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

JUN 21 2010

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

Dear Mr. Chairman:

In accordance with the requirements of Section 716 of the National Defense Authorization Act for Fiscal Year 2010, enclosed is a report discussing improvements to the governance and execution of health information management and information technology programs planned and programmed to electronically support clinical medical care within the military health system.

Should you or your staff have any questions, Elizabeth McGrath, my Assistant Deputy Chief Management Officer, is my point of contact for this report.

A similar letter is being sent to the other Congressional Defense Committees.

Enclosure:
As stated

cc:
The Honorable John McCain
Ranking Member

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JUN 2 1 2010

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

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

DEPUTY SECRETARY OF DEFENSE
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JUN 2 1 2010

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

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cc:
The Honorable Thad Cochran
Ranking Member

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

JUN 21 2010

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

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Enclosure:
As stated

cc:
The Honorable Jerry Lewis
Ranking Member

Report to the Congressional Defense Committees

Improvements to the Governance and Execution of Health Information Management and Information Technology Programs

June 2010

Contents

Statutory Basis

The following requirements are set forth in the National Defense Authorization Act for Fiscal Year (FY) 2010, Section 716:

"SEC. 716. LIMITATION ON OBLIGATION OF FUNDS UNDER DEFENSE HEALTH PROGRAM INFORMATION TECHNOLOGY PROGRAMS.

(a) LIMITATION. – Of each amount described in sub-section (c), not more than 50 percent of the amount remaining unobligated as of the date of the enactment of this Act may be obligated until 30 days after the Deputy Secretary of Defense, acting in the capacity of Chief Management Officer of the Department of Defense pursuant to section 132 of title 10, United States Code, submits to the congressional defense committees a report in accordance with subsection (b).

(b) REPORT. – The report required under subsection (a) shall be on improvements to the governance and execution of health information management and information technology programs planned and programmed to electronically support clinical medical care within the military health system. Such report shall include each of the following:

> (1) An assessment of the capability of the enterprise architecture to achieve optimal clinical practices and health care outcomes.
>
> (2) For each health information management and information technology program covered by the report, an identification and assessment of the risks associated with achieving the timelines and goals of the program.
>
> (3) A plan of action to mitigate the risks identified under paragraph (2).
>
> (4) An assessment of the appropriateness of the health information management and information technology technical architecture and whether that architecture leverages the current best practices of industry, including the ability to meet the interoperability standards required by section 1635 of the Wounded Warrior Act (title XVI of Public Law 110–181; 10 U.S.C. 1071 note), as amended by section 252 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (Public Law 110-417; 122 Stat. 4400).
>
> (5) An assessment, in coordination with the Secretary of Veterans Affairs, of—
>
> > (A) the capability of the Department of Defense of meeting the requirements for joint interoperability with the Department of Veterans Affairs, as required by such section 1635; and
> >
> > (B) the progress the Secretary of Defense and the Secretary of Veterans Affairs have made on the establishment of a joint virtual lifetime electronic record for members of the Armed Forces.

(6) A plan to take corrective actions that are necessary to remedy shortfalls identified as a result of the assessments under this subsection.

(7) An assessment of the estimated resources required in future years to achieve optimal information technology support for health care clinical practice and quality and compliance with the requirements of such section 1635.

(8) An analysis of the methods by which the Office of the Assistant Secretary of Defense for Health Affairs procures health information management and information technology goods and services, and of the appropriateness of the application of legal and acquisition authorities.

(9) An analysis of the capabilities of the Office of the Assistant Secretary of Defense for Health Affairs to carry out necessary governance, management, and development functions of health information management and information technology systems, including—

(A) the recommendations of the Assistant Secretary for improvements to the Office or alternative organizational structures for the Office; and

(B) alternative organizations within the Department of Defense with equal or greater management capabilities for health information management and information technology.

(10) A recommendation as to whether health information management and information technology systems of the Department of Defense should be included in and subject to the requirements of section 2222 of title 10, United States Code."

(c) COVERED AUTHORIZATIONS OR APPROPRIATIONS.—Amounts described in this section are the following amounts authorized to be appropriated for the Department of Defense for fiscal year 2010:

(1) Of the amounts authorized to be appropriated for operation and maintenance for the Defense Health Program (DHP IM/IT Support Program), $116,200,000.

(2) Of the amounts authorized to be appropriated for procurement for the Defense Health Program, $144,600,000.

(3) Of the amounts authorized to be appropriated for information technology development (program element 65013), $124,400,000.

(d) COMPTROLLER GENERAL REVIEW.—Not later than 30 days after the Deputy Secretary submits the report required under subsection (a), the Comptroller General of the United States shall submit to the congressional defense committees the results of an assessment carried out by the Comptroller General of the report and plan of action to achieve Department goals and mitigate risk in the management and execution of health information management and information technology programs."

Strategic Context

The Department of Defense (DoD) plans to improve the quality of health care provided to Service members and their beneficiaries through continued refinement and increased sharing of electronic health records (EHRs). The Department's implementation strategy includes initiatives to modernize current EHR capabilities while also stabilizing legacy systems serving as the platform for interoperability. Ubiquitous sharing of health information captured within DoD's EHR will be achieved through the Virtual Lifetime Electronic Record (VLER), leveraging the Nationwide Health Information Network (NHIN) to expand current DoD/Department of Veterans Affairs (VA) data sharing and include private providers. The James A. Lovell Federal Health Care Center (JALFHCC) in North Chicago will revolutionize interoperability between DoD and VA, delivering reusable capabilities to register patients and process orders between the health systems of both Departments.

In May 2010, a formal Materiel Development Decision (MDD) and Acquisition Decision Memorandum for the EHR Way Ahead were issued by the Milestone Decision Authority (MDA). The MDA designated the EHR program as a Major Automated Information System and Defense Business System (DBS). The MDD allows the Department to proceed with development of an Analysis of Alternatives (AoA) based on the Joint Requirements Oversight Council-approved Initial Capabilities Document (ICD) for the EHR Way Ahead. DoD intends to modify the existing AoA process, which is operated and managed by the functional community, to ensure consideration of VA products and the possibility of shared acquisition or development.

In advance of executing the EHR Way Ahead, it is imperative DoD addresses known shortfalls and key challenges with functional applications and core infrastructure, including critical user concerns with system speed, operational availability, and the user interface. This stabilization effort will allow DoD to meet near term needs while transitioning to applications and infrastructure capable of supporting the EHR Way Ahead. The Armed Forces Health Longitudinal Technology Application (AHLTA)/ Composite Health Care System will be maintained through multiple critical fixes in order to mitigate risks prior to increasing reliance on these systems for expanded interoperability through VLER.

DoD's modernization plan is designed to maximize use of Commercial-Off-The-Shelf (COTS) solutions through a series of spiral development efforts. End-state requirements will be refined through continuous user feedback, demonstration, and risk management, with each increment providing the best possible capability to the user. Solutions developed for the JALFHCC will be leveraged by the DoD enterprise and exported to other joint ventures as appropriate. Modernization activities will drive toward application of emerging standards, thereby increasing efficiencies in DoD/VA system interfaces and allowing for exchange of data with the private sector.

Executive Summary

Section 716 of the FY 2010 NDAA requires the Deputy Secretary of Defense, acting in his capacity as the Chief Management Officer, to submit a report to Congress on improvements to the governance and execution of DoD health information management (IM) and information technology (IT) programs. The Office of the Deputy Chief Management Officer (ODCMO) led the overall effort to perform four detailed, parallel assessments of the Department's activities.

The **Functional and Technical Assessment** explored risks associated with closing current capability gaps and satisfying known requirements, as well as those related to system architecture and standards maturity. Items described under paragraphs one through four of Section 716 were covered by this assessment. The Department concluded the EHR Way Ahead Enterprise Architecture (EA) is sufficient to realize desired capabilities and, although in its early stages, the EHR technical architecture was found to be consistent with relevant best practices, DoD policy and IT standards necessary in order to achieve interoperability.

The **Joint Interoperability Assessment** addressed the progress of interagency interoperability efforts, investigated risks associated with coordinating activities between the Departments of Defense and VA, and evaluated progress of the VLER initiative. This assessment addressed the requirements in paragraph five of Section 716. Efforts made by the Departments to complete six high-level interoperability objectives were found to allow for EHR interoperability as required by the FY 2008 NDAA, Section 1635. The Departments are actively collaborating on solutions to meet DoD and VA mission requirements, and the next increment of VLER will demonstrate the joint capability to exchange additional laboratory data in three communities by January 31, 2011. The current use of NHIN in the first increments of VLER leverages a standards-based, open architecture, net-centric data exchange between Federal and private sector partners to improve quality of care in a way that is safe and secure while also protecting personal privacy.

The **Program Management Assessment** identified risks associated with overall execution, funding, program schedules and resource dependencies. The requirements of paragraphs seven, eight, and ten were analyzed within this assessment. Resource requirements in future years will become clearer as EHR modernization continues to progress through DoD's established acquisition processes. A MDD and formal AoA will help chart the way ahead. Input from industry may be sought through formal Requests for Information, allowing DoD to leverage private sector subject matter expertise to inform technical strategies. An interim planning office was established to oversee cost, schedule and performance aspects of EHR until a formal Program Management Office is formally chartered this fiscal year. A Program Manager for EHR will also be appointed in accordance with DoD Acquisition policy.

The **Organizational Assessment** outlined risks associated with governance, oversight authorities, reporting structures and culture change within the Office of the Assistant Secretary of Defense for Health Affairs (OASD(HA)). In order to objectively satisfy the requirements of Section 716, paragraph nine, this assessment was performed by an independent third party. Some executives play dual roles in OASD(HA) and the TRICARE Management Activity (TMA) by operating as both

policy setter and executor. OASD(HA) instituted a number of initiatives designed to improve business processes and provide oversight across the entire Military Health System (MHS) IM/IT portfolio.

A summary of the results of each assessment, mapped to the requirements of Section 716, can be found in Appendix A. Appendix B, which responds to the requirements of paragraph six of Section 716, provides more detailed descriptions of the risks, mitigations, and milestones identified in each area. The Department intends to monitor this collection of milestones through the ODCMO as a corrective plan of action to improve its suite of EHR applications and supporting infrastructure to create a comprehensive, fast, easy to use and reliable system meeting the requirements of today's rapidly evolving health care practices. A structured, deliberate approach will be critical for DoD to succeed in an effort of this magnitude.

Background

The MHS enterprise consists of OASD(HA); the medical departments of the Army, Navy, Air Force, Coast Guard, and Joint Chiefs of Staff; the Combatant Command surgeons; and TRICARE providers (including private sector health care providers, hospitals and pharmacies). It represents all health care services in support of DoD medical and dental programs, personnel, facilities, and other assets operating pursuant to Chapter 55 of Title 10, United States Code. MHS programs provide support to the Armed Forces during military operations and DoD health care or TRICARE beneficiaries, which include active duty military, their family members and others entitled to DoD health care.

The budget to provide resources to MHS is prepared and submitted by OASD(HA), mostly as part of the Defense Health Program (DHP) appropriation. DHP is a single appropriation consisting of operation and maintenance; research, development, test, and evaluation; and procurement funds designed to finance non-military personnel requirements of the MHS.

Section 716 of the NDAA requires the Deputy Secretary of Defense to submit a report to Congress on Health Information Technology (HIT) programs prior to obligation of remaining appropriations for DoD MHS programs. HIT Programs are managed by the military services and TMA. The military services continue to manage HIT programs that make up roughly half of DoD HIT funding. The MHS Chief Information Officer (CIO) and the MHS Component Acquisition Executive (CAE) oversee joint HIT programs and initiatives managed by the Program Executive Officer (PEO). The program/planning offices that reside under the PEO include:

- Defense Health Information Management System (DHIMS) – The DHIMS Program Office manages acquisition, development, implementation and sustainment of joint clinical systems and clinical data sharing initiatives. DHIMS manages the legacy EHR family of systems that include AHLTA, the Theater Medical Information Management Program, DoD/VA sharing initiatives, and Wounded Warrior initiatives, including clinical case management, Traumatic Brain Injury/Behavioral Health and the Neurocognitive Assessment Tool.
- Defense Health Services Systems (DHSS) – The DHSS Program Office develops or maintains 26 joint automated information systems (see Appendix C for listing) used throughout MHS in three major areas: clinical support, medical logistics and resources.
- Tri-Service Infrastructure Management Program Office (TIMPO) – TIMPO delivers and manages the Communications and Computing Infrastructure (C&CI) necessary to support IT systems deployed throughout MHS. TIMPO provides the entire spectrum of products and services required to design, test, install, upgrade and sustain MHS C&CI worldwide. TIMPO captures and analyzes end-to-end performance data for C&CI components and MHS systems, including AHLTA. TIMPO uses the results from these analyses to optimize network and end-user system performance.
- EHR Way Ahead Planning Office – The EHR Way Ahead Planning Office provides comprehensive planning in support of next generation EHR capabilities, to include AoA activities.

Team Approach

Overseen and coordinated by ODCMO, teams from various organizations within DoD were established to perform assessments necessary to address each of the requirements levied in NDAA Section 716(b). These teams were selected because of their organizational, technical, and functional expertise to provide thorough, objective analyses of their respective subject matters. Table 1 provides a description of team composition for each assessment area.

Table 1: Assessment Teams

Assessment	Team Composition
Functional & Technical	DoD Deputy Chief Information Officer (DCIO) led a high performance team consisting of functional and technical subject matter experts from the Office of the Under Secretary of Defense for Personnel and Readiness (OUSD(P&R)), DoD DCIO, the Business Transformation Agency (BTA), MHS OCIO, Defense Information Systems Agency (DISA), TMA and the DoD/VA Interagency Program Office (IPO).
Joint Interoperability	The DoD/VA IPO led a Joint Interoperability Assessment Team providing oversight and coordination.
Program Management	Input was provided by the Office of the Under Secretary of Defense (Comptroller) (OUSD(C)) and the Office of the Director for Cost Assessment and Program Evaluation (ODCAPE) and ODCMO.
Organizational	The Institute for Defense Analysis, a Federally Funded Research and Development Center (FFRDC), provided input for this assessment under contract to ODCMO.

Functional & Technical Assessment

A High Performance Team (HPT), led by DoD DCIO, conducted a functional and technical assessment of the EHR Way Ahead Enterprise Architecture. A functional analysis team, co-chaired by ODCMO, OUSD(P&R) and the Office of the DoD DCIO, focused on assessing whether the EA supports the requirements and gaps identified in the EHR ICD. A technical analysis team, led by the Office of the DoD DCIO, assessed whether the proposed solution is consistent with the Information Enterprise Architecture (IEA), utilizes Enterprise Services, incorporates approved or mandated IT standards and is consistent with the Department's Data and Services Strategies, Information Assurance (IA) requirements, and Radio Frequency (RF) Spectrum policies.

Table 2 lists requirements from Section 716 and a description of how they were addressed in this assessment by the HPT.

Table 2: Functional & Technical Assessment Activities

Paragraph from Section 716	Assessment Activities
(1) An assessment of the capability of the enterprise architecture to achieve optimal clinical practices and health care outcomes.	The HPT conducted a detailed functional analysis to ensure the EHR Way Ahead EA supported functional requirements and gaps identified in the EHR ICD.
(2) For each health information management and information technology program covered by the report, an identification and assessment of the risks associated with achieving the timelines and goals of the program.	The HPT reviewed the architecture for functional and technical risks impacting the program's ability to fulfill requirements or meet timelines and goals. Each risk was listed and scored as high, medium or low.
(3) A plan of action to mitigate the risks identified under paragraph (2).	The HPT worked with MHS to develop mitigation plans for identified risks. Risk scores were provided as a result of implemented risk mitigation plans.
(4) An assessment of the appropriateness of the health information management and information technology technical architecture and whether that architecture leverages the current best practices of industry, including the ability to meet the interoperability standards required by section 1635 of the Wounded Warrior Act (Title XVI of Public Law 110–181; 10 U.S.C. 1071 note), as amended by section 252 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (Public Law 110-417;122 Stat. 4400)	The HPT conducted a technical analysis of the EA to determine whether the proposed solution is consistent and in compliance with several DoD-mandated policies and standards. The technical analysis specifically assessed EHR compliance with, and adherence to, the following criteria: DoD IEA, DoD Enterprise Services, IT Standards, DoD Data and Services Strategy, IA requirements, RF Spectrum policy and current industry best practices.

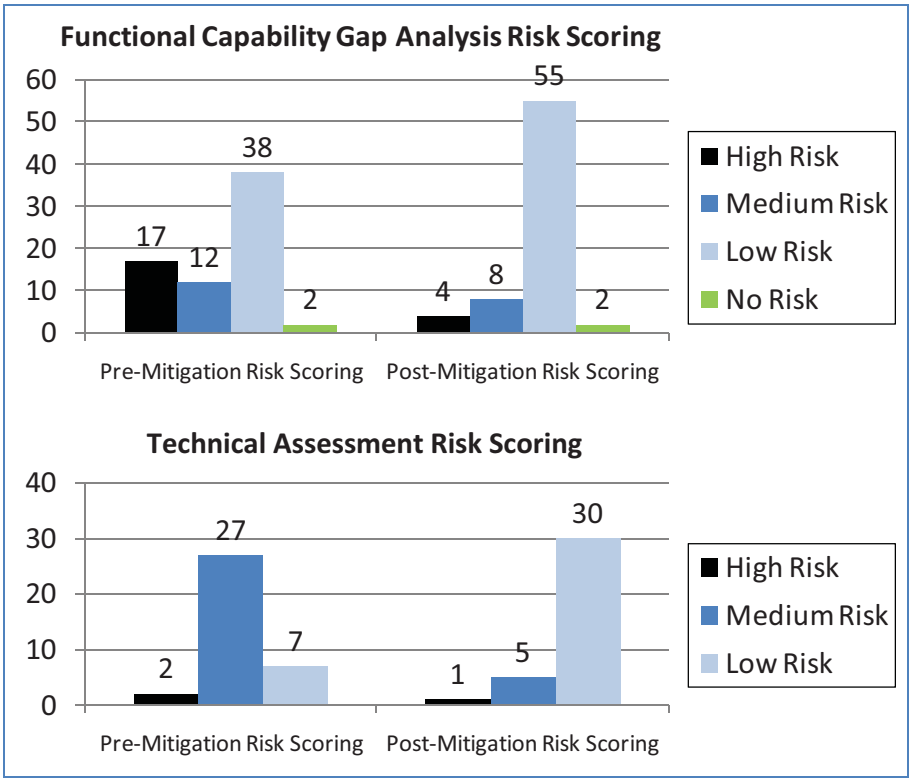
Results

As is typical with any pre-MDD program in the DoD acquisition process, the HPT identified risks associated with EHR Way Ahead EA. The functional assessment team initially identified 17 high risks, 12 medium risks and 38 low risks associated with 67 capability gaps. Two additional capability gaps were identified as no risk. After mitigation activities were identified, the 67 risks were reassessed, resulting in four high risks, eight medium risks and 55 low risks.

The **functional** assessment team determined alignment between the capability gaps identified in the ICD and a solution in the available reference models of the EHR Way Ahead illustrate the EA can fulfill the established needs and intent of Section 716 of the 2010 NDAA.

The **technical** assessment of the architecture identified 36 total risks; two high risks, 27 medium risks and seven low risks. After mitigation activities were identified, the criticality of these technical risks were reassessed as one high, five medium and 30 low risks.

Figure 1: Risk Score Bar Charts



A functional and technical risk assessment matrix is provided in Appendix B which itemizes risks with their associated mitigation plans and milestones. These tables summarize risks that obtained scores of medium or high (post-mitigation) in the assessment conducted by HPT. After the assessment was completed OUSD(P&R) identified two additional technical risks which are also included in Appendix B's technical risk matrix.

Results of the technical assessment, which consisted of analysis across several subcategories, are varied:

- The EHR technical architecture was found to be compliant with DoD IEA at an overall systems level. The MHS program is still developing specific engineering and implementation detailed architecture which is appropriate for a program at this stage in the acquisition lifecycle.
- In terms of Data and Data Services Strategy compliance, the overall assessment is that EHR architecture complies with and aligns to DoD Net-Centric Data Strategy and Services Strategy.
- The technical architecture was also found to be interoperable concerning standards addressing capabilities to develop, warehouse, and maintain EHR data across DoD, VA, and HHS enterprise architectures.
- In general, MHS information assurance control mechanisms were compliant with DoD directives, however, future EHR designs will need to be assessed to ensure continued visibility of site-to-site and peering point connection points between and among networks.
- A best practices assessment revealed the EHR architecture incorporated best practices wherever possible based on the level of maturity of the EHR effort and existing documentation.
- No unique spectrum requirements were identified in the assessment, making the EHR technical architecture compliant with RF spectrum policy and management practices.
- The Infrastructure assessment team determined the technical architecture is currently lacking compliance information pertaining to Defense Information Switch Network (DISN) Core Availability, Network Operations, and Application Migration. These deficiencies, however, are consistent with the stage of development of the EHR Technical architecture in the acquisition program.

Finally, the technical architecture assessment found the maturity of the architecture is appropriate for this stage of development and, as such, does not contain a detailed solution design. Based on the technical and functional assessments, the HPT concluded the EHR Way Ahead EA is sufficient to realize capabilities from the EHR ICD and, although in its early stages, the EHR technical architecture was found to be consistent with relevant best practices, DoD policy, and IT standards to achieve interoperability.

Joint Interoperability Assessment

DoD/VA EHR Modernization End State Vision - The DoD and VA electronic health record modernization will provide a modular approach that will enable each Department to optimize the care of their beneficiaries by facilitating quality and safety, improving the efficiency of care, easing the incorporation of new capabilities, helping to create an optimal patient experience, and facilitating the end to end life cycle of care for all patients.

The FY 2008 NDAA was signed into law on January 28, 2008. Section 1635 required the Departments of Defense and Veterans Affairs to jointly "develop and implement electronic health record systems or capabilities that allow for full interoperability of personal health care information" no later than September 30, 2009. In order to assess the degree to which the Departments were successful in meeting this milestone, activities of the DoD/VA Interagency Clinical Informatics Board (ICIB) were leveraged to evaluate the Departments' joint capability. The ICIB is a board of clinical practitioners from both DoD and VA that serve as the primary source of input from the clinical community in recommending priorities to enhance information sharing.

On April 9, 2009, President Obama affirmed a mutual strategic objective for DoD and VA: definition and construction of a Virtual Lifetime Electronic Record solution that "will ultimately contain administrative and medical information from the day an individual enters military service throughout their military career and after they leave the military." The FY 2008 NDAA also established the Interagency Program Office to act as "a single point of accountability…in the rapid development and implementation of electronic health record systems or capabilities that allow for full interoperability of personal health care information" between the Departments. In accordance with its responsibilities, the IPO was assigned the task of measuring joint progress to date on VLER.

Table 3 lists requirements from Section 716 and a description of how they were addressed in this assessment by the ICIB and IPO.

Table 3: Joint Interoperability Assessment Activities

Paragraph from Section 716	Assessment Activities
(5A) the capability of the Department of Defense of meeting the requirements for joint interoperability with the Department of Veterans Affairs, as required by section 1635	To determine the definition of "full interoperability" under the provisions of the law, the Departments requested that the ICIB examine the existing DoD and VA data sharing capabilities to help identify gaps and determine a path forward to meet the requirements of Section 1635. Acknowledging that several levels of interoperability exist, the ICIB used the Center for Information Technology Leadership (CITL) Standardization Levels to define interoperability target levels.
(5B) the progress the Secretary of Defense and the Secretary of Veterans Affairs have made on the establishment of a joint virtual	The IPO provided an assessment of VLER initiatives to include an update on current and planned pilot efforts.

lifetime electronic record (VLER) for members of the Armed Forces.	

Results

Interoperability

The ICIB validated the Departments were already sharing significant amounts of clinical information to support the care of shared patients. Current DoD/VA data sharing initiatives include Federal Health Information Exchange (FHIE), Bidirectional Health Information Exchange (BHIE), Medical Image Sharing, and DoD Clinical Data Repository/VA Health Data Repository (CHDR).

- Since 2001, for separated Service members, DoD has provided VA with one-way historic information on more than 5.1 million retired or discharged Service members through FHIE. On a monthly basis DoD sends: laboratory results; radiology reports; outpatient pharmacy data; allergy data; consult reports; admission, discharge, transfer information; standard ambulatory data records; demographic data; and pre- and post-deployment health assessments.
- For shared patients being treated by both DoD and VA, the Departments continue to maintain the jointly developed BHIE system which was implemented in 2004. Using BHIE, DoD and VA clinicians are able to access each other's health data in real-time, including the following types of information: allergy, outpatient pharmacy, inpatient and outpatient laboratory and radiology reports, demographic data, diagnoses, vital signs, problem lists, family history, social history, other history, questionnaires, and Theater clinical data, including inpatient notes, outpatient encounters, and ancillary clinical data, such as pharmacy data, allergies, laboratory results, and radiology reports.
- To increase availability of inpatient information, VA and DoD collaborated to leverage BHIE functionality permitting VA providers to view discharge summaries from DoD's inpatient documentation system. As of March 31, 2009, access to DoD discharge summaries is operational at some of DoD's largest inpatient facilities representing approximately 70 percent of total DoD inpatient beds. In 2008, additional DoD inpatient note types became available to all DoD providers and VA providers in the Puget Sound area including: inpatient consultations; operative reports; history and physical reports; transfer summary notes; initial evaluation notes; procedure notes; evaluation and management notes; pre-operative evaluation notes; and post-operative evaluation and management notes. DoD will continue to implement the inpatient documentation system at additional sites in FY 2010.
- Since 2006, DoD and VA have been sharing computable outpatient pharmacy and medication allergy data through the interface between the Clinical Data Repository (CDR) of AHLTA, DoD's existing EHR system, and VA's Health Data Repository (HDR). This initiative is called "CHDR." CHDR integrates outpatient pharmacy and medication allergy data for shared patients, making this data available to providers in both Departments. Exchanging standardized pharmacy and allergy data on patients supports enhanced patient care and safety through the ability to conduct drug-drug and drug-allergy interaction checks using data from both systems. In December 2007, all DoD facilities received the capability to initiate exchange of this data on shared patients. In VA, seven locations (El Paso VA

Medical Center, Augusta VA Medical Center, Gulf Coast VA Medical Center, Puget Sound VA Medical Center, North Chicago VA Medical Center, San Diego VA Medical Center and Southern Nevada VA Medical Center) have the capability to initiate the exchange. Additionally, since any "active dual consumer" by either the VA or DoD can be flagged for both organizations to use CHDR, the real visibility for his is very high for both the DoD and VA. Once a patient is activated by either Department, a CHDR integrated view of data is viewable for that patient across both enterprises.

The ICIB also identified six high-level interoperability objectives that when added to existing capabilities would provide for full EHR interoperability for the provision of clinical care by the September 30, 2009, milestone date. These are summarized in below. Following the VA/DoD Health Executive Council's (HEC) approval of these ICIB interoperability objectives, the Departments established milestones to meet the mandated delivery date for the demonstration of the ability to achieve full interoperability. Achievement of these milestones was tracked and guided by the VA/DoD HEC Information Management/Information Technology (HEC IM/IT) Work Group. The six high-level interoperability objectives are:

- Share Social History – Refined – Baseline functionality was completed in November 2008, for one way sharing of social history data (DoD to VA). Specifically, during on-site joint testing, DoD validated electronic exchange of additional data types, e.g., patient questionnaires, family, social, and other patient history and evaluate system performance using BHIE, AHLTA, VistA, CPRS and VistA Web.
- Share Separation Physical Exam Data – This initial capability was completed May 2008 by a DoD to VA electronic exchange of separation physical exam data (radiology and laboratory results). For each health data reviewed and signed by a DoD provider through AHLTA, a VA provider was able to successfully select and review that same data through VA's Computerized Patient Record System (CPRS). This health data includes Outpatient Treatment Record; Inpatient Discharge Summaries; Ancillaries (laboratory, radiology, and pharmacy); and Deployment Health Assessments.
- Demonstrate Initial Trusted Partnership Gateways – Based on the results of a network capability analysis measuring inbound and outbound bandwidth, four new DoD/VA secure gateways to support expanded bandwidth requirements were established. Locations for those partnership gateways are Dallas, Texas, Kansas City, Missouri; Reston, Virginia; and Santa Clara, California.
- Expand Questionnaires/Self-Assessment Tools – DoD and VA completed initial capability using BHIE in November 2008. During joint validation testing, using BHIE, DoD demonstrated the ability to share Periodic Health Assessment (PHA) data captured in the Health Assessment Review Tool (HART) and viewable in VA's VistA Web and VistA CPRS.
- Expansion of Essentris Implementation in DoD – Following a deployment schedule detailing all implementation, training and integration testing, DoD coordinated with the Services to successfully deploy Essentris to one additional site per Service by September 2009.

- Demonstrate Initial Document Scanning Capability – On September 23, 2009, DoD and VA demonstrated the ability to electronically share and view scanned documents and artifacts between the agencies bi-directionally.

The Departments achieved all six ICIB interoperability objectives which were ratified by the Health Executive Council on October 5, 2009. The ICIB concurred. The DoD/VA IPO conducted an objective assessment of the Departments and concluded that these additional capabilities coupled with the current level of DoD and VA data sharing through the aforementioned interfaces (FHIE, BHIE, CHDR), allow for full interoperability of EHRs for the provision of clinical care between the Departments as mandated by Section 1635 of the NDAA for FY 2008.

VLER Progress

While VLER will eventually support medical, benefits, and administrative requirements, the current focus of VLER is on the exchange of health information. Over 50% of DoD beneficiaries and veterans receive health services from private sector providers. VLER is an initiative to enable DoD, VA and other government entities to exchange electronic health record information with each other and with private sector providers. The benefits of VLER include data exchange compliant with applicable security and privacy rules. This will lead to a reduction of duplication, better information for clinical decision-making and convenience for both clinicians and patients. As a result, VLER will ensure better care for our Service members, veterans, and their families.

The first phases of the VLER are focused on the exchange of health information using the NHIN, a set of internet based transport services and protocols, data standards, and a trust/security fabric that will allow Web based secure exchange of authorized health information between certified entities and systems. NHIN CONNECT is an open source software initiative sponsored by HHS/ONC/FHA. CONNECT provides a common gateway for health information exchange networks to send and receive health care data. DoD, which has a significant patient population, participates in the NHIN and CONNECT initiative, primarily sharing data with the VA and purchased health care providers through its TRICARE contracts. The CONNECT effort is detailed in the e-Gov Report To Congress under the Federal Health Architecture Line of Business (FHA LoB) as a collaborative effort to foster interoperability between health care systems across the nation.

This full technical stack of capabilities and agreements allows providers to query other NHIN member systems for authorized release of health information and receive a response when the request is authenticated. This will allow DoD, VA and other federal, state and private sector entities who have implemented the technical capability and signed NHIN membership agreements, to provide data interoperability between trusted partners in the federal, state and private sectors. DoD and VA have been active participants and leaders in development of NHIN. By providing a national standard for transport protocols and data exchange, NHIN will tie together health information exchanges, integrated delivery networks, pharmacies, government health facilities and payers, diagnostic laboratories, providers, private payers, and other stakeholders into a "network of networks." NHIN provides national standards-based information exchange capabilities for

previously unconnected EHRs and other sources of health care information to finally share information securely while protecting patient privacy.

VLER Execution Will be in Measurable Phases

In June 2009, the Joint Executive Council approved a phased implementation strategy for VLER, which will be executed in a series of measurable pilots carried out in defined six month intervals. The goal of each pilot is to deploy a set of new or refined capabilities that build upon existing ones in the VLER project. In aggregate, these capabilities will become the foundation necessary to allow development and implementation of a scalable production set of capabilities that will allow DoD and VA participation as unconstrained members of NHIN on a national level. The goal for implementation is by or before the end of calendar year 2012. The capabilities that each pilot will test will be based on the requirements for VLER health information exchange, which include standards development, technical and software capabilities as well as policy development or changes. They include the Continuity of Care Document (C32) and the Health Information Technology Standards Panel (HITSP) data set of standards for health information. Additional standard needs will be defined by the ICIB and HHS based on provider input and priority. Other capabilities includes refinement of standards definitions, upgrades to VA and DoD NHIN Adaptor software, Department of Health and Human Services/Office of the National Coordinator for Health Information Technology upgrade of the CONNECT Gateway for NHIN and automation of patient consent and correlation. In addition to the technical development are process needs such as more clearly defined onboarding requirements for NHIN participants. Other needs will be identified as a part of the piloting process, as the performance and limits of current approaches and capabilities are assessed within a pilot. This utilizes a spiral methodology for program/project development.

Phase 1a Pilot

VLER Phase 1a was approved for an initial NHIN Pilot in San Diego, California for health information exchange between DoD, VA, and Kaiser Permanente for selected Service members and veterans. During the Phase 1a Pilot, VA successfully exchanged patient data with Kaiser Permanente in December 2009 and DoD demonstrated the ability to exchange patient data using NHIN in January - 2010. The EHR data shared was a subset of a national data record standard, the Health Information Technology Standards Panel (HITSP) Continuity of Care Document "C32" and included patient information, emergency information, allergies, problems, active medications, and source of sending system.

As the first increment of VLER, the Phase 1a pilot successfully demonstrated the use of NHIN standards, including CONNECT software, as a viable means of exchange of health record data between DoD, VA and a private partner. Results of the pilot also indicate data exchanged through the NHIN can improve benefits delivered as well as advance the national health IT strategy in a local community. Using lessons learned in Phase 1a, DoD and VA were able to identify software improvements and needs that would increase their ability to exchange health information through the NHIN, and were also able to provide input back to the NHIN for future CONNECT software upgrades and improvements.

Phase 1b Pilot

The next increment of VLER, designated Phase 1b, will demonstrate the capability to exchange laboratory data with a target implementation date of July 31, 2010. The first part of the Phase 1b pilot will be implemented in the Tidewater area of Southeastern Virginia with DoD, VA, and a private sector partner. In the Virginia/Tidewater community, laboratory - hematology information will be exchanged in addition to the data exchanged in Phase 1a. For sites in two additional states, still to be determined, laboratory – chemistry data will be added to data that is being exchanged in the Virginia/Tidewater pilot by January 31, 2011.

The Departments are collaborating on solutions to meet DoD and VA mission requirements for future VLER phases. They are also working closely to ensure coordination and compliance with national health IT strategies. The goal is to utilize lessons learned from the VLER pilot programs to develop an extensible and scalable capability that can be implemented nationally.

Phase 1c Pilots

The next series of pilots will begin Second Quarter, FY 2011 in Spokane, Washington and San Diego, California (creating a new pilot that will overlay prior work). Other sites in the state of Washington will be added later in FY 2011. These pilots will look at using NHIN to exchange authorized health information with multiple providers in the private sector. Additional lab and patient information will be exchanged in fields currently being evaluated for approval. Testing of ongoing NHIN Gateway and Adaptor refinements will also be done. Additionally, work that is now ongoing with HHS to standardize the NHIN participation onboarding process will be implemented and assessed for efficiency. Automation advancements for patient consent and correlation will also be assessed.

Future Pilots

Future pilot sites are currently being assessed for FY 2011 and 2012 for the "three way" exchanges between the DoD-VA-private sector as well as "two way" sites for exchange between the DoD-private sector and the VA-private sector. Capability needs, requirements and goals will be defined in the spiral development that is ongoing with the plan of a national production deployment at or before the end of calendar year 2012.

In addition to full NHIN technical stack pilots, DoD and VA will also engage in other forms of health information exchange as a part of the NHIN and VLER portfolios. These are still being defined but will include subsets of NHIN for a direct push of authorized information between known providers of a patient and for direct downloads of patient information for a patient's personal use.

Program Management Assessment

Subject matter experts in program management, cost assessment, and acquisition career fields evaluated the Department's activities to estimate resource needs and procure goods and services. Table 4 lists requirements from Section 716 and a description of how they were addressed in this assessment.

Table 4: Program Management Assessment Activities

Paragraph from Section 716	Assessment Activities
(7) An assessment of the estimated resources required in future years to achieve optimal information technology support for health care clinical practice and quality and compliance with the requirements of such section 1635.	OASD(HA) and ODCAPE reviewed applicable areas of the FY 2010 budget and the FY 2011 budget request to determine whether sufficient resources were available or identified to support EHR needs.
(8) An analysis of the methods by which the Assistant Secretary of Defense for Health Affairs procures health information management and information technology goods and services, and of the appropriateness of the application of legal and acquisition authorities.	ODCMO evaluated the contracting and acquisition approach of OASD(HA) relative to the provisions of the Weapons System Acquisition Reform Act of 2009, the Subtitle III of Title 40 USC (also known as the Clinger-Cohen Act (CCA) of 1996), DoD Directive 5000.01 and DoD Instruction 5000.02.
(10) A recommendation as to whether health information management and information technology (IM/IT) systems of the Department of Defense should be included in and subject to the requirements of section 2222 of Title 10, United States Code.	ODCMO compared the statutory definition of "Defense Business System" and "National Security System" to the scope and intent of the EHR effort in order to determine which requirements should be applied.

Results

Resources

The FY 2011 budget request includes $302 million for the EHR modernization program and $40 million for the VLER initiative. Funds are requested for infrastructure work, risk reduction/pilot activities, such as EHR data sharing pilots and completion of the Wounded Ill & Injured spiral. Beyond FY 2011, the Department programmed notional amounts that will be refined. For the FY 2012 submission, the Department expects to submit a refined and fully funded EHR and VLER budget request reflecting decisions based on a completed AoA and approved Acquisition Decision Memorandum.

Acquisition

An assessment of the functional governance, contracting, and acquisition approach for EHR found all were sufficient. A governance structure embracing cross functional teams to address multiple cost, schedule, technical, and change management challenges expected within a procurement of this magnitude is in place and aligned to acquisition best practices. OASD(HA) and the Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)) are co-leading planned health IM/IT acquisition as per statutory and regulatory provisions of the Weapons System Acquisition Reform Act of 2009, the Subtitle III of Title 40 USC (also known as CCA), and DoD 5000 series. Requirements are being managed by the Joint Requirements Oversight Council and have been or will be validated by the Vice Chairman of the Joint Chiefs of Staff.

Sound acquisition methods are in place to manage requirements and contracting actions/activities. Contracting actions occur in accordance with an acquisition strategy approved by the Milestone Decision Authority as planned health IM/IT acquisitions formally enter into the Defense Acquisition System.

System Classification

10 U.S.C. Section 2222 classifies a DBS as an information system operated by, for or on behalf of DoD and not designated as a National Security System (NSS). Additionally, the Act stipulates a DBS includes financial and mixed systems, financial data feeder systems, and IT and information infrastructure. Section 44 U.S.C. 3542(b)(2) designates a NSS as an information system (including any telecommunications systems) which involves intelligence activities, cryptologic activities related to national security, command and control of military forces, equipment integral to a weapon or weapon system, or is critical to direct fulfillment of military or intelligence missions.

EHR procurement has a direct relationship with human resource activities of concern to the Human Resources Management Investment Review Board (IRB). It will also have an indirect impact on financial management matters of interest to the Financial Management IRB chaired by the Under Secretary of Defense (Comptroller) and the Real Property IRB chaired by USD(AT&L). From an NSS perspective, although the EHR will directly impact warfighting missions and is clearly of significant importance to the Warfighter, its overall functions are more closely aligned with business systems as described above. Considering integration points of EHR within the Business Mission Area, it is most appropriate to manage this capability as a business system.

Organizational Assessment

ODCMO tasked the Institute for Defense Analysis (an FFRDC) to conduct an assessment of the OASD(HA) organization. The FFRDC study team evaluated the necessary functions OASD(HA) must perform for effective governance and execution of programs within the MHS IM/IT portfolio. These functions were reviewed within the context of DoD's three main decision support systems:

- Joint Capabilities Integration and Development Systems (JCIDS);
- Planning, Programming, Budgeting and Execution System (PPBES); and
- Defense Acquisition System (DAS).

The resulting assessment provides an independent, high-level view of OASD(HA)'s capability to perform its duties. Table 5 lists requirements from Section 716 and a description of how they were addressed.

Table 5: Organizational Assessment Activities

Paragraph from Section 716	Assessment Activities
(9) An analysis of the capabilities of the Office of the Assistant Secretary of Defense for Health Affairs to carry out necessary governance, management, and development functions of health information management and information technology systems, including— (A) the recommendations of the Assistant Secretary for improvements to the Office or alternative organizational structures for the Office; and (B) alternative organizations within the Department of Defense with equal or greater management capabilities for health information management and information technology.	The FFRDC study team applied a previously developed assessment framework and used document reviews and interviews to identify and assess the functions necessary for governance, management, and development of health IM and IT systems. Governance functions included policy, vision, strategy, leadership, and adjudication practices. Management functions assessed included requirements, resourcing, and acquisition management. Functions supporting development of information systems included cross-program systems engineering. The study team identified a number of prior studies and activities concerning other organizations within DoD that might have equal or greater management capabilities for health information management and information technology. Further analysis is required to assess whether any of these alternatives would provide any significant improvement over the current organization.

Results

The FFRDC study team provided observations aligned with the assessment framework. Both OASD(HA) and TMA, operating as policy setter and executor respectively, have processes in place to carry out their mission with respect to the Central MHS IM/IT programs, though the implementation of these processes is unnecessarily complicated by the dual-hatting of several senior executives. OASD(HA) instituted a number of initiatives, some still under development, designed to improve business processes and encompass the entire MHS IM/IT portfolio.

Governance

- In accordance with existing DoD policies, ASD(HA) has formal authority to establish and maintain policy, vision, and strategy pertaining to MHS IM/IT, while the Director, TMA, has the responsibility to implement the policy. The recent MHS IM/IT Strategic Plan 2010-2015 and a draft Health Readiness Concept of Operations (CONOPS) provide strategic guidance coordinated with stakeholders through various boards and working groups. While stakeholders support this guidance, some expressed concern regarding a lack of visibility into decision-making and whether some larger decisions were made prior to engaging with stakeholders.

- MHS decision-making processes underwent substantial changes during the past few years. The consensus of those interviewed is that current practices represent significant improvements over the past, particularly in strategic planning, Central MHS IM/IT requirements and resource management and stakeholder participation in decision processes. The processes include defined membership with voting privileges at all levels with a well-delineated hierarchy of decision authority and adjudication. However, while practices appear to be working relatively well, some policies, processes, and board and working group charters are either missing or outdated. These processes and structures facilitate internal medical community discussions, but some described them as insular and not well connected with the larger IT or DoD communities.

- Available documentation describing the OASD(HA) and TMA organizations lays out roles and responsibilities between these two organizations. The ASD(HA) is dual-hatted, serving in a dual capacity in TMA (as its Director). Incumbents of four other positions within OASD(HA) are also dual-hatted. Commingling of the policy and execution functions under a single position is perceived by some to be an issue and does cause some confusion to those outside the organization. On the other hand, some feel that it may improve communication and cooperation between the requirements-setting and executing entities. The study team heard examples of both conclusions in interviews.

- Available documentation does not explicitly assign authority for development and maintenance of an MHS IM/IT EA to any organization or individual. Despite this absence of explicit authority, an MHS IM/IT EA does exist. The recent MHS IM/IT Strategic Plan highlights, as one of its top priority goals, expanding the scope of the EA from MHS IM/IT Central programs to encompass the entire MHS IM/IT portfolio. Some stakeholder comments did indicate a concern the EA should include workflow-level detail and describe future capabilities.

Management

- Processes appear to be well-aligned with JCIDS, PPBES, and DAS, including investment review processes and program manager quarterly reports for the Central MHS IM/IT programs. Management of requirements, resources and acquisition for Non-Central programs is predominately performed by the Services and TMA.

- The requirements definition process for MHS IM/IT is designed to provide extensive engagement of stakeholders throughout the process of characterizing capability gaps, and defining and prioritizing requirements for all MHS IM/IT programs. To date, it has only been used for Central programs. However, Service stakeholders expressed concerns their votes may not be given sufficient weight since the four Deputy Assistant Secretary of Defense votes may outnumber the three Service votes.

- OASD(HA) is responsible for the DHP budget, which includes MHS IM/IT, and has the authority to allocate DHP appropriated funds. However, portfolio visibility and the ability to manage funds allocated to the Services for Non-Central systems is limited. The MHS CIO is engaged in an effort to enhance MHS IM/IT portfolio management across the MHS enterprise by consolidating Central and Non-Central portfolios to provide visibility of the flow of funds and support decision making, collaboration, and strategic alignment across the entire portfolio.

Development

- While MHS OCIO appears to be well-documented, the area of enterprise-wide, cross-program integration is not addressed. Whether this office is staffed appropriately in terms of skill sets, headcount, and resources, particularly pertaining to Central versus Enterprise responsibilities was not evaluated in this study.
- The needs in this area are dependent on the character of the EA and technical framework, which are yet to be determined.

Alternative Organizations

The study team identified three existing organizations within DoD that may possess equal or greater management capabilities for health information management and information technology:

- ASD(NII)/DoD CIO/Defense Information Systems Agency (DISA): This option represents the combination of policy and operations within a single organization that has specific responsibility for information technology throughout DoD, as well as an established organization for acquisition oversight.
- DCMO/Business Transformation Agency (BTA): This option represents the combination of policy and operations within an organization that has general management and information technology expertise, as well as an established organization for acquisition oversight and experience with other enterprise-wide business programs.
- USD(P&R)/Defense Human Resources Activity (DHRA): This option represents a DoD Field Activity under the USD(P&R) that supports policy development, develops products and services, and administers a number of programs, including some with a significant IT component.

Each alternative organization offers expertise that can strengthen the implementation of the MHS IM/IT portfolio however OSD(HA) and TMA are best positioned to deliver the Health IT portfolio given they have more expertise delivering health care technology compared to the other organizations evaluated. The alternative organizations are positioned to provide engaged oversight to ensure OSD(HA) and TMA delivers the MHS/IT portfolio on time and within budget as part of the overarching governance process. These functions must remain separated to avoid conflicts of interest and to ensure appropriate checks and balances remain in place within the Department. Additionally, engaged governance will ensure requirements are scoped and balanced to meet user needs.

Conclusion

In performing the thorough analyses and assessments necessary to satisfy the requirements of this report, the Department identified several opportunities to improve management and execution of current health IM and IT programs. Significant risks that may impact the Department's ability to achieve its strategic goals were grouped into categories for mitigation. A cohesive plan of action was developed to facilitate executive-level oversight and promote transparency in measuring the Department's progress towards addressing all areas of concern. The Department will implement the mitigations cited in Appendix B of this report and ODCMO will closely monitor the status of individual milestones. Additional corrective actions will be taken as needed to ensure success in achieving the Department's goals.

The Department believes optimal clinical practices and health care outcomes can be achieved by satisfactorily addressing known gaps in current health care capabilities. A total of 69 gaps are documented in the EHR Initial Capabilities Document, which are covered in varying degrees by the reference architecture. The technical architecture is appropriate to deliver desired capabilities, and is currently leveraging the best practices of industry to the maximum extent possible. However, the Department's modernization activities are in their early stages, and vigilance is required as the program matures. Continued attention must be paid to alignment with standards as industry and the marketplace evolve.

The provisions of the NDAA FY 2008, Section 1635 interoperability milestone were successfully met by DoD and VA. Today, the Departments share more health information for clinical use than any other two health organizations in the nation. DoD and VA are committed to jointly implement improvements and enhancements supporting continuity of care for millions of Service members and veterans in FY 2010 and beyond. The end state for VLER provides Service members, veterans, clinicians, and officials unprecedented access to electronic record information across the public and private sector in a secure and authorized way. The first VLER pilot in San Diego, California significantly advanced the nation's experience with the use of NHIN standards and the Department's ability to further interoperability through successful data exchange. The results of the first phase are being leveraged in subsequent pilots to continue to increase the efficiency of data exchange and types of data being exchanged in additional communities.

In executing the Department's HIT modernization strategy, additional improvements can be realized through increased program management attention to communications, scheduling, and resource requirements across the entire portfolio of HIT initiatives. From the perspective of Departmental acquisition oversight, EHR will be classified as a DBS due to its close alignment with the Business Mission Area. USD(AT&L) will serve as the Milestone Decision Authority for EHR, while DCMO will lead the Overarching Integrated Product Team to monitor and advise on any Acquisition-related issues going forward.

The roles and responsibilities of senior leadership in OASD(HA) and TMA are defined and documented. In practice, however, certain individuals are assigned roles in both organizations. This

impacts the Department's ability to execute the separate oversight and implementation functions of each organization, and improvements are underway to reduce risk stemming from ambiguities in authority. A more detailed analysis of alternative organizations that could possibly perform some or all of the health IM/IT functions currently residing within OASD(HA) and MHS OCIO is necessary. In addition, the Department will complete a comprehensive review of positions performing both a policy development and execution function this FY, with the intent of eliminating the existing ambiguity through changes in organizational construct.

BPR efforts conducted in accordance with NDAA FY 2010 Section 1072 will assist in transforming how the Department views its responsibility to provide services focused on its customers, from the day an individual enters military service, throughout his or her military career, through the transition to veteran status and beyond. DoD and VA in coordination with the IPO are committed to working closely together to compare the capabilities needed and evaluate alternatives to current processes, policies, and IT. A disciplined process for reviewing and identifying potential opportunities for shared development or acquisition is in place to ensure the resulting capabilities support effective execution of the Departments' medical missions. A thorough AoA will occur as the Department modernizes its EHR capability and migrates from outdated legacy technologies to enable a more rapid, flexible, and scalable response to evolving national health care and computer industry standards.

Through a combination of stabilization and modernization activities, DoD's EHR capabilities will be enhanced over time. From a business standpoint, the future state of the Department's health IT investments will be achieved through a collection of capabilities delivered by the EHR Way Ahead, VLER, and JALFHCC initiatives. Increased interoperability will be realized both within DoD and across federal and private sector health care organizations. Each authorized setting that provides services – from Theater care units, military treatment facilities and VA Medical Centers to private sector providers – will have ready access to longitudinal records containing health care information. Expanded accessibility will facilitate and enhance the continuity of care for Service members, Veterans and dependents, ultimately improving the quality, safety, and efficiency of care and the timeliness of benefits determination and provision.

Appendix A: Summary of Assessment Results by Section 716 Paragraph

A high level summary of results from the Department's assessments, mapped to the requirements of Section 716, can be found in Table 6.

Table 6: Section 716 Paragraphs & Assessment Results

Section 716 Paragraph	Summary of Results
(1) An assessment of the capability of the enterprise architecture to achieve optimal clinical practices and health care outcomes.	Based on the functional and technical assessment, the HPT concluded the EHR Way Ahead EA is sufficient to realize capabilities listed in the EHR ICD and achieve desired outcomes.
(2) For each health information management and information technology program covered by the report, an identification and assessment of the risks associated with achieving the timelines and goals of the program.	The functional assessment evaluated whether the EA adequately supports the 67 capability gaps identified in the EHR ICD. 17 high risks, 12 medium risks and 38 low risks were identified. The technical assessment of the architecture identified two high risks, 27 medium risks, and seven low risks.
(3) A plan of action to mitigate the risks identified under paragraph (2).	Short term mitigations were identified and executed where possible. After initial mitigation, four high risks, eight medium risks, and 55 low risks remained in the functional assessment. Technical risks were downgraded to one high risk, five medium risks, and 30 low risks. A long term plan to mitigate all remaining high and medium severity functional and technical risks was documented.
(4) An assessment of the appropriateness of the health information management and information technology technical architecture and whether that architecture leverages the current best practices of industry, including the ability to meet the interoperability standards required by section 1635 of the Wounded Warrior Act.	The technical assessment revealed the maturity of the architecture is appropriate for its early stage in the DoD acquisition process. It is compliant with the DoD IEA at a fairly high level; however, it does not yet describe specific engineering or implementation details that will be associated with a solution architecture. Overall, it is compliant with and aligns to the DoD Net-Centric Data and Services Strategy. The EHR architecture incorporates best practices to the maximum extent possible based on its current level of maturity. It is interoperable with standards to develop, warehouse, and maintain EHR data across DoD, HHS, and the VA EAs.

Section 716 Paragraph	Summary of Results
(5) An assessment, in coordination with the Secretary of Veterans Affairs, of – (A) the capability of the Department of Defense of meeting the requirements for joint interoperability with the Department of Veterans Affairs, as required by section 1635; and (B) the progress the Secretary of Defense and the Secretary of Veterans Affairs have made on the establishment of a joint virtual lifetime electronic record (VLER) for members of the Armed Forces.	The joint interoperability assessment concluded efforts made by the Departments to complete six high-level interoperability objectives identified by the ICIB, when added to existing capabilities, allow for full EHR interoperability for provision of care as required by NDAA FY 2008, Section 1635. Both Departments are committed to implementing interoperability improvements and enhancements in their plans for FY 2010 and beyond. The Departments are collaborating on solutions to meet DoD and VA mission requirements. They are also working closely to ensure coordination and compliance with national health IT strategies. The joint goal is to utilize lessons learned from current and planned VLER pilot programs to develop an extensible and scalable capability that can be productized and implemented nationally.
(6) A plan to take corrective actions that are necessary to remedy shortfalls identified as a result of the assessments under this subsection.	Mitigations and milestones were documented for all significant risks identified in the functional and technical, joint interoperability, program management, and organizational assessments in this report. These mitigations and milestones are included in Appendix B. The Department will closely monitor progress in addressing all areas of concern to ensure success in achieving its goals.
(7) An assessment of the estimated resources required in future years to achieve optimal information technology support for health care clinical practice and quality and compliance with the requirements of such section 1635.	The FY 2011 budget request includes $302 million for the EHR modernization program and $40 million for the VLER initiative. The FY 2012 appropriation mix may be revised based upon the AoA results and after the approved Acquisition Decision Memorandum is issued in accordance with DoD policy.
(8) An analysis of the methods by which the Assistant Secretary of Defense for Health Affairs procures health information management and information technology goods and services, and of the appropriateness of the application of legal and acquisition authorities.	The program management assessment for EHR revealed no deficiencies in procurement methods, which were determined to be legally sound and in accordance with DoD policy.

Section 716 Paragraph	Summary of Results
(9) An analysis of the capabilities of the Office of the Assistant Secretary of Defense for Health Affairs to carry out necessary governance, management, and development functions of health information management and information technology systems, including— (A) the recommendations of the Assistant Secretary for improvements to the Office or alternative organizational structures for the Office; and (B) alternative organizations within the Department of Defense with equal or greater management capabilities for health information management and information technology.	The Department has studied the issue of consolidating or reorganizing MHS at least 17 times, culminating in the current structure that has been in place since November 2006. Efforts are underway to realign oversight responsibilities for the entire DHP IM/IT portfolio under the MHS CIO by mid-FY 2011. EHR will benefit from a CAE-appointed, certified program manager and chartered program management office by the end of FY 2010.
(10) A recommendation as to whether health information management and information technology (IM / IT) systems of the Department of Defense should be included in and subject to the requirements of section 2222 of Title 10, United States Code.	DoD considers health IM/IT systems to be DBS that should therefore be subject to the requirements of Section 2222 of Title 10.

Appendix B: Risks, Mitigations, & Milestones

Significant risks identified by each assessment team were catalogued and mitigations were developed. To assist in tracking implementation of corrective actions across all areas, milestones were also identified as appropriate.

Functional & Technical Assessment

The HPT originally identified 67 risks during the functional assessment, and mitigations were successfully implemented for the majority. Post-mitigation, however, several functional risks with medium and high scores remained. Table 7 lists these risks, associated mitigations, and any applicable milestones.

Table 7: Functional Risks, Mitigations & Milestones

No.	Risk	Mitigation	Milestone
F1	The medical logistics support capability gap is considered to be out of the scope of the EHR effort, which may adversely impact stakeholders that initially identified the requirement.	Current medical logistics IT capabilities are extensive and are deployed worldwide. The ICD requirement for medical logistics support includes resupply management, medical logistics inventory management, medical logistics assemblage management, hazardous medical materiel management (i.e., HAZMAT Pharmacy, medical waste), product identification and catalog. The EHR OV-1 Operational Node Connectivity on page 46 of the ICD identifies that "The Health Record itself consists of Inpatient, Outpatient, Behavioral Health, Occupational Health, Dental, Artifacts and Imaging, Laboratory, Radiology and Pharmacy records. The dark grey bi-directional arrow indicates that information is passed between the Health Record and Clinicians, Support Staff, Business, Transportation, Logistics, Readiness, the Beneficiary, and Other Health care Partners." The logistics capabilities specified in the ICD are currently provided by the Defense Medical Logistics Standard System (DMLSS). DMLSS is a fully deployed ACAT IAC program providing one standard DoD medical logistics system across the continuum of care from battlefield to tertiary care at all DoD medical centers. DMLSS wholesale applications are funded by DLA while DMLSS MTF and theater applications are funded by DHP. DMLSS provides fully integrated	Logistics requirements will be fully traceable from the ICD. Working Integrated Product Teams (IPT) will address medical logistics support requirements and use of ESB to leverage existing DMLSS capabilities. Medical logistics support will be fully addressed in various acquisition documents such as the Acquisition Strategy, Information Support Plan (ISP), System Engineering Plan (SEP), Business Process Reengineering (BPR) Certification, Test & Evaluation Master Plan (TEMP) and other Milestone B planning documents. All required capabilities will be fully traceable throughout the acquisition process. In addition, the medical logistics support capability will be fully addressed and reviewed in various forums leading to Milestone B and at the Milestone B IT Acquisition Board (ITAB).

No.	Risk	Mitigation	Milestone
		medical logistics functionality supporting full supply chain management. DMLSS Research, Development, Testing and Evaluation investment funding supports the addition of logistics capabilities addressing identified improvements requested by the functional community. Extensive logistics capabilities within the DMLSS program will be leveraged via information sharing using a standards-based messaging-engine Enterprise Service Bus (ESB). Connection via ESB will reduce the number of point-to-point connections required to allow applications to communicate on the basis of standards and provide flexibility, supporting many transport media. Use of ESB also reduces risks and costs inherent in maintaining numerous point-to-point connections.	
F2	The genomic health capability gap is considered to be out of scope for the EHR effort, which may adversely impact stakeholders that initially identified the requirement.	The ICD identifies Genomic Health (HHS roadmap to personalized medicine) as a capability ranked three (Not imperative, but beneficial) on a scale of one to three. Genomic testing and predictive medicine utilizing genetic information is an emerging clinical capability. The risk addresses the immaturity of the field of genomic health and the ability to provide tailored and personalized health care based on genomic information. Currently, only a limited set of genetic testing is available and used for personalized health care. EHR will have the ability to capture currently available genomic testing to assist in diagnostics and therapeutics. EHR will further have the capability to support emerging genomic testing, personalized health care, and predictive medicine (within ancillary services capability) as the field matures.	The capability for genetic testing, diagnostics and therapeutics will be fully traceable from ICD. EHR capabilities will support existing genomic health capabilities and provide flexibility to incorporate changes as the field of genomic health matures. This capability will be incorporated into system planning documentation and fully addressed and reviewed in various forums leading to Milestone B and at the Milestone B ITAB.
F3	The provider profiling capability gap is now considered to be out of scope for the EHR effort, which may adversely impact stakeholders that initially identified the requirement.	The ICD ranks provider profiling as a capability ranked three (Not imperative, but beneficial) on a scale of one to three. Provider profiling can be thought of as a means to reduce variation in practice patterns to promote the range of patterns that appears cost-effective. Provider profiling in this sense is educational. The approach seeks to establish a feedback loop for providers, describing their current practice patterns over patient populations and relating these patterns to the practice of their peers, and to establish benchmarks. The requirement for provider profiling and other analytical capabilities are planned for	All stakeholders concurred with using the EI/DS program to meet provider profiling capabilities. Closed.

No.	Risk	Mitigation	Milestone
		coverage in capabilities associated with the EHR capability. The EHR architecture will capture data needed for provider profiling, and pass that information to a data mart for aggregation with other information, such as data from the direct care system. The data mart will be used for provider profiling as well as other clinical and business intelligence functions. Analytical capabilities are provided today via the Executive Information and Decision Support (EI/DS) program. The EI/DS program aggregates data from current EHR, personnel, billing and other systems into a data warehouse and operational data marts and uses a suite of decision support tools to empower effective management of MHS health care operations. These tools provide a limited capability for provider profiling today. Functional stakeholders concurred with addressing provider profiling capabilities in the EI/DS program. EI/DS will use ESB for bidirectional connection with EHR	
F4	The specialty workflow/protocols capability gap is now considered to be out of scope for the EHR effort, which may adversely impact stakeholders that initially identified the requirement.	Specialty workflow/protocols are considered in scope for the EHR effort. Ongoing functional and architectural workgroups have identified specialty workflows for all clinical specialties. Confusion existed between specialty workflows and subspecialty workflows because, in many cases, subspecialty workflows did not differ from the parent specialty workflows, hence they were consolidated. All specialty and subspecialty workflows needs were incorporated into the architecture.	Complete.
F5	13 capability gaps are addressed by standalone solutions not integrated into the EHR architecture.	The legacy EHR family of systems includes integrated and standalone solutions. Legacy standalone solutions requiring integration will be integrated via ESB. Use of ESB reduces the need for expensive and complex point-to-point interfaces. The ongoing AoA will address the solution set for the future EHR capabilities. Specific solution set decisions will emanate from the selection of the preferred alternative from the AoA.	Working IPTs (WIPTs) will address all capability and integration gaps. These gaps will be fully addressed in various acquisition documents such as the ISP, SEP, BPR Certification, TEMP and other Milestone B planning documents. All required capabilities will be fully traceable throughout the acquisition process. In addition, integration will be fully addressed and reviewed in various forums leading to Milestone B and at the

No.	Risk	Mitigation	Milestone
			Milestone B ITAB.
F6	12 capability gaps are only partially addressed by the EHR architecture.	The maturity of the EHR Architecture meets or exceeds what would be expected for architecture at this stage of an acquisition program lifecycle. All capability gaps are addressed in the architecture. Complete coverage of the 12 capability gaps that are only partially addressed in the architecture depend on related ongoing acquisition planning efforts. One of the key planning documents that will drive several artifacts in the EHR architecture is selection of the preferred alternative in the AoA. As the AoA, and other program planning, continues to mature, the EHR architecture will continue to be updated and refined. All capabilities will be addressed in the EHR architecture. All capabilities identified in the ICD and CDD (when it is developed) will be completely addressed in the EHR architecture. Several architecture decisions and artifacts depend on specific functional and acquisition planning decisions. Once these decisions are made, the architecture will be updated to reflect these decisions.	Capability gaps that are partially addressed in the EHR architecture are dependent on other functional and acquisition planning documents, such as the AoA. WIPTs will address all capability and integration gaps. These gaps will be fully addressed in various acquisition documents such as the ISP, SEP, BPR Certification, TEMP and other Milestone B planning documents. All required capabilities will be fully traceable throughout the acquisition process. In addition, integration will be fully addressed and reviewed in various forums leading to Milestone B and at the Milestone B ITAB.

The HPT identified 36 total risks during the technical assessment, and mitigations were successfully implemented for the majority. After initial mitigations were put in place, several technical risks with medium and high scores remained. Table 8 lists these remaining technical risks, associated mitigations, and any applicable milestones. After the assessment was completed by the HPT, OUSD(P&R) identified two additional technical risks which are also included in Table 8.

Table 8: Technical Risks, Mitigations & Milestones

No.	Risk	Mitigation	Milestone
T1	The EHR architecture may not maintain compliance with DoD Information Enterprise Architecture as specific engineering and	The HPT confirmed the EHR architecture is currently in compliance with the DoD Information Enterprise Architecture. The EHR Architecture will continue to be reviewed by many of the members of the HPT via JCIDS, Defense Acquisition System events, WIPTs, system engineering and technical reviews, pre-milestone and milestone reviews and via Defense Business Systems reviews. These processes	The EHR architecture will continue to be monitored for compliance with the DoD Information Enterprise Architecture through WIPTs, periodic review of architectural artifacts, and detailed review in conjunction with each acquisition milestone, consistent

No.	Risk	Mitigation	Milestone
	implementation details are developed over time.	will continue to monitor the evolution of the EHR architecture for compliance with higher level architectures, relevant best practices, DoD policy and IT standards as the program progresses towards a set of solutions and their implementation through the DoD acquisition process.	with DoD 5000 and the Defense Business Systems Certification Process, including Business Enterprise Architecture compliance.
T2	The absence of an application architecture prevents an assessment of the system's agility, performance issues, availability and responsiveness.	Application architecture is dependent on selection of a preferred alternative in the EHR AoA. The preferred alternative will guide the development of application architecture. Continued collaboration with the functional community, DISA, vendors through Requests for Information (RFIs), and others with respect to decisions and analysis are part of the EHR AoA development process. The application architecture will be completed once the preferred alternative is selected in the AoA.	The agility, performance, availability and responsiveness of the application architecture will be assessed in conjunction with Preliminary Design Review (PDR) and Critical Design Review. The architecture will also be assessed in conjunction with each acquisition milestone, consistent with DoD 5000 and the Defense Business Systems Certification Process, including Business Enterprise Architecture compliance. The EHR architecture will continue to be monitored for compliance with the DoD Information Enterprise Architecture through WIPTs, periodic review of architectural artifacts, and detailed review in conjunction with the Preliminary Design Review.
T3	Business processes may not sufficiently address human-machine interaction, which could impact health care quality, the need for manual workarounds, and user acceptance of the system.	Effective human-machine interaction is a critical component of EHR acceptance by users. Human Systems Integration (HSI) will be addressed in several areas of the EHR program, including training, safety, design, etc. During the acquisition process, the EHR program will develop a comprehensive strategy for HSI to minimize cost and maximize performance. This strategy will be incorporated into acquisition planning documentation. Since the EHR program will likely deliver capability to users in small quick increments, HSI is particularly important. Rapid delivery of capability is beneficial to the user.	Human-machine interaction considerations will be incorporated into the EHR Program. EHR will adhere to HSI guidance in DoD 5000. HSI considerations will be incorporated into acquisition documents such as the SEP, TEMP, Acquisition Strategy (AS), Cost Analysis Requirements Description (CARD), etc. and reviewed in pre-milestone and milestone acquisition reviews. HSI factors will

No.	Risk	Mitigation	Milestone
		However, a rapidly changing human-machine interface can provide many challenges. Personalization options will be built into EHR to provide better HSI. For example, EHR will use a portal framework enabling new capabilities to be delivered in small increments via a new portlet. Placement of the portlets themselves can be tailored by the end user based on their clinical practices. Another example includes use of intelligent agents, which, based on a set of predefined parameters, periodically query EHR information to provide relevant and timely information to users. This may be in the form of alerts and warnings or reference a new Clinical Practice Guidelines. Testing of human-machine interaction will be reviewed at PDR and Critical Design Review and will be incorporated into Developmental Test and Evaluation, Operational Test and Evaluation, and alpha and beta tests in addition to Independent Verification and Validation. Feedback loops will incorporate changes based on user interactions and communications. In addition, performing robust BPR enforces the reference architecture and addresses HSI issues.	also be addressed in BPR planning and certification process.
T4	Non-uniform control of "last mile" policy may result in computing and communication resource unpredictability and conflicts.	Create a new medical community of interest (COI) as defined by the MHS 2.0 COI CONOPS. This MHS COI was fully planned and coordinated with DISA.	Implementation planned for 2nd Quarter, FY 2011.
T5	Inconsistent implementation of standards may result in interoperability problems.	The HPT confirmed the current EHR architecture complies with standards. This risk addresses the possibility that any program, in general, might inconsistently implement standards as it matures. Ongoing acquisition planning for the EHR program will continue to include consistent implementation of standards. Standards will be addressed in several WIPTs and included in information requirements in the AS, DoD CIO Confirmation of CCA Compliance, ISP, SEP, etc. In addition, consistent implementation of standards will be part of the evaluation criteria used in design reviews.	The HPT confirmed EHR consistently implements standards. Ongoing efforts to ensure continued implementation of standards will be included in appropriate acquisition documents such as the AS, DoD CIO Confirmation of CCA Compliance, ISP, SEP, etc. These documents will be prepared in conjunction with WIPTs and reviewed during pre-milestone and milestone reviews. Defense Business Systems Management Committee

No.	Risk	Mitigation	Milestone
			(DBSMC) Certification will also include adherence to standards as part of the architecture compliance review.
T6	A recent evaluation of commercial offerings indicates the marketplace needs to mature to more fully support several capabilities needed by the Department.	Commercial EHR capabilities continue to mature. Under the HIT provisions of the American Recovery and Reinvestment Act of 2009, incentives are provided for "meaningful use" of EHRs. These incentives will likely accelerate the breadth and depth of commercial offerings of EHR capabilities. DoD will continue to actively provide capability needs to the commercial marketplace, seek the most up-to-date information via RFIs and other mechanisms, and work with HHS to help evolve EHR standards and the EHR marketplace. Legacy Government-Off-The-Shelf (GOTS) systems may continue to provide needed capabilities as commercial offerings mature. DoD is one of the largest HIT consumers in the marketplace. DoD will continue to leverage that position to actively influence the market in order to mature capabilities required by DoD. The AoA was divided into two phases to enable detailed analysis of commercial and noncommercial offerings. The commercial marketplace will be assessed by interaction with vendors via RFIs and other mechanisms and site visits with actual users.	DoD will continue to influence and monitor commercial offerings in the HIT marketplace. DoD will maximize use of COTS in areas with mature commercial offerings. Evaluation of commercial offerings will be ongoing throughout the acquisition process. Key milestone areas include PDR and Critical Design Review. The AoA will also incorporate a complete analysis of commercial offerings.
T7	Four medium risks were identified in the area of data and services strategy compliance.	The HPT confirmed compliance with all data and services strategy requirements. The four medium risks are associated with any program as it matures past the MDD point. Data and service strategy compliance will be incorporated into appropriate acquisition planning and planning documents as they are developed. In addition, the data and service strategy must continue to be reflected in EHR architecture artifacts. Risk areas will continue to be addressed as the program progresses. MHS will continue to work closely with internal and external stakeholders to ensure solutions are aligned with DoD data and services strategy.	Data and service strategies will continue to be included in the EHR architecture and will be addressed in appropriate acquisition documents such as the AS, DoD CIO Confirmation of CCA Compliance, ISP, SEP, etc. These documents will be prepared in conjunction with WIPTs and reviewed during pre-milestone and milestone reviews. DBSMC Certification will also include data and services strategy compliance as part of the architecture compliance review.

No.	Risk	Mitigation	Milestone
T8	Two medium risks were identified in the area of IEA compliance.	The HPT confirmed compliance with IEA. The two medium risks are associated with any program as it matures past the MDD point. IEA compliance will be incorporated into appropriate acquisition planning and planning documents as they are developed. In addition, IEA will continue to be reflected in the EHR architecture artifacts. MHS established a robust governance structure to ensure continued compliance with IEA. IEA compliance is also reviewed in multiple external forums including DBSMC Certification, Critical Design Review, PDR, etc. MHS will continue to work closely with internal and external stakeholders to ensure IEA compliance.	Complete. IEA compliance will be addressed in appropriate acquisition documents such as the AS, DoD CIO Confirmation of CCA Compliance, ISP, SEP, etc. These documents will be prepared in conjunction with WIPTs and reviewed during pre-milestone and milestone reviews. DBSMC Certification will also include IEA compliance as part of the architecture compliance review.
T9	Eight medium risks were identified in the area of IA.	The HPT confirmed all MHS systems met and plan to continue to meet all IA requirements within DoD. An Acquisition IA Strategy will be developed in support of the EHR program. This strategy will detail the specific IA strategy for the EHR program. A robust governance structure is in place to ensure EHR is compliant with IA requirements and all MHS projects remain in compliance with IA requirements.	Complete upon approval of Acquisition IA Strategy. This strategy will be approved prior to Milestone B.
T10	Two medium risks were identified in the area of infrastructure.	The HPT confirmed the viability of current infrastructure planning. The two medium risks are specifically associated with details in the infrastructure plans contingent upon selection of the preferred alternative from the AoA. These risk areas will be addressed once the preferred alternative is selected.	The architecture and associated infrastructure planning is contingent upon completion of the AoA and selection of a preferred alternative. Infrastructure will be addressed in appropriate acquisition documents such as the AoA, AS, DoD CIO Confirmation of CCA Compliance, ISP, SEP, etc. These documents will be prepared in conjunction with WIPTs and reviewed during pre-milestone and milestone reviews. DBSMC Certification will also include infrastructure as part of the architecture compliance review.
T11	Seven medium risks were identified in the area of best practices.	The HPT confirmed EHR architecture compliance with best practices. The seven medium risks are associated with any program as it matures past the MDD point. Best practices will continue to be incorporated	Best practices will continue to be incorporated into the EHR program. Specific best practices will be addressed in appropriate acquisition

No.	Risk	Mitigation	Milestone
		into the EHR program. Best practices will be incorporated into appropriate acquisition planning and other planning documents as they are developed. MHS will continue to work closely with internal and external stakeholders to ensure best practices continue to be built into EHR way ahead plans.	planning and included in acquisition documents such as the AS, ISP, SEP, TEMP etc. These documents will be prepared in conjunction with experts via WIPTs and reviewed during pre-milestone and milestone reviews. DBSMC Certification will also include adherence to best practices.

Joint Interoperability Assessment

VLER offers the opportunity to build upon and enhance current DoD/VA information sharing and to electronically share information more effectively with each other and with private sector partners. Opportunities for information sharing will increase as the private sector adopts EHRs. The Departments in turn recognize the necessity to focus attention on a number of challenges associated with broader sharing of electronic information:

- Ensure security and privacy of patient information through implementation of HHS endorsed standards
- Work with NHIN participants to mature standards to eliminate ambiguities and adopt those standards in the phased implementation of VLER capabilities
- Update systems, infrastructure, and technology consistent with emerging standards
- Identify and prioritize information requirements for each phase of VLER
- Identify, prioritize, and implement common services for VLER as appropriate
- Develop and implement more efficient and automated identity management and patient correlation services
- Synchronize program execution practices between the Departments

Over the course of DoD/VA sharing initiatives, several lessons learned resonate across the projects and initiatives. At a very high level, these can be summarized as:

- Communication – Frequent and effective communication across the Departments is key

- Requirements definition – Clear requirements, developed, and coordinated across the Departments are needed
- Funding – Funding is needed before IT solution timeline and milestones can be firmly established
- Synchronization – Synchronization of priorities and funding across the Departments is needed to ensure success of interagency projects

Table 9 lists risks identified by the ICIB and IPO in performing this assessment, associated mitigations, and any applicable milestones.

Table 9: Joint Interoperability Risks, Mitigations & Milestones

No.	Risk	Mitigation	Milestone
J1	Participation in the VLER initiative requires close collaboration and coordination across two Departments and is therefore a complex undertaking.	DoD, VA and the IPO 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 (JEC), HEC and HEC working groups, and Benefits Executive Council (and BEC working groups) institutionalize sharing and collaboration across the Departments to ensure efficient use of services and resources for delivery of health care and other authorized benefits. In order to maximize necessary collaboration, the IPO in cooperation with DoD and VA established a VLER governance and communications structure with broad representation from the functional and IT communities. The VLER governance structure focuses interagency decision-making at appropriate executive, senior management and working group levels and facilitates Departmental execution of VLER. The governance structure also provides improved communications and collaboration with existing DoD/VA interagency groups, such as the HEC, BEC and the Wounded, Ill and Injured Senior Oversight Committee, and other interagency groups where VLER is also addressed. The VLER governance structure reports through the IPO to the JEC, with VLER Departmental co-leads also being JEC members.	The VLER Governance structure was established on April 9, 2010, and will continue to evolve to meet the interagency needs of the VLER initiative.

No.	Risk	Mitigation	Milestone
		• Joint Business Process – DoD and VA EHR capabilities will be implemented or updated over time as the Departments conduct joint BPR activities 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, health, and benefits information from the day an individual enters military service, throughout their military career, and beyond.	
J2	Incomplete understanding of the scope and integration points of various Departmental health care efforts such as EHR, VLER, and the JALFHCC may complicate collaboration.	**Maximize Joint Analysis between DoD and VA** – New efforts are underway to examine current efforts and maximize joint analysis of alternatives for new initiatives. Migration away from outdated legacy technologies will enable a more rapid, flexible and scalable response to evolving national health care and computer industry standards, and present potential opportunities for common capability development across the Departments. Conducting joint AoA process – as DoD and VA embark upon the modernization of their respective EHR systems, they will include and consider the other in reviewing alternatives to include approach, commercial products, common services and shared acquisitions or development The IPO maintains a virtual collaboration suite (VCS) to facilitate knowledge management and communications. Information, including internal and externally releasable communications, for the VLER and JALFHCC (North Chicago) projects are accessible through a single Web portal. The VCS portal features a cross functional team site to facilitate meeting synchronization and issue deconfliction. EHR will follow DBS and DoD 5000 acquisition processes including coordination and approvals throughout the program lifecycle.	As in J1, the VLER Governance was established on April 9, 2010, and will continue to evolve to meet the interagency needs of the VLER initiative and to address joint analysis activities. Develop robust Interagency Strategic Communication plans. The DoD and VA IPO VCS has been fully operational since March 12, 2010, and will include EHR artifacts as they are produced. DoD 5000 reviews and milestone decision points, along with DBS reviews, will guide EHR.
J3	Detailed tasks, resource needs, and interdependencies within	Detailed tasks and interdependencies are currently documented in the IPO VCS, as noted in the response to P1 in Table 10. DoD resourcing requirements (contractual and fiscal) are maintained within secure	The initial baselined joint DoD/VA integrated master schedule for VLER was published . The initial baselined joint DoD/VA Integrated

No.	Risk	Mitigation	Milestone
	DoD and across VA are not currently documented in a single location.	enclaves within the TMA OCIO domain, and are made accessible as required.	Master Schedule for JALFHCC North Chicago was submitted to the IPO on March 23, 2010 and published in VCS.

Program Management Assessment

Table 10 lists risks identified in performing this assessment, associated mitigations and any applicable milestones.

Table 10: Program Management Risks, Mitigations & Milestones

No.	Risk	Mitigation	Milestone
P1	Estimated costs to implement the EHR Way Ahead and associated capabilities that will be delivered are not widely understood.	The initial cost estimate was prepared in collaboration with OSD CAPE prior to completion of an AoA. This preliminary estimate was based on the capabilities identified in the ICD with assumptions that many of the capabilities would be met by use of COTS. This preliminary estimate was used as a budget wedge pending completion of a comprehensive AoA. Once the AoA is complete and a preferred alternative is identified, this preliminary estimate will be reevaluated in support of the Milestone B program estimate and associated Component Cost Analysis. Costs will be further detailed in the AS, CDD, CARD, etc. Final APB information will be approved by the MDA at Milestone B. The updated estimate will be more accurate since a preferred alternative will be identified. Costs will be based on factors such as software licensing, hardware purchases, appropriate software sizing methodologies for development and/or GOTS implementation costs. These cost, schedule and performance elements, as well as supporting analysis, will be fully reviewed by the Department and baselined as part of the Milestone B decision process.	Costs will be further detailed in acquisition documents such as the AS, CDD, CARD, etc. Final APB information will be approved by the MDA at Milestone B.
P2	A critical reprogramming has not been executed.	The reprogramming action required for FY 2010 was submitted by the Department to the Office of Management and Budget for submission to the Congressional Committees.	Reprogramming request was submitted to the Congressional Defense Committees.

Organizational Assessment

Table 11 lists the risk identified in performing this assessment, associated mitigations and any applicable milestones.

Table 11: Organizational Risks, Mitigations & Milestones

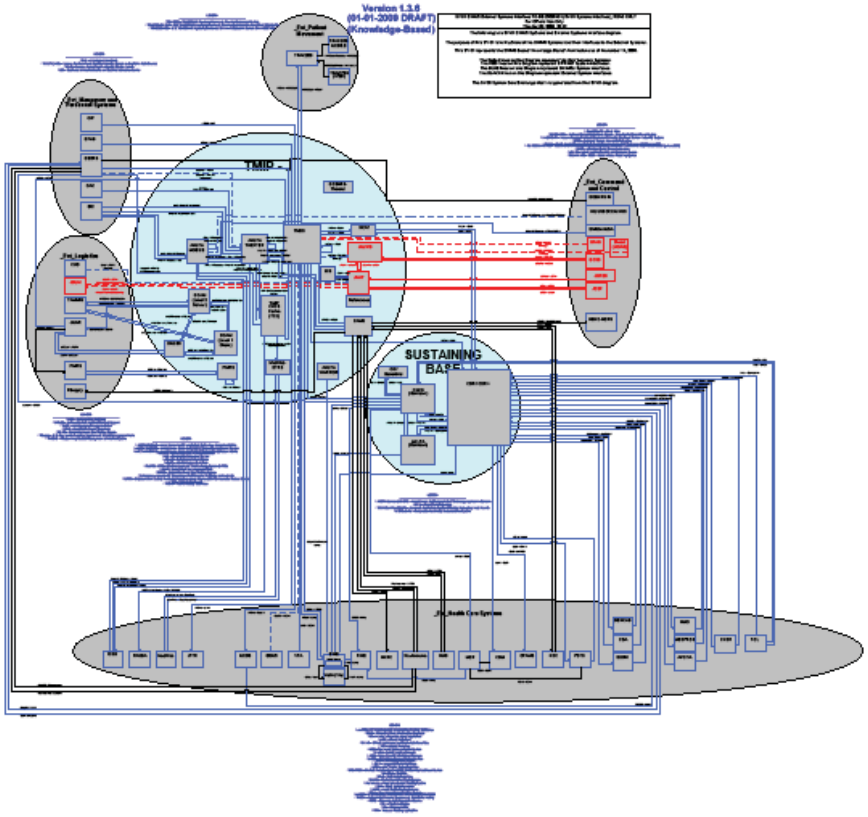
No.	Risk	Mitigation	Milestone
O1	Senior executives currently perform dual roles in policy development and execution organizations.	The Department will complete a comprehensive review of positions performing both a policy development and execution function with the intent of eliminating the existing ambiguity through changes in organizational construct.	4th Quarter, FY 2010
O2	A dedicated Program Manager has not been identified to lead the EHR Way Ahead.	A Program Planning Office in place 1st Quarter, FY 2010: • Planning Office Director has been appointed. • Planning Office Director is medical provider, has a Masters Degree in IT and is Program Management Level III certified. • Director holds bi-weekly meetings with all key stakeholders • Contract support in place supporting EHR planning office and PEO activities in support of EHR • Legacy EHR Program Manager promoted to Deputy PEO overseeing EHR Planning Office, legacy EHR, and infrastructure program office. New Deputy PEO has over 10 years directly managing ACAT I level HIT programs. EHR Program initiation anticipated 2nd Quarter, FY 2011 with Milestone B approval. • Program Manager, Deputy Program Manager, and Program Office will be in place no later than 4th Quarter, FY 2010 well ahead of 2nd Quarter, FY 2011 program initiation at Milestone B. • Current program planning staff will transition to Program Office as appropriate. WIPTs start date April 2010:	Program Manager appointed, 4th Qtr FY 2010 Program Charter approved, 4th Qtr FY 2010

No.	Risk	Mitigation	Milestone
		• Testing & Evaluation • Acquisition Strategy • Systems Engineering • Cost Requirements • Integrating IPT Integrated Master Schedule through Milestone B in progress as of 30 March 2010.	
O3	Nearly half of the MHS IM/IT budget is for systems under the management and acquisition processes of the Services and TMA, not those of OASD(HA).	The MHS CIO identified a five step transitional process to gain visibility and oversight over entire DHP IM/IT portfolio: 1. Conduct initial comprehensive review of all DHP IM/IT projects and activities 2. Expand enterprise portfolio management tool to non-central DHP IM/IT projects and activities 3. Align all DHP IM/IT projects and activities with appropriate functional governance 4. Assign program managers for all non-central DHP IM/IT project under appropriate Component Acquisition Executive oversight. 5. Manage all DHP IM/IT investments based upon enterprises strategic priorities. TMA is standing up an acquisition organization with a full-time Component Acquisition Executive (CAE). CAE authority has been delegated by the Director, TMA to a member of the senior executive service with Defense Acquisition Workforce Improvement Act Level III certification in both contracting and program management. This acquisition organization will provide the necessary acquisition oversight and management across the MHS IM/IT portfolio, inclusive of the Services and all TMA organizations that use DHP funds for acquisition of IT and acquisition of services.	Step 5 complete 2nd Quarter, FY 2011

No.	Risk	Mitigation	Milestone
O4	No office currently has the authority to synchronize activities across all systems within the MHS IM/IT portfolio.	As described in O3, the MHS CIO has identified a five step transitional process to gain visibility and oversight over entire DHP IM/IT portfolio.	Step 5 complete 2nd Quarter, FY 2011
O5	Vacancies and turnover in senior leadership positions may impact the organization's ability to achieve continuity.	Although MHS positions requiring a political appointment are not filled at this time. A nomination for the position of ASD(HA) has been made. Those serving in the capacity of "performing the duties of" and "acting" have extensive experience and expertise in the MHS and provide continuity for the organization. Additionally, most of the senior leaders with MHS IM/IT responsibilities have been in their positions for at least two years, enabling them to sustain organizational priorities. The collaboratively developed MHS IM/IT Strategic Plan 2010-2015 provides further continuity - laying the roadmap for the next five years.	Effective transition executed within 90 days of appointment/ selection for senior leadership positions.

Appendix C: Defense Health Services Systems (DHSS)

The DHSS Program Office develops or maintains the 26 joint automated information systems listed below. These systems are used throughout MHS in three major areas: clinical support, medical logistics and resources.



- Clinical Support:
  - The Centralized Credentials Quality Assurance System is a Web-based, worldwide credentialing, privileging, risk management, and adverse actions database maintained by MHS.
  - The Clinical Data Mart (CDM) allows analysts and clinicians to measure, analyze and manage performance of direct patient care. CDM is used for securely reporting actionable clinical data for MHS and provides access to clinical patient data from AHLTA's CDR, the global storehouse of direct care health records.

- The Military Health System Data Repository (MDR) is the centralized data store for DoD to capture, validate and distribute health network data 24/7 worldwide. MDR is the single point for data integration, data quality edits, health care data transfers and online and data storage.

- The MHS Insight is an exceptionally powerful, easy-to-use, Web application used for performance management. MHS Insight allows MHS to report real-time, actionable data by monitoring key data metrics used to increase performance accountability.

- The Management Analysis and Reporting Tool (M2) is a powerful ad hoc query tool used to manage and oversee operations from all MHS regions worldwide.

- The Nutrition Management Information System (NMIS) is a fully integrated nutrition management system supporting military readiness and the war fighter worldwide. NMIS enables MHS dietetics personnel to provide preventive and therapeutic medical nutrition and food management to service members and their beneficiaries.

- The Patient Safety Reporting (PSR) system enables standardized patient safety event reporting for MHS's direct care facilities. PSR will provide analytic tools to identify areas for patient safety and quality improvement initiatives to achieve goals for reducing the frequency and severity of medical safety events.

- The Special Needs Program Management Information System (SNPMIS) provides access to a comprehensive program of therapy, medical support and social services for young MHS beneficiaries with special needs.

- TRICARE Online (TOL) is an online portal for health care services, benefits and health information for MHS. TOL users can schedule appointments, order prescription refills and view their PHRs.

- Medical Logistics:

    - The Common User Database (CUD) assists the MHS in managing clinical workflow processes used to select medical surgical items, equipment and pharmaceuticals. CUD is a net-centric, medical materiel logistics and clinical patient encounter planning and standardization tool.

    - In peacetime or wartime, the DMLSS delivers an automated and integrated information system with a comprehensive range of medical materiel, equipment, war reserve materiel and facilities management functions for MHS.

    - The Defense Occupational & Environmental Health Readiness System-Hearing Conservation (DOEHRS-HC) is an information system designed to support personal auditory readiness and help prevent hearing loss through early detection.

DOEHRS-HC collects, maintains, compares and reports hearing readiness, deployment and hearing conservation program data for DoD personnel.

- The Defense Occupational Environmental Health Readiness System – Industrial Hygiene manages occupational and environmental health readiness data and actively tracks chemical and physical hazards for MHS.

- The Defense Medical Logistics Standard Support Customer Assistance Module (DCAM) allows MHS users to view and order from electronic supply catalogs. DCAM primarily supports the theater environment and allows non-logisticians to electronically download catalog data, place orders and obtain status.

- The Electronic Surveillance System for the Early Notification of Community based Epidemics is a Web-based MHS application that monitors and provides alerting for rapid or unusual increases in the occurrence of infectious diseases and biological outbreaks.

- The Joint Medical Asset Repository (JMAR) is a Web-based application that provides access to medical asset and transactional information for any user, any time, on any machine 24/7 for MHS. JMAR has been designated as the authoritative source for joint medical logistics information provided to the Asset Visibility system.

- The Patient Movement Items Tracking System (PMITS) is a MHS application that electronically tracks medical equipment used during aeromedical evacuations (AE). PMITS tracks the biomedical equipment needed and used to support critical patient life sustainment and monitoring during AE missions. PMITS is used by the Army and Air Force during peacetime, contingency and wartime operations.

- Resources:

  - The Coding and Compliance Editor (CCE) improves coding accuracy for inpatient and outpatient services rendered in MHS. CCE optimizes reimbursement through the use of expert coding and editing tools.

  - The Defense Medical Human Resources System – internet (DMHRSi) reports current and future human resource needs for MHS. DMHRSi identifies staff, where they work, filled and vacant positions, training records, and all hours charged to each work center.

  - The Expense Assignment System is a Web-based cost allocation tool that reports workload, expense and manpower for MHS.

  - The Managed Care Forecasting and Analysis System projects the number and location of people eligible for medical benefits within MHS.

- MHS Learn is an enterprise e-learning portal for training throughout MHS. MHS Learn's expanding collection of Web-based medically related courses is available worldwide to staff and beneficiaries.

- Patient encounter Processing and Reporting (PEPR) is a suite of Web applications used to analyze purchased care claims data generated for MHS. PEPR assists in the analysis and reporting of billions of dollars in purchased care costs and workload data worldwide.

- The Protected Health Information Management Tool is a Web-based tracking tool to store information about protected health information (PHI) disclosure, authorization and restrictions within MHS. It also allows patients to request PHI about themselves and permits agencies to request PHI on patients.

- The Third Party Outpatient Collection System (TPOCS) recoups money from private insurance claims for MHS. TPOCS collects over $200 million dollars in third party insurance payments annually for clinical, laboratory, radiology, pharmacy and outpatient medical claims. This revenue is sent directly from private insurance companies to individual MTF for use in enhancing health care services at those MTFs.

- The TRICARE Encounter Data (TED) records, collects, verifies, and tracks billions of dollars annually in purchased care claims for MHS. TED is a global leader in purchased care claims data records processing. Most TED records validate claim payments in less than 24 hours resulting in shorter billing cycles and reimbursements paid within 30 days, one of the fastest claims processing cycles in the health care industry.

Appendix D: Summary of the ICIB Criteria for Full EHR Interoperability in NDAA 2008

- ICIB Requirement 1: Refine Social History Data

  - **What did the Departments commit to do?**
    Begin sharing social history data currently in the DoD EHR with VA.

  - **What method should the IPO use to verify that the commitment was met?**
    Visual confirmation of the capability is required for verification. On June 5, 2009, the DHIMS Program Manager provided a project status briefing on the baseline functionality of the capability, which included screen shots of social history data that had been shared with VA. Screen shots available to the IPO provided evidence of social history data available in AHLTA and the corresponding data shared and viewed in VistaWeb. On October 5, 2009, the Departments briefed the HEC that the baseline functionality was completed in November 2008, for the one-way sharing of social history data (DoD to VA).

  - **What is needed from the Departments to complete the verification?**
    The IPO received screen shots from the Departments on June 5, 2009, which verify the requirement has been met. Nothing further is required from the Departments.

- ICIB Requirement 2: Share Physical Exam Data

  - **What did the Departments commit to do?**
    Provide an initial capability to share DoD EHR information that supports the separation physical exam processes with VA.

  - **What method should the IPO use to verify the commitment was met?**
    Visual confirmation of the capability is required for verification. On June 5, 2009, the DHIMS Program Manager provided a project status briefing that included screen shots of separation physicals shared with VA. The screen shots displayed the VistA CPRS view containing an AHLTA Outpatient Encounter Note, a Pre-Deployment Health Assessment, an Ancillary Data-Lab Results and a Discharge Summary. On October 5, 2009, the Departments briefed the HEC and stated that the capability was met.

  - **What is needed from the Departments to complete the verification?**
    IPO received screen shots from the Departments on June 5, 2009, which verify the requirement has been met. Nothing further is required from the Departments.

- ICIB Requirement 3: Demonstrate Initial Network Operation

  - **What did the Departments commit to do?**
    Demonstrate operation of the Partnership Gateways in support of joint DoD/VA health information sharing.

  - **What method should the IPO use to verify the commitment was met?**
    IPO requires network traffic metrics showing data flow at each new gateway to complete verification. On June 29, 2009, DoD reported in the DoD/VA Scorecard additional gateways were completed. DoD reported four new gateways in Kansas City, Missouri; Dallas, Texas; Reston, Virginia; and Santa Clara, California are operational and data migration efforts are well underway. DoD further reported on September 30, 2009, that 30 percent of data traffic had been migrated to the new gateway path as of September 2009.

  - **What is needed from the Departments to complete the verification?**
    From DoD: The IPO requires documentation demonstrating data flow and/or supporting network traffic metrics at each new gateway.

    Nothing further is required from VA.

- ICIB Requirement 4: Expand Questionnaires and Self Assessment Tools

  - **What did the Departments commit to do?**
    Provide all periodic health assessment data (HART) stored in the DoD EHR to VA in such a fashion that questions are associated with the responses.

  - **What method should the IPO use to verify the commitment was met?**
    Visual confirmation of the capability is required for verification. On June 5, 2009, the DHIMS Program Manager reported HART data was on target to be completed by September 30, 2009. On September 24, 2009, DoD briefed the HEC IM/IT Work Group and reported the enhanced PHA capability would not have question/response association. Rather, the PHA capability would enable VA providers to view a summary report of the findings similar to the summary report available to DoD providers who use AHLTA. On October 5, 2009, the Departments briefed the HEC and stated they successfully achieved the capability for VA providers to view information from DoD's health assessment reporting tool. As mentioned previously, on October 15, 2009, the ICIB accepted successful completion of the requirement, as defined on September 24, 2009.

  - **What is needed from the Departments to complete the verification?**
    From DoD: IPO requires screen shots of health assessment data in AHLTA.

    From VA: IPO requires a screen shot of the DoD Summary Report containing PHA data available to VA providers from VistAWeb or Remote Data Views (RDV).

- ICIB Requirement 5: Expand DoD Inpatient Medical Records System

  - **What did the Departments commit to do?**
    DoD expansion of Essentris to at least one additional site in each military medical department.

  - **What method should the IPO use to verify the commitment was met?**
    Verification that this commitment was met could be obtained through a site visit, and/or through receipt of screen shots from each of the three new sites to confirm the capability is available. DoD reported on the DoD/VA Sharing Scorecard dated September 15, 2009: "Units (other than ED and L&D) set to 'go live' in time for 30 September target." DoD stated in the HEC IM/IT Work Group briefing dated September 24, 2009 the Joint Strategic Plan goal was on track for the following sites: Travis Air Force Base, NH Bremerton and Leonard Wood Army Community Hospital. On October 5, 2009, the Departments briefed the HEC and confirmed that Essentris was deployed at the additional sites as stated above.

  - **What is needed from the Departments to complete the verification?**
    From DoD: IPO requires help facilitating a site visit for each new site to confirm the capability is available. The IPO will need to view health data for three inpatient (Essentris) records, one from each site, of a shared patient who has been discharged.

    From VA: IPO requires help facilitating a visit to a VA health care facility to view the Essentris discharge summary of each of the same three shared patients using VistAWeb or RDV.

- ICIB Requirement 6: Demonstrate Initial Document Scanning

  - **What did the Departments commit to do?**
    Demonstrate an initial capability for scanning medical documents of service members into the DoD EHR and sharing these documents electronically with VA.

  - **What method should the IPO use to verify the commitment was met?**
    IPO needs to witness a demonstration of the initial scanning capability to ensure the commitment was successfully met. The HEC IM/IT Work Group reported at the August 5, 2008, that development activities were underway, including initial site deployment, to demonstrate the capability in a "test environment" by September 2009. DoD reported to the HEC IM/IT Work Group on September 24, 2009, that a demonstration was held September 23, 2009, demonstrating DoD was able to: scan/import a scanned document into the EHR; associate the scanned document with a test patient; and save and query for the scanned document in the EHR. In addition, VA was able to query for the test patient; and query and retrieve the scanned document associated with the patient. Screen shots were provided in the briefing. In the October 5, 2009, HEC briefing, the Departments reported that DoD and VA met the objective to demonstrate an initial capability for scanning medical documents and sharing these documents electronically with VA utilizing a test environment.

  - **What is needed from the Departments to complete the verification?**

From DoD and VA: IPO requires screen shots of the bidirectional exchange of data between VistA Imaging and Healthcare Artifact And Image Management Solution from the Webinar. The IPO witnessed the demonstration of the initial scanning capability in a test environment, but requires screen shots to finalize the verification.

Appendix E: Acronym List

Acronym	Description
ACAT	Acquisition Category
AE	Aeromedical Evacuation
AHLTA	Armed Forces Health Longitudinal Technology Application
AoA	Analysis of Alternatives
AS	Acquisition Strategy
BEC	Benefits Executive Council
BHIE	Bidirectional Health Information Exchange
BPR	Business Process Reengineering
BTA	Business Transformation Agency
C&CI	Communications and Computing Infrastructure
CAE	Component Acquisition Executive
CARD	Cost Analysis Requirements Description
CCA	Clinger-Cohen Act of 1996
CCE	Coding and Compliance Editor
CDD	Capability Development Document
CDHR	Clinical Data Repository/Health Data Repository
CDM	Clinical Data Mart
CDR	Clinical Data Repository
CIO	Chief Information Officer
COI	Community of Interest
CONOPS	Concept of Operations
COTS	Commercial-Off-The-Shelf
CPRS	Computerized Patient Record System
CUD	Common User Database
DAS	Defense Acquisition System
DBS	Defense Business System
DBSMC	Defense Business Systems Management Committee
DCAM	Defense Medical Logistics Standard System Customer Assistance Module
DCIO	Deputy Chief Information Officer
DHIMS	Defense Health Information Management System
DHP	Defense Health Program
DHSS	Defense Health Services Systems
DISA	Defense Information Systems Agency
DISN	Defense Information Switch Network

DMHRSi	Defense Medical Human Resources System - Internet
DMLSS	Defense Medical Logistics Standard System
DoD	Department of Defense
DOEHRS-HC	Defense Occupational & Environmental Health Readiness System-Hearing Conservation
EA	Enterprise Architecture
EHR	Electronic Health Record
EI/DS	Executive Information and Decision Support
ESB	Enterprise Service Bus
FFRDC	Federal Funded Research and Development Center
FHIE	Federal Health Information Exchange
FY	Fiscal Year
GOTS	Government-Off-The-Shelf
HART	Health Assessment Review Tool
HEC	Health Executive Council
HEC IM/IT	Health Executive Council Information Management/Information Technology
HDR	Health Data Repository
HHS	Department of Health and Human Services
HIT	Health Information Technology
HITSP	Healthcare Information Technology Standards Panel
HPT	High Performance Team
HSI	Human Systems Integration
IA	Information Assurance
ICD	Initial Capabilities Document
ICIB	Interagency Clinical Informatics Board
IEA	Information Enterprise Architecture
IGCA	Inherently Governmental Commercial Activities
IM	Information Management
IPO	Interagency Program Office
IPT	Integrated Product Team
IRB	Investment Review Board
ISP	Information Support Plan
IT	Information Technology
ITAB	Information Technology Acquisition Board
JALFHCC	James A. Lovell Federal Health Care Center
JCIDS	Joint Capabilities Integration and Development System
JEC	Joint Executive Council
JMAR	Joint Medical Asset Repository

MDA	Milestone Decision Authority
MDD	Materiel Development Decision
MDR	Military Health System Data Repository
MHS	Military Health System
MTF	Medical Treatment Facility
NDAA	National Defense Authorization Act
NHIN	Nationwide Health Information Network
NMIS	Nutrition Management Information System
NSS	National Security System
OASD(HA)	Office of the Assistant Secretary of Defense for Health Affairs
ODCAPE	Office of the Director for Cost Assessment and Program Evaluation
ODCMO	Office of the Deputy Chief Management Officer
OUSD(C)	Office of Under Secretary of Defense (Comptroller)
OUSD(P&R)	Office of Under Secretary of Defense for Personnel and Readiness
PDHRA	Post-Deployment Health Reassessments
PEPR	Patient Encounter Processing and Reporting
PEO	Program Executive Officer
PHA	Periodic Health Assessment
PHI	Protected Health Information
PHR	Personal Health Record
PMITS	Patient Movement Items Tracking System
PPBES	Planning, Programming, Budgeting and Execution System
PPDHA	Pre and Post-Deployment Health Assessments
PSR	Patient Safety Reporting System
RDV	Remote Data View
RFI	Request for Information
SEP	System Engineering Plan
TED	TRICARE Encounter Data
TEMP	Test & Evaluation Master Plan
TIMPO	Tri-Service Infrastructure Management Program Office
TMA	TRICARE Management Activity
TOL	TRICARE Online
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology & Logistics
VA	Department of Veterans Affairs
VCS	Virtual Collaboration Suite
VLER	Virtual Lifetime Electronic Record
WIPT	Working Integrated Product Team