The valuable RHIO: 
Stunning interoperability, zones of exchange, and knowledge for action

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Agenda:

- Where is the value in interoperability?
- Connected communities and interoperable systems
- What is stunning interoperability and why is it needed?
- Current tools and examples
Value of Healthcare Information Exchange and Interoperability (HIEI): CITL Key Findings

- Standardized, encoded, electronic healthcare information exchange would
  - Save the US $337B over 10 years
  - Save $78B in each year thereafter
  - Decrease unnecessary utilization
  - Decrease re-testing
  - Decrease errors and morbidity
  - Improve disease management

Connected communities and interoperable systems
Connected Community core principles – clinical view

- Common (appropriate) access to data
- Common access to knowledge – to make the best decisions
- Access to services – to take action on those decisions
- Communication and collaboration
Zones model permits graded approach

High interaction:
*Close data integration*

Low interaction:
*Federated data assembly*

Interoperability: vertical / systems

<table>
<thead>
<tr>
<th>User interface services</th>
<th>Data access/ confidentiality services</th>
</tr>
</thead>
<tbody>
<tr>
<td>GUI (Windows, etc.)</td>
<td>MPI</td>
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<tr>
<td>Intranet</td>
<td>Other reg systems</td>
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<tr>
<td>Internet</td>
<td>Other clinical systems</td>
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<td></td>
<td>Logic Engine</td>
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<td></td>
<td>Knowledge Base</td>
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<td>Data Warehouse</td>
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<td>Image store</td>
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</table>
**Interoperability**

![Diagram of interoperability](image)

**CITL HIEI Taxonomy**

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Non-electronic data</td>
<td>Phone, US Mail</td>
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<tr>
<td>2</td>
<td>Machine-transportable data</td>
<td>Fax/Email without categorization</td>
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<tr>
<td>3</td>
<td>Machine-organizable data</td>
<td>Text reports, HL7 messages</td>
</tr>
<tr>
<td>4</td>
<td>Machine-interpretable data</td>
<td>LOINC-based lab results from lab system; codified medication hx</td>
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</tbody>
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10-Year Cumulative Net Return by HIEI Level

What is "stunning interoperability" and why is it important?

- More than just data exchange
- Systems act in concert
- Anyone-can-play adaptability
- Knowledge organized for action
"Stunning" interoperability – concerted action

- Data exchange with meaning
- Views with clinical organization
- Applications can affect each other
- Requires: standards, exchange agreements
- Example: allergy entered in pharmacy system gets missed by today's CPOE systems
'CCR-plus'

- Keep records from diverging when multiple referrals or clinical threads are occurring (which is almost all the time)
- Include vocabulary/coding as well as transport
"Stunning" Interoperability – Anyone-can-play aspect

• Choice – Best-of-breed systems become a smooth integrated system
  • Choose by price and functionality rather than nameplate
  • Customers will know that the new app can work seamlessly with what they have
• Flexibility – customers take the functions they need from a wide range

Requirements

• Catalog of basic functions and data exchanges
• Remote/common services:
  • Reporting, configuration, preferences, etc.
  • Internet and other easily-available services with common API’s based on healthbase requests
  • ASP services and systems
• Start simple and quick!
• Organize the data once you have it together
Knowledge for action: Using Information centers

- Where you go when you're dealing with a healthcare issue or scenario
- A "mindset" - "right now, I'm thinking about my new pregnancy"
- Has all of the relevant data displays, information sources, and transaction handlers to deal with the many aspects of the scenario
- Applies to lay and professional users
Summary

- The value in interoperability comes from communication among providers, and concerted action among systems
- Stunning interoperability includes:
  - Concerted action
  - Anyone-can-play
  - Knowledge for action
- Simple, pretty-good-and-solid solutions are the way to begin