpretation of patient data. The number of areas vulnerable to problems is vast.

The Department's June 1997 Year 2000 plan (VA Year 2000 Solutions) outlines VA's strategy, activities, and major milestones. According to this plan and in line with OMB guidance, VA's primary approach is to make its 11 existing mission-critical systems compliant; one, in fact, already is. Table 1 lists these systems, along with the numbers of applications they serve and the responsible VA component or office.

Table 1: VA's Mission-Critical Computer Systems (11) and Their Applications (464)

Component/office (Number of systems)	Systems	Number of applications
Veterans Benefits Administration (6)	•Compensation & Pension •Education •Insurance •Loan Guaranty •Vocational Rehabilitation •Administrative	157
Veterans Health Administration (2)	•Veterans Health Information Systems and Technology Architecture	143
	•Veterans Health Administration Corporate Systems	160
National Cemetery System (1)[a]	•Burial Operations Support System/Automated Monument Application System •Reengineer	2
Office of Financial Management (2)	•Personnel and Accounting Integrated Data	1
	•Financial Management System	1

[a]The only system that VA considers to be fully Year 2000 compliant.

Source: VA.

Responsible for overseeing the Year 2000 problem at VA is its chief information officer (CIO); he is assisted by the CIOs of both VBA and VHA, by senior information technology managers in the National Cemetery System, and by staff offices at VA headquarters. VA has also designated a Year 2000 project manager, responsible for general oversight and monitoring.

According to VA's August 14, 1997, quarterly report to OMB, the Department has made progress in addressing the Year 2000 problem. As noted in the report, 1 of its 11 mission-critical systems—the one serving the National Cemetery System—is already fully compliant. Of the 10 remaining mission-critical systems and their applications, 85 percent have been assessed and 51 percent have been renovated. In addition, VA has updated its total Year 2000 cost estimate from $144 million (May 1997) to $162 million; VA's stated reason for the increase is the need for upgrades to its commercial off-the-shelf software and hardware and more contractual support.

Further, VA's current estimate shows that it expects systems assessment to be completed by the end of next January, renovation of systems by

November 1998, validation by January 1999, and implementation by October 1999—2 months earlier than VA reported in May.

VBA Has Begun to Implement GAO Recommendations

As we testified before the Subcommittee in June,[10] correcting the Year 2000 problem is critical to VBA's mission of providing benefits and services to veterans and their dependents. VBA has responded to this challenge by initiating a number of actions, including developing an agencywide plan and a Year 2000 strategy, and creating a program management organization. However, several substantial risks remain. If VBA is to avert serious disruption to its ability to disseminate benefits, it will need to strengthen its management and oversight of Year 2000-related activities.

Our May 30, 1997, report contained 10 specific recommendations to the Secretary of Veterans Affairs on actions that VBA needed to take to address the Year 2000 problem.[11] VA concurs with all 10, and is in the process of implementing them. For example, according to VBA:

- To strengthen its Year 2000 program management office, it has assigned oversight and coordination responsibilities for all Year 2000 activities to this office alone.
- It has completed inventories of data interfaces and third-party products (hardware, software, mainframes, minicomputers, operating systems, and utilities). VBA has also determined that most of its third-party products are Year 2000 compliant—98 percent of its personal computers, local area networks, minicomputers, and commercial software; and all of its imaging equipment and associated software.
- It has renovated half of the 157 applications that make up its six mission-critical systems. It plans to renovate the remaining applications by November 1998.

While we are encouraged by these positive actions, we understand from discussions with VBA officials that key work schedules have been compressed, creating added pressure. For example, renovation of VBA's largest and most critical applications—those necessary to the functioning of its Compensation and Pension Service—may not be completed by VBA's target date of December 1998. Changes to these applications have had to be delayed in order to effect this year's legislatively mandated changes and cost- of-living increases. Time is similarly short for work on the loan

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[10]GAO/T-AIMD-97-114.

[11]GAO/AIMD-97-79.

guaranty system, for which key phases remain to be completed.[12] For example, the new construction and valuation application is scheduled to start in early fiscal year 1998, but it has a fail date[13] of December 1998. This leaves VBA only slightly 1 year to design, develop, test, and implement this application.

A further challenge for VBA is that it has not modified its schedule to take into account recent problems and delays in its attempts to replace an education payment system for selected reservists known as chapter 1606. Such schedules are important to ensuring that all mission-critical applications are fixed; they therefore need to be modified or updated to reflect realistic estimations of the difficulty of the work involved.

In addition, although VBA has completed an inventory of 590 internal and external interfaces, as of July 31, 1997, only 26 percent of the interfaces had been assessed for compliance. VBA's Year 2000 project manager indicated that VBA is encountering problems determining whether its external interfaces[14] are Year 2000 compliant because external sources have not provided the necessary information.

VBA also has not updated its January 1997 risk assessment to reflect the recent change in its Year 2000 strategy. Specifically, in response to concerns raised regarding its initial approach, VBA redirected its Year 2000 strategy by focusing on converting its existing benefits payment systems rather than replacing the noncompliant systems. Since risk assessment is an important prerequisite for effectively prioritizing projects and mitigating potential problems, updating the previous risk assessment to take this change into account is essential.

An internal VA oversight committee, established to monitor and evaluate the progress of VBA's Year 2000 activities, identified concerns similar to ours. Specifically, according to a member of this committee, little time remains for VBA to make the necessary modifications to its compensation and pension and loan guaranty systems, and much work remains in assessing the external interfaces for compliance.

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[12]The key Year 2000 program phases remaining are *renovation*, *validation*, and *implementation*.

[13]The date on which this application will experience the effects of dates on calculations.

[14]An example of an external interface is the exchange of disability compensation information between the Department of Defense and VBA. Defense currently provides VBA with electronic information on the amount of disability benefits paid to a veteran by Defense for offset against the amount paid by VBA to this same veteran. This offset is necessary because, by law, the veteran cannot be paid twice for the same disability.

VHA Has Begun to Assess Its Systems and Related Products for Compliance

The Year 2000 challenge for VHA is enormous. As the largest centrally directed civilian health care system in the United States, VHA manages health care delivery to veterans within 22 regional areas geographically dispersed throughout the country; these areas are known as Veterans Integrated Service Networks (VISNs), and they encompass 173 VA medical centers, 376 outpatient clinics, 133 nursing homes, and 39 domiciliaries—a total of 721 facilities. These sites utilize a wide range of electronic information systems, biomedical equipment, facilities systems, and other computer-based system products. Accordingly, it is essential that each of these 22 regional health care networks thoroughly assesses and plans for ensuring Year 2000 compliance so that service delivery is not interrupted.

Within VHA, the CIO has overall responsibility for planning and managing Year 2000 compliance. The CIO created a VHA Year 2000 project office, empowered to develop compliance guidance. In April 1997, this office developed a VHA plan for addressing the year 2000; the plan was approved by VA's Under Secretary for Health on May 14 of this year. The CIOs of each of the 22 regional networks, medical facility directors, and managers have ultimate responsibility for preparing and executing their individual Year 2000 plans, including all required assessment, renovation, validation/testing, and implementation activities.

According to VA's August 14, 1997, quarterly report to OMB, VHA is in the initial stages of assessing the compliance of its two mission-critical systems—the Veterans Health Information Systems and Technology Architecture (VISTA)[15]—formerly known as the Decentralized Hospital Computer Program (DHCP)—and the VHA corporate systems. VA also reported that of the two systems' applications, 17 percent have been assessed and 16 percent renovated. VHA plans to complete this assessment and renovation by the end of January 1998 and July 1998, respectively.

According to VA's Year 2000 readiness review, VHA's strategy for the national VISTA applications is to assess all 143 applications and recode as necessary. According to VHA, 34 of its 143 applications[16] have been assessed; 33 of these 34 were eliminated as a result of the assessment.

In order to effectively assess and renovate, it is necessary to understand how local facilities are using the national VISTA applications. One potential

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[15]VISTA represents the national health care information applications along with related commercial products, personal computers/workstations, and other items used in VHA health care facilities.

[16]Examples of applications include dietetics, pharmacy/inpatient, health summary, prosthetics, and laboratory.

risk is that some local facilities have customized national applications, according to VA's Year 2000 readiness review.[17] If this is true, it is important that VHA know where applications have been changed—even in small ways—so as to ensure that they are Year 2000 compliant. Beyond customization, local facilities may purchase software add-ons to work with the national applications; here, too, these must be inventoried and Year 2000 compliance assessed.

An inventory of internal and external VISTA interfaces has not yet been completed; systems developers plan to identify such interfaces when they assess each application. Should internal information be corrupted by exposure to uncorrected external interfaces through network exchanges, system crashes and/or loss of data could result. VA's Year 2000 project manager has expressed concern that this information may not be obtainable from external sources, who have yet to inform VHA whether their interfaces are Year 2000 compliant.

As with interfaces, VHA must be assured that the commercial software products it uses are Year 2000 compliant. It has completed an inventory of its commercial products, such as personal computer operating systems, office automation software, and medical applications; according to the project manager, over 3,000 software products and 1,000 software vendors have been identified. VHA plans to rely on the General Services Administration to provide it with a general list of commercial products that are Year 2000 compliant. For specialized products unique to the health care industry, VHA plans to contact manufacturers for compliance information.

Physical facilities are another area of concern. According to VHA's Year 2000 program manager, VHA has not completed an inventory of facilities-related systems and equipment such as elevators; heating, ventilating, and air conditioning equipment; lighting systems; security systems; and disaster recovery systems. Such elements are vitally important to VHA's ability to provide high-quality health care services. VHA is working with the General Services Administration and manufacturers on this issue. Since it is often critical that medical services not be interrupted, VHA is required to have contingency plans in place in case hospital systems fail. These plans are reviewed and assessed regularly by the Joint Commission on Accreditation of Healthcare Organizations. However, such contingency plans are meant to ensure continued operation in the event of

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[17]Such customization includes special-purpose programs written by local information resources management staff or other system users on-site or imported from other VA medical centers. They generally meet a specific local need or extend the functionality of nationally released software.

disaster; such approval does not necessarily ensure that all backup systems are Year 2000 compliant.

VHA Is Assessing Year 2000 Impact on Medical Devices

Health care facilities depend on the reliable operation of a variety of biomedical devices—equipment that can record, process, analyze, display, or transmit medical data. Examples include computerized nuclear magnetic resonance imaging (MRI) systems, cardiac monitoring systems, cardiac defibrillators, and various tools for laboratory analysis. Such devices may depend on a computer for calibration or day-to-day operation. This computer could be either a personal computer that connects to the device from a distance or a microprocessor chip embedded within the device. In either case, the software that controls the operation of the computer may be susceptible to the Year 2000 problem. The impact could range from incorrect formatting of a printout to incorrect operation of the device, having the potential to affect patient care or safety.

The risks for a specific medical device depend on the role of the device in the patient's care and the design of the device. Although medical treatment facilities have the expertise to understand how medical devices are used, they rely on device manufacturers to analyze designs and disclose Year 2000 compliance status.

As a health care provider and user of medical devices, VHA is a key stakeholder in determining compliance of such tools. Another key player is the Food and Drug Administration (FDA), in its role of protecting the public from unsafe and/or ineffective medical devices.

In attempting to ascertain the potential impact of the century change on its biomedical devices, VHA on two separate occasions sent letters to manufacturers. Its first letter was sent over a period of a few days beginning June 23 of this year to equipment manufacturers identified by selected experts within VHA. In the letter, VHA inquired as to steps the manufacturer planned to take to resolve the Year 2000 issue. Out of 118 letters, VHA received 32 responses. These responses were reviewed by VHA's medical device integrated product team, comprising internal experts from a variety of fields.

On the basis of the team's analysis, VHA sent more detailed letters asking specific questions, including whether the manufacturer provided any devices to VA that incorporate a real-time clock; if such devices were provided, whether they are Year 2000 compliant; and, for those that are

not compliant, asking for model numbers, device names, and the specific impact the century change would likely have on the device. These letters were sent to about 1,600 manufacturers on September 9, 1997, with a request for responses by October 3. According to VHA, 50 responses had been received as of September 15.

Product team members plan to review responses to ensure that they are categorized correctly as compliant, noncompliant, or pending; VHA will maintain a database of the manufacturers and their responses. This database will be made available to VA medical centers through the VHA intranet, although key personnel such as biomedical engineers may not have easy access to the intranet at some medical centers. The information will also be communicated to VA medical centers through monthly conference calls among engineers and communications with medical center directors. We feel that it is imperative that such results be widely disseminated; if the VHA intranet is insufficient for this task, other means should be found.

FDA also recently began communicating with manufacturers. According to officials, FDA sent a letter in early July of this year to about 13,000 such manufacturers, reminding them of their responsibility to ensure that their products will not be affected by the century change. In the letter, FDA reminded manufacturers that, according to section 518 of the Federal Food, Drug, and Cosmetic Act, they are required to notify users or purchasers when FDA determines a device presents an unreasonable risk of substantial harm to public health. Although one response was received, the acting director of FDA's Division of Electronics and Computer Science explained that it was not the agency's intention to solicit a specific response because FDA expects manufacturers to report any problems found through normal reporting channels. FDA plans to disseminate information on any Year 2000 problems reported by manufacturers to the public through its reporting systems, such as the Medical Products Reporting Program ("MedWatch").

According to the director of FDA's Cardiovascular Division, the agency's strategy for helping to determine whether medical devices are Year 2000 compliant is to rely on the knowledge and experience of its resident experts. These experts, with backgrounds in electrical engineering, software engineering, and/or biomedical engineering, have reviewed the design of selected medical devices to determine whether the devices would be affected by the century change. In the case of pacemakers, for example, FDA experts have concluded that no adverse effect will result.

This conclusion was based on the fact that the internal operations of pacemakers do not involve dates. The experts further said that although pacemaker settings are often changed with the assistance of a computer, which often uses dates and may be noncompliant, a trained physician is always involved in controlling the settings.

A federal entity—the Year 2000 Subgroup on Biomedical Equipment—is working to coordinate the effort to obtain Year 2000 compliance status information from medical device manufacturers. This group plans to follow up on nonrespondents to questionnaires sent out by VHA, FDA, and other federal health care providers to manufacturers requesting this information.

In closing, Mr. Chairman, I want to stress that while our detailed review of the VHA area is just now underway, it is clear that for VA as a whole to have all of its mission-critical systems compliant by January 1, 2000, will entail a huge, well-coordinated effort.

This concludes my statement. I would be happy to respond to any questions that you or other Members of the Subcommittee may have at this time.