



Tri-Service Medical Information Symposium 2012

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Tri-Service Medical Information Management Symposium.**

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The Integrated Electronic Health Record, Virtual Lifetime Electronic Record and Data Sharing

Briefing to
Tri-Service Medical Information Management Symposium



February 19, 2012





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Learning Objectives



- Describe existing health data sharing initiatives that support improved healthcare delivery
- Explain the direction from the Secretaries of Defense and Veterans Affairs to pursue a joint, common platform that will allow a seamless transition of a Service member's medical information between the military healthcare system and the Veterans Affairs healthcare system
- Describe the synergies and common business processes already identified, including common data standards and data center consolidation, common clinical applications, and a common user interface



Agenda



- Current Electronic Health Record (EHR) Systems
- Current health data sharing
- What's next for EHR



Current EHR Systems



- Working to maximize speed, availability, and usability of the current EHR
- Supporting legacy systems to ensure timely access to and use of clinical systems

- AHLTA
- Essentris
- Composite Health Care System (CHCS)
- AHLTA-Theater
- Theater Medical Information Program CHCS Cache (TC2)
- Theater Medical Data Store (TMDS)



Current* Health Data Sharing



DoD

Data on Shared Patients

- Current Viewable Data
 - Outpatient pharmacy data, laboratory and radiology results
 - Inpatient laboratory and radiology results
 - Discharge summaries (58* DoD sites = 100% of inpatient beds)
 - 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 (58* DoD sites - available to all DoD providers and VA providers enterprise wide)
 - Allergy data and problem list data
 - Theater clinical data: Theater inpatient notes, outpatient encounters, and ancillary clinical data
 - Ambulatory encounters, procedures, and vital signs
 - Family, social, and other history, and questionnaires
- Current Computable Data (limited VA sites) – enables drug-drug and drug allergy safety checks and alerts
 - Pharmacy data
 - Medication allergy data

* Walter Reed AMC & Bethesda NNMC merged to form WRNMMC in Sept. 2011

Data on Separated Service Members

- Outpatient pharmacy data, lab and radiology results
- Inpatient laboratory and radiology results
- Allergy data
- Consult reports
- Admission, disposition, transfer data
- Standard ambulatory data record elements (including diagnosis and treating physician)
- Pre/post-deployment health assessments
- Post-deployment health reassessments

Data on OIF/OEF Polytrauma Patients

- Radiology images
- Scanned medical records

VA

All VA Medical Facilities

- 4.3 million correlated patients, including 1.9 million patients not in FHIE repository
- 148,140 average weekly FHIE/BHIE queries 1st qtr FY 2012
- Computable pharmacy and allergy exchange on more than 1,338,750

- 92.7 million lab results
- 15.0 million radiology reports
- 95.7 million pharmacy records
- 113 million standard ambulatory data records
- 5.2 million consultation reports
- 3.3 million deployment-related health assessments on more than 1.5 million individuals

5 VA Polytrauma Centers (Tampa, Richmond, Minneapolis, Palo Alto, San Antonio)

- Radiology images for more than 470 patients
- Scanned records for more than 570 patients

Two-way, on-demand view of health data available in real-time

Bidirectional Health Information Exchange
Live data flow beginning 2004; data from 1989 forward

Viewable data exchange between all DoD and VA medical facilities as of July 2007

One-way, monthly transfer of health data

Federal Health Information Exchange
Live data flow beginning 2002; data from 1989 forward

Health data on more than 5.8 million Service members

One-way transfer of health data initiated at time of decision to transfer patient

Live data flow beginning March 2007

From Walter Reed National Military Medical Center in Bethesda and Brooke AMC

*As of Jan 2012

Current Health Data Sharing



James A. Lovell Federal Health Care Center

December 2010

- Infrastructure
 - Data Center
 - Virtualization
 - Enterprise Service Bus
- Build a Single Patient Registration process
- Create Medical Single Sign-On with Patient Context Management

Fiscal Year 2012

- Single Order Entry process for Laboratory



PROUD TO PARTNER



Fiscal Year 2011

- Single Order Entry process (orders portability) for Radiology
- Single Graphical User Interface (GUI)

Defer to iEHR

- Pharmacy

Current Health Data Sharing



VLER Health -- Pilots

Six Month Increments

San Diego Pilot

January 31, 2010

- **Health Record Data:**
Healthcare Information Technology Standards (HITSP) C32 subset:
 - Allergy/Drug Sensitivity
 - Condition
 - Healthcare Provider
 - Information Source
 - Language Spoken
 - Medication
 - Person Information
 - Emergency Contact
- **Partners:**
 - San Diego VA Medical Center
 - Naval Medical Center San Diego
 - Kaiser Permanente in San Diego

Tidewater Pilot

September 15, 2010

- **Health Record Data:**
 - HITSP C32 subset (from San Diego)
 - Comment
 - Hematology Lab Result
- **Partners:**
 - Naval Medical Center Portsmouth
 - VA Medical Center Hampton
 - Med Virginia

November 16, 2010

- **Additional Partners:**
 - McDonald Army Health Center (MCAHC), Fort Eustis
 - 633 Medical Group, Langley AFB

Spokane Pilot

March 25, 2011

- **Health Record Data:**
 - HITSP C32 subset (from Tidewater)
 - Vital Sign
 - Chemistry Lab Result
- **Partners:**
 - 92nd Medical Group, Fairchild AFB
 - Spokane VA Medical Center
 - Inland Northwest Health System

Puget Sound Pilot

September 30, 2011

- **Health Record Data:**
 - HITSP C32 subset (from Spokane)
 - Advance Directive *
 - Encounter
 - Immunizations*
 - Insurance Provider
 - Procedures
 - Unstructured Documents:
 - Consults/Referrals
 - Discharge Summaries
 - Results of Diagnostic Studies
 - Procedure Notes
 - History & Physicals
- **Partners:**
 - Madigan Army Medical Center
 - VA Puget Sound Health Care System
 - MultiCare Health Org

* will display but not send

Current Health Data Sharing



VLER Health -- Provider Access via AHLTA

DTE, ATTEND B: AHLTA (Privacy Act of 1974/FOUO)

File Edit View Go Tools Actions Help

Appointments Search CHCS-I A/P

External Health Data Viewer Aggregated View

VLERDOD, PATIENTSEV

Folder List

- Health History
 - Problems
 - Meds
 - Allergy
 - Wellness
 - Immunizations
 - Vital Signs Review
 - PKC Couplers
 - Readiness
 - Patient Questionnaire
 - DoD/VA/Theater His
- Lab
- Radiology
- Clinical Notes
- External Health Data**
- Flowsheets
- NHIN Documents
- Current Encounter
- Screening
- Vital Signs Entry
- S/O

Reminders

- Blood Pressure Screen
- Blood Type
- DNA on file
- G6PD
- Height & Weight Screen

Aggregation from: DoD, Department of Veterans Affairs, MedVirginia, Kaiser Permanente

Consolidated Summary
Created On: August 16, 2010

Patient:	CHDRTWO CHDRZZZTESTPATIENT 1234 St. LA JOLLA, CA, 9# here tel:+1- # here -4444	Patient ID:	DoD EDI PN # here
Birthdate:	March 3, 1961	Gender:	F Marital Status: Never Married
Language(s):	UNK	Religious Affiliation:	
Source:	Aggregation from: DoD, Department of Veterans Affairs, MedVirginia, Kaiser Permanente		

Table of Contents

- [Allergies](#)
- [Problems/Conditions](#)
- [Medications - Prescription and Non-Prescription](#)
- [Vital Signs](#)
- [Lab Results - Chemistry and Hematology](#)
- [Immunizations](#)
- [Encounters](#)
- [Procedures](#)

Allergies

Allergens	Reaction	Severity	Verification Date	Source
PEPPERMINT	WHEEZING	--	24 Sep 2009	Portsmouth NMC
IODINE	URTICARIA	--	24 Sep 2009	MedVirginia
PHENOL APPLICATOR	DIARRHEA	--	24 Sep 2009	Kaiser Permanente
TYLENOL	HIVES	--	31 Dec 2009	DAYTSR TEST LAB

NOTE -- The health record depicted here contains sample test data used for demonstration purposes

Current Health Data Sharing

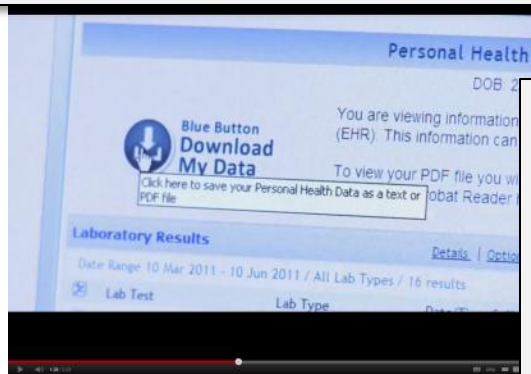
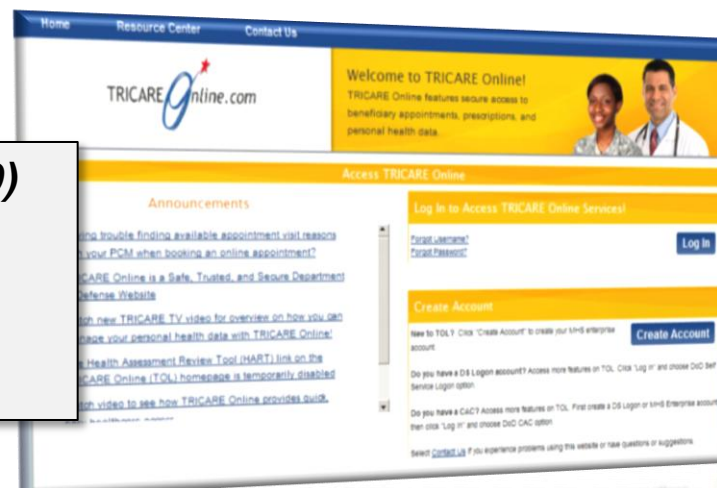


TRICARE Online and the DoD Blue Button



Initial Blue Button Capabilities (June 2010)

- View, download (.pdf), and print personal health data
- Access outpatient medication profile
- Access allergy profile



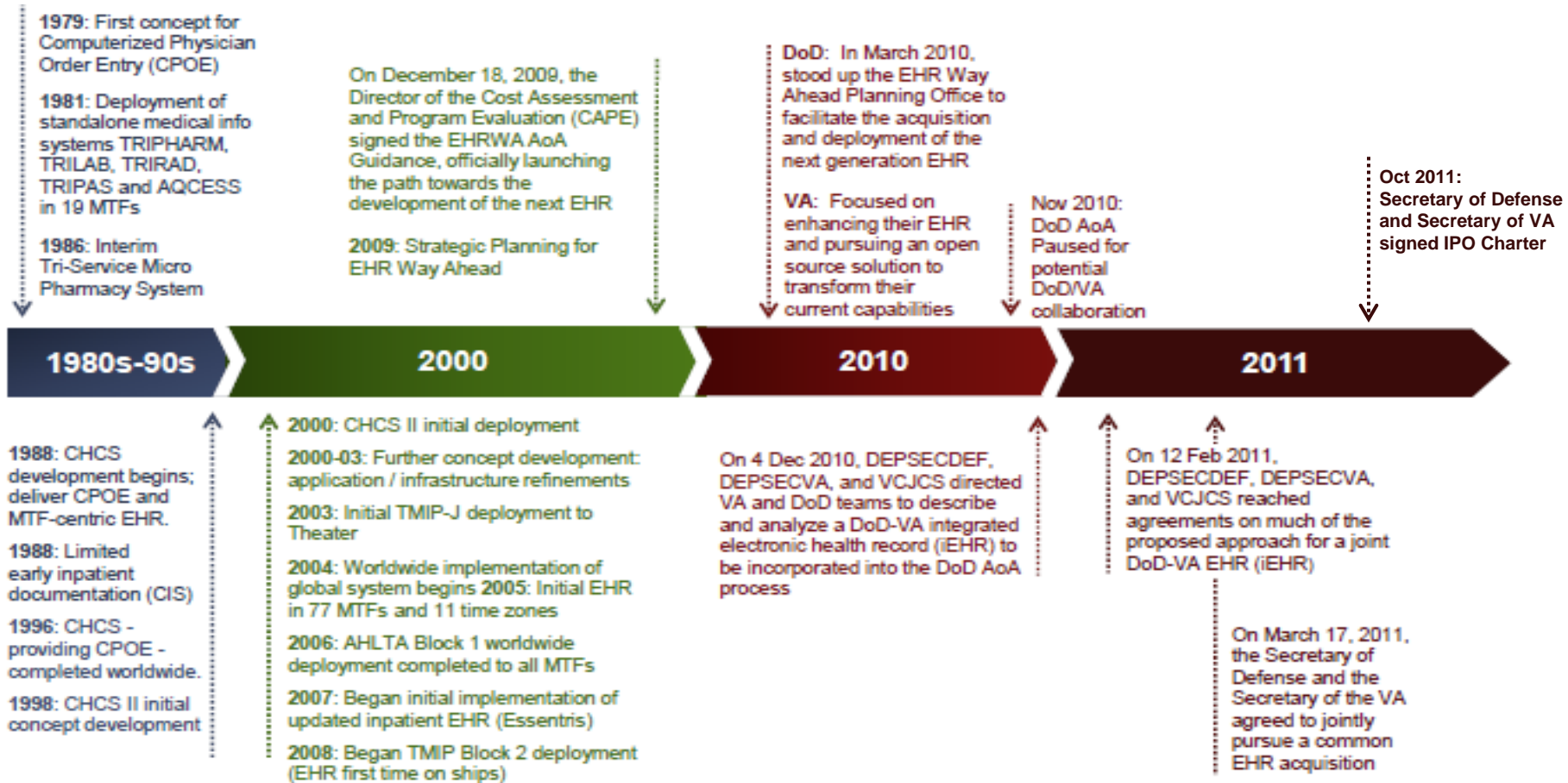
Additional Patient Portal Capabilities (January 2011)

- Book unlimited number of appointments
- Access TRICARE benefits and general healthcare information and services
- Access laboratory results, outpatient problem lists, and outpatient encounter notes

What's Next for EHR



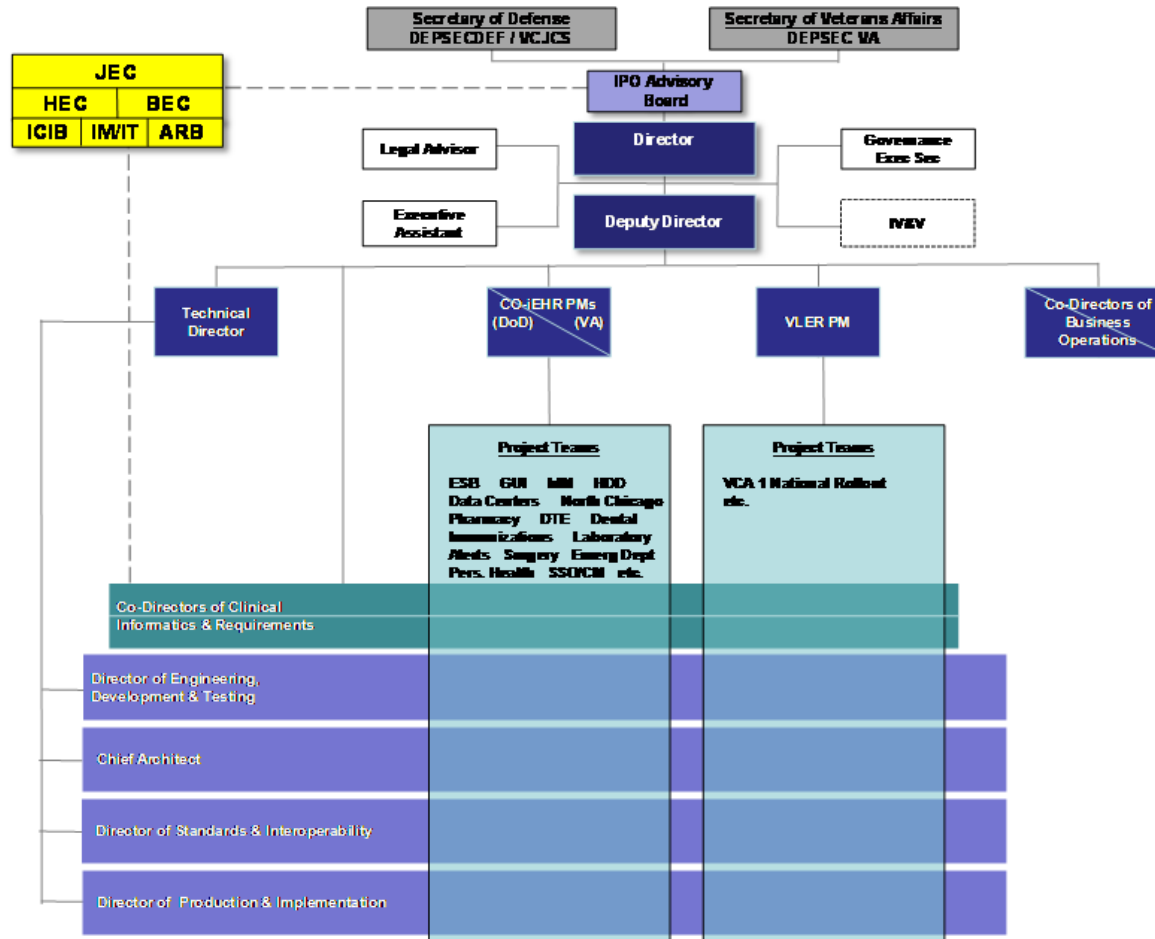
EHR Milestones (1979 – 2011)



What's Next for EHR



DoD-VA Interagency Program Office (IPO) Organization Chart

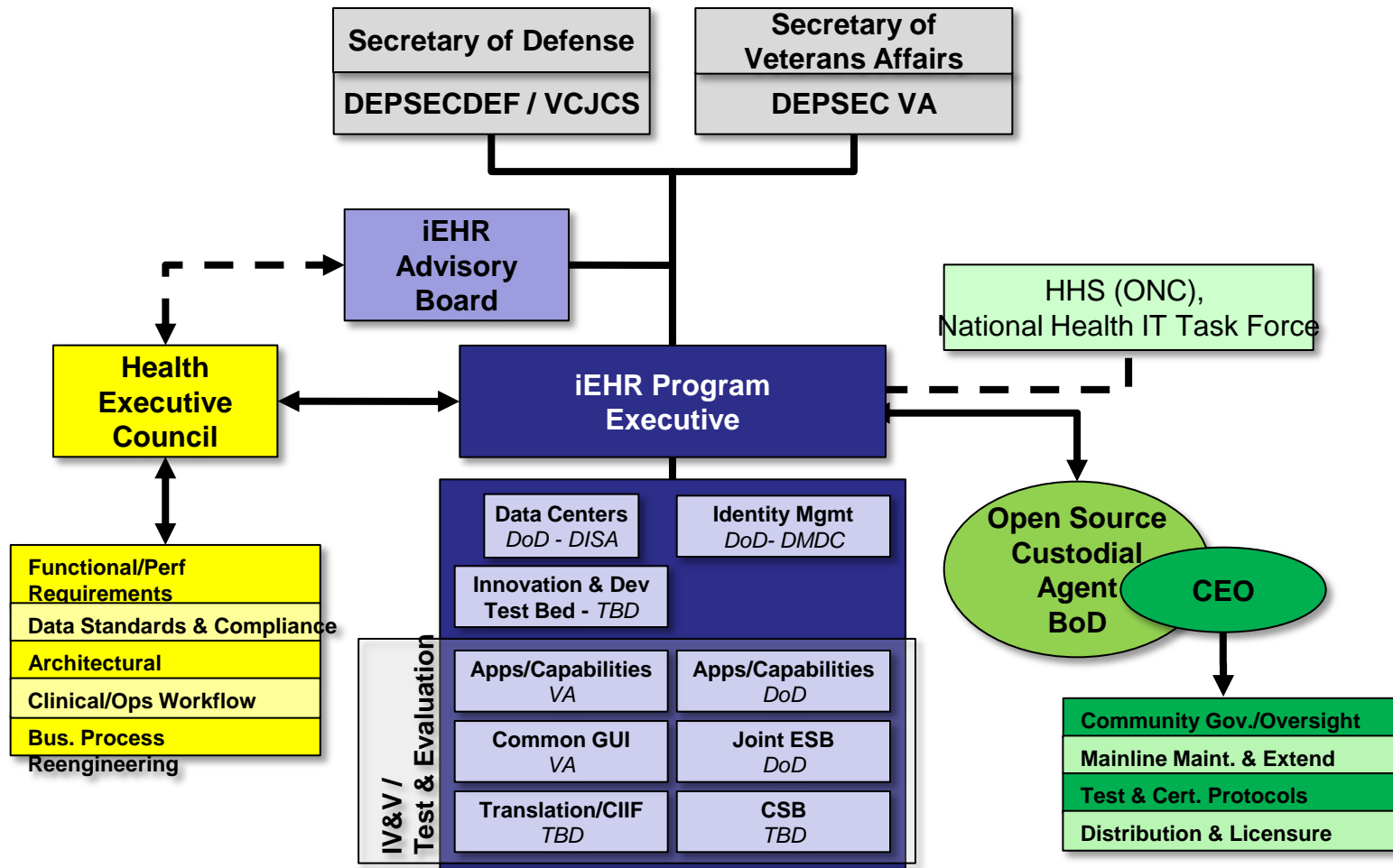


11/28/11

What's Next for EHR



iEHR -- Governance Structure

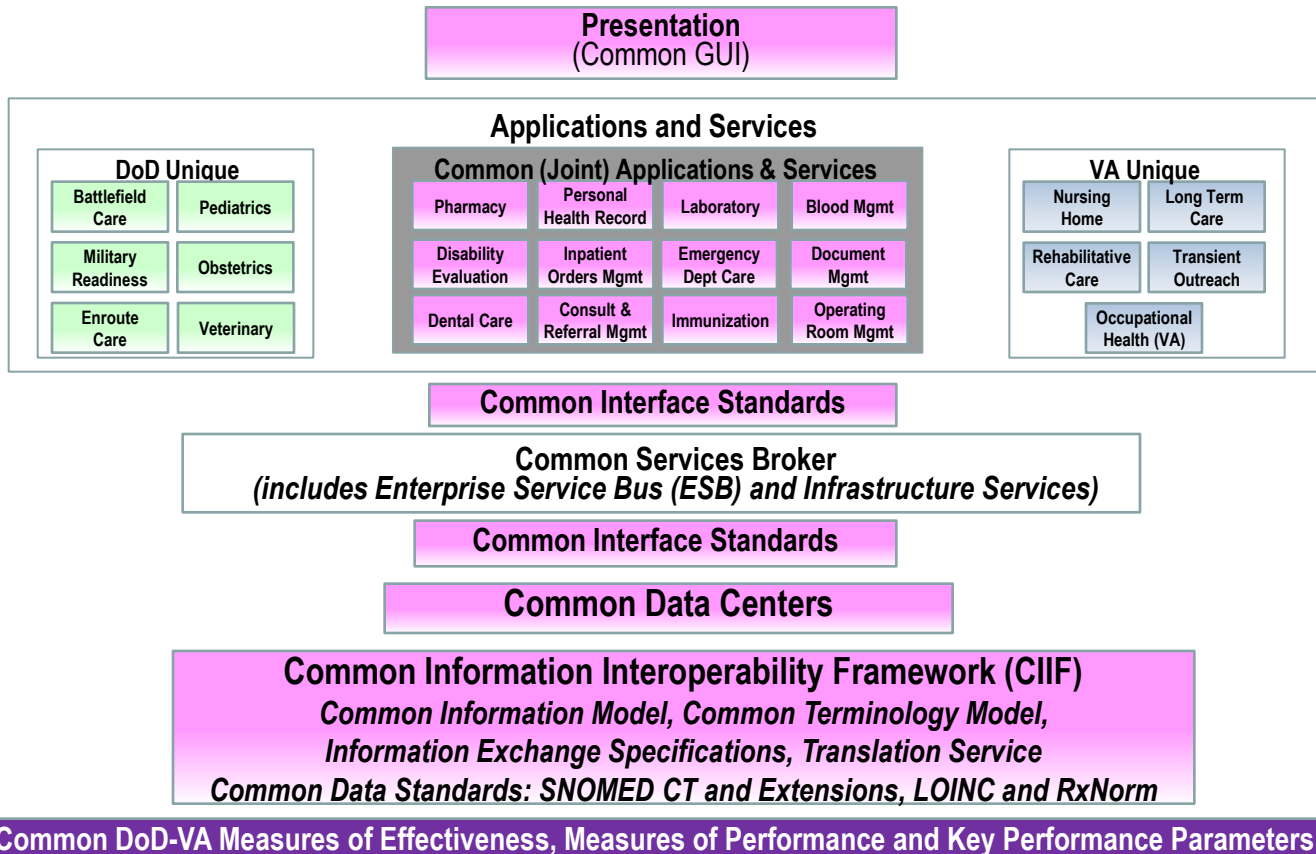


What's Next for EHR



iEHR -- "To Be" Architecture

Common DoD-VA Requirements: HL7 EHR-S Functional Model with DoD and VA vetted Extensions (SV-4)
 Common DoD-VA Integrated Health Business Reference Model (OV-5)
 Common DoD-VA "To Be" Process Flow Model (OV-6C)



Joint DoD/VA
 DoD Only
 VA Only



What's Next for EHR



iEHR -- Presentation Layer

Clinician View (Home Page)

Joint DoD VA EHR in, MD Logout

History: [Home](#) ... [Messages](#) ... [Patient Search: \[Charles J](#) ... [Health Summary](#) ... [Orders](#) ... [Home](#)

Patient search:

Default **Outpatient** Inpatient Tasks

To Do (24)

TUESDAY
18 JAN 2011

Daily intensity Summary

Due	Subject	Patient
10:15am, 1/18/2011	Appointment	Jo T
10:30am, 1/18/2011	Telephone Consult	W T
10:45am, 1/18/2011	Co-sign	Lc
11:00am, 1/18/2011	Request	Lc
11:15am, 1/18/2011	Appointment	Pa
11:30am, 1/18/2011	Appointment	Jo T
11:45am, 1/18/2011	Telephone Consult	Ja T
12:00pm, 1/18/2011	Appointment	W T
12:15pm, 1/18/2011	Appointment	Pa
12:30pm, 1/18/2011	Appointment	W T
12:45pm, 1/18/2011	Appointment	Pt

Patients (243)

[Open Filter](#)

Last Name	First Name	Gender
Al	John	M
Ba	Christen	F
Br	Kimberly	F
Ci	Jean	F
Cc	Mitchell	M
Di	Josh	M
Di	Kate	F
Er	Eric	M
Ft	Peter	M

Messages (725)

[Contacts \(189\)](#)

You have 3 new messages.

- Kimberly J** - Re: CT Scan Sc
- Daniel A** - Re: Allergy Test
- Sandra L** - Reminder: Reques
- Noah L** - Re: Result Chem Lab

References (43)

Point-of-care: 3 General: 20

[Close Filter](#)

Subject	Kind	Date
UpToDate	Kind 1	1/18/2010
Micromedics	Kind 2	1/18/2010
MERCK	Kind 3	1/18/2010

Tasking (18)

Due	Subject	Priority
10:15am, 1/18/2011	Follow-up consult	Medium
10:30am, 1/18/2011	Lab result	High
10:45am, 1/18/2011	Request	Low
11:00am, 1/18/2011	Vital sign review	Medium
11:15am, 1/18/2011	Lab result	Medium
11:30am, 1/18/2011	Patient training	Low
11:45am, 1/18/2011	Patient training	Low
12:00pm, 1/18/2011	Lab result	Medium

Requests (10)

Subject	Due Date	Patient
CT Scan	1/17/2011	P
Laboratory	1/19/2011	W T
CT Scan	1/20/2011	P
X-ray	1/20/2011	W T
Laboratory	1/20/2011	S W A
CT Scan	1/20/2011	P

Results (12)

Subject	Due Date	Patient
Chemv16	1/17/2011	Pz
Echo cardiogram	1/19/2011	W
Chemv16	1/20/2011	Ya
EKG	1/20/2011	Pz
Chemv16	1/20/2011	Gr
EKG	1/20/2011	M

NOTE -- The health record depicted here contains sample test data used for demonstration purposes

What's Next for EHR



iEHR -- Presentation Layer

Clinician View (Patient Summary)

Joint DoD VA EHR

History: [Home](#) ... [Messages](#) ... [Patient Search: \[Kevin G.\]](#) ... [Search Results](#) ... [Summary: \[Kevin G.\]](#) | Search:

Default | Diabetes | Hypertension | Mental Health

Kevin G. [Contact](#)

ID: [redacted]
Sex: M
DOB: 01/01
Age: 25
Allergies: None

"Recurring chest pain, recent ankle sprain..."
[View more notes](#)

Vitals
[View graphs](#)
Last measure: Dec 9,
Blood pressure: **137 | 92**
Heart rate: **79** bpm
Weight: **176** lb

Immunizations (8)
[Open Filter](#)

Subject	Status	Date
Immunization 1	Due soon	1/28/2011
Immunization 2	Due soon	1/28/2011
Immunization 3	Complete	9/20/2010
Immunization 4	Complete	9/20/2010
Immunization 5	Complete	9/20/2010

Allergies (2)

Type	Status
Allergy 1	Active
Allergy 2	Active

Encounter
Lab
Medication

Problems (8)
[Open Filter](#)

Subject	Status	Date
Problem 1	Discontinued	4/5/2008
Problem 2	Discontinued	5/19/2002
Problem 3	Discontinued	3/20/1999
Problem 4	Discontinued	5/4/1998
Problem 5	Discontinued	5/4/1998
Problem 6	Discontinued	5/4/1998
Problem 7	Discontinued	5/4/1998
Problem 8	Discontinued	5/4/1998
Problem 9	Discontinued	5/4/1998
Problem 10	Discontinued	5/4/1998

Medications (8)
[Open Filter](#)

Subject	Status	Date
Medication 1	Discontinued	4/5/2008
Medication 2	Discontinued	5/19/2002
Medication 3	Discontinued	3/20/1999
Medication 4	Discontinued	5/4/1998
Medication 5	Discontinued	5/4/1998
Medication 6	Discontinued	5/4/1998
Medication 7	Discontinued	5/4/1998
Medication 8	Discontinued	5/4/1998
Medication 9	Discontinued	5/4/1998
Medication 10	Discontinued	5/4/1998

Orders (25) [Results \(23\)](#)
[Open Filter](#)

Subject	Status	Date
Order 1	Overdue	1/16/2011
Order 2	Pending	1/22/2011
Order 3	Complete	1/6/2011
Order 4	Complete	1/6/2011
Order 5	Complete	1/6/2011

Consults (25)
[Open Filter](#)

Subject
Consult 1
Consult 2
Consult 3
Consult 4
Consult 5

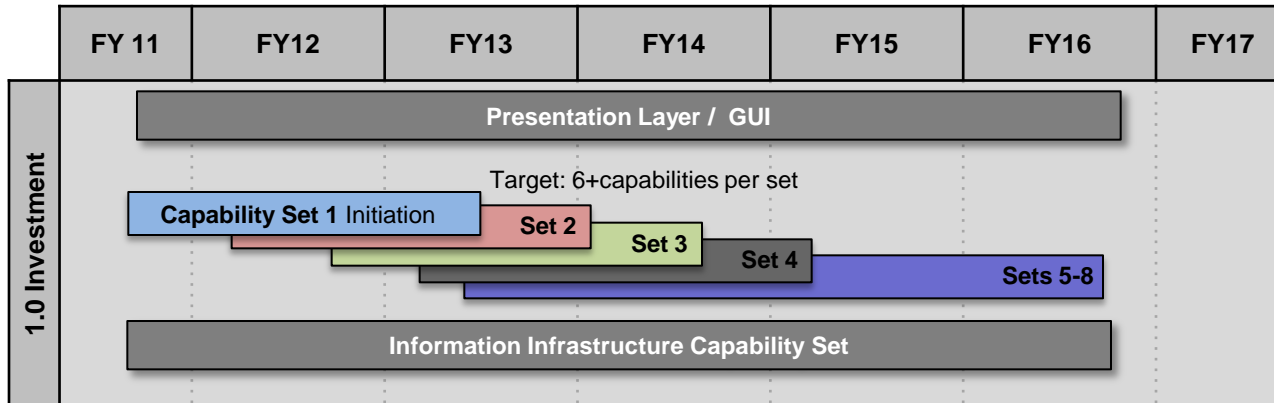
NOTE -- The health record depicted here contains sample test data used for demonstration purposes

Stickies Widgets

What's Next for EHR



iEHR -- Applications and Services



*iEHR Capability Sets as identified by the ICIB
5 Dec 2011

- Information Infrastructure Capability Set 0A (Enabling Capabilities)**
- Identity Management
 - Access Control
 - Presentation Layer (GUI)
 - SSO-CM
 - Information Model and Terminology Services
 - Federated Data Repository / Data Warehouse
 - Network and Security Architecture
 - SOA Architecture

- Capability Set 0B (Common Services)**
- Enrollment Eligibility
 - Orders Service
 - Clinical Decision Support (CDS)
 - Barcoding
 - Secure Messaging
 - Provider-Provider
 - Patient-Provider

- Capability Set 1A**
- Pharmacy
 - Inpatient & Outpatient Orders Fulfillment
 - Inventory Management
 - Allergies
 - CDS
 - Immunization
 - Consult & Referral Management

- Capability Set 1B**
- Care Management
 - Emergency Department Care
 - Laboratory
 - Registration
 - Scheduling Appoint
 - Documentation

- Capability Set 2**
- Anatomic Pathology
 - Disability Evaluation
 - Dental Care
 - Credentialing
 - Pharmacy
 - Barcoding
 - Mail Order
 - Personal Health Record
 - Radiology/Imaging

- Capability Sets 3-8**
- Patient Portal Infrastructure
 - Anesthesia Documentation
 - Operating Room Management
 - Medical Device Management
 - Disease Management
 - Disconnected Care
 - Business Intelligence
 - Patient Questionnaire
 - Patient Consent
 - Patient Education
 - Alerts and Reminders
 - Patient Self Report
 - DoD/VA Registries
 - NCAT (TBI Testing)
 - Global Image Access
 - Patient Safety Reports
 - Teleconsultation
 - Document Management
 - Blood Management
 - Private Sector Data Access
 - Nutrition Care
 - XML Forms Tool
 - Utilization Management
 - Genomics
 - Encounter Coding

Common Graphic User Interface (GUI)

What's Next for EHR



iEHR -- Common Interface Standards

ORGANIZATIONAL INFOSTRUCTURE

Notional iEHR Infostructure: Standards-based Connectivity -- ICIB 11/15

Registries Data & Services

Population Health Data & Services

EHR Data & Services

Data Warehouse

ICIB Recommended FOCUS

Architecture Standards

- EHR Svc. Platform Conceptual Architecture
- EHR Use Cases
- FHIM/EHR Data Model
- EHR-S Services Model
- EHR Interoperability Profiles
- Terminology Standards
- Terminology implemented in data messaging standards

Implementation Standards

- Patient Registry
- HL7 Provider Registry
- HL7 Pharmacy
- Laboratory
- Public Health Services Standards
- Public Health Surveillance Standards
- Diagnostic Imaging/Teleradiology
- Clinical Messaging
- Technical Standards

POINT OF SERVICE

Public Health Provider

Pharmacist

Radiologist

Lab Clinician

Physician/Provider

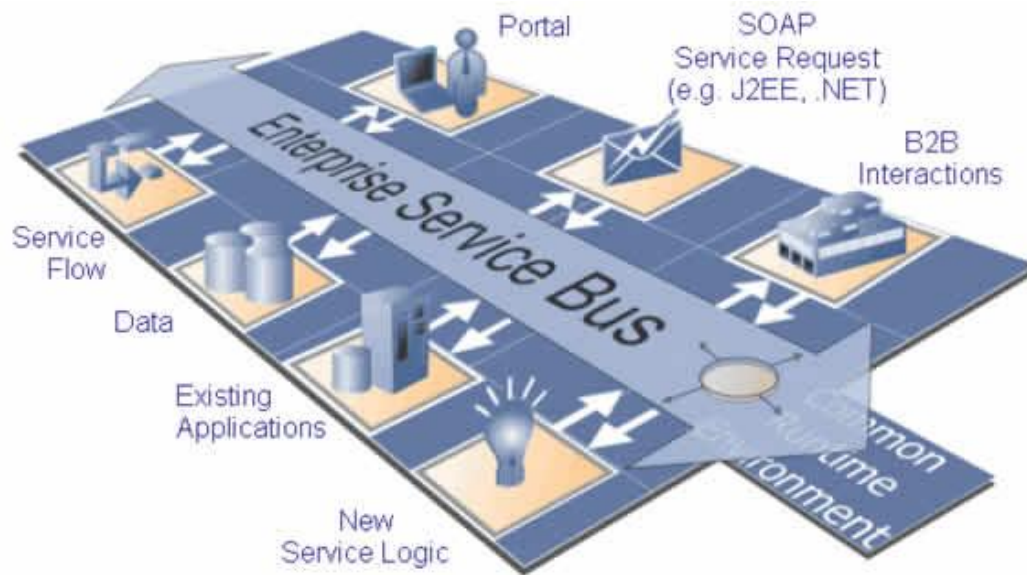
Physician/Provider

Physician/Provider

What's Next for EHR



iEHR -- Enterprise Service Bus



- Facilitates development of business process-based common services
- Promotes system interoperability
- Provides enterprise application integration
- Improves application integration
- Enhances speed to market



iEHR -- Common Data Centers

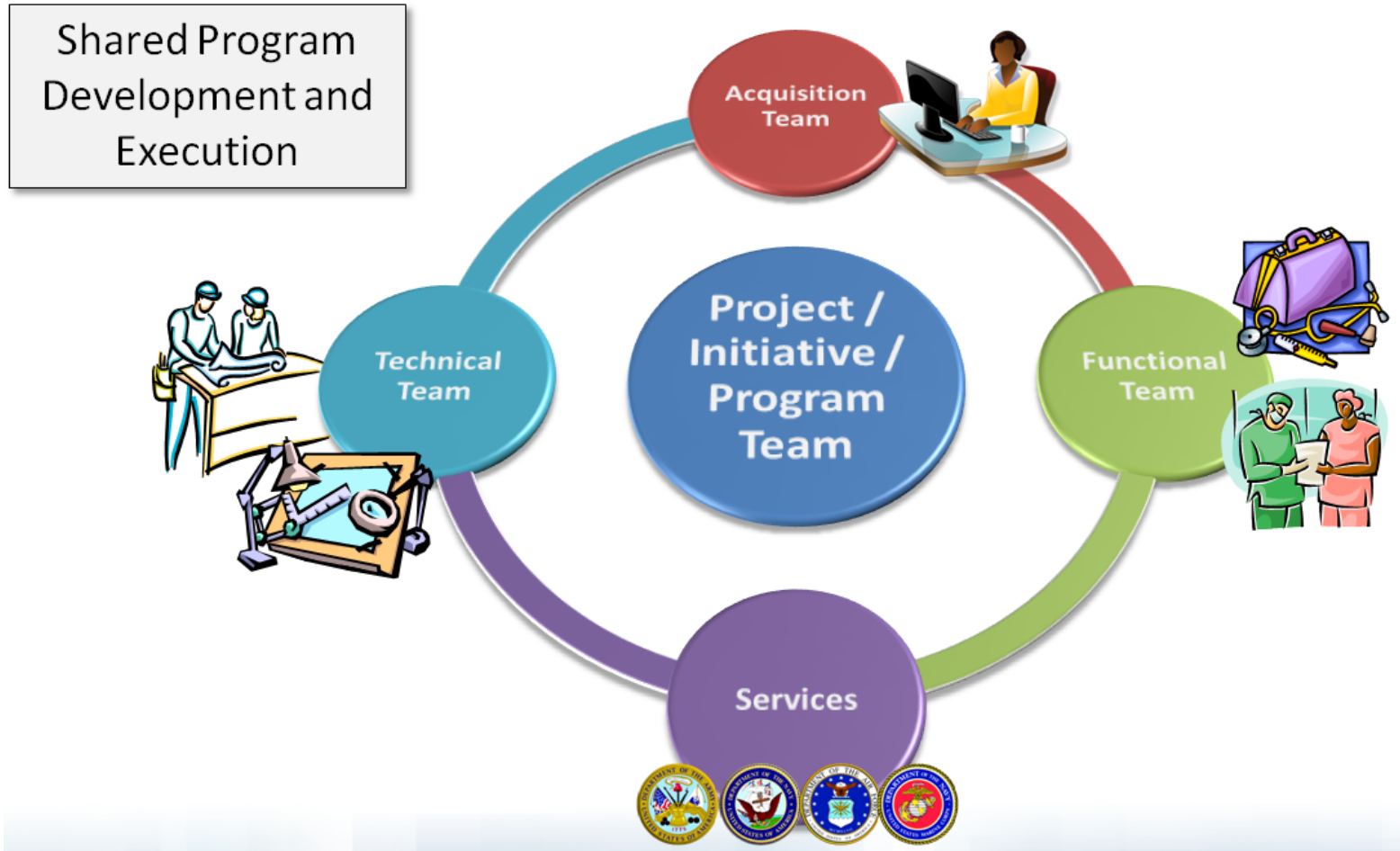
- September 2011-- Memorandum of Agreement between DoD and VA to consolidate VA data centers into existing Defense Information Systems Agency (DISA) data centers
- By 2015 -- The Departments expect to have consolidated more than 800 data centers

Strategy and Goals

- Establish core data centers that will support enterprise applications/services
- Increase mission effectiveness, enhance security, and improve efficiency across the enterprise

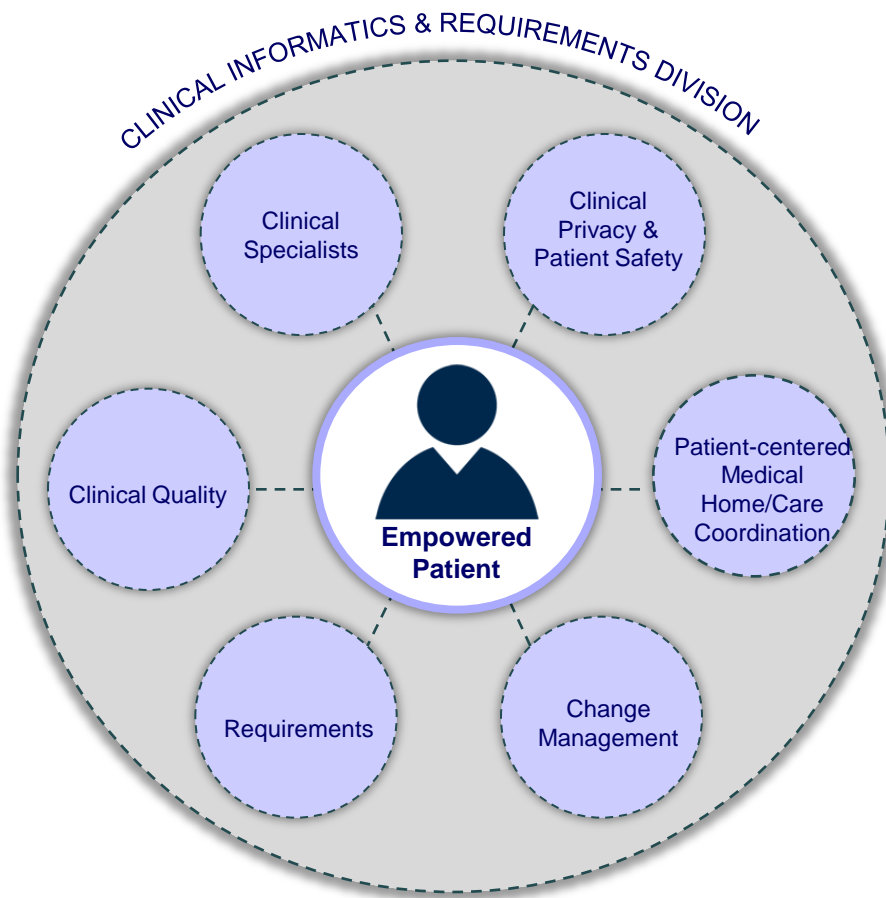


Team Approach





iEHR -- Clinically-Driven Solutions



The mission of the CIRD is:

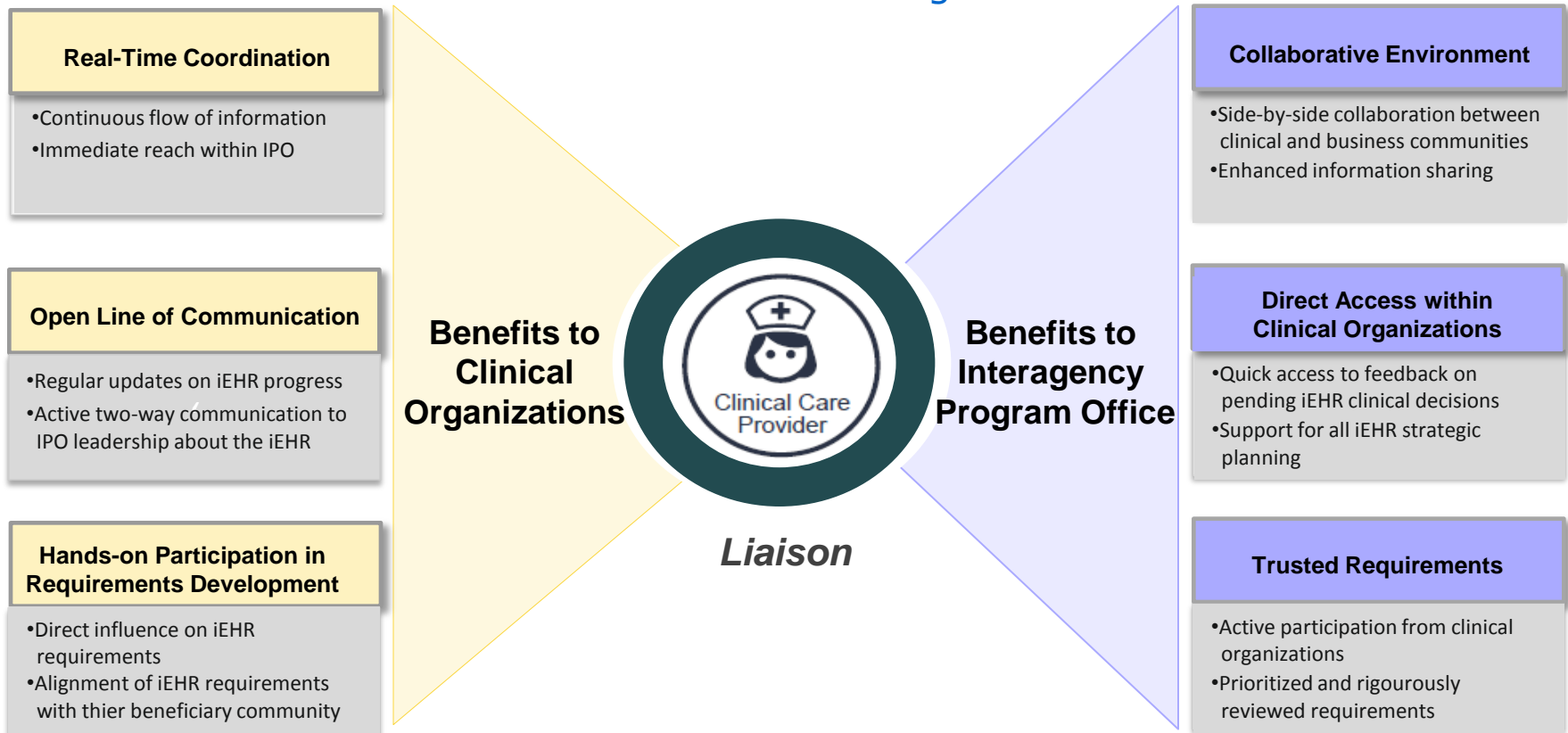
To promote safe, efficient and quality patient care through the development and implementation of iEHR capabilities and initiatives that allow for full interoperability between the Departments to better serve Service Members, their families, and Veterans

What's Next for EHR



CIRD will be comprised of a cross-functional team of clinicians representing VA and DoD organizations

Assigned clinicians will serve as a liaison between the IPO and their home organizations



Problem Space



Vision...

“... full and seamless electronic exchange and record portability of healthcare information in a secure and private format ...to ensure ... effective delivery of healthcare services.”

*DEPSECDEF, DEPSECVA and VCJCS Update on
12 February 12, 2011*

Where we are...

- Overarching iEHR portfolio being defined
- Functional requirements baseline with bounded scope, capability prioritization, and user stories advancing towards one authoritative product
- Agency modernization strategies being synchronized to a common architecture
- Acquisition policies, life cycle processes, and program execution converging to a single program plan
- Organization/Agency Structures and Investment Strategies are aligning for joint program management and centralized execution
- Enterprise Governance Framework being extended
- Technology assessments and capability enhancement planning moving forward

PM iEHR Mission...

Deliver affordable, interoperable and time-critical integrated electronic healthcare capability across DoD and VA

Where we are going...

- Single Organization Structure for agile execution
- Clearly delineated roles and responsibilities
- Joint and synchronized program execution
- Validated Requirements Baseline
- Operationally-adaptive Common Frameworks and Business Processes with Governance Structure, Business Rules, and Reference Architecture
- Federated Development and Test Environment
- Unified approach across all disciplines
- Centralized Investment process
- Standards-based development with implementation compliance

Requires Unified Strategy and Synchronized Execution at all levels

FY12 Snapshot

Accomplishments and Planned Execution



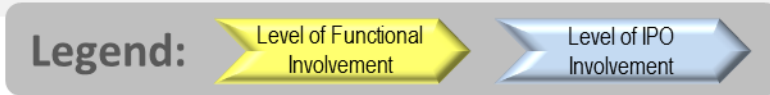
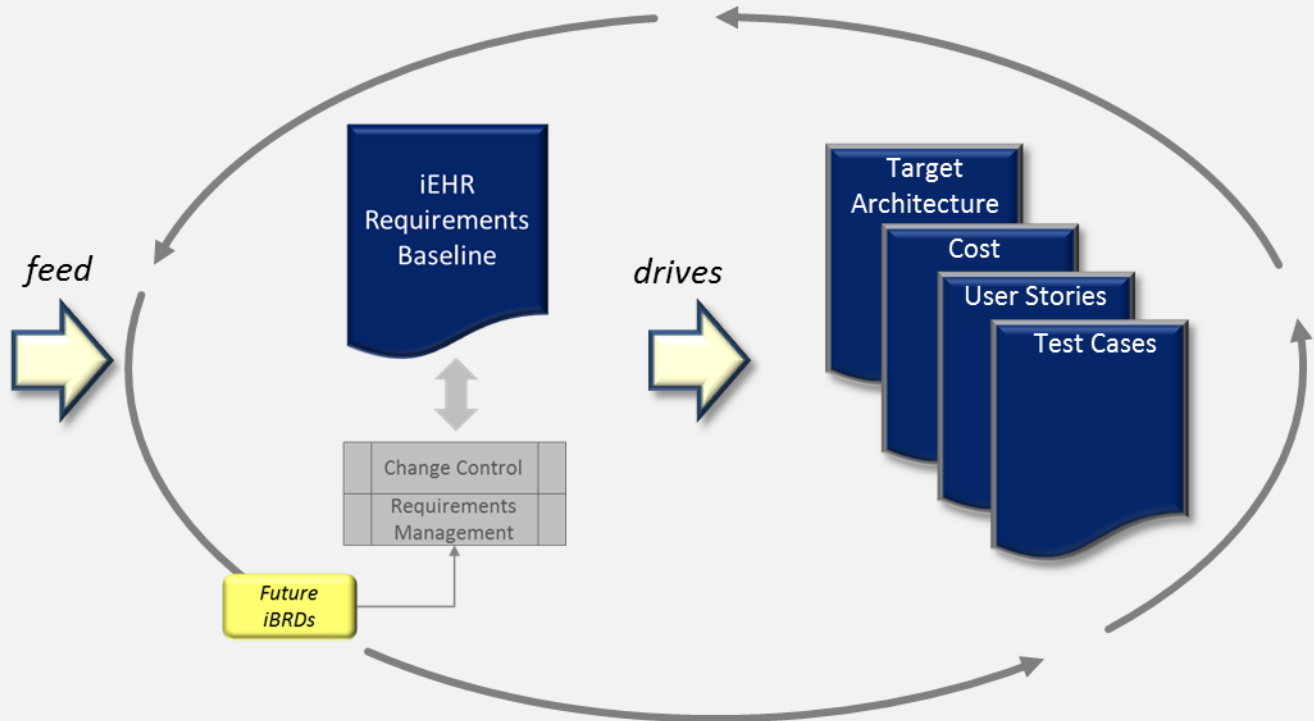
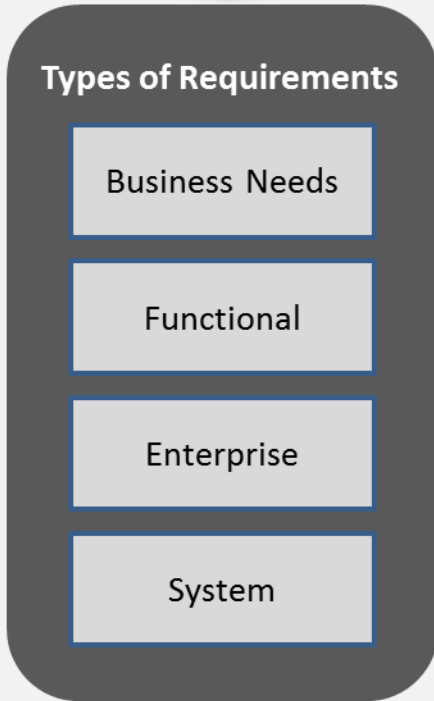
Accomplishments to Date...

- Signed Interagency Program Office Charter, October 27, 2011
- Established an operational Open Source Custodial Agent, October 31, 2011
- Initiated Development Test Center / Environment (DTC/DTE) Configuration
- Deployed early version of iEHR joint presentation layer at North Chicago on December 1, 2011
- Achieved high level definition of Capability Sets 0 and 1 from the DoD/VA Interagency Clinical Informatics Board, December 6, 2011
- Established Capability-Integrated Project Team (CIPT) for Presentation Layer
- Published Requests For Information for Pharmacy, Immunization, and Scheduling capabilities (1QFY12)
- Finalized Health Data Dictionary legal license negotiations to enable Salt Lake City mapping project, January 12, 2012
- Defined the Organization Structure and Staff Profile for the IPO and iEHR Program Management Office (PMO)
- Stood-up iEHR PMO Working Groups / Integrated Product Teams
- Published Request For Information (RFI) for Pharmacy and Immunization
- Applied critical stabilization fixes to DoD current systems, i.e., Clinical Data Repository and Applications

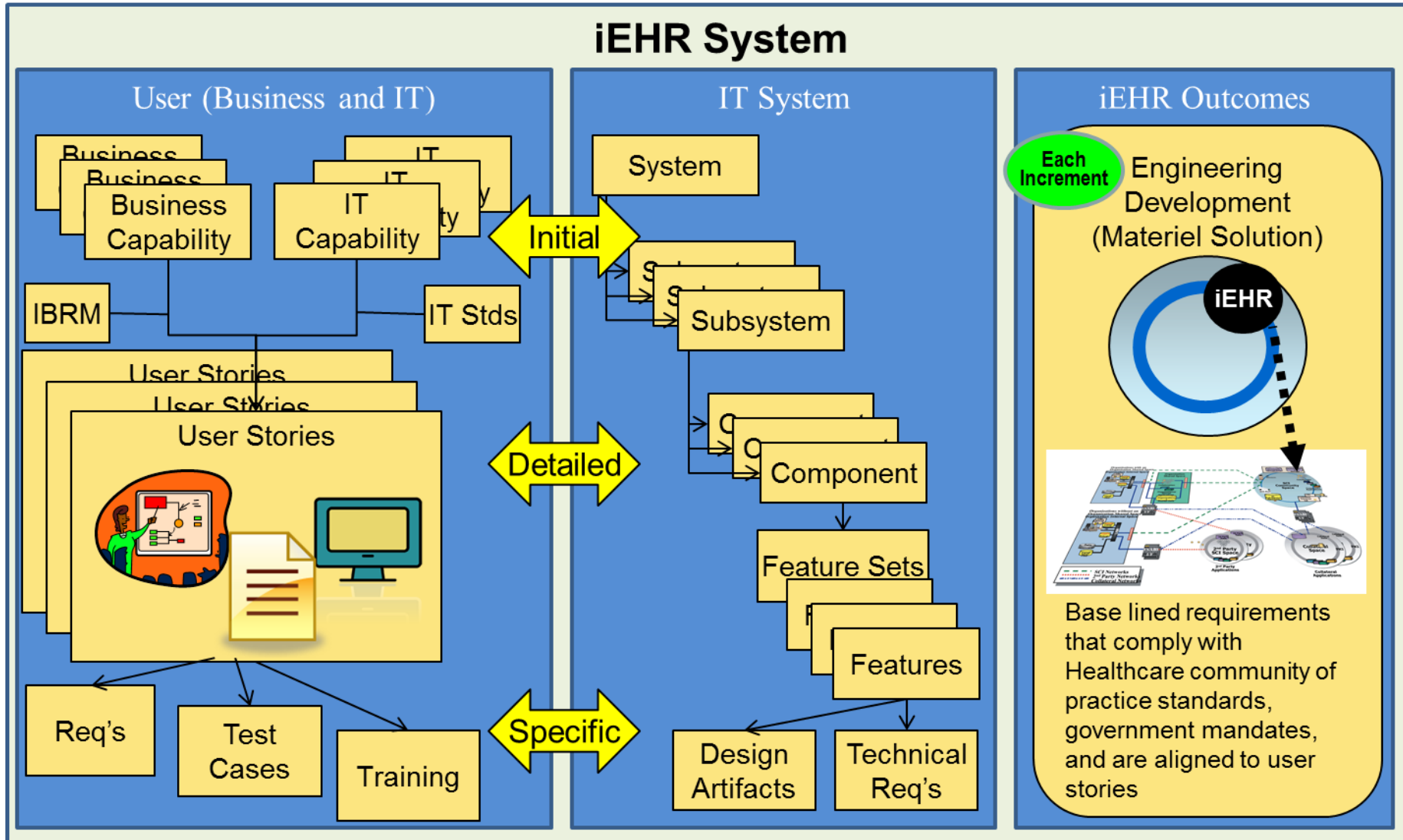
Planned Execution

- Capability Execution
 - Complete Business Requirements Document (BRD) for Consults Orders Portability for North Chicago
 - Start establishing the demonstration and test environment
 - Begin mapping the VA Salt Lake City Health Care System to the Health Data Dictionary (HDD)
 - Implement iEHR Single Sign On/Context Management (SSO/CM) capabilities with JANUS at North Chicago
 - Evaluate open-standards, open-source portal infrastructure and portlet interoperability standards and product(s)
 - Continue VA deployment of Lab capability and complete DoD Implementation Plan
 - Perform gap analysis of Pharmacy capability and determine path forward
- Program Execution
 - Stand-up the iEHR Program Management Office (PMO), to include Organization Structure, Staff Profile, and Integrated Product Teams
 - Define the bounded iEHR Portfolio
 - Define a Functional Requirements Baseline (FRB) and conduct Requirements Review
 - Establish a Development and Test Environment at Richmond
 - Finalize the Acquisition Strategy
 - Establish Baseline Cost Profile
 - Define the Transition and Target iEHR Architectures
 - Define the iEHR Data Strategy
 - Align program increments with ICIB-defined Capability priorities

High-level Life Cycle Framework



Agile Methodology



Summary



- Current EHR efforts continue to focus on speed, availability and usability
- Continuing to share health data with partners to support healthcare delivery for our beneficiaries across the continuum of care
- DoD and VA working together on the next-generation EHR





Questions

