HL7's Version 2 standards and submission to immunization registries

Alean Kirnak

Cochair HL7 Public Health and Emergency Response Workgroup

American Immunization Registry Association

Software Partners LLC

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Overview

- What is the vision for immunization registries in the healthcare environment?
- What are the Meaningful Use requirements for reporting to immunization registries?
- What does EHR certification mean to providers reporting to immunization registries?
- The role of HL7

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What are immunization registries?

- Public health initiative to manage vaccine-preventable diseases
- Databases for public health analysis
- Provide complete immunization records at point of service
- "EHRs for immunizations" for some providers

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Early Use of HL7 Version 2 (2.3.1)

- Connect with EHRs
- Receive records electronically from providers
- Provide immunization records to providers
- Provide decision support at point of service
- Health Information Exchange (HIE)-like

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Ideal World

Va
Diphtheria/Tetanus/Pertussis (DTP) Vac
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DTaP/Hib Vaccine
Diphtheria/Tetanus/Per
H1N1
Hepatitis A Vaccine, P
Hepatitis A Vaccine, P
Hepatitis B Vaccine, A
Hepatitis B Vaccine, A
Hepatitis B Vaccine, Adolescent or Pediatric

A parent is preparing to take his child to the doctor for a Well Child visit

She views the child's current immunizations using a Personal Health Record (PHR)

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Ideal World

The patient and the parent visit their doctor

- The provider's EHR queries the immunization registry and retrieves the

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- The provider reviews the immunizations and administers vaccines
- The provider records the new immunizations
- The EHR updates the immunization registry

using HL7 Version 2

Diphtheria/Tetanus/Pertus
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Ideal World

- The child is now getting ready to enter school
  - The parent uses his hand-held device to make sure the child is up-to-date on required vaccines
    - One shot is missing

Dose
Ineffective dose
Ineffective dose
Ineffective dose

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Ideal World

In a rush, the parent gets the missing vaccine at a different clinic

- The clinic EHR retrieves the child's records from the registry
  - ... including the **vaccines recorded by other providers**
  - …reviews the child's records
  - …administers vaccines
  - …records the new vaccine
  - The EHR updates the immunization registry using

HL7 Version 2

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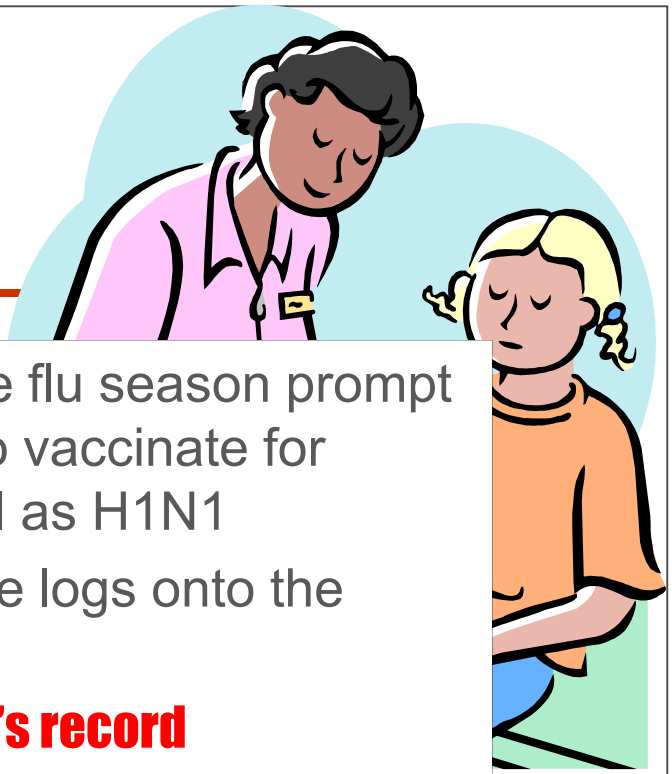
Ideal World



Predictions of a severe flu season prompt the child's school to vaccinate for seasonal flu as well as H1N1

- The school nurse logs onto the registry
- …**views the child's record**
- …administers a combination H1N1 and seasonal flu vaccine, and….
- …records the shot in the registry

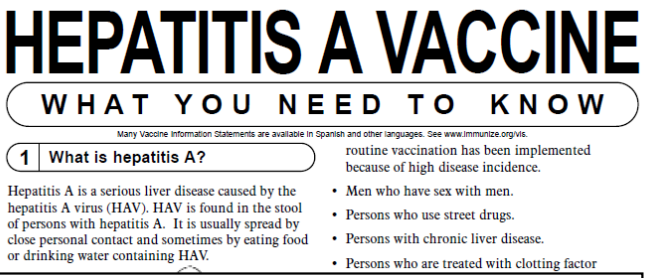
2 vaccines recomme

Vaccine		
Influenza		
H1N1 influenza		
Tdap		
MCV4		Aug 07, 2012
HPV, quadrivalent		Aug 07, 2012

1. **VIS**: Vaccine Information Statements are documents produced by the CDC and rec provides the patient with pertinent facts about risks, side-effects and other information

g. U.S. TM Office.

Ideal World



HEPATITIS A VACCINE

WHAT YOU NEED TO KNOW

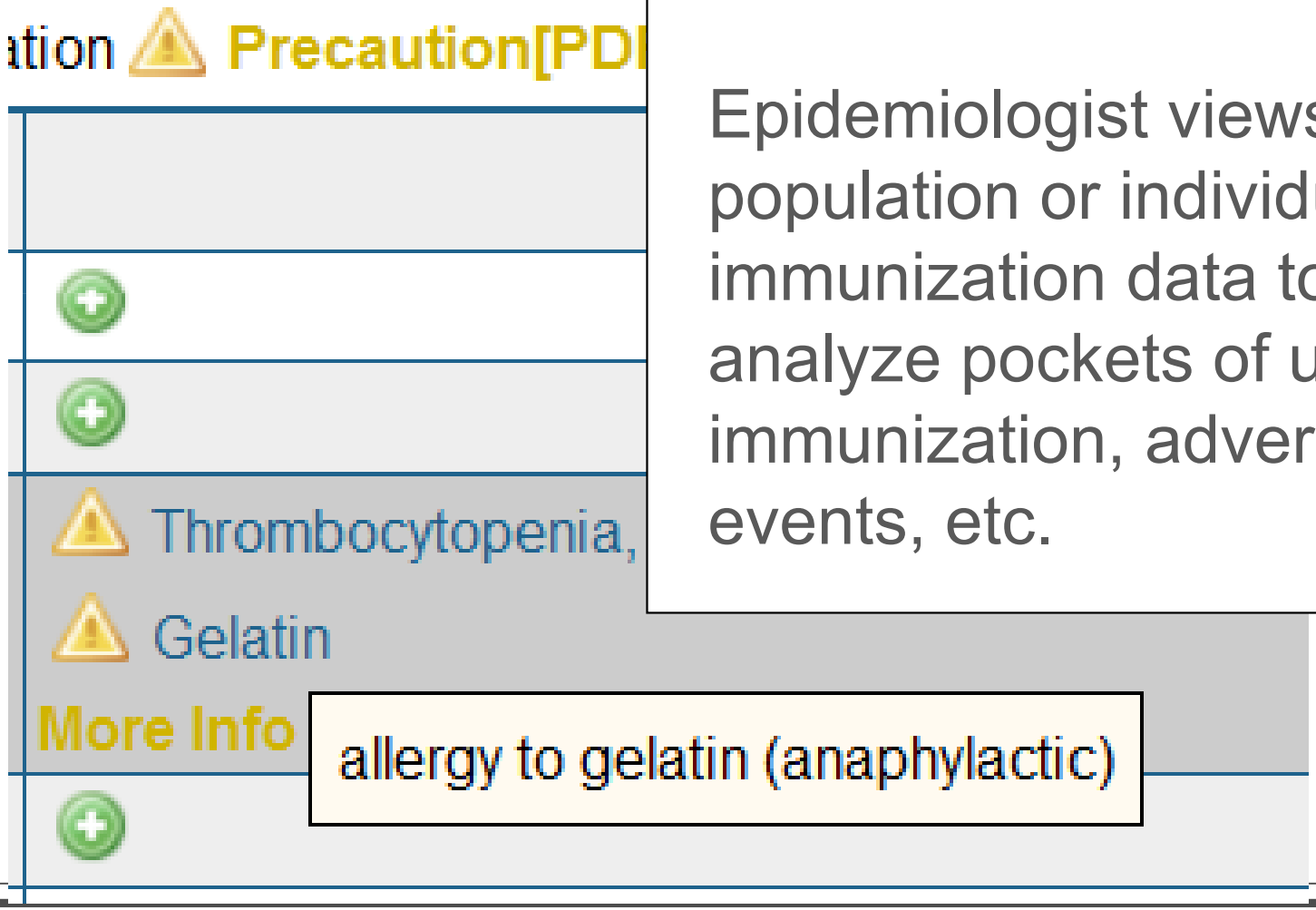
Many Vaccine Information Statements are available in Spanish and other languages. See www.immunize.org/vis.

1 What is hepatitis A?

Hepatitis A is a serious liver disease caused by the hepatitis A virus (HAV). HAV is found in the stool of persons with hepatitis A. It is usually spread by close personal contact and sometimes by eating food or drinking water containing HAV.

routine vaccination has been implemented because of high disease incidence.

- Men who have sex with men.
- Persons who use street drugs.
- Persons with chronic liver disease.
- Persons who are treated with clotting factor



ation Precaution[PDI

Thrombocytopenia,

Gelatin

More Info

allergy to gelatin (anaphylactic)

Epidemiologist views population or individual immunization data to analyze pockets of under-immunization, adverse events, etc.

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Potential Value

- Population health tool
- Research tool
- Provider-provider health information exchange
- Improving the doctor-patient relationship

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Meaningful Use Reporting*

- §170.302(k) Submission to immunization registries. Electronically record, modify, retrieve, and submit immunization information in accordance with:
  (1) the standard (and applicable implementation specifications) specified in §170.205(e)(1) or §170.205(e)(2); and
  (2) At a minimum, the version of the standard specified in §170.207(e).

* Health Information Technology: Initial Set of Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology Final Rule issued by the Department of Health and Human Services (HHS) on July 28, 2010

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Interpretation

- Use of HL7 V2
  - 2.3.1 with implementation guide
  - 2.5.1 with implementation guide
- Use of CVX Codes
  - Like CPT codes
  - CDC maintains a mapping CVX ↔ CPT
- "Menued" with other public health functions
  - Some states considering making it required

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EHR Side vs. Registry Side

- "We are primarily concerned with Certified EHR Technology's ability to transmit the immunization information in a standardized format, and do not believe that it is necessary to specify a particular recipient in the certification criterion."
- "…we have revised the certification criterion to replace the word "transmit" with "submit" to better align this certification criterion with the meaningful use objective and measure."

Source: Section III.D of the preamble of the Health Information Technology: Initial Set of Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, Final Rule

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EHR Side

- Provider must purchase/have a Complete EHR or EHR Module certified for immunization registry reporting criteria
- To be certified, the EHR or Module must demonstrate ability to generate messages in HL7 V2
- Must actually report where possible

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EHR Certification Requirements*

- Record: enter CVX-encoded immunization information into the EHR
- Retrieve: display the CVX-encoded immunization information that has been entered into the EHR
- Submit: electronically submit the CVX-encoded immunization information to an immunization registry in either HL7 2.3.1 or HL7 2.5.1

*Source: NIST

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Data Elements to Record

- Demographic
- Immunization

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Demographic Data Elements

- Patient ID Number
- Patient ID Number Type
- Family Name or Surname
- Given name
- Date of Birth
- Administrative Sex/Gender
- Race
- Ethnicity
- Patient address and phone data
  - Street Address
  - City
  - State
  - Zip Code
  - Country
  - Address Type
  - Home Telephone Number

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Immunization Data Elements

- CVX Code
- Vaccine Name
- Date/Time Start of Vaccine Administration
- Administered Amount
- Administered Units
- Vaccine Lot Number
- Manufacturer Name
- Manufacturer Code

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CPT to CVX mapping*

CPT Code	Short Description	CVX Code	comment
90733	meningococcal MPSV4	32	
90734	meningococcal MCV4P	114	This CPT maps to 2 vaccines (MCV4P and MCV4O)
90734	Meningococcal MCV4O	136	This CPT maps to 2 vaccines (MCV4P and MCV4O)

*Source: http://www2a.cdc.gov/nip/IIS/IISStandards/vaccines.asp?rpt=cpt

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Immunization Registry Side

Full Compliance – Able to Send and Receive HL7 Messages	Partial Compliance – Able to Send or Receive HL7 Messages	No Compliance – Unable to Send or Receive HL7 Messages
30 of 51 (59%) grantees reporting	4 of 51 (8%) grantees reporting	17 of 51 (33%) grantees reporting
18 grantees were eligible and applied to receive HITECH-ARRA 317 funding to enhance EHR- IIS interoperability	2 grantees were eligible and applied to receive HITECH-ARRA 317 funding to enhance EHR- IIS interoperability	11 grantees were eligible and applied to receive HITECH-ARRA 317 funding to enhance EHR- IIS interoperability

Source: 2009 Immunization Information System Annual Report

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Recovery Act Funding to Support Immunization Registry Grantees

- CDC is providing support for the immunization registry side of the HL7 connection
- ARRA-HITECH grants were awarded to 20 immunization registries to upgrade their HL7 capability
- Emphasizes use of the new Version 2.5.1 Implementation Guide

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Recovery Act Funding to Support Immunization Registry Grantees

- ARRA-HITECH funds will establish an expert panel of registry and EHR vendors to:
  - Improve HL7 V2.5.1 technical assistance documentation
  - Identify best practices for local business rules

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Back to the Big Picture

Meaningful Use Phases:

Phase I: Immunization Registry Reporting

Phase II: Retrieving from Immunization Registries

Phase III: Decision Support

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Retrieval

Va
Diphtheria/Tetanus/Pertussis (DTP) Vac
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Retrieval, Decision Support, Submission

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Retrieval, Decision Support

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Dose	
Ineffective dose	
Ineffective dose	
Ineffective dose	age for this dose of vaccine is 6 weeks minus 4
	ccine date.
	g vaccine date.

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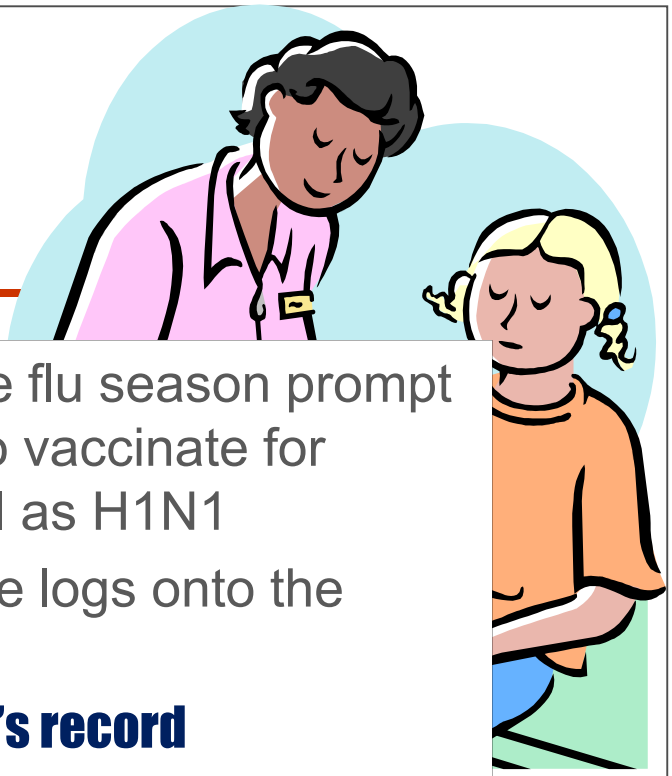
Direct Data Entry



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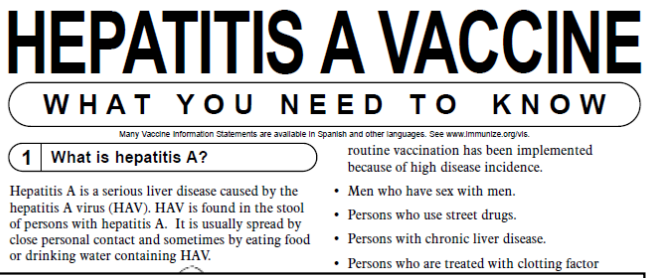
Enhanced by Electronic Data Submission



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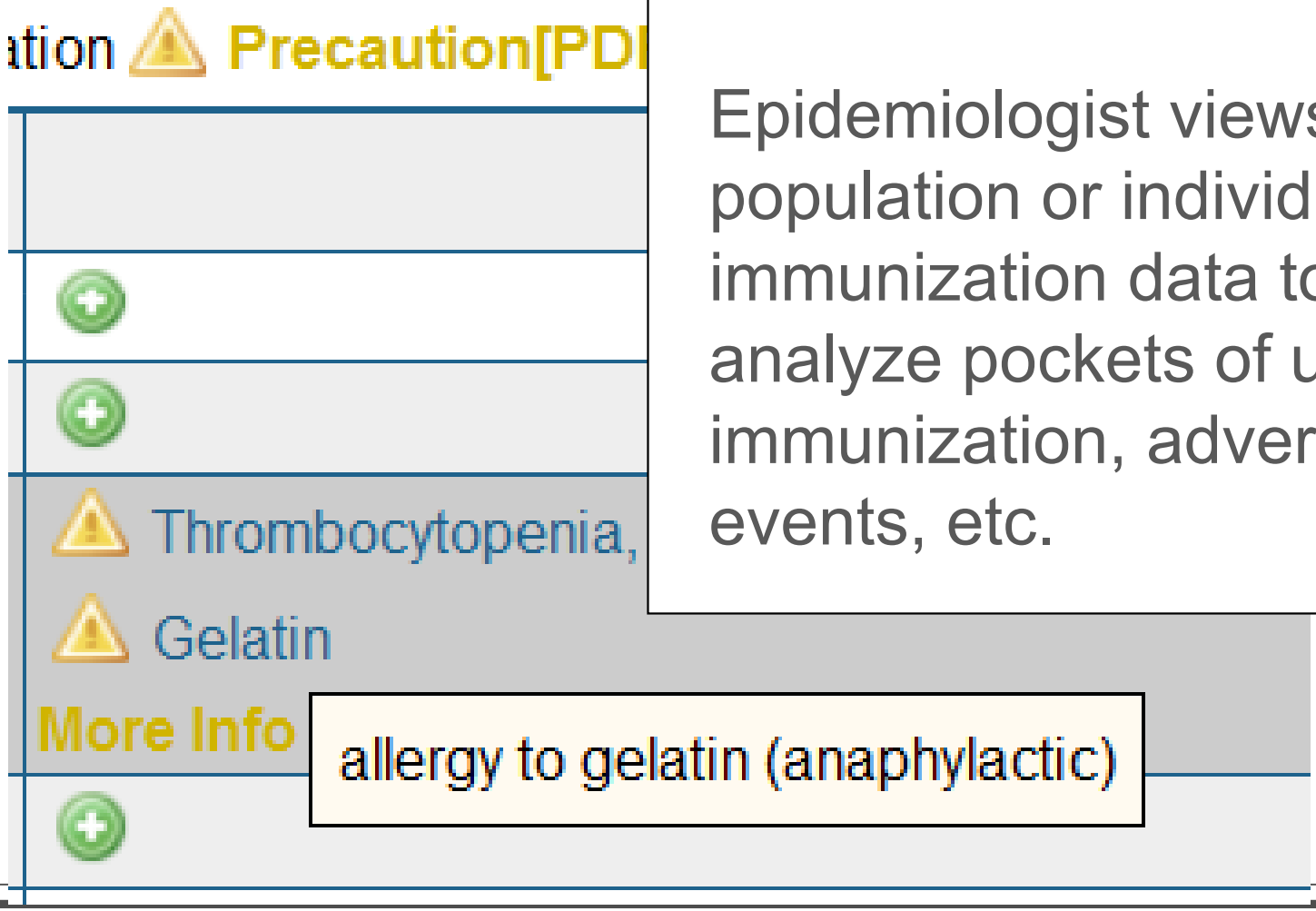

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Conclusion

- Phase I Meaningful Use incentives using HL7 V2 will enhance registry public health usage
- The Phase I-III vision includes broader Health Information Exchange functionality
- The vision overlaps with other Meaningful Use objectives such as decision support and patient empowerment
- Though Meaningful Use is fully realized for immunizations has yet to be fully fleshed out, it will no doubt use V2 and other HL7 standards

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Resources

- NIST test procedure for certification

  http://xw2k.nist.gov/healthcare/docs/170.302.k_Immunizations_v1.0.pdf

- CVX to CPT mapping

  http://www2a.cdc.gov/nip/IIS/IISStandards/vaccines.asp?rpt=cpt

- HL7 2.3.1 Implementation Guide

  http://www.cdc.gov/vaccines/programs/iis/stds/downloads/hl7guide.pdf

- HL7 2.5.1 Implementation Guide

  http://www.cdc.gov/vaccines/programs/iis/stds/downloads/hl7-guide2010-508.pdf

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§170.205 Content exchange standards

- (e) Electronic submission to immunization registries

- (1) Standard. HL7 2.3.1 (incorporated by reference in §170.299). Implementation specifications. Implementation Guide for Immunization Data Transactions using Version 2.3.1 of the Health Level Seven (HL7) Standard Protocol Implementation Guide Version 2.2 (incorporated by reference in §170.299).

- (2) Standard. HL7 2.5.1 (incorporated by reference in §170.299). Implementation specifications. HL7 2.5.1 Implementation Guide for Immunization Messaging Release 1.0 (incorporated by reference in §170.299).

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§170.207 Vocabulary standards

- (e) Immunizations. Standard. HL7 Standard Code Set CVX - Vaccines Administered, July 30, 2009 version (incorporated by reference in §170.299).

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