

INTEGRATING DATA QUALITY AS AN ESSENTIAL ELEMENT OF INTEROPERABILITY

Jeff Williams

MIIC Application Developer

MN.IT Services@ MN Department of Health

Aaron Bieringer

MIIC Data Quality Analyst

MN.IT Services@ MN Department of Health

Diana Jaeger

MIIC Application Developer

MN.IT Services@ MN Department of Health



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Outline

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- Lessons Learned
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Project Purpose

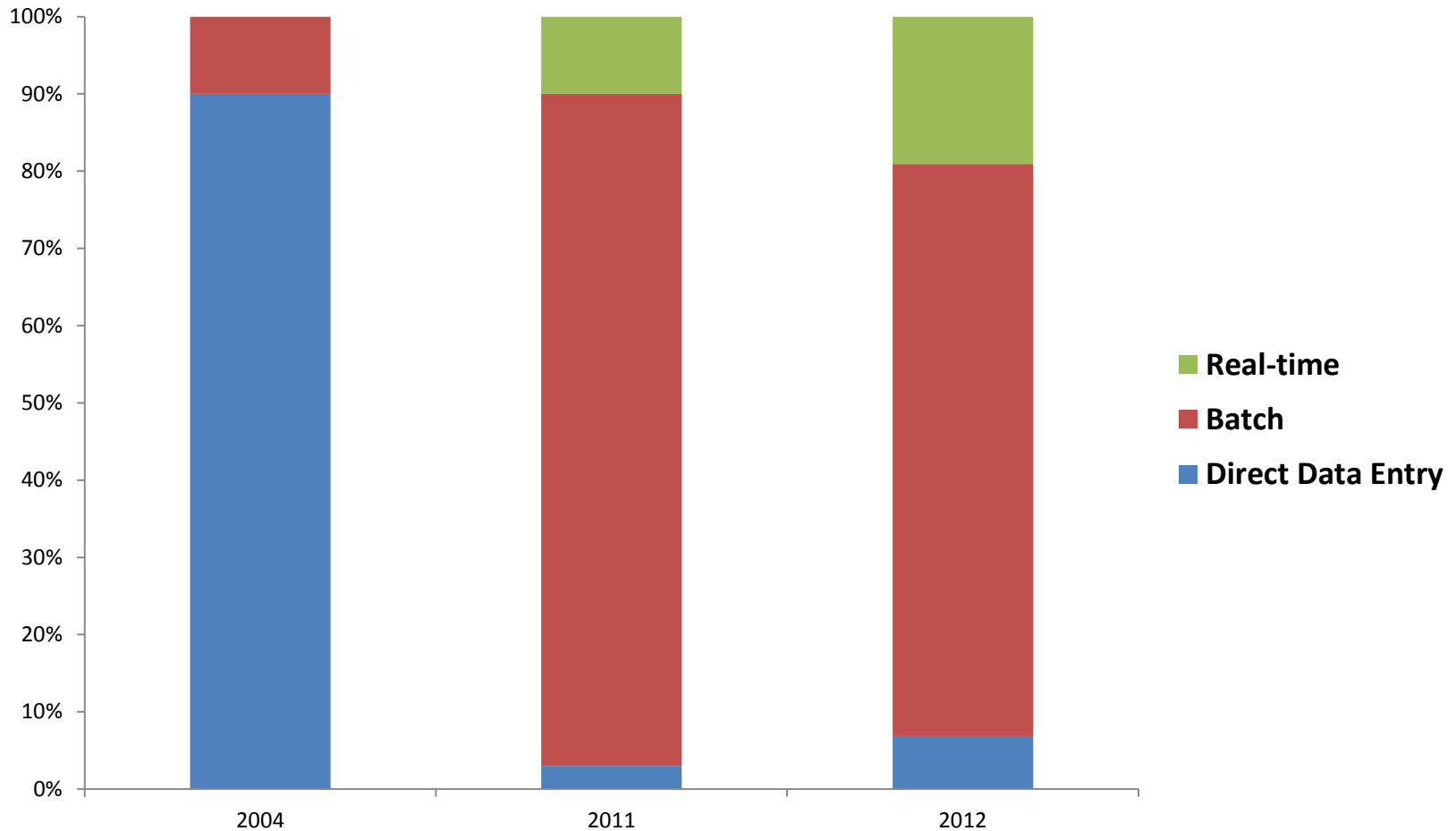
- Current Landscape
- Project Drivers

Current Landscape

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- To date MIIIC has assisted over 250 provider facilities transition to HL7 and is in the process of assisting nearly 400 more
- SOAP/Web services transport available
- 6,000 HL7 real-time messages received in one day
- Some organizations that qualified for Stage 1 only sent initial file and continued with Flat File (non-HL7)

MIC: Trends in Reporting



Goal is to move more providers to real time based reporting using standards

Project Drivers

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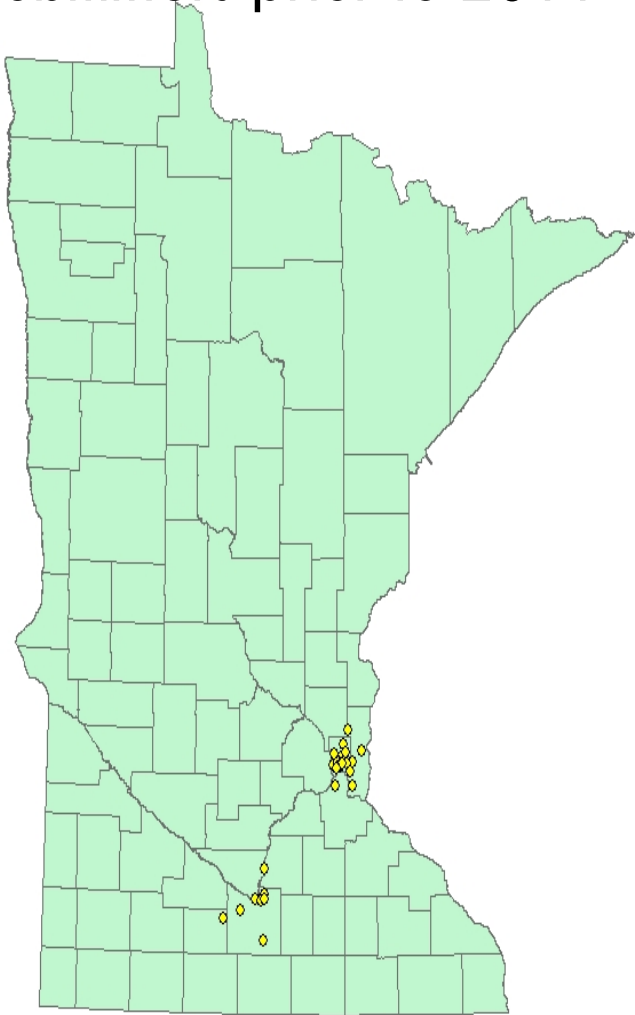
- **As organizations shift to standards-based reporting, there is a need to:**
 - Ensure that incoming data feeds from clinical EHR system based on HL7 standards is capturing all the information which was sent when the file (non-standard flat format) originated from the billing portion of the provider system
 - Examine that the HL7 input is capturing all the needed elements to ensure better completeness of data

- **Alleviate the anxiety in some organizations during shift to HL7 and assure that data reporting is being done which is similar or better than earlier non- standards based reporting**
 - Some organizations insist on dual reporting (flat file & HL7).
 - Burdensome for staff due to manual manipulation and effort for flat file uploading
 - Also increased the system processing time and also posed the risk of increasing duplicates due to minor mismatches in data.

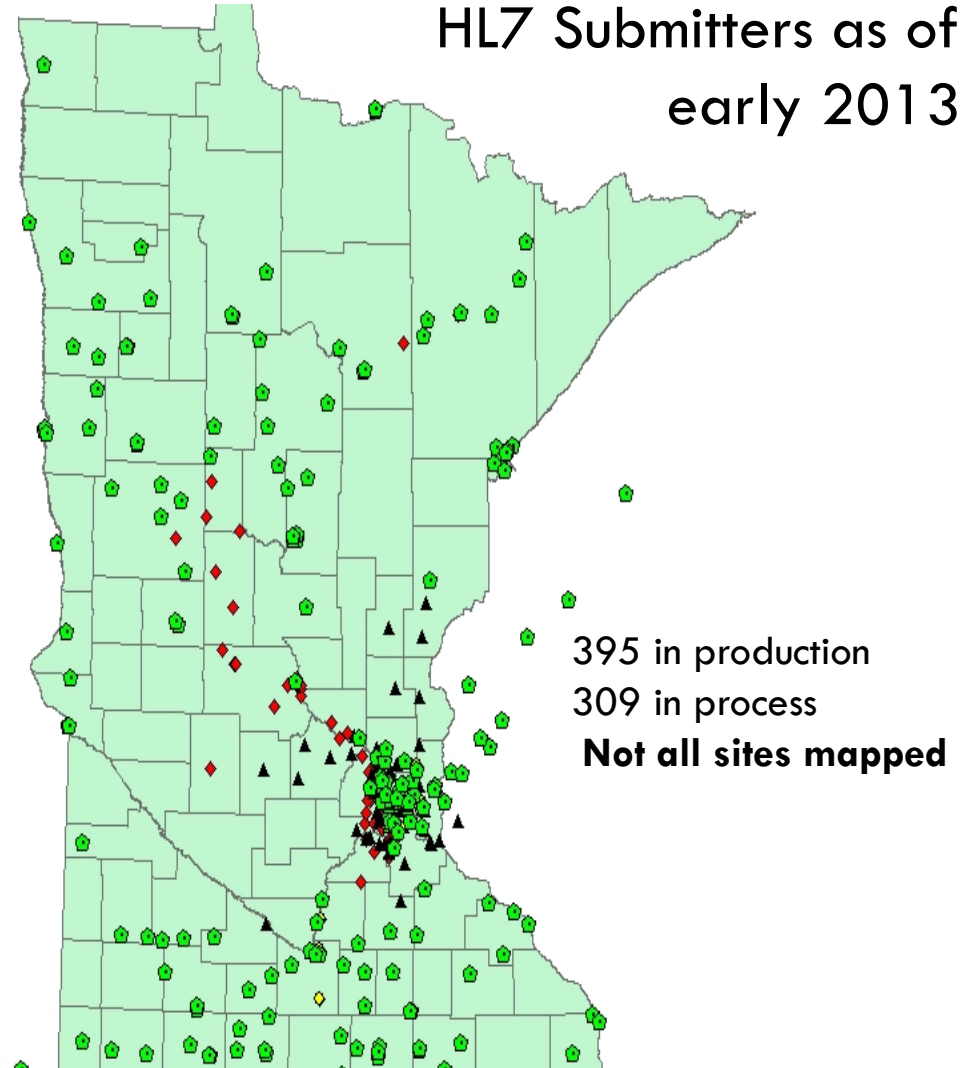
Immunization Reporting Status

Shift towards HL7 Reporting

HL7 Submitters prior to 2011



HL7 Submitters as of early 2013



Project Process

- Comparison of Flat-file feed & HL7 input
- Utilization of Data Quality Tools

Project Process

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- 1) Real Time messages are being submitted to the Test or Production environment as appropriate and delay uploading any additional Flat Files
- 2) Pick a vaccine date range after the real time submission date
- 3) Pull (query) all available shots for that date range from that org
 - Snapshot or save this (this should be all the source code 3 shots)
- 4) Load Flat File with vaccination date included in the real time date range (selected in step 2)
 - Flat File can have more vaccine dates, but must have the real time date range data
- 5) Check Status of the flat file upload to see if new shots were added
- 6) If there are delete messages you should account for that



Project Process

(continued....)

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7. Pull all shots from same day and org with query tool
 1. With vaccine date = real time updated date range that was used in #2
 2. no source code
 3. and snapshot or save them
8. Compare first and second run to see if anything has changed
 - If no changes when files are compared (HL7 = Flat) or Real Time has more data than Flat File (HL7 > Flat) then stop Flat file submission
 - If flat file has more data than Real Time (HL7 < Flat) or some data is better in HL7 and some data in Flat File is better (HL7 != Flat file) then get examples and send them to sending org. Once they have fixed the issues go back to step 2.

Project Process

(continued...)

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Tools used:

- Text editor with compare feature
 - UltraEdit was used
 - Any diff tool could be used (Win Merge, Notepad ++, diff, etc.)

- Query tool
 - MS Access was used
 - Any query tool could be used (SQL Developer, Toad, etc.)

- Access to Data Exchange Environment of IIS (Test and Production) – in this project it was MIIC



Results

- Almost all cases HL7 is better on first check
- Some things may be missing from HL7
- Don't forget about historical shots
- On second check HL7 is better 100% of the time

Results

Examples of Real Time submissions reflected as administered shots with Flat Files reflecting historical shots

ARE THESE SHOTS ADMINISTERED (00) OR HISTORICAL (01)							
FIRST_NAME	LAST_NAME	ClientRecordID	BIRTH_DATE	CVX_CODE	CPT_CODE	VaccinationDate	SOURCE_ID
Stanley	Cup	4682351	23-Oct-12	120	90698	26-Dec-12	Real Time
Stanley	Cup	4682351	23-Oct-12	133	90670	26-Dec-12	Real Time
Stanley	Cup	4682351	23-Oct-12	116	90680	26-Dec-12	Real Time
Stanley	Cup	4682351	23-Oct-12	08	90744	26-Dec-12	Real Time
FIRST_NAME	LAST_NAME	ClientRecordID	BIRTH_DATE	CVX_CODE	CPT_CODE	VaccinationDate	SOURCE_ID
Evan	Keel	1287534	24-Nov-09	141	90658	04-Dec-12	Real Time
FIRST_NAME	LAST_NAME	ClientRecordID	BIRTH_DATE	CVX_CODE	CPT_CODE	VaccinationDate	SOURCE_ID
Jean	Poole	9435263	26-Sep-10	141	90657	05-Dec-12	Real Time



Lessons Learned

- Need for on-going communications
- Meeting interoperability expectations
- Need for technical assistance and varying levels of that need
- Proactive data quality checks are critical
- Opportunity to build staff expertise and lay foundation for sustainability

Lessons Learned

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Need for on-going communications

- Data discrepancies can be resolved through discussions and data cross walk with provider technical staff
- Some times “dual reporting” needs to be continued until definitive demonstration to provider that the standardized HL7 reporting can be superior

Meeting Interoperability Expectations

- Need to convey message clearly that standards-based reporting (using HL7) is a great first step, but not a “panacea” to all data quality issues.
 - Care must be taken all along the data chain from data entry to translating into right codes to when trigger for reporting happens to what data gets reported (including historical)

Lessons Learned

(continued...)

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Need for technical assistance at provider level & varied levels of need

- Understand that data reporting may be handled:
 - By different groups within provider organization for flat-files from billing systems vs. HL7 message from clinical EHR systems
 - Varying vendor systems and hence varying degree of support for generation and submission of HL7 message and hence impact on data quality

- Need for IIS technical staff to understand the nuances of data file creations on the provider end so that they can assist with better creation of HL7 messages and hence better data completeness & quality of incoming data

Lessons Learned

(continued...)

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- **Proactive** data quality checks are essential in move to improved interoperability and this approach is one of them
- Presents a great opportunity to address issues and alleviate anxiety over the move to faster, standardized reporting
- As the project was executed with in-house registry technical staff with easily available tools, it presents:
 - Strong case for building staff expertise
 - Laying foundation for sustainability

Next Steps

- Improving data element completeness
- New methods of data quality assurance

Introducing New Methods for Data Quality Assurance

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- Minnesota is in the process of implementing the DQA (data quality application) written by Nathan Bunker.

The DQA generated reports:

- HTML:
 - Total Score
 - Errors and Warnings
 - Count of Vaccination types
 - Unrecognized or Depreciated Codes
- ERRORS:
 - Breakdown of all individual errors in the file
- ACK:
 - MSA (message acknowledgement segment)
 - ACK status i.e. AA=positive response; AE or AR=negative response
- LOG:
 - Logs every message in the file and how each message was handled.
 - Makes it easy to analyze any problems.

For Additional Information

MIIC (Minnesota Immunization Information Connection):
<http://www.health.state.mn.us/miic>

Jeff Williams
MIIC Application Developer
Email: jeff.williams@state.mn.us

Aaron Bieringer
MIIC Data Quality Analyst
Email: Aaron.Bieringer@state.mn.us

Diana Jaeger
MIIC Application Developer
Email: diana.jaeger@state.mn.us

