DEPUTY SECRETARY OF DEFENSE
1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

MAY 21 2010

The Honorable Daniel K. Inouye
Chairman
Committee on Appropriations
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

On behalf of the Department of Defense (DoD) and Department of Veterans Affairs (VA), I am pleased to forward the Report on Medical Information Technology as requested by the Joint Explanatory Statement accompanying the DoD Appropriations Act, 2010 (Public Law 111-118). The Report identifies Health Information Technology (HIT) systems, capabilities, and initiatives (collectively referred to as "requirements") of DoD and VA; discusses whether requirements are shared or unique; explains whether requirements are amenable to shared or separate development, and sets forth a path for developing appropriate shared technology.

The Report was prepared with input from DoD and VA, and received concurrence from the Department of Health and Human Services Office of the National Coordinator for HIT.

The Departments appreciate the Committee's continuing support as we pursue a common mission: ensuring continuity of healthcare to our nation's Service members, Veterans and family beneficiaries.

cc:
The Honorable Thad Cochran
Ranking Member

DEPUTY SECRETARY OF DEFENSE
1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

MAY 21 2010

The Honorable David R. Obey
Chairman
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

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cc:
The Honorable Jerry Lewis
Ranking Member

DEPUTY SECRETARY OF DEFENSE
1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

MAY 21 2010

The Honorable Norm Dicks
Chairman
Subcommittee on Defense
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

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cc:
The Honorable C. W. Bill Young
Ranking Member

DEPUTY SECRETARY OF DEFENSE
1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

MAY 21 2010

The Honorable Carl Levin
Chairman
Committee on Armed Services
United States Senate
Washington, DC 20510

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cc:
The Honorable John McCain
Ranking Member

DEPUTY SECRETARY OF DEFENSE
1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

MAY 21 2010

The Honorable James H. Webb
Chairman
Subcommittee on Personnel
Committee on Armed Services
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

On behalf of the Department of Defense (DoD) and Department of Veterans Affairs (VA), I am pleased to forward the Report on Medical Information Technology as requested by the Joint Explanatory Statement accompanying the DoD Appropriations Act, 2010 (Public Law 111-118). The Report identifies Health Information Technology (HIT) systems, capabilities, and initiatives (collectively referred to as "requirements") of DoD and VA; discusses whether requirements are shared or unique; explains whether requirements are amenable to shared or separate development, and sets forth a path for developing appropriate shared technology.

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cc:
The Honorable Lindsey O. Graham
Ranking Member

DEPUTY SECRETARY OF DEFENSE
1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

MAY 21 2010

The Honorable Ike Skelton
Chairman
Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

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cc:
The Honorable Howard P. "Buck" McKeon
Ranking Member

DEPUTY SECRETARY OF DEFENSE
1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

MAY 21 2010

The Honorable Susan A. Davis
Chairman
Subcommittee on Military Personnel
Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515

Dear Madam Chairman:

On behalf of the Department of Defense (DoD) and Department of Veterans Affairs (VA), I am pleased to forward the Report on Medical Information Technology as requested by the Joint Explanatory Statement accompanying the DoD Appropriations Act, 2010 (Public Law 111-118). The Report identifies Health Information Technology (HIT) systems, capabilities, and initiatives (collectively referred to as "requirements") of DoD and VA; discusses whether requirements are shared or unique; explains whether requirements are amenable to shared or separate development, and sets forth a path for developing appropriate shared technology.

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cc:
The Honorable Joe Wilson
Ranking Member

Joint Executive Council and Health Executive Council

Report to Congress

on

Department of Defense and Department of Veterans Affairs

Medical Information Technology

Required by the Explanatory Statement
accompanying
Department of Defense Appropriations Act 2010
(Public Law 111-118)

William J. Lynn, III
Deputy Secretary of Defense

W. Scott Gould
Deputy Secretary
Department of Veterans Affairs

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This Report responds to the request in the Explanatory Statement accompanying the Department of Defense Appropriations Act (DAA) 2010 (Public Law 111-118), published in the December 16, 2009 Congressional Record at H15321, that the Joint Executive Council (JEC) and Health Executive Council (HEC) submit a complete and thorough review of the technology requirements of the electronic health record (EHR) systems of the Departments of Defense (DoD) and Veterans Affairs (VA) (each, a Department; together, Departments). This Report will:

- Identify health information technology (HIT) systems, capabilities and initiatives (collectively, requirements) of each Department
- Discuss whether requirements are shared or unique
- Explain whether requirements are amenable to shared or separate development
- Set forth a path for developing appropriate shared technology

In accordance with Congressional direction, this Report has received concurrence from the Department of Health and Human Services (HHS) Office of the National Coordinator (ONC) for Health Information Technology (HIT).

EXECUTIVE SUMMARY

Historically, DoD and VA have viewed their respective healthcare services to exist in mutually exclusive lifecycles, with DoD serving customers from accession until retirement or separation and VA providing services from retirement or separation onward. DoD's current electronic health record (EHR) capability is an enterprise-wide medical clinical information system used in all military medical facilities, both fixed and deployed. VA has an inclusive EHR fully integrating inpatient and outpatient events into a single holistic longitudinal record for the Veteran. The exception to this is the clinical information obtained in the private sector through purchased care contracting, as is also true for DoD.

In recent years, the Departments have collaborated on and delivered health information technology (HIT) solutions that significantly improve the secure sharing of electronic health information (EHI). Today, DoD and VA share more health information for clinical use than any other two health organizations in the nation. For example, since 2001, DoD has securely exchanged 1.6 terabytes of data on over 5.0 million individuals including patient demographic data, medication and allergy data, laboratory results, radiology reports, discharge summaries, consult reports, and health assessments utilizing the Federal Health Information Exchange (FHIE) initiative.

The Departments have made improvements in the electronic sharing of benefits, personnel, and health information since 2001 and they remain committed to enhancing delivery and continuity of care for all patients. Current health information exchange (HIE) capabilities between the Departments are well ahead of those in the private sector in both scope and scale. DoD has provided VA with one-way historic information on more than 5.0 million retired or discharged Service members since 2001. The Departments are also able to access each other's health data on more than 3.5 million shared patients, including over 173,300 theater patients, in real-time.

The Departments are committed to assessing all possible common capability development for the next generation of EHR systems. The lifecycle of healthcare will be viewed as a single process in the future, with each Department providing services at various points in the process as warranted. Areas of common requirements may be candidates for shared development or acquisition to support the needs of both Departments. As to be expected, each Department has mission-specific capabilities that are not candidates for a shared effort, such as DoD's theater

requirements or VA's long term care. A disciplined process for reviewing and identifying potential opportunities for shared development or acquisition is in place to ensure that resulting capabilities support the effective execution of the Departments' medical missions. A thorough Analysis of Alternatives (AoA) will occur as each Department modernizes its EHR capability and migrates from outdated legacy technologies to enable a more rapid, flexible and scalable response to evolving national healthcare and computer industry standards.

The Departments' efforts coincide with the movement to national level standards led by HHS. As the nation develops increased capability for health information exchange using the Nationwide Health Information Network (NHIN) portfolio of services, DoD and VA are developing a Virtual Lifetime Electronic Record (VLER) which will leverage the efforts at HHS by using the NHIN for VLER interoperability. This approach will constitute the principal method for the exchange of clinical information between the DoD and VA as well as with purchased care in the private sector for both Departments in the future. Until that time, legacy system interoperability will be maintained. In addition to these efforts, DoD and VA are committed to working closely together to compare capabilities needed and evaluate alternatives to fulfill common EHR and interoperability requirements.

I. HEALTH INFORMATION TECHNOLOGY SYSTEMS, CAPABILITIES AND INITIATIVES

DoD and VA each have HIT resources that represent investments of time and money in emerging, evolving and legacy HIT solutions. The Departments are considering what resources are available, and whether and how they may support concurrent efforts to modernize their EHR capabilities while also achieving interoperability between the Departments and private sector providers through VLER utilizing the NHIN.

A. DoD and VA Systems

1. DoD EHR Capability

AHLTA, DoD's current EHR capability, as part of a family of systems, generates, maintains, stores and provides secure online access to comprehensive patient records. AHLTA's worldwide deployment began in January 2004, and the system is a key enabler of military medical readiness, in garrison and theater, on board ship and in the air.

Key features of the current DoD EHR capability are that it:

- Enables Military Health System (MHS) providers to document patients' health information and history, which is consolidated in a single clinical database, the Clinical Data Repository (CDR)
- Gives access to authorized users worldwide, 24 hours a day
- Facilitates trend analysis activities and medical surveillance at the patient or population level
- Gives providers access to executive-level reports on common diagnoses and procedures to identify trends of concern, and
- Incorporates Computer-based Provider Order Entry (CPOE) capabilities, in use throughout DoD since 1989, with a user-friendly interface to improve coding practices and expand healthcare documentation

MHS garrison systems support delivery of advanced healthcare in hospital and clinical settings on the home front and abroad. They also support population health, medical surveillance and clinical decision-making. Garrison systems include:

- AHLTA
- Clinical Data Repository (CDR)
- Composite Health Care System (CHCS), including Cerner Millennium® PathNet® anatomic pathology laboratory information system (CoPath)
- Defense Enrollment Eligibility Reporting System (DEERS)
- Digital Imaging Network – Picture Archiving and Communications System (DINPACS)
- Essentris™
- Healthcare Artifact and Image Management Solution (HAIMS)
- Health Assessment Review Tool (HART)
- Pharmacy Data Transaction Service (PDTS)
- Third Party Outpatient Collections Systems (TPOCS)
- Spectacle Request Transmission System (SRTS)

The Theater Medical Information Program-Joint (TMIP-J) is an integrated suite of software solutions that support military readiness and healthcare in theater. TMIP-J offers a modular, scalable healthcare documentation system built to operate in low to no communications environments. Its systems capture and manage EHI in support of DoD's EHR; support the delivery of advanced healthcare in the most challenging conditions, including theater, on board ship and care in the air; facilitate medical supply

and equipment tracking, patient movement visibility and health surveillance in theater; support Service members' continuum of care from Theater to the home front; and enable DoD to share pertinent clinical data with VA. Theater systems include:

- AHLTA Mobile
- AHLTA Theater (AHLTA-T)
- Defense Medical Logistics Standard Support (DMLSS)
- DMLSS Customer Assistance Module (DCAM)
- Defense Occupational and Environmental Health Readiness System – Industrial Hygiene (DOEHRS-IH)
- Joint Medical Analysis Tool (JMAT)
- Joint Medical Workstation (JMEWS)
- Joint Theater Trauma Registry (JTTR)
- Medical Situational Awareness in the Theater (MSAT)
- Patient Movement Items Tracking System (PMITS) PlexusD
- Shipboard Non-Tactical Automated Data Processing Program (SNAP) Automated Medical System (SAMS)
- Theater Medical Data Integration (TMDI), TMIP-J Block 2 Release 1 (B2R1), TMIP-J CHCS Cache (TC2), and TMIP-J Framework
- Theater Medical Data Store (TMDS)
- US Transportation Command Regulating and Command & Control Evacuation System (TRAC2ES) Interface with TMDS

TMIP-J systems facilitate collaborative efforts among Army, Navy, Air Force and Marine Corps. TMIP-J also enables the sharing of pertinent clinical data captured in Theater with VA for patients' follow on care. Collaboration between MHS and the Services involves:

- Army Medical Operational Data System (MODS)
- Navy Medical Readiness Reporting System (MRRS)
- Air Force Preventive Health Assessment (PHA) + Individual Medical Readiness (PIMR)
- Composite Occupational Health and Operational Risk Tracking (COHORT)
- Integrated Clinical Database (ICDB)

2. VA EHR Capability

VA has had automated information systems in all of its medical facilities since 1985. Today, the Veterans Health Information Systems and Technology Architecture (VistA) and the Computerized Patient Record System (CPRS) application for clinicians are recognized by healthcare and information technology leaders as one of the most comprehensive EHRs in use anywhere. This is an inclusive record fully integrating inpatient and outpatient events into a single holistic longitudinal record for the Veteran.

CPRS organizes and presents all relevant data on a patient in a way that directly supports clinical decision-making. The comprehensive cover sheet displays timely, patient-centric information, including active problems, allergies, current medications, recent laboratory results, vital signs, hospitalization and outpatient clinic history. This information is displayed immediately when a patient is selected, and provides an accurate overview of the patient's current status before clinical interventions are ordered. CPRS features include:

- A Real-Time Order Checking System that alerts clinicians during the ordering session that a possible problem could exist were the order to be processed
- A Notification System that immediately alerts clinicians about clinically significant events
- A Patient Posting System, displayed on every CPRS screen, that alerts clinicians to issues related specifically to the patient, including crisis notes, warning, adverse reactions, and advance directives
- The Clinical Reminder System, which allows caregivers to track and improve preventive healthcare for patients and ensure timely clinical interventions are initiated, and
- Remote Data View functionality that allows clinicians to view a patient's medical history from other VA facilities to ensure the clinician has access to all clinically relevant data available at VA facilities

VistA Imaging provides a multimedia, online patient record that integrates traditional medical chart information with medical images, including x-rays, pathology slides, video views, scanned documents, cardiology exam results, wound photos, dental images and endoscopies, into the patient record.

Bar Code Medication Administration addresses the serious issue of inpatient medication errors by electronically validating and documenting medications for inpatients. It ensures that the patient receives the correct medication in the correct dose, at the correct time, and visually alerts staff when the proper parameters are not met.

With its My HealtheVet personal health record system, VA is at the forefront of the movement toward person-centered care. My HealtheVet enables Veterans to track their own health, record their military history, share their records with non-VA clinicians or family members, and order prescription refills on line. Additional features under development will further strengthen the partnership between Veterans and their caregivers.

B. Core Capabilities

The following core capabilities are required by one or both Departments in order to provide services to DoD and VA customers throughout the healthcare lifecycle:

- Inpatient Clinical Documentation – Enables providers to document inpatient care electronically (e.g., critical care, acute care, emergency department, labor and maternal child care, psychiatric care, pediatrics, and operative care)
- Outpatient Clinical Documentation – Enables providers to document outpatient care electronically (e.g., patient and family history, medications, allergies, vital signs, orders, outpatient note, and discharge instructions)
- Pharmacy – Supports inpatient and outpatient medication order entry and order fulfillment
- Laboratory – Supports inpatient and outpatient laboratory order entry and results reporting
- Order Entry and Management – Enables providers to electronically enter patient orders for medications, laboratory tests, radiology exams, and consults/referrals which reduces errors related to handwriting or transcription, provides decision support (e.g., drug-drug and drug-allergy checking), and simplifies inventory and posting of charges
- Scheduling – Enables administrative staff to schedule patient appointments and providers to forecast workload
- Imaging and Radiology – Supports inpatient and outpatient radiology and imaging order entry and results reporting
- Registration – Enables administrative staff to establish a permanent, individual record for each patient in the electronic medical record
- NHIN Data Sharing – Will enable information exchanges among integrated delivery networks, pharmacies, government agencies, laboratories, providers, payers, and other stakeholders as a "network of networks"
- Theater, Shipboard and Care in the Air – Supports the capture of patient data in a theater setting, aboard ships, and during in flight transport

- Long Term Care – Supports both the medical and non-medical needs of patients with chronic or catastrophic illnesses or disabilities who cannot care for themselves for long periods of time
- Readiness – Enables military providers to review physical health assessments, laboratory results, dental readiness, health assessments, and any medical conditions that may prohibit or limit deployment and proactively ensure the military force is medically read to deploy

C. Current Initiatives

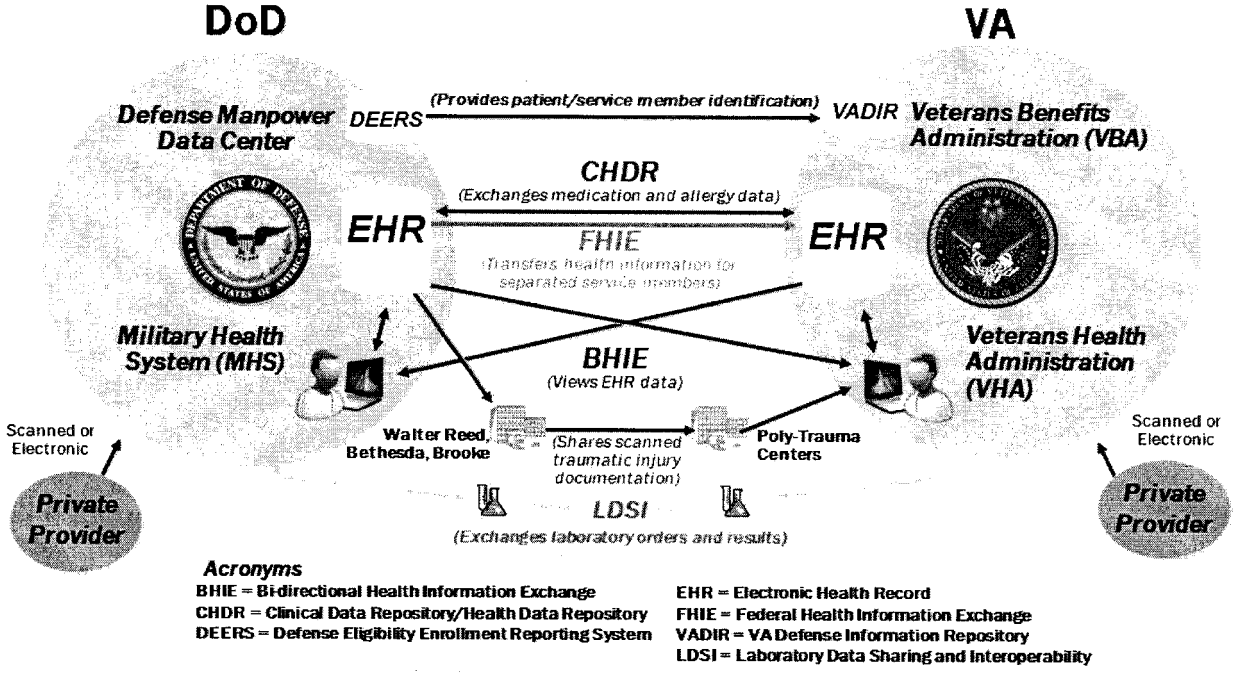
1. Data Sharing

Current DoD/VA data sharing initiatives include Federal Health Information Exchange (FHIE), Bidirectional Health Information Exchange (BHIE), Medical Image Sharing, DoD Clinical Data Repository/VA Health Data Repository (CHDR) and Laboratory Data Sharing Initiative (LDSI).

DoD has provided VA with one-way historic information on more than 5.0 million retired or discharged Service members via FHIE since 2001. For shared patients, the Departments access each other's health data on more than 3.5 million shared patients, including over 173,300 theater patients, in real-time through BHIE, implemented in 2004. The Departments have further leveraged BHIE to support bidirectional access to inpatient discharge summaries from DoD's inpatient documentation system and to pilot bidirectional exchange of digital images at key locations. Since 2006, the Departments have shared computable outpatient pharmacy and allergy data through CHDR, making integrated outpatient pharmacy and medication allergy data for over 52,200 shared patients viewable by providers in both Departments.

As advanced and forward thinking as these approaches were at their time of development, DoD and VA also recognize their long term technical and architectural limitations. While maintaining and improving the current capabilities for data sharing, the Departments are building the future of interoperability for DoD and VA with the VLER program. The strategy of VLER is to utilize the NHIN to exchange secure and authorized health and administrative information between DoD, VA and private sector providers that provide care for our beneficiaries. Both Departments are working with HHS and other stakeholders in the deployment of the NHIN.

The following diagram shows a high-level depiction of current data sharing efforts between Departments:



2. Modernization

DoD intends to improve its suite of EHR applications and supporting infrastructure to create a comprehensive, fast, easy to use and reliable system that meets the requirements of today's rapidly evolving healthcare practices. In accordance with established DoD processes, the EHR modernization effort will be preceded by a Materiel Development Decision and formal Analysis of Alternatives. Input from industry may be sought through formal Requests for Information, allowing DoD to leverage private sector subject matter expertise to inform technical strategies. A structured, deliberate approach will be critical for DoD to succeed in an effort of this magnitude.

In the fall of 2009, MHS developed a multi-year plan to redesign supporting infrastructure and incrementally deliver key functionality. This plan will use a phased development and testing approach. At the threshold, MHS must stabilize the current system while transitioning to applications and supporting infrastructure that will improve reliability, speed, user interface and data integrity, and engender higher satisfaction levels among DoD clinicians and the healthcare community at large.

In advance of execution of the DoD EHR Way Ahead, the Department will undertake pre-program risk reduction steps to address key challenges with functional applications and core infrastructure. In the next two years, MHS will stabilize the EHR, modernizing the underlying architecture with limited enhancements to improve usability. This strategy will allow MHS to increase user satisfaction while developing an infrastructure capable of delivering new EHR capabilities. During this process, the DoD is committed to working with the VA to assess and exploit opportunities for common capability development. The DoD/VA Interagency Program Office (IPO) will coordinate this effort.

In parallel, VA is moving its electronic healthcare system, VistA Legacy, into the 21st century. VA is also committed to working with DoD, in coordination with the IPO, to develop joint capabilities whenever possible and appropriate, as it modernizes its EHR. Health*e*Vet, the next generation of VistA, will equip doctors, nurses and other healthcare providers with the technologies and tools they need to improve the healthcare of Veterans – both individually and as a population. Health*e*Vet builds on decades of VA expertise in HIT to support strategic goals of the Department, meet interagency obligations, take advantage of new developments in technology to enhance the current system, and most importantly, improve the safety and quality of healthcare for Veterans. VA's future health information system will:

- Provide VA clinicians a high-performance, longitudinal, integrated Veteran-centric EHR accessible to all authorized personnel with a legitimate need to know, especially those who support direct and population-based healthcare
- Provide effective, user-friendly decision support to clinicians and managers
- Support a systems architecture/design that is flexible and scalable (up and down), enabling rapid modification as needs change, and exportable to entities outside of the Veterans Health Administration (VHA)
- Support a full range of users across program/business, research and management
- Satisfy requests from key users (clinicians, managers, registration staff, billing staff, fee-basis staff and Veterans and their families) to enhance or provide new functionality to support business needs

- Standardize health data and communications within VHA and with non-VHA health organizations
- Support a robust information exchange capability for effective and secure sharing of EHI when appropriate and authorized
- Support health record access, self-entered information, services (such as appointments, refills, co-pays, registration and enrollment), trusted information, and care that is provided in both the clinical and community settings
- Provide a reliable, standards based system that offers high performance at reasonable cost (for maintenance and operations) and interoperability with other systems

II. DISCUSSION OF SHARED AND UNIQUE REQUIREMENTS

A. Common Requirements

Of the capabilities described in Section I, ten are required by both Departments:

- Inpatient Clinical Documentation
- Outpatient Clinical Documentation
- Pharmacy
- Laboratory
- Order Entry and Management
- Scheduling
- Imaging and Radiology
- Registration
- NHIN Data Sharing

B. Department-Specific Requirements

Of the capabilities described in Section I, there are three key Department-specific capabilities:

- Theater, Shipboard and Care in the Air are specific to DoD's mission
- Readiness is specific to DoD's mission
- Long Term Care is specific to VA's mission

III. OPPORTUNITIES FOR SHARED DEVELOPMENT

Shared efforts to meet mutual needs would improve the Departments' potential to leverage market innovation, achieve economies of scale and enhance HIT asset management through improved software version control.

Efforts to maximize opportunities for shared HIT development or acquisition will accompany EHR modernization efforts within the Departments. Detailed planning for the Departments' respective modernization efforts is well underway and will be expanded in the future. Key data inputs for informing and refining current plans include DoD's EHR Way Ahead Analysis of Alternatives (AoA), being managed by the functional community, and VA's prioritized HIT operational plan. Additionally, new efforts are underway to examine the current efforts and maximize joint development. Migration away from outdated legacy technologies will enable a more rapid, flexible and scalable response to evolving national healthcare and computer industry standards, and present potential opportunities for common capability development across the Departments.

DoD and VA are committed to maintaining a leadership framework to oversee and promote successful partnerships, institutionalize needed change, and foster collaboration to support Service members and Veterans in an open and transparent manner. The Joint Executive Council institutionalizes sharing and collaboration across the Departments to ensure the efficient use of services and resources for the delivery of health care and other authorized benefits. An Interagency Program Office has also been established, with its leadership selected through a joint vetting process.

A. Results of DoD/VA Joint Inpatient EHR Study

The DoD/VA Joint Inpatient EHR Feasibility Study, completed in fiscal year 2008, was commissioned to determine whether or not specific information interoperability or other capability requirements were amenable to shared development or acquisition. This Feasibility Study, funded by the Joint Incentive Fund (JIF), was a collaborative activity by the Departments to recommend an inpatient EHR data sharing approach that will ensure high quality clinical care for Service members across the continuum of care, from theater, to DoD military treatment facilities in garrison, to VA medical centers. The Feasibility Study resulted in a JEC endorsement of the recommendation that the Departments continue to collaborate, develop a common services framework, and deploy common data and business services that can leverage and enhance interagency data sharing efforts.

As part of the Feasibility Study key documents were developed, including a DoD/VA inpatient EHR concept of operations (CONOPS) and an action plan to identify the activities necessary to implement a common services approach to support inpatient EHR common capability development and interoperability. The CONOPS and action plan contain recommendations that are being considered in DoD/VA planning for future data sharing. Going forward, the DoD/VA Interagency Clinical Informatics Board (ICIB) will be engaged to review and prioritize common services for clinical care. Both Departments are committed to assessing all possible common capability development for the next generation of EHR systems.

B. Analysis of Commercial Offerings

DoD and VA have informally reviewed current commercial offerings for the 13 core HIT capability requirements. The review was performed leveraging research performed by information technology research and consulting firms such as KLAS and Gartner Group.

The commercial market currently offers Commercial Off-The-Shelf (COTS) solutions that may support, in whole or in part, seven of the ten requirements shared by the Departments: Inpatient Clinical Documentation, Outpatient Clinical Documentation, Pharmacy, Laboratory, Order Entry/Management, Scheduling and Imaging/Radiology. Only partial solutions are available for Third Party Billing and Registration. For NHIN Data Sharing, commercial marketplace offerings are immature but rapidly accelerating as NHIN standards development continues under HHS.

No commercial offerings are comparable to existing Government Off-The-Shelf (GOTS) capabilities for two DoD mission specific requirements: Theater/Shipboard/Care in Air and Readiness. Additional evaluation is needed to explore Long Term Care capabilities in the marketplace.

C. Candidate Capabilities for Collaboration

For seven of the core capabilities, market research suggests shared acquisition of COTS or joint software development may be feasible. While the Departments remain committed to exploring all possible avenues for common capability development, the Departments consider the following EHR capabilities to be the best current potential candidates for shared acquisition or development: Inpatient Clinical Documentation, Outpatient Clinical Documentation, Pharmacy, Laboratory, Order Entry/Management, Scheduling and Imaging/Radiology. The Analysis of Alternatives process will determine

the most advantageous approach for meeting the Departments' collective requirements. Products that are able to meet needs at the home station but are not suitable to operate in theater or austere conditions would likely result in separate acquisitions.

IV. PATH TO APPROPRIATE SHARED TECHNOLOGY

A. Analysis of Alternatives Processes

A detailed analysis of capability requirements, technical feasibility, and economic costs and benefits must precede any decision to pursue capabilities. DoD's analysis will be a follow-on component of the Materiel Development Decision (MDD) review and AoA, which are required by Section 8066(c) of DAA 2007 (Public Law 109-289). The MDD is being performed by the Milestone Decision Authority (MDA) based on a Joint Requirements Oversight Council (JROC) approved Initial Capabilities Document (ICD) and AoA guidance received from the Director, Cost Assessment and Program Evaluation (CAPE). An AoA will be conducted in accordance with CAPE guidance received following MDD approval.

DoD and VA EHR capabilities will be implemented or updated over time as the Departments conduct joint business process reengineering efforts to iteratively and incrementally improve existing operations. In revisiting current processes, the end-to-end lifecycle of services will be redefined to encompass access to personnel, benefits and administrative information from the day an individual enters military service, throughout their military career, and beyond. When replacing legacy capabilities or adding new capabilities, a thorough Review of Alternatives will be performed for each capability to ensure that development is in line with strategic goals. Each Review of Alternatives will look at all viable alternatives, including commercial products, common services, shared acquisitions with VA, contracting for the capability to be built by commercial vendors, distributed development, or other options that are viable for consideration at that time or could be developed in a timely fashion. DoD intends to modify the existing AoA process, which is operated and managed by the functional community, to ensure consideration of VA products and/or DoD/VA shared acquisition or development.

A key AoA will be DoD's EHR Way Ahead AoA, expected in fiscal year 2010. The follow-on analysis of requirements will determine the best method for meeting a capability gap. As this AoA is completed, it will be possible to state which capabilities and approach will be pursued in a shared effort with VA.

B. Pilot Efforts

The NHIN Data Sharing solution, a standards based product in early development by HHS, enables health information exchanges, integrated delivery networks, pharmacies, government health facilities and payors, labs, providers, private payors and other stakeholders to interconnect and share information via a "network of networks." VLER pilots, underway to demonstrate exchanges of EHI between VA, DoD and participating private sector providers, continue to demonstrate the power and effectiveness of coordinated development between the Departments for increasing the secure sharing of EHI while leveraging existing EHR capabilities.

VLER Pilot Phase 1a shares limited data among Kaiser Permanente, VA and DoD in San Diego, California. This effort is planned to expand data sharing to limited laboratory information for the Hampton Roads, Virginia region in July 2010. The Departments will collaborate on a selection of solutions meeting both VA and DoD mission requirements. Ultimately, the goal is to utilize the lessons learned from the VLER pilot programs to develop an extensible and scalable pilot that can be productized and implemented nationally.

V. CONCLUSION

A broad range of functionality is needed to support the warfighter and his or her family through the continuum of care, which spans care in theater, garrison and en route, as well as VA and civilian care. Rapid evolution in the commercial HIT marketplace presents a significant opportunity to implement standards-based HIT solutions that will modernize existing Department EHR capabilities, provide increased interoperability, and reduced sustainment costs.

DoD and VA share critical health data supporting the continuity of care for millions of Service members and Veterans. The Departments are firmly focused on being able to enhance that sharing and expand on capabilities to share information with the private sector through NHIN. A Standards-based, open-architecture, net-centric data exchange between Federal and private sector partners will improve quality of care in a way that is safe and secure while also protecting personal privacy.

Business process reengineering efforts will assist in transforming how the Departments view their collective responsibility to provide services that are focused on their customers, from the day an individual enters military service, throughout their military career, through the transition to Veteran status, and beyond. DoD and VA are committed to working closely together to compare capabilities needed and evaluate alternatives to current processes, policies, and information technology. Both DoD and VA will modify their AoA processes to maximize opportunities for shared acquisition or development of capabilities meeting similar requirements.

APPENDIX

The table below lists HIT core capabilities, identifies products that now provide DoD and VA with each capability, and indicates whether the commercial marketplace offers COTS solutions. In addition, it provides notes regarding available products for each capability.

Core Capabilities	Current Systems, State of Marketplace			Notes
	DoD	VA	Market	
Inpatient Clinical Documentation	Essentris	VistA	Maturing	COTS may someday meet the Departments' respective or collective requirements.
Outpatient Clinical Documentation	AHLTA	VistA	Maturing	COTS may someday meet the Departments' respective or collective requirements.
Pharmacy	CHCS PDTS	VistA	Maturing	COTS may someday meet Departments' respective or collective requirements. VA is currently implementing COTS.
Laboratory	CHCS, including CoPath	VistA (evolving to Cerner SaaS)	Maturing	COTS may someday meet Departments' respective or collective requirements. VA is currently implementing COTS.
Order Entry and Management	CHCS	VistA	Maturing	COTS may someday meet Departments' respective or collective requirements.
Scheduling	CHCS	VistA	Maturing	COTS may someday meet Departments' respective or collective requirements. A 2009 VA AoA determined that VA requirements are still far beyond COTS capabilities
Imaging and Radiology	HAIMS CHCS DINPACS	VistA and COTS	Maturing	COTS may someday meet Departments' respective or collective requirements. COTS are probably superior to current government capabilities
Registration	CHCS DEERS	VistA	Partial Solution	Products that may meet VA's needs at the home station may not be suitable for DoD's operations in theater or austere conditions. Although COTS may serve as an underlying technology, DoD's unique medical mission requires use of GOTS.
NHIN Data Sharing	N/A	NHIN Connect and VistA	Immature	Products that may meet VA needs at the home station may not be suitable to operate in theater or austere conditions resulting in separate acquisitions. VLER pilot phase 1a shares limited c32 data among KP, VHA and DoD in San Diego, CA. This effort will expand the defined limited data sharing in Hampton Roads, VA region planned for July 2010. BHIE 5 serves as DoD adapter to NHIN gateway. Commercial market is accelerating rapidly, and will readily augment VA/DoD work through NHIN compatible products
Third Party Billing	TPOCS	VistA	Partial Solution	DoD is phasing out TPOCS and providing a data set to the Services. The Services may contract out support for third party billing in lieu of purchasing COTS for this capability.

Core Capabilities	Current Systems, State of Marketplace			Notes
	DoD	VA	Market	
Theater, Shipboard and Care in Air	TMIP-J	N/A	None	Shared acquisition would not be beneficial as this is a DoD-specific mission.
Long Term Care	N/A	VistA	TBD	Shared acquisition would not be beneficial as this is a VA specific mission.
Readiness	AHLTA CHCS MRRS PIMR MODS JMEWS JMAT MSAT	N/A	None	Shared acquisition would not be beneficial as this is a DoD-specific mission.

ACRONYMS

Acronym	Meaning
AoA	Analysis of Alternatives
BHIE	Bidirectional Health Information Exchange
CAPE	Cost Assessment and Program Evaluation
CDR	Clinical Data Repository
CHDR	DoD Clinical Data Repository/VA Health Data Repository
CONOPS	concept of operations
COTS	commercial off-the-shelf
CPOE	Computer-based Provider Order Entry
DAA	Department of Defense Appropriations Act
DoD	Department of Defense
EHI	electronic health information
EHR	electronic health record
FHIE	Federal Health Information Exchange
GOTS	government off-the-shelf
HAIMS	Healthcare Artifact and Image Management Solution
HEC	VA/DoD Health Executive Council
HHS	Department of Health and Human Services
HIE	health information exchange
HIT	health information technology
ICD	Initial Capabilities Document
ICIB	Interagency Clinical Informatics Board
JEC	VA/DoD Joint Executive Council
JIF	Joint Incentive Fund
JROC	Joint Requirements Oversight Council
LDSI	Laboratory Data Sharing Initiative
MDA	Milestone Decision Authority
MDD	Materiel Development Decision
MSAT	Medical Situational Awareness in the Theater
NHIN	Nationwide Health Information Network
VA	Department of Veterans Affairs
VLER	Virtual Lifetime Electronic Record