Meet Your Trainers

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Today’s Topics

• Define common data exchange terms.
• Describe how EHR’s and the IIS exchange data.
• Describe the importance of data quality and monitoring.
Electronic Records & Data Systems

EHR/EMR (Electronic Health Record/Electronic Medical Record)
The clinic’s system that’s used to store patient medical records.

IIS (Washington State Immunization Information System)
Secure web-based system that houses immunization data from participating organizations for people of all ages.

Washington State Health Information Exchange (HIE)
Secure means of sharing data between health care organizations and various state information systems (IIS, Prescription Monitoring Program, Electronic Lab Reporting, etc.)
Data Exchange Definitions

Data Exchange
The process of transforming data into a set style so that it can be shared and understood between two different systems.

Interface
A point where two systems connect and send data from one system to another.

HL7 (Health Level 7)
HL7 is a set of standards for transferring health care data between healthcare providers and systems (e.g. EHR-EHR, EHR-IIS).

- **HL7 Messages** are the format used to send data between healthcare systems.
- **HL7 Codes** are a standard way to communicate information such as vaccine type, manufacturer, patient eligibility status, etc.
Before there was data exchange...

Organizations provided data to the IIS through:
- Manual data entry
- Imported data files

Electronic data exchange is now the most common way data is shared with the IIS!

Data Exchange 93%

Data Entry 6.5%

Data File 0.5%
Data Exchange Requirements

Organizations must have:

- **Information sharing agreement** to exchange data with the IIS.

The IIS requires the organization and clinic(s) to meet a set of **data quality standards**.

- The standards help ensure that accurate and complete data is sent to the IIS.
Benefits of Data Exchange with the IIS

- **Consolidated Records**: Data from multiple providers is combined into one record.
- **Clinical Decision Support**: Updated immunization history & forecast.
- **Improved Data Quality**: Improved timeliness, completeness, and accuracy of data.
### EHR’s & IIS

<table>
<thead>
<tr>
<th>EHR</th>
<th>IIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>An organization’s medical record for their patients</td>
<td>Immunization records for a broad population</td>
</tr>
<tr>
<td>Record of immunizations received from an org/clinic*</td>
<td>Immunization records from multiple providers/data sources</td>
</tr>
<tr>
<td>Supports clinical decision-making for patients</td>
<td>Supports clinical decision-making for immunizations</td>
</tr>
</tbody>
</table>

*If the clinic documents historical vaccinations in their EHR or has a bi-directional interface, they may have immunization records from other providers in their EHR.
How Does Data Get to the IIS?

**Without Interface**

Clinic staff log in to the IIS and enter vaccines.

**With Interface**

Clinic staff enter vaccines in EHR and data is sent as an HL7 message to the IIS.
Data Exchange Through the HIE
Patient & Vaccine Deduplication

**PHC-Hub**
Evaluates HL7 messages for errors and other data quality issues

**Deduplication**
IIS looks for any existing patients & vaccines that match incoming data

- Records that aren’t automatically matched must be reviewed manually
- Record is automatically matched

IIS runs overnight deduplication process

Vaccine shows up on pt. record & may subtract from inventory
Recap of Data Exchange Process

Image courtesy of HL7 Basics for IIS - informaticsacademy.org
Review Question 1

What is an HIE?

A. A system that organizations and clinics use to manage their patient health records.

B. A way to share data between health care organizations and various state information systems.

C. The strongly preferred method for transporting health data to the IIS.

D. B&C

E. All of the above.
Review Question 1

What is an HIE?

A. A system that organizations and clinics use to manage their patient health records.

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Types of Data Exchange

**Unidirectional**
Data exchanged in one direction (EHR to IIS).

**Bidirectional**
Data exchanged in two directions (EHR to IIS and IIS to EHR)
HL7 Data Elements

Date/Time of Message
Patient Name
Date of Birth
Date of Vaccine Administration
CVX Code
Dose Size
Route of Administration

For other required data elements and information regarding data exchange requirements, please review the WAiIS HL7 Interface Project Guide.

For current CVX, MVX, CPT codes, please visit the CDC code sets. Subscribe to receive IIS related CDC updates here.
Common HL7 Message Types

**Vaccination Event (VXU)** – Sends administered and historical vaccination information.

**Acknowledgement (ACK)** – Confirms receipt of message & communicates any issues with the message.

*Image courtesy of HL7 Basics for IIS - informationsacademy.org*
Common HL7 Message Types

Query (QBP) – Request a patient’s immunization history or evaluated history and forecast.

Response to Query (RSP) – Response to the query that may include immunization history, forecast, a list of possible patient matches, or indicate if a matching patient was not found.

Image courtesy of HL7 Basics for IIS - informaticsacademy.org
Not all Interfaces are the Same

Many variables depend on how YOUR interface is set up:
- Unidirectional vs bidirectional
- Data your EHR is able to send (e.g. vaccine funding source)
- How often data is sent to the IIS (immediately after documenting in EHR, daily batches of data, etc.)
- Ability to send update & delete messages
Review Question 2

What is bidirectional data exchange?

A. A way for EHR’s to send and receive vaccination data from the IIS.

B. A way to obtain a patient’s vaccination history from the IIS.

C. A way for clinics to obtain a more complete vaccination history for their patients.

D. All of the above.
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Data Quality

- IIS data is a compilation of all data provided by participating organizations.

- The accuracy of records in the IIS are based on accuracy of information shared by participating organizations.
Data Quality Considerations

Data exchange issues impact the quality of data in the IIS

- Inaccurate or incomplete demographic data may result in more manual review/bad merges/duplicate records.
- Inaccurate or incomplete vaccination data may affect school/child care immunization compliance and accuracy of the patient’s history & forecast.
- Issues with inventory decrementing (for clinic’s who manage vaccine inventory in the IIS).
- Inaccurate immunization coverage rates.
Data Quality Monitoring

Organizations submitting electronic data to the IIS are responsible for monitoring their data quality:

- Review the daily warnings & errors report and correct issues.

DOH routinely monitors data sent from EHRs and evaluates whether data quality standards are being met.

It's very important for organization’s to monitor their daily Warnings & Errors report after any EHR or IIS upgrades to identify any issues early.
Common Errors

Errors

Stops data from getting to the IIS. Data sent from the EHR will not appear on patient records.

<table>
<thead>
<tr>
<th>Error Reason</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VFC Status Missing</td>
<td>No VFC eligibility status was sent</td>
</tr>
<tr>
<td>CVX Code Missing</td>
<td>No data was sent indicating which vaccine type was administered</td>
</tr>
<tr>
<td>Vaccination Administered Units Missing</td>
<td>No data was sent indicating the unit of measure for the vaccine (e.g. mL)</td>
</tr>
</tbody>
</table>
# Common Warnings

**Warnings**
The IIS accepts the data, but it may be inaccurate or incomplete.

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Vaccination Entering Organization Missing</td>
<td>The facility that <strong>documented</strong> the vaccine was not sent</td>
</tr>
<tr>
<td>Patient Immunization Registry Status Missing</td>
<td>The patient status indicator (e.g. active, inactive) was not sent</td>
</tr>
<tr>
<td>Vaccination Lot Unrecognized</td>
<td>The lot number sent does not match a lot number in the clinic’s IIS inventory</td>
</tr>
</tbody>
</table>


IIS Data Quality in Action

Org A submits an HL7 message for their patient:
• Patient Name: Baby A Test
• Birthdate: 1/1/19
• Mother’s First Name: Linda
• Mother’s Maiden Name: Test
• Vaccine: Hep B administered on 1/1/19

Org B submits an HL7 message for their patient:
• Patient Name: Stacy Vax
• Birthdate: 1/1/19
• Guardian First Name: Linda
• Guardian Last Name: Vax
• Guardian Maiden Name: Test
• Vaccine: Historical Hep B given on 1/1/19

What happens next?
Deduplication!

IIS compares the patient data (name, DOB, guardian information, address, etc) and determines there’s a possible patient match.

Records must be manually reviewed. DOH staff determine this is the same patient and the two records are merged into one.

IIS compares the vaccines received for this patient. Administered vaccine from Org A is displayed on the patient’s record.
For More Information

IIS Data Exchange Resources

- WAIIS Data Exchange Information
- WAIIS Data Exchange Onboarding Process
- WAIIS HL7 Interface Project Guide
- HL7 Code Sets
- IIS Common Codes Guide
- Managing Inventory with an Interface Guide

Questions?
IISDataExchange@doh.wa.gov
IIS Training and Support

IIS Questions & Assistance
Contact the Help Desk
  o 1-800-325-5599
  o WAIISHelpDesk@doh.wa.gov

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IIS.Training@doh.wa.gov

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