Integrated Electronic Health Records

Business Case

Part 1 of 2

22 October 2013

Contents – Business Case Part 1 of 2

Contents - Business Case Part 2 of 2

- Virtual Lifetime Electronic Record (VLER) Interoperability Challenges, EHR Needs, Goals & Strategies
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- Comparison of DOD and VA Electronic Health Record Way Ahead – 2011
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- Viability of Health Information Exchanges (HIEs)
- Health IT Solution Scalability Need
- Conclusions
- Recommendations
- Answers to Fundamental Business Case Questions

Transformation Challenges

PARTNERS
Clinical Informatics
Research & Development

Welcome & Introductions ---
Overview of the Value of HIT

Blackford Middleton,
MD, MPH, MSc, FACP, FACMI, FHIMSS

Chairman, HIMSS
Partners Healthcare
Harvard Medical School

C!TL

PARTNERS

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Clinical Informatics
Research & Development

US Healthcare Delivery Challenges

- Medical error, patient safety, quality and cost issues
  - 1 in 4 prescriptions taken by a patient are not known to the treating physician
  - 1 in 5 lab and x-ray tests ordered because originals can not be found
  - Patient data unavailable in 81% of cases in one clinic, with an average of 4 missing items per case.
  - 18% of medical errors are estimated to be due to inadequate availability of patient information.
  - 40% of outpatient prescriptions unnecessary
  - Patients receive only 54.9% of recommended care
- A fractured and 'unwired' healthcare system
  - Medicare beneficiaries see 1.3 – 13.8 unique providers annually, On average 6.4 different providers/yr
  - 90% of the >30B healthcare transactions in the US every year are conducted via mail, fax, or phone

http://www.himss.org/content/files/GHIT-SSummit2005/Middleton.TC215.Intro.2005.pdf

Transformation Challenges

The current health system

- Fragmented
- Care that is centered around the needs of the health system
- Focused on episodic care
- Traditional health care settings (hospitals, physician offices)
- Passive consumers
- Most providers paid on fee-for-service basis
- Lack of incentives for innovation

The connected health system

- Coordinated through complex and flexible interdependent networks
- Care that is centered around the needs of the patient
- Focused on wellness, prevention and chronic care management
- Diverse health care settings
- Health consumerism
- Providers' reimbursement linked to performance
- Innovations improve service and reduce cost

http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture_Effective_HIE_read.pdf
page 6

Health Information Exchange
Business Case
Need

Outstanding Issue: EHR Business Case Need - 2004

"Despite the long-term benefits realized by patients, payers, purchasers, and society as a whole, physician groups and hospitals may be making rational economic decisions when they choose not to invest in EHRs. Hospital and physician investments in EHRs are costly, pose substantial risks, and have few benefits for economic buyers, suggesting that EHR demand is low because the total cost of ownership (purchase price, plus implementation, plus maintenance, plus impact on operations) is unaffordably high."

*"A stronger business case for EHRs among physician buyers is required to offset the disincentives for quality and efficiency in current reimbursement."**

* The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care Framework for Strategic Action July 21, 2004 Tommy G. Thompson Secretary of Health and Human Services David J. Brailer, MD, PhD National Coordinator for Health Information Technology pg 7

Outstanding Issue: HIE Business Case Need - 2011

" *And finally, and perhaps most dauntingly, there's been the enduring challenge of the Business Case. What is the Business Case for Health Information Exchange? …*

What is the long term approach that's going to make sure that there is not only the technology in place but also the willingness to exchange information?"

Getting to Health Information Exchange, "Farzad Mostashari, MD, ScM, Deputy National Coordinator for Programs and Policy, ONC."
2010 ONC Update. December 14, 2010 Washington, D.C.

"HIEs have drawbacks that make them ill-suited as the basis for a national health information architecture. One major concern is their durability. …
… the lack of a clear business case for communities to sustain HIEs over time remains a daunting challenge."

REPORT TO THE PRESIDENT REALIZING THE FULL POTENTIAL OF HEALTH INFORMATION TECHNOLOGY TO IMPROVE HEALTHCARE FOR AMERICANS: THE PATH FORWARD - December 2010 Pg. 32

Why is the EHR & HIE Business Case Needed?

*"Various large academic health centers and healthcare delivery organizations—Veterans Health Administration (VHA), Kaiser Permanente (see Box S-3), Geisinger Health System, Vanderbilt, MD Anderson, Palo Alto Medical Foundation, Group Health Cooperative, several Harvard facilities, Virginia Mason, and the Mayo Clinic, to name a few—**have invested substantially in the creation of advanced digital resources for administrative, patient care, and research functions, and some related collaborative research networks have begun to develop. Nonetheless, the diversity and limited compatibility of the products, and the lack of economic incentives to their use has, to date, restrained the broader uptake, application, and functional utility of digital capacity across the system."** **

Digital Infrastructure for the Learning Health System:
Claudia Grossman and J. Michael McGinnis,
Rapporteurs; Roundtable on Value & Science-Driven
Health Care; The Learning Health System Series;
Institute of Medicine - ISBN: 0-309-15417-0, May, 2011, page 5
http://www.nap.edu/catalog/12912.html

Why the EHR & HIE Business Case is Needed:

BOX S-3
Case: Kaiser Permanente

In 2003, Kaiser Permanente (KP) launched a $4 billion health information system called KP HealthConnect that links its facilities and clinicians throughout their delivery system and represents the largest civilian installation of electronic health records in the United States. The EHR at the heart of KP HealthConnect provides a reliably accessible longitudinal record of member encounters across clinical settings including laboratory, medication, and imaging data; as well as supporting:

- Electronic prescribing and test ordering (computerized physician-order entry) with standard order sets to promote evidence-based care
- Population and patient-panel management tools such as disease registries to track patients with chronic conditions
- Decision support tools such as medication-safety alerts, preventive-care reminders, and online clinical guidelines
- Electronic referrals that directly schedule patient appointments with specialty care physicians
- Personal health records (PHR) providing patients with the ability to view their personal clinical information including lab results, plus linkage with pharmacy, physician scheduling and secure and confidential e-mail messaging with clinicians.
- Performance monitoring and reporting capabilities
- Patient registration and billing functions

Physician leaders report that access to the EHR in the exam room is helping to promote compliance with evidence-based guidelines and treatment protocols, eliminate duplicate tests, and enable physicians to handle multiple complaints more efficiently within one visit. Ongoing evaluation by Kaiser indicates that patient satisfaction with out-patient physician encounters has increased and that the combination of computerized physician-order entry, medication bar-coding, and electronic documentation tools is helping to reduce medication administration errors in hospital care.

Overall, Kaiser's experience suggests that use of the EHR and online portal to support care management and new modes of patient encounters is having positive effects on utilization of services and patient engagement. For example, three-quarters or more of online users surveyed agreed that the portal enables them to manage their health care effectively and that it makes interacting with the health care team more convenient.

Digital Infrastructure for the Learning Health System: Claudia Grossman and J. Michael McGinnis, Rapporteurs; Roundtable on Value & Science-Driven Health Care; The Learning Health System Series; Institute of Medicine - ISBN: 0-309-15417-0, May, 2011, page 5 **http://www.nap.edu/catalog/12912.html**

Fundamental Business Case Issue - 2013

Since 2001, the Nation has embarked on several Health Information Exchange initiatives, yet to date, a Business Case has not yet been developed that addresses
Electronic Health Records (EHRs) and Health Information Exchange (HIE)

The following examines:

What is the Business Case for EHRs and Health Information Exchange?

What is the long term approach that's going to make sure that there is not only the technology in place but also the willingness to exchange information?

How did we get to where we are today with HIE?

Is where we are today where we should be with HIE?

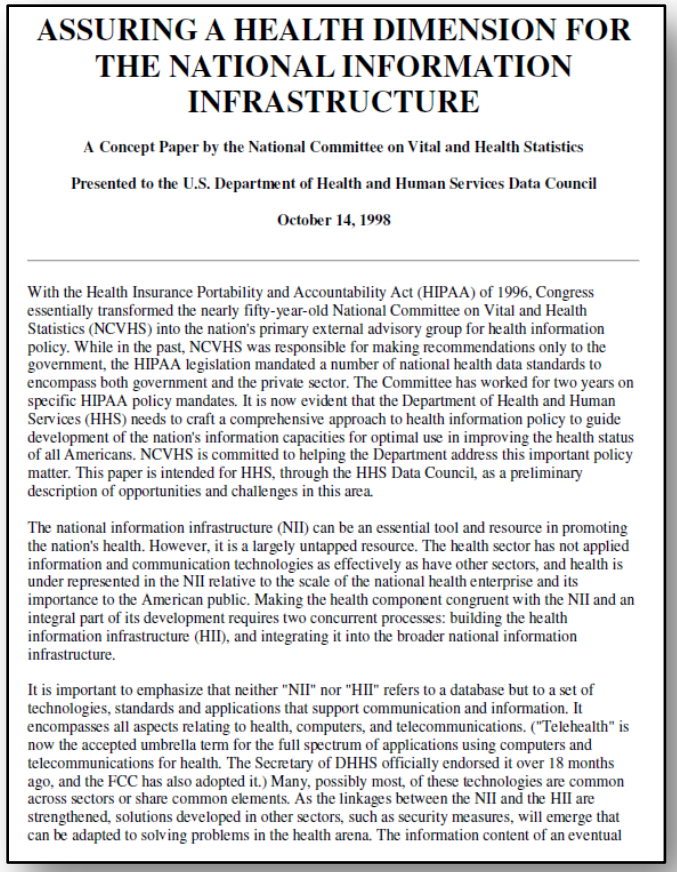
Is HIE viable a path forward?

If so, what form of HIE will scale to a population of 300 million and beyond?

If not, what, if any, alternatives are there?

National Health Care IT Vision, Goals, and Strategies Recap

Recognized National Need for Health Care IT – Oct 1998



ASSURING A HEALTH DIMENSION FOR THE NATIONAL INFORMATION INFRASTRUCTURE

A Concept Paper by the National Committee on Vital and Health Statistics

Presented to the U.S. Department of Health and Human Services Data Council

October 14, 1998

With the Health Insurance Portability and Accountability Act (HIPAA) of 1996, Congress essentially transformed the nearly fifty-year-old National Committee on Vital and Health Statistics (NCVHS) into the nation's primary external advisory group for health information policy. While in the past, NCVHS was responsible for making recommendations only to the government, the HIPAA legislation mandated a number of national health data standards to encompass both government and the private sector. The Committee has worked for two years on specific HIPAA policy mandates. It is now evident that the Department of Health and Human Services (HHS) needs to craft a comprehensive approach to health information policy to guide development of the nation's information capacities for optimal use in improving the health status of all Americans. NCVHS is committed to helping the Department address this important policy matter. This paper is intended for HHS, through the HHS Data Council, as a preliminary description of opportunities and challenges in this area.

The national information infrastructure (NII) can be an essential tool and resource in promoting the nation's health. However, it is a largely untapped resource. The health sector has not applied information and communication technologies as effectively as have other sectors, and health is under represented in the NII relative to the scale of the national health enterprise and its importance to the American public. Making the health component congruent with the NII and an integral part of its development requires two concurrent processes: building the health information infrastructure (HII), and integrating it into the broader national information infrastructure.

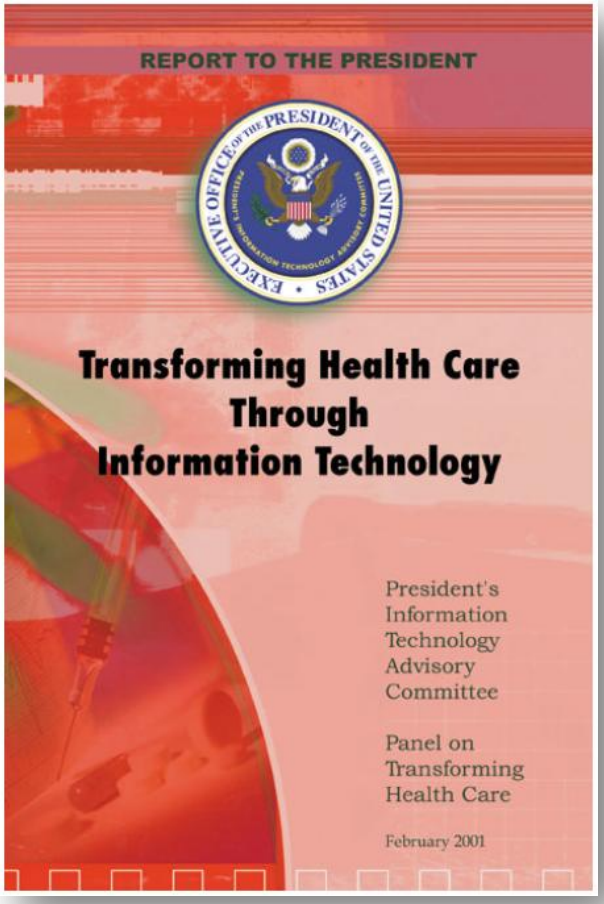
It is important to emphasize that neither "NII" nor "HII" refers to a database but to a set of technologies, standards and applications that support communication and information. It encompasses all aspects relating to health, computers, and telecommunications. ("Telehealth" is now the accepted umbrella term for the full spectrum of applications using computers and telecommunications for health. The Secretary of DHHS officially endorsed it over 18 months ago, and the FCC has also adopted it.) Many, possibly most, of these technologies are common across sectors or share common elements. As the linkages between the NII and the HII are strengthened, solutions developed in other sectors, such as security measures, will emerge that can be adapted to solving problems in the health arena. The information content of an eventual

National Committee on Vital Health Statistics:

"The national information infrastructure (NII) can be an essential tool and resource in promoting the nation's health. However, it is a largely untapped resource. The health sector has not applied information and communication technologies as effectively as have other sectors, and health is under represented in the NII relative to the scale of the national health enterprise and its importance to the American public. Making the health component congruent with the NII and an integral part of its development requires two concurrent processes: building the health information infrastructure (HII), and integrating it into the broader national information infrastructure." *

* ASSURING A HEALTH DIMENSION FOR THE NATIONAL INFORMATION INFRASTRUCTURE
A Concept Paper by the National Committee on Vital and Health Statistics
Presented to the U.S. Department of Health and Human Services Data Council
October 14, 1998 - pages1

National Vision for Health Care IT Needed – Feb 2001



"Information technology tools can provide the health care sector with unprecedented productivity and quality of care if there is a strategic vision and adequate research to ensure success. **However, PITAC found that at present the U.S. lacks a broadly disseminated and accepted national vision for information technology in health care. In addition, the biomedical community, including the Federal** agencies, is not focused on the basic, long-term information technology research required to provide the community with the state of the art tools necessary to take full advantage of the Information Age.

In order to rectify this situation, PITAC strongly recommends that the Department of Health and Human Services (DHHS) outline its vision for using information technology to improve health care in this country and devote the necessary resources to do the basic information technology research critical to accomplishing these goals in the long term. Further, DHHS should appoint a senior information technology leader to provide strategic leadership across DHHS and focus on the importance of information technology in addressing pressing problems in health care." *

* Transforming Health Care Through Information Technology
PRESIDENT'S INFORMATION TECHNOLOGY ADVISORY COMMITTEE
Panel on Transforming Health Care
February 2001

Proposed Solution Framework – June 2004

… **PITAC proposes a framework** (represented in Figure 1) for a 21st century health care information infrastructure and urges Federal leadership in making its development a key national objective. The four essential elements of this framework are:

- **Electronic health records (EHRs) for all Americans** that provide every patient and his or her caregivers ***all necessary information required for optimal care while reducing costs and administrative overhead***
- **Computer-assisted clinical decision support (CDS)** to increase the ability of health care providers to take advantage of state-of-the-art medical knowledge as they make treatment decisions (called evidence-based medicine)
- **Computerized practitioner order entry (CPOE)** – such as for tests, medicine, and procedures – both for outpatient care and within the hospital environment
- **Secure, private, interoperable, electronic health information exchange**, including both highly specific standards for capturing new data and tools for capturing nonstandards-compliant electronic information from legacy systems

Revolutionizing Health Care Through Information Technology
President's Information Technology Advisory Committee
June 2004

Figure 1. Framework for 21st Century Health Care Information Infrastructure

Vision & Strategic Framework – July 2004

The Decade of Health Information Technology:
Delivering Consumer-centric
and Information-rich Health Care

Framework for Strategic Action

July 21, 2004

Tommy G. Thompson
Secretary of Health and Human Services

David J. Brailer, MD, PhD
National Coordinator for Health Information Technology

"Vision for Consumer-centric and Information-rich Health Care

The President has set an overarching vision for improving the quality, safety, and service of health care, and also for using health care resources more efficiently. This vision can be realized by making the health care industry **consumer-centered and information rich, where information that is required for good decision making is available whenever and wherever care is provided. To do this, consumer information needs to follow the consumer. Basic information such as past medical history, laboratory results, radiographs, and current diagnoses, as well as history of medications and treatments, should all be available at the bedside or in the physician's office at the time of care**. This information would be available to consumers and clinicians at the point of care whenever and wherever they need them and no matter where it was originally gathered."

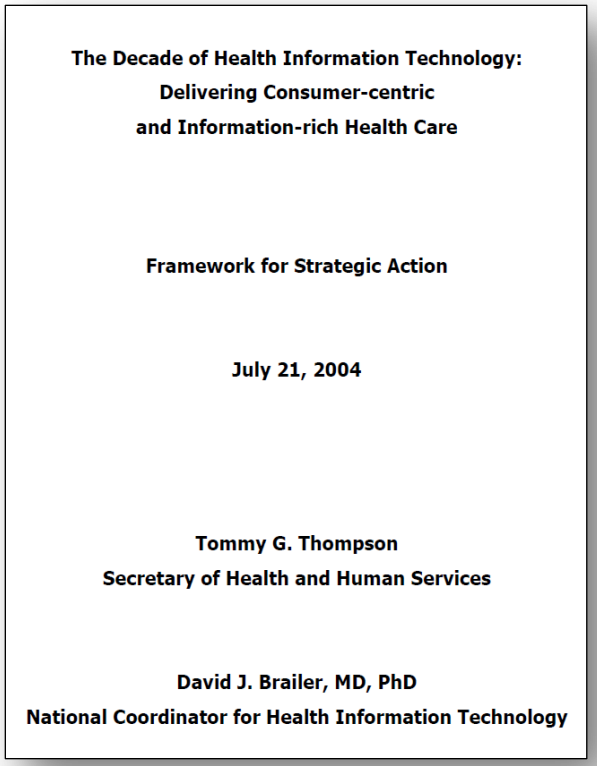
"Framework for Strategic Action" (to achieve the Vision)

"Health care that is consumer centered and information rich requires a sustained set of strategic actions, embraced by both the public and private health sectors, that need to be taken over many years. **Four major goals that will be pursued in realizing this vision for improved health care are:**

- **Inform clinical practice;**
- **Interconnect clinicians;**
- **Personalize care; and**
- **Improve population health." ***

* The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care Framework for Strategic Action July 21, 2004 Tommy G. Thompson Secretary of Health and Human Services David J. Brailer, MD, PhD National Coordinator for Health Information Technology pg 2

Framework for Strategic Action's 12 Strategies - July 2004



The Decade of Health Information Technology:
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July 21, 2004

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National Coordinator for Health Information Technology

FRAMEWORK FOR STRATEGIC ACTION - 4 MAJOR GOALS AND 12 STRATEGIES TO ACHIEVE THEM:

INFORM CLINICAL PRACTICE (Goal 1)

1. Incentivize EHR adoption
2. Reduce risk of EHR investment
3. Promote EHR diffusion in rural and underserved areas

INTERCONNECT CLINICIANS (Goal 2)

4. Foster regional collaborations
5. Develop a national health information network
6. Coordinate federal health information systems

PERSONALIZE CARE (Goal 3)

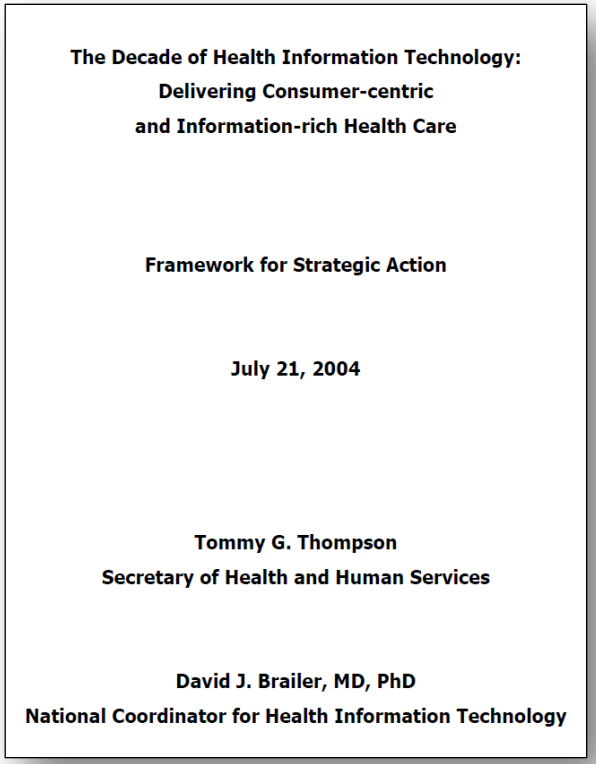
7. Encourage use of PHRs
8. Enhance informed consumer choice
9. Promote use of telehealth systems

IMPROVE POPULATION HEALTH (Goal 4)

10. Unify public health surveillance architectures
11. Streamline quality and health status monitoring
12. Accelerate research and dissemination of evidence

* The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care Framework for Strategic Action July 21, 2004 Tommy G. Thompson Secretary of Health and Human Services David J. Brailer, MD, PhD National Coordinator for Health Information Technology pg 37

New Care Paradigm Needed to Address Critical Needs - ‘04



The Decade of Health Information Technology:
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Secretary of Health and Human Services

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National Coordinator for Health Information Technology

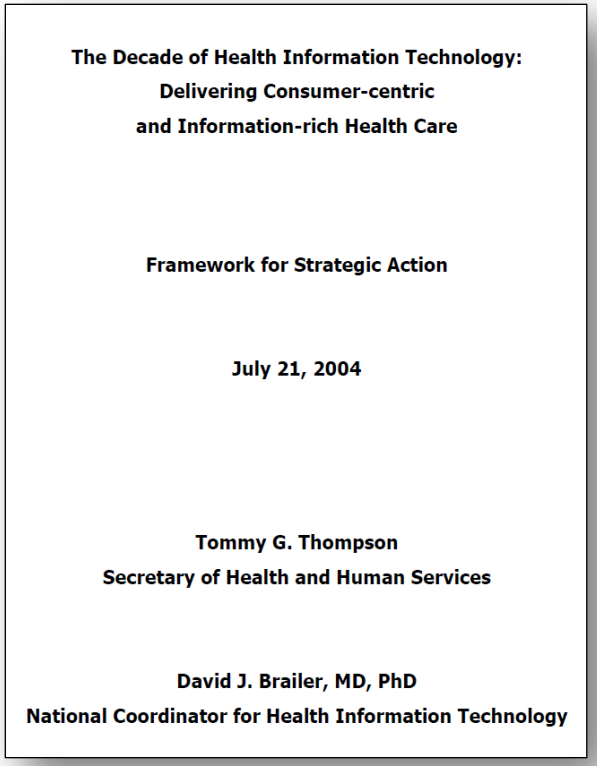
Stakeholders involved in the delivery of health care in the U.S. recognize the critical role of HIT in making health care safer and more efficient **by enabling complete, accurate, and timely information at the point of care for both clinicians and consumers**. Each of these groups understands that HIT is critical to delivering safe, affordable, and consumer-oriented health care, as well as helping to mitigate public health and bioterror threats.

This consensus results from the convergence of a variety of issues that shape the reality of health care today. Arising from this is a **new paradigm for care** that is built upon **seven critical needs**:

- Avoid medical errors;
- Improve use of resources;
- Accelerate diffusion of knowledge;
- Reduce variability in access to care;
- Advance consumer role;
- Strengthen privacy and data protection; and
- Promote public health and preparedness.

* The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care Framework for Strategic Action July 21, 2004 Tommy G. Thompson Secretary of Health and Human Services David J. Brailer, MD, PhD National Coordinator for Health Information Technology pg

Vision & Strategic Framework - Conclusion - July 2004



The Decade of Health Information Technology:
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Framework for Strategic Action

July 21, 2004

Tommy G. Thompson
Secretary of Health and Human Services

David J. Brailer, MD, PhD
National Coordinator for Health Information Technology

Health information technology provides a mechanism for without substantial regulation and industry upheaval. **refocusing care delivery around consumers**

…

A national strategy for HIT is needed to achieve this change. This strategy should inform clinical care by **introducing EHRs on a widespread basis everywhere clinicians provide treatment**.

…

The **changes** that will accompany the application of information technology to health care **will be difficult and will challenge fundamental assumptions** that have been **long held**. However, this **change is inevitable, needed, and beneficial.** Actions can and should be taken to ensure that this change happens **sooner rather than later,** is more widespread rather than less, and also improves health care quality while addressing health care costs.

* The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care Framework for Strategic Action July 21, 2004 Tommy G. Thompson Secretary of Health and Human Services David J. Brailer, MD, PhD National Coordinator for Health Information Technology pages 32 & 33

HHS Health Care IT Vision, Goals, and Strategies 2006 – 2015

Health Care Plans & Priorities - 2006

Secretary's 500-Day Plan *

Secretary Leavitt uses a 500-Day Plan, updated every 200 days, as a management tool to guide his energies in fulfilling the vision of a healthier and more hopeful America. The Secretary focuses on specific strategies that will achieve significant progress for the American people over a 5,000-day horizon. The 500-Day Plan supports the *Strategic Plan* in guiding the Department in achieving its broad policy and program objectives. The priorities include:

- Transform the Health Care System;
- Modernize Medicare and Medicaid;
- Advance Medical Research;
- Secure the Homeland;
- Protect Life, Family, and Human Dignity; and
- Improve the Human Condition Around the World.

Secretary's Health Care Priorities *

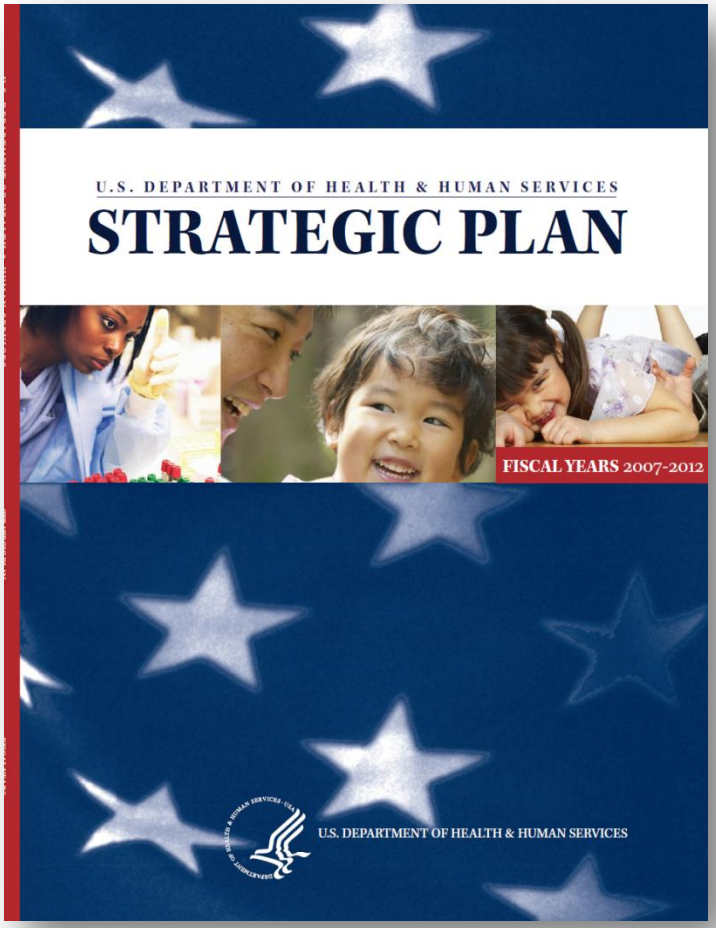
In 2006, the Secretary developed 10 HHS Priority Activities for America's Health Care; these too are updated annually:

- Health Care Value Incentives;
- Health Information Technology;
- Medicare Rx;
- Medicaid Modernization;
- New Orleans Health System;
- Personalized Health Care;
- Obesity Prevention;
- Pandemic Preparedness;
- Emergency Response and Commissioned Corps Renewal; and
- International Health Diplomacy.

= Health IT related priorities

* U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES
STRATEGIC PLAN
FISCAL YEARS 2007-2012
Page 20

Integrated Health Information at the Point of Care - 2007



*"In order for health care in the United States to be safe, timely, effective, efficient, equitable, and **patient centered**, three elements will be necessary:*

- ***All relevant information (about a patient, the latest scientific evidence, and environmental factors) must be available electronically at the time of patient care**;*

- *Patients must be informed and engaged in their own health; and*

- *Care must be considered, assessed, and coordinated across multiple sites and settings." * page 6*

* U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES
STRATEGIC PLAN
FISCAL YEARS 2007-2012

HHS Patient-focused Health IT Goals – 2008 - 2012

Goal 1: Patient-focused Health Care Enable the transformation to higher quality, more efficient, patient-focused health care through electronic health information access and use by care providers and by patients and their designees							
Objective	**Strategy**	**Milestone**	**2008**	**2009**	**2010**	**2011**	**2012**
1.1 - Privacy and Security: Facilitate electronic, exchange, access and use of electronic health information for patients while protecting the privacy and security of their information (Measure: % of organizations with policies and approaches consistent with confidentiality, privacy, and security framework)	1.1.1: Develop a confidentiality, privacy, and security framework.	Publication of framework.					
	1.1.2: Identify best practices to ensure confidentiality, integrity, and availability of information.	Best practices used to develop standards and certification criteria.					
	1.1.3: Facilitate state-based efforts for protected exchange of health information	States work collaboratively to develop approaches for increased commonality.					
	1.1.4: Increase stakeholder trust of health IT through education.	Stakeholder-specific guidance about privacy and security laws.					
	1.1.5: Address apparently inconsistent statutes and regulations for exchange of electronic health information.	Published guidance to promote exchange of electronic health information.					
1.2 - Interoperability: Enable exchange of health information to support patients' health and care needs (Measure: % of providers and organizations using recognized interoperability standards to connect and exchange information.)	1.2.1: Advance use of specified data and technical standards for interoperability	Use by federal government entities of interoperability standards.					
	1.2.2: Identify core capabilities for networks to exchange health information.	Publicly available core service capabilities and data use agreements for networks to exchange health information.					
	1.2.3: Foster the business case for exchange of health information.	An approach for exchange of health information in competitive markets.					
	1.2.4: Increase the volume of standardized exchange of health information to enhance its value.	Providers and provider organizations use NHIN specifications for exchange of health information.					
	1.2.5: Promote processes for testing implementation of recognized standards and policies.	Testing tools and criteria, and certification criteria are available.					
	1.2.6: Encourage provision of electronic personal health information in standardized form.	Consumers have increased access to personal health information through interoperable technologies.					
	1.2.7: Increase the number of competitive health information service providers.	Numerous health information service providers.					
	1.2.8 Use standards to empower use of health information beyond direct patient care delivery.	Standards for a patient's authorized release to a trusted entity for non-health care purposes.					

The ONC-Coordinated Federal Health IT Strategic Plan: 2008-2012 June 3, 2008

HHS Patient-focused Health IT Goals – 2008 - 2012

Goal 1: Patient-focused Health Care Enable the transformation to higher quality, more efficient, patient-focused health care through electronic health information access and use by care providers and by patients and their designees							
Objective	**Strategy**	**Milestone**	**2008**	**2009**	**2010**	**2011**	**2012**
1.3 - Adoption: Promote nationwide deployment of EHRs and PHRs and other consumer health IT tools (Measure: % of physician offices, and small offices, using certified EHR systems)	1.3.1: Remove business obstacles for provider use of EHRs.	Physicians using certified EHRs are eligible for malpractice credit.					
	1.3.2: Make EHRs easy to buy and implement.	Available approaches for provider support for EHR adoption.					
	1.3.3: Increase value of EHRs through technology.	Certified EHRs with clinical decision support.					
	1.3.4: Promote certified health IT products as essential to clinical care.	Majority of products are certified.					
	1.3.5: Develop the workforce for health IT product development and use.	Study quantifies the needed workforce.					
	1.3.6: Identify ways for PHRs to link to useful health and care applications.	Consensus about the components of a certified PHR.					
	1.3.7: Advance PHR and consumer health IT tools.	Creation of a plan to guide PHR development.					
	1.3.8: Minimize provider liability when using health IT.	Increased provider understanding of health IT liability risks as evidenced through research results.					
	1.3.9: Remove barriers to treating patients outside of provider offices.	Published results of public/private collaborations supporting secure messaging pilots.					
1.4 - Collaborative Governance: Establish mechanisms for multi-stakeholder priority-setting and decision-making (Measure: Establishment of self-sustaining AHIC successor)	1.4.1: Establish an entity to advance nationwide exchange of health information.	A public-private entity oversees nationwide exchange of health information.					
	1.4.2: Assure consumer representation in stakeholder governance.	Consumer participation in activities related to the exchange of health information.					
	1.4.3: Promote active and appropriate participation by all relevant government agencies in multi-stakeholder governance entities activities.	Mechanisms enable federal, state, and local governance entities to have input into decision-making processes.					

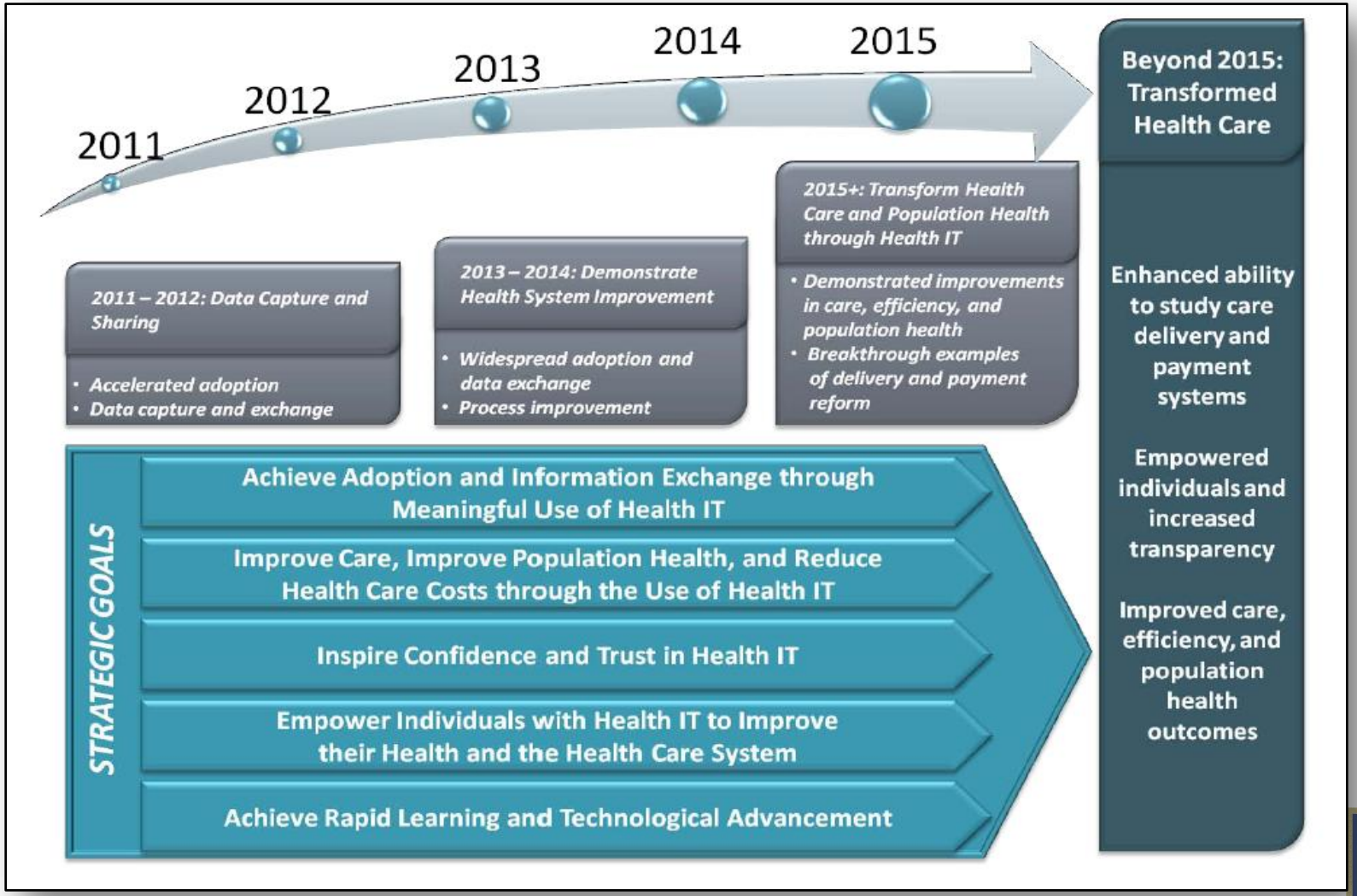
The ONC-Coordinated Federal Health IT Strategic Plan: 2008-2012 June 3, 2008

HHS Population Health IT Goals – 2008 - 2012

Goal 2: Population Health Enable the appropriate, authorized, and timely access and use of electronic health information to benefit public health, biomedical research, quality improvement, and emergency preparedness.							
Objective	**Strategy**	**Milestones**	**2008**	**2009**	**2010**	**2011**	**2012**
2.1 - Privacy and Security: Advance principles, procedures, and protections for information access in population health (Measure: % of federal organizations adhering to principles expressed in confidentiality, privacy and security framework.)	2.1.1:Employ the privacy and security framework (see Strategy 1.1.1) for population health information.	Publication of privacy and security framework with engagement of population health stakeholders.					
	2.1.2: Address apparently inconsistent statutes or regulations for exchange of population health information.	Identification of conflicts and appropriate actions taken.					
	2.1.3: Facilitate state-based efforts for protected exchange of population health information.	Guidance published for states.					
	2.1.4: Increase stakeholder understanding of current federal privacy and security laws.	Federal agencies work with stakeholders to identify issues and clarify laws.					
2.2 - Interoperability: Enable exchange of health information to support population-oriented uses (Measure: % of population health agencies using recognized interoperability standards to exchange information)	2.2.1: Advance standards to support the merging of comparable population health information.	Population health information users will receive comparable data from clinical sources.					
	2.2.2: Enable flexible models for exchange of population health information.	Three models for exchange of population health information are supported.					
	2.2.3: Assess providers' and networks' implementation of standards.	Electronic verification capabilities will ensure consistent use of standards.					
	2.2.4: Promote availability of population health information in electronic form.	Networks provide population health information using NHIN specifications.					
	2.2.5: Provide population health information needed for emergency response.	Networks using NHIN specifications provide population health information for emergency response.					
2.3 - Adoption: Promote nationwide adoption of technologies to improve population and individual health (Measure: % of population health information that is re-used without manual intervention.)	2.3.1: Optimize exchange of EHR and population health information among users.	Increased automation of clinical information sent and accessed by providers.					
	2.3.2: Minimize provider burden for population health reporting.	Certified EHRs will have automated "upstream" data transmission.					
	2.3.3: Electronic exchange of population health data among various stakeholders.	Pilot projects underway for population health data exchange.					
2.4 - Collaborative Governance: Establish coordinated organizational processes supporting information use for population health (Measure: % of governance entities that comply with consensus-based policies.)	2.4.1: Advance data stewardship models for exchange of population health information.	Data stewardship models supporting pilots of exchange of population health information.					
	2.4.2: Implement quality measures in ways compatible with different models for exchange of health information.	Quality measures are electronically reported to providers.					
	2.4.3: Connect clinical care and public health through exchange of electronic health information.	Public health priorities are advanced through coordinated governance by AHIC Successor.					
	2.4.4: Connect clinical care and research through exchange of electronic health information.	Demonstrated coordination of governance across clinical care and research communities.					
	2.4.5: Create accountability for implementing exchange of electronic health information.	Accreditation criteria for electronic exchange of health information.					
	2.4.6: Develop, implement, and oversee health data sharing strategy across federal agencies.	Federal health data are shared securely across federal agencies.					

The ONC-Coordinated Federal Health IT Strategic Plan: 2008-2012 June 3, 2008

Federal Health IT Strategy Map – 2011 - 2015



Office of the National Coordinator for Health Information Technology (ONC)
Federal Health Information Technology Strategic Plan 2011 – 2015 - draft

Future Vision for the Learning Health System – May 2011

FOUNDATIONAL ELEMENTS

LEARNING HEALTH SYSTEM CHARACTERISTICS			
Learning utility: data stewarded and used for the common good	***Information technology***: the engine for continuous learning	***Trust fabric:*** strong, secure, and constantly nurtured	***Leadership:*** multi-focal, networked, and dynamic
Care: starting with the best practice, every time	***Health information:*** a reliable, secure, and reusable resource	***Quality and outcomes:*** assessed and reported in real-time	***Knowledge:*** ongoing by-product of care delivery and research
Culture: team-oriented and participatory	***Design and processes:*** patient-anchored and tested	***Participants:*** continuously and actively-engaged	***Decisions:*** seamlessly-linked, informed, and facilitated

MEANINGFUL USE REQUIREMENTS [Optional Elements]				
Core structured personal data (age, sex, ethnicity)	Core list of active problems	Core structured clinical data (VS, meds, [labs])	Clinical decision support	Care coordination support/ interoperability
Outpatient medicines electronically prescribed	Automated medication safeguard/ reconciliation	Visit-specific information to patients	Automated patient reminders	e-Record patient access (copy or patient portal)
Embedded clinical quality measures	Security safeguards	[Condition-specific data retrieval capacity]	[Public health reporting (reportable conditions)]	[Advance directives for ages >65]

Digital Infrastructure for the Learning Health System:
Claudia Grossman and J. Michael McGinnis, Rapporteurs; Roundtable on Value & Science-Driven Health Care; The Learning Health System Series; Institute of Medicine - ISBN: 0-309-15417-0, May, 2011, page 43
http://www.nap.edu/catalog/12912.html

Future Vision for the Digital Health Utility – May 2011

NEXT GENERATION DIGITAL INFRASTRUCTURE

	LHS DIGITAL HEALTH UTILITY Next generation requirements	STRATEGY ELEMENTS Activities that advance:	STAKEHOLDER RESPONSIBILITIES*

TECHNICAL PROGRESS	• Ultra-large scale system perspective
	• Distributed, local data maintenance
	• Virtual interoperability
	• Reliable use and system security protocols
	• Standards vehicles for setting/revising:
	  ○ metadata, vocabulary, data transport
	  ○ common core data sets
	  ○ sentinel indicators
	  ○ access authorization/authentication
	  ○ data quality review protocols
		• Ultra-large-scale system perspective
		• Functionality focus
		• System specifications/interoperability
		• Workflow and usability
		• Security and privacy safeguards
		• System innovation
			• ONC works with NIST, other agencies and IT community to advance interoperability and security protocols
			• NSF works with ONC/NIH on test beds for digital infrastructure component technologies including ULSS approach
			• Interoperability agreements among delivery systems utilizing EHRs
			• CMS develops test beds for digital infrastructure application in care coordination/delivery model innovation

KNOWLEDGE GENERATION/USE	• Core clinical data elements available for quality improvement and research • Channels and protocols for integrating clinical and public health data • Capacity and protocols for query-driven data use in quality and research and monitoring of sentinel indicators • Novel statistical and database tools for reliable new insights	• Shared learning environment • Point of decision support and guidance • Research-ready records for data reuse • Patient-generated data • Integration/use of data across sources • Distributed data repositories • Sentinel indicators • Query capacity • Analytic tools and methods innovation	• NIH, NSF, AHRQ and FDA work on innovative approaches to research insights from clinical data • CDC develops templates/protocols for integrating population and clinical data • Healthcare organizations form research collaboratives
PATIENT/POPULATION ENGAGEMENT	• "New norm" for patient involvement • Facilitated personal record interface • Clinician-patient electronic partnership • Patient information access/control • Updated best practices delivered at point of decision • Active patient support for data use in care improvement • Clinician-public health e-partnership	• Value proposition and patient confidence • Shared learning culture • Patient-clinician outcome partnerships • Person-centric, lay-oriented health information • Closing the disparity gap • Continuous evaluation	• AHRQ, FDA, NIH and ONC use established links with patient community to foster active embracing of the digital health utility • Patient and clinician groups mediate public engagement and facilitate dialogue among stakeholders to develop shared learning culture/trust
GOVERNANCE	• Progressively evolving requirements, specifications, process protocols for exchange, interoperability and research • Cross-national harmonization to foster the global e-Health utility • Broad on-going evaluation capacity	• The vision • Guiding principles • Participant roles and responsibilities • Process and protocol stewardship • Implementation phasing • Continuous evaluation	• ONC works with other agencies, the HIT community, and patient/clinician groups to foster development of a governance mechanism that encourages dynamic entrepreneurial growth while safeguarding personal security and the common good

** Sample list, neither definitive nor complete. See page xvii for list of acronyms*

Digital Infrastructure for the Learning Health System: Claudia Grossman and J. Michael McGinnis, Rapporteurs; Roundtable on Value & Science-Driven Health Care; The Learning Health System Series; Institute of Medicine - ISBN: 0-309-15417-0, May, 2011, page 43

http://www.nap.edu/catalog/12912.html

Goals and Objectives of Meaningful Use of Electronic Health Records

Current Goal & Objective for Meaningful Use

"The meaningful use timelines are based on the goal of having all American's health care history in electronic health records (EHRs) by 2014."

Paul Tang
Palo Alto Medical Foundation
Health Information Technology Standards Committee
Summary of the April 20, 2011, Meeting, page 2

"… the objective of meaningful use is to actually improve quality."

Carol Diamond
Markle Foundation
Health Information Technology Standards Committee
Summary of the April 20, 2011, Meeting, page 3

"Healthcare is predicated on the efficient interaction between the patient and the caregiver."

VistA Modernization Report
Legacy to Leadership

May 4, 2010

American Council for Technology | Industry Advisory Council

Charge & Focus Areas for ONC FACAs – May 2009

"…Congress has set eight specific areas of focus for the HIT Standards Committee, as follows:

1. Privacy and security
2. Nationwide health information technology infrastructure
3. **The utilization of certified electronic health records (EHRs) for each person in the United States by 2014**
4. Technologies that allow for accounting of disclosures made by a covered entity
5. The use of certified EHRs to improve the quality of health care
6. Technologies that allow individually identifiable health information to be rendered unusable, unreadable, or indecipherable to unauthorized individuals
7. The use of electronic systems to insure a comprehensive collection of patient demographic data including race, ethnicity, primarily language, and gender information
8. Technologies that address the needs of children and other vulnerable populations."*

* **Meeting Summary Health Information Technology Standards Committee May 15, 2009 pg 2-3**

Meaningful Use Objectives – Summary (1 of 2)

Summary Overview of Meaningful Use Objectives	
Objective	**Measure**
Core set of objectives to be achieved by all eligible professionals, hospitals, and critical access hospitals to qualify for incentive payments	
Record patient demographics (sex, race, ethnicity, date of birth, preferred language, and in the case of hospitals, date and	Over 50% of patients' demographic data recorded as structured data
Preliminary cause in the event of death)	Over 50% of patients 2 years of age or older have height, weight, and blood pressure recorded as structured data
Record vital signs and chart changes (height, weight, blood pressure, body-mass index, growth charts for children)	Over 80% of patients have at least one entry recorded as structured data
Maintain up-to-date problem list of current and active diagnoses	Over 80% of patients have at least one entry recorded as structured data
Maintain active medication list	Over 80% of patients have at least one entry recorded as structured data
Maintain active medication allergy list	Over 50% of patients 13 years of age or older have smoking status recorded as structured data
Record smoking status for patients 13 years of age or older	Clinical summaries provided to patients for over 50% of all office visits within 3 business days; over 50% of all patients who are discharged from the inpatient department or emergency department of an eligible hospital or critical access hospital and who request an electronic copy of their discharge instructions are provided with it
For individual professionals, provide patients with clinical summaries for each office visit; for hospitals, provide an electronic copy of hospital discharge instructions on request	Over 50% of requesting patients receive electronic copy within 3 business days
On request, provide patients with an electronic copy of their health information (including diagnostic-test results, problem list, medication lists, medication allergies, and for hospitals, discharge summary and procedures)	Over 40% are transmitted electronically using certified EHR technology
Generate and transmit permissible prescriptions electronically (does not apply to hospitals)	Over 50% of patients' demographic data recorded as structured data
Computer provider order entry (CPOE) for medication orders	Over 30% of patients with at least one medication in their medication list have at least one medication ordered through CPOE
Implement drug–drug and drug–allergy interaction checks	Functionality is enabled for these checks for the entire reporting period
Implement capability to electronically exchange key clinical information among providers and patient-authorized entities	Perform at least one test of EHR's capacity to electronically exchange information
Implement one clinical decision support rule and ability to track compliance with the rule	One clinical decision support rule implemented
Implement systems to protect privacy and security of patient data in the EHR	Conduct or review a security risk analysis, implement security updates as necessary, and correct identified security deficiencies
Report clinical quality measures to CMS or states	For 2011, provide aggregate numerator and denominator through attestation; for 2012, electronically submit measures

Digital Infrastructure for the Learning Health System: Claudia Grossman and J. Michael McGinnis, Rapporteurs; Roundtable on Value & Science-Driven Health Care; The Learning Health System Series; Institute of Medicine - ISBN: 0-309-15417-0, May, 2011, page 45

http://www.nap.edu/catalog/12912.html

Meaningful Use Objectives – Summary (2 of 2)

Summary Overview of Meaningful Use Objectives (Continued)	
Objective	**Measure**
Eligible professionals, and critical access hospitals may select any five choices from the menu list	
Implement drug formulary checks	Drug formulary check system is implemented and has access to at least one internal or external drug formulary for the entire reporting period
Incorporate clinical laboratory test results into EHRs as structured data	Over 40% of clinical laboratory test results whose results are in positive/negative or numerical format are incorporated into EHRs as structured data
Generate lists of patients by specific conditions to use for quality improvement, reduction of disparities, research, or outreach	Generate at least one listing of patients with a specific condition
Use EHR technology to identify patient-specific education resources and provide those to the patient as appropriate	Over 10% of patients are provided patient-specific education resources
Perform medication reconciliation between care settings	Medication reconciliation is performed for over 50% of transitions of care
Provide summary of care record for patients referred or transitioned to another provider or setting	Summary of care record is provided for over 50% of patient transitions or referrals
Submit electronic immunization data to immunization registries or immunization information systems	Perform at least one test of data submission and follow-up submission (where registries can accept electronic submissions)
Submit electronic syndromic surveillance data to public health agencies	Perform at least one test of data submission and follow-up submission (where public health agencies can accept electronic data)
Additional choices for hospitals and critical access hospitals	
Record advance directives for patients 65 years of age or older	Over 50% of patients 65 years of age or older have an indication of an advance
Submit electronic data on reportable laboratory results to public health agencies	Perform at least one test of data submission and follow
Additional Choices for eligible professionals	
Send reminders to patients (per patient preference) for preventive and follow-up care	Over 20% of patients 65 years of age or older or 5 years of age or younger are sent appropriate reminders
Provide patients with timely electronic access to their health information (including laboratory results, problem list, medication lists, medication allergies)	Over 10% of patients are provided electronic access to information within 4 days of its being updated in the EHR

Reproduced with permission from Blumenthal, D. and M. Tavenner. 2010. The "meaningful use" regulation for electronic health records. *New England Journal of Medicine* 363(6):501-504.

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http://www.nap.edu/catalog/12912.html

Meaningful Use Stage 1 Process – October 2010

Recap of Stage 1 Recommendation Process

- Apr 29, 2009: NCVHS Meaningful Use hearing
- May 11, 2009: First HIT Policy committee meeting
- May 28, 2009: First Meaningful Use (MU) workgroup meeting
- Jun 16, 2009: First Draft "Meaningful Use matrix" presented at HITPC for feedback
- Draft released for public comment
- Jul 16, 2009: HITPC approved MU recommendations
- Jan 13, 2010: MU NPRM
- Jul 13, 2010: MU Final Rule

HIT Policy Committee
Meaningful Use Workgroup
Paul Tang, Palo Alto Medical Foundation, Chair
George Hripcsak, Columbia University, Co-Chair
October 27, 2010

President's Council of Advisors on Science and Technology (PCAST) Vision & Direction

PCAST End State Vision – April 2011

End State Vision: User Perspective

1. Every American will have electronic health records and will have the ability to exercise privacy preferences for how those records are accessed, consistent with law and policy.
2. Subject to privacy and security rules, a clinician will be able to view all patient data that is available and necessary for treatment. The data will be available across organizational boundaries.
3. Subject to privacy and security rules, authorized researchers and public health officials will be able to leverage patient data in order to perform multi-patient, multi-entity analyses.

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HIT Standards Committee
PCAST Report Workgroup
Wednesday, April 20, 2011
Paul Egerman, Chair
William Stead, Vice Chair

PCAST – Major Directions – April 2011

PCAST recommends ONC accelerate progress:

PCAST Report: Three Major Directions

1. Accelerate progress toward a robust exchange of health information.

2. Establish a new exchange architecture with a *universal exchange language (UEL) and interlinked search capabilities* coupled with strong privacy and security safeguards. The exchange architecture will enable clinicians and patients to assemble a patient's data across organizational boundaries and facilitate population health.

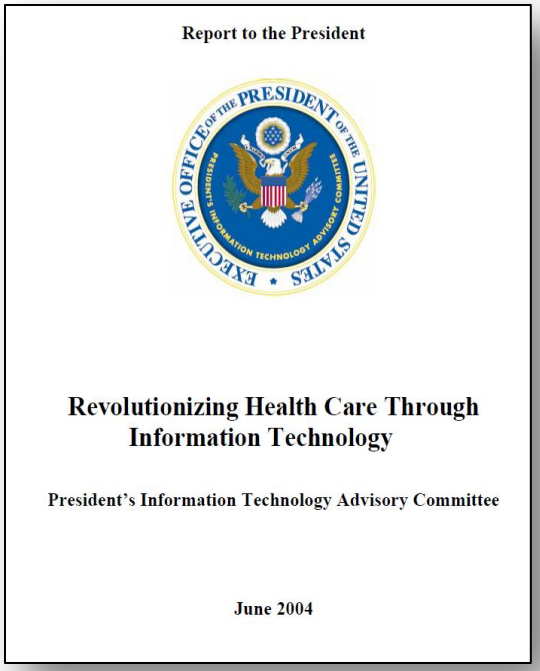
3. Establish an evolutionary transition path from existing installations to the new exchange architecture.

5

HIT Standards Committee
PCAST Report Workgroup
Wednesday, April 20, 2011
Paul Egerman, Chair
William Stead, Vice Chair

Population Characteristics & Patient-centered Electronic Health Record (EHR) Goals

Population: Multiple Providers & Mobile Citizens- June 2004


Report to the President

Revolutionizing Health Care Through Information Technology

President's Information Technology Advisory Committee

June 2004

**** Revolutionizing Health Care Through Information Technology President's Information Technology Advisory Committee June 2004**

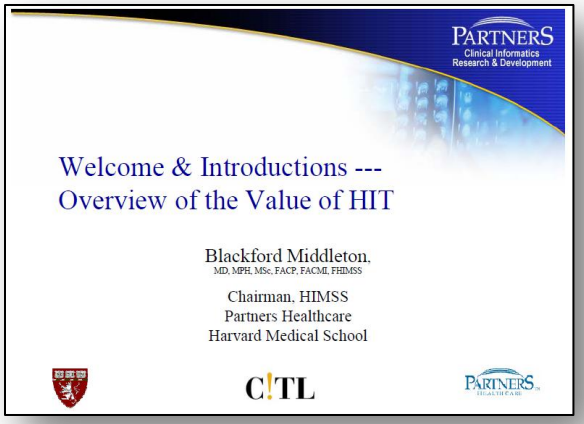
1 Secretary Tommy G. Thompson, remarks offered at the Health Information Technology Summit, Washington DC. May 6, 2004. http://www.hhs.gov/news/speech/2004/040506.html

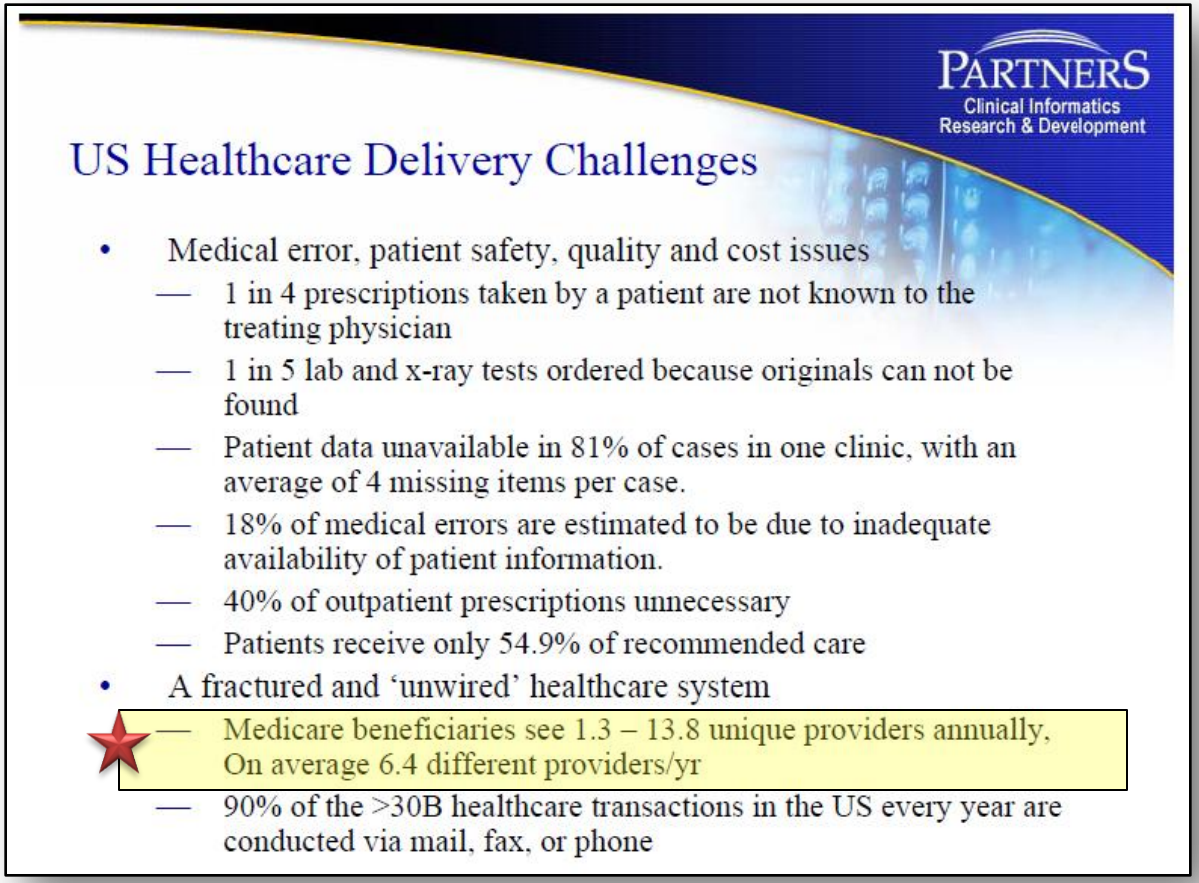
"…the most remarkable feature of this twenty-first century medicine is that we hold it together with nineteenth-century paperwork [1]

The U.S. health care system is acknowledged to be the world's most advanced scientifically and technologically. But amid multimillion-dollar diagnostic instruments, highly trained caregivers, and a vast facilities infrastructure, the most fundamental and pervasive basis on which Americans receive health care is the handwritten notation. Such notations not only form the record of a patient's interactions with a medical professional but also serve as the instructions for treatment, from prescriptions taken to a pharmacy to pre-operative and postoperative surgical procedures.

The paper-based techniques for record-keeping served caregivers and their patients well in earlier eras, when most people had a single physician over many years and much of their medical history resided in that physician's memory. In the modern era, however, the **enormous complexity and sophistication of medical practice involving multiple care providers, the geographic mobility of citizens, and the critical requirement for adequate patient information in medical decision making** have stressed the traditional modes to the breaking point." **

Population: Medicare Providers & Mobile Citizens - 2005





http://www.himss.org/content/files/GHIT-SSummit2005/Middleton.TC215.Intro.2005.pdf

Population: DOD and VA Highly Mobile Patients – Feb 2011

GAO
Accountability * Integrity * Reliability

Background

While in military status and later as veterans, many DOD and VA patients tend to be highly mobile and may have health records residing at multiple medical facilities within and outside the United States. Therefore, electronic health records are particularly crucial for optimizing the health care provided to military personnel and veterans. Making such records electronic can help ensure that complete health care information is available for most military service members and veterans at the time and place of care, no matter where it originates.

Furthermore, electronic health records are essential to providing quality care to DOD's and VA's 3.5 million shared patients—that is, those who receive health care and services from both departments. Under the departments' policies for providing health care services, veterans and active duty service members may, for example, receive outpatient care from VA clinicians and be hospitalized at a military treatment facility.

15

ELECTRONIC HEALTH RECORDS
DOD and VA Should Remove Barriers and Improve Efforts to Meet Their Common System Needs - GAO Study - Feb 2011

Population: DOD and VA Highly Mobile Providers – Feb 2011

DoD/VA Health IT Data Sharing – Today and Tomorrow

Katharine W. Murray, R.N.
DoD OSD(HA)/MHS/OCIO
Chief, Interagency Coordination

Joseph E. Gardner, III
Deputy Director
VA/DoD Health Information Sharing

Healthcare Information Management and Systems Society Annual Conference
February 22, 2011

MHS Electronic Health Record (EHR) Footprint (Sustaining Base)

Supporting transient patient populations and transient health care teams

- AHLTA – Worldwide
  - Covers Every Time Zone
  - 9.6 Million Beneficiaries
  - 162 Million Outpatient Encounters
  - 148,000 Additional Encounters/Day
  - 77,000 Active Users
  - White House Medical Unit

- MHS Inpatient Solution
  - 54 Sites (over 86% of DoD Inpatient Beds)
  - Continued Deployment in FY 2011

Standardized Patient-centered Electronic Health Records (EHR)

NCVHS Vision - Health Record Content Outline – Oct 1998

ASSURING A HEALTH DIMENSION FOR THE NATIONAL INFORMATION INFRASTRUCTURE

A Concept Paper by the National Committee on Vital and Health Statistics

Presented to the U.S. Department of Health and Human Services Data Council

October 14, 1998

With the Health Insurance Portability and Accountability Act (HIPAA) of 1996, Congress essentially transformed the nearly fifty-year-old National Committee on Vital and Health Statistics (NCVHS) into the nation's primary external advisory group for health information policy. While in the past, NCVHS was responsible for making recommendations only to the government, the HIPAA legislation mandated a number of national health data standards to encompass both government and the private sector. The Committee has worked for two years on specific HIPAA policy mandates. It is now evident that the Department of Health and Human Services (HHS) needs to craft a comprehensive approach to health information policy to guide development of the nation's information capacities for optimal use in improving the health status of all Americans. NCVHS is committed to helping the Department address this important policy matter. This paper is intended for HHS, through the HHS Data Council, as a preliminary description of opportunities and challenges in this area.

The national information infrastructure (NII) can be an essential tool and resource in promoting the nation's health. However, it is a largely untapped resource. The health sector has not applied information and communication technologies as effectively as have other sectors, and health is under represented in the NII relative to the scale of the national health enterprise and its importance to the American public. Making the health component congruent with the NII and an integral part of its development requires two concurrent processes: building the health information infrastructure (HII), and integrating it into the broader national information infrastructure.

It is important to emphasize that neither "NII" nor "HII" refers to a database but to a set of technologies, standards and applications that support communication and information. It encompasses all aspects relating to health, computers, and telecommunications. ("Telehealth" is now the accepted umbrella term for the full spectrum of applications using computers and telecommunications for health. The Secretary of DHHS officially endorsed it over 18 months ago, and the FCC has also adopted it.) Many, possibly most, of these technologies are common across sectors or share common elements. As the linkages between the NII and the HII are strengthened, solutions developed in other sectors, such as security measures, will emerge that can be adapted to solving problems in the health arena. The information content of an eventual

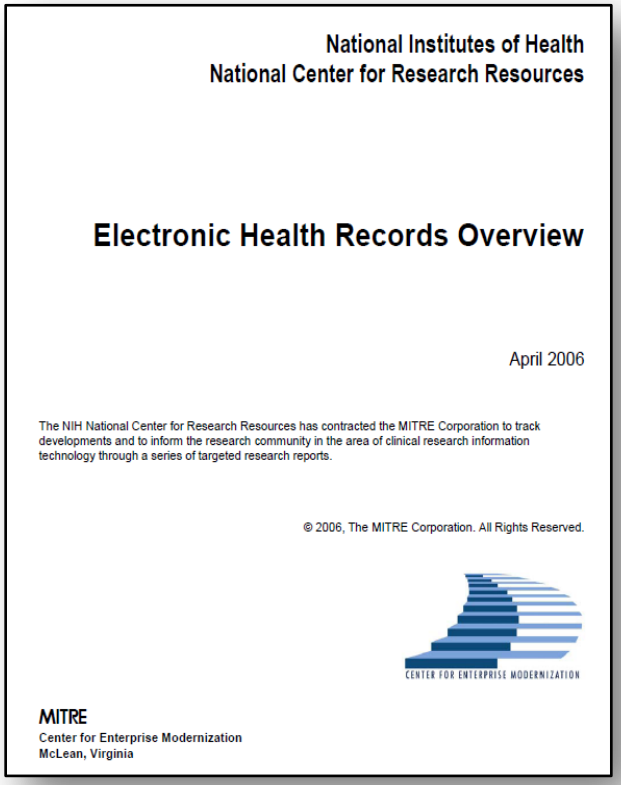
COMPUTER-BASED HEALTH RECORDS *
Representative Samples of Content

Personal	Patient	Population
• Family history • Focused longitudinal records (e.g., immunizations) • Health maintenance advice • Specific health education • Specific disease management	• Medical records (patient care data) • Compliance data • Outcomes data • Records of E-mail to primary care provider and specialists • Scheduling	• Non-identifiable data on care • Primarily non-identifiable data on behaviors, monitoring, risk assessment • Spending

* ASSURING A HEALTH DIMENSION FOR THE NATIONAL INFORMATION INFRASTRUCTURE
A Concept Paper by the National Committee on Vital and Health Statistics
Presented to the U.S. Department of Health and Human Services Data Council
October 14, 1998 - pages 1 & 5

EHR Definition – NIH / HIMSS – April 2006

EHRs are <u>not Lifetime in nature</u>; <u>Encounter-based and limited</u> per HIMSS:



National Institutes of Health
National Center for Research Resources

Electronic Health Records Overview

April 2006

The NIH National Center for Research Resources has contracted the MITRE Corporation to track developments and to inform the research community in the area of clinical research information technology through a series of targeted research reports.

CENTER FOR ENTERPRISE MODERNIZATION

MITRE
Center for Enterprise Modernization
McLean, Virginia

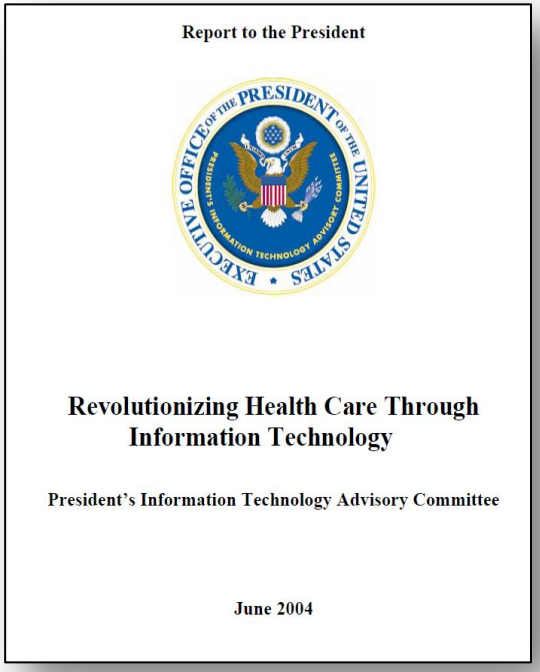
National Institutes of Health National Center for Research Resources
Electronic Health Records Overview
April 2006
Center for Enterprise Modernization

1.1 Definition of Electronic Health Records
This report uses **the Health Information Management Systems Society's (HIMSS) definition of EHRs. It reads:**
"The Electronic Health Record (EHR) is a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. Included in this information are patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data, and radiology reports. The EHR automates and streamlines the clinician's workflow. The EHR has the ability to generate a complete record of a clinical patient encounter, as well as supporting other care-related activities directly or indirectly via interface—including evidence-based decision support, quality management, and outcomes reporting."1
It is important to note that an <u>EHR is generated and maintained</u> *<u>within an institution</u>, such as a hospital, integrated delivery network, clinic, or physician office. <u>An EHR is not a longitudinal record of all care provided to the patient in all venues over time</u>. Longitudinal records may be kept in a nationwide or regional health information system*. *Therefore, EHRs that are custom-designed or reside in other health care delivery venues are not reviewed in this document. The scope of this report focuses on COTS EHRs that may be appropriate for AMCs.*

1 See HIMSS web page for the consensus definition of an electronic health record. http://www.himss.org/ASP/topics_ehr.asp.

National Security Significance of EHR Need – June 2004

Top national, homeland, and economic security priorities & core need for patient-centered EHRs:


Report to the President

Revolutionizing Health Care Through Information Technology

President's Information Technology Advisory Committee

June 2004

**** Revolutionizing Health Care Through Information Technology President's Information Technology Advisory Committee June 2004**

"Revolutionizing Health Care Through Information Technology," the current Committee's first report to the President and Congress, reflects the assessment of PITAC members that the **overall quality and cost-effectiveness of U.S. health care delivery bear directly on the three top national priorities of national, homeland, and economic security** established by the Administration.

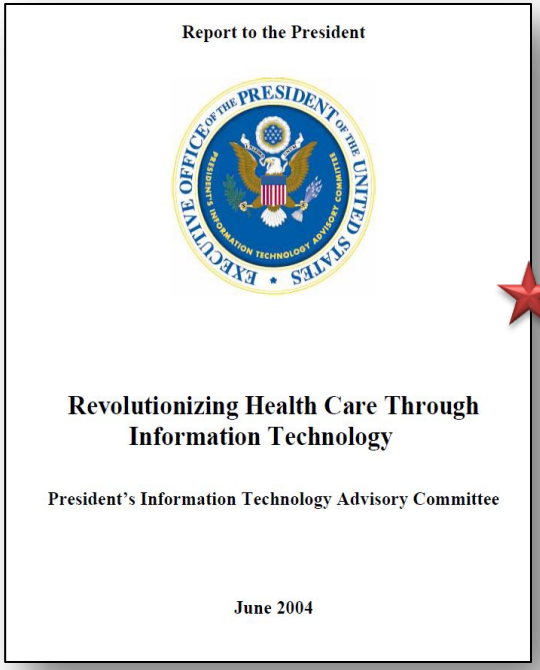
…

Calling for Federal leadership to spur needed technological innovation, the PITAC report offers 12 specific recommendations for Federal research and actions to enable development of 21st century electronic medical records systems. **At the core of such systems is the concept of a secure, patient-centered electronic health record (EHR)** that:

1) safeguards personal privacy;
2) uses standardized medical terminology that can be correctly read by any care provider and incorporated into computerized tools to support medical decision making;
3) eliminates today's dangers of illegible handwriting and missing patient information; and
4) can be **transferred** as a patient's care requires over a secure communications infrastructure for electronic information exchange.

EHR Finding: Standardized Clinical Data Needed - June 2004

Standardized EHR Data Definitions Needed:


Report to the President

Revolutionizing Health Care Through Information Technology

President's Information Technology Advisory Committee

June 2004

**** Revolutionizing Health Care Through Information Technology President's Information Technology Advisory Committee June 2004**

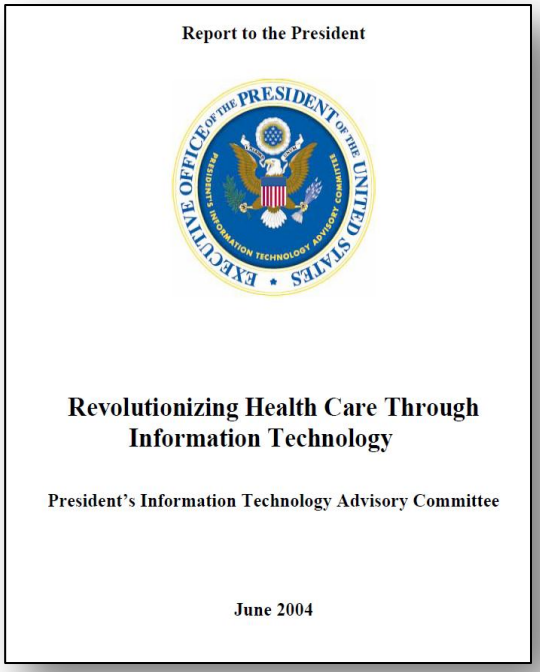
Finding 6. Standardized EHRs:

"Notwithstanding the value of exchanging existing sources of patient information, **EHRs that are based on a common information architecture with highly standardized data definitions enable computer-aided decision support, automated medical-error detection, and rapid patient population analyses for medical research, public health, and homeland security,** and thus could **have enormous national value**. **There is currently no data-level standard for the storage and retrieval of clinical information within EHRs. Most standards organizations, including Health Level Seven (HL7), have emphasized the structure of the messages being exchanged between systems and have allowed significant variation in the content and internal organization of data within that structure.**

This lack of standardization, particularly of quantitative data, hinders interoperable use and requires a great deal of work on translations from internal representations to those representations that can be transmitted to and understood by another EHR system. Even within a single proprietary EHR product line, each instantiation of the product is apt to **use different data layouts, largely dictated by the installation site**. Recently adopted standards for pharmacy data, laboratory data, and radiological images are a step in the right direction but only a partial solution to this problem. **Currently, there is little possibility for moving quantitative patient data across sites of care in a fully interoperable manner.** There is a long and successful history of Federal leadership, primarily from NIH, in developing universally adopted nomenclature for disease staging, because of the need for such nomenclature in clinical research. Similarly, this is an area where **Federal leadership can be used to encourage private-sector organizations to agree on data standards."** *

EHR Standard Data Recommendations – June 2004

Single set of EHR Data Definition Standards Recommended:


Report to the President

Revolutionizing Health Care Through Information Technology

President's Information Technology Advisory Committee

June 2004

**** Revolutionizing Health Care Through Information Technology President's Information Technology Advisory Committee June 2004**

Recommendations:

"Develop a single set of data standards for the most common forms of clinical information. This effort should leverage efforts underway within Federally implemented systems."

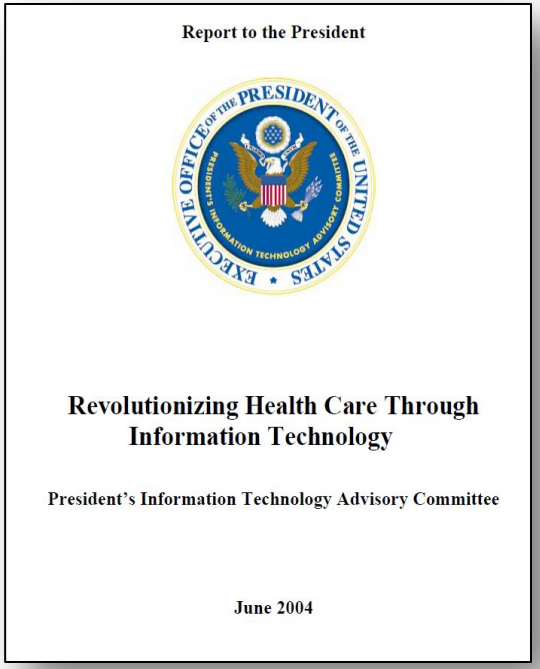
…

"These standards should be developed in the public domain in conjunction with voluntary standards-developing organizations such as HL7 and ASTM so that they may be implemented in proprietary EHR systems and also used as a fully interoperable transport standard between EHR systems. Coordination is needed across relevant HHS, VA, and DoD agencies, along with NIST, NSF, and others, with the leadership of the new HHS position of National Health Information Technology Coordinator. Conduct research and development into low-cost tools for standardizing new and legacy digital data without disrupting current clinical workflow. Such tools might draw upon existing Federal projects for rules-based and statistically based natural-language processing and related technologies."

"In addition to specifying the data elements and architecture, standards developed in this environment **should also address the redundancy and persistence of core EHR data** that are needed to create a reliable, federated health information infrastructure."

EHR Standard Data Discussion – June 2004

Single set of EHR Data Definition Standards Long Advocated but Never Realized:


Report to the President

Revolutionizing Health Care Through Information Technology

President's Information Technology Advisory Committee

June 2004

Discussion:

"Although **normalized clinical data standards have been advocated for decades** and vendors of health IT systems generally assert adherence to standards, most current standards lack the specificity required for true interoperability. Even some vertically integrated systems of care using a single computing platform map data with sufficient variability in names and formats to impede interoperability and quantitative assessment. Moreover, fear of rapid obsolescence often impedes investment in present weak standards that lack probable longevity. One of the factors slowing the innovative development of full standards has been lack of funds and encouragement for leading-edge, private caregiver organizations. Federally funded regional pathfinder demonstrations that include **significant sustained support for open, normalized EHR standards development are almost certainly necessary to accelerate progress in this area**."

**** Revolutionizing Health Care Through Information Technology President's Information Technology Advisory Committee June 2004**

Traditional Electronic Health Record (EHR) Concepts & Definitions

Traditional EHR Concept – NIH 2006

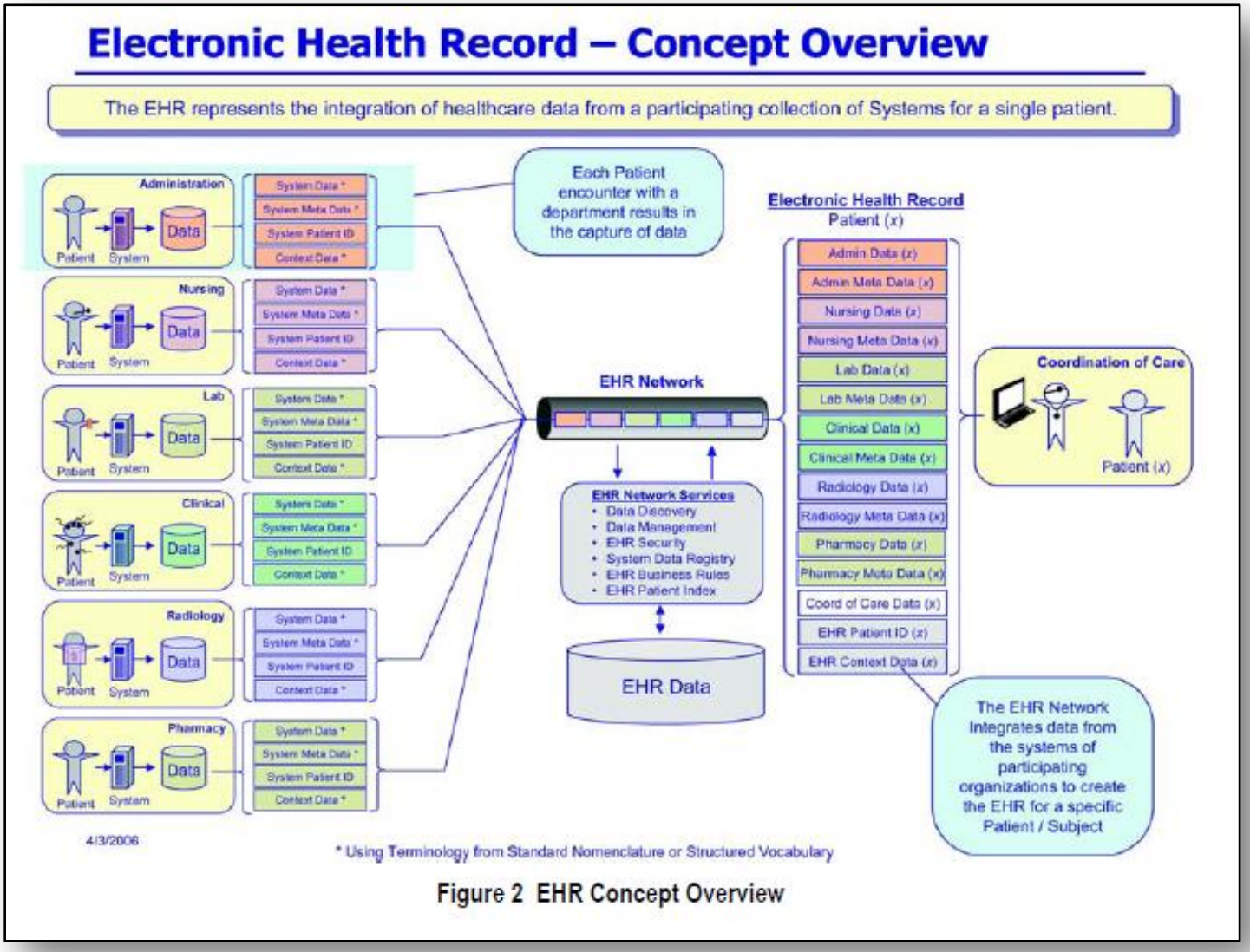
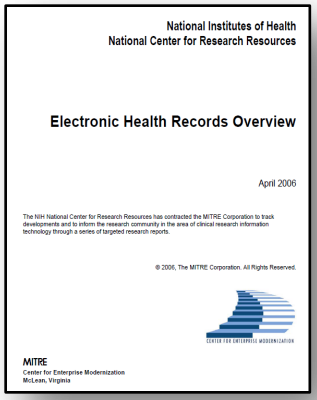


Figure 2 EHR Concept Overview

National Institutes of Health National Center for Research Resources Electronic Health Records Overview

April 2006

Center for Enterprise Modernization



Traditional EHR Definitions Differ, not Standard

ELECTRONIC HEALTH RECORDS (EHR) DEFINITIONS

Institute of Medicine
"An EHR system includes (1) longitudinal collection of electronic health information for and about persons, where health information is defined as information pertaining to the health of an individual or health care provided to an individual; (2) immediate electronic access to person- and population-level information by authorized, and only authorized, users; (3) provision of knowledge and decision-support that enhance the quality, safety, and efficiency of patient care; and (4) support of efficient processes for health care delivery. Critical building blocks of an EHR system are the electronic health records (EHR) maintained by providers (e.g., hospitals, nursing homes, ambulatory settings) and by individuals (also called personal health records)." (1)

American Academy Of Family Physicians. Ad Hoc Committee On Electronic Medical Records
"Electronic medical record features: General features of an EMR system, Clinical data repository features, Medication Management, Order Management, Charting/Documentation Management, Results Management, Office Work Flow Management" (2)

Healthcare Information and Management Systems Society (HIMSS) Definitional Model
"The Electronic Health Record (EHR) is a secure, real-time, point-of-care, patient-centric information resource for clinicians. The EHR aids clinicians' decision making by providing access to patient health record information where and when they need it and by incorporating evidence-based decision support. The EHR automates and streamlines the clinician's workflow, closing loops in communication and response that result in delays or gaps in care. The EHR also supports the collection of data for uses other than direct clinical care, such as billing, quality management, outcomes reporting, resource planning, and public health disease surveillance and reporting." (3)

Medical Record Institute (Waegeman)
The term electronic health record (EHR) promotes "full interoperability among specialties and provider domains. Ten areas need to be harmonized and standardized in order to achieve interoperability: Information capture, information representation, operational dimensions and data model, clinical practice, decision support, security/confidentiality, performance, interoperability, quality assurance and testing, content." (4)

National Alliance of Primary Care Informatics
"Every primary care provider will use information technology that includes electronic health records with the ability to access and communicate needed clinical information to achieve high quality, safe, and affordable health care." (5)

Electronic Health Records (EHR) - Fabio Sabogal, PhD
CMRI - Senior Health Care information Specialist 10/12/2003

Traditional EHR Functions & Benefits per Med Organizations

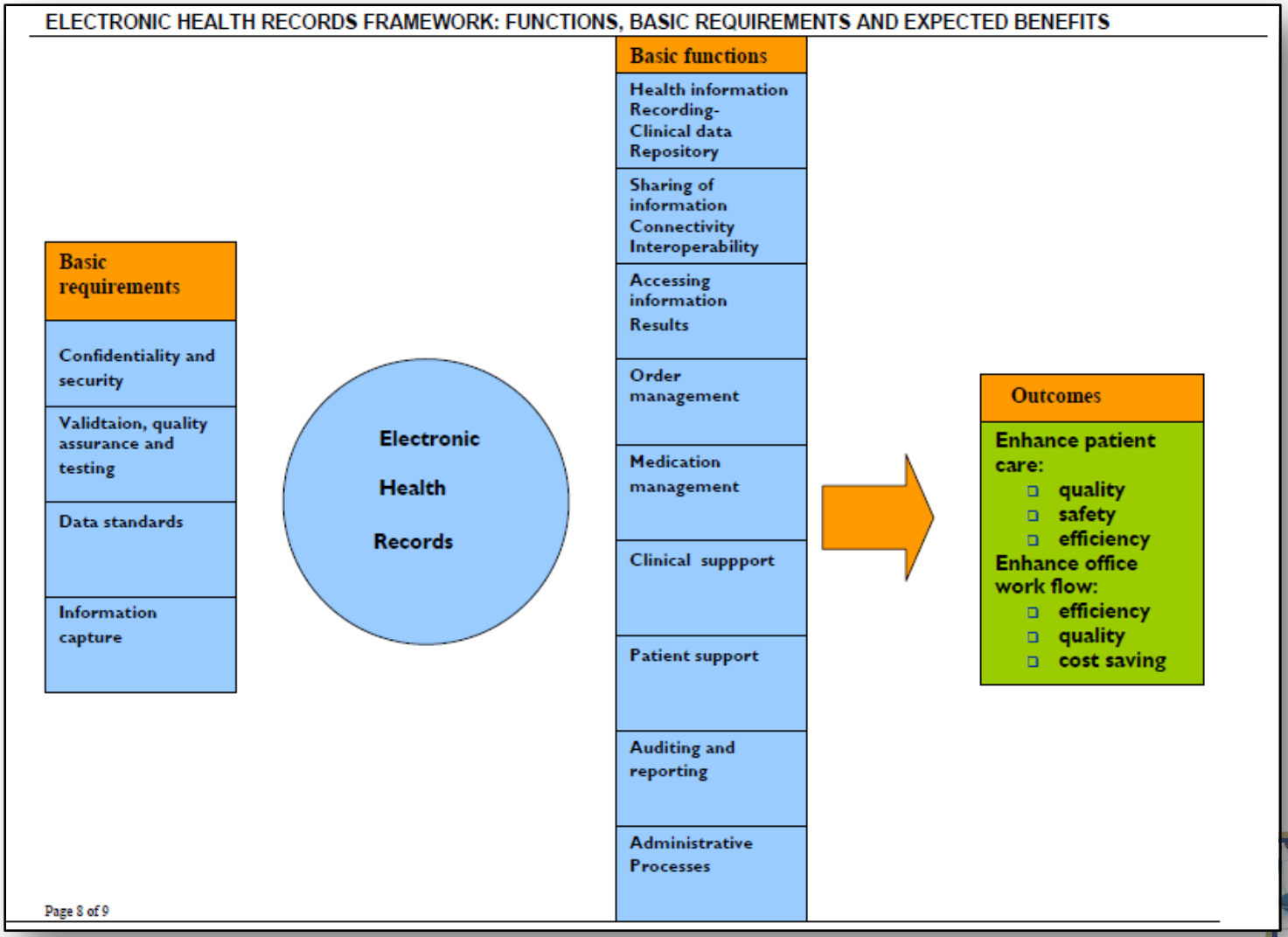
EHR BASIC FUNCTIONS AND STANDARDS BY MAJOR ORGANIZATIONS AND BENEFITS

Electronic health records functions	Major Organizations				Potential benefits			
	Institute of Medicine	AAFP	HIMSS	Waegemann	Cost Savings	Quality	Safety	Efficiency
Recording health information —clinical data repository	√	√	√	√	√	√	√	√
Accessing info. Results – charting documentation management	√	√	√		√	√	√	√
Order management	√	√	√		√	√	√	√
Medication management	√	√	√		√	√	√	√
Decision support	√		√	√	√	√	√	√
Patient support-office work flow management	√	√	√	√	√	√	√	√
Sharing inf. –accessibility-connectivity	√	√	√	√	√	√	√	√
Reporting	√	√	√	√	√	√	√	√
Administrative processes-scheduling, billing	√	√	√	√	√	√	√	√
Requirements								
Confidentiality-security	√	√	√	√				
Validation-Quality assurance and testing	√	√	√	√				
Multiple information capture	√	√	√	√				
Data Standards	√	√	√	√				

AAFP: American Academy Of Family Physicians; HIMSS: Healthcare Information and Management Systems Society. Medical Record Institute. Waegemann, P.C. EHR vs CCR: What is the difference between the electronic health record and the continuity of care record?

Electronic Health Records (EHR) - Fabio Sabogal, PhD
CMRI - Senior Health Care information Specialist 10/12/2003

Traditional EHR Requirements, Functions/Expected Benefits



VA Effort to Address EHRs – Sept 2010

Electronic Health Record Enterprise Architecture Summit

VA Learning Xchange
07 -10 September 2010

EHR EA Summit Executive Summary

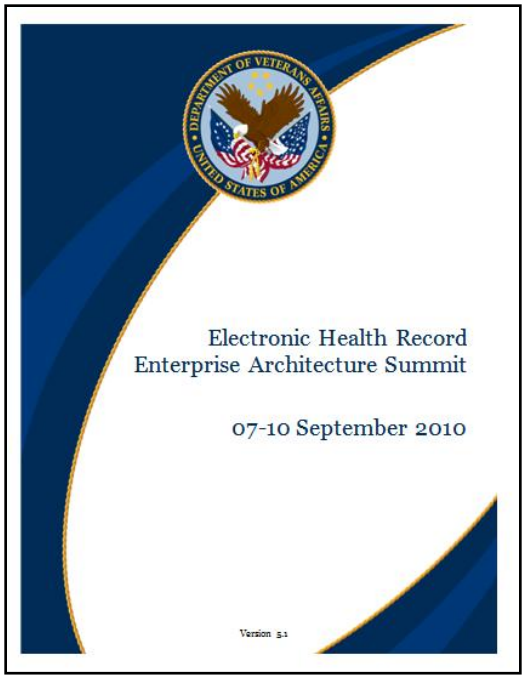
Purpose: On September 07-10, thought leaders from the Department of Veterans Affairs Veterans Health Administration and the Office of Information and Technology as well as limited representation from the Department of Defense, Interagency Program Office, and Indian Health Services met in Cleveland, Ohio to:

Develop consensus on the future architecture of Electronic Health Record (EHR) (VistA) and pathway forward among key government thought leaders in health informatics and information technology

Process: After two months of extensive and organizationally inclusive planning and pre-work, the Summit opened with two guest speakers from Red Hat and Apple to discuss Open Source Development and Technology Innovation, the Summit participants met for two and a half days at the VA Cleveland Learning Xchange to discuss and plan the future enterprise architecture for the future Electronic Health Record (EHR). The resultant artifacts were restructured to create the plan elements needed for a Request for Information (RFI). Polling and surveys were conducted to measure the level of agreement with and perceived significance of assertions about the VistA made during the summit planning phase as well as prioritization of the important attributes of system architecture.

Outputs: The Outputs of the Summit Include:

- Consolidated Plan Elements to inform an RFI
  - Purpose
  - Scope
  - Key Functional Requirements
  - Key Informational / Data Architectural Requirements
  - Key Technical Architectural Requirements
  - Key Risks
  - Governance Critical Success Factors and Implications
- Consolidated Plan Elements to inform an RFI
  - Purpose
  - Scope
  - Key Functional Requirements
  - Key Informational / Data Architectural Requirements
  - Key Technical Architectural Requirements
  - Key Risks
  - Governance Critical Success Factors and Implications
- Cost assumptions for the new EHR
- Vetted and impact-rated VistA assertions
- Prioritized Important architectural attributes



Implications and Next Steps:

The Summit participants were asked at the end of the final day to reflect on the week's events. The following is a summary of key points they identified:

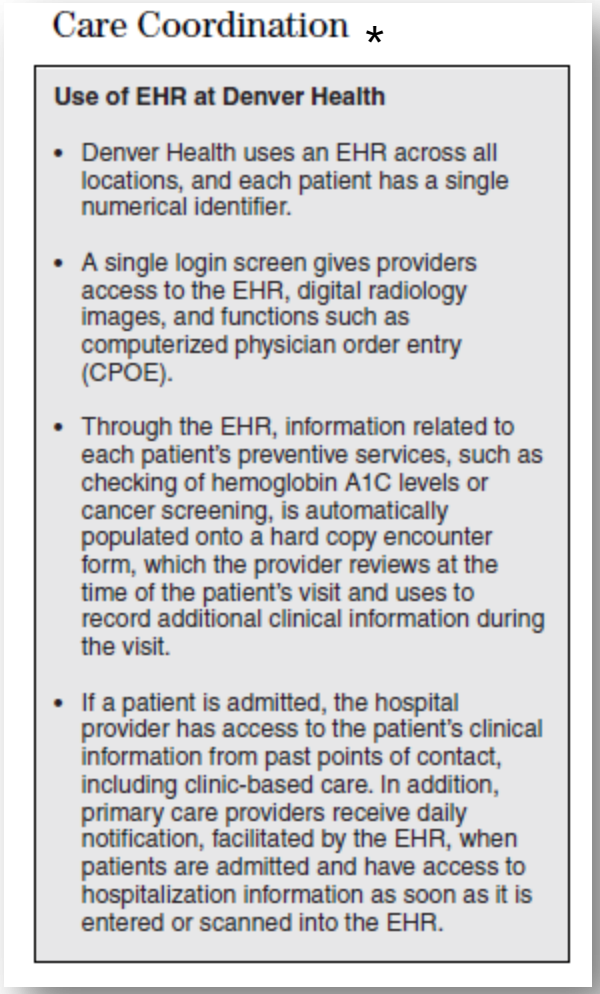
Summit Accomplishments:

- Establishment of a high-level architectural direction and plan elements
- Much improved collaboration between OI&T and VHA

Next Steps and Needed Decisions:

- Support the re-emergence of VA as a leader in electronic health data management
- Organizational commitment to implementing the plan elements developed at the lockdown
- Identifying the requirements and implementing collaborative, responsive and agile governance
- Further development of a strategic, integrated, architectural concept and direction
- Determination as to whether VA is going to adopt or co-opt an internal and external Open Source model
- Evaluation of the health outcomes that result from IT investment
- Continued accommodation of the convergence of systems, including greater interoperability with other agencies (DOD, HHS, etc.) and private sector health care providers

Effective EHR Use Example – Single Organization Nov 2010



Care Coordination *

Use of EHR at Denver Health

- Denver Health uses an EHR across all locations, and each patient has a single numerical identifier.
- A single login screen gives providers access to the EHR, digital radiology images, and functions such as computerized physician order entry (CPOE).
- Through the EHR, information related to each patient's preventive services, such as checking of hemoglobin A1C levels or cancer screening, is automatically populated onto a hard copy encounter form, which the provider reviews at the time of the patient's visit and uses to record additional clinical information during the visit.
- If a patient is admitted, the hospital provider has access to the patient's clinical information from past points of contact, including clinic-based care. In addition, primary care providers receive daily notification, facilitated by the EHR, when patients are admitted and have access to hospitalization information as soon as it is entered or scanned into the EHR.

*** November 2010**
HEALTH CARE DELIVERY
Features of Integrated Systems Support Patient Care Strategies and Access to Care, but Systems Face Challenges GAO-11-49 page 9

Key point: a single, deterministic patient ID enables and provides the level of confidence needed by providers that they have the right patient's information.

It also enables capture of all relevant information for the patient (an integrated longitudinal EHR record) that allows optimal coordination of care and tracking of outcomes to occur for a particular patient, in one EHR, for care received across multiple locations and providers over time.

The same principle (deterministic ID/ integrated EHR) applies at a scaled level (i.e., the Internet) and allows economies of scale to be achieved.

Probabilistic Matching does not provide the level of confidence needed in medical contexts, especially if the number of data sources consulted is large.

Executive Views of Lifetime Electronic Health Records (EHR)

Executive View – Lifetime Electronic Health Records

April 9, 2009 12:41 PM **Obama Announces Electronic Health Records For Vets**
Posted by Michelle Levi
President Obama announced this morning that the Department of Defense and the Department of Veterans Affairs will cooperate to launch an electronic system for storage of veterans' healthcare records called the Joint Virtual Lifetime Electronic Record.

The president was joined by Secretary Gates and Secretary Shinseki when he made his announcement. He spoke to leaders from various veterans organizations, veteran patients and healthcare providers from veterans facilities.

Mr. Obama called the initiative a "first step towards creating **one, unified, lifetime electronic health record f**or members of our Armed Services that will contain their administrative and medical information from the day they first enlist to the day that they are laid to rest."

There is currently no way for paperwork to get from the Departments of Defense to the Veterans Administration, the president said, noting that records are often lost or held up.

The president said he has asked both departments to work together for a "simple goal": "when a member of the Armed Services separates from the military he or she will no longer have to walk paperwork from D.O.D. duty station to a local V.A. health center. Their electronic records will transition along with them and remain with them forever."

The president received a hearty applause for this statement.

http://www.cbsnews.com/8301-503544_162-4931789-503544.html

Executive Views – Lifetime Electronic Health Records

Barack H. Obama, President

"To improve the quality of our healthcare while lowering its costs, we will make the immediate investments necessary to ensure that within five years, all of America's medical records are computerized. This will cut waste, eliminate red tape and reduce the need to repeat expensive medical tests." (January 2009)

George W. Bush, former President

"By computerizing health records, we can avoid dangerous medical mistakes, reduce costs and improve care."

Bill Clinton, former President

"...every soldier, sailor, airman and marine will have a comprehensive, life-long medical record of all illnesses and injuries they suffer, the care and inoculations they receive and their exposure to different hazards. These records will help us prevent illness and identify and cure those that occur."

http://www.mc4.army.mil/about.asp

The President Supports the Virtual Lifetime Electronic Record (VLER)

" Under the leadership of Secretary Gates and Secretary Shinseki, the Department of Defense and the Department of Veterans Affairs have taken a first step towards creating one unified lifetime electronic health record for members of our armed services that will contain their administrative and medical information -- from the day they first enlist to the day that they are laid to rest. "

President Barack Obama
April 9, 2009

11

Lessons Learned for the Deployment of the Electronic Health Record
HIMSS 2011 February 2011
CAPT Michael S. Weiner
Director, EHR Way Ahead Planning Office

Executive View – Lifetime Electronic Health Records

Electronic Health Records Help Save Lives

President Bush touted electronic health records in his February 2006 State of the Union address. But what exactly is an electronic health record? How can it benefit the average American? And if, as proponents maintain, electronic health records save lives, why aren't they being fully utilized?

In 2004, President George W. Bush called for establishing EHRs for most Americans by 2014. Bush created the Office of the National Coordinator (ONC) for Health Information Technology to lead the way. The ONC pushed several pilot projects and created standardized medical records

The move toward electronic health records is often thought of as simply replacing paper. But it is actually the process of taking all patient data and placing them right at physicians' fingertips. This data include individual files, X-ray films and the patient's complete medical history -- from past surgeries and blood tests, allergies to ultrasound exams.

While some of our nation's hospitals and medical centers have begun transitioning to electronic health records, most have not. Doctors say we need only look to New Orleans and Hurricane Katrina to see why paper records can prove unreliable. Flood waters rendered many patient's medical history unavailable and unreadable. With secure, electronic records, patients would always have a back up.

http://www.medical.siemens.com/webapp/wcs/stores/servlet/PSGenericDisplay~q_catalogId~e_-1~a_catTree~e_100001~a_langId~e_-1~a_pageId~e_71227~a_storeId~e_10001.htm

DOD & VA Electronic Health Record (EHR) Strategies

DOD – VA Seek a Common EHR Definition – 29 Apr '11

Federal Computer WEEK
Strategy and business management for government leaders

VA's Baker says VA, DOD digital record systems will morph into joint system

VA pursuing open-source development for VistA that is aligned with joint objectives, Baker says

- By Alice Lipowicz
- Apr 29, 2011

The Veterans Affairs and Defense departments' approaches to modernizing their health record systems may be slightly different, but their goals are aligned in developing a joint electronic health record (EHR) system, according to Roger Baker, assistant secretary for information and technology for the VA.

Baker offered several details about the VA's pending development of a joint medical record system with DOD, while speaking in a conference call with reporters April 28. A transcript of the discussion was released afterward by the VA.

Concerning DOD officials' recent statements that they may be looking at commercial solutions first for the joint record system, while the VA is modernizing its Veterans Health Information System and Technology Architecture (VistA) system with an open-source approach, Baker said there is no conflict between the two approaches. He described the VA's open-source development as a means of examining commercial products.

"Use of open source is for VA the 'how' of getting a joint system. For DOD, open source is the 'what' of the system," said Baker, who also is the VA's CIO.

"Open source and 'looking at commercial first' go well together," Baker said. "It [looking at commercial first] is, in fact, what VA intends to accomplish, and has specifically said many times, through open source. While we're not prepared to talk in detail about our plans, VA and DOD have agreed that VA's use of open source as the model for development of VistA fits within our mutual plans for the Joint Common Electronic Health Record."

Whatever joint solution is chosen, it will be the same solution for both departments, and will likely include many proprietary products, which VA currently has in VistA, Baker added.

"The private sector is developing EHR systems faster than government is," Baker said. "The two departments will have the same collection of software, but the standards will be the first and more important part of a joint system. For example, VA might ask vendors to build a patient scheduling package that will accommodate open source."

Asked what steps will taken for both VA and DOD systems to become a single system, Baker said the systems will "morph."

"VA will evolve from VistA to a new EHR system," he said. "We will have incremental upgrades, using the PMAS [Performance Management and Accountability System]. We will transition from VistA, and DOD will do that with AHLTA [Armed Forces Health Longitudinal Technology Application]. In five to 10 years there may be no more VistA code remaining, but our users will not notice any difference."

The VA and DOD secretaries will meet May 2 for the next discussion on the issue, he said.

Baker also said the VA hopes to have an open-source development ecosystem of VistA operational by July 1.

The VA recently sought proposals for a custodial agent to operate the open-source development of VistA.

The target date is July 1, Baker said. "That's an aggressive target, feasible because many people had the opportunity to discuss this with us, and we can expect the selection of a custodial agent to be fairly straightforward."

DOD – VA Seek a Common EHR Definition – 31 Mar '11

nextgov TECHNOLOGY AND THE BUSINESS OF GOVERNMENT

Shinseki and Gates clinch deal on common health record

By Bob Brewin 03/31/11

Veterans Affairs Secretary Eric Shinseki said Thursday he and Defense Secretary Robert Gates agreed on March 17 that their departments would develop a common electronic health record system.

A former high-ranking federal health information technology official, who declined to be identified, said the agreement ultimately could save the two departments billions of dollars in development and maintenance costs.

Shinseki, speaking at a hearing of the Military Construction and Veterans Affairs panel of the Senate Appropriations Committee said he and Gates had agreed to "merge our capabilities to come up with a common platform," but provided few details.

He disclosed the agreement with Gates well over an hour into the hearing in a back-and-forth dialogue with ranking member Mark Kirk, R-Ill. Kirk at one point asked if the Defense Department was ready to "surrender" on the continued use of its AHLTA electronic health record system and go with VA's decades old Veterans Health Information Systems and Technology Architecture, known as VistA.

Defense, Shinseki said, "understands its current system [AHLTA] is not what it needs in the future." He then disclosed the agreement with Gates to develop a common system, and added the two departments will work on details between now and May.

http://www.nextgov.com/nextgov/ng_20110331_6529.php < see link for full article text

DOD – VA Now Seek a Common EHR Definition – 31 Mar '11

Federal Computer WEEK
Strategy and business management for government leaders

VA, DOD agree on joint platform for e-health records, Shinseki says

Agreement made March 17; next step is implementation plan by May 1

- By Alice Lipowicz
- Mar 31, 2011

The Veterans Affairs and Defense departments have agreed to create a joint common platform for electronic medical records as they confront the need to modernize their respective digital systems, VA Secretary Eric Shinseki said at a Senate hearing today.

Shinseki told a Senate Appropriations Committee subcommittee that he had reached the agreement with Defense Secretary Robert Gates on March 17 and the next milestone is a meeting May 1 to review an implementation plan for the joint platform.

VA uses the complex Veterans Health Information Systems and Technology Architecture (VistA), which is more than 20 years old. DOD uses AHLTA, which is transitioning to the EHR Way Ahead system.

Related stories:

DOD, VA prepare recommendation on joint EHR for late March, official says

Wisconsin lawmakers urge single vendor for VA, DOD health records upgrade

"We have had discussions under way for two years," Shinseki told the Military Construction, Veterans Affairs and Related Agencies Subcommittee. DOD and VA have terrific record systems, he added, but they are aging and will lack important capabilities in the future unless they are updated.

"We will have to adjust and assure sustainability," Shinseki said.

The joint platform is likely to rely heavily on commercial products, he added.

Last month, Roger Baker, VA's assistant secretary for information and technology, said VA and DOD were considering several options for a joint strategy on electronic records, including a single joint system or maintaining separate elements with common data standards, applications or interfaces. In a related project, VA recently asked vendors for input on creating an open-source development program for VistA.

Also in February, several lawmakers wrote to VA and DOD officials urging them to consider a single commercial platform for their electronic medical records, claiming that such a system would be faster to deploy and better for patients.

Baker said the lawmakers' concerns appeared to be based on a desire to include private-sector input in the modernization plans, which VA is doing.

"We appreciated [lawmakers'] input," Baker said. "Our plans for open source will include a lot of involvement with the private sector.... We are getting closer to saying that we chose to select the open-source route."

About the Author

Alice Lipowicz is a staff writer for Federal Computer Week.

DOD/VA Desire Intuitive Access to Common EHR Data

Big Things on the Horizon for Health Systems Interoperability and the Warfighter/Veteran
Rob Baker DoD/VA Interagency Program Office April 14, 2011

DOD/VA EHR Lifetime Global Access Needs – Feb 2011

DOD EHR access needs are <u>Global</u> in scope & <u>Lifetime</u> (longitudinal) in duration.

Lessons Learned for the Deployment of the Electronic Health Record
HIMSS 2011 February 2011
CAPT Michael S. Weiner
Director, EHR Way Ahead Planning Office

DOD & VA Need for Private Sector Electronic Health Record (EHR) Data

DOD/VA Private Sector Health Information Need – Apr 2010

*"The VA and the DOD need to be able to exchange health information with private providers because **half of their members seek treatment outside of the federal facilities.**"*

*"The VA and the DOD have established interoperability through their bi-directional exchange program and the departments' clinical data repository/health data repository interface. However, said Ondra [Stephen Ondra, MD, VA's senior policy adviser for health affairs], these services "don't interoperate with the private sector, so **we're leaving half the data on the table**." **

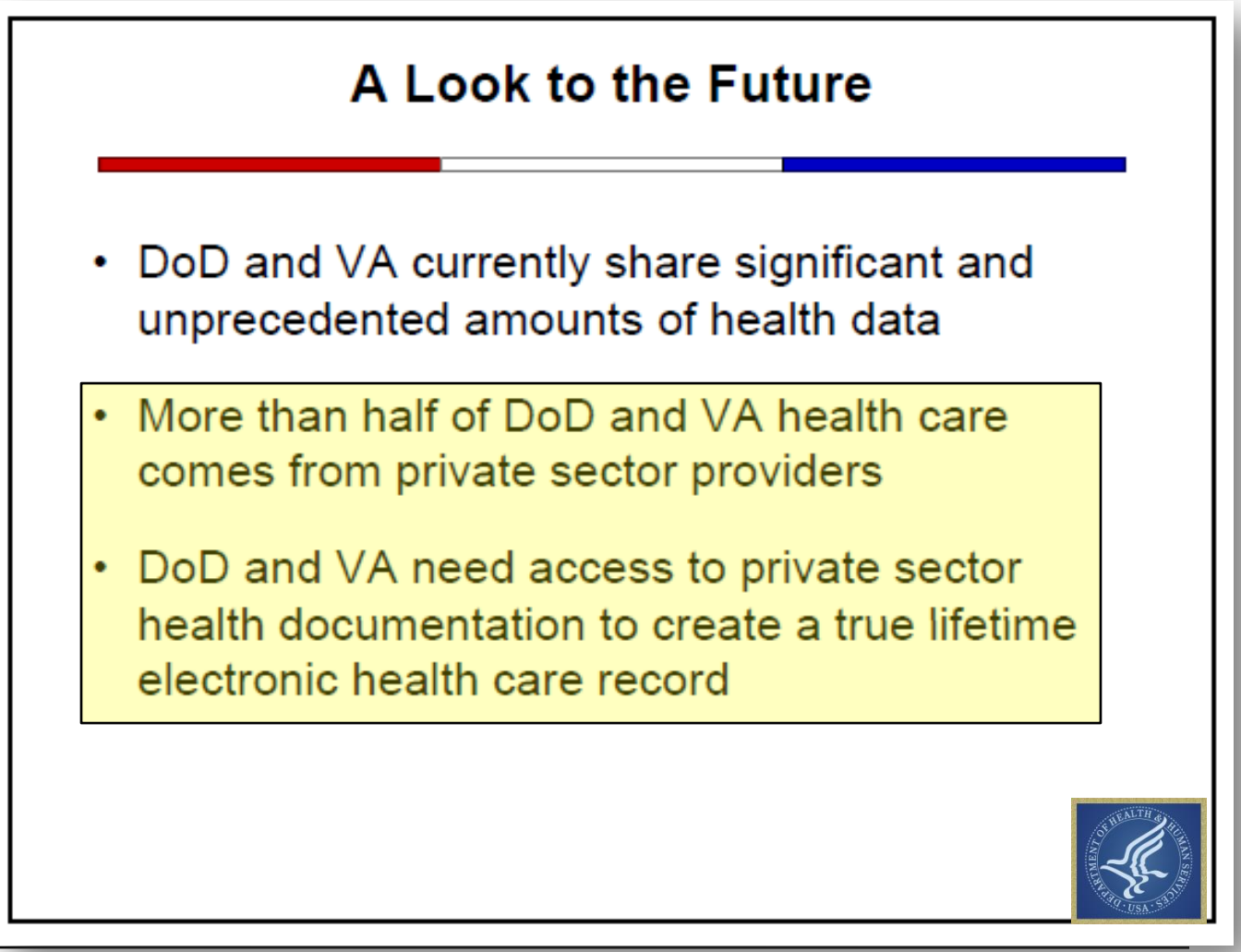
*** VA, DOD to raise the bar on data exchange**
Healthcare IT News
04/08/2010
http://www.healthcareitnews.com/print/12378

DOD/VA Private Sector Health Information Need – Feb 2011

DOD and VA EHR access needs are also Cross-Sector in nature due to large quantity (>50%) of private sector healthcare provided to active & veterans.

DoD/VA Health IT Data Sharing – Today and Tomorrow
Katharine W. Murray, R.N.
DoD OSD(HA)/MHS/OCIO
Chief, Interagency Coordination

Joseph E. Gardner, III
Deputy Director
VA/DoD Health Information Sharing
Healthcare Information
Management and Systems Society
Annual Conference
February 22, 2011



DOD/VA Private Sector Purchased Health Care Snapshot

MHS by the Numbers - A Week in the Life of the MHS

The Military Health System (MHS) is a $49 billion organization that provides health services to 9.6 million beneficiaries across a range of care venues, from the forward edge of the battlefield to traditional hospitals and clinics at fixed locations. To get a better sense of the size, complexity and amount of care being delivered, here is a numerical snapshot of a week in the life of the MHS.

23,300 inpatient admissions
- 5,100 direct care
- 18,200 purchased care

1.8 million outpatient visits
- 809,000 direct care
- 1.001 million purchased care

2,400 births
- 1,000 direct care
- 1,400 purchased care

12.6 million electronic health record messages

2.6 million prescriptions
- 924,000 direct care
- 1.44 million retail pharmacy
- 228,000 home delivery

231,000 behavioral health outpatient services
- 52,000 direct care
- 179,200 purchased care

3.5 million claims processed

2011 Military Health System Stakeholders Report
http://www.health.mil/Libraries/Documents_Word_PDF_PPT_etc/2011_MHS_Stakeholders_Report.pdf

DOD Electronic Health Record (EHR) Stabilization & Modernization Strategies

DOD EHR Stabilization & Modernization Challenges - 2011

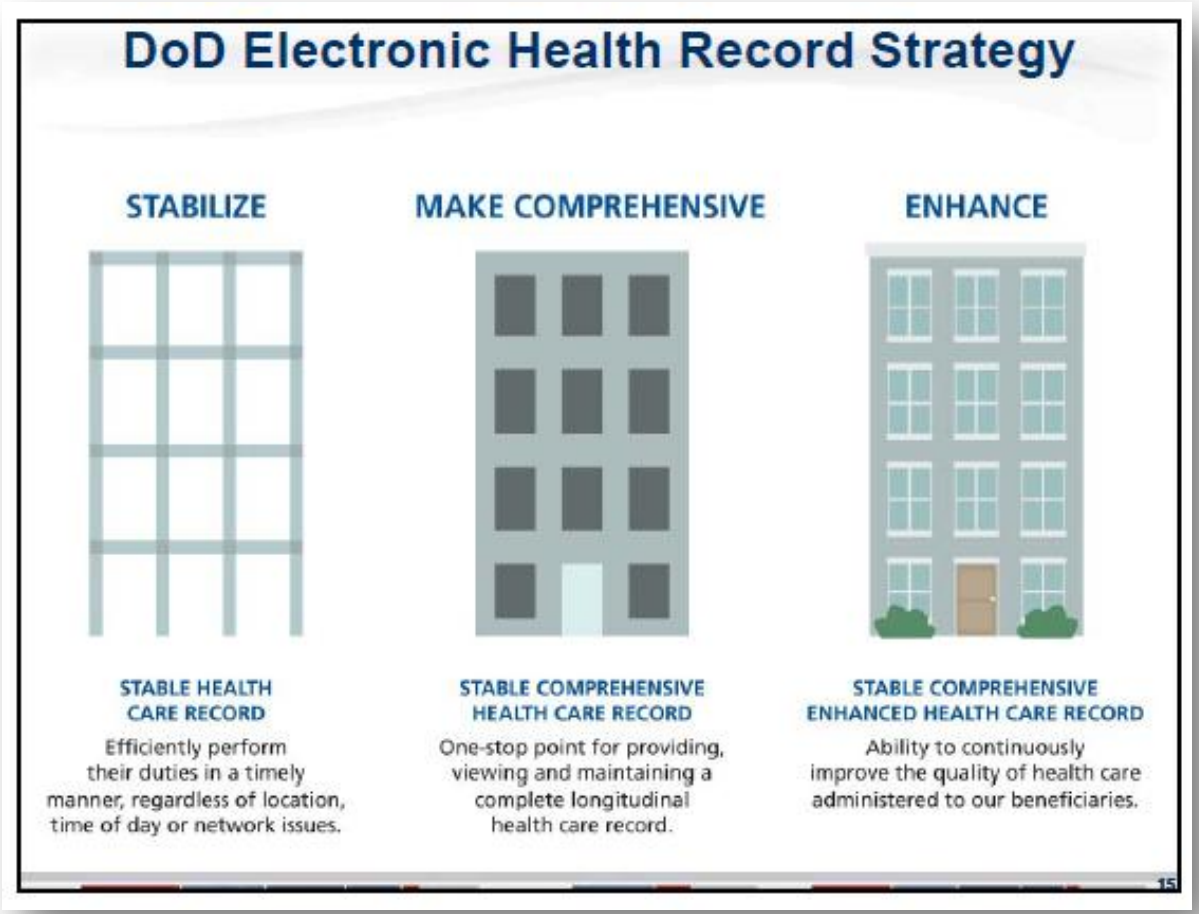
II. THE NEED FOR EHR STABILIZATION AND MODERNIZATION
The current DoD EHR family of applications must be modernized to accommodate the rapid evolution of healthcare practices and data sharing needs, and to speed the fielding of new capabilities**. Its legacy system underpinnings need to be stabilized to address significant operational availability, speed, and usability issues**.

Existing applications were built at different times, use different standards and terminologies, and, though interfaced, look different to the user and perform differently. **From the user's perspective, EHR applications do not function as one product but rather several products, requiring multiple logins, familiarity with different screens and placement of key functions, and time consuming movement between various applications.** The number of interfaced applications drives up the cost and time to develop and test new capabilities. Instead of developing or purchasing a new capability to interface with one application, the product must interface with many applications.

Consequently, **current EHR applications** and their interfaced legacy systems face issues **with sustainment, operational availability, extensibility, scalability, interoperability, usability, extended development timeline and capability gaps**.

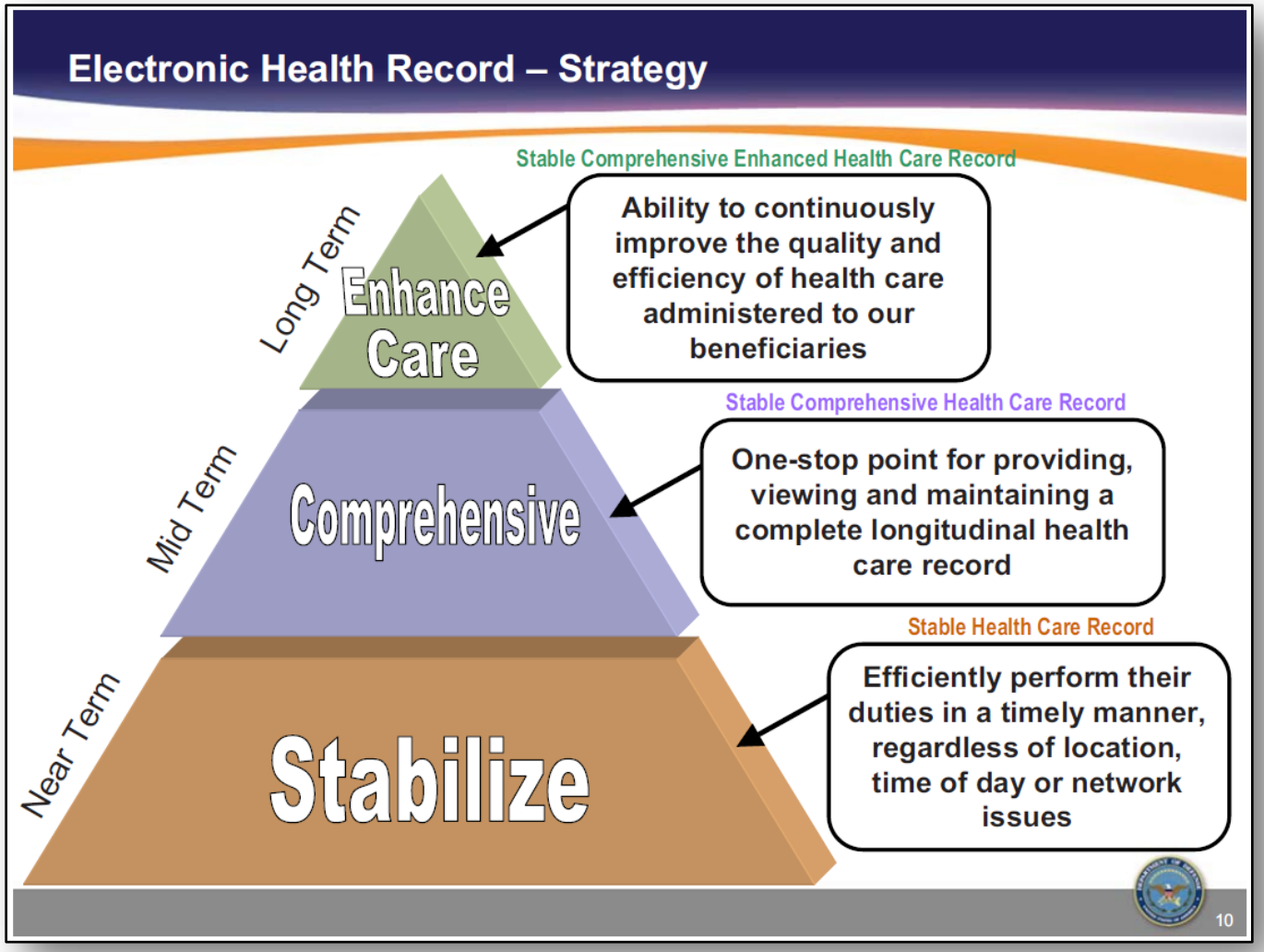
ELECTRONIC HEALTH RECORD
Stabilization, Modernization and Funding Sources, August 10, 2010
Report to United States House of Representatives Appropriations Committee
as requested in Report 111-230 accompanying the Defense Appropriations Act, 2010

DOD EHR Stabilization & Modernization Strategy – Feb 2011



The Way Forward for the Military's Electronic Health Record (EHR)
COL DaCosta Barrow
Program Manager, DHIMS
HIMSS11 Annual Conference & Exhibition

DOD EHR Stabilization & Modernization Strategy– April 2009



The DoD EHR: Mapping the "Way Ahead" for AHLTA
HIMSS 2009 Annual Conference April 5, 2009 COL Claude Hines, Jr. Program Manager, DHIMS

DOD EHR Stabilization & Modernization Strategy– Feb 2009

Unified Strategy for Maturing the DoD EHR

Stabilize

Comprehensive

Enhanced

Near Term (1-2 Years)

- Full interoperability with the VA for the provision of clinical care
- Leadership role in Nationwide Health Information Network pilot
- Blueprint the Enterprise Architecture
- Improve the user experience
- Stabilize system performance and reliability
- Address critical functionality gaps
- Stabilize core infrastructure
- Preliminary modernization efforts (web services)

Mid Term (2-3 Years)

- Extend the Nationwide Health Information Network pilot for incremental interoperability with private sector and other government agencies
- Empower patients to manage their own health through the personal health record
- Execute Enterprise Architecture Blueprint
- Enhance the user experience
- Improve system performance and reliability
- Implement modernization efforts
- Standardize architecture
- Provide new capabilities

Long Term (3-5 Years)

- Expand Nationwide Health Information Network to improve comprehensive interoperability
- Extend and Enhance Enterprise Architecture
- Optimize the user experience
- Transition to a future open architecture
- Implement next generation capabilities
- Provide robust standards based information sharing
- Provide new capabilities

Rapid Prototyping - Piloting - Test becomes production

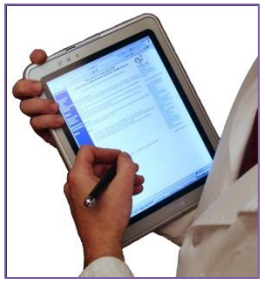
22

The DoD EHR: Mapping the "Way Ahead" for AHLTA
HIMSS 2009 Annual Conference April 5, 2009 COL Claude Hines, Jr. Program Manager, DHIMS

DOD Electronic Health Record (EHR) Stabilization

Hospital

Pharmacy



Patient EHR

Specialist

Long Term Care

Primary Care Physician

Accomplishments

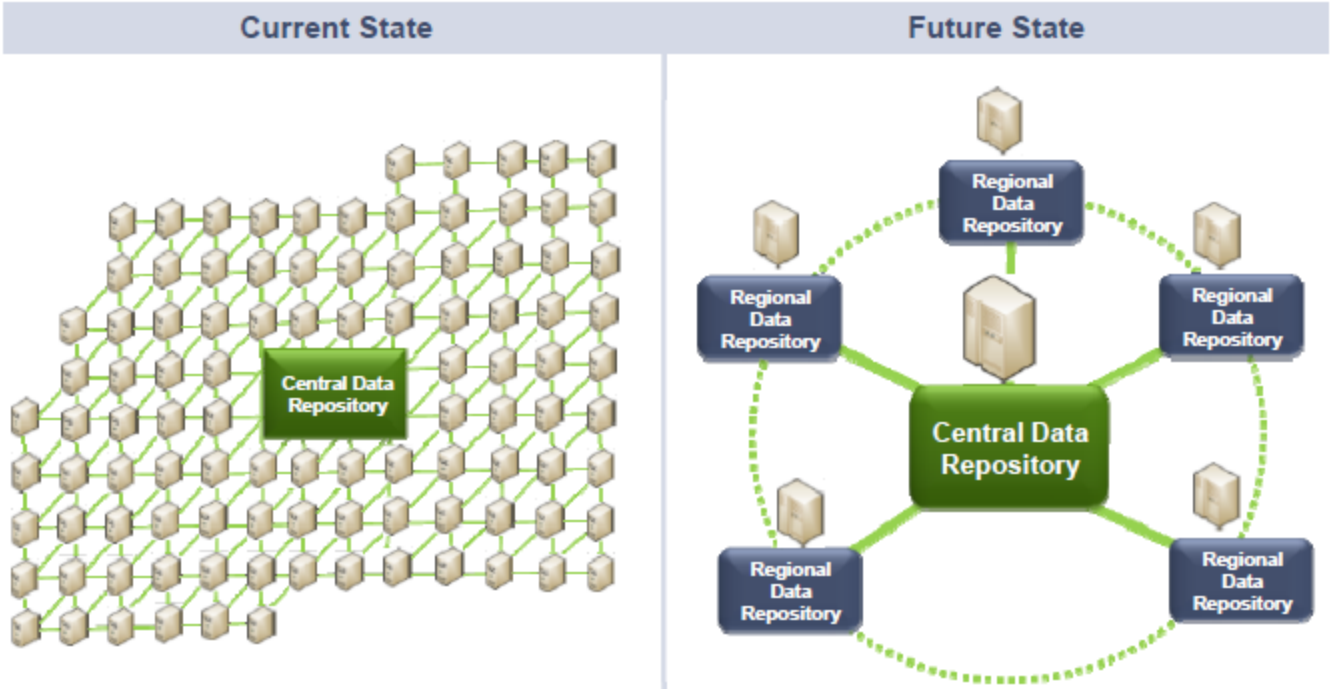
- Efforts for EHR are two-pronged; including both AHLTA Stabilization efforts and the EHR "Way Ahead" planning office
- Efforts continue for AHLTA critical fixes
- Regularly meeting with VA and Joint Chiefs to determine the "Way Ahead"
- Continue critical efforts to align with larger DoD strategies

DOD AHLTA EHR Performance Improvement Goal - 2011

DRAFT: NOVEMBER 2010

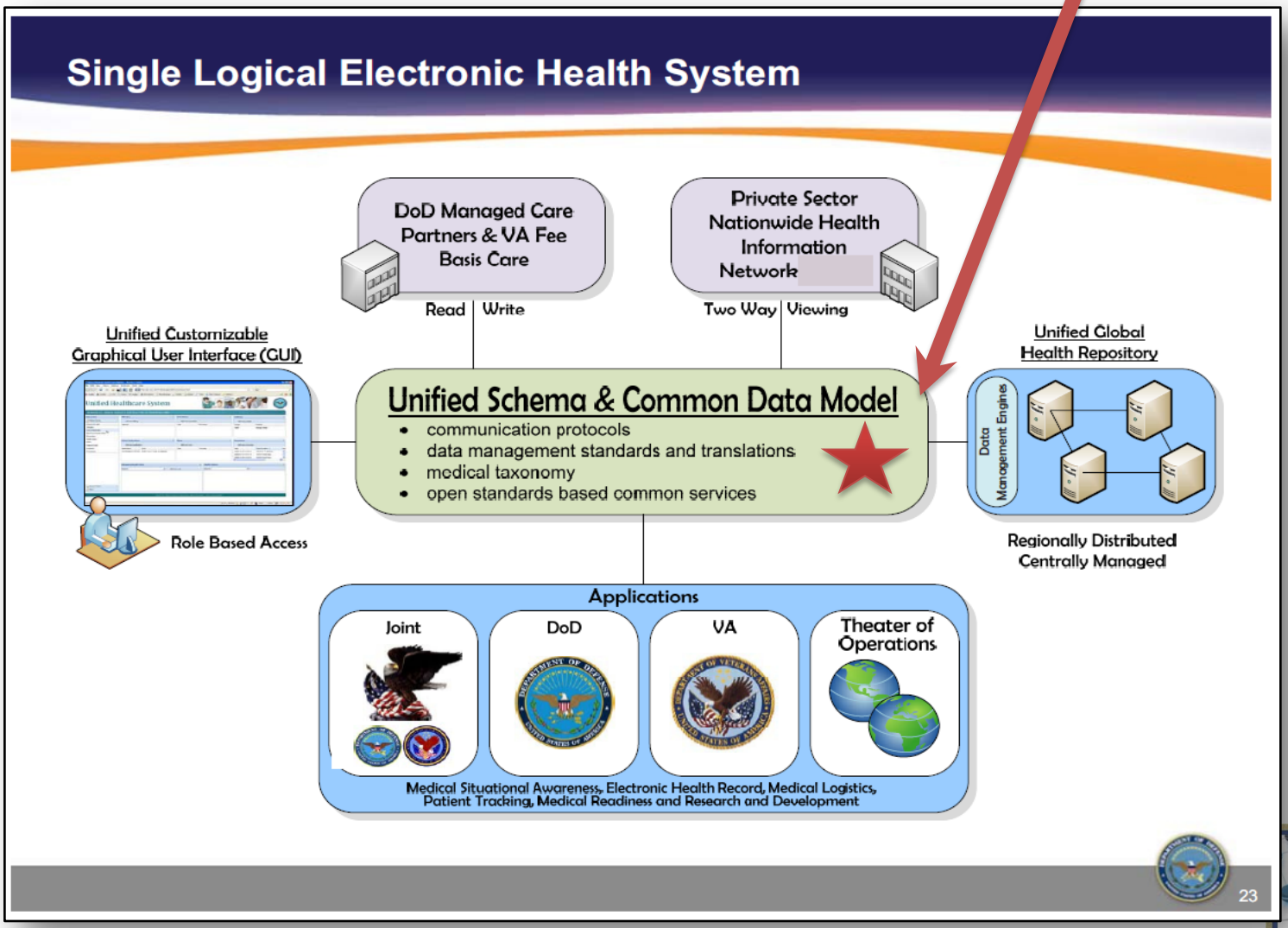
The Goal is to Increase EHR Performance by Regionalizing the Availability of Heath Information to the Medical Community

EHR Way Ahead



Lessons Learned for the Deployment of the Electronic Health Record
HIMSS 2011 February 2011
CAPT Michael S. Weiner
Director, EHR Way Ahead Planning Office

DOD EHR Future Strategy: Common Data Model Apr 2009



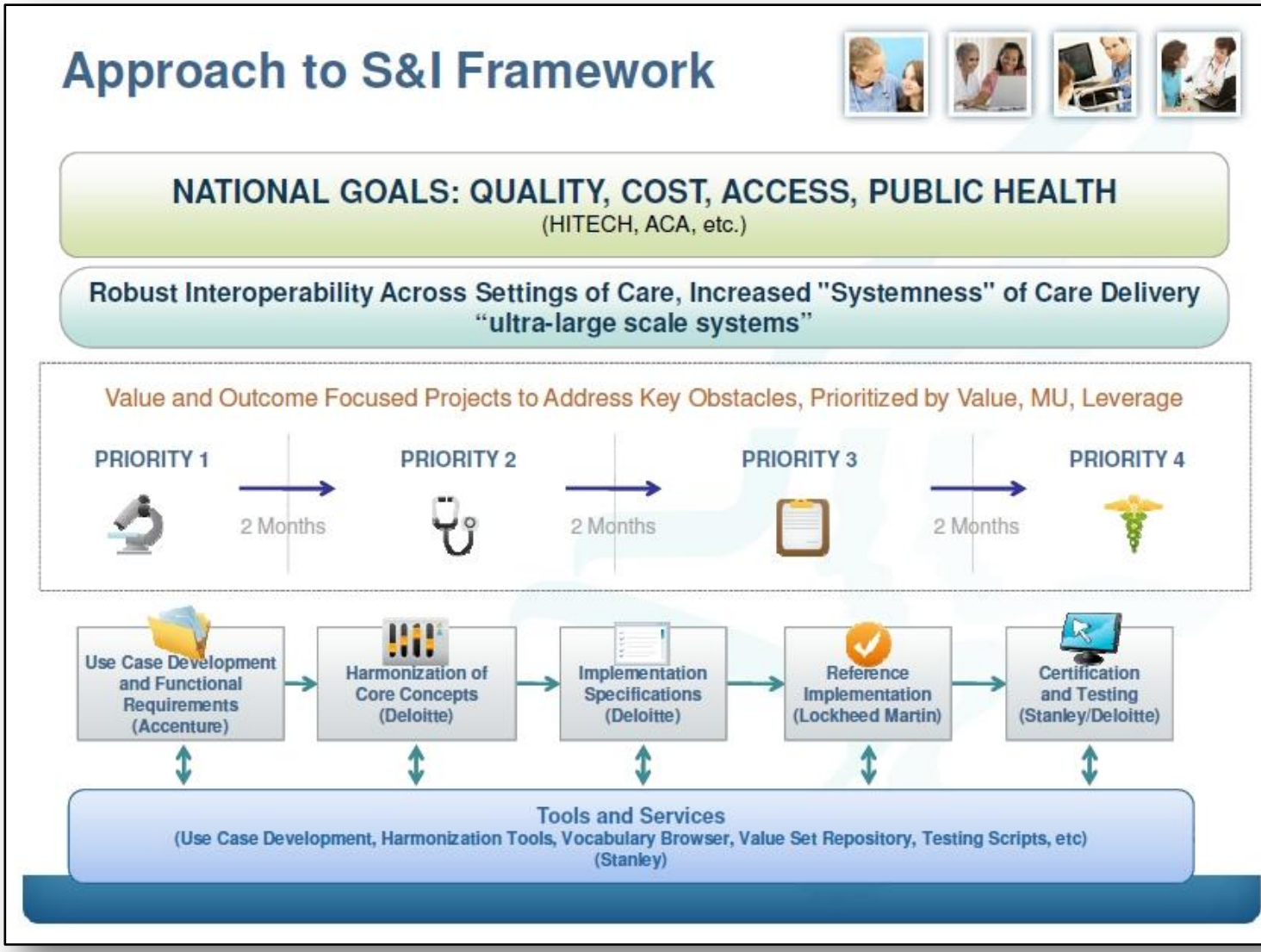
The DoD EHR: Mapping the "Way Ahead" for AHLTA
HIMSS 2009 Annual Conference April 5, 2009 COL Claude Hines, Jr. Program Manager, DHIMS

National Health Care Reform Goals

Federal Vision of Health Reform – 2011

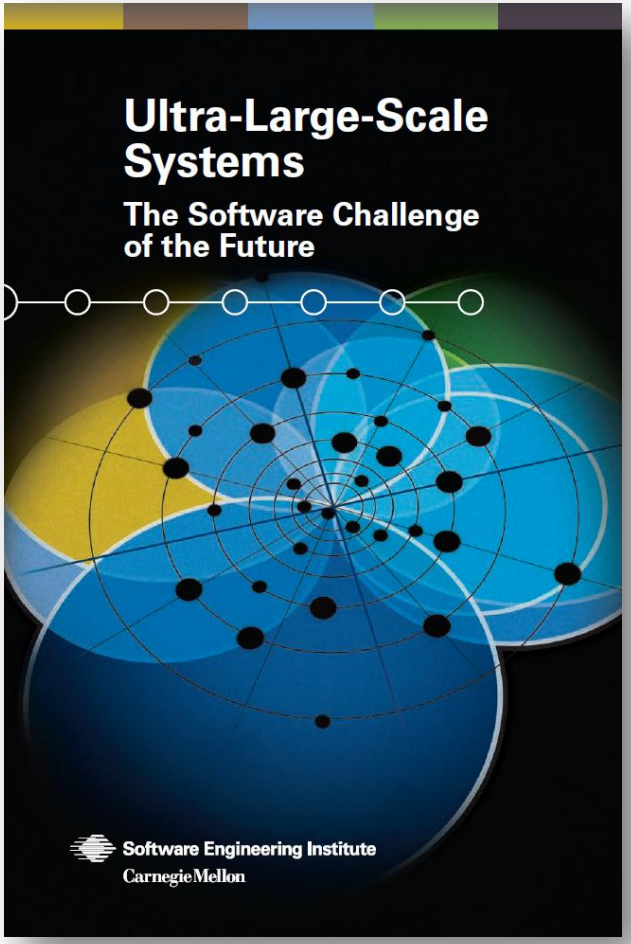
Big Things on the Horizon for Health Systems Interoperability and the Warfighter/Veteran
Rob Baker DoD/VA Interagency Program Office April 14, 2011

ONC Vision Health Reform via “Ultra Large Scale Systems”



Origin of “Ultra Large Scale Systems” – June 2006

Ultra Large Scale systems study requested for Defense purposes, not Healthcare



Ultra-Large-Scale Systems
The Software Challenge of the Future
June 2006

Executive Summary

The U. S. Department of Defense (DoD) has a goal of information dominance—to achieve and exploit superior collection, fusion, analysis, and use of information to meet mission objectives. This goal depends on increasingly complex systems characterized by thousands of ***platforms,***[1] sensors, decision nodes, weapons, and warfighters connected through heterogeneous wired and wireless networks. These systems will push far beyond the size of today's systems and ***systems of systems*** by every measure: number of lines of code; number of people employing the system for different purposes; amount of data stored, accessed, manipulated, and refined; number of connections and interdependencies among software components; and number of hardware elements. They will be ***ultra-large-scale (ULS) systems***.

. . .

Fundamental gaps in our current understanding of software and software development at the scale of ULS systems present profound impediments to the technically and economically effective achievement of the DoD goal of deterrence and dominance based on information superiority. These gaps are strategic, not tactical. They are unlikely to be addressed adequately by incremental research within established categories. Rather, we require a broad new conception of both the nature of such systems and new ideas for how to develop them. We will need to look at them differently, not just as systems or systems of systems, but as ***socio-technical ecosystems.*** We will face fundamental challenges in the design and evolution, orchestration and control, and monitoring and assessment of ULS systems. These challenges require *breakthrough* research.

Profound Impediments to "Ultra Large Scale Systems"

Introduction

The office of the Assistant Secretary of the U. S. Army (Acquisition, Logistics, & Technology) (ASA ALT) funded the Software Engineering Institute (SEI) to lead a 12-month investigation of ultra-large-scale (ULS) systems software. ASA ALT posed this question to the SEI: "Given the issues with today's software engineering, how can we build the systems of the future that are likely to have billions of lines of code?"

The intended outcome of the study was a proposed research agenda for ULS systems; a proposal for a program that would fund, coordinate, and conduct needed research; and the creation of a collaborative research network that would work toward solving the ULS system problem for the U. S. Department of Defense (DoD).

Although a billion lines of code was the initial challenge, increased code size brings with it increased scale in many other dimensions, posing challenges that strain current software foundations. To understand the challenges and the research needed to meet them, the study brought together software experts and experts from outside the software engineering field from a variety of institutions and organizations. This multi-disciplinary team sought solutions both within and beyond traditional software and systems engineering disciplines. This report describes and justifies the ULS system research agenda that resulted from the year-long study.

To appreciate the need for the study and the value of its output, it is important to first understand current DoD objectives and to analyze the fundamental shortfalls in today's software concepts, tools, and methods for reaching those objectives.

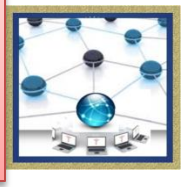
Ultra-Large-Scale Systems
The Software Challenge of the Future
June 2006

. . .

Today, as the evidence clearly shows, in software we continue to accept failure rates, quality problems, and costs that would be unacceptable in any other field of engineering. The software needed to achieve the DoD's goal of information dominance will be orders of magnitude more complex than that for even the most demanding of our currently existing systems. Our current practices are already extraordinarily costly and problematic; they simply will not scale to the size and levels of complexity of the ULS systems that the DoD needs in the future.

The problem that the DoD now faces is clear. *Fundamental gaps in our understanding of software and software development at the scale of ULS systems present profound impediments to the technically and economically effective achievement of the DoD goal of deterrence and dominance based on information superiority.*

These profound impediments apply to using ULSS for Health Care



HIT Progress via Ultra Large Scale Systems Not Realistic

- **Fundamental gaps in our understanding of Ultra Large Scale Systems (ULSS) means ULSS won't be a factor in addressing today's Health Information Technology needs any time soon.**
- **Consequently, reliance on on ULSS to address today's Health IT challenges is not realistic for the near term.**
- **Today's health care integration needs which can't wait for ULSS and are solvable without resorting to ULSS which are much more remote than "next generation".**

	LHS DIGITAL HEALTH UTILITY Next generation requirements	STRATEGY ELEMENTS Activities that advance:	STAKEHOLDER RESPONSIBILITIES*

TECHNICAL PROGRESS	• Ultra-large scale system perspective
	• Distributed, local data maintenance
	• Virtual interoperability
	• Reliable use and system security protocols
	• Standards vehicles for setting/revising:
	  ○ metadata, vocabulary, data transport
	  ○ common core data sets
	  ○ sentinel indicators
	  ○ access authorization/authentication
	  ○ data quality review protocols
		• Ultra-large-scale system perspective
		• Functionality focus
		• System specifications/interoperability
		• Workflow and usability
		• Security and privacy safeguards
		• System innovation
			• ONC works with NIST, other agencies and IT community to advance interoperability and security protocols
			• NSF works with ONC/NIH on test beds for digital infrastructure component technologies including ULSS approach
			• Interoperability agreements among delivery systems utilizing EHRs
			• CMS develops test beds for digital infrastructure application in care coordination/delivery model innovation

Digital Infrastructure for the Learning Health System:
Claudia Grossman and J. Michael McGinnis, Rapporteurs; Roundtable on Value & Science-Driven Health Care; The Learning Health System Series; Institute of Medicine - ISBN: 0-309-15417-0, May, 2011, page 46
http://www.nap.edu/catalog/12912.html

Today's Integrated Health Information Needs not ULSS-based

VA Goals – Cross Lines of Business (LOBs: VBA, VHA, NCA)

- Standards-based, interoperable solutions
- Integration of information across (LOBs)
- Provide secure, reliable & accurate information to interested parties

VA/DoD Goals – Cross Entity (VA/DoD, HHS, SSA)

- Integration of information across VA/DoD, HHS, SSA
- Provide secure, reliable & accurate information to interested parties

National Goals – Cross Sector (Public – Private)

- Standard Electronic Health Record (EHR) Development
- Integrated VA & DoD health systems provide base models
- Provide secure, reliable & accurate information to interested parties

Nationwide Health Information Network (NwHIN) Origin & Evolution

Origins of NHIN Health Information Exchange Paradigm

'In 1998, the National Committee on Vital and Health Statistics (NCVHS), a federal advisory committee composed of private sector experts, reported that the nation's information infrastructure could be an essential tool for promoting the nation's health in its seminal concept paper, "Assuring a Health Dimension for the National Information Infrastructure." *

"The first exchange of electronic health care information between DoD and VA occurred in 2001." DoD VA Interagency Program Office Annual Report to Congress 2010

"In 2002, the Markle Foundation organized a public-private collaborative, Connecting for Health, which brought together leaders from government, industry, and health care, and consumer advocates to improve patient care by promoting standards for electronic medical information. A year later, the collaboration of more than 100 public and private stakeholders achieved consensus on an initial set of health care data standards." *

In March 2003, the Consolidated Health Informatics (CHI) initiative involving HHS, the Departments of Defense (DoD), and Veterans Affairs (VA), announced uniform standards for the electronic exchange of clinical health information to be adopted across the federal health care enterprise." *

* The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care Framework for Strategic Action July 21, 2004 Tommy G. Thompson Secretary of Health and Human Services David J. Brailer, MD, PhD National Coordinator for Health Information Technology

Origins of NHIN Health Information Exchange Paradigm

"On April 27, 2004, President Bush called for the majority of Americans to have interoperable electronic health records within 10 years, and in doing so signed an Executive Order establishing the position of the National Coordinator for Health Information Technology." *

•The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care Framework for Strategic Action July 21, 2004 Tommy G. Thompson Secretary of Health and Human Services David J. Brailer, MD, PhD National Coordinator for Health Information Technology

Evolution of the NHIN – 2005 to Present

NHIN Evolution Timeline

NHIN Development Phase	Method / Output	Year
NHIN Phase 1	4 Prototypes	2005
NHIN Phase 2	NCVHS NHIN Minimal Functional Requirements Definition	2006
NHIN Phase 3	Trial Implementations	2007 - 2009
NHIN Phase 4	Limited Production	2009 - present

NHIN History & Background – Prototypes 2005

Nationwide Health Information Network: History & Background

ONC began to develop the NHIN in 2004. The first phase included development of prototype architectures, and the second phase developed specifications and services, and developed working constructs.

Phase 1: Prototype Architectures

Phase 2: Trial Implementations

Scope of Activities Background & Scope of Activities

The Nationwide Health Information Network (NHIN) has been built upon a core set of capabilities to enable nationwide information exchange encompassing a diverse set of organizations, technologies and approaches. These core capabilities include:

- Ability to find and retrieve healthcare information within and between health information exchanges and other organizations
- Ability to deliver a summarized patient record to support patient care and to support the patient's health.
- Ability to support consumer preferences regarding the exchange of his or her information, including the ability to choose not to participate in the NHIN
- Support secure information exchange
- Support of a common trust agreement that establishes the obligations and assurances to which all NHIN participants agree
- Ability to match patients to their data without a national patient identifier
- Support of harmonized standards, which have been developed by voluntary consensus standards bodies for exchange of health information among all such entities and networks.

The current core capabilities of the NHIN establish an interoperable infrastructure among distinct networks and systems that allows for different approaches and implementations, while ensuring secure information exchange as needed for patient care and population health.

Priority Areas (Use Cases)

The core capabilities of the NHIN were designed in the Trial Implementations phase to support a set of use cases as recommended by the American Health Information Community (AHIC) in order to address key priority areas in health information exchange. These include:

- Emergency Responder-Electronic Health Record
- Electronic Health Record – Lab Results
- Medication Management
- Consumer Empowerment-Consumer Access to Clinical Information
- Consumer Empowerment- Registration and Medication History
- Quality
- Biosurveillance

NHIN Prototype Architectures – 2005

Nationwide Health Information Network (NHIN): Prototype Architectures

In its first year, the NHIN established four consortia to design and evaluate standards-based prototype architectures for the NHIN. These prototypes demonstrated the advancement of:

- Capabilities to find and retrieve healthcare information inside of health information exchanges and between health information exchanges
- The delivery of new data to appropriate recipients
- Key consumer services such as control over who can access a personal health record, data searching, ability to choose not to use a network service
- User identity proofing, authentication, and authorization
- Methods for matching patients to their data without a national patient identifier
- Access control and other security protections
- Specialized network functions
- The feasibility of large-scale deployment

In addition to the prototype architectures, other significant accomplishments from the first year of the NHIN included:

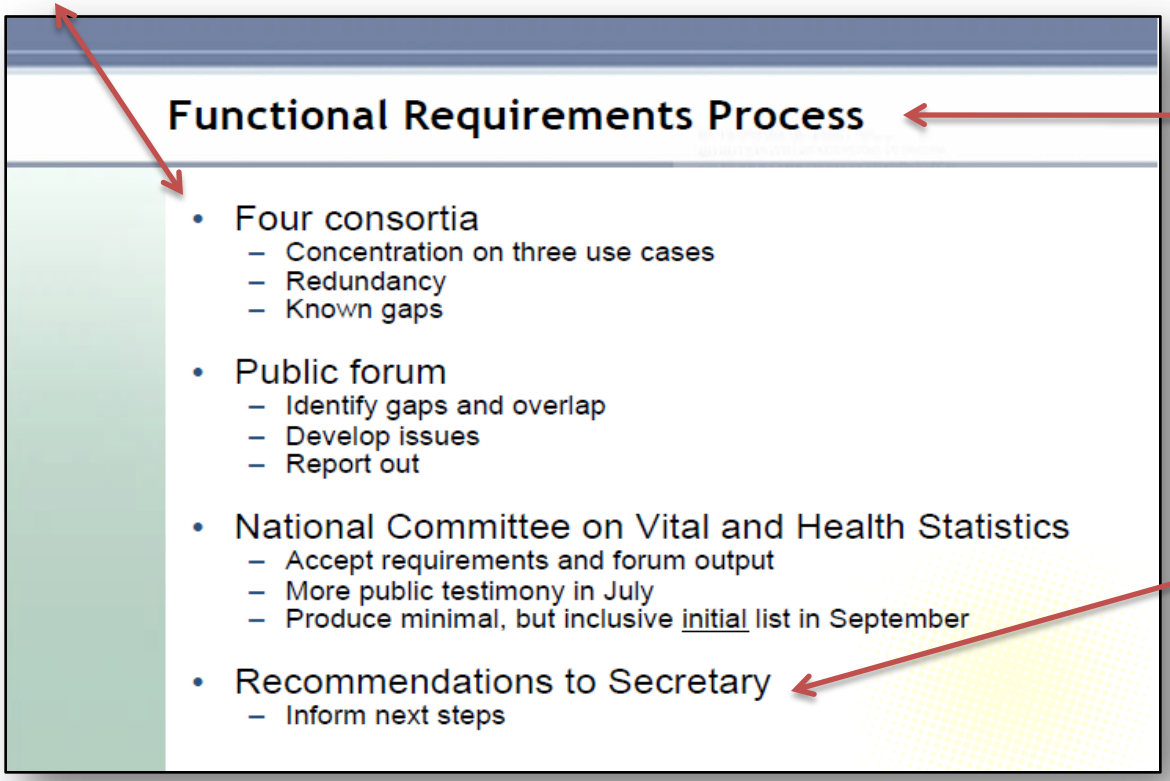
- Public input from three NHIN public forums
- The initial set of initial NHIN functional requirements published by the National Committee on Vital and Health Statistics (NCVHS)
- Security and business models
- Harmonized standards from the Health Information Technology Standards Panel (HITSP)
- Privacy and security recommendations from the NCVHS and the Confidentiality, Privacy, and Security working group of the American Health Information Community (AHIC)
- Core services and capabilities for Nationwide Health Information Network Health Information Exchanges (NHIE)

" Accordingly, in November 2005, the Office of the National Coordinator for Health IT (ONC) awarded four contracts for developing prototype architectures for an NHIN to Accenture, Computer Sciences Corporation, IBM and Northrop Grumman. Each contractor was asked to develop a prototype architecture for the NHIN and to interconnect three communities as a demonstration of the architecture." **

** Summary of the NHIN Prototype Architecture Contracts
A Report for the Office of the National Coordinator for Health IT 31 May 2007

NHIN Functional Requirements Definition - 2006

" Accordingly, in November 2005, the Office of the National Coordinator for Health IT (ONC) awarded four contracts for developing prototype architectures for an NHIN to Accenture, Computer Sciences Corporation, IBM and Northrop Grumman. Each contractor was asked to develop a prototype architecture for the NHIN and to interconnect three communities as a demonstration of the architecture." **



The Functional Requirements Process resulted in the October 30, 2006 NVCHS NHIN functional requirements recommendations to the HHS Secretary.

Nationwide Health Information Network First Public Forum – Functional Requirements Office of the National Coordinator for Health Information Technology June 28, 2006

** Summary of the NHIN Prototype Architecture Contracts
A Report for the Office of the National Coordinator for Health IT 31 May 2007

NCVHS Functional Requirements Recommendations - 2006

NCVHS

NATIONAL COMMITTEE ON VITAL AND HEALTH STATISTICS

October 30, 2006

The Honorable Michael O. Leavitt
Secretary
U.S. Department of Health and Human Services
200 Independence Avenue, S.W.
Washington, D.C. 20201

Dear Secretary Leavitt:

I am pleased to transmit our recommendations on the initial functional requirements for a nationwide health information network (NHIN). The recommendations were developed by the National Committee on Vital and Health Statistics (NCVHS), the public advisory committee to the U.S. Department of Health and Human Services on health data, privacy, and health information policy.

The July 21, 2004, *Framework for Strategic Action* identifies "a nationwide health information network that can provide low-cost and secure data movement" as a key strategy for interconnecting health care. As you have observed in your 500-Day Plan for Transforming the Health Care System, it is critical "to link all health records through an interoperable system that protects privacy as it connects patients, providers, and payers – resulting in fewer medical mistakes, less hassle, lower costs, and better health." The Office of the National Coordinator for Health Information Technology (ONC) has also observed that "as the nation embarks on the widespread deployment of EHRs [electronic health records], a key consideration will be the ability to exchange patient health information accurately and in a timely manner under stringent security, privacy, and other protections."

Slide 1 of 3

Full Report = http://www.ncvhs.hhs.gov/061030lt.pdf

NCVHS Functional Requirements Recommendations - 2006

NCVHS was asked by ONC to define a minimum, but inclusive, set of functional requirements necessary for nationwide health information activities. To undertake this task, NCVHS utilized an open process through which we received significant public comment. NCVHS participated in the NHIN Forums on June 28-29 and October 16-17, 2006; held public hearings on June 29 and July 27-28, 2006, in Washington, DC; and held public conference calls on August 31 and October 3, 2006 to receive comments on preliminary documents and drafts. In addition, working documents were posted on the Web for further contributions. Although time for input was short, NCVHS is very appreciative of the effort so many put into contributing comments, and feedback on the recommendations has been very positive.

In developing the recommendations, it was important to bear in mind that a nationwide health information network is not a single entity, but will be a system of systems. NCVHS assumes a nationwide health information network will develop incrementally, and nothing in this report is intended to preclude such an incremental approach.

Variations in design of services are emerging from the work of the consortia that have been contracted to develop nationwide health information prototypes as well as from the growing numbers of communities involved in health information exchange. Where variations appear to be compatible with one another and do not impose an undue burden, NCVHS recommends they be accommodated to the extent possible. However, for a nationwide health information network to work for the nation, variations that may be incompatible with one another or impose an undue burden should be further studied to determine how variation can be reduced.

Full Report = http://www.ncvhs.hhs.gov/061030lt.pdf

3311 Toledo Road • Room 2402 • Hyattsville, MD 20782 • (301) 458-4200 • Web site: www.ncvhs.hhs.gov

NCVHS Functional Requirements Recommendations - 2006

In keeping with our June 22, 2006, transmittal to you on Recommendations Regarding Privacy and Confidentiality in the Nationwide Health Information Network, NCVHS also observes that what distinguishes a nationwide *health information* network is that the activities must be wrapped in privacy and security structures that warrant the trust of the individuals whose information is exchanged.

NCVHS recommendations include not only the statements of requirements, but also recommendations to broaden the array of scenarios studied in the development of a nationwide health information network to ensure completeness and widespread applicability of the functional requirements. NCVHS also recognizes the significant number of policy decisions that must be made to enable a nationwide health information network, and enumerates several standards to be developed that will be necessary to support a nationwide health information network. Accordingly, we encourage you to use this set of recommendations to help inform the activities that will lead to a nationwide health information network, both at the national and state levels.

If you or your staff would like a briefing on the recommendations, please let me know and we will provide one. We are committed to supporting the efforts to enable nationwide health information exchange that will fulfill the goals, outlined in the *Framework for Strategic Action*, of informing clinical practice, interconnecting clinicians, personalizing care, and improving population health.

Sincerely,

/s/

Simon P. Cohn, M.D., M.P.H., Chairman,
National Committee on Vital and Health Statistics

Cc: Data Council Co-chairs
Enclosures

Full Report = http://www.ncvhs.hhs.gov/061030lt.pdf

NHIN Trial Implementations 2007 - 2009

Nationwide Health Information Network (NHIN): Trial Implementations

Building upon the work in the Prototype Architectures, in September 2007, the Department of Health and Human Services awarded contracts totaling $22.5 million to nine health information exchanges (HIEs) to begin trial implementations of the Nationwide Health Information Network (NHIN), with an additional six grants totaling $600,000 added in April 2008.

This collective set of information exchanges, including providers, and several Federal agencies, worked together as the NHIN Cooperative to securely exchange data including summary patient records for providers and patients. This connection of Health Information Exchanges is another key step in building a "network of networks," the NHIN. The NHIN trial implementations leveraged the ongoing work throughout HHS and its contractors and partners, including: the Healthcare Information Technology Standards Panel (HITSP), the Certification Commission for Healthcare Information Technology (CCHIT), the Health Information Security and Privacy Collaboration (HISPC) and the National Committee on Vital and Health Statistics (NCVHS).

The NHIN Cooperative participants include:

- CareSpark
- Centers for Disease Control and Prevention
- Cleveland Clinic Foundation
- Community Health Information Collaborative
- Delaware Health Information Network
- Department of Defense
- HealthBridge
- HealthLINC (Bloomington Hospital)
- Indian Health Service
- Indiana University (Regenstrief Institute)
- Kaiser Permanente
- Long Beach Network for Health
- Lovelace Clinic Foundation
- MedVirginia
- National Cancer Institute
- New York eHealth Collaborative
- North Carolina Healthcare Information and Communications Alliance, Inc.
- Social Security Administration
- Veterans Administration
- West Virginia Health Information Network
- Wright State University

Together, these organizations collaborated and achieved consensus to specify, build, and test demonstrate a core set of capabilities to enable basic exchange of health information between the different HIE networks, patients, and other stakeholders.

NHIN Limited Production - 2009

Nationwide Health Information Network (NHIN): Limited Production

The NHIN Cooperative is building on the capabilities developed and lessons learned during the Trial Implementations to move the NHIN into limited production during 2009. Major NHIN activities for 2009 are grouped into 3 categories: Policy & Governance, Specification & Innovation, and Production & Operations.

Policy & Governance

Solidifying key operational policies, releasing a model production Data Use and Reciprocal Sharing Agreement (DURSA) and defining a working model for NHIN governance are key elements needed to support a production NHIN. Policy & Governance teams will focus on satisfying these requirements.

Specification & Innovation

Assigned teams, with representatives from the NHIN Cooperative, federal partners and partner organizations FHA, NIST, CCHIT and HITSP, will focus on advancing the production readiness of specifications, the reference implementation and prioritizing NHIN functionality to build the path to production in 2009.

Production & Operations

Supporting a production network of networks requires operational structure and dedicated support capabilities. Up to three production pilots with federal partners will provide the opportunity for these teams to exercise and refine key operational and support processes and build momentum for wider NHIN adoption.

Work products produced by these activities will be published to the NHIN Resources Page as they become available.

Congressional Charge to Federal Advisory Committees

"So this group, I think, needs to pick up where the NCVHS left off and think about the concept of meaningful use." ***David Blumenthal*** **-** ***TRANSCRIPT HIT Policy Committee May 11, 2009***

"…Congress has set eight specific areas of focus for the HIT Standards [and Policy] Committee, as follows:

1. Privacy and security
2. Nationwide health information technology infrastructure
3. **The utilization of certified electronic health records (EHRs) for each person in the United States by 2014**
4. Technologies that allow for accounting of disclosures made by a covered entity
5. The use of certified EHRs to improve the quality of health care
6. Technologies that allow individually identifiable health information to be rendered unusable, unreadable, or indecipherable to unauthorized individuals
7. The use of electronic systems to insure a comprehensive collection of patient demographic data including race, ethnicity, primarily language, and gender information
8. Technologies that address the needs of children and other vulnerable populations."

source = Meeting Summary Health Information Technology Standards Committee May 15, 2009 pg 2-3

Nationwide Health Information Network Role of Health Information Standards Panel (HITSP)

Press Releases

HITSP Contract With U.S. HHS Extended Through April 2010

By PR Newswire 02/12/10 - 03:53 PM EST

PR Newswire

WASHINGTON, Feb. 12 /PRNewswire-USNewswire/ -- The Healthcare Information Technology Standards Panel (HITSP) is pleased to announce that its contract with the U.S. Department of Health and Human Services (HHS) has been extended through April 30, 2010.

"Since HITSP's formation in 2005, the Panel has been working to advance the widespread adoption and interoperability of electronic health records," said Fran Schrotter, HITSP project director and senior vice president and chief operating officer of the American National Standards Institute (ANSI), the organization that administers the Panel. "We are very grateful to the thousands of volunteer technical experts who have worked countless hours to create HITSP work products that help to enable health IT interoperability. Keeping this momentum going is a tremendous priority for us, and we are pleased that HHS has granted a contract extension that allows HITSP to continue its outreach efforts."

During this contract extension period, the Panel will hold monthly informational update calls, participate in the HIMSS10 Healthcare Information Technology Conference and Exhibition, and work with the Centers for Medicare and Medicaid Services (CMS) on a Quality Data demonstration project. In addition, the HITSP website continues to be fully operational and accessible, offering stakeholders access to the Panel's full program of work, as well as educational materials and archived webinars.

The extension will also assure that HITSP volunteers stay engaged going forward until the next phase of standards harmonization to be funded by the Office of the National Coordinator (ONC) is announced.

"ANSI and our strategic partners – the Healthcare Information and Management Systems Society, the Advanced Technology Institute, and Booz Allen Hamilton – are committed to progressing standards harmonization efforts and interoperability guidance in the health IT field," continued Schrotter. "We are proud of HITSP's accomplishments and are dedicated to a continued partnership. We look forward to responding to any requests for proposals issued by ONC to further this important work."

For more information on HITSP, visit www.HITSP.org or contact HITSP secretary Michelle Maas Deane (mmaasdeane@ansi.org; 212.642.4884).

About HITSP

A cooperative partnership between the public and private sectors, the Healthcare Information Technology Standards Panel (HITSP) is a national, volunteer-driven, consensus-based organization that is working to ensure the interoperability of electronic health records in the United States.

Operating under contract to the U.S. Department of Health and Human Services (HHS), HITSP is administered by the American National Standards Institute (ANSI) in cooperation with strategic partners including the Healthcare Information and Management Systems Society (HIMSS), the Advanced Technology Institute (ATI), and Booz Allen Hamilton.

SOURCE American National Standards Institute

Health Information Technology Panel (HITSP) Organization

Healthcare Information Technology Standards Panel

2006, 2007 and Beyond

John D. Halamka MD

Chair, HITSP

HITSP Organization

The Community
HHS Secretary
Mike Leavitt, Chair

HHS ONCHIT1
PO, Dr. John Loonsk

HITSP
Dr. John Halamka, Chair
Member Populated
Board and Panel

Program/Project Management Team
Executive in Charge, F. Schrotter, ANSI
Program Manager, L. Jones GSI
Deputy PM, J Corley, ATI
Project Manager, Julie Pooley, Booz Allen

Panel Secretariat and Coordination Committee Management
Michelle Deane, ANSI

Technical Management
Joyce Sensmeier, HIMSS

HITSP Member Populated Coordination Committees

- Harmonization Readiness
  - Lynne Gilbertson
- Business Plan
  - Steve Lieber
- International Landscape
  - Bill Braithwaite
- CCHIT JWG
  - Jamie Ferguson
- Foundations
  - Bob Dolin & Steve Wagner
- Process Review
  - Lynne Gilbertson & Erik Pupo

HITSP Member Populated Technical Committees

- Care Delivery
  - Jamie Ferguson
  - Steve Wagner
  - Steve Hufnagel
- Consumer Empowerment
  - Elaine Blechman, PhD
  - Charles Parisot
  - Scott Robertson
- Population Health
  - Floyd Eisenberg, MD, MPH
  - Peter Elkin, MD
  - Shaun Grannis, MD
- Security and Privacy WG
  - Glen Marshall
  - John Moehrke
  - Walter Suarez

HITSP: Harmonizing standards to support the Nationwide Health Information Network 7

Health Information Technology Panel (HITSP) – May 2009

HITSP Use Cases & Interoperability Specifications 2005 to April 2010. After 5 years HITSP recognized the importance of addressing standard data elements and EHR functions vs. Use Cases & Interoperability Specifications development.

"John Halamka – Harvard Medical School – Chief Information Officer
Start with that and then I can provide specifics to what's HITSP doing to [INAUDIBLE].

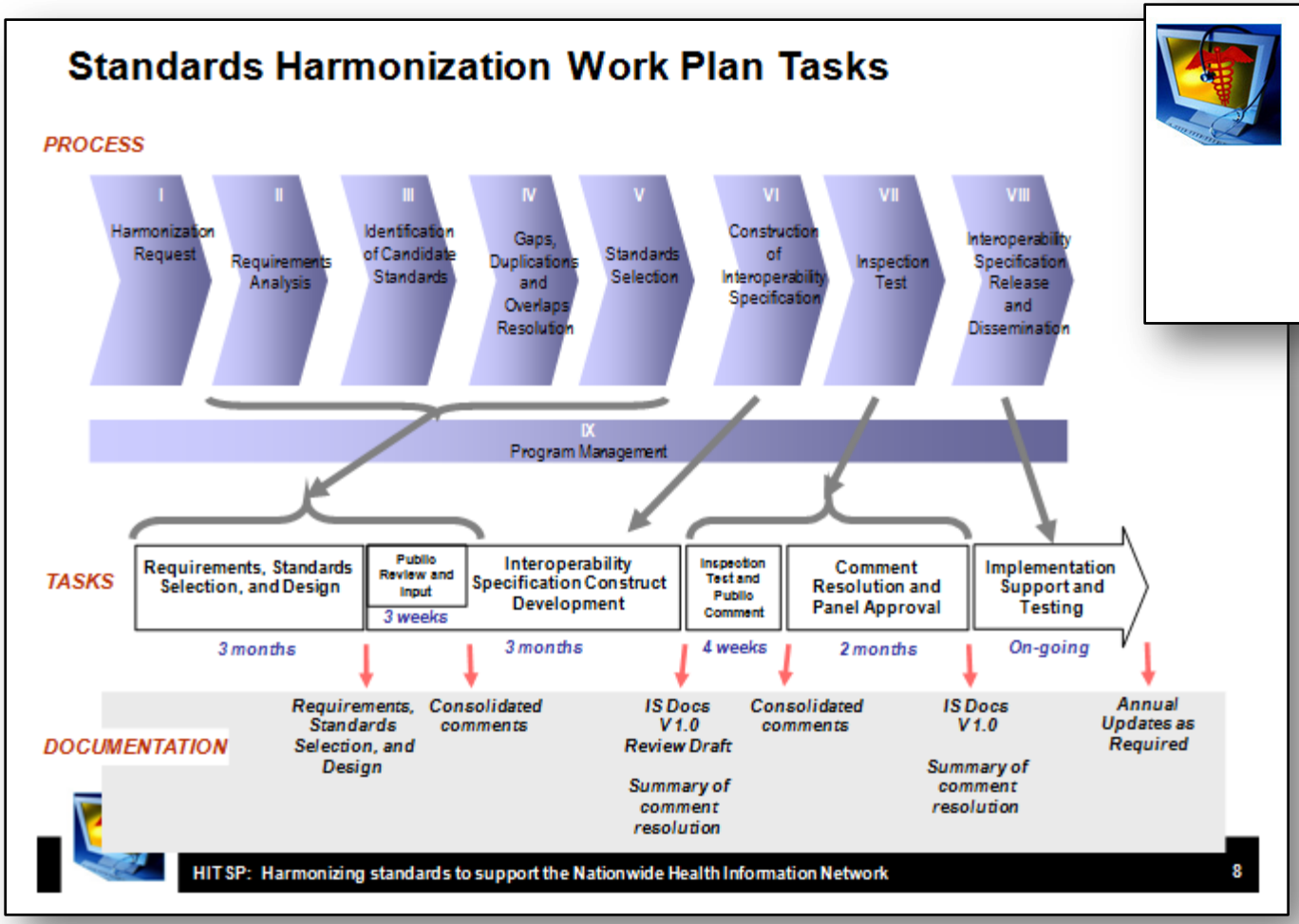
David Blumenthal – National Coordinator – HIT
Why don't you talk about what HITSP is that everyone has a common ground then I can react.

John Halamka – Harvard Medical School – Chief Information Officer
Sure. So the Healthcare Information Technology Standards Panel is a group of 600 volunteer organizations and these are from payers and providers, employers, the public, the government, attorney's etc., and they've come together over the last 3½ years to harmonize standards. Now that means we look at all the possibilities, if a use case requires the exchange of a certain kind of data, how might we do it. If there are competing mechanisms to do it, we try to figure out what the best one or two might be.

It has produced a serious [series] of deliverables called Interoperability Specifications. Now this was what we were asked to do by the previous administration. Here is a use case, produce a document to describe the standards to meet the needs of that use case. We now recognize that the stimulus bill and meaningful use requires a bit of a different construct. So what we've done is that we have gone through all of the **previously recognized and accepted standards and we are reformatting them, rather than to be use case based or interoperability specification based to be much more data element and functionally based.** So for example; if it might be that e-prescribing is important for meaningful use rather than burying the various vocabulary transmission standards and the way we describe a prescription in a interoperability specification, it is an electronically published index that says oh, I need to name a medicine, ah, there is one way to do that, and that is RxNorm, you know there is one way to describe a SIG, one way to get a refill transaction done. So an implementer, a vendor or a hospital could go to this electronically published resource and **much more easily, at a data element or functional basis** pull out the standards they need."

source = Meeting Summary Health Information Technology Standards Committee May 15, 2009 pg 11

The HITSP Interoperability Specification Process



Healthcare Information Technology Standards Panel

2006, 2007 and Beyond

John D. Halamka MD
Chair, HITSP

National eHealth Collaborative (NeHC) – June 2009

"So we recognize that there's been work done over the last four years that's very good work and can be leveraged going forward. Now, that work is not without issues. A lot of the documentation that HITSP has produced over the last four years is dense. It's several thousand pages of use-case-specific work" *

…

"So specifically, we have a group working on what we call an EHR-centric interoperability specification. Now, what is an EHR-centric interoperability specification? In the past, we had use cases or value cases, and what the idea was is oh, if you want to do this particular set of actions with these particular actors and events, here's a book. It's a cookbook. It tells you exactly what to do. Well, the EHR and the meaningful use of the EHR is probably going to have a lot of functions that cross thousands of use cases or value cases. In fact, one could argue that the use-case process, though a great construct to get us started, maybe actually would never be finished because there would always be new use cases.

So instead, we've reorganized our work around the functional aspects of what an EHR is and does so that … you'll have the components, the functions, the data elements, that would be necessary to do that [use case]." *

*** John Halamka, Chair HITSP**
TRANSCRIPT
National eHealth Collaborative
Board of Directors Meeting
June 2, 2009, pages 3, 4

HITSP – Interoperability Specifications Output List

HITSP - Interoperability Specifications	
IS 01	Electronic Health Record Laboratory Results Reporting
IS 02	HITSP Biosurveillance Interoperability Specification
IS 03	HITSP Consumer Empowerment and Access to Clinical Information via Networks Interoperability Specification
IS 04	HITSP Emergency Responder Electronic Health Record Interoperability Specification
IS 05	HITSP Consumer Empowerment and Access to Clinical Information via Media Interoperability Specification
IS 06	HITSP Quality Interoperability Specification
IS 07	HITSP Medication Management Interoperability Specification
IS 08	Personalized Healthcare Interoperability Specification The Personalized Healthcare Interoperability Specification focuses on the exchange of clinically useful genetic/genomic test information, personal and family health history, and the use of analytical tools in electronic health records (EHRs) to support clinical decision-making. View the most current version as HTML here.
IS 09	Consultations and Transfers of Care Interoperability Specification The Consultation and Transfers of Care Interoperability Specification focuses on the electronic exchange of information between requesting clinicians and consulting clinicians, to support consultations, including specialty services and second opinions. This specification also focuses on the exchange of clinical information needed during transfers of care. View the most current version as HTML here.
IS 10	Immunizations and Response Management Interoperability Specification The Immunizations and Response Management Interoperability Specification focuses on: 1) providing information about individuals who need to receive specific vaccines, drugs, or other interventions; 2) the ability to report, track, and manage administration of vaccines, drugs, isolation, and quarantine; 3) the ability to identify and electronically exchange information describing the treatment or prophylaxis status of populations; 4) the ability to exchange specific resource and supply chain data from public and private sectors. View the most current version as HTML here.
IS 11	Public Health Case Reporting Interoperability Specification The Public Health Case Reporting Interoperability Specification supports the bi-directional information exchanges of the Public Health Case Reporting process. It focuses on enabling more efficient data capture at the point of care while allowing for optimizing the information delivery format and content allowing for current SDO efforts to be finalized. In the absence of standards in structured content and associated Clinical Decision Support for alerts and information reporting criteria, this Interoperability Specification provides options for the secure communication of basic presentation preserving content to better automate the current paper-based information flows. View the most current version as HTML here.

HITSP – Interoperability Specifications Output List

HITSP Interoperability Specification - IS 107 Consolidated 13 prior specifications as of ARRA Feb. '09

HITSP - Interoperability Specifications	
IS 12	Patient-Provider Secure Messaging Interoperability Specification The Patient-Provider Secure Messaging Interoperability Specification describes the information flows, issues, and system capabilities that apply to patients and providers that are required for patients to interact with their healthcare clinicians remotely using common computer technologies readily available in homes and other settings. View the most current version as HTML here.
IS 77	Remote Monitoring (RMON) Interoperability Specification The Remote Monitoring Interoperability Specification addresses the data and information exchange requirements for the transfer of remote monitoring information from a device physically attached to or used by a patient in a location that is remote to the clinician. View the most current version as HTML here.
IS 91	Maternal and Child Health Interoperability Specification
IS 92	Newborn Screening Interoperablity Specification
IS 98	Medical Home Interoperability Specification
IS 107	EHR Centric Interoperability Specification This Interoperability Specification consolidates all information exchanges and standards that involve an EHR System amongst the thirteen HITSP Interoperability Specifications in place as of the February 13, 2009 enactment of the American Recovery and Reinvestment Act (ARRA). This Interoperability Specification is organized as a set of HITSP Capabilities, with each Capability specifying a business service that an EHR system might address in one or more of the existing HITSP Interoperability Specifications (e.g., the Communicate Hospital Prescriptions Capability supports electronic prescribing for inpatient prescription orders). Greater detail on these Capabilities is provided as part this Interoperability Specification, with their underlying HITSP constructs referenced in the Complete Library on HITSP.org. View the most current version as HTML here.
IS 158	Clinical Research Interoperablity Specification

Nationwide Health Information Interoperability Standards Problem

Health Interoperability Standards Problem – Nov 2010 (1 of 2)

ONC Specifications Team Health Interoperability Specifications Problem Assessment:

Projects

Wiki | Projects | Issues

Dashboard › Harmonization › Home › NHIN Exchange Content Specifications

NHIN Exchange Content Specifications

Added by Rich Kernan.

Problem Statement

The lack Program requirements, business rules and policy and lack of unambiguous content Specifications and Implementation Guides is hindering efforts to exchange interoperable health information among NHIN Exchange Participants, driving protracted implementation timeliness, and impacting key NHIN programs such as VLER and SSA's Determination of Medical Disability. These problems stem from two primary sources: 1) Ambiguity and complexity present in current HIT standards, and 2) Poor documentation and a near complete lack of developer tools.

Scope

The NHIN Exchange seeks to define a strategy to add content specifications to the current suite of Production Specifications, which at the current time, are limited only to Web Services and Foundations. The Exchange plans to collaborate with ONC and the broader HIT Standards Community to define and adopt interoperability specification(s) that support the exchange of both Structured and Unstructured documents in order to meet the general needs of Exchange Participants as well as potential specialized needs of various Participants' programs. A critical part of this effort will be a collaboration with the SDOs who have authored the underlying clinical document specifications in order to dramatically ease implementation and a collaboration with the Model Driven Health Tools project to capture content specifications in UML models.

This effort will require several work streams which span S&I contract teams.

1. **Requirements Definition** - While Exchange participants and implementers are eager to dive right in to solutions, we must require those stakeholders to define the requirements for a given exchange or type of exchange. HIT Content standards and specs have been designed with a high degree of flexibility. They must be constrained via implementation guide or interoperability specification in order to deliver the functionality required for a given business context. Further, the Exchange must
2. **Harmonization Activities** - Regardless of the detail eventually captured via Requirements Definition, we can anticipate a heavy reliance on the Specs and Standards called out in Meaningful use, and a focus on Templated CDA within the NHIN Exchange. The largest Exchange stakeholders have immediate plans to exchange a variety of unstructured clinical documents and to exchange structured structured Medical Summary document. Those exchanges will require implementations of HITSP C62 and C32, respectively - each of which were last published in July, 2009. The Harmonization Team is aware of many and varied issues with those HITSP specs and must engage the Standards Community to address them. The strategy is to begin to document and address those issue now so that once Requirements have been established, the underlying standards are can be more readily constrained to meet them.

http://jira.siframework.org/wiki/display/Harmonization/NHIN+Exchange+Content+Specifications

Health Interoperability Standards Problem – Nov 2010 (2 of 2)

ONC Specifications Team Health Interoperability Specifications Problem Assessment:

3. **Specification Tools and Infrastructure** - Although clear requirements and fixes to standards and specs will help dramatically, unless we can make the enormous volume and complexity of information contained in those specs easily accessible to implementers and to develop tools which do not require that successful implementers have PhDs in HIT, we cannot meet our objectives. There is a critical set of requirements in terms of the tools and other infrastructure which will must accompany HIT standards. This project will identify those initial requirements and serve as a test case for Tools and Infrastructure development.
4. **Testing** - Testing has been identified as a major issue withing the NHIN Exchange. A clear test strategy, which lays out exactly what is to be tested, passing criteria, tools to be used by implementers to prepare for testing, etc must be established. While the Test Team can document the Test Strategy and require clear conformance rules in Exchange Specifications, Exchange Governance will be required to establish the policy requirements and business rules.

Definition of Value Based Objectives

The NHIN has existing Production specifications and they were developed and published on time. However, they have failed to achieve the value based success required by the S&I Framework. Nearly every NHIN Participant has commented as to the high degree of difficulty in understanding and implementing Exchange specifications and examples of ambiguities and room for interpretation abound. The vast majority of those issues can be traced to the constraints placed upon the development of those specs - NHIN was required to adopt or reference specifications and standards developed by other organizations. As such NHIN added another layer to the pile of documents implementers must wade through.

i.e., HITSP, HL7, et al.

With those lessons learned in mind, this effort must define success criteria based on value based objectives

1. **Re-usability** - The standards which underlie Exchange specifications are a part of a cohesive architecture or technical framework which describes components which are reusable across specifications (e.g. XDS metadata). However the information itself which promotes re-usability is not. The specifications for those components are 'trapped' in static PDF or similar documents. An NHIN Query for Documents implementer must piece together and try to interpret the verbiage contained in more than half a dozen lengthy technical documents. The contextual information needed to understand a specific how/when to use certain features is often incomplete. The document paradigm has proven to be insufficient to manage and communicate the information needed to enable

http://jira.siframework.org/wiki/display/Harmonization/NHIN+Exchange+Content+Specifications

Health Interoperability Standards Problem - Apr 2011

Health Interoperability Standards

Problem Statement: Health IT Interoperability Standards, their relationships and their disparate organizations are confusing to many stakeholders involved in the EHR Modernization and VLER efforts. A comprehensive and shared understanding of these standards is requisite for a meaningful level of interoperability among DoD, VA and private partners. This detailed level understanding is an essential prerequisite to an interagency data strategy.

Big Things on the Horizon for Health Systems Interoperability and the Warfighter/Veteran
Rob Baker DoD/VA Interagency Program Office April 14, 2011

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http://www.dodenterprisearchitecture.org/schedule/speakers/Documents/Baker_%20Presentation%20FINAL.pdf

Patient Needs Impacted - NwHIN Interop Standards Problem

The impact of the Health Interoperability Standards Problem is widespread.

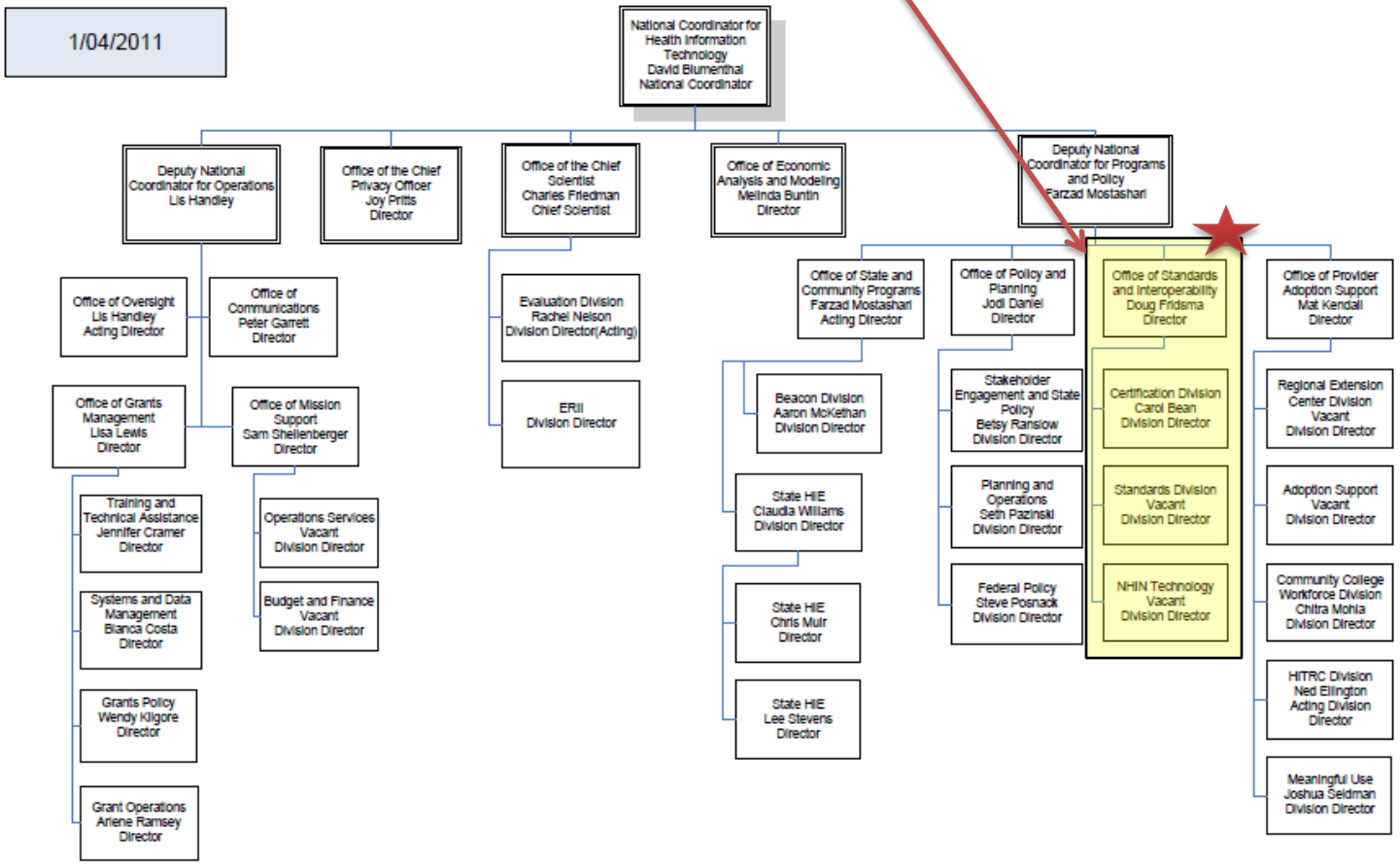
Federal Agencies Using NwHIN

Agency	Needs
Department of Defense	Wounded Warrior Continuity of Care
Department of Veterans Affairs	Wounded Warrior Continuity of Care/ Medication Management/ Consumer Access to Clinical information
Social Security Administration	Disability Benefits Determination
Indian Health Service	Tribal Population Continuity of Care/ Wounded Warrior Continuity of Care
Centers for Disease Control	Population Health Monitoring – Biosurveillance
National Cancer Institute	Childhood Cancer Trials – Linking Research and Care

Big Things on the Horizon for Health Systems Interoperability and the Warfighter/Veteran
Rob Baker DoD/VA Interagency Program Office April 14, 2011

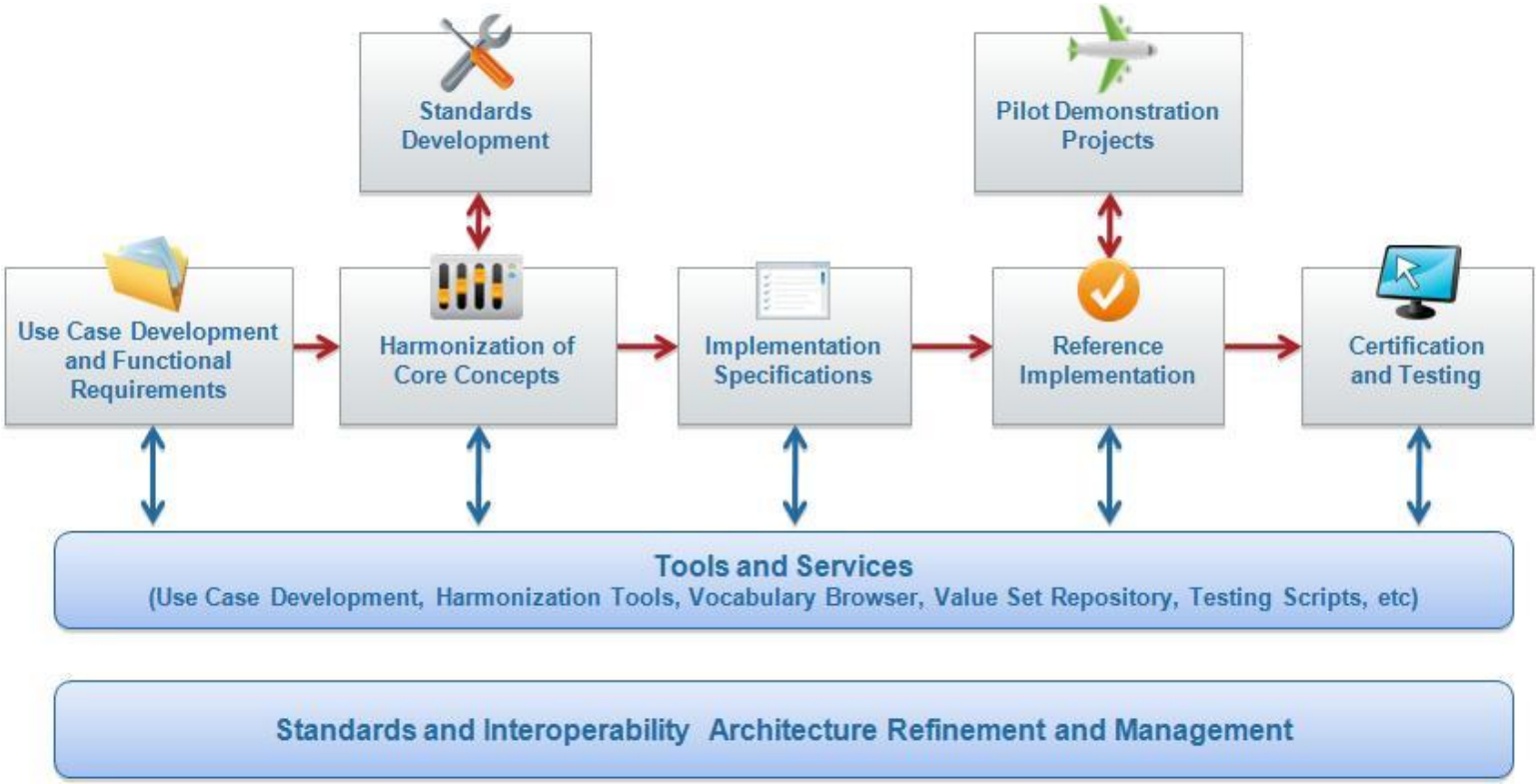
Health Interoperability Standards Problem - Apr 2011

HHS/ONC Office of Standards & Interoperability, Federal Advisory Committees and the NwHIN Coordinating Committee (NCC) are tasked with addressing the Health Interoperability Standards Problems



Health Interoperability Standards Problem Apr 2011

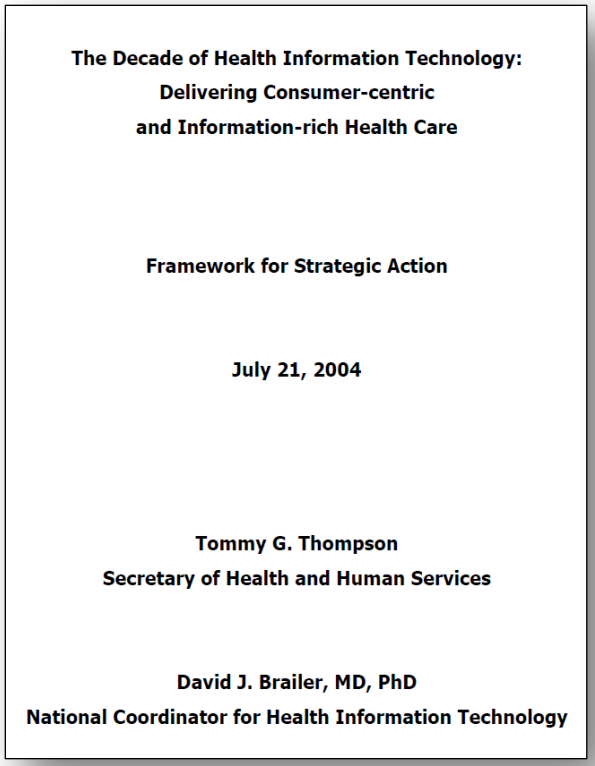
ONC's Office of Standards & Interoperability is developing a Standards & Interoperability Framework, Tools, and Processes in order to address the problem:



http://jira.siframework.org/wiki/download/attachments/5604661/FrameworkPictureforWik2i.jpg?version=1&modificationDate=1294195640534

Scope of the Federal Health Architecture (FHA)

FHA Definition - 2004


The Decade of Health Information Technology:
Delivering Consumer-centric
and Information-rich Health Care

Framework for Strategic Action

July 21, 2004

Tommy G. Thompson
Secretary of Health and Human Services

David J. Brailer, MD, PhD
National Coordinator for Health Information Technology

Federal Health Architecture (FHA) – A collaborative body composed of several federal departments and agencies, including the Department of Health and Human Services (HHS), the Department of Homeland Security (DHS), the Department of Veterans Affairs (VA), the Environmental Protection Agency (EPA), the United States Department of Agriculture (USDA), the Department of Defense (DoD), and the Department of Energy (DOE). FHA provides a framework for linking health business processes to technology solutions and standards, and for demonstrating how these solutions achieve improved health performance outcomes.*

* The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care Framework for Strategic Action July 21, 2004 Tommy G. Thompson Secretary of Health and Human Services David J. Brailer, MD, PhD National Coordinator for Health Information Technology page 37

Scope of the Federal Health Care Enterprise

Federal Agencies with a Healthcare Activity and Participating in FHA

Department of Health and Human Services	Department of Veterans Affairs / Veterans Health Administration
Department of Defense / Military Health Systems	Department of Justice / Bureau of Prison
Department of State	Department of Agriculture
Department of Transportation	Department of Energy
Department of Homeland Security	National Aeronautics and Space Administration
Federal Communications Commission	Social Security Administration
Environmental Protection Agency	National Institute of Standards Technology
National Science Foundation	Office of Personnel Management
HHS-National Institute of Health, National Cancer Institute, National Library of Medicine	
HHS-Centers for Medicare & Medicaid Services	
HHS-Centers for Disease Control	
HHS-Indian Health Service	
HHS-Food & Drug Administration	
HHS-Substance Abuse and Mental Health Services Administration	
HHS-Office of the Assistant Secretary for Public Health Emergency Preparedness	
HHS-Agency for Healthcare Research and Quality	
HHS-Office of the Assistant Secretary for Planning and Evaluation	
HHS-Health Resources and Services Administration	

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Federal Health Architecture Program Update for
Vivek Kundra, Federal Chief Information Officer
June 5, 2009

MHS, VA, and HHS Work Closely yet Many Challenges Exist

MHS, VA, and HHS Work Closely to Ensure Full Interoperability by Way of IT Standards and Data Sharing Across Organizations

Lessons Learned for the Deployment of the Electronic Health Record
HIMSS 2011 February 2011
CAPT Michael S. Weiner
Director, EHR Way Ahead Planning Office

Contact Information

Tim Reardon, M.B.A., PMP
Healthcare Reimagined
Alexandria, VA 22307
tim.m.reardon@gmail.com

484.716.7263 cell