



Use Case Summary

Use Case Name:	Immunization History-Forecast
Sponsor:	Michigan Department of Health and Human Services
Date:	January 31, 2017

Executive Summary

This brief section highlights the purpose for and value of the use case. The executive summary gives a brief description of the use case's importance while highlighting expected positive impact.

Immunizations are vital to the maintenance of public health due to their power to prevent and sometimes eradicate deadly diseases and potential epidemics. Immunizations must be closely monitored to ensure they are administered correctly and in a timely fashion because vaccination errors can hurt and possibly kill patients.

Currently on a national basis, immunization records are not collectively maintained by any one organization. Most states have an Immunization Information System (IIS) that maintains immunization records for their residents.¹ An IIS collects immunization records and makes that information accessible to authorized healthcare providers.

With this use case, an organization is able to query the IIS to retrieve electronic information containing a patient's immunization records, including an up-to-date list of immunizations received by the patient (history) as well as a list and schedule of vaccinations that the patient should receive in the future (forecast).

Purpose of Use Case: The Immunization History-Forecast use case allows participating organizations to send electronic queries through the statewide health information network (HIN) to an Immunization Information System to retrieve electronic data containing a patient's immunization records.

¹ In Michigan the IIS is the Michigan Care Improvement Registry (MCIR)

Overview

This overview goes into more details about the use case.

From 2010-2013, the Vaccination Adverse Events Reporting System—jointly administered by the Centers for Disease Control and the Food and Drug Administration—received 311,185 reports, of which 20,585 were eventually classified as vaccination errors.² The most common errors included incorrect dosage, incorrect scheduling (vaccine administered at wrong age, or at wrong duration between vaccinations), and incorrect vaccine.

In November 2013 the Institute for Safe Medication Practices conducted a study of vaccine safety based on reports sent to the National Vaccine Errors Reporting Program. The influenza virus vaccine is widely used and was therefore among the most frequently reported for having administration errors. Eleven percent of errors associated with the influenza vaccine were caused by healthcare professionals failing to check the patient's chart prior to administration of the vaccine.

The Dtap-HepB-IPV and MMRV vaccines also presented substantial numbers, with 33% and 38% of vaccination errors, respectively, stemming from healthcare professionals neglecting to check a patient's charts before administering.³

Using a message standard known as Query by Parameter (QBP), the Immunization History-Forecast use case allows participating organizations to find electronic vaccination histories and forecasts in real-time through a health information network (HIN) from an IIS.

This is useful because the information can help:

- Prevent incorrect administration of vaccinations
- Ensure that all necessary vaccinations are provided to patients on a correct schedule

An immunization query with this use case follows the path below:

1. Participating organization sends an immunization query to HIN
2. HIN passes the query to state data hub
3. Data hub sends the query to IIS
4. Registry processes query and generates response to state data hub

² Beth Hibbs, "Vaccination Errors, Reported to the Vaccine Adverse Event Reporting (VAERS), 2000-2013," *Centers for Disease Control and Prevention*, accessed on July 24, 2016, <http://www.cdc.gov/vaccines/adults/vaccination-records.html>

³ "First Annual Review of Data Submitted to the ISMP National Vaccine Errors Reporting Program (VERP)," *Institute for Safe Medication Practices*, accessed on July 24, 2016, <https://www.ismp.org/newsletters/acute-care/showarticle.aspx?id=64>

5. State data hub returns response from IIS to HIN
6. HIN then routes response to participating organization that originally requested vaccination information

If the query originated from a consumer, the consumer now has an electronic copy of the history/forecast that they can then share electronically as they wish, such as with a school or camp counselor, eliminating the time-consuming need to physically go to the pediatrician’s clinic to obtain a paper copy.

Pharmacies are expected to frequently participate in this use case, as they might wish to check immunization history before administering vaccinations, or may want to determine if additional vaccinations are due.

Diagram

This diagram shows the information flow for this use case.

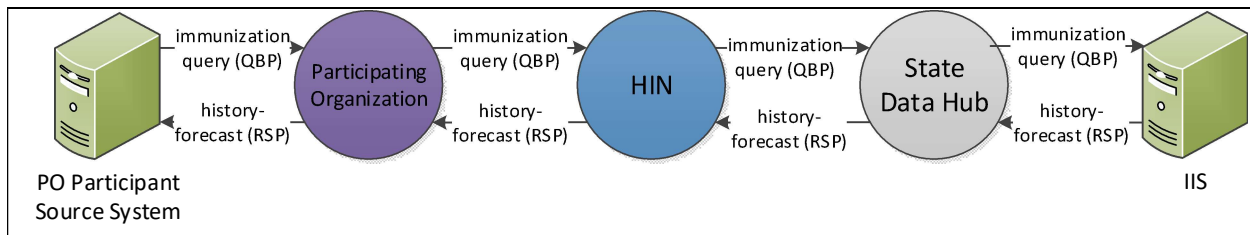


Figure 1. The Path of the Immunization Query (VXQ)

Regulation

This section describes whether this use case is being developed in response to a federal regulation, state legislation or state level administrative rule or directive.

Legislation/Administrative Rule/Directive:

- Yes
- No
- Unknown

This use case was not developed in response to a federal regulation, state legislation, or state level administrative rule or directive

Meaningful Use:

- Yes
- No
- Unknown

This use case can assist providers in meeting Meaningful Use Stage Three, Objective 8: Public Health and Clinical Data Registry Reporting:

Objective: The eligible professional (EP), eligible hospital, or critical access hospital (CAH) is in active engagement with a public health agency or clinical data registry to send electronic public health data in a meaningful way using certified EHR technology, except where prohibited, and in accordance with applicable law and practice.

Measure 1 – Immunization Registry Reporting: The EP, eligible hospital, or CAH is in active engagement with a public health agency to send immunization data and receive immunization forecasts and histories from the public health immunization registry/immunization information system.

Cost and Revenue

This section provides an estimate of the investment of time and money needed or currently secured for this use case.

Costs: There are two costs associated with this use case. The first is the cost to implement this use case, which uses existing infrastructure. The cost for the state to implement its portion of this use case is not currently known. Remaining implementation costs consist only of the onboarding costs to get TDSOs to become participating organizations in this use case.

The other cost for this use case is the cost of not implementing it. This would include waste, medical bills, overdosing, and potential lawsuits. The waste and other potential dangers described in the Overview (above) can be greatly reduced or, in some cases, possibly eliminated through widespread adoption of this use case.

Revenues: The significant cost savings achieved by streamlining and improving provider and patient access to patient immunization history and forecast information should prompt organizations to participate in this use case. Different organizations and individuals who can benefit from participation in this use case include, but are not limited to: ⁴

⁴ It is possible that different types of organizations and individuals may ascribe higher value to certain kinds of information. For example, pharmacies may be willing to pay a small fee for immunization history-forecast for upsell opportunities, and researchers may also be interested in receiving immunization history as it relates to certain vaccines regarding their current research. Most parents would certainly be willing to pay a fee to obtain their child's history electronically in only a few minutes rather than drive to the

- Providers
- Pharmacies*
- Individuals and their families (through consumer-qualified organizations)*
- School systems
- Children's camps*
- Hospitals
- Corrections facilities
- Research organizations*

The full revenue model for this use case including possible fees for some participants has not been finalized but this section will be updated if fees are established.

Implementation Challenges

This section describes the challenges that may be faced to implement this use case.

This use case is straightforward to implement on the existing HIN platform as illustrated in Figure 1 (above) using pre-existing infrastructure. If Direct Secure Messaging is used by the participant to send/receive the query/response, the amount of effort required is not much more than giving out an email ID and password, communicating a pre-existing destination inbox at the HIN to which queries are sent, performing identity verification, and conducting minimal training.

Vendor Community Preparedness

This section addresses the vendor community preparedness to readily participate in the implementation of this use case.

The readiness of vendors to receive Immunization History-Forecast information in systems like Electronic Health Records (EHRs) or pharmacy systems is unknown. However, every type of potential participant listed in the Cost and Revenue section (above) can easily receive electronic immunization information attached to Direct Secure Messages just as easily as receiving email with attachments, in this instance, the attachments being HL7-formatted immunizations data.

pediatrician's clinic. Participants in this use case that may be willing to pay a small fee for each immunization history/forecast request/response are indicated above with an asterisk (*).

Support Information

This section provides known information about support for this use case.

Support can come from multiple levels (Governor, Federal or State Legislature, Michigan HIT Commission, Michigan State Departments, CMS/ONC/CDC, MiHIN Board, Participating Organizations, payer community, interest groups [e.g. MSMS, MHA], or citizen support).

Political Support:

- Governor
- Michigan Legislature
- Health Information Technology Commission
- Michigan Department of Health and Human Services or other State of Michigan department
- CMS/ONC
- CDC
- MiHIN Board

Sponsor(s) of Use Case

This section lists the sponsor(s) of the use case.

- Michigan Department of Health and Human Services

Metrics of Use Case

This section defines the target metrics identified to track the success of the use case.

Metrics to measure the success of this use case include:

- Volume of immunization queries received by state IIS
- Volume of immunization history-forecast data sent from state IIS to participating organizations
- Change in volume for total immunization queries received by state IIS
- Change in volume for total immunization information provided by state IIS