

**Statement of
Jonathan B. Perlin, MD, PhD, MS, MACP
Acting Under Secretary for Health
Department of Veterans Affairs
Before the
Subcommittee on Oversight and Investigations
Committee on Veterans' Affairs
U.S. House of Representatives**

May 19, 2004

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss the importance of electronic health records and the role of the Department of Veterans Affairs (VA) in the development, use, and sharing of this valuable technology. With me today are Dr. Robert M. Kolodner, who is VA's Acting Deputy CIO for Health and VHA's Acting Chief Health Informatics Officer, and Dr. Robert Lynch, Director of Veterans Integrated Service Network 16.

Two weeks ago, President Bush outlined an ambitious plan to ensure that most Americans have electronic health records within 10 years. The President noted a range of benefits possible with the expanded use of information technology, including improved health care quality; reduced frequency of medical errors; advancements in the delivery of appropriate, evidence-based medical care; greater coordination of care among different providers; and increased privacy and security protections for personal health information.

In addition to these benefits, the transition from a paper-based medical record to an electronic health record (EHR) brings with it cost-saving efficiencies in how information is managed. In a paper-based environment, a lot of time is spent simply handling paper. Entire jobs are devoted to filing, retrieving, copying, distributing, and tracking paper records and radiology films. The implementation of an EHR does not eliminate these activities altogether, but it does drastically reduce clinicians' dependence on hard-copy information. Clinicians are able to access the information they need without requesting it from the file room or searching through stacks of files in their offices. Medical records and radiology films can be accessed on-line, so that there is no need to repeat studies when test results or films cannot be located. With an EHR, most VA sites have been able to decrease the space devoted to file rooms, retrain staff members to perform data management tasks, and reduce the costs associated with printing, duplicating, and maintaining hard-copy records and films.

For decades, VA has developed innovative IT solutions to support health care for veterans. Over the past several years, VA has worked with federal, state, and industry partners to broaden the use of information technology in health care. VA strives to continue the development of the EHR while protecting the privacy of our veteran population and maintaining the integrity of our systems. These efforts have laid the groundwork for the President's health IT initiative.

With one of the most comprehensive electronic health record (EHR) systems in use today, VA is a recognized leader in the development and use of EHRs and other information technology tools. Beginning in the late 1970's – before such tools were commercially available – Veterans Health Administration (VHA) developed software applications for a variety of care settings, including inpatient, outpatient, and long-term care. These applications form the foundation of VistA – the Veterans Health Information Systems and Technology Architecture, the automated health information system used throughout VHA.

In the mid-1990's, VHA embarked on an ambitious effort to improve the coordination of care by providing integrated access to these applications through implementation of an electronic health record, known as the Computerized Patient Record System or CPRS.

With CPRS, providers can access patient information at the point of care – across multiple sites and clinical disciplines. CPRS provides a single interface through which providers can update a patient's medical history, submit orders, and review test results and drug prescriptions. The system has been implemented at all VA medical centers nationwide and at VA outpatient clinics, nursing homes, and other sites of care.

The Benefits of Electronic Health Records

Electronic health records are appealing for a number of reasons. *The most compelling reason to use information technology in health care is that it helps us provide better, safer, more consistent care to all patients.* The President referred to a 1999 report in which the Institute of Medicine (IOM) estimated that between 44,000 and 98,000 Americans die each year due to medical errors. Many more die or suffer permanent disabilities because of inappropriate or missed treatments in ambulatory care settings. IOM cited the development of an electronic health record as essential for reducing these numbers and improving the safety of health care. In its 2002 publication *Leadership by Example*, IOM noted that “[c]omputerized order entry and electronic medical records have been found to result in measurably improved health care and better outcomes for patients.”

How can EHRs improve patient safety and quality of care? First, with an EHR, all relevant information is available – and legible. A provider can quickly review information from previous visits, have ready access to clinical guidelines, and

survey research results to find the latest treatments and medications. All of this information is available wherever patients are seen – in acute settings, clinics, examining rooms, nursing stations, and offices. With CPRS, providers can quickly flip through electronic "pages" of a patient's record to review or add information. All components of a patient's medical record – including progress notes, referrals, orders, test results, images, medications, advance directives, future appointments, and demographic data – are readily accessible at the point of care.

Many of us see different doctors for different medical conditions. How many of these physicians have access to all of the information that has been collected over the course of these visits? In VHA, patient records from multiple sites and different providers can be viewed at the same time at the point of care. This is simply not possible with paper records. Additionally, most clinicians find EHRs more convenient to use than traditional paper records. They are less cluttered, easier to read, and faster and more reliable for finding items of information providers are seeking, such as the results of a specific type of laboratory test over a period of time.

In addition to making medical records more accessible, EHRs can help clinicians better document the reasons a patient sought care and the treatment that was provided. Given the time constraints they face, many physicians resort to writing brief, sometimes cryptic notes in a patient's chart, and then write more complete documentation when they have time. EHRs enable clinicians to document care quickly and thoroughly, and provide reminders to complete any documentation that is overdue.

CPRS, for example, allows clinicians to enter progress notes, diagnoses, and treatments for each encounter, as well as discharge summaries for hospitalizations. Clinicians can order lab tests, medications, diets, radiology tests, and procedures electronically; record a patient's allergies or adverse reactions to medications; or request and track consults with other providers.

More information isn't always better if we can't use it. Even if we could transfer paper records quickly and reliably from one provider to another, and make sure that the information in records was complete, many hard-copy patient records simply contain too much information for a clinician to sift through effectively. There is always the possibility that something crucial could be missed. When health information is stored electronically, however, we can make use of software tools to analyze that information in real-time. We can target relevant information quickly, compare results, and use built-in order checks and reminders to support clinical decision-making. These capabilities promote safer, more complete, more systematic care.

Consider the benefits we have seen in VHA in the area of medication ordering. When orders for medications are handwritten or given verbally, errors and

mistakes inevitably occur. However, when physicians use computerized order-entry systems to enter medication orders electronically, errors caused by illegible handwriting or misinterpretation of dosages, strengths, or medication names are virtually eliminated. CPRS includes automated checks for drug-drug or drug-allergy interactions, alerting the prescribing physician when potentially dangerous combinations occur. Currently, 93% of all VHA medication orders are entered directly by the ordering provider.

Information technology can also serve to reduce the number of errors that occur when medications are given to a patient. VHA's Bar Code Medication Administration system (BCMA) is designed to ensure that each patient receives the correct medication, in the correct dose, at the correct time. In addition, the system reduces reliance on human short-term memory by providing real-time access to medication order information at the patient's bedside.

BCMA provides visual alerts – prior to administration of a medication – when the correct conditions are not met. For example, alerts signal the nurse when the software detects a wrong patient, wrong time, wrong medication, wrong dose, or no active medication order. These alerts require the nurse to review and correct the reason for the alert before actually administering the drug to the patient. Order changes are communicated instantaneously to the nurse administering medications eliminating the dependence on verbal or handwritten communication of order changes. Time delays are avoided and administration accuracy is improved.

BCMA also provides a system of reports to remind clinical staff when medications need to be administered or have been overlooked, or when the effectiveness of administered doses should be assessed. The system also alerts staff to potential allergies, adverse reactions, and special instructions concerning a medication order, and order changes that require action.

The Importance of Standards

The use of electronic health records and other information technology tools in a single medical office can improve health care quality, reduce medical errors, improve efficiency, and reduce costs for the patients treated there. However, as the President noted, the full benefits of IT will be realized when we have a coordinated, national infrastructure to accelerate the broader adoption of health information technology.

The National Health Information Infrastructure (NHII) initiative recognizes the importance of data and communications standards in developing a comprehensive network of interoperable health information systems across the public and private sectors. Interoperability is dependent, in large part, upon the adoption of common standards. Without data standards, we might be able to exchange health information, as we do now when we copy and send paper records, but we won't be

able to use it as effectively to deliver safer, higher quality care using clinical alerts and reminders.

VA was instrumental in the formation of the interagency Consolidated Health Informatics (CHI) initiative, and works closely with the Department of Defense (DoD) and the Department of Health and Human Services (DHHS) on CHI and related projects. CHI, which is part of the President's eGov initiative, was established to foster the adoption of federal interoperability standards related to health care as part of a joint strategy for developing an electronic health record. To date, CHI has endorsed 20 communications and data standards, in areas such as laboratory, radiology, pharmacy, encounters, diagnoses, and nursing information.

We have seen the value of standards within VHA. Like other EHRs, CPRS allows users to search for specific medical terms, dates of care, diagnoses, and other information quickly, without having to review multiple documents. Although this search feature is a handy tool, information retrieval can be hampered by a lack of standard naming conventions. Virtually all clinical documents throughout VHA are stored in CPRS; as a result, patient records containing hundreds, or even thousands, of notes are becoming common. As the volume of online information increases, the task of finding a specific note or report among them can be difficult, particularly when different clinicians and sites assign different names to similar documents.

A 2001 article in the *Journal of the American Medical Informatics Association* described VHA's efforts to speed retrieval of clinical information, by creating a controlled terminology for indexing the information stored in CPRS.¹ This collaborative effort among clinicians, informaticists, and health information management professionals will improve document selection, and support the ability to transfer and incorporate documents from other facilities.

The ability to aggregate and compare information from multiple care sites has reinforced the importance of standardization for computable data as well. VHA is developing a Health Data Repository to store clinical information transmitted from VHA sites across the country. The repository will provide a central source of data for analysis, management reporting, performance monitoring, and research. Yet, the ability to aggregate these data from different sites will depend on the degree to which data fields are standardized.

Data Standards and Interoperability

Our data standardization efforts have also improved our ability to share information with other agencies. In accordance with the various

¹ Brown, Steven H., MS, MD, et. al. "Derivation and Evaluation of a Document-naming Nomenclature." *Journal of the American Medical Informatics Association* 8, no. 4 (2001): 379 - 389.

confidentiality statutes and regulations governing these records, including the Privacy Act, the HIPAA Privacy Rule, and several agency-specific authorities, safeguards have been implemented to ensure that the privacy of individuals is protected throughout these collaborative projects.

I'd like to highlight our work with the Department of Defense. To support the transition of individuals from active-duty to veteran status, the optimal use of health resources through sharing agreements, and VA-DoD collaborations on deployment health issues and health conditions, we need to exchange clinically relevant health data between the departments – and we need to exchange it electronically.

To this end, VA and DoD have developed a joint strategy to ensure the development of an interoperable electronic health record by 2005. The approach is described in the Joint VA/DoD Electronic Health Records (EHR) Plan – Health@People (Federal) strategy and includes three components: 1) joint adoption of global information standards, 2) collaborative software application development/acquisition, and 3) development of interoperable data repositories. The EHR Plan provides for the exchange of health data by the departments and for the development of a health information infrastructure and architecture supported by common data, communications, security, and software standards and high-performance health information systems.

The EHR Plan will guide VA and DoD in the joint development of a “virtual” health record accessible by authorized users throughout DoD and VA. This virtual health record will be achieved through the transparent interaction of health systems or applications between DoD and VA. Providers of care in both departments will be able to access relevant medical information to aid them in patient care.

In support of the President's Management Agenda, the President's Task Force (PTF) to Improve Health Care Delivery For Our Nation's Veterans provided recommendations for the departments' goals to provide a seamless transition from military to veteran status, including the virtual health record. Primary governance of these joint efforts is the responsibility of the Congressionally-mandated VA/DoD Health Executive Council (HEC) and Joint Executive Council (JEC).

The first phase of the plan, the Federal Health Information Exchange (FHIE), was deployed July 2002. FHIE provides historical data on separated and retired military personnel and beneficiaries from DoD's Composite Health Care System (CHCS) to the FHIE framework; the information is then accessible in VA through CPRS. These data include DoD admission/discharge/transfer (ADT) information, laboratory information, radiology, discharge summary and cytology reports, allergy information, consultation reports, prescription data from government and retail pharmacies from the DoD Pharmacy Data Transaction Service (PDTs), and outpatient associated medical codes extracted from the DoD Standard Ambulatory Data Record (SADR). Currently, there are over two million unique DoD electronic records available for

retrieval from the FHIE repository, and the volume of information available through FHIE continues to grow as individuals are discharged to veteran status.

The next phase of the EHR Plan is the joint development and acquisition of interoperable data repositories by the departments. The departments have formed an active working integrated project team to implement the exchange of clinical data between the VA Health Data Repository (HDR) and the DoD Clinical Data Repository (CDR). By linking these two systems, the departments will achieve interoperability of health information between DoD's CHCS II and VA's HealtheVet-VistA. This project, known as "CHDR", will demonstrate the bi-directional capability to exchange pharmacy and demographic data in a prototype in 2004, and will achieve interoperability by 2005. Using clinical decision support applications, providers in both departments will be able to access and use relevant health information to aid them in making medication decisions for their patients, regardless of whether that information resides in VA's or DoD's information systems.

Other examples of VA-DoD work include the DoD/VA Interagency Virtual Private Network (VPN), which allows for the secure exchange of clinical data between the two departments, and the Laboratory Data Sharing and Interoperability Project (LDSI), which allows DoD to act as a reference lab for chemistry tests performed for the VA. VA orders are entered electronically in CPRS and are transferred to CHCS via a secure VPN connection; results are returned electronically to VA. Turnaround times are much quicker and patient safety is enhanced because manual entry of the results into CPRS is eliminated. The LDSI application is currently uni-directional and is being enhanced to support the bi-directional exchange of orders and results between VA and DoD, so that each agency can serve as a reference lab for the other.

Another collaborative project is the DoD/VA Consolidated Mail-out Pharmacy (CMOP) Interface. In this project, military beneficiaries treated at Naval Base Coronado, Naval Air Station, San Diego, California, and Kirtland Air Force Base, Albuquerque, New Mexico, can choose to have their outpatient prescriptions filled by the CMOP at Fort Leavenworth, Kansas, and mailed to them rather than having to wait and pick up prescriptions at the pharmacies in the military treatment facility. The VA fills an average of 8,000 orders and 10,000 prescriptions per week for the two military treatment facilities.

Mr. Chairman, we have recently reviewed GAO's draft report, Computer-Based Patient Records: VA and DOD Efforts to Exchange Health Data Could Benefit from Improved Planning and Project Management, (Report No. GAO-04-687) and generally concur with their recommendations and are actively working to address them. VA and DoD are currently developing a final architecture for the electronic interface between the agencies' health information systems. We also have implemented a joint project management structure that includes a single Program Manager from VA and a single Deputy Program Manager from DoD. This structure ensures joint accountability and day-to-day responsibility for

project implementation. I want to assure the Subcommittee that developing the technology to support the exchange patient health care data and the creation of an electronic medical record for both veterans and active duty personnel remains a priority for VA. We believe that the plan being pursued, although challenging and complex, will provide the necessary flexibility while achieving the desired interface between VA and DOD.

VA and DoD are optimistic that as a result of the improved collaboration between the two departments in these joint IT initiatives, both will be better positioned to evaluate health problems among service members after they leave military service, veterans, and shared beneficiary patients; to address short- and long-term post-deployment health questions; and to document any changes in health status that may be relevant for determining disability.

VistA-Lite

As a physician, I have seen first-hand the benefits of electronic health records in VHA: immediate access to information, elimination of duplicate orders, increased patient safety, improved information-sharing, more advanced tracking and reporting tools, and reduced costs. CPRS has been enhanced and refined continuously since its initial implementation, and has been recognized by IOM and in the mainstream press as one of the most sophisticated EHR systems in the world. Although VistA and CPRS were developed specifically to support the VA model of care, they were designed with flexibility and adaptability in mind. As VA has shifted its focus from inpatient, institutional care to an ambulatory, primary care model in recent years, we have updated and enhanced our information systems to support different care settings, adding new "smart" software features, incorporating new technologies, and developing better methods of coordinating data from multiple sites. In fact, VA's EHR was altered for use in both DoD and Indian Health Service. By the mid 1990's the three largest federal systems providing direct health care were using derivatives of VA's EHR, although only VA was using the current and more robust version including CPRS.

VistA and CPRS are in the public domain. They have been adopted for use in the District of Columbia's Department of Health, American Samoa, and several state health departments and state veterans homes. A number of countries, including Germany, Finland, Great Britain, Mexico, and Ireland, have either implemented VistA or expressed an interest in acquiring the technology.

VHA is now working with the Centers for Medicare and Medicaid Services (CMS) to make the benefits of electronic health records available to other providers. VA and CMS are collaborating on the development of a "VistA-Lite" version of VA's VistA system. VistA-Lite will be designed specifically for use in clinics and physician offices. In developing VistA-Lite, VHA and CMS hope to stimulate the

broader adoption and effective use of electronic health records by making a robust, flexible EHR product available in the public domain.

Vista-Lite will be based on Vista, but will be streamlined and enhanced to make it appropriate and affordable for use outside VA. For example, patient registration features of Vista will be modified to reflect the requirements of smaller medical practices. Specialty components, such as OB/GYN and Pediatrics, will be enhanced. The Vista operating environment will be streamlined so that installation and maintenance are simplified. Vista-Lite can be adopted directly by physician offices, used by vendors who provide administrative support services to physician offices, or used by commercial software developers to make competitively-priced products with similar functionality. Private developers, physician organizations, and health care purchasers have been made aware of the Vista-Lite project and the response has been favorable.

The Vista-Lite project is co-managed by CMS and VHA, and is coordinated with other federal agencies, including the Indian Health Service, Health Resources and Services Administration, the Centers for Disease Control (CDC), and the Food and Drug Administration (FDA). The project is funded by CMS. The first version of the Vista-Lite system is expected to be available in November. Subsequent releases will reflect changes and improvements made to the core Vista system and will be developed in conjunction with participating agencies.

Many providers and communities are eager to use EHR technology, but don't know where to start. For providers who have not used an EHR before, it is difficult to determine which capabilities are needed in a particular setting. To assist health organizations in the comparison and selection of EHRs, Health Level Seven (HL7[®]), an international standards development organization, has established an industry-wide initiative to define a set of standard functions for electronic health records, and to recommend the high-level, care-related functions appropriate for different care settings. VHA worked with HHS to commission the development of the standard, and a VHA nurse informaticist co-chairs the HL7[®] EHR Special Interest Group, which manages this initiative.

The HL7[®] EHR standard is intended to set the benchmark for electronic health records, through broad public- and private-sector participation and consensus on required EHR functionality. This approach promotes a common industry EHR focus, but allows sufficient latitude for commercial product differentiation, fostering competition and innovation among developers of EHR systems. The HL7[®] EHR model will enable HHS and others to qualify EHR systems in terms of completeness and readiness for adoption.

Personal Health Records and My HealtheVet

involved in their care. VA is also working with DoD and other partner organizations to develop a longitudinal health record that will incorporate information from DoD, VA, and private-sector health providers from whom the veteran has sought care.

Summary

In announcing his plan to transform health care through the use of information technology, the President noted our country's long and distinguished history of innovation – as well as our failure to use health information technology consistently as an *integral* part of medical care in America. Health care is often compared unfavorably to other professions and industries in its use of information technology. Grocery stores, for example, are frequently mentioned as being “more automated” than hospitals. At first, this seems outrageous, yet it is not really surprising – treating patients is far more complex than grocery shopping.

We clearly have a long way to go in optimizing our use of information technology in health care; yet, we are not starting from scratch. Electronic health records, personal health records, data and communication standards, and sophisticated analytical tools – the building blocks of a comprehensive, national health information infrastructure – have already been implemented in some communities and settings and are maturing quickly. Our challenge is to create a technology infrastructure that will revolutionize health care without interfering with the human interaction between physicians and patients that is at the core of the art of medicine.

The President recognized America's medical professionals and the skill they have shown in providing high-quality health care despite our reliance on an outdated, paper-based system. At VHA, we know that the support of clinicians is essential to the successful implementation of electronic health records and new IT tools. Clinicians, while often the greatest proponents of health information technology, can also be the greatest critics. At VHA, physicians, nurses, and other providers are actively involved in defining requirements and business rules for systems, prioritizing enhancements, and conducting end-user testing. This involvement increases user acceptance, minimizes disruption during upgrades, and most importantly, enables us to tailor systems to the needs of the health care community.

In VHA, the electronic health record is no longer a novelty – it is accepted as a standard tool in the provision of health care. Our focus is now moving from technical implementation issues to those involving data quality, content, standardization, and greater interaction with other providers and systems. As VHA refines and expands its use of information technology, we look forward to sharing our systems and expertise with our partners throughout the health care

community to support the President's plan for transforming health care – and the health of our veterans.

Mr. Chairman, this completes my statement. My colleagues and I will now be happy to answer any questions that you or other members of the Subcommittee might have.