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**Making the Business Case for RHIOs:
Architectures, Governance and ROI**

HIMSS HIT SUMMIT
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Moderator

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Evanston Northwestern Healthcare

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- Joseph Casper, Sr. Vice President,
Managing Director
First Consulting Group
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RHIO Working Definition

- A RHIO is a community-wide, multi-stakeholder effort to utilize information technology to improve health care quality and efficiency by making more complete patient information and decision support available when and where needed. Other terms also used somewhat interchangeably with RHIO are health information exchange (HIE) and health information infrastructure (HII). While the ideal community size for a RHIO is not yet clear, it is widely accepted that these efforts must be local, state, or regional (as opposed to national). Over one hundred such efforts are currently underway across the nation, although there are only a handful of communities that actually have operational systems in production. No community currently has a fully operational, financially sustainable RHIO that can deliver complete patient information. Building a successful RHIO involves difficult organizational, governance, financial, and technical challenges.

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Definition part 1

- A RHIO is a community-wide, multi-stakeholder effort to utilize information technology to improve health care quality and efficiency by making more complete patient information and decision support available when and where needed.

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Definition part 2

- Other terms also used somewhat interchangeably with RHIO are health information exchange (HIE) and health information infrastructure (HII). While the ideal community size for a RHIO is not yet clear, it is widely accepted that these efforts must be local, state, or regional (as opposed to national).

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Definition part 3

- **Over one hundred such efforts are currently underway across the nation, although there are only a handful of communities that actually have operational systems in production. No community currently has a fully operational, financially sustainable RHIO that can deliver complete patient information.**

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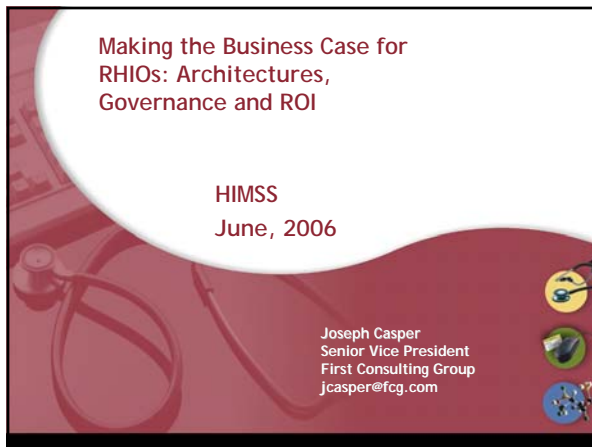
Definition part 4

- **Building a successful RHIO involves difficult organizational, governance, financial, and technical challenges.**

Making the Business Case for
RHIOs: Architectures,
Governance and ROI

HIMSS
June, 2006

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Who Benefits?

In the end those who benefit, will pay proportionate to the benefit they receive!

- There are samples that signal the patient is willing to participate
- Employers & Payor's are trying to work together
- There is a play with Big Pharma and the data!

There is NO Single answer. Yet!

No Strong Standards

Centralized or Federated ?
Both are viable
"Edge" replication make federated work.

How do you get scale?
Large in patient participants
Large "lab feeds"
Large "meds feeds"

Move First? Wait?
Wait & see may miss "kick start grants"

What does the governance need to be?

How Much Data do I have to have?

How Fast you see results



- Lower Costs
- Reduce adverse patient events.
- Supports medical decision-making through access to community wide patient information
- Consolidated Allergy Data
- Consolidated Meds List

Impact of Information Sharing

- Lives saved, patient, adverse events decreased
- Significant cost savings
 - One Information Sharing Community saw
 - All Diagnostic Testing reduced 12 to 15%
 - Emergency Department Charges reduced more than 5%
 - Another Information Sharing Community documented and reported
 - 1 in 7 admissions resulted from missing information in emergency departments or primary care setting
 - 20% of lab and x-ray tests were duplicated due to lack of information sharing
 - 11% duplication in medication and diagnostic testing orders, with 50% of the duplicate orders getting filled

Core RHIO Objectives

- Enable secure access to clinical information at the point-of-service regardless of the physical location of that information.
 - Increase efficiency, enhance productivity from community information being made available in a single query point.
 - Potentially reduce adverse patient events.
 - Potentially improve quality of care delivered.
- Provide HIPAA compliant solution for transfer of clinical information.
- Provide patients with access to their sources of healthcare information

- **Enhance Clinical Decision Making**
 - Immediate delivery of information from multiple sources of currently available electronic data in a federated data model
- **Coordinate care among disparate locations:**
 - Initially "read only" later push into core HIS
- **Only subset of all data is gathered**
 - Problem list/diagnosis, medications, lab studies, allergies, notes, immunizations, Physician relationships.
- **Ability for any available electronic patient data (excluding large images)**







with Broad Goals

Provide clinicians with relevant community-wide healthcare information to improve the quality of the patient's care at the time of medical decision making

- **Reduce risk of Prescription Errors**
 - Allergy Data
 - Medication History that includes current and discontinued medications (system pre loaded)
- **Improved utilization of resources**
 - In patient Laboratory Results immediately made available to a PCP, ability to get data directly from large labs.
 - Transcribed Notes provides electronic history of procedures and outcomes of past treatments
 - Even Scanned paper ED charts show course of ED visit

Key To Success is a solid MPI Strategy and well planned Implementation

- ▶ Critical Success Factors
 - Evaluation of data elements to match the identity of patients across facilities
 - Data Quality Assessment
 - What elements are consistently available from message to message, facility to facility
 - Timing of communication between source facility and MPI Solution
 - Data Staging and Cleansing
 - Presentation of data to MPI in a consistent format that optimizes the chances for a match in the MPI
 - Automated MPI Management
 - Developing automated process to maintain MPI





How can you balance HIPAA and consumer concerns

SECURITY



- Clinical data stored at the 'owning' hospital (no CDR)
 - Data housed inside hospital firewall
- Access policy (user rights) mirrors that of the hospital
- User authentication process mirrors that of the hospital
 - Currently User ID, Password, Challenge Phrase
 - Capable of supporting Digital Certificates & biometrics
- Virtual Private Networks (VPNs)
 - Secures data transmitted from Point_A to Point_B
- Full audit logs and ability to recreate any transaction under question

Is there Value to Patients?

- Improves medical decision making by making otherwise difficult to obtain data available at the right time and place
- May reduce the risk of medical errors
- Allows physicians and hospitals to more easily comply with HIPAA regulations
- Medical research is expedited, especially studies of safety and effectiveness
- Addresses need for patient information instantly available even when patient is physically unable to deliver this information



Is there Value to Patients?

- Permits patient's medical data to be viewed as authorized by the patient
- Removes social security number as the de facto unique patient identifier
- Patient data is never stored in an identified manner
- Eliminates the need for universal conversion to unique patient identifier



Is There Value to Physicians?

- Supports medical decision-making through access to community wide patient information
- Fosters performance and productivity improvement through secure access to clinical information at the point-of-service and at the place of service
- Provides HIPAA compliant solution for transfer of clinical information
- Provides a mobile, handheld computing solution which facilitates physician productivity in multiple practice locations

Is There Value for Hospitals?

- Creates potential for significant cost reductions and new financial benefit for hospitals
 - Lower cost from reduced errors, adverse events, redundant ordering
- Effectively addresses the concerns of the purchaser community, and specifically the recommendations of The Leapfrog Group
- Addresses HIPAA compliance requirements for mobile computing
- Satisfies growing physician desire for data at point-of-care via wireless access
- Saves lives and improves care by providing physicians with the information needed to make better medical decisions

HIE Sustainability: MHIN's Strategy

Jay C. McCutcheon



Topics

- Sustainability
 - Definitions
 - Critical Success Factors?
- Health Information Exchange
 - Product Approach
 - Sustainability Considerations
- Health Information Technology
 - Characteristics
 - Products and Customers
- Products and Pricing
 - Example – MHIN 2005
 - HIE Options
 - HIT Options
- MHIN Background and Current Status

An interactive approach – experiences, questions and discussion

Sustainability

- Definitions:
 - To keep in existence; maintain.
 - To supply with necessities or nourishment; provide for.
 - To support the spirits, vitality, or resolution of; encourage.
 - To bear up under; withstand: *can't sustain the blistering heat.*
 - To prove or corroborate; confirm.
- Critical Success Factors?
 - Critical mass of Service Providers and Phys in MTA
 - Decide on essential first products and services
 - Initial and ongoing value proposition for each customer
 - The whole is truly greater than the sum of its parts – *'Doing it alone' isn't a viable option (ie portal)*
 - Be ready with great answer; What have you done lately?

HIE Product Approach

- Example Product Lines
 - Results Delivery
 - Referrals
 - Orders
 - Patient History Access
- Product Components
 - Infrastructure, Tools and Apps
 - Interfaces
 - Education, Training, Reporting
- Customers / Participants
 - Service Providers
 - Physicians / Clinicians / Practice Entity
 - Insurers / Payors
 - Patients



HIE Sustainability Considerations

- Utility
 - Trust and collaboration among organizations / participants
 - Shared objectives and infrastructure
 - Community benefit and ongoing sponsorship
 - Interfaces
- Pricing approach
 - Who uses?
 - Who benefits?
 - Who pays?
- Revenue / pricing options – can be based on:
 - Subscriptions
 - Transactions
 - Fractions
 - All of the above
 - Other



HIT Characteristics

- Costing and pricing separate from HIE
- Example Products
 - Physician Practices
 - EMRs
 - POMIS
 - ePrescribing
 - Other
 - Rural hospitals
 - Ambulatory centers
 - PHR
- Customers
 - Service Providers
 - Physicians / Clinicians / Practices Entities
 - Patients



HIT Products and Pricing Options

| | Service Providers | Physicians / Clinicians | Insurers / Payors | Patients |
|--------------------|-------------------|-------------------------|-------------------|----------|
| "EMR Lite" (Inbox) | | | | |
| ePrescribing | | | | |
| Transcription | | | | |
| EMR – Paperless | | | | |
| PHR | | | | |
| Other | | | | |

T = Transaction; S = Subscription
 P/P = Per patient; F = Fractions



HIT Products and Pricing MHN

| | Service Providers | Physicians / Clinicians | Insurers / Payors | Patients |
|--------------------|-------------------|-------------------------|-------------------|----------|
| "EMR Lite" (Inbox) | | S | | |
| ePrescribing | | S | | |
| Transcription | | | | |
| EMR – Paperless | | S | | |
| PHR | | | ? | ? |
| Other | | | | |

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Michiana Health Information Network – An Example

MHIN's Founding Vision and Principles:
Technology infrastructure to connect all physicians, hospitals, labs, and other providers for efficient and appropriate exchange of medical information and improved patient care.

- Clinical information from multiple sources integrated in a patient-centric repository for a complete, historical patient record.
- Community resources shared to reduce capital and resource requirements.
- Scalability - Physician practices & large hospitals; Rural & metro
- Compliance – Medicare, IRS, etc.
- Strong security safeguards (even before HIPAA), e.g.,
 - User access based on specific caregiver-patient relationship
 - Each organization's data separate; access based on internal policies

- MHIN's Medical Trading Area:**
- North-Central Indiana – South Bend, Mishawaka, Plymouth & Notre Dame, IN
 - Overlapping medical staffs
 - PCPs and specialists practice throughout the area
 - Referrals to South Bend from smaller communities
 - South Bend Medical Foundation
 - physician-led, not for profit regional reference lab
 - supports local hospitals and provides 80%+ of outpatient services



MHIN Status – January, 2006

- The HIE has been operational for six years and includes:
 - More than 400 physicians and more than 2,000 total users
 - 105 practice locations and clinics – and homes and hospitals
 - Clinical information
 - For more than 200,000 patients
 - From more than 15 data sources, including 4 hospitals, 2 labs, 2 imaging centers, and other sources
 - Approximately 1,000,000 transactions per month
- Integrated Ambulatory Electronic Health Record:
 - 19 practices installed, 25+ implementing & planned
 - 90 physicians, 350 staff members
 - Significant, documented cost savings and quality improvements
- Other programs and services include:
 - EMR interfaces and data integration services for physician practices
 - CAP Grant connectivity for community clinics
- Recently concluded physician-led planning initiative
 - Remaining data sources
 - Additional HIE-oriented functionality and technology



Thank you....

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**Key Requirements for
Community Health
Information Infrastructure**

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Components of a Community Health Information Infrastructure

Complete Electronic Patient Information

Stakeholder cooperation

Financial Sustainability

Public Trust

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Complete Electronic Patient Information

- Most information is already electronic: Labs, Medications, Images, Hospital Records
- Outpatient records are mostly paper
 - Only 10-15% of physicians have EHRs
 - Business case for outpatient EHRs weak
- For outpatient information to be electronic, need financial incentives to ensure that physicians acquire and use EHRs
- Requirement #1:** Financial incentives to create good business case for outpatient EHRs

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Complete Electronic Patient Information

- Need single access point for electronic information
- Option 1: Gather data when needed (scattered model)
 - Pro: 1) data stays in current location; 2) no duplication of storage
 - Con: 1) all systems must be available for query 24/7/365; 2) each system incurs added costs of queries (initial & ongoing); 3) slow response time; 4) searching not practical; 5) huge interoperability challenge (entire U.S.); 6) records only complete if every possible data source is operational


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Complete Electronic Patient Information

- Need single access point for electronic information
- Option 2: Central repository
 - Pro: fast response time, no interoperability between communities, easy searching, reliability depends only on central system, security can be controlled in one location, completeness of record assured, low cost
 - Con: public trust challenging, duplicate storage (but storage is inexpensive)


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Complete Electronic Patient Information

- Need single access point for electronic information
- Requirement #2: Central repository for storage

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Stakeholder cooperation

- Voluntary ➡ Impractical
- Financial incentives
 - Where find \$\$\$\$\$?
- Mandates
 - New ➡ Impractical
 - Existing
 - HIPAA requires information to be provided on patient request
- Requirement #3: Patients must request their own information


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Financial Sustainability

- Funding options
 - Government
 - Federal: unlikely
 - State: unlikely
 - Startup funds at best
 - Healthcare Stakeholders
 - Paid for giving care
 - New investments or transaction costs difficult
 - Payers/Purchasers
 - Skeptical about benefits
 - Free rider/first mover effects
 - Consumers
 - 72% support electronic records
 - 52% willing to pay >=\$5/month

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Public Trust

A. Public Trust = Patient Control of Information

- Requirement #5: Patients must control all access to their information

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Public Trust

B. Trusted Institution


- Via regulation (like banks) → impractical
- Self-regulated
 - Community-owned non-profit
 - Board with all key stakeholders
 - Independent privacy oversight
 - Open & transparent
- Requirement #6: Governing institution must be self-regulating community-owned non-profit

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Public Trust


- c. Trustworthy Technical Architecture
 - Prevent large-scale information loss
 - **Searchable database offline**
 - **Carefully screen all employees**
 - Prevent inappropriate access to individual records
 - **State-of-the-art computer security**
 - Strong authentication
 - No searching capability
 - Secure operating system
 - **Easier to secure central repository: efforts focus on one place**
 - **Requirement #7: Technical architecture must prevent information loss and**

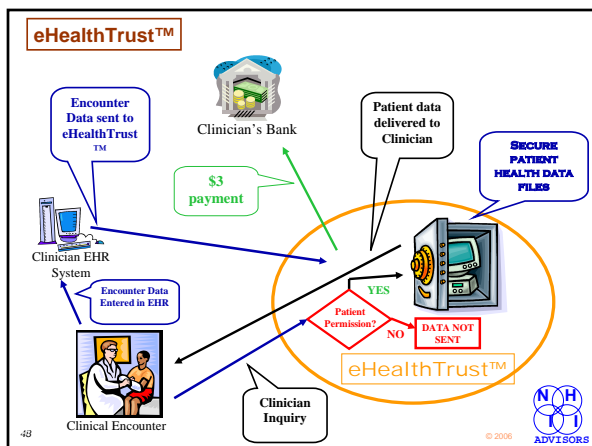


eHealthTrust™ Model

- All information for a patient (from all sources) stored in single eHealthTrust “account” controlled by that patient
- Charge \$60/year/patient (\$5/mo)
 - Paid by patient, payer, or purchaser
- All data sources contribute at patient request (per HIPAA)
- Operating Cost < \$20/year/patient
- Payments to clinicians for submitting standard electronic clinical info provides incentives for EHR acquisition (~\$3/encounter)**

**patent pending





Questions?

For more
information:

www.ehealthtrust.com

www.yasnoff.com

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