



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, MIM
HIMSS
Director, Integration & Interoperability

Greater Chicago Chapter RHIO Session
November 10, 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

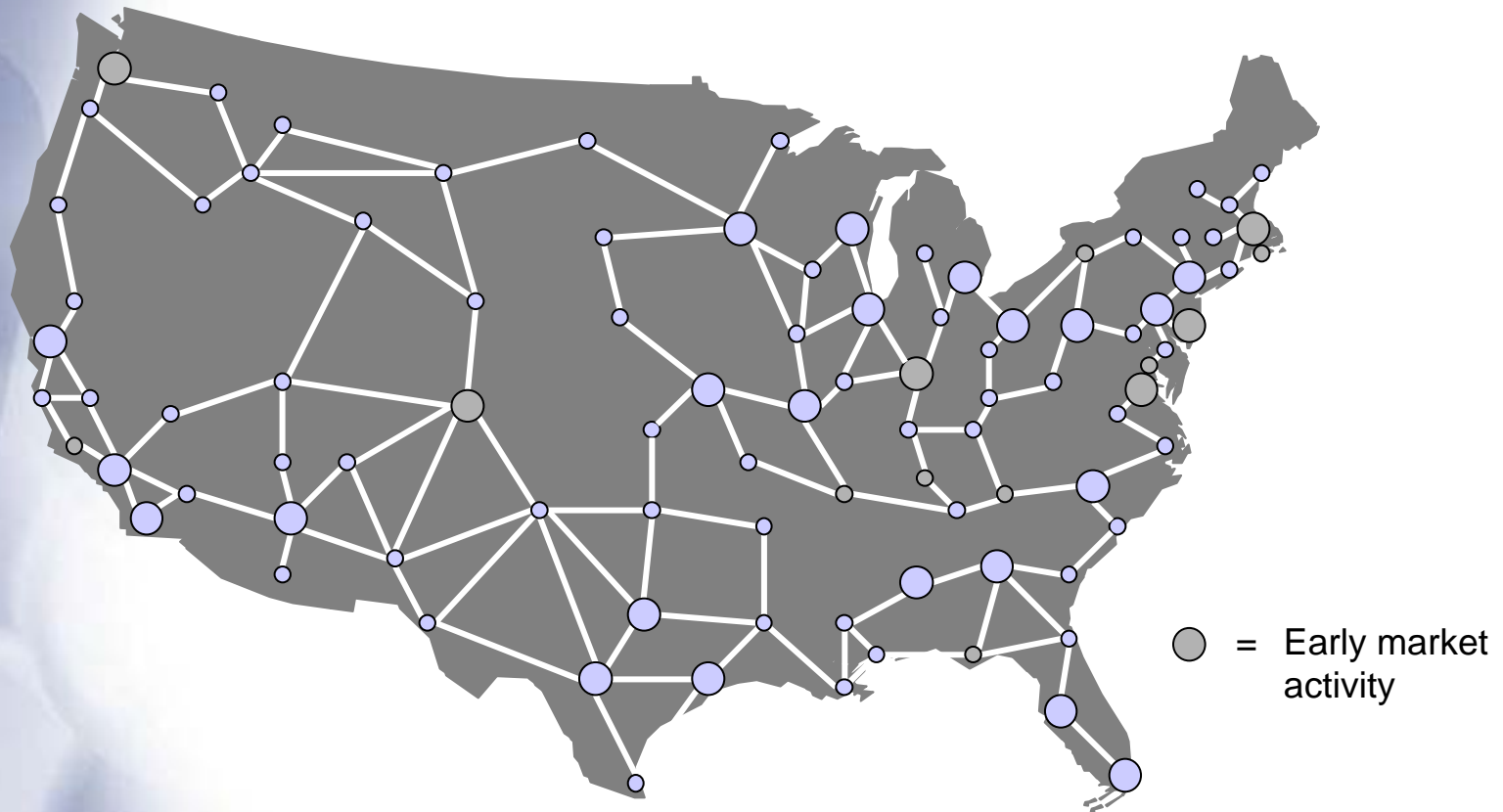
HIE History in the US

- 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
- Others see it as a very different movement that has the right political backing

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

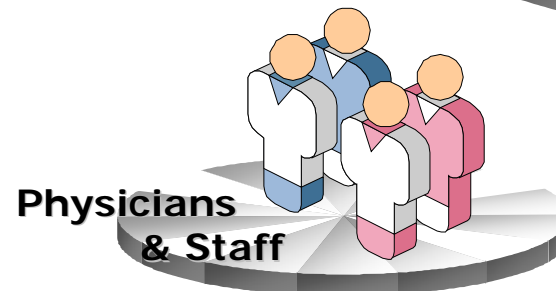
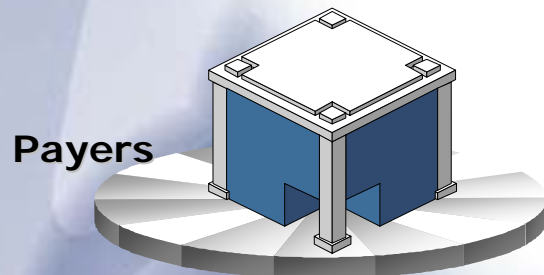
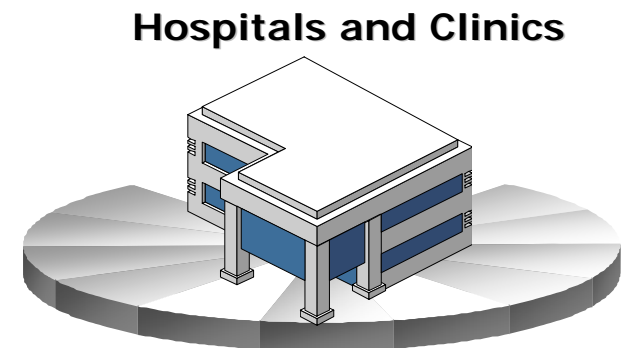
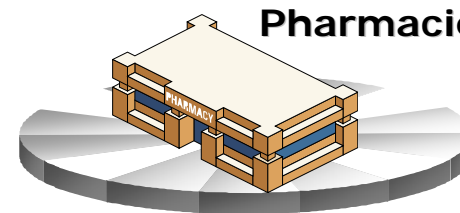
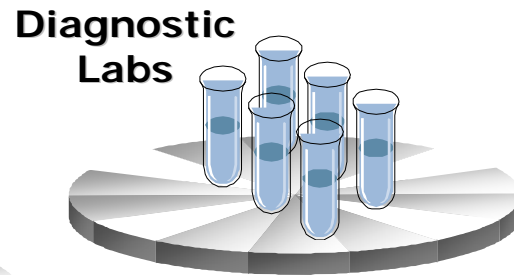
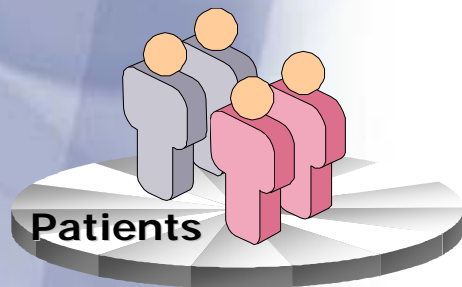
The federal health IT strategy envisions creating a secure and standards-based “network of networks”



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

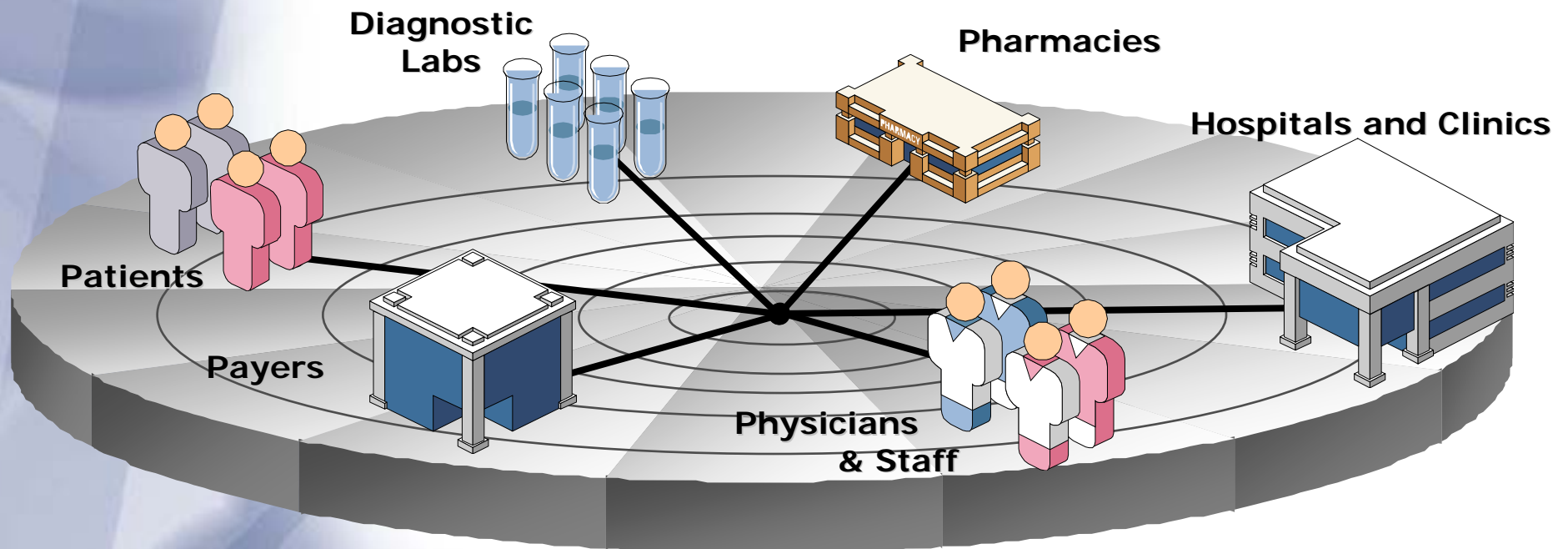
The Problem

We must transform our current islands of patient care and corresponding clinical information into.....



The Solution

A collaborative health care community where a patient's clinical data is available to caregivers regardless of the location or source system in a manner that meets existing security and privacy requirements.



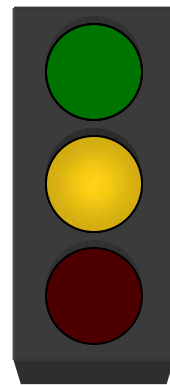
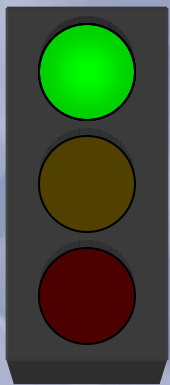
Regional Collaboration - Technical Infrastructure - Financial Sustainability

Hype or Promise?

- Gartner's "Hype Cycle" being released
- Health Care Organizations have internal stove pipes, are we ready for NHIN?
- 200 plus RHIO initiatives and counting
- Several are 90%+ interoperable, most are not

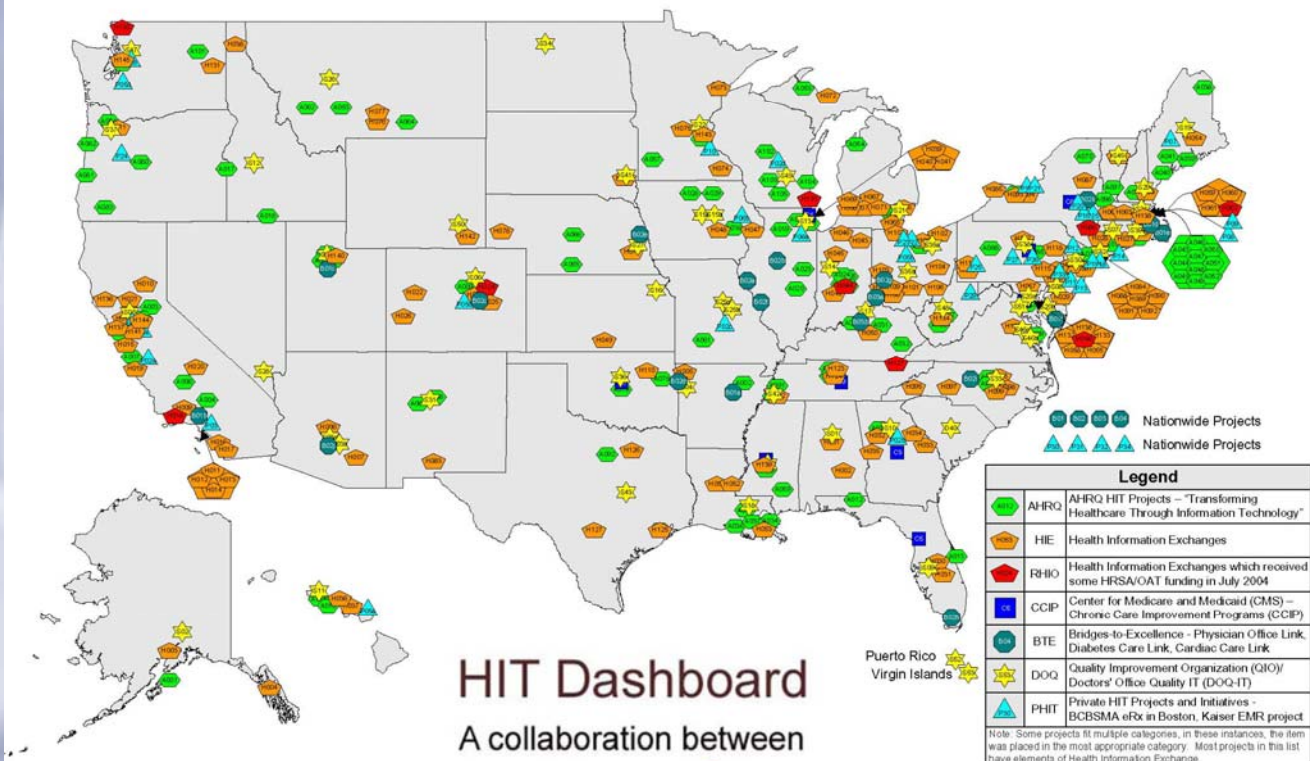
Pros & Cons

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



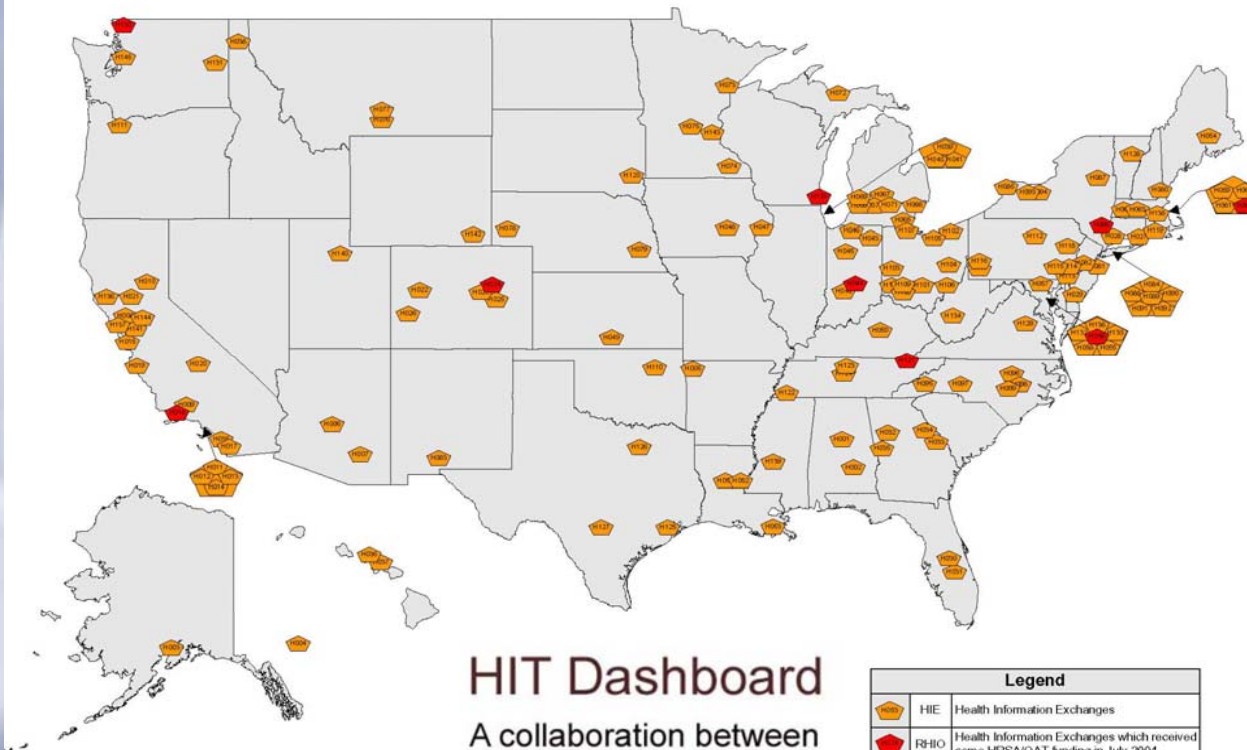
Legend	
	AHRO AHRO HIT Projects - "Transforming Healthcare Through Information Technology"
	HIE Health Information Exchanges
	RHIO Health Information Exchanges which received some HRSA/OAT funding in July 2004
	CCIP Center for Medicare and Medicaid (CMS) - Chronic Care Improvement Programs (CCIP)
	BTE 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



HIT Dashboard
A collaboration between



Illinois Activities

Advancing an HIE for Cardiovascular Care	American Medical Association	This is a proposed HIE targeted to persons with cardiovascular disease, including CAD, CHF, and/or HTN. The proposal focuses on technical infrastructure and tools, performance metrics, and reports.
Electronic Cancer Reporting	College of American Pathologists (CAP) SNOMED International	This HIE focuses on cancer diagnosis and reporting using the College of American Pathologists cancer checklist. The concept is to communicate the cancer diagnosis protocols to pathologists and facilitate electronic reporting.
DOQ-IT	Illinois Foundation for Quality Health Care	Participating practices will receive free consultative services from the Illinois Foundation for Quality Health Care (IFQHC) throughout the process of selecting and implementing an EHR system. IFQHC provides resources with expertise on: Culture change and leadership. EHR planning and implementation. Workflow analysis and preparing practices for EHR readiness. Increased patient safety.
Bridges-to-Excellence	Tri-State Health Care Coalition	The four coalitions launching BTE-related projects are located in Illinois (two in Illinois), Colorado and Arkansas. The coalitions, through a licensing arrangement with BTE, have begun talking with employers and estimate launching customized programs in their respective markets later this year. Business coalitions are well suited to coordinating such incentive programs - by coordinating activities among employers, they can pool resources and streamline related operations, thus making the efforts more attractive to employers and physicians. All four coalitions are members of the National Business Coalition on Health (NBCH), a 70-coalition member strong organization that strongly supports pay-for-performance.
Bridges-to-Excellence	Heartland Healthcare Coalition	The four coalitions launching BTE-related projects are located in Illinois (two in Illinois), Colorado and Arkansas. The coalitions, through a licensing arrangement with BTE, have begun talking with employers and estimate launching customized programs in their respective markets later this year. Business coalitions are well suited to coordinating such incentive programs - by coordinating activities among employers, they can pool resources and streamline related operations, thus making the efforts more attractive to employers and physicians. All four coalitions are members of the National Business Coalition on Health (NBCH), a 70-coalition member strong organization that strongly supports pay-for-performance.

Illinois AHRQ Grants

Illinois	Katherine Shaw Bethea Hospital, Dixon, IL	3 yrs	Rural Community Partnerships—EMR Implementation Project	Implements an ambulatory EMR in multiple rural primary and specialist care provider settings and measures the impact of health information technology on clinical practice, organizational structure, and financial benefits; integrates ambulatory electronic medical record case scenarios into the curricula of the Health Science and
Illinois	Sarah Bush Lincoln Health Center, Mattoon, IL	3 yrs	Linking Rural Providers to Improve Patient Care and Health	Develops a central electronic health record system that will allow sharing of health information between a hospital, medical group, county health department, and behavioral health organization for rural economically disadvantaged, ethnic/racial minority residents, the elderly, and persons with special/complex health care needs.
Illinois	Erie Family Health Center, Chicago, IL	3 yrs	Sharing Patient Record Access in Rural Health Settings	Develops an implementation plan for an ambulatory EMR in a medically underserved region that will electronically connect physician offices, the regional hospital, ancillary services, and other community health services; identifies indicators to track measurable improvements in patient safety, quality of care, clinician and patient satisfaction, and operational efficiency.
Illinois	(JCAHO), Oakbrook Terrace, IL	3 yrs	Enhancing Quality in Patient Care (EQUIP) Project	Implements an electronic health records system in a network of community health centers and develops a data warehouse to monitor, aggregate, and provide data for quality improvement.
Illinois	Board of Trustees of the University of Illinois, Chicago, IL	3 yrs	Toward an Optimal Patient Safety Information System	Promotes and evaluates the interchange of patient safety information and the reporting of adverse events and close calls among public and private voluntary incident reporting systems being used at U.S. hospitals.
Illinois	Katherine Shaw Bethea Hospital, Dixon, IL	3 yrs	Value of Technology to Transfer Discharge Information	Assesses the value of software applications to facilitate information transfer during the high-risk transition from hospital to home at discharge and compares health information technology to usual care for benefits outcomes, adverse events, effectiveness, costs, and satisfaction among patients and physicians.

Federal Government Influence

- Commission for Systemic Interoperability (CSI)
- American Health Information Community (AHIC)
- Formation of ONCHIT
- ONCHIT RFPs Awarded
- 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

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

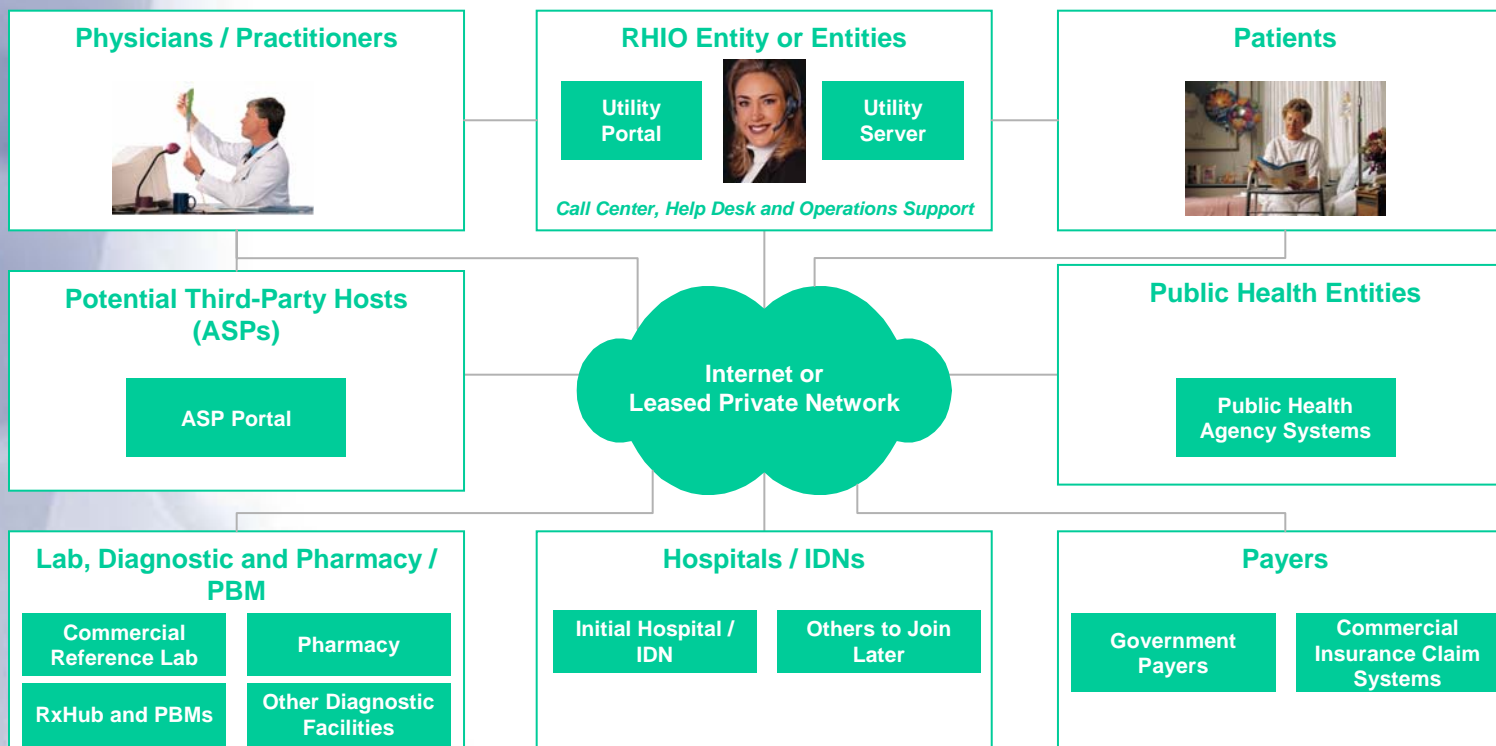
- A **Regional Health Information Organization (RHIO)** is a multi-stakeholder organization that enables the exchange and use of health information, in a secure manner, for the purpose of promoting the improvement of health quality, safety and efficiency.
- A RHIO is the ORGANIZATION of the PEOPLE not the network and technical infrastructure.

HIE Definition

- A Health Information Exchange is the network and associated information technology infrastructure used by physicians, hospitals, pharmacies and other entities involved in healthcare service delivery to exchange patient care data.
- A HIE is the NETWORK and TECHNICAL infrastructure used by the people in a RHIO

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

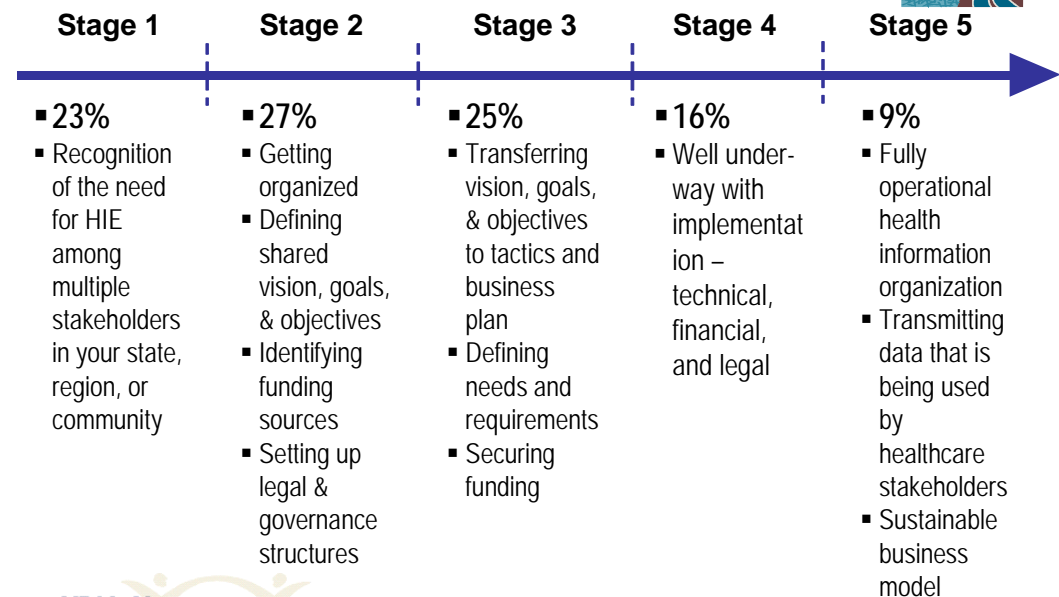


RHIOs Evolve Through Stages

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

Santa Cruz RHIO is Online

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

How Santa Cruz Did It

- 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

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



RHIO Federation Overview

Launched October 21, 2005

RHIO Federation Objectives

- Set realistic expectations for interoperable health information exchanges 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 to each other
- Provide outreach, education and advocacy support to foster growth and contribute to NHIN

RHIO Federation Key Focus

- Business Rules
- Chain of Trust
- Harmonization

RHIO Federation Support

- RHIO Federation Task Force
 - Definitions Work Group
 - Special Projects Work Group
 - RHIO Guidebook work Group
- HIMSS RHIO Chapter Roundtable
 - 35 liaisons that will support local activity

RHIO Federation Membership

- RHIOs and HIEs participate in the HIMSS RHIO Federation free of charge or obligation
- Activities:
 - Collaboration forum to share lessons learned, best practices and other data
 - Monthly education teleconferences on timely topics

HIMSS RHIO Symposium

- HIMSS Annual Conference will have many RHIO education opportunities
- RHIO Symposium
 - Day long event focusing on:
 - Business Rules
 - Chain of Trust
 - Harmonization
 - Hurricane Katrina

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

Questions?



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