Prioritizing HL7 Interfaces

Robert Swanson, Michigan Dept. of Community Health

Therese Hoyle, Michigan Dept. of Community Health

Gerry Bragg, Altarum Institute

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Topics

- A good time to adopt HL7
- Planning considerations
- Message flows and interactions
- Authentication/security
- Getting assistance

Background

- Michigan Childhood Immunization Registry (MCIR) implemented in 1997
- One-way electronic interface implemented in 1997
- Did not support HL7 due to the lack of penetration at the provider level
- Currently receive data electronically from 120+ provider sites (5% of active provider sites).
- Electronic medical records at the provider level makes HL7 a viable option.

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A good time to adopt HL7

- Administrative sources have data only for services a provider renders.

- Registries can facilitate EMR implementation by providing immunization records for a provider's patients.

A good time to adopt HL7

- Provider EMRs yield untapped new opportunities.
  - Detailed clinical data is available electronically.
  - Clinical data provides a more complete immunization record than administrative data.
  - Data closer to the source is higher quality.

Planning considerations

- Early in the registry lifecycle, get quantity.
  - Focus on quantity to gain provider acceptance.
  - Bulk of available electronic data is from administrative sources.
  - RHIO's can be a valuable source of data.
  - Consider initial work a "ramp-up" period.

Planning considerations

- Later in the registry lifecycle, providers seek quality data.
  - Providers expect better quality as the data becomes more important to their practice.
  - As physicians rely on EMRs, they will expect comparable quality from registry data.
  - To retain provider participation, registries must improve data quality as they mature.
  - For the MCIR, the large amount of administrative data received electronically adversely affects quality.

Planning considerations

- Providers
  - Registry penetration
  - EMR 100% operational
- Vendors
  - Local market penetration
  - Willing to bundle as a base product feature
- All
  - Technically savvy
  - Willing to work together

Planning considerations

- Outbound versus inbound messages
  - Outbound (VXU) messages are easiest for EMR vendors to support.
  - Inbound (VXR) messages are more complex, even if there is a unique patient match.
  - "Not found" or "multiple match" records can complicate VXRs.

Planning considerations

- Vendors have limited budgets and multiple, competing priorities.

- Vendors (like providers) need a business case.

- Approach vendors through their customer base or user group.

Planning considerations

- The Joint Project Plan
  - Developing the plan includes:
    - Memorandum of understanding
    - Commitment of resources in the plan
    - Direct channels of communication
    - A realistic schedule
  - Is it the first time? N^{th} time?
    - Risk assessment/mitigation

Planning considerations

- Trading partner agreement (TPA)
  - Document a mutual understanding of the business transactions to be conducted, including:
    - Message standard to be used
    - Message flow/raise-error conditions
    - Domain mappings (code sets)
    - Transport, authentication
    - Authentication/security

Planning considerations

- Use-cases provide a framework for documenting the interface(s):
  - A textual description of each instance of a message/response sequence.
  - Can serve to eliminate the "gray" areas of the specification that lead to divergent interpretations of standards.
  - Pre-requisite for creating supporting test cases and data.
  - Can help integrate related information from requirements to implementation.

Message flows and interactions

- Providers are constrained by their practice management or EMR software.
- Registries have more control over their software.
- To support scenarios that different providers present, provide flexibility in:
  - Message transport
  - Message flow
  - Message content

Message flows and interactions

- Identify HL7 specifications being tested
- Essentials for testing
  - Use-Cases
  - Use-Case specific test data
    - "De-identify" test data
    - Use automated tools as appropriate
    - HL7 message syntax
    - Code set domains
  - Share collective work on HL7 use-cases and supporting test data.

Message flows and interactions

- Prepare to support alternatives. There is no single best transport solution.
  - Batch sending may require a different transport mechanism than real-time sending.
  - A proposed specification using HTTPS provides a very flexible alternative technology that has deep penetration within the provider community.
- ebXML (used by the PHIN) supports multiple transport protocols.

Authentication/security

- Authentication is your responsibility if using HTTPS as the transport.
  - Supports both user/password and PKI-based authentication.
- ebXML provides an application framework to resolve common authentication/security issues:
  - Message privacy (encryption)
  - Authentication, integrity (PKI).
  - Non-repudiation (message acknowledgement)
- ebXML is robust but complex and has poor penetration in the provider community.
  - The MCIR will initially focus on a working HTTPS transport.

Authentication/security

- If not using ebXML, how to verify sending/receiving parties?
- How to authenticate the sender of the message?
  - Digital certificates may not be practical, depending on the local situation.
- Many states have ID management schemes that must be considered.
  - Is the provider system a "user" ?

Getting Assistance

- The AIRA HL7 workgroup and members are an invaluable asset. Many thanks to:
  - Ken Davidson, Warren Williams, Angel Aponte.
- Working with AIRA:
  - Will help you get to a working "proof-of-concept" more quickly.
  - Will reduce project risk, particularly for "first-timers."
- You can:
  - Participate in AIRA and offer the same contributions to others.

MCIR Contact Info

- Programmatic
  - Robert Swanson: swansonr@michigan.gov
  - Therese Hoyle: hoylet@michigan.gov
  - Kristen Mullaney: mullaneyk@michigan.gov
- Technical
  - Kevin Garnett (Lead Web Architect)
    garnettk@crystilightning.com
  - Gerry Bragg (Database Architect)
    gerry.bragg@altarum.org