



RHIOs: Plotting the Course to NHIN

"It's not that some people have willpower and some don't. It's that some people are ready to change and others are not."

- James Gordon, MD

David Clark

HIMSS

Director, Integration & Interoperability

Alabama Chapter RHIO Session

October 28, 2005

Brainteaser

There is a “gaggle of geese”, a “pod of dolphins”, a “murder of crows” –

What do you call a group of RHIOs?

Global HIT Transformation

- Other countries are pursuing the same goal of improving health care for citizens
- United States is lagging behind other developed nations by a large margin
- Egypt has the largest operational RHIO serving 3.5M lives – purportedly fully interoperable
- UK has committed \$10B over 10 years to modernize its HIT infrastructure
- NHIN is the USA's answer to an electronic, interoperable health record for all US citizens

HIT History in the US

- CHIN – Community Health Information Networks (1990s)
 - Many of these initiatives are still alive
 - Majority failed due to providers not wanting to share data
- Many see RHIO/NHIN movement as meeting similar fate

HIT Adoption By Country

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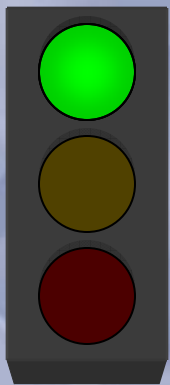
National HIT Transformation

- Presidential mandate of an EHR for every citizen by 2010
- By 2014 NHIN is to be operational
- RHIOs are grassroots efforts occurring all over the country
- RHIOs are viewed as the building blocks of NHIN

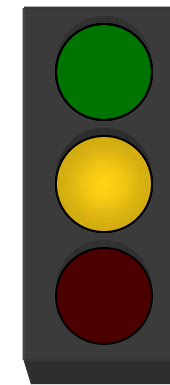
Hype or Promise?

- Gartner's "Hype Cycle" being released
- HIMSS Analytics' Dave Garets tells hospitals to think twice before joining a RHIO
- 200 plus RHIO initiatives and counting
- Several are 90%+ interoperable

Pros & Cons

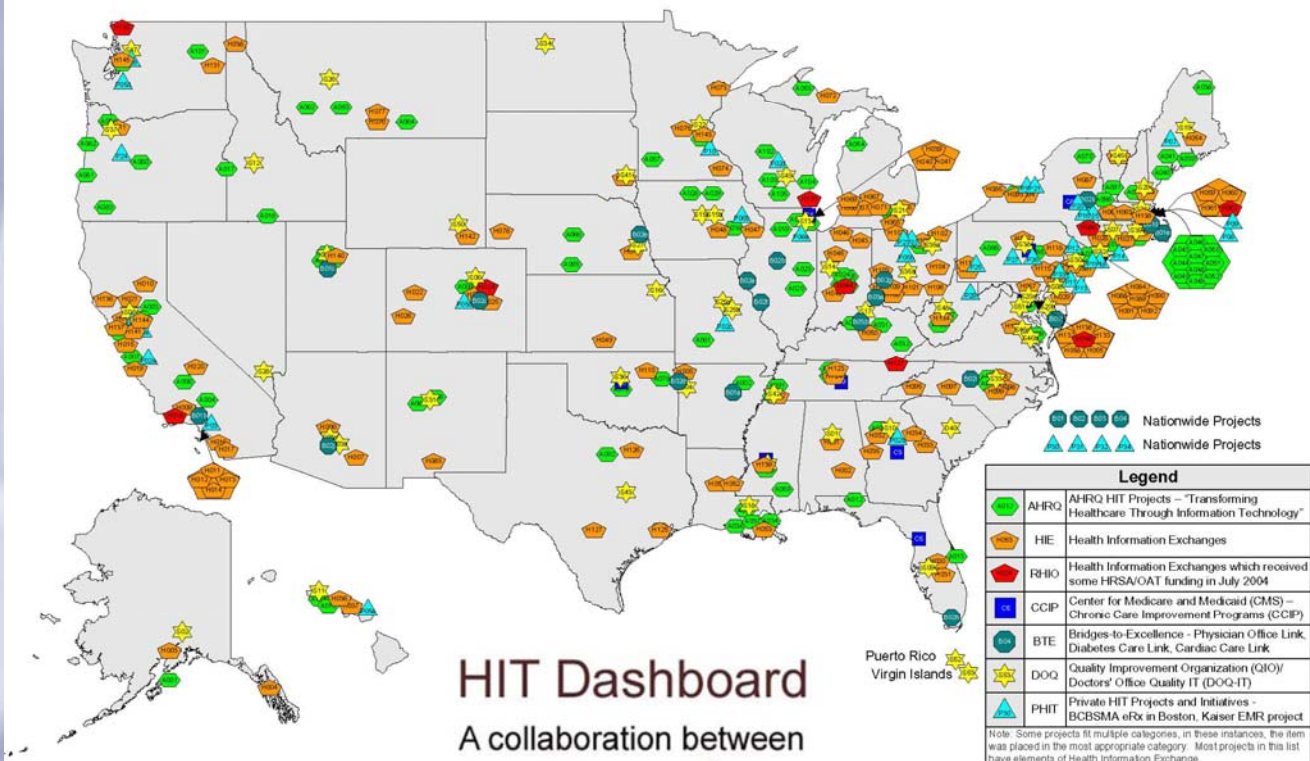


Positive signs and influences	Negative factors and barriers
National Coordinator position and ONCHIT creation gives consistent federal voice	Absence of clear and detailed ONCHIT strategy, lack of clarity around how different federal agencies will coordinate, and delays in announced RFI to private sector
Seemingly significant and highly publicized initial grant funding	Absence of clear funding source(s) – grant funding alone is not sustainable
Near universal interest in applying health IT to improve patient safety	<ul style="list-style-type: none"> • Competing stakeholder interests (i.e., large IDNs will have a different need and competitive stake from small providers in sharing health records; EHR will add cost to some participants, reduce in others) • Absence of a clearly articulated business case / ROI
Large attendance at industry events, in advance of government mandate or funding	No compelling event or mandate outside of Medicare Modernization Act, which focuses effort on e-prescribing
Credible and well known organizations support the effort (e.g., AHIMA, AMA, HIMSS, HL7, etc.)	Multiple “competing” efforts (trade groups, foundations, alliances, etc.)
Vendor promotion / hype, especially from new solution providers	Proliferation of competing vendor solutions (most targeted at preserving the status quo)
Early business and technical models (i.e., Indianapolis, Santa Barbara Care Data Exchange, MA-SHARE, etc.)	Highly publicized early failures (e.g., Cedars Sinai CPOE) and efforts that have seemingly failed to meet their potential (Santa Barbara)



Current HIT Programs

HIT Activity in the USA as of August 2005



HIT Dashboard
A collaboration between



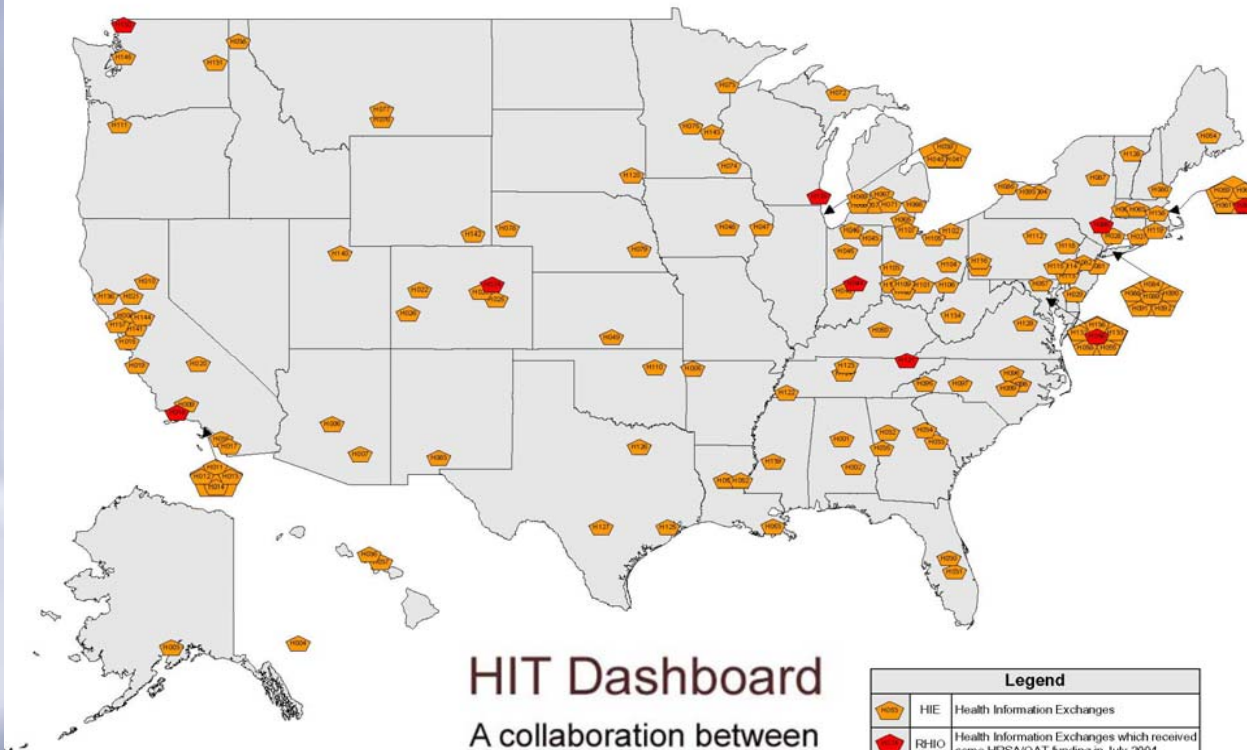
Legend	
	AHRO AHRO HIT Projects - "Transforming Healthcare Through Information Technology"
	HIE Health Information Exchanges
	RHIO Health Information Exchanges which received some HRSA/OAT funding in July 2004
	CCIP Center for Medicare and Medicaid (CMS) - Chronic Care Improvement Programs (CCIP)
	BTE Bridges-to-Excellence - Physician Office Link, Diabetes Care Link, Cardiac Care Link
	DOQ Quality Improvement Organization (QIO)/Doctors' Office Quality IT (DOQ-IT)
	PHIT Private HIT Projects and Initiatives - BCBSMA eRx in Boston, Kaiser EMR project

Note: Some projects fit multiple categories, in these instances, the item was placed in the most appropriate category. Most projects in this list have elements of Health Information Exchange.

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Current RHIO/HIE Projects

RHIO/HIE Activity in the USA as of August 2005



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A collaboration between



Alabama Activities

- Alabama Quality Assurance Foundation
 - DOQ-IT Program
 - www.aqaf.com
- Dynamic Online Event Reporting System (DOERS PRO)
 - St. Vincent Foundation
 - www.stv.org
- Montgomery Area Information Network
 - Montgomery Area Community Wellness Coalition

Federal Government Influence

- Commission for Systemic Interoperability (CSI)
- American Health Information Community (AHIC)
- Formation of ONCHIT
- ONCHIT RFPs
- AHRQ Grants
- CMS PHR and other activities
- Stark Law reform on the horizon

Federal Legislation

Electronic Health Information Exchange

- **Bill Number: S.544 Patient Safety and Quality Improvement Act of 2005**
 - Introduced by: Senator James M. Jeffords (VT)
- **Bill Number: S.1223 Information Technology for Health Care Quality Act**
 - Introduced by: Senator Christopher J. Dodd (CT)
- **Bill Number: S.1418 The Wired for Healthcare Quality Act**
 - Introduced by: Senator Michael B. Enzi (WY)
- **Bill Number: H.R.747 National Health Information Incentive Act of 2005**
 - Introduced by: Representative Charles A. Gonzalez (TX-20)
- **Bill Number: H.R.2234 21st Century Health Information Act of 2005**
 - Introduced by: Representative Tim Murphy (PA-18)
- **Bill Number: H.R.3010 Department of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Act, 2006**
 - Sponsor: Representative Ralph Regula (OH-16)

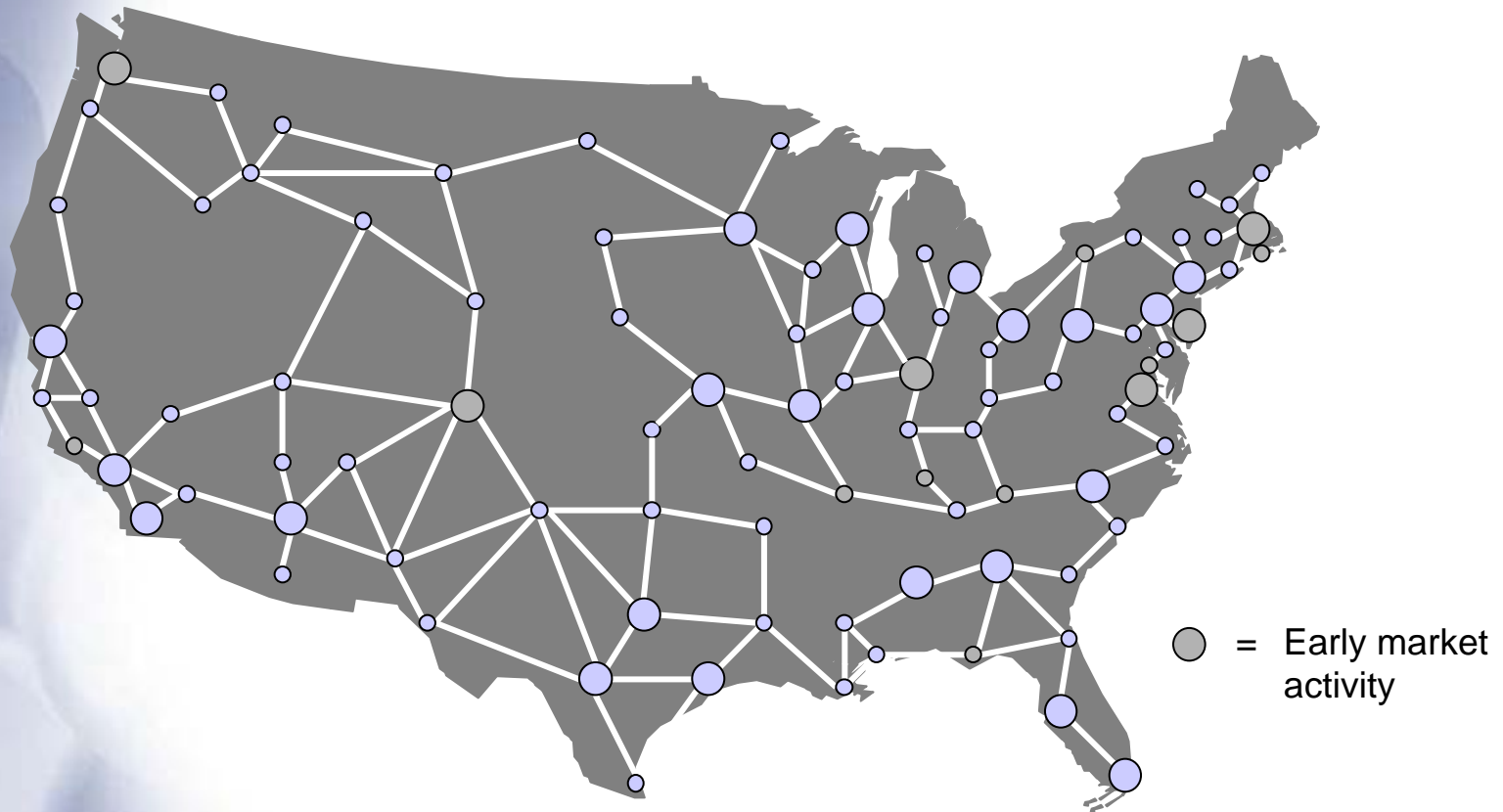
State & Local Government Influence

- Positive:
 - Governor's are organizing state initiatives to support HIT adoption
 - Raising awareness early within each state can assist early adoption
- Negative
 - Laws preventing exchange of immunization data and patient care data is a major road block

Thought Leadership

- Markle Foundation
- Robert Wood Johnson Foundation
- Center for Health Transformation
- e-Health Initiative
- CHIME
- HIMSS
- Many others

The federal health IT strategy envisions creating a secure and standards-based “network of networks”



Built at the local level through public / private collaboration, interconnected and interoperable, to share electronic health records nationwide

Building the NHIN Involves Local, Regional & National Involvement

- Local, regional, and national, but not necessarily in that order

1. Form regional collaborations (RHIOs, etc.)

RHIO Formation and Support

- Facilitation, Planning and Architecture
- RHIO Technology Selection, Development and Implementation
- Program Management and Hosting

2. Build national capabilities to assist in or monitor the effort (federally funded or other)

NHIN Support

- Planning, Strategy, ROI Analysis, etc.
- Standards and Technology Selection, Development and Certification
- Implementation Assistance Services

3. Help providers adopt electronic health record capabilities and systems

Electronic Health Records (EHRs)

- EHR / EMR Readiness Assessment
- EHR / EMR / CIS Solution Selection
- EHR / EMR / CIS Implementation
- EHR / EMR Hosting and Consolidation (ASP)



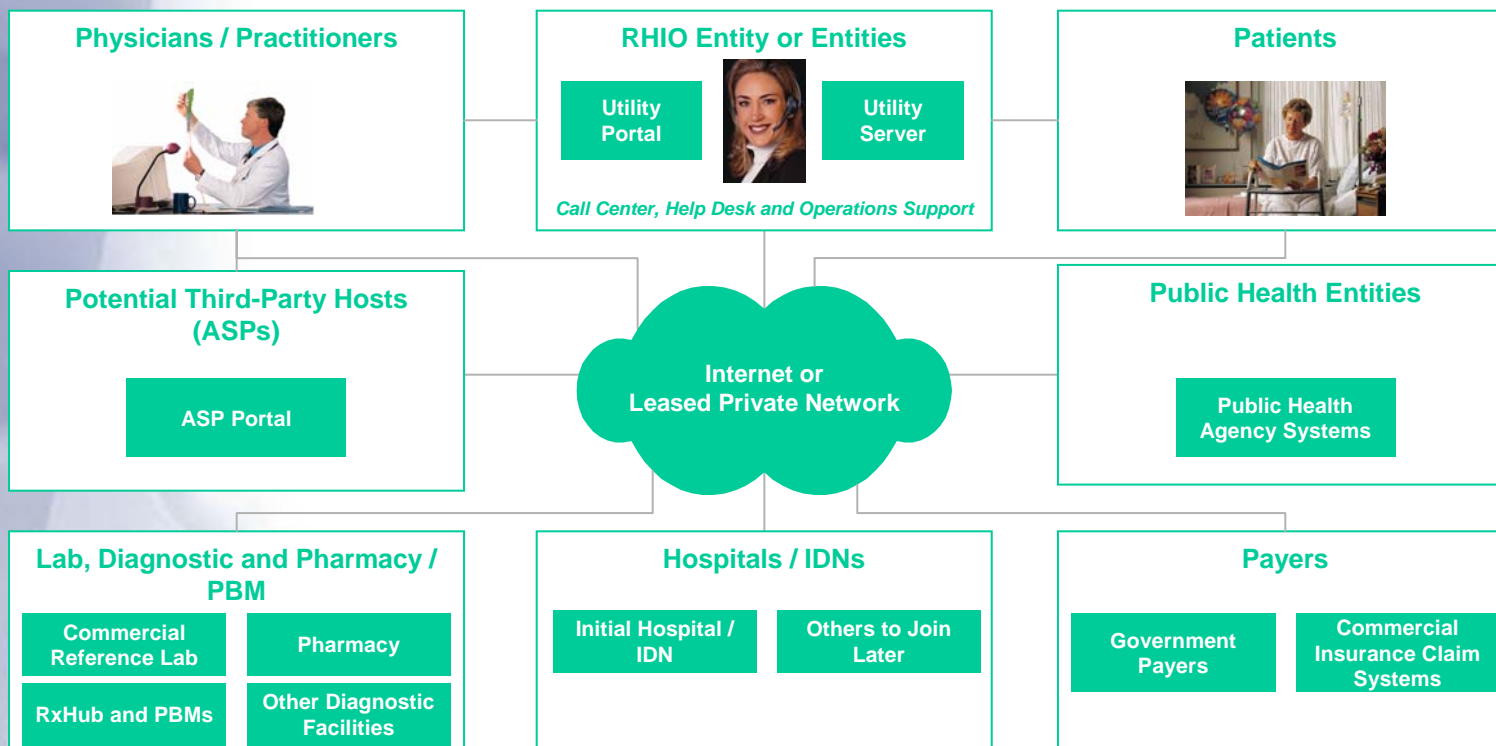
RHIO Discussion

RHIO Definition

- A **Regional Health Information Organization (RHIO)** is a multi-stakeholder organization that enables the exchange and use of health information, in a secure manner, for the purpose of promoting the improvement of health quality, safety and efficiency.

RHIOs – Building Blocks of NHIN

- Also referred to as health information exchanges (HIE) and local health information infrastructure (LHII)
- The name isn't important but the **FUNCTION** is

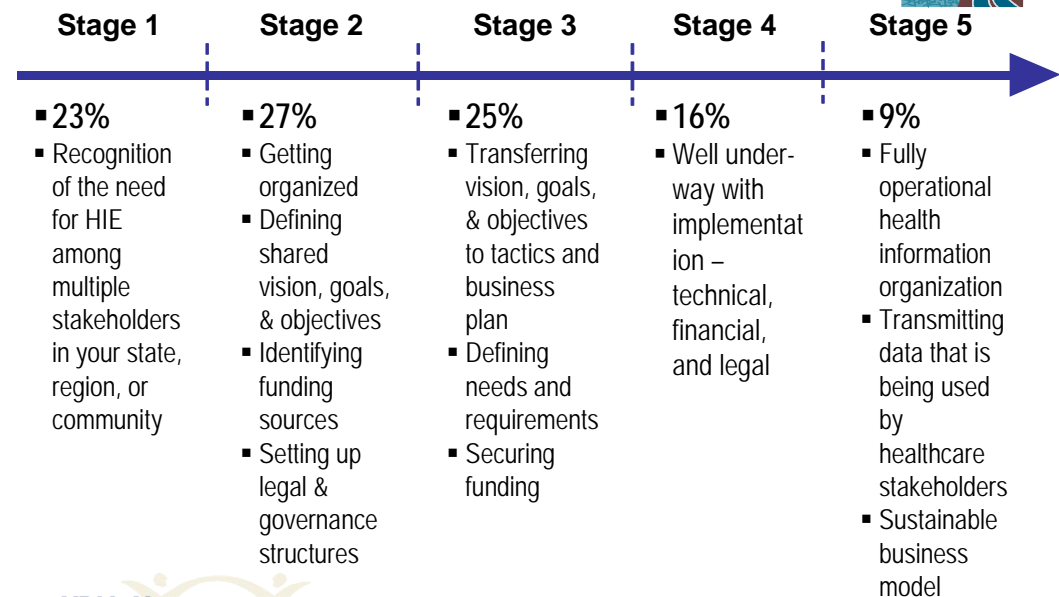


RHIOs Evolve Through Stages

eHealth Initiative Staging Model

1. Formation
 - Resulting in an agreed Memorandum of Understanding addressing the group's mission and initial governance
2. Planning, Funding and Design
 - Resulting in agreement on a master project plan for implementation, participant investment requirements and a common technical solution design
3. Development and Infrastructure Acquisition
 - Ending with a technical solution ready for piloting at RHIO participants
4. Pilot Rollout and Transition
 - Defined as complete when a successful pilot is declared ready to move to fully operating "production" status
5. Deployment and Ongoing Operations and Support
 - While ongoing, this phase generates new planning, design, development, infrastructure, pilot and deployment phases.

What Stage Are They In?



RHIOs Must Take Into Account Three Core Disciplines

Program Management

- Project planning and estimation
- Recruiting and training for critical mass adoption (data providers and users)
- Role of incentives (P4U, P4P) in adoption
- Fundraising (capital investment and ongoing operations)
- Cost / benefit analysis
- Potential revenue streams
- Value-added services
- Operational service levels
- Communication plan

Functional Requirements

- Required clinical information types
- Message content
- Identifiable vs. de-identified data streams
- Data aggregation requirements / uses
- Patient or provider-centric
- Terminology standardization
- Referral and consult workflow
- User interface / user experience
- Consent management process
- Persistency requirements
- Continuity of Care Record (CCR) consideration

Technical Architecture

- Application / data distribution model (centralized, peer-to-peer or hybrid)
- Data transformation / metadata methodology
- Security and consent management design
- Publisher and Subscriber data services
- Messaging / application workflow
- Availability and data storage
- Performance engineering
- Infrastructure design, management and administration
- Network application hosting

RHIO Success

RHIO Architectures

- **Federated architecture** (decentralized) is an approach to the coordinated sharing and interchange of electronic information emphasizing partial, controlled sharing among autonomous databases within a RHIO. In a federated architecture, independent databases (decentralized) are connected to share and exchange information.
- **Centralized architecture** is an approach to RHIO data sharing and inter-change of electronic information emphasizing full control over data sharing through a centralized repository.
- **Hybrid architecture**– as the name suggests, is a combination of the two architecture types where various data transactions occur based on a decentralized or centralized method. i



RHIOs In Practice
Santa Cruz, CA

Santa Cruz RHIO 2005

- Participants
 - 2 competing hospitals
 - 2+ competing laboratories
 - 4 radiology centers
 - 1 IPA
 - County health facilities
 - Federally qualified clinics
 - 300 Independent providers in 77 independent practices
- Essentially 100% of clinical “result” data digitized
- 75%+ of transcribed data digitized
- Patient centric data
- Data management and “EMR” workflow tools

West Coast – Santa Cruz RHIO

- Santa Cruz RHIO
 - Laboratory – 100%
 - Radiology – 100%
 - MRI/CT – 100%
 - Hospital Data – 100%
 - Laboratory
 - Pathology
 - Radiology
 - Transcription
 - MD – MD Communication ~ 100%
 - Outpatient Transcription – 75%

Santa Cruz Process - 1995

- Practice Association drove process
- 25 MDs Networked to design system
- 1 year of security discussion
- Priorities set
 - Digitalization of data
 - Manageable data
 - Data delivery with management tools
 - Build workgroup specific repositories
 - Transfer data between repositories
 - Create Community wide EMR

Security Architecture

- Delivery model – “push technology”
 - Mimics paper
 - Explicit permission not necessary
 - Complete record with transfer
 - Security stays with record “owner”
- Access model – “pull technology”
 - Difficult to meet security needs
 - May be only appropriate for emergency databases
- Technology that allows both models

Technical Methodology

- All data sources:
 - Standardize data
 - Uniquely Identify data
 - Community wide index -
 - “Route” Data with community address book
 - Routing provided security
 - Data supplier databases
 - Physician Workgroup databases
 - Common index across community
 - Key clinical data carried in index.

Community Index

- Index of Indexes
- Algorithmic identification
- De-centralized management
 - End user cleanup
 - Document identification
 - Index management

Political Lessons Learned

- You can lead a physician to water ...
- Systems must provide incremental value
 - Data viewing
 - Data flow management
 - Clinical communication
 - Care management
 - Decision support
- Physicians will not “pay”
- Automation helps data providers as much as recipients

Lessons Learned 1995-2005

- Data needed to be manageable
- Security (even with HIPAA) subjective
- “Push” Technology
- Three phase MD adoption
- Significant variance in MD workflow
- Need flexible products



RHIO Federation

Overview

Launched October 21, 2005

RHIO Federation Objectives

- Set realistic expectations for interoperable health information in the United States
- Create and disseminate tools to foster successful exchange of health information
- Conduct research that identifies best-of-breed, emerging themes and documents outcomes of RHIO execution
- Connect the people who are tasked with executing RHIOs, as well as connecting the RHIOs themselves with payers, life sciences, vendors, consultants, policy-makers, and clinicians – everyone has a stake in the game

RHIO Federation Key Focus

- Business Rules
- Chain of Trust
- Harmonization

Important Dates/Times

- **October 21, 2005: Public Launch**
- Monthly RHIO Federation Liaison Roundtable calls to discuss local activities
- Semi-Monthly RHIO Federation Task Force to discuss deliverables
 - Begins October 31, 2005
 - Every other Monday

RHIO Federation Membership

- Any RHIO or HIE effort can join for free
- HIMSS members can participate in the task force to develop deliverables
- Organizational Membership being developed for organizations that want to join the HIMSS RHIO Federation and are not HIMSS Members

Brainteaser Answer

Delta of RHIOs

We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten. Don't let yourself be lulled into inaction.

- Bill Gates