



Integrating immunization data into electronic disease surveillance systems

Aaron Bieringer

Interoperability Lead, Minnesota Department of Health

PROTECTING, MAINTAINING AND IMPROVING THE HEALTH OF ALL MINNESOTANS

Land Acknowledgement

Every community owes its existence and vitality to generations from around the world who contributed their hopes, dreams, and energy to making the history that led to this moment. Some were brought here against their will, some were drawn to leave their distant homes in hope of a better life, and some have lived on this land for more generations than can be counted. Truth and acknowledgment are critical to building mutual respect and connection across all barriers of heritage and difference.

We begin this effort to acknowledge what has been buried by honoring the truth. This presenter is on the ancestral lands of the Dakota people. We want to acknowledge the Dakota, the Ojibwe, the Ho Chunk, and the other nations of people who also called this place home. We pay respects to their elders past and present. Please take a moment to consider the treaties made by the Tribal nations that entitle non-Native people to live and work on traditional Native lands. Consider the many legacies of violence, displacement, migration, and settlement that bring us together here today. Please join us in uncovering such truths at any and all public events.*

*This is the acknowledgment given in the USDAC Honor Native Land Guide – edited to reflect this space by Shannon Geshick, MTAG, Executive Director Minnesota Indian Affairs Council

Agenda

Public Health Information
Systems involved

Need for improved
communication

Solution implemented

Status of efforts and lessons
learned





Public Health Information Systems

- **Minnesota Immunization Information Connection (MIIC)**
 - Opt out jurisdiction
 - 9.5 million clients
 - 127.5 million immunizations
 - 15 million updates
 - 52 million queries (~77.5%)



Public Health Information Systems

- **Minnesota Electronic Disease Surveillance System (MEDSS)**
 - State/Local public health, labs, clinics
 - Electronic lab reporting in HL7
 - Used for case management, contact tracing, and outbreak management
 - ~220,000 events in 2019
 - ~5 million events in 2021

Time study of original data flows

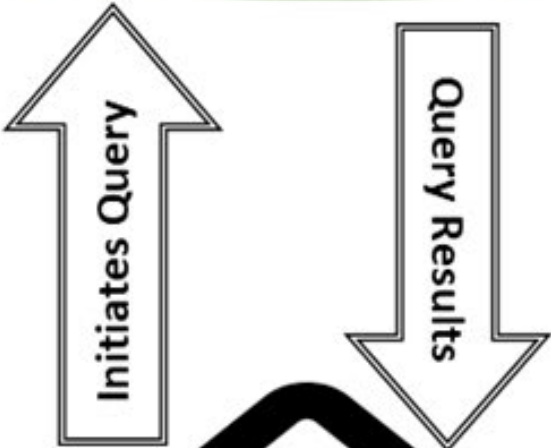
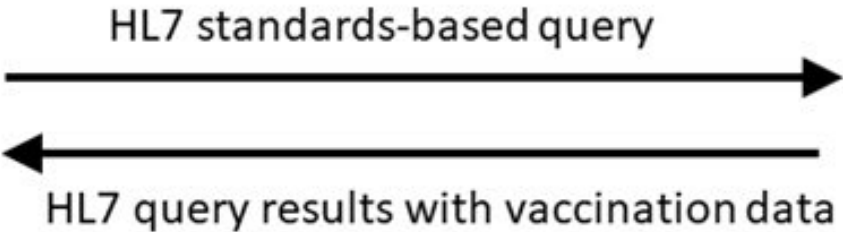
Method	Metrics	Results
MIIC and MEDSS open simultaneously (analogous to the actual data entry)	Time estimate to access an event in MIIC and enter data in MEDSS	134 seconds (2 minutes, 14 seconds)
	Number of clicks to complete data entry	50 clicks
	Estimate of data entry errors (over X time period)	~300 errors to fix annually
	Staff effort for manual process	1 epidemiologist, 2-3 student workers over 1 year
Pulling MEDSS report, SAS code, MIIC query (preparation process)	Total non-data entry time (Data pulled to data ready-to-enter)	~ 8 minutes (best case with an experienced user) to get file uploaded to MIIC, then up to 24 hours before data is accessible
	Number of clicks for non-data entry time (Saving reports, opening programs, running them, uploading query file)	104 clicks

Breaking out of our manual processes

- Both systems used HL7
- Mapping vaccine codes to diseases
- Vendor built solution that was flexible
- Single person search in MEDSS event

Minnesota Electronic Disease Surveillance System

Minnesota Immunization Information Connection



MEDSS User

MIIC Demographics	
MIIC Demographics are the most current data MIIC has. Note that the search includes results based on historic d information, and so current data may appear different from the data sent in the query.	
Name	Test Record
MIIC ID	123456789
Date of Birth	01/01/1900
Gender	Female ▾
Address	123 MAIN ST, TEST TOWN, MN 55###
Multiple birth	No ▾
Mother's maiden name	DOE

MIIC Vaccine History	
Sort by Date Administered or Vaccine ▾	Sort Order: Ascending ▾
Vaccine ▾	Spikevax-MOD 100mcg
CVX code	207
CPT code	91301
Date administered	01/04/2021
Administration Organization	CVS Pharmacy - Minneapolis
Administration notes ⓘ	00
Vaccine level funding eligibility	Insured
Lot number	012L20A
Manufacturer	Moderna US, Inc.
Vaccine ▾	Spikevax-MOD 100mcg
CVX code	207
CPT code	91301



Where are we at?

- Pilot phase with one program went very well
- ~230 queries so far
- Opening to other programs now

Assessing use and learning lessons

- Requirements gathering is critical
- Talk to stakeholders
- Leave a LOT of time for testing
- State the value case for buy-in

Acknowledgements

- Co-authors:
 - Priya Rajamani, MBBS, PhD, MPH, FAMIA, MN Dept of Health, University of Minnesota
 - Hanna Chakoian, MPH, MN Dept of Health
 - Sarah Solarz, MPH, MN Dept of Health



A hand giving a thumbs up gesture, surrounded by a shower of colorful star-shaped confetti against a bright yellow background.

Thank you!

aaron.bieringer@state.mn.us