

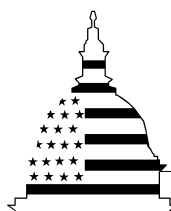
GAO

Report to the Chairman, Committee on
the Budget, House of Representatives

May 2005

HEALTH
INFORMATION
TECHNOLOGY

HHS Is Taking Steps to
Develop a National
Strategy



G A O

Accountability * Integrity * Reliability



Highlights of [GAO-05-628](#), a report to the Chairman, Committee on the Budget, House of Representatives

Why GAO Did This Study

To prevent medical errors, reduce costs, improve quality, and produce greater value for health care expenditures, President Bush has called for the Department of Health and Human Services (HHS) to develop and implement a strategic plan to guide the nationwide implementation of health information technology (IT) in both the public and private health care sectors. The Departments of Defense (DOD) and Veterans Affairs (VA), along with other countries, have already taken steps to improve health care delivery and administration by implementing IT solutions. GAO was asked to provide an overview of HHS's recent efforts to develop a national health IT strategy for realizing the President's vision, and to identify lessons learned from DOD's, VA's, and other countries' experiences in implementing health IT.

What GAO Recommends

To accelerate the adoption of interoperable IT for health care, GAO recommends that the Secretary of Health and Human Services establish and follow detailed plans and set milestones for each phase of HHS's framework for strategic action.

In commenting on a draft of this report, DOD, HHS, and VA concurred with our results; HHS agreed with our recommendation. Technical comments were incorporated in this report as appropriate.

www.gao.gov/cgi-bin/getrpt?GAO-05-628.

To view the full product, including the scope and methodology, click on the link above. For more information, contact David A. Powner, (202) 512-9286, pownerd@gao.gov.

HEALTH INFORMATION TECHNOLOGY

HHS Is Taking Steps to Develop a National Strategy

What GAO Found

The Secretary of HHS appointed the National Coordinator for Health IT in May 2004. In July 2004, the national coordinator released a framework for strategic action, which outlines four goals and 12 strategies to guide the development of a full strategic plan for national health IT adoption (see table below). The framework builds upon already-existing work in federal health IT and includes plans to identify and learn from agencies' experiences. It also describes actions to be taken by both the public and private sectors to achieve interoperability in health IT across the nation.

HHS plans to address the goals and strategies of the framework with a three-phased approach over a number of years and is currently implementing phase I of the framework. However, HHS has not established milestones for the completion of phase I activities nor has it made detailed plans or set milestones for the completion of activities for phases II and III.

Goals and Strategies of HHS's Framework for Strategic Action

Goals	Strategies ^a
<i>Goal 1:</i> Inform clinical practice with the use of electronic health records (EHR)	1. Incentivize EHR adoption 2. Reduce risk of EHR investment 3. Promote EHR diffusion in rural and underserved areas
<i>Goal 2:</i> Interconnect clinicians so that they can exchange health information using advanced and secure electronic communication	1. Foster regional collaboration 2. Develop a national health information network 3. Coordinate federal health information systems
<i>Goal 3:</i> Personalize care with consumer-based health records and better information for consumers	1. Encourage use of personal health records 2. Enhance informed consumer choice 3. Promote use of telehealth systems
<i>Goal 4:</i> Improve public health through advanced biosurveillance methods and streamlined collection of data for quality measurement and research	1. Unify public health surveillance architectures 2. Streamline quality and health status monitoring 3. Accelerate research and dissemination of evidence

Source: HHS.
^a Phase I strategies are shown in bold type.

GAO identified lessons learned from DOD and VA that could provide valuable insight to HHS as it works toward implementing a national health IT infrastructure. DOD and VA operate the largest health care delivery networks in the nation, and important lessons can be taken from their experiences in health IT. Additionally, other countries have begun initiatives to establish national health IT infrastructures. DOD, VA, Canada, Denmark, and New Zealand provided GAO with valuable lessons learned that can be applied to the United States's efforts. Among other lessons learned, they reported the need to

- obtain the endorsement of top leadership,
- define and adopt standards,
- address the needs of stakeholders, and
- deploy IT solutions in small increments and build on successes.

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Abbreviations

AHRQ	Agency for Health Research and Quality
CDC	Centers for Disease Control and Prevention
CHI	Consolidated Health Informatics
CMS	Centers for Medicare and Medicaid Services
DOD	Department of Defense
EHR	electronic health records
FDA	Food and Drug Administration
FHA	Federal Health Architecture
HHS	Department of Health and Human Services
HRSA	Health Resources and Services Administration
IHS	Indian Health Service
IT	information technology
NCVHS	National Committee on Vital and Health Statistics
NHIN	National Health Information Network
NIH	National Institutes of Health
ONCHIT	Office of the National Coordinator for Health IT
VA	Department of Veterans Affairs

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United States Government Accountability Office
Washington, D.C. 20548

May 27, 2005

The Honorable Jim Nussle
Chairman, Committee on the Budget
House of Representatives

Dear Mr. Chairman:

According to the Institute of Medicine, health care delivery in the United States has long-standing problems with medical errors and inefficiencies that increase health care costs. The U.S. health care delivery system is an information-intensive industry that is complex and highly fragmented with estimated spending of \$1.7 trillion in 2003. In April 2004, President Bush announced a health information technology (IT) plan that calls for the development and implementation of a strategic plan to guide the nationwide implementation of health IT in both the public and private health care sectors to prevent medical errors, improve quality, and produce greater value for health care expenditures.

Also in April 2004, the President issued an executive order that required the Secretary of Health and Human Services to appoint a national coordinator whose role is to provide leadership for the development and nationwide implementation of an interoperable health IT infrastructure to improve the quality and efficiency of health care. The National Coordinator for Health IT was appointed in May 2004; in July 2004, the coordinator released a framework for strategic action, the first step toward a national strategy. The framework builds upon already-existing work in federal health IT and includes plans to identify and learn from agencies' experiences, including those of the Departments of Defense (DOD) and Veterans Affairs (VA), which operate the largest health care delivery networks in the nation and have experience with developing and implementing IT solutions throughout their systems. Additionally, other countries have begun to develop and implement strategies to improve health care delivery through the nationwide adoption of IT and can provide valuable lessons for the Department of Health and Human Services (HHS).

You asked us to (1) provide an overview of HHS's efforts to develop and implement a national health IT strategy, (2) identify lessons learned from DOD's and VA's experiences with implementing electronic health records, and (3) identify lessons learned from other countries' efforts to modernize health IT infrastructures. We conducted work at HHS, DOD, and VA—the federal agencies that play major roles in supporting and providing health

care delivery in the United States and that are promoting the use of health IT. We reviewed and assessed HHS's framework and plans for developing a national health IT strategy to understand the role of the new office for national coordination of health IT. We supplemented our assessment by discussing with officials throughout the department their involvement in national efforts to implement health IT and the integration of current health IT initiatives into the national strategy. We analyzed DOD and VA documentation and prior GAO reports discussing the two departments' implementation of health IT (see app. I). We supplemented our analyses by discussing with DOD and VA officials the lessons that they learned from implementing health IT solutions in two of their major information systems. We selected examples of other countries' efforts to modernize health IT infrastructures based upon literature reviews and discussions with health care IT experts. We discussed with Canada, Denmark, and New Zealand their initiatives to modernize national health IT infrastructures and identified lessons learned from their experiences that could be meaningful to the United States's efforts. We conducted our work from October 2004 through March 2005, in accordance with generally accepted government auditing standards.

On April 1, 2005, we provided your office with a briefing on the results of this review. The purpose of this letter is to provide the published briefing slides to you, which appear as appendix I. The information in these slides has been updated to include additional information requested by your office.

In summary, we found that HHS, through the Office of the National Coordinator for Health IT, is taking initial steps toward developing a national strategy for health IT and has released a framework that describes actions to be taken by the public and private sectors to develop and implement such a strategy. The framework defines goals and strategies that are to be implemented in three phases. Phase I focuses on the development of market institutions¹ to lower the risk of health IT procurement, phase II involves investment in clinical management tools and capabilities, and phase III supports the transition of the market to robust quality and performance accountability.

¹According to HHS, market institutions include certification organizations, group purchasing entities, and low-cost implementation support organizations that do not currently exist but are necessary to support clinicians as they procure and use IT.

HHS is in the initial phase of implementing activities to achieve the goals of the framework and, as a result, has made progress toward coordinating federal health IT efforts and reaching out to private industry. For example, in November 2004, the department issued a request for information seeking public input and ideas for developing a national health information network; a task force of federal agencies is evaluating over 500 responses to this request. HHS is also working with the private sector to develop standards and certification procedures for health IT interoperability. However, HHS has not established milestones for the completion of phase I, nor has it defined plans for phases II and III. Without defined milestones, it remains unclear when the important activities of phase I will be completed to provide the building blocks needed to support the activities of the subsequent phases.

We identified lessons learned from DOD and VA that could provide valuable insight to HHS as it works toward implementing a national health IT infrastructure. DOD and VA operate the largest health care delivery networks in the nation, and important lessons can be taken from their experiences in health IT. Among other things, they reported the need to

- obtain full endorsement of top leadership,
- define and adopt common standards and terminology,
- recognize and address the needs of the varied stakeholder communities, and
- deploy in small increments and build on success.

We also reported additional lessons learned from other countries' experiences in modernizing health IT infrastructures. Canada, Denmark, and New Zealand have begun initiatives to establish national health IT infrastructures with government support and identified lessons learned from their experiences, such as

- focus on creating standards first,
- establish a central organization to lead health IT efforts, and
- implement solutions incrementally.

Recommendation for Executive Action

As a result of our work, we recommend that the Secretary of Health and Human Services establish detailed plans and milestones for each phase of the framework for strategic action and take steps to ensure that those plans are followed and milestones are met.

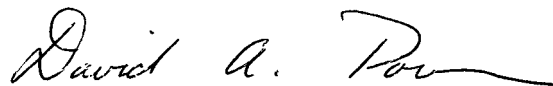
Agency Comments

We received written comments on a draft of this report from the Acting Inspector General at HHS and the Deputy Secretary of VA. We received oral comments from the Chief Enterprise Architect for Military Health System at DOD. DOD, HHS, and VA concurred with our results and provided technical comments, which we have incorporated in this report as appropriate. HHS agreed with our recommendation and described additional actions that the Secretary is taking to achieve specific goals of the framework and to benefit from lessons learned from DOD and VA. HHS also provided additional information about the steps that the department is taking to lead the nation in health IT efforts. This information is provided in HHS's written comments, which are reproduced in appendix II. VA's written comments are reproduced in appendix III.

We are sending copies of this report to the Chairmen and Ranking Minority Members of other Senate and House committees and subcommittees having authorization and oversight responsibilities for health care IT. We are also sending copies to the Secretary of Health and Human Services and to the other agencies that participated in our review. We will also make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

Should you or your office have any questions about matters discussed in this report, please contact Dave Powner at (202) 512-9286 or by e-mail at pownerd@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Major contributors to this report also included Tonia D. Brown, Pamlutricia Greenleaf, M. Saad Khan, Valerie C. Melvin, M. Yvonne Sanchez, Teresa F. Tucker, and Jessica D. Waselkow.

Sincerely yours,



David A. Powner
Director, Information Technology
Management Issues



Linda D. Koontz
Director, Information Management Issues

National Health Information Technology Strategy



National Health Information Technology Strategy

**Briefing for Majority Staff
Committee on the Budget
House of Representatives**

April 1, 2005

Updated

1



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Introduction

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- The United States health care delivery system is an information-intensive industry that is complex, inefficient, and highly fragmented, with estimated spending of \$1.7 trillion in 2003.
 - Calling for transformational change in the health care industry, the Institute of Medicine pointed out that health care delivery in the United States has longstanding problems with medical errors and inefficiencies that increase the cost of health care.¹
 - The President's health care information technology (IT) plan calls for the development and implementation of a strategic plan to guide the nationwide implementation of interoperable health information technology in both the public and private health care sectors that will prevent medical errors, reduce costs, improve quality, and produce greater value for health care expenditures.

¹ Institute of Medicine, *To Err Is Human: Building a Safer Health System* (Washington, DC: November 1999) and *Crossing the Quality Chasm: A New Health System for the 21st Century* (Washington, D.C.: March 2001).



Objectives, Scope and Methodology

Objectives and Scope

Objectives

- To provide an overview of the Department of Health and Human Services' (HHS) efforts to develop and implement a national health information technology strategy
- To identify lessons learned from the Departments of Defense's (DOD) and Veterans Affairs' (VA) implementation of electronic health records (EHRs)
- To identify lessons learned from other countries' efforts to modernize health IT infrastructures



Objectives, Scope and Methodology

Objectives and Scope

Scope

- Conducted work at HHS components that play major roles in supporting health care IT, including the Agency for Healthcare Research and Quality, Centers for Medicare and Medicaid Services, Food and Drug Administration, Health Resources and Services Administration, Indian Health Service, National Institutes for Health, and Office of the National Coordinator for Health IT in Washington, D.C., and the Centers for Disease Control and Prevention in Atlanta, GA
- Conducted work at DOD's Office of Health Affairs in Falls Church, VA and VA's Veterans Health Administration in Washington, D.C.
- Selected and reviewed examples of health care IT infrastructure initiatives from Canada, Denmark, New Zealand, and the United Kingdom.



Objectives, Scope and Methodology

Methodology

- Reviewed HHS's framework and implementation plans for developing a national health IT strategy and held discussions with agency officials about their involvement in national efforts to implement health IT and the integration of current health IT initiatives into the national strategy
 - Analyzed agency documentation and GAO reports discussing DOD's and VA's implementation of EHRs as part of the Composite Health Care System II and the Veterans Health Information System and Technology Architecture
 - Supplemented analyses with interviews of DOD and VA officials regarding the agencies' practices, processes, and outcomes in implementing EHRs, and identified related lessons learned that could be useful in the implementation of a national health care system
 - Consulted with a private health care consultant currently studying EHRs to assess the validity of the identified lessons and their applicability in federal and private health care settings
-



Objectives, Scope and Methodology

Methodology

- Conducted literature reviews of other countries' efforts to implement health IT and held discussions with officials in Canada, Denmark, and New Zealand to gain information about experiences related to costs, benefits, time frames, and challenges
 - We held discussions with health care IT experts and reviewed literature to identify countries that are modernizing health IT infrastructures and were willing to discuss their initiatives and lessons learned with us.
 - We obtained information about the United Kingdom's health IT modernization project by reviewing publicly available documentation.
 - We conducted our work from October 2004 through March 2005 in accordance with generally accepted government auditing standards.
 - We collected systems descriptions and cost information from agency officials and did not independently verify data provided to us.
 - We requested comments from HHS, DOD, and VA on a draft of these briefing slides.
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Results in Brief

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- In July 2004, HHS delivered a framework for strategic actions as a first step toward a strategy to implement a nationwide health IT infrastructure that involves both the public and private sectors' participation.
 - The framework builds upon ongoing work in federal health IT and includes plans to identify and learn from agencies' experiences.
 - The framework defines goals and strategies which are to be implemented in three-phases.
 - HHS is in the initial phase of implementing the framework's strategies but has not defined milestones for completion of this phase or later phases.
 - In November 2004, HHS issued a request for information seeking public input and ideas for developing a national health information network; a task force of federal agencies is evaluating over 500 responses.
-



Results in Brief

-
- DOD and VA operate the largest health care delivery networks in the nation, and their experiences in implementing EHRs offer important lessons learned that could be applied to a national health records system. These lessons include:
 - Obtain full endorsement of top leadership
 - Define and adopt common standards and terminology
 - Recognize and address needs of the varied stakeholder communities
 - Deploy in small increments and build on success
 - Other countries have begun initiatives to establish national health IT infrastructures with government support and also provided valuable lessons learned that can be applied to the U.S.'s efforts, such as:
 - Focus on creating standards first
 - Establish a central organization to lead health IT efforts
 - Implement incrementally
 - As a result of our review, we recommend that HHS establish plans and milestones for fully implementing its framework for strategic action.
-



Background

IT in the Health Care Industry

- The President's Information Technology Advisory Committee² observed that, unlike most industries in which IT has improved efficiency, quality, and productivity, health care still operates using primarily paper-based records, phone calls, faxes, and mail.
 - Unlike the nationalized health systems of many countries, the U.S. health care system is composed of private, independent hospitals, ambulatory care and long-term care facilities, and private individual and group provider practices.
 - The free market system does not inherently generate practical mechanisms for sharing information critical to patient care.
- According to HHS, health care is the largest sector of the economy that has not fully embraced information technology.

² The President's Information Technology Advisory Committee's members are appointed by the President to provide independent expert advice on IT.



Background

IT in the Health Care Industry

- Health IT is used to support health care quality and efficiency by providing tools to improve patient care and to reduce administration overhead. For example
 - Electronic health records (EHRs)³ provide patients and their caregivers the necessary information required for optimal care while reducing costs and administrative overhead, such as that associated with patient registration, admission, discharge, and billing.
 - Computer-assisted clinical decision support tools increase the ability of health care providers to take advantage of current medical knowledge from online medical references as they make treatment decisions.
 - Computerized provider order entry allows providers to electronically order tests, medicine, and procedures for patients, reducing errors associated with hand-written orders and prescriptions.
 - Telehealth is used to provide health care to rural and remote areas through the use of communications technologies.

³ There is a lack of consensus on what constitutes an EHR, and thus multiple definitions and names exist for EHRs, depending on the functions included. An EHR generally includes (1) a longitudinal collection of electronic health information about the health of an individual or the care provided, (2) immediate electronic access to patient- and population-level information by authorized users, (3) decision support to enhance the quality, safety, and efficiency of patient care, and (4) support of efficient processes for health care delivery.



Background

IT Adoption Rates in Health Care

- We recently reported that current health IT adoption rates in the United States are varied and increasing the rates of IT adoption is critical to achieving significant benefits.⁴
 - Respondents to a recent survey conducted by the Medical Group Management Association reported that only 31 percent of physician group practices use fully operational EHRs.
 - The Healthcare Information and Management Systems Society reported that 19 percent of hospitals use fully operational EHRs.
 - According to a study by the Commonwealth Fund, approximately 13 percent of solo physicians have adopted some form of EHR, while 57 percent of large group practices (50 or more physicians) have adopted an EHR.
- According to the Commonwealth Fund, gaps in adoption rates are further widened by barriers and challenges to implementing health IT that are greater for solo and small group practices.

⁴ GAO, *Health and Human Services' Estimate of Health Care Cost Savings Resulting from the Use of Information Technology*, GAO-05-309R (Washington, D.C.: February 16, 2005).



Background Challenges to Implementing IT

- While there are proven benefits to implementing health IT, the Medicare Payment Advisory Commission⁵ identified other factors that present financial, technical, and cultural challenges.
 - Investment in IT can be costly and must compete with other investments, and depends on the organization's ability to access capital.
 - Integrating new IT with other systems can further increase costs and system maintenance requirements.
 - Maintaining full operations when making system changes presents additional challenges.
 - Implementation of IT often requires changes in work processes and culture.
 - Physicians' reluctance is a major hurdle to implementing IT, and overcoming it is key to successful projects.

⁵ The Medicare Payment Advisory Commission is an independent federal body established by the Balanced Budget Act of 1997 (P.L. 105-33) to advise the U.S. Congress on issues affecting the Medicare program.



Background

Recent Studies on Cost and Benefits of Health IT

- Studies by the Center for Information Technology Leadership identified savings from the widespread adoption of health IT.
 - *The Value of Healthcare Information Exchange and Interoperability* identified \$78 billion in annual savings based on electronically sharing health care data between providers and stakeholders, which resulted in saving time and avoiding duplicate tests.
 - *The Value of Computerized Provider Order Entry in Ambulatory Settings* estimated \$44 billion in annual savings based on avoidance of unnecessary outpatient visits and hospital admissions, as well as more cost-effective medication, radiology, and lab ordering.
 - The center and other health care experts acknowledge that these estimates are based on limited data and a number of assumptions and, therefore, are not necessarily complete and precise.
 - In October 2003, we reported significant financial benefits realized from the implementation of health IT, including cost savings at VA and expected savings at DOD (GAO-04-224; see appendix I).
-



Background

Administration's Health IT Agenda

- The President's health care IT plan calls for the widespread adoption of interoperable EHRs within 10 years.
- In April 2004, the President issued Executive Order 13335⁶ to "provide leadership for the development and nationwide implementation of an interoperable health information technology infrastructure to improve the quality and efficiency of health care." Among other things, the order called for
 - the appointment of a national coordinator for health IT who is to report to the Secretary of HHS regarding progress on the development and implementation of a strategic plan.
- The Secretary appointed a national coordinator in May 2004 whose responsibilities include coordination of programs and policies regarding health IT across the federal government, and outreach and consultation between the federal government and the private sector.

⁶ Executive Order 13335, *Incentives for the Use of Health Information Technology and Establishing the Position of the National Health Information Technology Coordinator* (Washington, D.C.: April 27, 2004).



Background

HHS's Role in Health IT

- As a regulator, purchaser, health care provider, and sponsor of research, HHS is taking steps to promote the use of IT in public and private health care settings.
 - The Agency for Healthcare Research and Quality (AHRQ) aims to translate research findings into better patient care and provides funding for state and regional IT demonstration projects and a national resource center for grantees and organizations that are engaged in health IT activities.
 - According to HHS officials, over half of AHRQ's funding goes to rural and small communities.
 - The Centers for Medicare and Medicaid Services (CMS) administers the Medicare program and works in partnership with states to administer the Medicaid program and the States Children's Health Insurance Program; CMS has established pilots to promote the adoption and effective use of health IT in physicians' offices and to improve beneficiary telephone customer service using web-based call centers.
-



Background

HHS's Role in Health IT

- Indian Health Service (IHS) provides health services to American Indians and Alaskan Natives and reportedly uses a hospital information system that provides order entry, results reporting, encounter documentation, and other clinical functions.
- The Health Resources and Services Administration (HRSA) aims to expand access to high-quality health care and provide grants for community-based activities in informatics, EHRs, and telehealth.
 - HRSA awarded 65 grants and over \$30 million for telehealth in 2004.
- The National Institutes of Health (NIH) works to apply scientific knowledge to extend healthy life and provide research grants for computer technologies to facilitate access, storage, and use of biomedical information, for training of informatics researchers and developers, and access to informatics resources.



Background Role of the National Committee on Vital and Health Statistics

- The National Committee on Vital and Health Statistics (NCVHS) was established in 1949 as a public advisory committee that is statutorily authorized to advise the Secretary of HHS on health data, statistics, and national health information policy, including the implementation of health IT standards.
 - The committee is responsible for developing recommendations to HHS for standards to enable e-prescribing and delivered its first set of recommendations to the department in September 2004 with additional recommendations to be provided in March 2005.
 - The committee is also responsible for making recommendations to the Secretary of HHS for transaction and code set standards.



Background Role of the National Committee on Vital and Health Statistics

- In November 2001, NCVHS called for federal leadership to accelerate and coordinate progress on a national health information infrastructure.⁷
 - NCVHS intends to continue to address issues related to health IT and a national health information infrastructure and provide comments and recommendations to the Secretary as appropriate.
- NCVHS reviews results of HHS agencies' standards-setting initiatives, along with government and nongovernmental requirements and issues, and makes recommendations to the department secretary regarding the adoption of health IT standards, as appropriate.

⁷ NCVHS, *Information for Health: A Strategy for Building the National Health Information Infrastructure* (Washington, D.C.: November 2001).



Background DOD's Role in Health IT

- As previously reported,⁸ DOD has pursued the goal of providing IT support to its hospitals and clinics since 1968.
 - From 1976 to 1984, DOD spent about \$222 million to acquire, implement, and operate various health care computer systems.
 - The Composite Health Care System (CHCS), deployed in 1993, is the primary DOD medical information system now used in all military health system facilities worldwide, supporting patient registration and inpatient activity documentation, and providing laboratory, radiology, pharmacy, drug interaction, and other functions.

⁸GAO, *Information Technology: Greater Use of Best Practices Can Reduce Risks in Acquiring Defense Health Care System*, GAO-02-345 (Washington, D.C.: September 26, 2002).



Background

DOD's Role in Health IT

- DOD initiated CHCS II in 1997 as an advanced medical information system to assist clinicians in making improved health care decisions and to lower costs.
 - As part of CHCS II, DOD is implementing a centralized Clinical Data Repository of life-long health records for military health system beneficiaries that provide documentation such as patient histories, physician notes, and population health reporting.
 - CHCS II represents DOD's EHR and will eventually replace the existing CHCS.
- According to HHS, DOD has a lengthy history working in remote and medically underserved areas and has experience in using IT, such as telehealth, to deliver care in isolated conditions which can be compared with the conditions in some rural environments.

⁸GAO, *Information Technology: Greater Use of Best Practices Can Reduce Risks in Acquiring Defense Health Care System*, GAO-02-345 (Washington, D.C.: September 26, 2002).



Background

VA's Role in Health IT

- VA is the country's largest health care provider and, according to RAND,⁹ has been making significant strides in implementing technologies and systems to improve care, including an EHR that allows instant communication among providers across the country and reminds providers of patients' clinical needs.
- As we previously reported¹⁰, VA has had an automated information system in its medical facilities since 1985. In 1996, this system evolved into the Veterans' Health Information Systems and Technology Architecture (VistA), an integrated outpatient and inpatient system that includes its EHR—the Computerized Patient Record System.
- VA's EHR technologies are available for public use and are being modified for transfer to rural and medically underserved settings.

⁹ RAND, *Improving Quality of Care: How the VA Outpaces Other Systems in Delivering Patient Care* (Santa Monica, CA: 2005).

¹⁰ GAO, *Information Technology: Benefits Realized for Selected Health Care Functions*, GAO-04-224 (Washington, D.C.: October 31, 2003)



Background

Private Industry's Role in Health IT

According to the National Coordinator for Health IT:

- While the federal government plays an important role in health IT adoption, the effective use of health IT lies predominantly with the private sector.
- The federal government can provide a vision and strategic direction for a national interoperable health care system but will rely on the private sector to provide a competitive technology industry, privately operated support services, and shared investments in health IT adoption.
- The private sector must develop the market institutions to deliver the products and services that can transform the paper-based health care system into an electronic, consumer-centered, and quality-based system.



Background Relevant Legislation

Federal legislation requires specific activities related to the implementation of health IT by both the public and private sectors.

- The Health Insurance Portability and Accountability Act (HIPAA) of 1996¹¹ requires HHS to establish national standards for certain financial and administrative electronic health care transactions and national identifiers for providers, health plans, and employers.
- The Public Health Security and Bioterrorism Preparedness and Response Act of 2002¹² requires that the Secretary, in cooperation with health care providers and state and local public health officials, establish standards for interoperability of health alert and public health surveillance networks between federal, state, and local public health officials, and public and private health labs, hospitals and other facilities.

¹¹ Public Law 104-191 (August 21, 1996).

¹² Public Law 107-188 (June 12, 2002).



Background Relevant Legislation

- Among other things, the Medicare Prescription Drug Improvement and Modernization Act of 2003¹³ includes provisions for an electronic prescription drug program and requires CMS to develop standards for electronic prescribing.
 - It also requires the establishment of a Commission on Systemic Interoperability to provide a road map for interoperability standards.
 - The act authorizes the Secretary of HHS to conduct a 3-year pay-for-performance demonstration program under which physicians are to adopt and use health IT to promote continuity of care, stabilize medical conditions, prevent or minimize acute exacerbations of chronic conditions, and reduce adverse health outcomes to meet beneficiaries' needs.

¹³ Public Law 108-173 (December 8, 2003).



Background

Previous GAO Reports on Health IT

- GAO has historically reviewed and reported issues related to the federal government's efforts to implement health IT, including the need for an implementation strategy, costs and benefits of health IT, barriers to implementation, and DOD's and VA's efforts to implement EHRs and exchange data.
- Appendix I includes descriptions of GAO reports issued since 2000.



National Health IT Strategy

Office of the National Coordinator for Health IT

- The mission of the Office of the National Coordinator for Health IT is to develop and implement a strategic plan to guide the nationwide implementation of interoperable health care IT in both the public and private sectors.
 - According to the national coordinator, the office is a transitional organization with no permanent positions under the HHS Assistant Secretary for Budget, Technology and Finance.
 - The first step in preparing a strategic plan was the release of a framework for strategic action, and in accordance with Executive Order 13335, HHS released *The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care* (July 2004), which describes a framework for strategic action.
 - The office intends to release a complete strategic plan during this coming year to build upon the framework and provide detailed plans for implementing the President's vision.
-



National Health IT Strategy Framework for Strategic Action

- The framework for strategic action outlines an approach toward the nationwide implementation of interoperable health IT in both the public and the private sectors.
 - It calls for a sustained set of actions which will be taken over many years by the public and private health sectors.
 - The framework outlines four major goals and 12 strategies for implementing a strategy for national health IT.
- The framework states a commitment to the development of interoperability standards, a key component of progress in interoperable health IT, and describes efforts to adopt standards for use by all federal health agencies.
- The framework also supports the role of the private sector and recognizes that the adoption and effective use of health IT require a joint effort between federal, state, and local governments and the private sector.
- As we testified in July 2004, as the national coordinator moves forward with this framework, it will be essential to have continued leadership, clear direction, measurable goals, and mechanisms to monitor progress.¹⁴

¹⁴ GAO, *Health Care: National Strategy Needed to Accelerate the Implementation of Information Technology*, GAO-04-947T (Washington, D.C.: July 14, 2004).



National Health IT Strategy Framework for Strategic Action

- HHS's approach for implementing the framework's strategic actions aggregates its goals and strategies into three phases.
 - **Phase I** focuses on the development of market institutions to stabilize the market, create a better environment for investment and accountability, and lower the risk of health IT procurement.
 - **Phase II** involves investment in clinical management tools and capabilities such as EHRs, personal health records, telehealth, health information exchange, and other mechanisms for high-performance care delivery.
 - **Phase III** supports the transition of the market to robust quality and performance accountability, where clinicians have the tools and capabilities to manage patients and populations and to deliver consistently high-quality care in an efficient manner.
-



National Health IT Strategy Framework for Strategic Action

- HHS is currently implementing phase I and, according to the national coordinator, its initial efforts are focused on the building blocks of EHR adoption, interoperability, and streamlined federal health information systems.
 - These building blocks are necessary to enable both the private and public sectors to implement interoperable health information systems and to provide a foundation for efforts in later phases, such as personal health records and biosurveillance.
- However, HHS has not established milestones for the completion of phase I, nor has it defined or made plans for phases II and III.



National Health IT Strategy

Framework for Strategic Action

- According to officials with the Office of the National Coordinator for Health IT, the office is in the process of establishing milestones for the completion of phase I but has not made plans for phases II and III because HHS has not formalized the organization or funding for future activities.
- Without defined milestones it remains unclear when the important activities of phase I will be completed and when the building blocks to support activities of the subsequent phases will be available.
- The following slides describe the framework's 4 goals and 12 strategies and key HHS IT initiatives that support the phase I goals.



National Health IT Strategy Framework for Strategic Action

Goals	Strategies ^a
<i>Goal 1:</i> Inform clinical practice with the use of EHRs	<ol style="list-style-type: none"> 1. Incentivize EHR adoption 2. Reduce risk of EHR investment 3. Promote EHR diffusion in rural and underserved areas
<i>Goal 2:</i> Interconnect clinicians so that they can exchange health information using advanced and secure electronic communication	<ol style="list-style-type: none"> 1. Foster regional collaborations 2. Develop a national health information network 3. Coordinate federal health information systems
<i>Goal 3:</i> Personalize care with consumer-based health records and better information for consumers	<ol style="list-style-type: none"> 1. Encourage use of personal health records 2. Enhance informed consumer choice 3. Promote use of telehealth systems
<i>Goal 4:</i> Improve public health through advanced biosurveillance methods and streamlined collection of data for quality measurement and research	<ol style="list-style-type: none"> 1. Unify public health surveillance architectures 2. Streamline quality and health status monitoring 3. Accelerate research and dissemination of evidence

Source: GAO analysis of HHS information.

^a Phase I strategies are shown in bold type.



National Health IT Strategy

Phase I: Standards for EHRs

- HHS is working with the private sector to develop standards for EHR functionality, interoperability, and security in order to reduce the risk of EHR implementation failure, a goal 1 strategy.
 - In July 2004, three leading health care industry associations—the Health Information and Management Systems Society, American Health Information Management Association, and National Alliance for Health IT—established a private sector task force to develop certification requirements for ambulatory EHRs.
 - The Certification Commission for Health IT is made up of private sector and not-for-profit members with federal employees serving as experts on the commission’s work groups.
 - The committee plans to define a basic certification process for EHRs in ambulatory settings by summer 2005.
-



National Health IT Strategy

Phase I: HHS Support for Regional Collaborations

- Currently, there are two HHS programs to support regional collaborations through grants and contracts.
 - In October 2004, AHRQ announced \$139 million in multi-year grants and contracts to promote the use of health IT, including five-year contracts to five states to help them develop statewide networks.
 - HRSA's Office for the Advancement of Telehealth provides seed money and support to multi-stakeholder collaboratives within communities to implement regional health information organizations. It provided \$2.3 million in 2004.
- These programs support the goal 2 strategy to foster regional collaborations.
- The Office of the National Coordinator for Health IT plans to host an interoperability meeting with stakeholders this year to address requirements for regional organizations and the national health information network.



National Health IT Strategy

Phase I: National Health Information Network

- In November 2004, HHS issued a request for information (RFI) for ideas to develop a national health information network (NHIN)¹⁵—a goal 2 strategy.
 - The network is intended to provide technologies for the secure movement of information used in the delivery of health care in the U.S integrated with public health surveillance and response, and shared within the public domain.
 - If implemented properly, the network should help achieve interoperability of health IT used in the mainstream delivery of health care in America, particularly pertaining to the information contained in or used by EHRs.
 - A key component of a NHIN is the development of interoperability standards and policies for diffusion into practice.
- The RFI addresses the goal to interconnect clinicians by seeking public comment and input regarding how widespread interoperability of health IT and health information exchange can be achieved.

¹⁵ The national health information network is now referred to as the nationwide health information network.



National Health IT Strategy

Phase I: National Health Information Network

- The results of the RFI are intended to provide information for policy discussions inside and outside the government about possible methods by which widespread interoperability and health information exchange could be deployed and operated on a sustainable basis.
 - HHS intends to explore the role of the federal government in facilitating deployment of a national health information network, how it could be coordinated with efforts to define a federal health architecture, and how it could be supported and coordinated by regional health information organizations.¹⁶
 - The RFI also requests input regarding privacy and security considerations, including compliance with HIPAA rules and the role of the private sector in the construction and implementation of a NHIN.
- According to the national coordinator, HHS received over 500 responses and has convened a governmentwide task force made up of over 100 people from 17 agencies to review the responses and produce a summary.

¹⁶ Regional health information organizations are multi-stakeholder collaboratives within communities that support health information exchange efforts.



National Health IT Strategy

Phase I: Federal Health Information Systems

- The office of the national coordinator is responsible for the Federal Health Architecture (FHA) program which is to define a framework and methodology for establishing the target architecture and standards for interoperability and communication throughout the federal health community, supporting a goal 2 strategy to coordinate federal health information systems
 - FHA was initiated in 2003 in HHS's office of the chief information officer and was incorporated into the national coordinator's office in 2004.
- FHA is intended to provide a structure for bringing HHS's divisions and other federal departments together through its partners' council,¹⁷ initially targeting standards for enabling interoperability.
 - The FHA program is supported by four advisory work groups.
 - Appendix II includes descriptions of the FHA work groups and their responsibilities, followed by a table describing membership.

¹⁷ The FHA partners' council includes almost 400 members from 15 agencies



National Health IT Strategy

Phase I: Federal Health Information Systems

- The FHA partners are responsible for improving coordination and collaboration on federal health IT solutions and investments and improving efficiency, standardization, reliability, and availability of health comprehensive information solutions.
 - According to the national coordinator, there is a strong need for the federal government's health information systems to be able to exchange data so that these systems become more efficient and cost-effective.
 - HHS plans to produce in September 2005 the first release of an information architecture for the federal health enterprise to enable collaboration and data sharing across the government and with various organizations, such as states and private entities.
 - The first release will contain foundational elements to support the development and evolution of the full architecture which will occur over several years.



National Health IT Strategy

Phase I: Federal Health Information Systems

- The FHA's Consolidated Health Informatics (CHI) initiative is focused on the adoption of health information interoperability standards, identification of gaps and additional work areas in domains without standards recommendations, and coordination with developers of health information interoperability standards to promote accessibility and distribution of adopted standards to support the FHA.
 - Consolidated Health Informatics was initiated in December 2001 as an OMB e-government project to establish federal health information standards to enable federal agencies to build interoperable health data systems.
 - The project was incorporated into FHA in September 2004.



National Health IT Strategy

Phase I: Personal Health Records

- In January 2005, NCVHS held hearings on personal health records—a goal 3 strategy to personalize care—and identified issues, some specifically related to the federal government.
 - Issues discussed include privacy and information control, security of health information, legal issues, cost, and interoperability.
 - Federal issues include the relationship of roles in and uses of personal health records to the larger health objectives of the federal government, such as (1) what costs agencies will face, (2) how the federal government should promote interoperability, and (3) whether there needs to be a standardized approach to a personal health record across all of the federal activities.
 - The hearings also discussed broader issues such as ownership and control of personal health information and policy issues such as access rights and authorization of usage.
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National Health IT Strategy

Framework Support: Standards and Interoperability

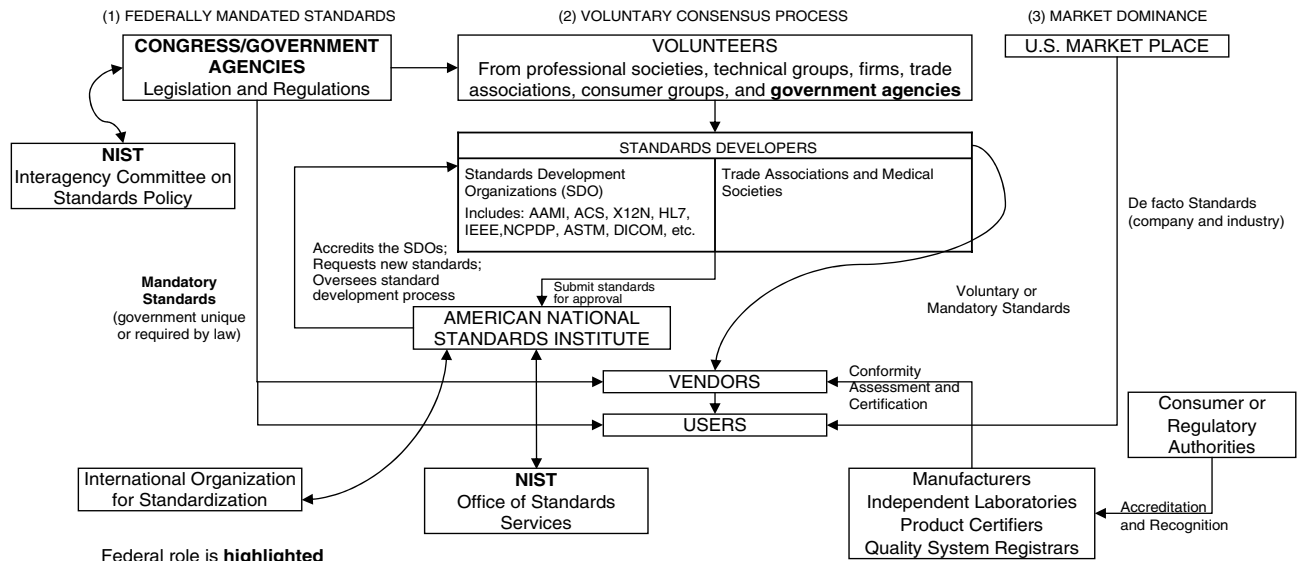
- According to the national coordinator, the development of technically sound and robustly specified interoperability standards and policies is a key component of progress toward the implementation of a national strategy that provides interoperable health IT systems
 - The development, approval, and adoption of standards for health IT is an ongoing, long-term process that supports multiple goals of the framework and includes federally mandated standards requirements (e.g., HIPAA) and a voluntary consensus process within a market-based health care industry.
 - The use of some standards, such as those defined by HIPAA and MMA, is mandated by the federal government while others are defined by standards development organizations such as the American Association of Medical Instrumentation and the National Council for Prescription Drug Programs.
 - The following graphic provides an overview of the highly complex standards-setting process for health care data exchange in the United States.
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National Health IT Strategy

Framework Support: Standards and Interoperability

Overview of the Process to Set Standards for the Exchange of Health Care Data in the U.S.



Note: AAMI = American Association of Medical Instrumentation; ASC = Accredited Standards Committee; ASTM = American Society for Testing and Materials
DICOM = Digital Imaging and Communication in Medicine; HL7 = Health Level Seven; IEEE = Institute for Electrical and Electronics Engineers
NCPDP = National Council for Prescription Drug Programs; NIST = National Institute of Standards and Technology, (part of the Commerce Dept)
Source: Institute of Medicine, *Patient Safety: Achieving a New Standard for Care* (Washington, D.C.: 2004).



National Health IT Strategy

Framework Support: Standards and Interoperability

- HHS identifies and researches standards that are defined by standards development organizations and determines which approved standards are appropriate for use in federal agencies' health IT systems.
 - According to an HHS official, the department has limited authority to mandate standards outside of the federal government, but, through the Consolidated Health Informatics initiative, is encouraging the implementation of standards within the federal government to provide a catalyst for the private sector to follow.
 - Federal agencies agreed to endorse 20 domains of health data standards for information exchange as a model for the private sector, yielding 11 sets of standards to be used in federal IT architectures.
 - HHS is committed to supporting collaboration between the public and private sectors to develop, adopt, and certify standards.
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National Health IT Strategy

Framework Support: Standards and Interoperability

- HHS divisions, such as AHRQ, CMS, NIH, CDC, and FDA, have been and continue to be responsible for selecting and adopting standards and are now included in the CHI initiative, supporting multiple goals of the framework.
- AHRQ and CMS are working on initiatives that support goal 1 of the framework.
 - AHRQ is working to identify and establish clinical standards and research to help accelerate the adoption of interoperable health IT systems, including
 - industry clinical messaging and terminology standards,
 - national standard nomenclature for drugs and biological products, and
 - standards related to clinical terminology.
 - CMS is responsible for identifying and adopting standards for e-prescribing and for implementing the administrative simplification provisions of HIPAA, including electronic transactions and code sets, security, and identifiers.



National Health IT Strategy

Framework Support: Standards and Interoperability

- NIH's work on standards supports the framework's goal 2.
 - NIH's National Library of Medicine (NLM) is working on the implementation of standard clinical vocabularies, including support for and development of selected standard clinical vocabularies to enable ongoing maintenance and free use within the United States' health communities, both private and public.
 - In 2003, NLM obtained a perpetual license for the Systematized Nomenclature of Medicine (SNOMED)¹⁸ standard and ongoing updates, making SNOMED available to U.S. users.
 - Other efforts at NLM include the uniform distribution and mapping of HIPAA code sets, standard vocabularies, and Health Level 7¹⁹ code sets.

¹⁸ SNOMED is a nomenclature classification for indexing medical vocabulary, including signs, symptoms, diagnoses, and procedures. It was adopted as a CHI standard in May 2004.

¹⁹ HL7 is a standards development organization that creates message format standards for electronic exchange of health information.



National Health IT Strategy

Framework Support: Standards and Interoperability

- The Centers for Disease Control and Prevention (CDC), FDA, and NIH are working on standards-setting initiatives that support the framework's goal 4.
 - CDC, through its Public Health Information Network (PHIN) initiative, is working on the development of shared data models, data standards, and controlled vocabularies for electronic laboratory reporting and public health information exchange that are compatible with federal standards activities such as CHI.
 - FDA and NIH, together with the Clinical Data Interchange Standards Consortium, a group of over 40 pharmaceutical companies and clinical research organizations, have developed a standard for representing observations made in clinical trials, the Study Data Tabulation Model.
 - In May 2003, we recommended to HHS that ongoing standards-setting organizations coordinate their efforts to define and implement health IT standards (GAO-03-139; see appendix I).
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National Health IT Strategy

Framework's Goals and Supporting HHS IT Initiatives

- In addition to those already described, other ongoing HHS IT initiatives support the framework's goals.
- The following table lists key HHS IT initiatives for health IT by division and identifies the goals that they support.
- Descriptions of each of the initiatives are included in appendix III.



National Health IT Strategy Framework's Goals and Supporting HHS IT Initiatives

Division	Initiative	Goal 1 Inform Clinical Practice	Goal 2 Interconnect Clinicians	Goal 3 Personalize Care	Goal 4 Improve Population Health
AHRQ	Health IT Resource Center	•	•	•	•
	State and Regional Health IT Demonstrations	•	•	•	•
	Transforming Healthcare Quality Through IT		•		
CDC	Public Health Information Network				•
CMS	Doctors' Office Quality – IT	•			•
	Medicare Care Management Performance Demonstration	•			
	Virtual Call Center			•	
	VistA – Office EHR	•			
FDA	Bar Coding for Prescription Products				•
	Structured Product Labeling Program		•		•
IHS	Resource and Patient Management System	•			

Source: GAO analysis of HHS information.



National Health IT Strategy

Framework's Goals and Supporting HHS IT Initiatives

Division	Initiative	Goal 1 Inform Clinical Practice	Goal 2 Interconnect Clinicians	Goal 3 Personalize Care	Goal 4 Improve Population Health
HRSA	Advancement of Telehealth Grants	•		•	
	Health Communities Access Program	•	•	•	•
	Integrated Services Development Initiative	•	•		
	Patient Electronic Care System	•			•
	Sentinel Centers Network	•			•
	Shared Integrated Management Information Systems /Information and Communication Technology	•	•	•	•
NIH	Cancer Biomedical Informatics Grid		•		•
	Grants for Research, Training, and Access to Informatics Resources	•			
	National Electronic Clinical Trials and Research Network		•		•
	Development and Implementation of Controlled Clinical Vocabularies		•		
ONCHIT	Consolidated Health Informatics	•	•		•
	Federal Health Architecture	•	•		•
	National Health Information Network	•	•	•	•

Source: GAO analysis of HHS information.



National Health IT Strategy

Framework Support: Private Sector Participation

- Certain private sector activities provide support for goals 1 and 2 of the framework.
 - The private sector task force, the Certification Commission for Health IT, is working to develop certification procedures for EHRs, supporting goal 1.
 - The Commission on Systemic Interoperability, which includes nationally recognized experts in the area of health IT, is charged by the Medicare Modernization Act to develop a comprehensive strategy for the adoption and implementation of health care IT interoperability standards, which supports goal 2.



National Health IT Strategy

Framework Support: Private Sector Participation

- HHS has supported and continues to support opportunities for private sector participation in establishing health care IT through grants and funding for demonstration projects through its divisions.
 - HHS participates with the medical and public health communities, academia, and health IT vendors through conferences and symposia.
 - The national coordinator speaks at industry conferences that are focused on identifying government incentives to encourage health IT adoption in private industry.
 - HHS's Secretarial Summit on Health IT held in July 2004 provided nongovernmental participants opportunities to make recommendations regarding incentives for health IT, population health, clinical research, and health IT governance.
 - According to HHS, close collaboration between public and private sectors can develop new methods for improving care without creating unnecessary regulation and minimizing reporting burdens on private industry.
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Lessons Learned from VA and DOD

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- DOD and VA experiences in implementing EHRs offer important lessons learned that could be used in developing and implementing a national health care effort. As providers and payers of health care services, DOD and VA's lessons include
 - Obtain full endorsement of top leadership
 - Senior administrators and clinical leaders should share and communicate a common sense of urgency regarding the need for change.
 - Senior leadership's full endorsement, including support for funding, is critical to successfully implementing an electronic health record, promoting end-user support, and securing a usable product.



Lessons Learned from VA and DOD

-
- Implement an enterprise-wide communication plan
 - EHR implementation entails organizational change and acceptance across the enterprise and at all organizational levels.
 - System acceptance and support depend upon regular, effective communication, from executive leadership levels down through end users.
 - Keeping stakeholders informed of objectives, progress, problems encountered and resolved, lessons learned, and benefits is critical to setting realistic expectations and facilitating stakeholder buy-in.



Lessons Learned from VA and DOD

- Recognize and address needs of the varied stakeholder communities
 - A management/governance structure that represents the entire stakeholder community should be established, and reflect clearly defined roles, responsibilities, and decision-making authority among the different levels of leadership.
 - Users (i.e., clinicians, payers, and others) should have an early and integral role in defining a strategy to meet their needs, establish accountability for the initiative, and sustain long-term project success.
 - Users should be actively involved in all project phases, including requirements definition, system design, development, testing, and implementation.



Lessons Learned from VA and DOD

- Define and adopt common standards, terminology, and performance measures
 - Early definition and adoption of common standards, terminology, and performance measures (communication, data, and security) and agreement on related implementation guidelines are essential to achieving data quality and consistency, system interoperability, and information protection.
- Deploy in small increments and build on success
 - Follow an incremental system development approach to accommodate evolving business processes, requirements, and technology changes; limit initial deployment to a few test sites to allow time for the process to mature, and assimilate lessons learned before full deployment.



Lessons Learned from VA and DOD

- Customize training and support to sustain system implementation
 - Establish training programs that are tailored to meet the needs of the varied users' groups. On-site clinical champions and subject-matter experts should be identified and empowered to promote and demonstrate the new system to other personnel and provide ongoing technical assistance.



Lessons Learned from Other Countries

Canada, Denmark, and New Zealand

- While the U.S. has just begun to develop a national strategy for health IT adoption, Canada and Denmark have developed national strategies and begun to take steps toward implementation, and New Zealand plans to finalize its strategy in June 2005.
 - Canada finalized its strategy in 2004 and is a year into implementation.
 - Denmark finalized its strategy in February 2003 and is 2 years into a 4-year implementation plan.
 - New Zealand has prioritized six initiatives to be implemented in the next 3 to 5 years.
- These countries are farther along in their strategy development and implementation than the U.S. and are able to share lessons learned from their experiences.



Lessons Learned from Other Countries

Overview of Canada's Health Care System

- The Canadian health care system supports publicly financed health for over 31 million people.
 - The federal government is responsible for direct health service delivery to veterans, native Canadians living on reserves, military personnel, inmates of federal penitentiaries, and the Royal Canadian Mounted Police, as well as health protection, disease prevention, and health promotion services.
 - The administration and delivery of health care services is the responsibility of each province or territory, guided by the provisions of the Canada Health Act. The provinces and territories fund these services with assistance from the federal government in the form of fiscal transfers.
 - Canada Health InfoWay is working with the provinces and territories to advance the IT building blocks needed for the health care system.
 - Canada Health InfoWay is a corporation whose board of directors is made up of representatives from all of the provinces and territories, as well as elected representatives.
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Lessons Learned from Other Countries

Lessons Learned from Canada

Lessons Learned

- Focus on creating standards first.
 - Recognize that creating a health IT infrastructure takes years, and benefits may not be realized in the short term.
 - Identify a central visible point to provide political advocacy and highlight the achievements of health IT as work progresses to help maintain support for long-term projects.
 - Identify and provide appropriate incentives based on provincial and territorial elements to motivate physicians to use IT.
 - Proactively resolve issues related to privacy protection.
 - Anticipate and mitigate border-crossing issues with implementing telehealth, such as issues with licensing arrangements and cross-border reimbursements.
-



Lessons Learned from Other Countries

Overview of Denmark's Health Care System

- The Danish health care system serves a population of 5.3 million people and is 85% tax-financed.
- At the national level, the Ministry of Health is responsible for legislation and preparing overall guidelines for the health care sector, and the National Board of Health is responsible for supervising health personnel.
- The regional level consists of 14 counties and the Copenhagen Hospital Corporation. The counties own and run hospitals and prenatal care centers and finance general and specialist practitioners, pharmacies and physiotherapists through the National Health Security System.
- The responsibility for the municipal level includes nursing homes, home nursing, health visitors, and school health services.



Lessons Learned from Other Countries Overview of Denmark's Health Care System

- Denmark's National Strategy for IT in Health Care 2003 - 2007 was finalized in February 2003.
 - It states that the most important reasons for increasing the use of IT in health care are related to the improvement of quality, efficiency, and effectiveness of health care delivery.
 - Three major initiatives of the National Strategy are
 - coordinated development, testing, and implementation of EHRs,
 - a national database to organize health care terms and concepts, and
 - concept classifications to facilitate communications across sectors and professions in health care.



Lessons Learned from Other Countries

Lessons Learned from Denmark

Lessons Learned

- Implementation of health IT across the entire country will take a long time.
 - Involve health care service providers throughout the entire implementation process.
 - A very strong central organization must lead the entire health IT implementation from start to finish.
 - Integrate federal efforts with hospitals before undertaking a larger national plan.
 - Anticipate and resolve funding, IT process reengineering, consensus-building, and other issues during the planning phase to avoid negative impacts on progress.
 - Realize that the investment in health care IT is costly, and short-term gains are hard to identify.
 - Promote successes as soon as possible to encourage acceptance by stakeholders.
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Lessons Learned from Other Countries

Overview of New Zealand's Health Care System

- The New Zealand health care system serves a population of 4 million people.
- At the national level, the Ministry of Health provides policy advice on improving health outcomes and monitors the performance of the district health boards.
- The regional level consists of 21 district health boards. Each district health board has up to 11 members, seven of which are elected by the community and up to four of which are appointed by the Minister of Health.
 - District health boards are responsible for planning, funding and ensuring the provision of health and disability services to a geographically defined population.



Lessons Learned from Other Countries Overview of New Zealand's Health Care System

- New Zealand is currently redeveloping its health information strategy, which is expected to be complete by June 2005.
 - The draft strategy identifies 12 action zones for implementation planning over the next 3 to 5 years; six were selected as initial priorities:
 - Enable secure connections and access to health information
 - Ensure national systems anchors (such as the National Health Index) are in place
 - Create and publish accessible key event summaries
 - Expand the level of electronic communication across primary and secondary care
 - Extend the collection of health information
 - Safe Access to National Information within the context of the Health Information Privacy Code is essential for the support of population health
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Lessons Learned from Other Countries

Lessons Learned from New Zealand

Lessons Learned

- The distributed government model that governs New Zealand's health care system works best.
- High level EHR components that can be shared and accessed encourage greater coordination of health services.
- Provide adequate funding for and prioritize the initiatives
- Educate stakeholders about the value of developing health IT to encourage stakeholder buy-in.



Lessons Learned from Other Countries Overview of the United Kingdom's Health Care System

- The United Kingdom's Department of Health is responsible for setting health and social care policy in England; health services are largely tax-financed in the United Kingdom and account for 14 per cent of general government spending.
 - In summer 2002, the government set up the National Programme for IT (NPfIT) which defines four main projects to be introduced in stages across different regions:
 - Electronic Patient Records
 - Electronic Appointment Booking
 - Electronic Transmission of Prescriptions
 - Communications Network
 - NPfIT plans to have electronic booking substantially in place and to have 50% of prescriptions transmitted electronically by the end of 2005.
 - We could not identify lessons learned from the United Kingdom's efforts based upon publicly available information.
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Conclusions

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- Since establishing the Office of the National Coordinator for Health IT, HHS has made progress toward coordinating federal health IT efforts and reaching out to private industry.
 - However, coordination of standards development and adoption activities throughout the health care industry, including federal efforts to accelerate the process, remains a challenge.
 - HHS has not made long-term plans or established milestones for the implementation of a national strategy to accelerate the adoption of IT across the health care industry.



Conclusions

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- DOD's and VA's experiences in implementing EHR systems offer important lessons learned that may be applied to HHS's efforts to help increase the likelihood that interoperable EHRs could be available in the next ten years.
 - The United States could benefit from other countries' experiences and lessons learned from their efforts toward modernizing their health IT infrastructures.
 - The National Coordinator for Health IT recognizes DOD's and VA's efforts and works closely with them to share lessons learned from their experiences with implementing health IT.
 - The national coordinator has recently initiated discussions with other countries to also learn from their experiences in modernizing health information infrastructures.
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Recommendation

To accelerate the adoption of interoperable IT for health care, we recommend that the Secretary of HHS

- establish detailed plans and milestones for each phase of the framework for strategic action, and
- take steps to ensure that plans are followed and milestones are met.



Agency Comments

We requested comments from HHS, DOD, and VA on a draft of these briefing slides.

- HHS did not provide comments.
- DOD's Chief Enterprise Architect for Military Health System provided written technical comments, which we incorporated as appropriate.
- VA's Acting Deputy Chief Information Officer for Health provided oral comments and agreed with the information presented.



Appendix I

Recent GAO Reports on Health IT

- **Health and Human Services' Estimate of Health Care Cost Savings Resulting from the Use of Information Technology (GAO-05-309R; February 17, 2005):** We reported that IT can improve the efficiency and quality of medical care and result in costs savings and that, although estimated nationwide savings are primarily based on studies with methodological limitations and are contingent on much higher IT adoption rates than are currently estimated, the potential for substantial savings is promising.
- **Health Care: HHS's Efforts to Promote Health Information Technology and Legal Barriers to its Adoption (GAO-04-991R; August 13, 2004):** We identified major HHS IT initiatives and associated funding, and reported that attempts by the federal government to address legal issues that present barriers to the widespread use of IT have not been sufficient.
- **Health Care: National Strategy Needed to Accelerate the Implementation of Information Technology, (GAO-04-947T; July 14, 2004):** We reported that it will be essential to have continued leadership, clear direction, measurable goals, and mechanisms to monitor progress of the implementation of a national strategy for health IT.
- **Computer-Based Patient Records: VA and DOD Efforts to Exchange Health Data Could Benefit from Improved Planning and Project Management, (GAO-04-687; June 7, 2004):** To help ensure progress in achieving the two-way exchange of health information, we recommended that VA and DOD develop an architecture for an electronic interface between their health systems and establish a project management structure to guide the initiative.



Appendix I

Recent GAO Reports on Health IT

- **Computer-Based Patient Records: Improved Planning and Project Management Are Critical to Achieving Two-Way VA-DOD Health Data Exchange, (GAO-04-811T; May 19, 2004):** We testified that DOD and VA were continuing with activities to support the sharing of health data; nonetheless, achieving the two-way electronic exchange of patient health information remained far from being realized.
 - **Computer-Based Patient Records: Sound Planning and Project Management Are Needed to Achieve A Two-Way Exchange of VA and DOD Health Data (GAO-04-402T; March 17, 2004):** We testified that DOD and VA had made little progress since November 2003 in determining an approach for achieving two-way exchange of patient data and reported that DOD and VA have taken measures towards implementing prior recommendations for enhancing management and accountability.
 - **Computer- Based Patient Records: Short-Term Progress Made But Much Work Remains to Achieve A Two-Way Data Exchange Between VA and DOD Health Systems (GAO-04-271T; November 19, 2003):** We testified that DOD and VA faced challenges in exchanging standardized data and that a common health information infrastructure and architecture was needed to achieve data exchange capability.
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Appendix I

Recent GAO Reports on Health IT

- **Information Technology: Benefits Realized for Selected Health Care Functions (GAO-04-224, October 31, 2003):** We reported significant improvements in health care delivery and financial benefits realized from the nation's health care community's implementation of health IT, including cost savings resulting from VA's and DOD's implementation of health IT.
- **Bioterrorism: Information Technology Strategy Could Strengthen Federal Agencies' Abilities to Respond to Public Health Emergencies (GAO-03-139; May 30, 2003):** We recommended that HHS coordinate with DHS, DOD, and VA to establish a national IT strategy, and that ongoing standards-setting organizations coordinate their efforts to define and implement health IT standards.
- **Computer Based Patient Records: Better Planning and Oversight by VA, DOD, and IHS Would Enhance Health Data Sharing (GAO-01-459; April 30, 2001):** We recommended that DOD, VA, and IHS create comprehensive and coordinated plans to ensure that the agencies can share patient health data, including performance measures and use of existing IT capabilities.



Appendix II

Responsibilities of FHA Work Groups

- **Food safety:** recommend a target, business architecture to serve as the framework for developing and implementing systems which support the food safety business government-wide
 - **Interoperability:** recommend target technical standards for interoperability across the health line of business.
 - **EHR:** recommend a target, health care services electronic health record business architecture, a component of the health lines of business, to serve as framework within the federal sector for developing and implementing an electronic health record.
 - **Public health surveillance:** recommend a target architecture related to the health line of business to serve as the framework within the federal sector for developing and implementing public health surveillance systems.
-



Appendix II

FHA Work Groups' Members and Leaders

Federal Membership	FHA Work Groups			
	Electronic Health Record	Food Safety	Interoperability	Public Health Surveillance
HHS Divisions				
AHRQ	•		•	•
CDC		•	•	○
CMS	•		•	
FDA		○	•	•
HRSA			•	
IHS	•	•	•	•
NIH			•	
ONCHIT	•	•	○	•
Other Federal Agencies				
DHS		•	•	•
DOD	○	•	•	•
DOE	•		•	•
EPA		•	•	•
Justice	•		•	•
NASA				•
Commerce/NIST			•	
OMB	•	•	•	•
SSA			•	
State	•		•	•
VA	○	•	•	○
USAID				
USDA	•	○	•	•
USPS				•

Source: HHS

Co-lead agencies are indicated by ○



Appendix III Descriptions of Key HHS IT Initiatives

Divisions	IT initiative	Description	FY 05 Funding
AHRQ	Transforming Healthcare Quality through IT	A series of three grant programs released in FY04 that include 1) demonstrating the value of HIT, 2) planning grants for future HIT implementations, and 3) providing HIT implementation grants for partnerships of three or more entities.	\$25,630,246
	Health Information Technology Resource Center	A state-of-the-art service center for grantees and organizations that are engaged in health IT diffusion activities (research, diffusion, or adoption).	\$3,533,885
	State and Regional Health IT Demonstrations	A contract solicitation to establish and implement state and regional demonstrations of interoperable health information systems.	\$4,965,664
CDC	Public Health Information Network	An initiative between CDC and its public and private partners to advance software components and data, and technical specifications that are compatible with federal standards activities such as CHI, NCVHS, and eGov.	\$10,000,000
CMS	Doctors' Office Quality - Information Technology	A special study to develop an approach to promoting adoption and use of information technologies in the physician office and reporting of information to Quality Improvement Organizations (QIOs).	not determined
	Medicare Care Management Performance Demonstration	A 3-year, pay-for-performance pilot with physicians to promote the adoption and effective use of HIT to improve the quality of patient care for chronically ill Medicare patients.	\$354,531
	Virtual Call Center pilots	A project to improve beneficiary telephone customer service through the implementation of various web-based initiatives for efficient and effective handling of all types of inquiries.	\$20,750,000
	VistA-Office EHR	A project to modify and repackaging VistA (the VA's EHR software) for the physician office setting.	\$4,000,000
FDA	Bar Coding for Prescription Products	An initiative to standardize bar code labels.	\$0
	Structured Product Labeling Program	Supports health IT initiatives such as electronic prescribing and decision support by providing standards for medication terminology and information found in approved FDA drug labels or package inserts in a computer-readable format.	\$4,000,000

Source: HHS divisions.



Appendix III

Descriptions of Key HHS IT Initiatives

Divisions	IT initiative	Description	FY 05 Funding
HRSA	Healthy Communities Access Program	A community-based program to develop or strengthen health care safety net delivery systems through providing an infrastructure that will coordinate health care for the uninsured. Development of information systems is fundamental to supporting coordination of efforts that increase access to care.	\$76,500,000 (not all for health IT)
	Integrated Services Development Initiative	A clinical network providing support to physicians who are on their way to an electronic health record by encouraging people to work together.	\$5,555,000
	Office for the Advancement of Telehealth grants	Grants for support of community-based activities in informatics, electronic health records, and telemedicine, including telepharmacy.	not determined
	Patient Electronic Care System	Enables health centers to electronically track clinical information on patients, that would otherwise only be captured in the patient's medical chart..	\$652,000
	Sentinel Centers Network	Invests in the information systems of participant health centers and networks to provide timely, patient-level data to inform policy decisions and quality improvement activities across all health centers.	\$870,000
	Shared Integrated Management Information Systems / Information and Communication Technology	Provides hardware, software, and support services for integration of practices management systems among federally supported health centers, and integration of electronic health records with practice management systems at consolidated health centers.	\$697,000 (SIMIS) \$4,988,000 (ICT)
IHS	Resource and Patient Management System	The hospital information system utilized by 49 hospitals, 221 health centers, 120 health stations, and 170 Alaska village clinics. It includes IHS-EHR which provides order entry, results reporting, encounter documentation, and other clinical functionality to IHS, tribal, and urban Indian health care providers.	\$36,166,000

Source: HHS divisions.



Appendix III Descriptions of Key HHS IT Initiatives

Divisions	IT Initiative	Description	FY 05 Funding
NIH	Cancer Biomedical Informatics Grid	A virtual cancer research network of interconnected data, individuals, and organizations that will create a common, widely distributed infrastructure that facilitates the sharing of data and applications, enhancing research productivity and efficiency of research. The infrastructure is based on CHI standards and is composed of HHS-established controlled vocabularies, standard data elements, and domain models.	\$30,000,000
	Grants for research, training, and access to informatics	Grant programs that provide incentives for health information exchange, such as technology support, training, and access to digital libraries.	\$40,000,000
	National Electronic Clinical Trials and Research Network	A network which will link research sites and create a "national network of networks" in coordination with the national health information network, by which research information and findings will be shared and scientific collaborations facilitates.	\$16,769,000
	Development and Implementation of Controlled Clinical Vocabularies	A project that includes uniform distribution and mapping of HIPAA code sets, CHI standard vocabularies, HL7 code sets, and other important vocabularies.	\$5,600,000
ONCHIT	Consolidated Health Informatics	A project that establishes federal health information interoperability standards as the basis for electronic health data transfer in all activities and projects and among all agencies and departments.	included in FHA
	Federal Health Architecture	A project that defines an overarching framework and methodology that allows initiatives throughout several federal agencies to proceed coherently, establishing the target and standards for interoperability and communication that will unify the federal health community.	\$5,500,000
	National Health Information Network	A network of health IT intended to provide low-cost and secure movement of information used in the delivery of health care in the U.S.; be HIPAA-compliant, integrated with public health surveillance and response, and shared within the public domain; adhere to standards for interoperability to support rapid adoption of interoperable EHRs; and be coordinated and interoperable with the FHA. ONCHIT's review of RFI responses will help further define the NHIN.	not determined

Source: HHS divisions.

Comments from the Department of Health and Human Services



DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of Inspector General

Washington, D.C. 20201

MAY 24 2005

Mr. David A. Powner
Director
Information Technology Management Issues
U.S. Government Accountability Office
Washington, DC 20548

Dear Mr. Powner:

Enclosed are the Department's comments on the U.S. Government Accountability Office's (GAO's) draft report entitled, "HEALTH INFORMATION TECHNOLOGY—HHS is Taking Steps to Develop a National Strategy" (GAO-05-628). The comments represent the tentative position of the Department and are subject to reevaluation when the final version of this report is received.

The Department provided several technical comments directly to your staff.

The Department appreciates the opportunity to comment on this draft report before its publication.

Sincerely,

Daniel R. Levinson
Acting Inspector General

Enclosure

The Office of Inspector General (OIG) is transmitting the Department's response to this draft report in our capacity as the Department's designated focal point and coordinator for U.S. Government Accountability Office reports. OIG has not conducted an independent assessment of these comments and therefore expresses no opinion on them.

COMMENTS BY THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES ON THE U.S. GOVERNMENT ACCOUNTABILITY OFFICE'S REPORT ENTITLED "HEALTH INFORMATION TECHNOLOGY — HHS IS TAKING STEPS TO DEVELOP A NATIONAL STRATEGY" (GAO-05-628)

The Department of Health and Human Services (HHS) appreciates the opportunity to review the draft General Accountability Office's (GAO) report to the House of Representatives Committee on the Budget entitled "HEALTH INFORMATION TECHNOLOGY — HHS is Taking Steps to Develop a National Strategy." The focus of the GAO report is on HHS's recent efforts to develop a National health IT strategy for realizing the President's vision, lessons learned from the Department of Defense's and Veterans Administration's and other countries' experiences in implementing health IT.

The National Coordinator for Health Information Technology (National Coordinator) was appointed on May 6, 2004, and heads the Office of the National Coordinator for Health Information Technology (ONC). In a new position in the Government with responsibilities for coordinating internal Federal health information technology (health IT) programs as well as coordinating with private sector health IT efforts, the National Coordinator has taken an iterative approach to strategic planning. This has allowed the National Coordinator to be inclusive in planning, to balance near-term needs with long-term goals, and to work within the constraints of available resources and appropriations. The core of ONC's efforts are the *Framework for Strategic Action* (the Framework) published in July 2004 and the Request for Information (RFI) published in November 2004.

The GAO report highlights numerous other activities and developments regarding health IT that have occurred during the past year as well, including:

- ONC has consulted with, and actively partnered with, numerous Federal agencies in the U.S. Government including the Departments of Veterans Affairs, Defense, Commerce, and Homeland Security.
- ONC has met with many organizations and individuals representing stakeholders of the healthcare system.
- ONC has reached out to States and regions through site visits and town hall meetings to understand the health IT challenges experienced at the local level as well as best practices for the use of, and collaboration regarding, health IT.
- ONC has regularly testified before, and been informed by, the National Committee on Vital and Health Statistics on issues critical to the Nation's health IT goals.
- ONC has monitored and coordinated with the efforts of the Commission for Systemic Interoperability.

Appendix II
Comments from the Department of Health
and Human Services

- The National Coordinator has met with delegations involved with health IT from other countries, including Canada, Netherlands, Japan, Australia, Great Britain, and France.

As recommended in the GAO report, HHS agrees that detailed plans and milestones are necessary, and they must meet near-term, medium-term, and long-term planning needs. HHS has begun to take key steps to act on the Framework and the lessons from the large public response to the RFI.

The Secretary recently released his 500-Day Plan which includes as an integral part the transformation of the health care system. This plan includes long-term (5,000 day) visions and shorter-term (500 day) strategies to achieve these visions. Three of those strategies include health IT:

- Expressing a clear vision of health information technology that conveys the benefits to patients, providers, and payers.
- Convening a national collaboration to further develop, set, and certify health information technology standards and outcomes for interoperability, privacy, and data exchange.
- Realizing the near-term benefits of health information technology in the focused areas of adverse drug-incident reporting, e-prescribing, lab and claims-sharing data, clinic registrations, and insurance forms.

Three of the Secretary's longer-term visions are:

- Nearly all health records can be linked through an interoperable system that protects privacy as it connects patients, providers, and payers – resulting in fewer medical mistakes, less hassle, lower costs, and better health.
- Consumers are better informed and have more choices.
- Payers reward providers for healthy outcomes rather than quantity of care and services.

HHS funds have been reallocated to provide a total of \$32.8 million to initiate this work in fiscal year (FY) 2005. For FY 2006, the President has requested an additional \$125 million which, if approved, will help HHS to further develop milestones and plans that are consistent with the 500-Day Plan.

In May 2005, the Secretary released the *Health IT Leadership Panel Report*, prepared by the Lewin Group, an HHS contractor, which highlighted findings from a small group of Fortune 100 CEOs who convened to consider and discuss issues related to health IT. This report called for Government to be a leader, catalyst, and convener of the Nation's health

Appendix II
Comments from the Department of Health
and Human Services

information technology effort. The Secretary has already begun by listening to stakeholders through a series of roundtable discussions.

HHS will continue working in concert with those principles and items identified by GAO as lessons from the VA and DOD. This includes the continued leadership of the Secretary as evidenced in his 500-Day Plan; identification and adoption of additional clinical standards through Federal Health Architecture and Consumer Health Information as well as e-prescribing standards under the Medicare Prescription Drug, Improvement, and Modernization Act of 2003; additional stakeholder input through collaboration; and, focus on near-term wins to “deploy in small increments and build on success.”

Comments from the Department of Veterans Affairs



THE DEPUTY SECRETARY OF VETERANS AFFAIRS
WASHINGTON

May 20, 2005

Ms. Linda D. Koontz
Mr. David A. Powner
U. S. Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Ms. Koontz and Mr. Powner:

The Department of Veterans Affairs (VA) has reviewed the Government Accountability Office's (GAO) draft report, **HEALTH INFORMATION TECHNOLOGY: HHS is Taking Steps To Develop a National Strategy** (GAO-05-628). VA is pleased that this review found the lessons learned from VA and the Department of Defense could provide Health and Human Services valuable insights as it develops a national health information technology infrastructure. Technical comments are included in the enclosure.

VA appreciates the opportunity to comment on your draft report.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Gordon H. Mansfield".

Gordon H. Mansfield

Enclosure

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