



EHR/IIS DATA EXCHANGE BASICS

IIS Provider Training & Outreach Team

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.

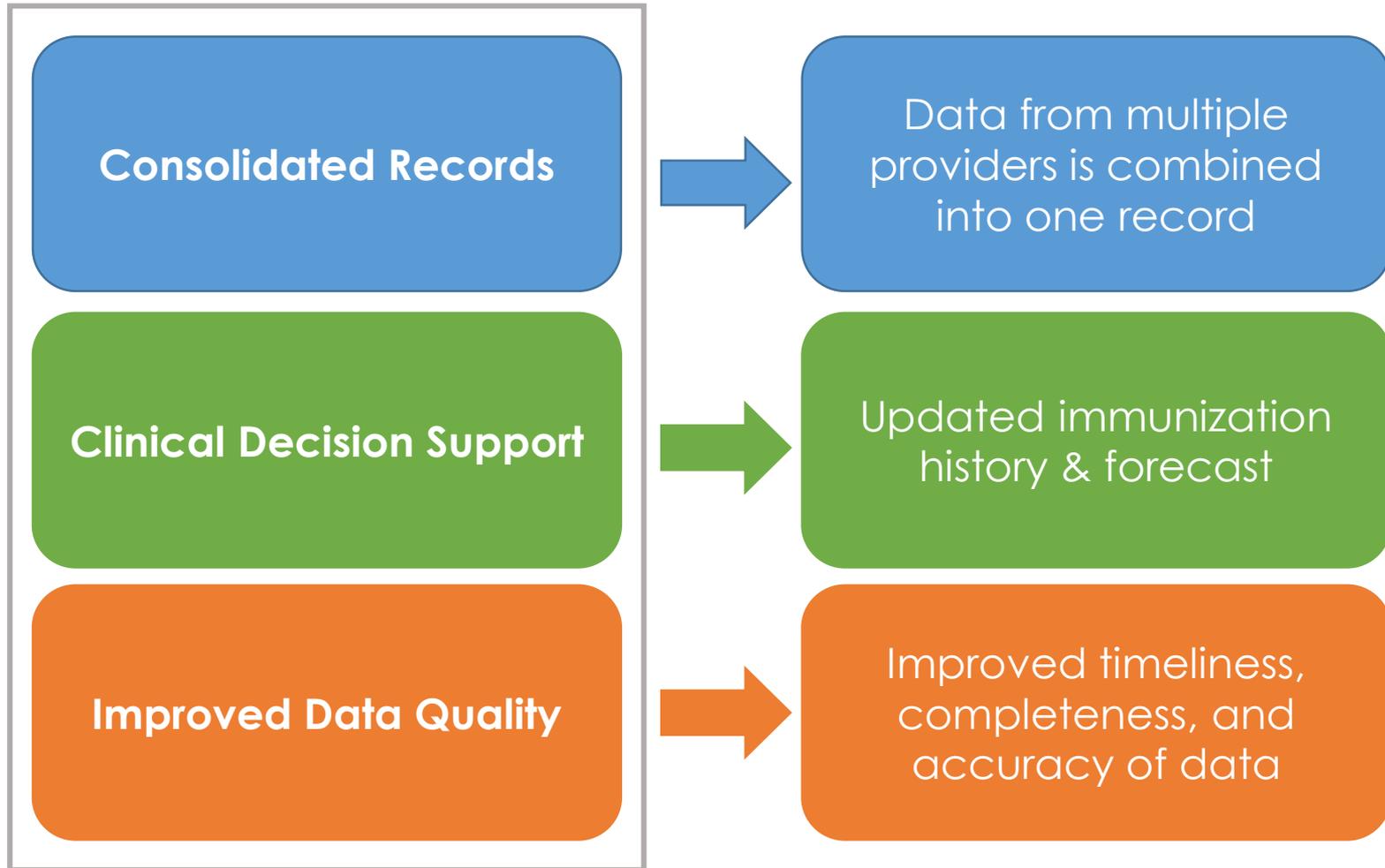
Washington State Immunization Information System
Information Sharing Agreement for
EXCHANGE OF IMMUNIZATION DATA

This agreement ("Agreement") is between the Washington State Department of Health ("DOH") and _____ ("Provider/Plan") for the exchange of immunization records.

BACKGROUND

- DOH is the public health agency that maintains the Washington State Immunization Information System ("IIS"). IIS serves as a communications link, repository, and retrieval tool for data on the immunization status of individuals ("immunization data"). IIS allows health care providers and health plans to exchange immunization data with other health care providers and health plans as authorized under Chapter 70.02 RCW.
- Provider/Plan is: (check one):
 - A public agency, corporation, or other entity with individual shareholders, members, officers, employees, contractors, or other personnel who are authorized under Washington law to provide health care or public health services to individuals.
 - A healthcare service contractor authorized by the Washington Insurance Commissioner to sell health insurance to, and/or administer health insurance plans in Washington State.
 - A school, school district, Head Start organization, and/or ECEAP grantee authorized to provide or coordinate healthcare services for students through personnel who are authorized under Washington law to provide such services.
 - An individual authorized under Washington law to provide health care services to individuals.

Benefits of Data Exchange with the IIS



EHR's & IIS



EHR	IIS
An organization's medical record for their patients	Immunization records for a broad population
Record of immunizations received from an org/clinic*	Immunization records from multiple providers/data sources
Supports clinical decision-making for patients	Supports clinical decision-making for immunizations

*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

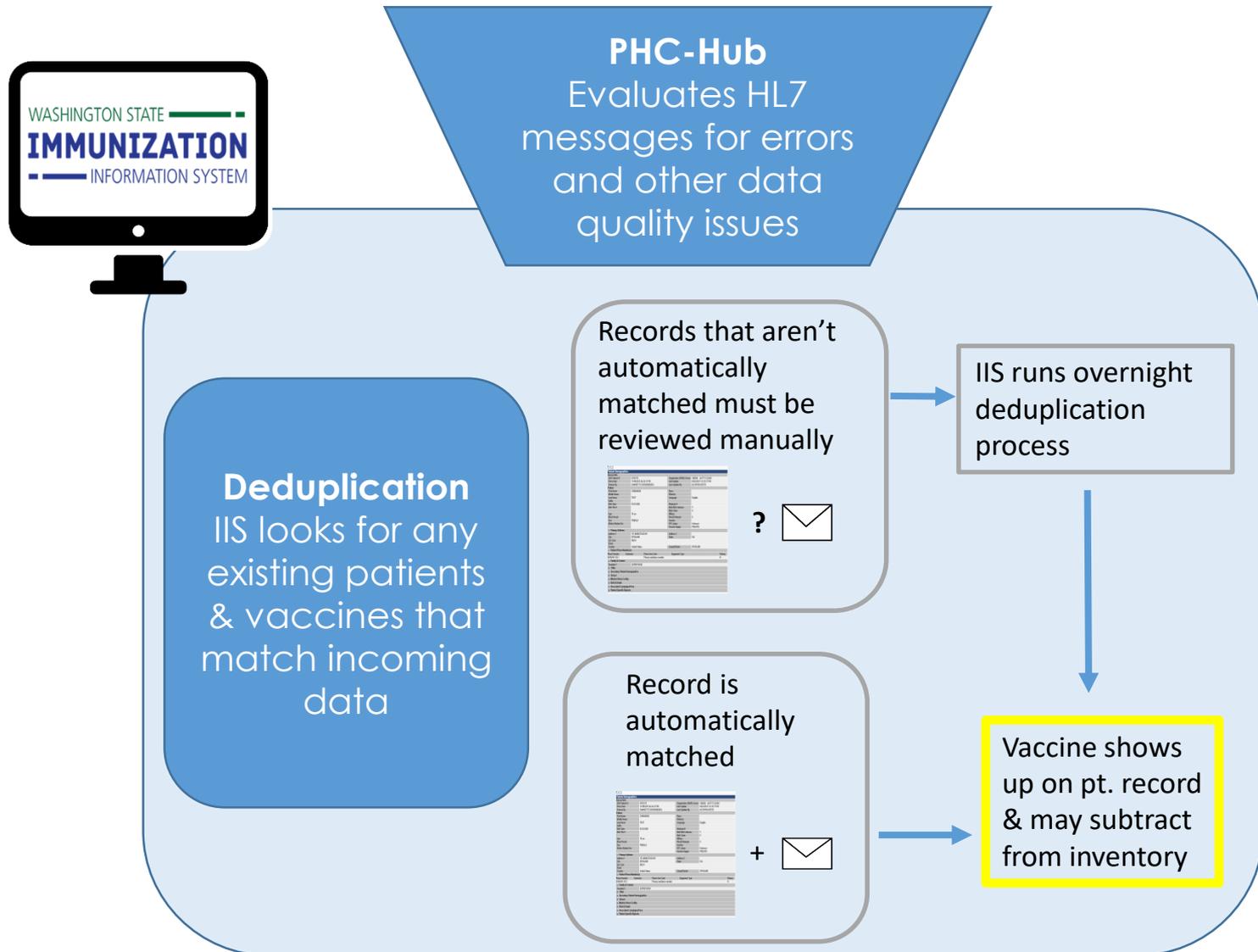


Clinic staff enter vaccines in EHR and data is sent as an HL7 message to the IIS.

Data Exchange Through the HIE



Patient & Vaccine Deduplication



Recap of Data Exchange Process

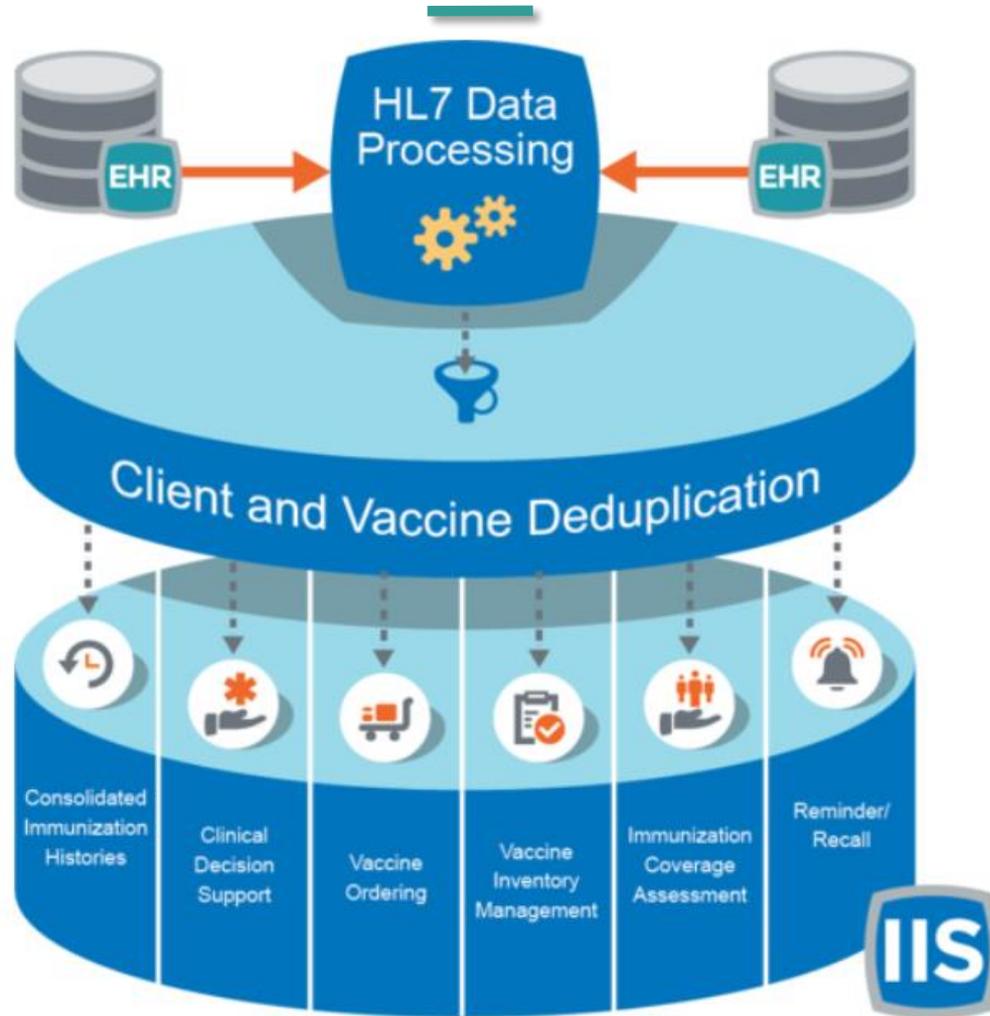


Image courtesy of HL7 Basics for IIS - informaticsacademy.org

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

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Types of Data Exchange

Unidirectional

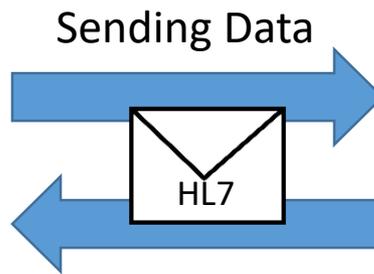
Data exchanged in one direction (EHR to IIS).

Bidirectional

Data exchanged in two directions (EHR to IIS and IIS to EHR)



EHR



Receiving Data



IIS

HL7 Data Elements

Date/Time of Message

Patient Name

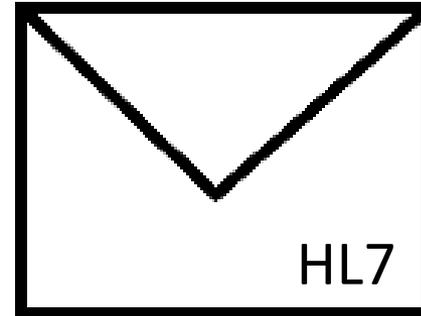
Date of Birth

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 [WAIS 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.



A sample interface used for updating the IIS

Image courtesy of HL7 Basics for IIS - informaticsacademy.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.

Review Question 2

What is bidirectional data exchange?

- A. A way for EHR's to send and receive vaccination data from the IIS.
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- D. All of the above.**

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 & IIS



Image courtesy of Data Quality for IIS
- informaticsacademy.org

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.

Error Reason	Description
VFC Status Missing	No VFC eligibility status was sent
CVX Code Missing	No data was sent indicating which vaccine type was administered
Vaccination Administered Units Missing	No data was sent indicating the unit of measure for the vaccine (e.g. mL)

Common Warnings

Warnings

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

Warning Reason	Description
Vaccination Entering Organization Missing	The facility that documented the vaccine was not sent
Patient Immunization Registry Status Missing	The patient status indicator (e.g. active, inactive) was not sent
Vaccination Lot Unrecognized	The lot number sent does not match a lot number in the clinic's IIS inventory

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

- [WAIS Data Exchange Information](#)
- [WAIS Data Exchange Onboarding Process](#)
- [WAIS HL7 Interface Project Guide](#)
- [HL7 Code Sets](#)
- [IIS Common Codes Guide](#)
- [Managing Inventory with an Interface Guide](#)

Questions?

IISDataExchange@doh.wa.gov

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January 2017

WASHINGTON STATE
IMMUNIZATION
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December 2016 Upgrade

On December 8, 2016 the IIS was upgraded. Please review the materials below to see the changes and updates included in the upgrade.

[IIS Upgrade Summary](#)
[IIS Forecast Update](#)



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IIS School Module

The Department of Health is excited to share that we are rolling out a new tool to make



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