

Regional Health Information Organization

MedInf405 – Sec52

HIT Integration, Interoperability, & Standards

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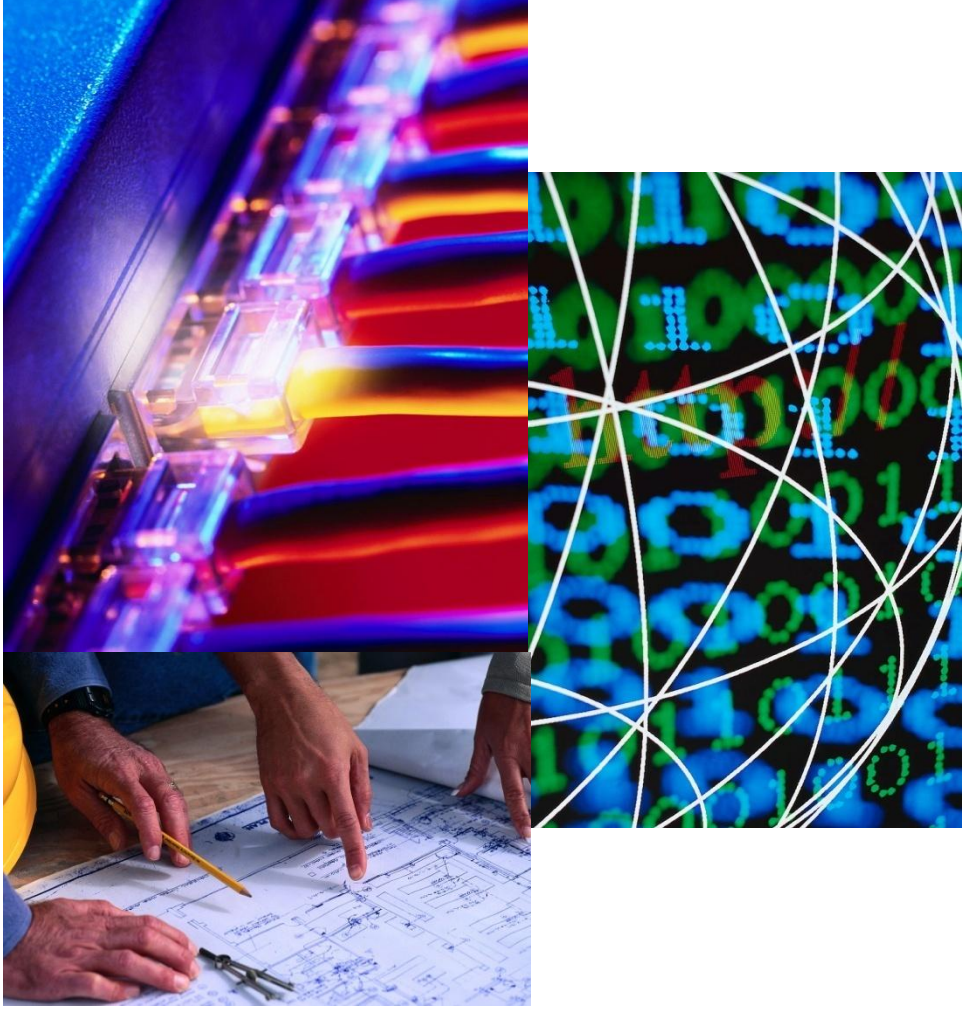
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Agenda

- Development Concepts and Approach
- Standards
- Access Criteria
- Additional Considerations
- Information Systems
 - Overview
 - Build vs. Buy
 - Requirements
- Operational Structure



Development Concepts & Approach

RHIO Developmental Concepts: Centralized vs. Distributive Approach

- Centralized Database Configuration
 - Messages from multiple source systems flow into a single facility/database
- Distributed Approach
 - Utilizes pull technology to retrieve patient data from source systems at point of need
- Direct bearing on Standards utilized for data integration.

RHIO: Centralized Database

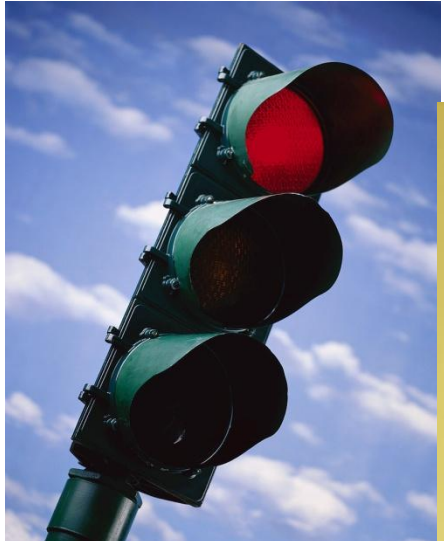
- Requires greater resource commitment:
 - Staff required to develop preprocessing routines to fully standardize HL7 messages
 - Maps local observations and report codes to a universal standard
- Allows standardized policies and procedures regarding data retention and use
- Able to control network configurations and associated response times
- Predominant approach utilized in most active RHIO's today.

RHIO: Distributed Approach

- Data storage remains within source systems, thus administrative resources are much less
- Believed to have advantages from an acceptability standpoint as data remains within the confines of the source system institution
- Data retention at the mercy of the policies surrounding the source system, thus variability could exist
- Network response times are driven by the data query affects on the source system.
- Minimal use approach at this time

RHIO: Our Approach to Success

- Centralized database configuration in order to standardize data policies
- Supports clinical practice/treatment
- Additional opportunities for data/clinical research
- Efficient/Effective support of biosurveillance and public health reporting
- Standardized approach to data presentations



Standards

Standards?? What Standards??

- 2006 – Harvard Study –RHIO Development
 - 54% of RHIO's in development were still in the planning stages as of early 2007
 - An additional 26% could be classified as defunct
- Information Technology & Innovation Foundation – Washington based think-tank reported in 2007:

“More than 100 RHIOs have been established across the country, but in the absence of clear national standards for sharing medical data, achieving system interoperability for RHIOs has been difficult.”

Vendor's Recognize Challenges as Well

- IT vendors concur with the reports findings: Connecting RHIO's is difficult without clear national standards and further adoption of EMR's
- Lack of standards surrounding RHIO development –
 - Requires manual intervention for data integration
 - Becomes a labor intensive process driving up costs.

OK... Maybe...Just Maybe...

These Standards Might Work

- TCP/IP Protocol: Message Transmission
 - TCP – Verifies Delivery of data
 - IP – Responsible for moving packets of data from node to node
- SSL: Transmission Security
 - Cryptographic system with two key encryption
- HL7: Clinical Observation Interface
 - ANSI Standard for healthcare specific data exchange
- National Provider Identifier (NPI)
 - National physician identifier

Standards - A Few More

- **LOINC**
 - Mapping of clinical Observations and Laboratory Results
 - This requires resource commitment by the RHIO staff to complete mapping
 - Mapping completed utilizing RELMA, a universally available mapping tool.
 - Takes thousands of HL7 messages and combines them into a single record
 - Allows displaying of clinical observations and laboratory results into a single integrated flow sheet

Just a few more...

- **DICOM**
 - Radiology images
- **NCPDP**
 - National Council for Prescription Drugs Program
 - Prescription messages
 - ANSI-Accredited Standards Development Organization
- **NDC**
 - National Drug Codes: FDA drug identifier
 - Drug Information

Standards vs. Compliance

- Enhanced RHIO development surrounds compliance with existing standards
- Example: HL7 messages
 - HL7 Structured Observation Message Standards
 - Separate Slots for:
 - Value
 - Unit of Measure
 - Abnormal Flag
 - Normal Range
 - Anticipates report writers will put this information in correct slots
 - Unfortunately, report writers will place multiple components into a single slot, thus complicating data integration in the receiving system

RHIO: Some Additional Needs

- **Master Patient Index**
 - Each patient is identified via an institutional-specific identification number resulting in multiple numbers for each patient
 - RHIO must develop a Master patient Index in order to map all institutional-specific numbers into a single identifier for mapping results
- **Web-Based User Interface**
 - Access tool with patient search engine
- **User Authentication Tool**
 - Dual layer authentication as required by HIPAA



Access Criteria

RHIO: Access Criteria

- Patient arrives at a participating institution for treatment/care
- HL7 ADT message is sent to RHIO indicating active account
 - Hospital ADT
 - Physician office/Outpatient clinic scheduling system
- Patient is considered “active” when a participating institution is providing, coordinating, or managing care of the patient

Access Criteria, Cont.

- HL7 message verifies patient is engaged in treatment with the provider and thus, has a right to access data from the RHIO
- Active status within RHIO launches query of all files looking for any data associated with the defined patient.
- This information is then viewable in a single integrated flow sheet upon request via a secure internet connection
- Access is for a time sensitive in order to limit opportunities for abuse

Access Criteria, Cont.

- **Defined Users**
 - Each participating institution assumes responsibility for defining appropriate personnel for access to the database
 - Confidentiality Agreements are required
- Breaches of confidentiality an/or data integrity will result in removal of access and further use of the RHIO

Additional Considerations

- **Management Structure**
 - Charter membership from core participants
 - Defined process for adding institutions
 - Data management
- **Data use**
 - Clinical treatment/care
 - Public reporting/biosurveillance
 - Research
- **Funding**
 - Grants
 - Ongoing funding structures



Information Systems

Information Systems

- Information Systems to be integrated
 - Provider EMR/EHR
 - Laboratory Systems
 - Radiology and PACS Systems
 - Hospital Information Systems
 - Local Public Health Systems
- Information System to support RHIO
 - Build vs. Buy decision
 - Determine needs
 - Estimate time, effort, and cost
 - Requirements
 - Must meet stakeholders needs
 - Realistic

Information Systems - Build vs. Buy

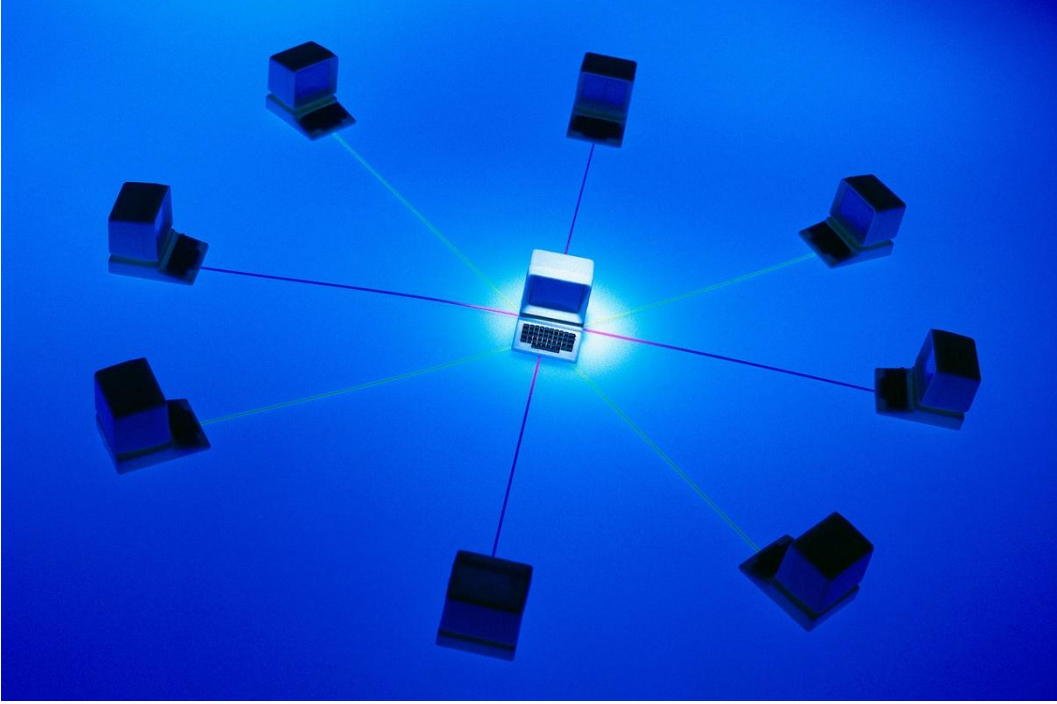
	Buy	Build	Hybrid
What it means	A complete or nearly complete solution by a vendor (for example: dbMotion, MedCity, MedSeek, IatriConnect, AvocareHealth)	A solution that is custom built from scratch that has few external components.	An intermediate solution that uses different components from multiple vendors as well as custom code to integrate into a solution.
Benefits	<ul style="list-style-type: none"> •Cheaper •Higher Quality if widely implemented •Easier upgrade process •Vendor responsible for regulatory updates 	<ul style="list-style-type: none"> •Will better fit business needs •Control over functionality •Customized for maximum business advantage 	<ul style="list-style-type: none"> •Best of both worlds •More customization to business needs possible •Usually cheaper than custom built solution
Risks	<ul style="list-style-type: none"> •Vendor financially unsound •Product is immature •Expensive customization 	<ul style="list-style-type: none"> •Technology platform is immature •Resources with appropriate skills are difficult to find •Bugs and enhancements can become expensive 	<ul style="list-style-type: none"> •Vendor financially unsound •Technology platform is immature •Resources with appropriate skills are difficult to find •Integration difficult •May not be possible to purchase a la carte
Costs to consider	<ul style="list-style-type: none"> •Ongoing license fees •Infrastructure costs •Training fees •Customization fees •Quality Assurance 	<ul style="list-style-type: none"> •Infrastructure costs •Operational costs •Development costs •Training development/QA resources •Quality Assurance 	<ul style="list-style-type: none"> •Ongoing license fees •Infrastructure costs •Development costs •Training development/QA resources •Quality Assurance

Information Systems - Requirements

- Data Model
 - Centralized
- Patient Record matching
 - Master patient index
- Security
- Archiving
- Audit Trails

Information System - Requirements

- Record Availability
 - 24/7/365 availability
 - 30-day access for active providers
 - Opt-out ability for patients
 - Opt-in ability for patients
 - Minors
 - Alcohol/Drug Abuse
 - HIV
 - Psychiatric



Operational Structure

Operational Structure

Data Ownership

- Data resides in central database “owned” by RHIO.
- Data cannot be sold for commercial purposes to pharma, hospitals, providers, pharmacies, etc.
- Data can be sold to research agencies if de-identified and purpose of research is approved by RHIO governance. All monies received will be used for expanding RHIO capabilities.
- Data can be transmitted to public health agencies and other registries in accordance with local/state/federal law.
- Data cannot be used to gain a competitive advantage.

Policies/Procedures

- Audit
 - Each record accessed will be tracked by user and date/time stamp
- Breach of data
 - Patients notified immediately through written communication
- Inappropriate use
 - Inappropriate access 1st offense results in 30-day suspension and fine
 - Inappropriate access 2nd offense results in 1-year suspension and fine
 - Inappropriate access 3rd offense results in lifetime suspension and fine
- Guidelines established for emergency use

RHIO: Does Your State Have One?

<http://www.himss.org/StateDashboard/RHIOList.aspx?Status=Active>





Questions

RHIO

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