Data Quality and Interoperability of Identity Data in the Veterans Health Administration

ABSTRACT

The mission of the Veterans Health Administration (VHA) is to "Honor America's Veterans by providing exceptional health care that improves their health and well-being." VHA's vision is to "continue to be the benchmark of excellence and value in health care and benefits by providing exemplary services that are both patient-centered and evidence-based."

VA operates more than 1,100 sites of care, including 153 medical centers, 773 community-based outpatient clinics, and 260 VA Vet Centers (National Center for Veterans Analysis and Statistics, 7/30/10). More than 5.3 million people received care in VA health care facilities in Fiscal Year 2010 (VA Office of the Assistant Deputy Under Secretary for Health for Policy and Planning).

In this complex environment, the VHA Data Quality Program works to improve the quality of data, by enhancing the ability to share data required by VA clinicians for management of Veterans' care in various health care settings. This presentation will describe our work to improve data quality in the areas of internal and external data sharing.

BIOGRAPHY

Sara Temlitz
Business Product Manager
Office of Health Information, Health Data and Information, Data Quality Program
Department of Veterans Affairs

Sara Temlitz has been with the Department of Veterans Affairs for over 20 years, and has used her technical and analytical skills to further the growth of the electronic health record (EHR) and data quality within VHA. Currently, Sara is the Business Product Manager for the Office of Health Information, Health Data and Information, Data Quality Program. Sara holds technical responsibilities for all business aspects of Data Quality and Identity Management, coordinates the technical activities for data quality, as well as those of the Identity Management Data Quality team, including the facilitation of training; software development and data quality issue resolution related to data quality; identity management and any related applications, products, and services.

Sara is also involved with several other initiatives within VHA and with other business partners, including the National Committee on Vital and Health Statistics, the Industry Advisory Council (IAC) Collaboration and Transformation Shared Interest Group, Connecting for Health, Department of Defense and others.

Alice Cave
Program Analyst
Business Product Management
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Objectives

- Demonstrate how data quality is a critical component of the Department of Veterans Affairs (VA) interoperability initiatives
  - Provide an overview of Data Quality Program functions
  - Describe interoperability architecture
  - Summarize key VA interoperability initiatives and Data Quality Program role
- Focus on theory as well as practical applications

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Veterans Health Administration (VHA) Overview

- VHA Statistics
  - 6 million total unique patients treated in Fiscal Year (FY) 09*
  - 152 VA hospitals
  - 791 community-based outpatient clinics (CBOCs)
  - Over 308,300 VA employees in pay status
  - Nearly 115,000 health care professionals rotating through VA (FY 09)

- Mature and highly integrated electronic health record within Veterans Health Information Systems and Technology Architecture (VistA) which includes:
  - 100+ applications
  - Includes Computerized Patient Record System (CPRS)

- Extensive re-hosting and modernization underway based on a service-oriented architecture

Source: "VA Stats at a Glance", Produced by the National Center for Veterans Analysis and Statistics (008A3) , Veteran Population as of 09/30/10; VA Employ Pay Status Count 09/30/10; Veterans Affairs Site Tracking (VAST) 06/30/10; NCA as of 09/30/10; Office of Budget; Health Services Training Report FY09 ; * Includes Medical Care Cost Fund (MCCF).

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VHA's Data Quality (DQ) Program

Functional Areas within DQ

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Functional Areas within Data Quality

Healthcare Identity Management

- Responsible for integrity of patient identity data and the longitudinal health record within Master Veteran/ Patient Index (MVI/MPI).

- Supports VHA site personnel and is the primary liaison with the MVI/MPI.

Data quality stewardship

Business Product Management

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Functional Areas within Data Quality

Healthcare Identity Management

Clinical Data Quality

Data

Data Stewardship

- Establishes and formalizes accountability for the characteristics and management of VHA data.

- Ensures business stakeholders fully participate in decision-making regarding data essential to them.

Business Product Management

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Functional Areas within Data Quality

Business Product Management

- Ensures that business stakeholder data quality requirements are identified and communicated through appropriate processes.

- Reviews, monitors and resolves data quality issues.

- Performs data quality analysis on existing VHA administrative and health care data.

Healthcare Identity Management

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Functional Areas within Data Quality

Clinical Data Quality

- Develops clinical data quality guidance and operating policies for VHA.

- Establishes and maintains mechanism to identify, resolve and monitor clinical data quality opportunities.

Healthcare Identity Management

Data Stewardship

Business Product Management

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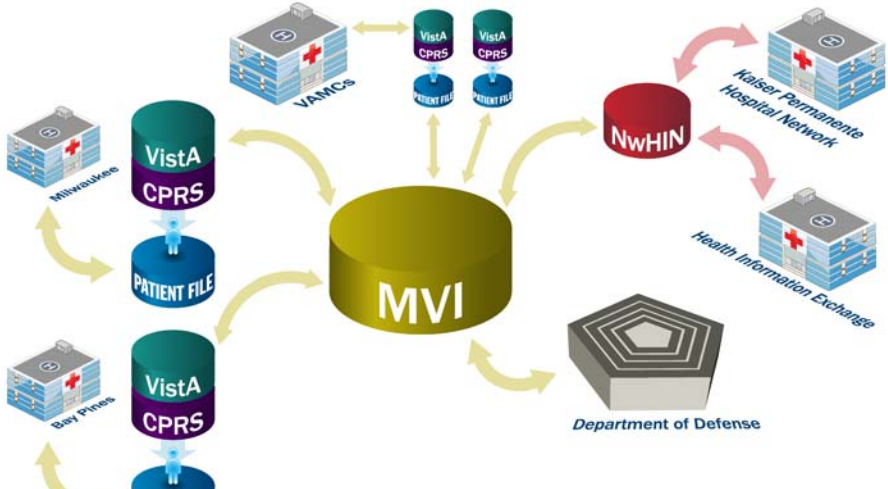
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VA's Master Veteran Index (MVI)

- Enables comprehensive evaluation and treatment of patients through enterprise view of the Veteran's health care data
- Provides:
  - Composite view of Veteran's longitudinal health record by correlating health care information from multiple, disparate sources
  - Interoperability between VA and sharing partners
  - Authoritative, accurate, consistent, verifiable and complete data

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VA's Master Veteran Index (MVI)

VAMC: VA Medical Center
CPRS: Computerized Patient Record System
VistA: Veterans Health Information Systems and Technology Architecture

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VHA Data Sharing

- Internal
  - Data sharing among VHA treating facilities
  - Veteran Relationship Management (VRM)
    - One identity management solution throughout VA (VHA, Veterans Benefits Administration (VBA), and National Cemetery Administration (NCA))
    - Provides one-stop service for Veterans
- External
  - Nationwide Health Information Network (NwHIN)/Virtual Lifetime Electronic Record (VLER)
  - Department of Defense (DoD)
  - Federal Health Care Centers (FHCC)

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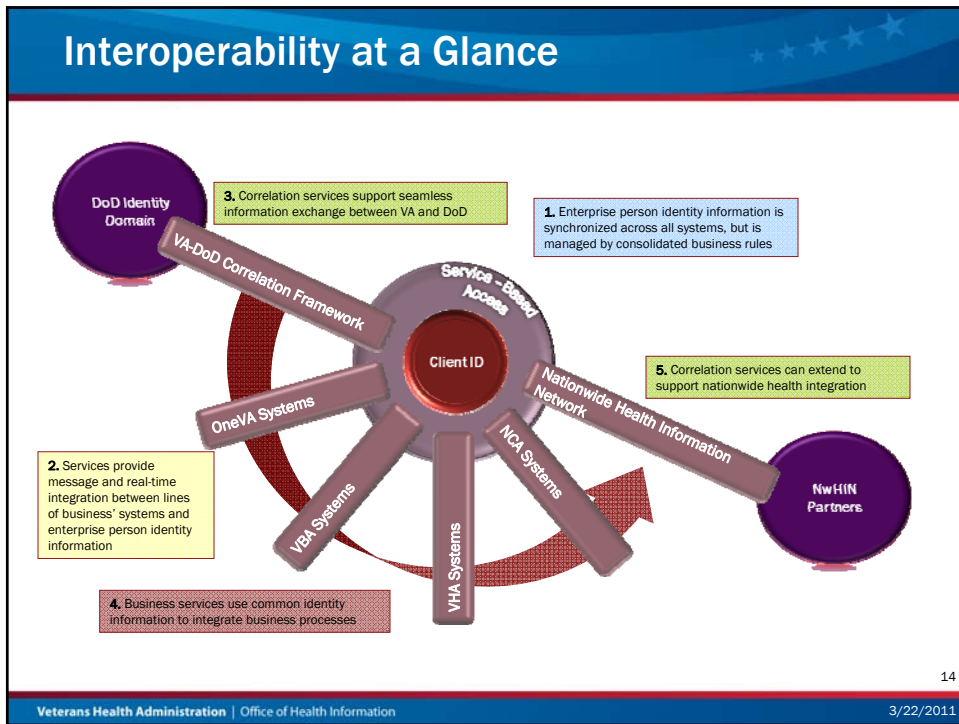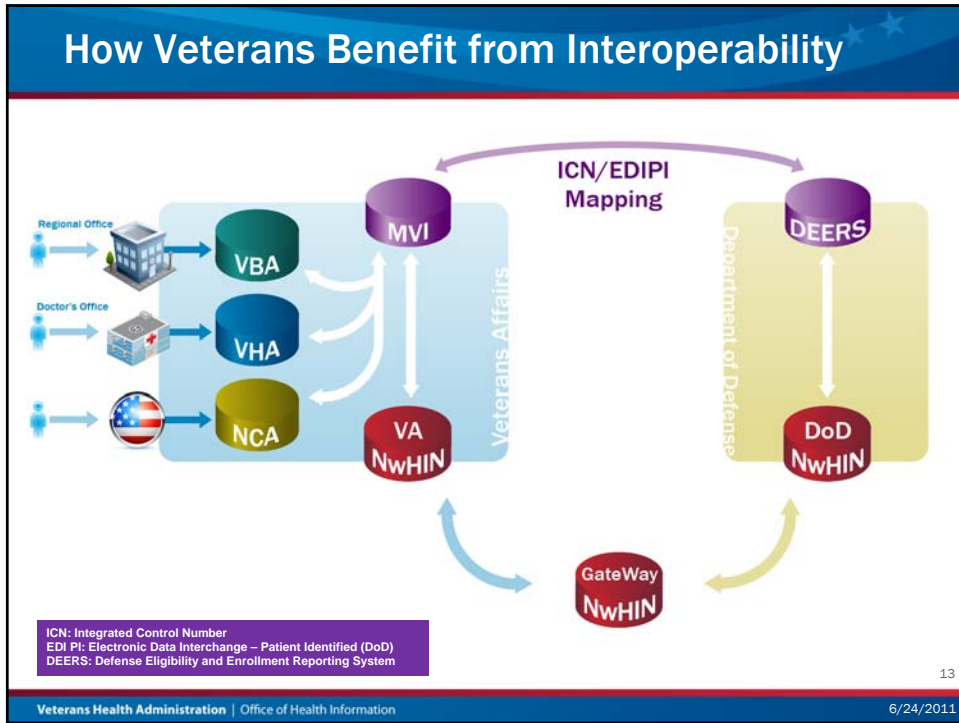Veterans Health Administration | Office of Health Information

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Interoperability and Data Quality

- The Institute of Electrical and Electronics Engineers (IEEE) glossary defines interoperability as the ability of two or more systems or components to exchange information and use the information that has been exchanged
- Along with ability to share data comes the ability to share and propagate data quality issues
- MVI at its best will not be 100% accurate so Data Quality (DQ) thresholds must be established to minimize the negative impact on interoperability

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How Veterans Benefit from Interoperability

ICN: Integrated Control Number
EDI PI: Electronic Data Interchange – Patient Identified (DoD)
DEERS: Defense Eligibility and Enrollment Reporting System

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Interoperability at a Glance

3. Correlation services support seamless information exchange between VA and DoD

1. Enterprise person identity information is synchronized across all systems, but is managed by consolidated business rules

5. Correlation services can extend to support nationwide health integration

2. Services provide message and real-time integration between lines of business' systems and enterprise person identity information

4. Business services use common identity information to integrate business processes

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Veterans Relationship Management

VRM will provide the capabilities required to achieve on-demand access to comprehensive VA services and benefits to enhance Veterans, their families, and their agent's self-service experience. Specific goals are to: Improve the speed, accuracy, and transparency with which information is exchanged between Veterans and VA. Provide multiple, consistent access channels for Veterans to communicate with VA. Develop and maintain resources for VA employees and their partners to provide quality service to Veterans and their families.

DQ Key Activities:

- Develop consistent methods to identify Veterans, beneficiaries, and stakeholders across the enterprise
- Enable the VA to assign a universal VA identifier to DoD Servicemembers on VA business need
- Identify and provide business requirements, applicable standards and best practices to guide integration of VBA, NCA, and non-compliant VHA systems into compliance with Master Veteran Index (MVI)
- Facilitate sharing of information between internal lines of business (LOBs) and external partners (e.g. DoD, NwHIN)
- Drive cross-agency activities supporting exchange of quality information

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Patient Search Business Rules

		Identity Management Service Attended Search Criteria											
		Patient - Probabilistic - Attended (Search Threshold and Above)											
		Searches for the Provision of Health Care											
		Scenario Number											
	Person Id Traits / Criteria	Max Score	1	2	3		4	5	6		7	8	9
1	Name	5.70											
a	First Name		x	x	x		x	x	x		x	x	x
b	Middle Name		x^1	x^1	x^1		x^1	x^1	x^1		x^1	x^1	x^1
c	Last Name	3.60	R	R	R		R	R	R		R	R	R
2	Social Security Number (SSN)	5.76	x				x	x	x				
3	Date Of Birth (DOB)	4.74					x				x	x	x
4	Gender	0.25	x	x	x						x		
5	Home Address (Street, City, , Zip)	4.80		x				x				x	
6	Home Phone				x				x				x
	Aggregate Score w/Exact Matches	>10.2	11.71	10.75	10.75		16.20	16.26	16.26		10.69	15.24	15.24
	KEY												
	Results		Persons returned from search based on the criteria supplied										
	R		Denotes required search criteria										
	X		Denotes required for optimized results										
	X^1		Denotes recommended (if available) for optimized results										
	blank		Denotes optional search criteria										
	10		Maximum number of results / None will be returned if results are more than 10										
	Max Score		Maximum score that can be attained from the matching algorithm for that trait (indicates an exact match)										

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Virtual Lifetime Electronic Record

The Virtual Lifetime Electronic Record (VLER) program will identify and implement the standards, protocols and service-oriented design methodologies that will enable the full electronic exchange and portability of health care records, as well as benefit and administrative information, in a secure and private format for Servicemembers and Veterans between DoD and VA as well as other public and private sector service providers.

DQ Key Activities:

- Lead VLER Identity Management workgroup efforts to uniquely identify an individual for the purposes of information, data sharing, and benefits delivery
- Provide guidance to VA and external organizations about identity management specifications and potential impacts to VA health records
- Establish business requirements, applicable standards and best practices to guide collaborations
- Support IT development and business process alignment efforts
- Manage and govern the integrity of the patient's enterprise identity and all related system record linkages including addressing any matching and correlation issues with local field staff as they arise

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Federal Health Care Center (FHCC)

FHCC is a landmark project that provides a transformational opportunity for federal health care, and represents the first known total integration of the health care delivery and operations of two distinct and separate health care organizations , VA and DoD. Through use of a Joint/Interagency Electronic Health Record interface, FHCC provides for the transparent processing of health information for clinical and business operations.

DQ Key Activities:

- Participate in work groups to ensure IT systems meet Healthcare Identity Management and Data Quality requirements;
- Provide data quality expertise, guidance and direction to support safe and accurate patient identification and information exchange; and
- Collaborate with VA and DoD technical and field staff to establish shared business rules and identify and resolve Data Quality issues.

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Data Quality Issue Management

Data Quality Issue: A problem regarding the data's ability to meet completeness, timeliness, consistency, accuracy, integrity requirements and expectations of intended users

Data Quality Scenarios:
- Wrong mailing address resulting in medications being delivered to wrong patient
- Incorrectly entered identity data leading to mis-identification of the patient
- Unmatched patient records resulting in duplicate lab tests

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Issue Management Continued

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Uses of Interoperable Data
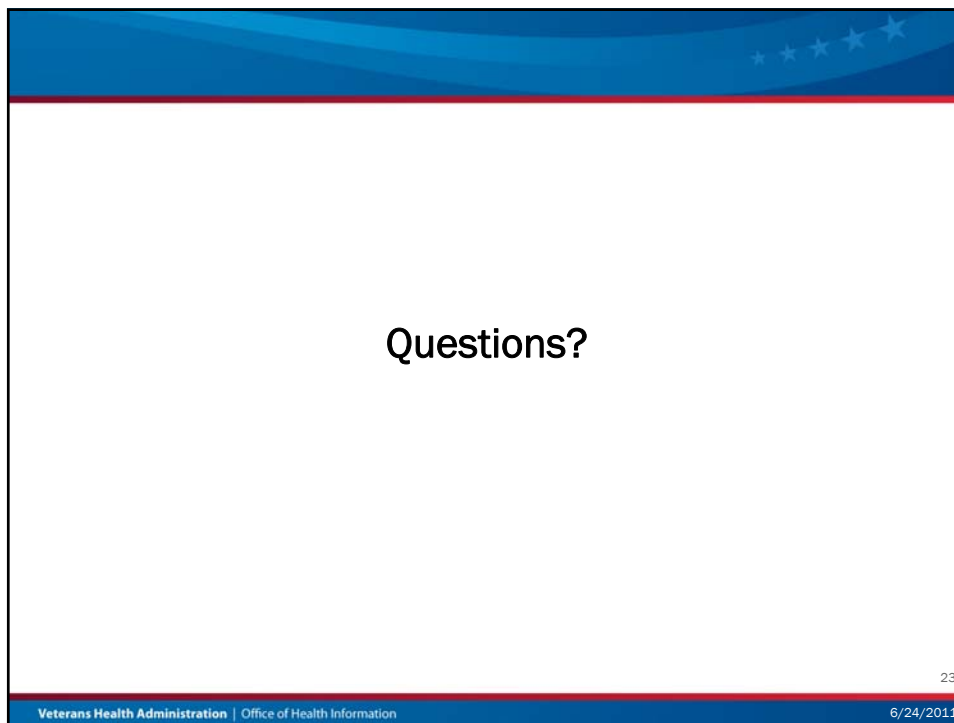
- VistAWeb
  - Web application utilized to review remote patient information

- Remote Data Interoperability (RDI)
  - Application within Electronic Health Record that facilitates retrieval of data from VHA facilities and DoD

- Consolidated Health Data Repository (CHDR)
  - Data exchange for Active Dual Consumers (ADC)

- My Health*e*Vet
  - Data collaboration between patients and VA providers

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Summary

- Comprehensive DQ program infrastructure is key to maintaining data integrity
- Data Quality is critical in interoperability initiatives
- Exchange of quality patient data enhances Veteran patient care
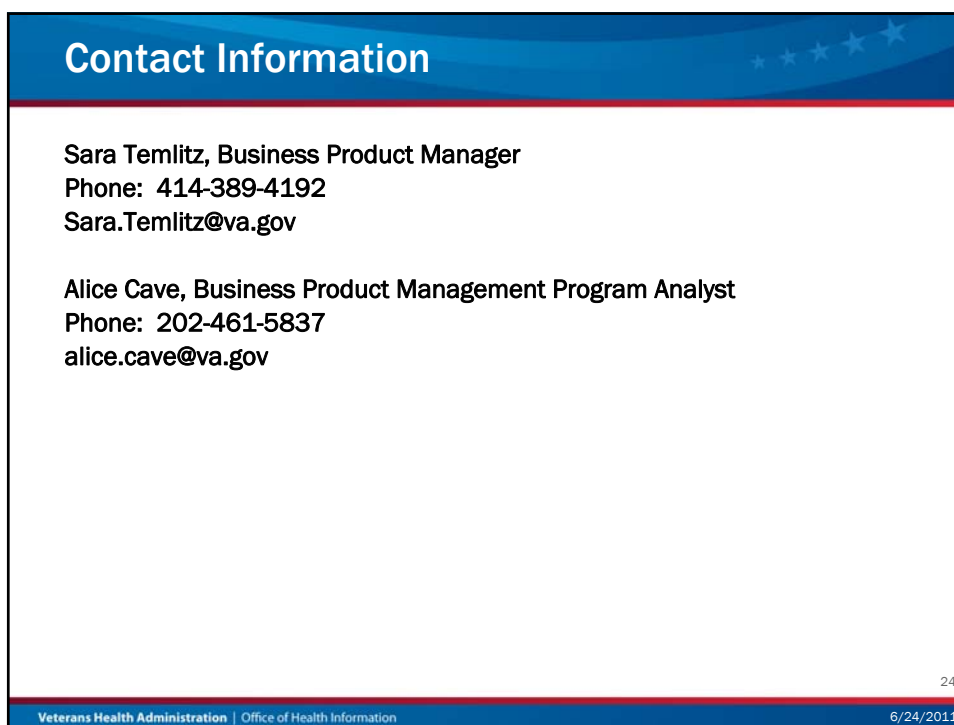
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Questions?

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