



DEPARTMENT OF DEFENSE / DEPARTMENT OF VETERANS  
AFFAIRS INTERAGENCY PROGRAM OFFICE

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# Defense Health Information Technology Symposium 2014

Defining the standard for interoperability with the VA and the private sector  
29 – 31 July 2014

**Mr. Brian Burns, SES**  
**Deputy Director, DoD/VA IPO**

# **"Delivering Data Interoperability Capability in DoD and Defining the Standard for Interoperability with VA and the Private Sector"**

# Learning Objectives

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- Define “interoperability” as it applies to health data
- Describe the role of health data standards in interoperability
- Describe the process being used by DoD/VA to expand their health data interoperability

- Interoperability Overview – What Is It and What Drives Us?
- Terminology Standardization Example
- Interoperability Evolution
- Why Pursue Health Data Interoperability?
- Who Sets the Standards?
- HHS Office of the National Coordinator for Health IT (ONC)
- ONC, DoD, and VA Collaborate for Interoperability
- Management of Health Data Interoperability

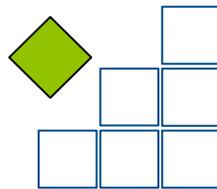
# Interoperability Overview

**Interoperability\*:** “the ability of two or more systems or components to exchange information and to use the information that has been exchanged”

*For interoperability, data needs to conform to standards for three distinct aspects:*



**Terminology**



**Content Structure**



**Exchange Methods**

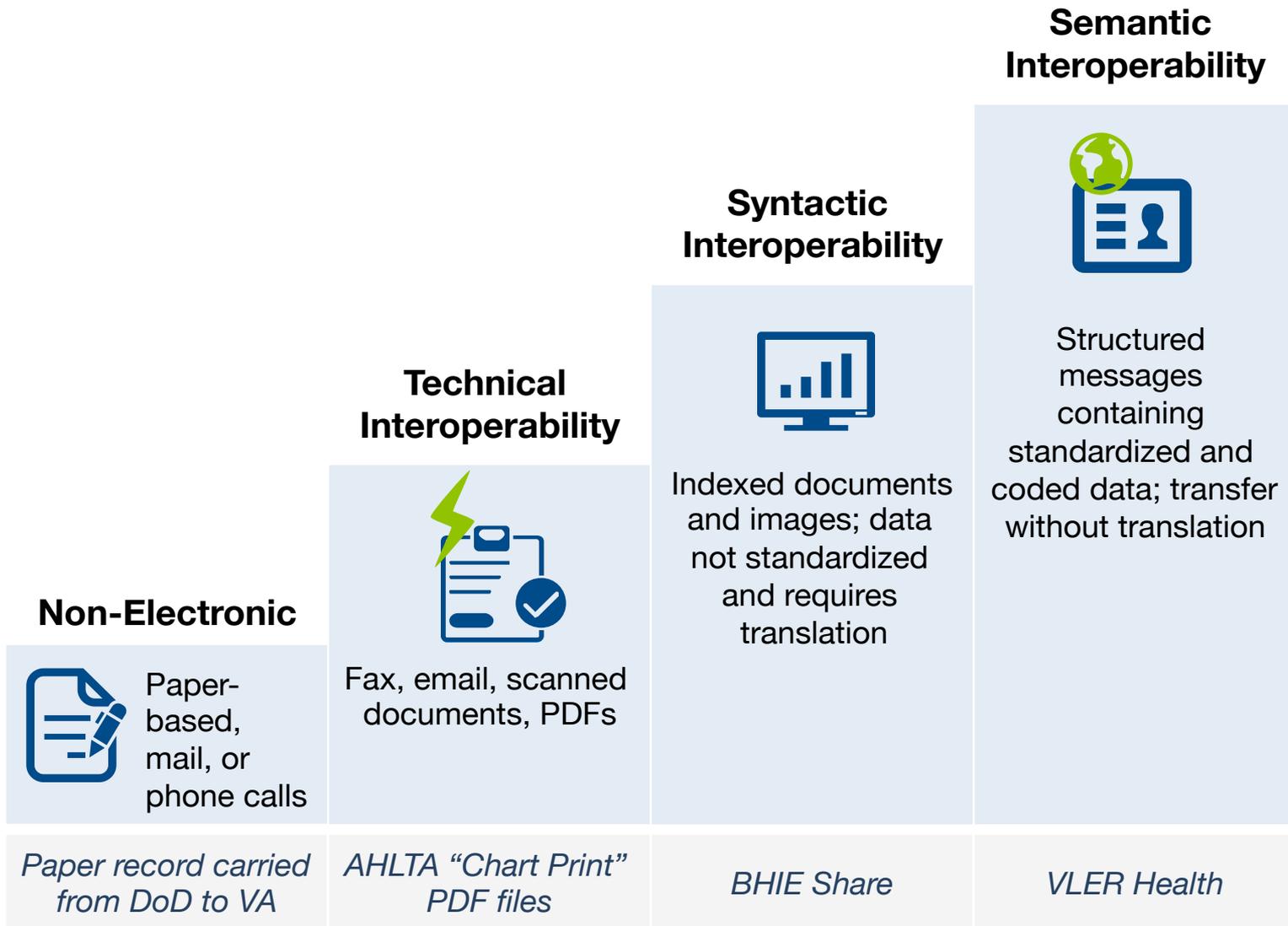
## ***NDA 2014 – Sec 713: Electronic Health Records of the DoD and VA***

*The Secretary of DoD and the Secretary of VA shall each ensure that the EHRs of the DoD and VA are interoperable with an integrated display of data, or a single EHR, by complying with the national standards and architectural requirements identified by the IPO of the Departments in collaboration with the Office of the National Coordinator for Health Information Technology of the Department of Health*

\*IEEE Standard Computer Dictionary: A Compilation of IEEE Standard Computer Glossaries (New York, NY: 1990).

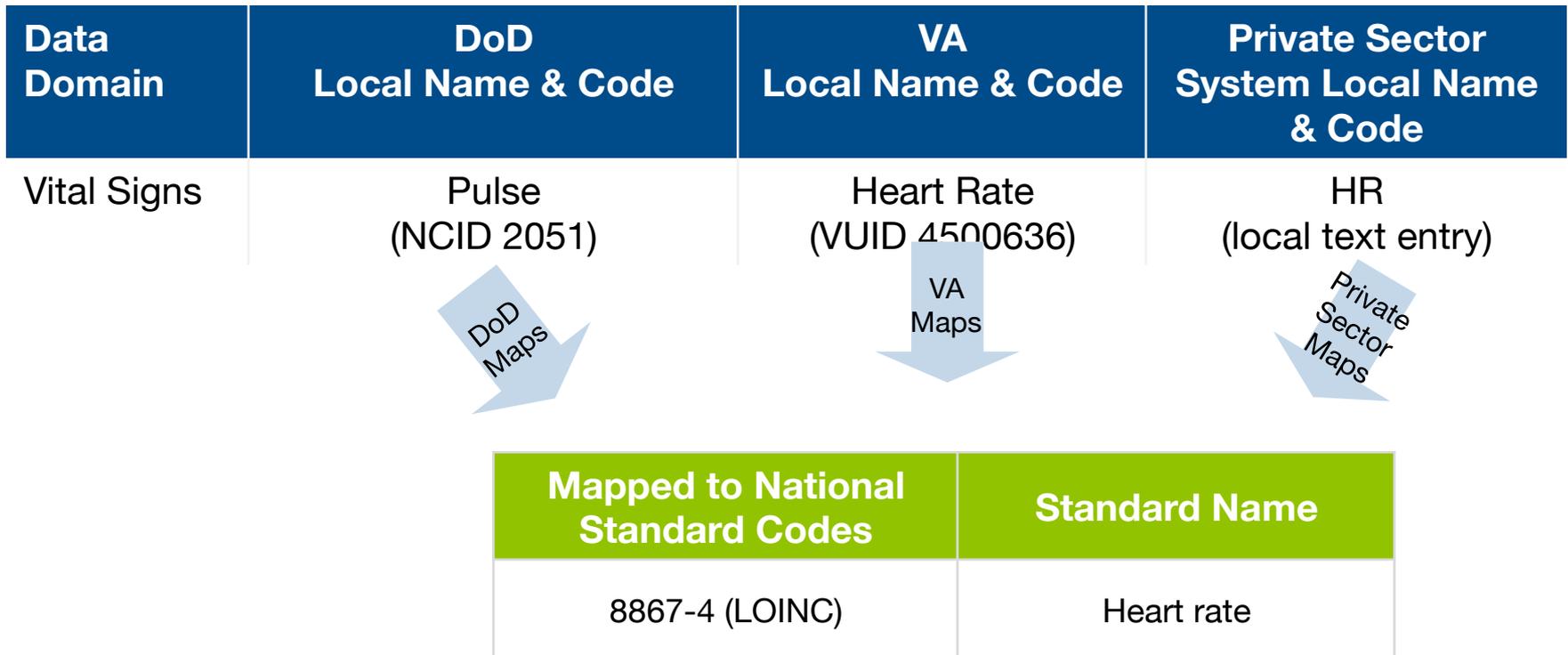
\*\*Center for Information Technology Leadership Reference: [https://www.ncoic.org/apps/group\\_public/download.php/19487/CITL%20HIEI%20Levels.pdf](https://www.ncoic.org/apps/group_public/download.php/19487/CITL%20HIEI%20Levels.pdf)

# Interoperability Evolution



# Terminology Standardization Example

***Semantically interoperable data is both exchanged between systems and normalized within a known context, so systems know if data has the same meaning***



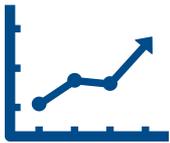
# Why Pursue Health Data Interoperability?



The new transformational power of **data** in our everyday lives is coming to medicine



We receive healthcare from multiple care providers across different health **networks** and geographic areas



Complete and accurate records during evaluations are key for **quality and efficiency** in healthcare

# Who Sets the Standards?



**23**  
*standards  
organizations*



World Health  
Organization

INTERNATIONAL HEALTH TERMINOLOGY  
STANDARDS DEVELOPMENT ORGANISATION



**LOINC**<sup>®</sup>  
*from Regenstrief*

# HHS Office of the National Coordinator for Health IT (ONC)

- **ONC** is the principal federal entity charged with coordination of nationwide efforts to implement and use the most advanced health IT and electronically-exchanged health information
- The **Federal Health Architecture** (FHA) is an E-Government Line of Business initiative managed by ONC
- The **Standards & Interoperability Framework** is one approach adopted by ONC's Office of Standards & Interoperability to enable harmonized interoperability specifications



# Collaboration for Interoperability



# Management of Health Data Interoperability

- **Determination**
  - Track and shape evolving HDI standards and federal healthcare policy
  - Select health data interoperability standards
- **Adoption**
  - Identify and prioritize business use cases
  - Provide HDI technical guidance, i.e. architecture, privacy, and security
  - Define monitoring and measurements associated with HDI objectives
- **Sustainment**
  - Perform monitoring and measurement
  - Perform external reporting
  - Perform configuration management
- **Implementation**
  - Incorporate selected standards into HDI capabilities
  - Perform end-end HDI functional verification
  - Deploy HDI capability



Questions will be taken after the  
Defense Medical Information Exchange (DMIX) Briefing  
“Delivering Data Interoperability Capability in the DoD”

# Contact Information

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- Mr. Brian Burns, SES  
*DoD/VA IPO Deputy Director*
- Ms. Camala Price  
*DoD/VA IPO Acting Chief of Staff*



# **Defense Healthcare Management Systems**

## **Defense Health Information Technology Symposium 2014**

**Delivering Data Interoperability  
Capability in the DoD**

**Mr. Craig Schaefer  
29 – 31 July 2014**



# Learning Objectives

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- Sustainment of Production Data Sharing Initiative
- Closeout of Directives
- Addressing Interoperability Goals



# EHR Modernization Guiding Principles

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-  Standardization of clinical and business processes across the Services and the MHS
-  Design a patient-centric system focusing on quality, safety, and patient outcomes that meet readiness objectives
-  Flexible and open, single enterprise solution that addresses both garrison and operational healthcare
-  Clinical business process reengineering, adoption, and implementation over technology
-  Configure not customize
-  Decisions shall be based on doing what is best for the MHS as a whole – not a single individual area
-  Decision-making and design will be driven by frontline care delivery professionals
-  Drive toward rapid decision making to keep the program on time and on budget
-  Provide timely and complete communication, training, and tools to ensure a successful deployment
-  Build collaborative partnerships outside the MHS to advance national interoperability
-  Enable full patient engagement in their health



# Agenda

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- Defense Medical Information Exchange Overview
- Current Data Sharing Tools
- Current State Organizational View
- Interoperability Strategy and Roadmap
- Recent and Ongoing Tool Enhancements
- Summary



# Program Overview

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## January 2014: Defense Medical Information Exchange (DMIX) established to:



*Support the seamless exchange of standardized health data among DoD, VA, other Federal agencies, and private providers*



*Provide the foundation for the modernized EHR (DHMSM) to access legacy data*



# Current Data Sharing Mechanisms

## Clinical Data Repository / Health Data Repository (CHDR)

**Since 2003:** DoD-VA bidirectional exchange of computable outpatient information, including drug interaction and allergies for patients who receive care from both DoD and VA facilities

## Bi-Directional Health Information Exchange (BHIE)

**BHIE Since 2004:** Real-time, read-only viewing of DoD and VA patient clinical data via BHIE Share, BHIE AHLTA, and BHIE DoD Adaptor  
**FHIE Since 2002:** Monthly transfer of discharged service members' clinical data from DoD to VA

## Virtual Lifetime Electronic Record (VLER)

**Since 2009:** Allows public and private sector health care providers secure access to a patient's health record. Enhances data sharing to create more interoperability inside and outside of the DoD and VA

## Joint Legacy Viewer (JLV)

**Since 2013:** Provides integrated view of standardized / normalized patient healthcare information, regardless of where data is stored in DoD and VA





# Interoperability Strategy

## Increment 1: Meet Congressional NDAA Requirements / Sustain Current Data Sharing

## Increment 2: Address Interoperability Goals

### Sustain Current Data Sharing

- Improve reliability of existing data sharing systems
- Initiate active system monitoring to improve clinician experience
- Sustain existing data sharing mechanisms

### Meeting Congressional Directives

- Comply with FY14 NDAA Guidance
- Deploy VLER Health Exchange to additional sites

### FY14-16 Data Exchange Capability

- Streamline multiple existing capabilities into a single, reliable data sharing mechanism
- Reduce redundancy
- Provide secure/reliable exchange of standardized health data with all partners



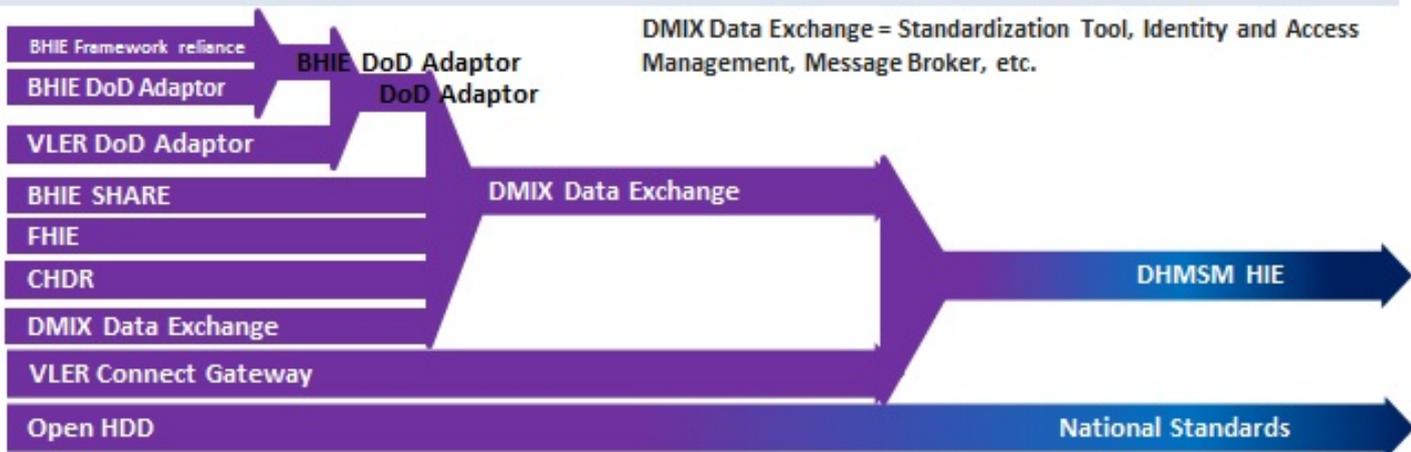
# Interoperability Roadmap



## Longitudinal Chart Viewer



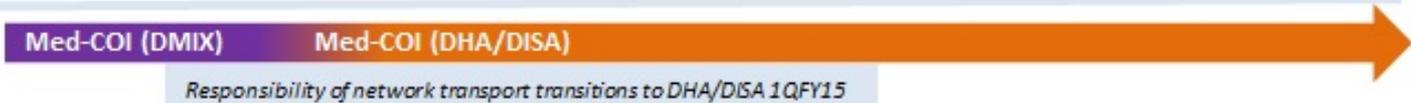
## Data Exchange & Infrastructure Services



## Terminology Standardization



## Network Transport



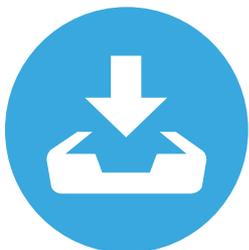


# Recent Systematic Deliveries

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## ***Delivered December 2013***

*(in limited use)*



### **VistA Data Service Upgrade**

Enables access of standardized VA healthcare data for 7 clinical domains for DoD beneficiaries



### **Data Management Service**

Allows DoD and VA clinicians to access federated data



### **Clinical Terminology Processing**

Correlates standardized and normalized DoD and VA data for 7 clinical domains

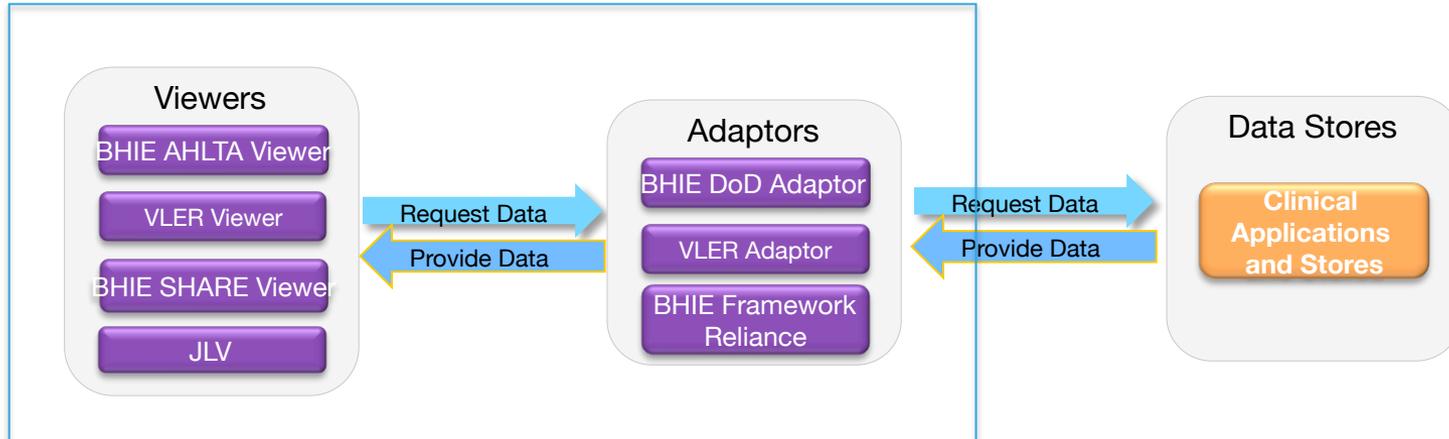


### **JLV Widgets**

Provide a standardized view for 7 clinical data domains



# Planned Systematic Deliveries (Increment 1)



## DoD/VA Data Sharing Updates

- Display additional integrated healthcare data in interoperability viewer (JLV)
- Expand viewer (JLV) access to 1,000 DoD users
- Implement Access Control for DoD and VA users

## Private Sector Sharing Updates

- Expand access to more DoD users
- Share patient data with private sector using health information exchange
- Support Social Security Administration's processing for disability claims



## Desired End State Architecture (Increment 2)



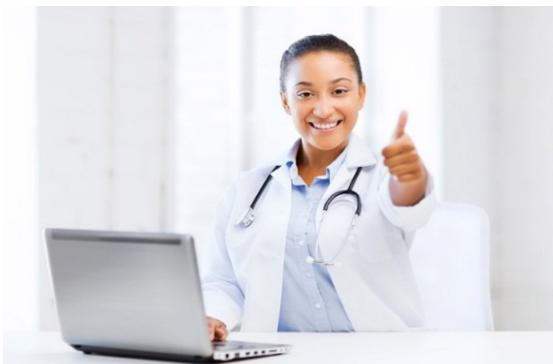
### Interoperability Roadmap Goals

- Health data follows the patient between systems/ facilities
- Clinicians have a single integrated view of health data in near real-time and a computable view
- Functionality is streamlined and provided to the end user for a finite amount of time where legacy systems and DHMSM co-exist



# Summary

**DoD's goal is a single, integrated view of a patient record, regardless of where care is originated or provided**





# Questions

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- **We will attempt to answer any questions government personnel may have**
- **For any vendors in the room, our answers should not be construed as requirements or clarifications above what is currently posted on FedBizOps**



# Other EHR Track Presentations

*Interested in learning more about DHMS' EHR efforts and the modernization process? Consider attending some of our other presentations.*

Time	Title	Presenter(s)
Wednesday 30 Jul 1410-1510	CMIO Panel <i>(DHMSM: Business Transformation and Functional Roles)</i>	COL Thomas Greig CDR James Ellzy LTC Angela Icaza Lt Col Mark Lamb
Wednesday 30 Jul 1410-1510	Acquiring & Deploying an EHR System	CAPT John Windom
Wednesday 30 Jul 1600-1700	DHMSM/DHA Deployment & Sustainment Strategy	Dr. Brian Jones Mr. Len Cayer Mr. Steve Harnig
Wednesday 30 Jul 1600-1700	DHMSM: Past, Present, & Future	CDR James Ellzy
Thursday 31 Jul 0930-1030	CMIO Panel	COL Thomas Greig CDR James Ellzy LTC Angela Icaza Lt Col Mark Lamb

Presentation slides will also be made available following the conference.



# Contact Information

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- **Mr. Lance Scott, Product Manager, Viewers**  
Lance.Scott@dha.mil



# Evaluations

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**Please complete your evaluations**

# IPO Backup Slides

# DoD EHR Modernization Guiding Principles

-  Standardization of clinical and business processes across the Services and the MHS
-  Design a patient-centric system focusing on quality, safety, and patient outcomes that meet readiness objectives
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-  Build collaborative partnerships outside the MHS to advance national interoperability
-  Enable full patient engagement in their health

# Who Sets the Standards?

Organization	Standards	Organization	Standards
American College of Radiology and National Electrical Manufacture Associate	DICOM	International Health Terminology Standards Development Organization	SNOMED CT
American Medical Association	CPT-4	International Organization for Standardization	ISO 3166 – Country Codes
American National Standards Institute Accredited Standards Committee X12	X12N	National Cancer Institute (NCI)	NCI Thesaurus
American Psychiatric Association	DSM	National Council for Prescription Drug Programs (NCPDP)	Script 10.6
American Society for Testing and Materials	CCR	National Library of Medicine & National Institutes of Health (NIH)	RxNORM, NDF-RT, UMLS, SNOMED CT
Centers for Disease Control and Prevention (CDC)	CVX, MVX (Vaccine)	National Uniform Billing Committee (NUBC)	UB-04 Health Care Provider Billing Code Sets
Centers for Medicare and Medicaid Services (CMS)	NPI, HPID/OEID, HCPCS, RARC	National Uniform Claim Committee (NUCC)	
Council of Affordable Quality Healthcare	CAQH Core	Public Health Data Standards Consortium (PHDSC)	PHDSC Source of Payment Typology
U.S. Food and Drug Administration (FDA)	NDC, MDR	Radiological Society of North America (RSNA)	RadLex
Health Level 7	HL7, CDA, C-CDA, CCD, FHIR	Regenstreif Institute	LOINC, UCUM
Institute of Electrical and Electronics Engineers (IEEE)	ISO / IEEE 11073	World Health Organization (WHO)	ICD

# Legacy Data and Standardization: Data domains and representative prioritization

Data Domain	Proposed National Standard Terminology (for primary data element)
Allergies (multiple types)	-Drug – UMLS CUIs (or RxNorm)                      -Food/Substance- UNII -Drug Classes- NDF RT
Medications	RxNorm August 6, 2012 Release
Immunizations	CVX
Problem Lists	SNOMED CT (US Ext) March 2012 edition
Vital Signs	LOINC vitals subset
Documents (many types)	LOINC Document Types
Results - Lab Chemistry & Hematology	LOINC v2.40
Results - Lab Anatomic Pathology	LOINC v2.40
Results - Lab Microbiology	LOINC v2.40
Results - Radiology Reports	Clinical LOINC
Encounter Data – Appointments	Encounter DXs – ICD-10 or SNOMED CT
Encounter Data – Admissions	Encounter DXs – ICD-10 or SNOMED CT
Procedures	CPT4/HCPCS or ICD-10-PCS (either)
Demographics	Ethnicity & Race – OMB/CDC Race codes Preferred Language -ISO 639-2 alpha-3 codes
Social History	SNOMED CT (including smoking status subset)
Family History	SNOMED CT 2012 edition
Scanned & Imported Paper Records & Non-Radiology Images	Clinical LOINC (for type); PDF-A, Text, JPEG, etc. for file type
Plan of Care- Pending Orders (multiple types)	-Med Orders (RxNorm)                                      -Lab Orders (LOINC) -Rad Orders (LOINC)    -Consult Orders (none)
Radiology Images	DICOM
Other Past Medical History (e.g., travel)	Uncertain (possibly SNOMED CT)
Payers	Insurance Types – LOINC
Questionnaires (general & standard instruments)	None/Uncertain
Pre- & Post-Deployment Assessments	None
Functional Status	SNOMED CT
Providers	Provider Types – NUCC Taxonomy
Advance Directives (metadata only)	SNOMED CT Advanced Directives Type
Medical Equipment	Uncertain-UMDNS-SNOMED CT
Additional C-CDA Clinical Data Elements	Will vary by data element



# DMIX Backup Slides



# DMIX Mission

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Acquire and deliver a cost-effective infrastructure and data interoperability capability to securely and reliably exchange standardized, normalized, and correlated health data with all partners through standard data / information exchange mechanisms. This will allow users in different places and organizations to access, use, and supplement healthcare data (technical interoperability) that has a shared meaning so that users (assisted by computers) are able to make healthcare decisions (Semantic Interoperability – Level 4).



# JLV Viewer

A viewer provides the ability for an end user to access and view stored information. The viewer is a graphical user interface and, in conjunction with a server or service, provides access control for authorized individuals using secure transport protocols and protects stored data.

Initial 7 Clinical Data Domains  
Data Federation Accelerators (Dec 2013) Release

8 additional normalized domains will be accessible by JLV for NDAA Compliance Release

Domains accessed by VLER for NDAA Compliance

Domains accessed by HAIMS for NDAA Compliance

- Allergies
- Documents
- Immunizations
- Results – Lab Chemistry & Hematology
- Medications
- Problem Lists
- Vital Signs

- Results – Lab Anatomic Pathology
- Results – Lab Microbiology
- Results – Radiology Reports
- Social History
- Family History
- Other Past Med History
- Plan of Care – Pending Owners

- Encounter Data – Appointment
- Procedures
- Demographics
- Payers
- Providers
- Scanned and Imported Paper Records
- Radiology Images

Encounter Data - Admissions

PEO DHMS