Office of the National Coordinator for Health Information Technology (ONC)

Executive Summary

On April 27, 2004, President Bush called for widespread adoption of interoperable EHRs within 10 years, and also established the position of National Coordinator for Health Information Technology. On May 6, 2004, Secretary Tommy G. Thompson appointed David J. Brailer, M.D., Ph.D., to serve in this new position. The federal government has already played an active role in the evolution and use of health information technology (HIT), including adoption and ongoing support for standards needed to achieve interoperability. Executive Order 13335 requires the National Coordinator to report within 90 days of operation on the development and implementation of a strategic plan to guide the nationwide implementation of HIT in both the public and private sectors.

In fulfilling the requirements of the Executive Order, this report outlines a framework for a strategic plan that will be dynamic, iterative, and implemented in coordination with the private sector. In addition, this report includes attachments from the Office of Personnel Management (OPM), the Department of Defense (DoD), and the Department of Veterans Affairs (VA). Collectively, this report and related attachments represent the progress to date on the development and implementation of a comprehensive HIT strategic plan.

Readiness for Change

There is a great need for information tools to be used in the delivery of health care. Preventable medical errors and treatment variations have recently gained attention. Clinicians may not know the latest treatment options, and practices vary across clinicians and regions. Consumers want to ensure that they have choices in treatment, and when they do, they want to have the information they need to make decisions about their care. Concerns about the privacy and security of personal medical information remain high. Public health monitoring, bioterror surveillance, research, and quality monitoring require data that depends on the widespread adoption of HIT.

Vision for Consumer-centric and Information-rich Care

Many envision a health care industry that is consumer centric and information-rich, in which medical information follows the consumer, and information tools guide medical decisions. Clinicians have appropriate access to a patient's complete treatment history, including medical records, medication history, laboratory results,

and radiographs, among other information. Clinicians order medications with computerized systems that eliminate handwriting errors and automatically check for doses that are too high or too low, for harmful interactions with other drugs, and for allergies. Prescriptions are also checked against the health plan's formulary, and the out-of-pocket costs of the prescribed drug can be compared with alternative treatments. Clinicians receive electronic reminders in the form of alerts about treatment procedures and medical guidelines. This is a different way of delivering health care than that which currently exists, but one that many have envisioned. This new way will result in fewer medical errors, fewer unnecessary treatments or wasteful care, and fewer variations in care, and will ultimately improve care for all Americans. Care will be centered around the consumer and will be delivered electronically as well as in person. Clinicians can spend more time on patient care, and employers will gain productivity and competitive benefits from health care spending.

Strategic Framework

In order to realize a new vision for health care made possible through the use of information technology, strategic actions embraced by the public and private health sectors need to be taken over many years. There are four major goals that will be pursued in realizing this vision for improved health care. Each of these goals has a corresponding set of strategies and related specific actions that will advance and focus future efforts. These goals and strategies are summarized below.

Goal 1: Inform Clinical Practice. Informing clinical practice is fundamental to improving care and making health care delivery more efficient. This goal centers largely around efforts to bring EHRs directly into clinical practice. This will reduce medical errors and duplicative work, and enable clinicians to focus their efforts more directly on improved patient care. Three strategies for realizing this goal are:

- *Strategy 1. Incentivize EHR adoption.* The transition to safe, more consumer-friendly and regionally integrated care delivery will require shared investments in information tools and changes to current clinical practice.
- *Strategy 2. Reduce risk of EHR investment.* Clinicians who purchase EHRs and who attempt to change their clinical practices and office operations face a variety of risks that make this decision unduly challenging. Low-cost support systems that reduce risk, failure, and partial use of EHRs are needed.
- *Strategy 3. Promote EHR diffusion in rural and underserved areas.* Practices and hospitals in rural and other underserved areas lag in EHR adoption. Technology transfer and other support efforts are needed to ensure widespread adoption.

Goal 2: Interconnect Clinicians. Interconnecting clinicians will allow information to be portable and to move with consumers from one point of care to another. This will require an interoperable infrastructure to help clinicians get access to critical health care information when their clinical and/or treatment decisions are being made. The three strategies for realizing this goal are:

- *Strategy 1. Foster regional collaborations.* Local oversight of health information exchange that reflects the needs and goals of a population should be developed.
- *Strategy 2. Develop a national health information network.* A set of common intercommunication tools such as mobile authentication, Web services architecture, and security technologies are needed to support data movement that is inexpensive and secure. A national health information network that can

provide low-cost and secure data movement is needed, along with a public-private oversight or management function to ensure adherence to public policy objectives.

- *Strategy 3. Coordinate federal health information systems.* There is a need for federal health information systems to be interoperable and to exchange data so that federal care delivery, reimbursement, and oversight are more efficient and cost-effective. Federal health information systems will be interoperable and consistent with the national health information network.

Goal 3: Personalize Care. Consumer-centric information helps individuals manage their own wellness and assists with their personal health care decisions. The ability to personalize care is a critical component of using health care information in a meaningful manner. The three strategies for realizing this goal are:

- *Strategy 1. Encourage use of Personal Health Records.* Consumers are increasingly seeking information about their care as a means of getting better control over their health care experience, and PHRs that provide customized facts and guidance to them are needed.
- *Strategy 2. Enhance informed consumer choice.* Consumers should have the ability to select clinicians and institutions based on what they value and the information to guide their choice, including but not limited to, the quality of care providers deliver.
- *Strategy 3. Promote use of telehealth systems*. The use of telehealth - remote communication technologies - can provide access to health services for consumers and clinicians in rural and underserved areas. Telehealth systems that can support the delivery of health care services when the participants are in different locations are needed.

Goal 4: Improve Population Health. Population health improvement requires the collection of timely, accurate, and detailed clinical information to allow for the evaluation of health care delivery and the reporting of critical findings to public health officials, clinical trials and other research, and feedback to clinicians. Three strategies for realizing this goal are:

- *Strategy 1. Unify public health surveillance architectures*. An interoperable public health surveillance system is needed that will allow exchange of information, consistent with current law, between provider organizations, organizations they contract with, and state and federal agencies.
- *Strategy 2. Streamline quality and health status monitoring*. Many different state and local organizations collect subsets of data for specific purposes and use it in different ways. A streamlined quality-monitoring infrastructure that will allow for a complete look at quality and other issues in real-time and at the point of care is needed.
- *Strategy 3. Accelerate research and dissemination of evidence.* Information tools are needed that can accelerate scientific discoveries and their translation into clinically useful products, applications, and knowledge.

Key Actions

The Framework for Strategic Action will guide the development of a full strategic plan for widespread HIT adoption. At the same time, a variety of key actions that have begun to implement this strategy are underway, including:

*Establishing a Health Information Technology Leadership Panel to evaluate the
urgency of investments and recommend immediate actions*
As many different options and policies are considered for financing HIT adoption, the
Secretary of HHS is taking immediate action by forming a Health Information
Technology Leadership Panel, consisting of executives and leaders. This panel will
assess the costs and benefits of HIT to industry and society, and evaluate the
urgency of investments in these tools. These leaders will discuss the immediate
steps for both the public and private sector to take with regard to HIT adoption,
based on their individual business experience. The Health Information Technology
Leadership Panel will deliver a synthesized report comprised of these options to the
Secretary no later than Fall 2004.

Private sector certification of health information technology products
EHRs and even specific components such as decision support software are unique
among clinical tools in that they do not need to meet minimal standards to be used to
deliver care. To increase uptake of EHRs and reduce the risk of product
implementation failure, the federal government is exploring ways to work with the
private sector to develop minimal product standards for EHR functionality,
interoperability, and security. A private sector ambulatory EHR certification task
force is determining the feasibility of certification of EHR products based on
functionality, security, and interoperability.

Funding community health information exchange demonstrations
A health information exchange program through Health Resources and Services
Administration, Office of the Advancement of Telehealth (HRSA/OAT) has a
cooperative agreement with the Foundation for eHealth Initiative to administer
contracts to support the Connecting Communities for Better Health (CCBH) Program
totaling $2.3 million. This program is providing seed funds and support to
multi-stakeholder collaboratives within communities (both geographic and
non-geographic) to implement health information exchanges, including the formation
of regional health information organizations (RHIOs) to drive improvements in health
care quality, safety, and efficiency. The specific communities that will receive the
funding through this program will be announced and recognized during the
Secretarial Summit on July 21.

Planning the formation of a private interoperability consortium
To begin the process of movement toward a national health information network, HHS
is releasing a request for information (RFI) in the summer of 2004 inviting responses
describing the requirements for private sector consortia that would form to plan,
develop, and operate a health information network. Members of the consortium
would agree to participate in the governance structure and activities and finance the
consortium in an equitable manner. The role that HHS could play in facilitating the
work of the consortium and assisting in identifying the services that the consortium
would provide will be explored, including the standards to which the health
information network would adhere to in order to ensure that public policy goals are
executed and that rapid adoption of interoperable EHRs is advanced. The Federal
Health Architecture (FHA) will be coordinated and interoperable with the national
health information network.

Requiring standards to facilitate electronic prescribing
CMS will be proposing a regulation that will require the first set of widely adopted
e-prescribing standards in preparation for the implementation of the new Medicare
drug benefit in 2006. When this regulation is final, Medicare Prescription Drug Plan
(PDP) Sponsors will be required to offer e-prescribing, which will significantly drive
adoption across the United States. Health plans and pharmacy benefit managers

that are PDP sponsors could work with RHIOs, including physician offices, to implement private industry-certified interoperable e-prescribing tools and to train and support clinicians.

Establishing a Medicare beneficiary portal
An immediate step in improving consumer access to personal and customized health information is CMS' Medicare Beneficiary Portal, which provides secure health information via the Internet. This portal will be hosted by a private company under contract with CMS, and will enable authorized Medicare beneficiaries to have access to their information online or by calling 1-800-MEDICARE. Initially the portal will provide access to fee-for-service claims information, which includes claims type, dates of service, and procedures. The pilot test for the portal will be conducted for the residents of Indiana. In the near term, CMS plans to expand the portal to include prevention information in the form of reminders to beneficiaries to schedule their Medicare-covered preventive health care services. CMS also plans to work toward providing additional electronic health information tools to beneficiaries for their use in improving their health.

Sharing clinical research data through a secure infrastructure
FDA and NIH, together with the Clinical Data Interchange Standards Consortium (CDISC), a consortium of over 40 pharmaceutical companies and clinical research organizations, have developed a standard for representing observations made in clinical trials called the Study Data Tabulation Model (SDTM). This model will facilitate the automation of the largely paper-based clinical research process, which will lead to greater efficiencies in industry and government-sponsored clinical research. The first release of the model and associated implementation guide will be finalized prior to the July 21 Secretarial Summit and represents an important step by government, academia, and industry in working together to accelerate research through the use of standards and HIT.

Commitment to standards
A key component of progress in interoperable health information is the development of technically sound and robustly specified interoperability standards and policies. There have been considerable efforts by HHS, DoD, and VA to adopt health information standards for use by all federal health agencies. As part of the Consolidated Health Informatics (CHI) initiative, the agencies have agreed to endorse 20 sets of standards to make it easier for information to be shared across agencies and to serve as a model for the private sector. Additionally, the Public Health Information Network (PHIN) and the National Electronic Disease Surveillance System (NEDSS), under the leadership of the Centers for Disease Control and Prevention (CDC), have made notable progress in development of shared data models, data standards, and controlled vocabularies for electronic laboratory reporting and health information exchange. With HHS support, Health Level 7 (HL7) has also created a functional model and standards for the EHR.

Public-Private Partnership

Leaders across the public and private sector recognize that the adoption and effective use of HIT requires a joint effort between federal, state, and local governments and the private sector. The value of HIT will be best realized under the conditions of a competitive technology industry, privately operated support services, choice among clinicians and provider organizations, and payers who reward clinicians based on quality. The Federal government has already played an active role in the evolution and use of HIT. In FY04, total federal spending on HIT was more than $900 million. Initiatives range from supporting research in advanced

HIT to the development and use of EHR systems. Much of this work demonstrates that HIT can be used effectively in supporting health care delivery and improving quality and patient safety.

Role of the National Coordinator for Health Information Technology

Executive Order 13335 directed the appointment of the National Coordinator for Health Information Technology to coordinate programs and policies regarding HIT across the federal government. The National Coordinator was charged with directing HIT programs within HHS and coordinating them with those of other relevant Executive Branch agencies. In fulfillment of this, the National Coordinator has taken responsibility for the National Health Information Infrastructure Initiative (NHII), the FHA, and the Consolidated Health Informatics Initiative (CHI), and is currently assessing other health information technology programs and efforts. In addition, the National Coordinator was charged with coordinating outreach and consultation between the federal government and the private sector. As part of this, the National Coordinator was directed to coordinate with the National Committee on Vital Health Statistics (NCVHS) and other advisory committees.

The National Coordinator will collaborate with DoD, VA, and OPM to encourage the widespread adoption of HIT throughout the health care system. To do this, the National Coordinator will gather and disseminate the lessons learned from both DoD and VA in successfully incorporating HIT into the delivery of health care, and facilitate the development and transfer of knowledge and technology to the private sector. OPM, as the purchaser of health care for the federal government, has a unique role and the ability to encourage the use of EHRs through the Federal Employees Health Benefits Program, and the National Coordinator will assist in gaining the complementary alignment of OPM policies with those of the private sector.

Reports from OPM, DoD, and VA

The Executive Order also directs the OPM, the DoD, and the VA to submit reports on HIT to the President through the Secretary of Health and Human Services. These reports are included in this report as Attachments 1 through 3.

OPM administers the Federal Employees Health Benefits Program for the federal government and the more than eight million people it covers. As the nation's largest purchaser of health benefits, OPM is keenly interested in high-quality care and reasonable cost. The adoption of an interoperable HIT infrastructure is a key to achieving both. OPM is currently exploring a variety of options to leverage its purchasing power and alliances to move the adoption of HIT forward. OPM will be strongly encouraging health plans to promote the early adoption of HIT. Details on these options can be found in OPM's report, "Federal Employees Health Benefits Program Initiatives to Promote the Use of Health Information Technology" (Attachment 1).

The VA, collaboratively with DoD, provides joint recommendations to address the special needs of these populations (Attachment 2). As mirrored in the DoD Report (Attachment 3), these recommendations focus on the capture of lessons learned, the knowledge and technology transfers to be gained from successful VA/DoD data exchange initiatives, the adoption of common standards and terminologies to promote more effective and rapid development of health technologies, and the development of telehealth technologies to improve care in rural and remote areas.

The DoD has significant experience in delivering care in isolated conditions such as those encountered in wartime or overseas peacekeeping missions, which can be compared to the conditions in some rural health care environments. Examples of the technologies used in these conditions include telehealth for radiology, mental health, dermatology, pathology, and dental consultations; online personalized health records for beneficiary use; bed regulation for disaster planning; basic patient encounter documentation; pharmacy, radiology, and laboratory order entry and results retrieval for use in remote areas and small clinics; pharmacy, radiology, and laboratory order entry and results retrieval; admissions and discharges; appointments for use in small hospitals; and online education offerings for health care providers. Technology products, outcomes, benefits, and cumulative knowledge will be shared for use within the private sector and local/state organizations to help guide their planning efforts (see Attachment 3 for more details).

The VA's report, "Approaches to Make Health Information Systems Available and Affordable to Rural and Medically Underserved Communities" (Attachment 2), also highlights its successful strategy to develop high-quality EHR technologies that remain in the public domain. These technologies may be suitable for transfer to rural and medically underserved settings. VA's primary health information systems and EHR (VistA and the Computerized Patient Record System [the current system] and HealtheVet-VistA, the next generation in development) provide leading government/public-owned health information technologies that support the provision, measurement, and improvement of quality, affordable care across 1300 VA inpatient and ambulatory settings. The VA continues to make a version of VistA available in the public domain as a means of fostering widespread development of high-performance EHR systems. The VA is also incorporating the CHI approved standards into its next-generation HealtheVet-VistA. Furthermore, the VA is developing PHR technologies such as My HealtheVet, which are consistent with the larger strategic goal of making veterans (persons) the center of health care. Finally, the VA's health information technologies, such as bar code medication administration, VistA Imaging, and telehealth applications, provide the VA with exceptional tools that improve patient safety and enable the increasingly geographically dispersed provision of care to patients in all settings. These and other technologies are proposed as federal technology transfer options in furtherance of the President's goals.

Conclusion

Health information technology has the potential to transform health care delivery, bringing information where it is needed and refocusing health care around the consumer. This can be done without substantial regulation or industry upheaval. It can give us both better care - care that is higher in quality, safer, and more consumer responsive - and more efficient care - care that is less wasteful, more appropriate, and more available. The changes that will accompany the full use of information technology in the health care industry will pose challenges to longstanding assumptions and practices. However, these changes are needed, beneficial, and inevitable. Action should be taken now to achieve the benefits of HIT. A well-planned and coordinated effort, sustained over a number of years, can deliver results that will better support America's health care professionals and better serve the public.

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