

Immunization-Related Capabilities for Electronic Health Records

OVERVIEW

Electronic health records (EHRs) and health information technology (IT) play a critical role in improving the rate of appropriate immunizations in the United States.

Under a contract with the CDC, we are identifying software capabilities that will help clinicians and other immunization providers improve their immunization rates. These software capabilities have been developed by clinicians within the context of eight workflows within the clinical setting. They were also informed by immunization registries (often called immunization information systems or IIS'), EHR and other clinical software developers, and those who pay for health care.

We are seeking broad input on the latest draft of immunization-related software capabilities to inform two outcomes to support the field:

1. A final set of immunization-related software capabilities that will be published in a guidance document to support users and developers of clinical software.
2. Voluntary testing processes for a critical subset of the requirements that can be used to support validation of the existence of such requirements in clinical software within voluntary, market-based testing and/or certification programs.

Additional background on both the workflows and requirements is provided on the right-hand side of this web page. All links open to a new web page (so you will not lose your place in the survey).

Immunization-Related Capabilities for Electronic Health Records

GENERAL INFORMATION ABOUT YOU

*1. Your Name

2. Your Organization

3. Email Address

*4. Describe the stakeholder or perspective you best represent

- Clinician or other immunization provider
- EHR or other clinical software developer
- Immunization information system (IIS) or public health professional
- Employer or health plan
- Accreditation, certification, or testing body
- Other

For other, please describe

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Workflow 1: Register and Identify a Patient

In this workflow, using the EHR, the provider identifies the patient either by locating the patient's record in the EHR or other clinical software system or by adding a new patient.

There are 3 requirements included in this workflow:

- 1.1 Register New Patients
- 1.2 Select New Patient
- 1.3 Select One or More Patients

For more information on this workflow, refer to the resource materials on the right-hand side of this web page.

Through the questions below, we seek your opinion on both the value and impact of this requirement, as well as general readiness for its implementation.

In addition, while all final requirements will be included in a "guidance" document to support software developers and users, testing and certification processes will also be developed for a critical subset of the requirements. We therefore also seek your opinion on whether this requirement is important enough to warrant inclusion in the subset for which testing and certification processes will be developed.

Immunization-Related Capabilities for Electronic Health Records

1. Requirement 1.1: Register New Patients

Overview of Requirement

The system must allow a user to enter distinguishing information about patients so that providers can uniquely identify patients who have similar sounding names or other similar identifying information. For example, twins living in the same household will have similar dates of birth, addresses, and may have similar names.

EHRs or other clinical software must be able to store information to successfully match with patients in immunization registries if the information is available. The information includes the mother's maiden name, whether the patient was part of a multiple birth, and the order of the multiple birth. This information allows the provider to correctly identify the patient and also helps assure a match when the EHR send the patient's information to external systems such as an immunization registry. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

2. Requirement 1.2: Select New Patient

Overview of Requirement

The system must allow a user to distinguish information about patients with similar sounding names or identifying information in order to select the right patient from the provider's EHR or other clinical software. This information allows the provider to correctly identify and select the correct patient. For example, twins living in the same household will have similar dates of birth, addresses, and may have similar sounding names.

Specifically for matching patients with those in the immunization registry, the EHR or other clinical software should have the ability to record the mother's maiden name, whether the patient was part of a multiple birth, and if so, the order of birth if the information is available. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
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Comments

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3. Requirement 1.3: Select One or More Patients

Overview of Requirement

The system must allow a provider to specify one or more patients in real time or those scheduled for appointment(s) in the future (e.g., the next day, week, month, etc.) so that a request can be sent to the public health immunization registry for each patient's complete immunization history. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
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Comments

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Workflow 2: Manage External Query, Response, and Reconciliation

This clinical workflow includes sending a request for immunization information to a public health registry (IIS) for one or more patients, receiving past immunization history, and comparing and reconciling history with what is already present in the EHR or other clinical software system.

This workflow assumes the ability to distinguish among multiple patients in the EHR. However, it does include the ability for an EHR or other clinical software system to communicate with the public health registry if there are no patient matches, incorrect matches, or multiple matches result from the request.

There are 6 requirements contained in this workflow:

- 2.1: Batch Request/Receive Patient Immunization History/Histories
- 2.2: Real Time Request/Receipt of Patient Immunization History
- 2.3: Compare Public Health Immunization Registry (IIS) Immunization History to EHR Immunization History
- 2.4: Request/Receive Patient Immunization Data and Identify Source
- 2.5: Store Immunization Registry Vaccine History and Forecast
- 2.6: Notify Public Health Immunization Registry (IIS) of Differences Between EHR Data and IIS Response

For more information on this workflow, refer to the resource materials on the right-hand side of this web page.

Through the questions below, we seek your opinion on both the value and impact of this requirement, as well as general readiness for its implementation.

In addition, while all final requirements will be included in a “guidance” document to support software developers and users, testing and certification processes will also be developed for a critical subset of the requirements. We therefore also seek your opinion on whether this requirement is important enough to warrant inclusion in the subset for which testing and certification processes will be developed.

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1. Requirement 2.1: Batch Request/Receive Patient Immunization History/Histories

Overview of Requirement

The EHR or other clinical software system sends a single request (a “batch” request) to the public health immunization registry for each of several patients. Reasons for a batch request may be (a) to obtain updated immunization histories for all patients with upcoming appointments, or (b) to receive complete immunization histories for all patients new to the provider’s practice. The request includes identifying information that the immunization registry needs to match each patient in the request with those in the registry. The request also is sent in a pre-determined format the registry can read and interpret (Query by Parameter (QBP) – HL7 version 2.5.1 Implementation Guide for Immunization Messaging Release 1.5). [Click here](#) for more information.

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Comments

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2. Requirement 2.2: Real Time Request/Receipt of Patient Immunization History

Overview of Requirement

The system sends a request to the public health immunization registry “on demand” (e.g., those without scheduled appointments). The request includes the identifying information the immunization registry needs to match each patient with those in the registry including, if present, the mother’s maiden name, a multiple birth indicator, and the birth order. The request also is sent in a pre-determined format the registry can read and interpret (Query Response Grammar (RSP) – HL7 version 2.5.1 Implementation Guide for Immunization Messaging Release 1.5). [Click here](#) for more information.

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Comments

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3. Requirement 2.3: Compare Public Health Immunization Registry (IIS) Immunization History to EHR Immunization History

Overview of Requirement

The public health immunization registry has returned the requested immunization history for a patient. The EHR is able to display the immunization history received from the registry as well as the immunization history already present in the EHR so that a user can compare them. The EHR provides a way for the provider to view both histories, determine what is different (if anything), and update the existing EHR immunization history with new information from the public health registry if he or she chooses to do so. The system must store the new information as structured data as part of the patient's local immunization history and include the time of the update and the source of the new information. [Click here](#) for more information.

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Comments

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4. Requirement 2.4: Request/Receive Patient Immunization Data and Identify Source

Overview of Requirement

The EHR or other clinical software is able to store immunization history accepted from other sources (such as a public health immunization registry consistent with HL7 version 2.5.1, Implementation Guide for Immunization Messaging Release 1.5) or communicated by the patient and manually entered by a clinician. When viewing such information, the provider can determine which immunizations were administered by the practice, which were entered manually as patient-reported, and which were accepted electronically from the public health registry. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
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Comments

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5. Requirement 2.5: Store Immunization Registry Vaccine History and Forecast

Overview of Requirement

The system stores the vaccine forecast and the vaccine history as they were received from the public health immunization registry or other sources. The information can be used for any later quality assurance activities that may be required. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
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Comments

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6. Requirement 2.6: Notify Public Health Registry (IIS) of Differences Between EHR Data and IIS Response

Overview of Requirement

After reconciling immunization history maintained in a provider's EHR and with immunization history from the public health registry, a provider may determine that some EHR-maintained information may be more correct than what is in the registry's history. The EHR should provide a report to the public health registry listing such inconsistencies (e.g., past immunizations missing from the registry report, incorrect CVX codes, and incorrect vaccine administration dates). [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
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Comments

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Workflow 3: Manage Information for Clinical Decision Making

This workflow describes how EHRs use information to support clinical decision-making. The information begins when the provider receives a vaccine forecast from the public health immunization registry. The forecast lists the appropriate immunizations for a patient based on his or her known history and the most up-to-date immunization schedule. The forecast provides important information that helps providers make the appropriate decisions regarding which vaccines to administer and when.

In addition, the physician must assess if the patient has any conditions or laboratory test findings that would alter the decision about which vaccine to provide. The forecast addresses vaccine-vaccine interactions, but immunization registries do not have individual patient diagnoses or results that might impact which vaccine should be given and when.

Once the vaccine history in the EHR is reconciled with the history from the public health immunization registry, the forecast must be re-checked. The information may be processed directly by the EHR, a public health immunization registry (IIS), a third party web service, or other clinical decision support (CDS) resource. The provider must use the information provided along with information known about the patient to make the final decision about what immunization to give the patient (if any) and enter any orders appropriate to that decision.

There are 8 requirements contained in this workflow:

- 3.1: View Immunization Forecast
- 3.2: View Reconciled Immunization Forecast
- 3.3: Modify Antigen Recommendations Based on Allergy History
- 3.4: Modify Antigen Recommendations Based on Active Diagnoses
- 3.5: Update Patient Immunization Schedule
- 3.6: Receive Dose Not Indicated Alert for Single Vaccine Order
- 3.7: Receive Dose Not Indicated Alert Upon Vaccine Administration
- 3.8: Save History of Clinical Decision Support Recommendations

For more information on this workflow, review the resource materials on the right-hand side of this web page.

Through the questions below, we seek your opinion on both the value and impact of this requirement, as well as general readiness for its implementation.

In addition, while all final requirements will be included in a “guidance” document to support software developers and users, testing and certification processes will also be developed for a critical subset of the requirements. We therefore also seek your opinion on whether this requirement is important enough to warrant inclusion in the subset for which testing and certification processes will be developed.

Immunization-Related Capabilities for Electronic Health Records

1. Requirement 3.1: View Immunization Forecast

Overview of Requirement

The system provides a view of the immunization forecast provided by the public health immunization registry (IIS). The display includes the forecast from the registry and includes recommended vaccination dates, minimum (earliest) date, ideal date, and maximum (latest) date for each vaccine included in the forecast. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
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Comments

Immunization-Related Capabilities for Electronic Health Records

2. Requirement 3.2: View Reconciled Immunization Forecast

Overview of Requirement

The EHR or other clinical software system has the ability to re-evaluate and update the immunization forecast using a patient's newly updated immunization history, where the updated forecast results from the reconciliation of immunization data contained in the public health immunization registry with immunization data contained in the EHR. Processing the new forecast can be internal to the EHR or it can use an external forecasting service. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
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Comments

Immunization-Related Capabilities for Electronic Health Records

3. Requirement 3.3: Modify Antigen Recommendations Based on Allergy History

Overview of Requirement

The system notifies the provider of any conflicts between the recommended vaccines in the updated forecast and the patient's active allergies. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
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Comments

Immunization-Related Capabilities for Electronic Health Records

4. Requirement 3.4: Modify Antigen Recommendations Based on Active Diagnoses

Overview of Requirement

The system notifies the provider of any conflicts between recommended vaccines in the updated forecast and the patient's current or historical diagnoses. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
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Comments

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5. Requirement 3.5: Update Patient Immunization Schedule

Overview of Requirement

The EHR or other clinical software system displays a patient's anticipated immunization schedule routinely and updates the patient's schedule when immunization guidelines change. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
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Comments

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6. Requirement 3.6: Receive Dose Not Indicated Alert for Single Vaccine Order

Overview of Requirement

The EHR or other clinical software system notifies the provider in instances when there are single or combination vaccine orders that are inconsistent with the expected timing intervals included in the vaccine forecast. Inconsistencies include suggestion of different date(s) for ordering the vaccine(s) or indication in the vaccine(s) is/are no longer required.

[Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
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Comments

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7. Requirement 3.7: Receive Dose Not Indicated Alert Upon Vaccine Administration

Overview of Requirement

The system notifies the individual administering a vaccine that the vaccine is inconsistent with expected timing intervals as suggested by the vaccine forecast. The method and timing of notification can be specified to meet local clinical workflow. This requirement is a “failsafe” mechanism should the provider order a vaccine dose that is inconsistent with appropriate timing intervals. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
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Comments

Immunization-Related Capabilities for Electronic Health Records

8. Requirement 3.8: Save History of Clinical Decision Support Recommendations

Overview of Requirement

The system saves a history of information it has accessed during clinical decision support data analysis as well as the recommendation presented to the provider (or no recommendation if none was provided), and any actions taken by the provider for later analysis. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

Workflow 4: Manage Inventory

This workflow describes how EHRs and other clinical software systems use available information to assist with managing the immunization inventory available in the provider's setting.

Patients eligible for special guarantee programs, such as Vaccine for Children's (VFC), should receive the doses provided by the program. Those patients not eligible for VFC or similar programs should receive private vaccine stock. This user workflow enables the provider to determine patient eligibility for special guarantee programs and whether the provider's vaccine dose is eligible for the program. The goals of this process are to: 1) identify the appropriate vaccine stock to provide to the patient, based on the patient's eligibility for guarantee programs, and 2) document when vaccine doses from one program are borrowed and assure that stock is replenished.

There are 5 requirements contained in this workflow:

- 4.1: Display Available Vaccine Antigens
- 4.2: Update Vaccine Inventory from Patient Dosage Administration
- 4.3: Update Vaccine Inventory from Stock Receipt
- 4.4: Notify of Vaccine Dose Expiration
- 4.5: Produce Vaccine History Report

For more information on this workflow, refer to the resource materials on the right-hand side of this web page.

Through the questions below, we seek your opinion on both the value and impact of this requirement, as well as general readiness for its implementation.

In addition, while all final requirements will be included in a "guidance" document to support software developers and users, testing and certification processes will also be developed for a critical subset of the requirements. We therefore also seek your opinion on whether this requirement is important enough to warrant inclusion in the subset for which testing and certification processes will be developed.

Immunization-Related Capabilities for Electronic Health Records

1. Requirement 4.1: Display Available Vaccine Antigens

Overview of Requirement

The system presents a list of vaccine antigens available for administration to patients (e.g., private stock vs. specific guarantee program). [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

2. Requirement 4.2: Update Vaccine Inventory from Patient Dosage Administration

Overview of Requirement

The system updates the vaccine inventory to assure the correct count of remaining available vaccine inventory. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

3. Requirement 4.3: Update Vaccine Inventory from Stock Receipt

Overview of Requirement

The EHR or other clinical software system updates the vaccine inventory when new stock is received at the site and updates the correct count of each vaccine, including those for use in guarantee programs (such as Vaccine for Children) and for private stock. [Click here for more information.](#)

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

4. Requirement 4.4: Notify of Vaccine Dose Expiration

Overview of Requirement

The EHR or other clinical software system notifies the provider administering a vaccine if the dose chosen for administration is expired. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

5. Requirement 4.5: Produce Vaccine History Report

Overview of Requirement

The EHR or other clinical software system generates inventory reports of remaining stock. The reports can be sorted by expiration date and source (e.g., private or guarantee program). [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

Workflow 5: Administer and Report Immunization

This workflow describes how EHRs and other clinical software systems can use information to assist with administering and reporting immunizations given to patients in the provider setting. This includes the following:

1. Providing patient education to help the patient understand the immunization about to be administered
2. Documenting reasons why a recommended immunization is not given (e.g., patient refusal, fever on the day of the visit, etc.)
3. Administration of the vaccine to the patient
4. Documenting all of the information about the process (i.e., which vaccine, lot number and expiration date, body site of the injection, etc.)
5. Submitting the report to the public health registry, and 6. Providing the patient with a summary of vaccine status.

There are 14 requirements contained in this workflow:

- 5.1: Provide Access to Vaccine Information Statement(s)
- 5.2: Record Vaccine Administration Deferral
- 5.3: Record Past Immunizations
- 5.4: Notify of Vaccine Dose Ineligibility
- 5.5: Document Vaccine Ineligibility Override Reason
- 5.6: Enter Vaccination Order
- 5.7: Review Patient Immunization History
- 5.8: Link Standard Codes to Immunization Data
- 5.9: Record Vaccine Administration
- 5.10: Produce Standard Patient Immunization History Report
- 5.11: Transmit Standard Patient Immunization History Report
- 5.12: Produce Configurable Patient Immunization History Report
- 5.13: Transmit Configurable Patient Immunization History Report
- 5.14: Produce Immunization Forecast Report

For more information on this workflow, refer to the resource materials on the right-hand side of this web page.

Through the questions below, we seek your opinion on both the value and impact of this requirement, as well as general readiness for its implementation.

In addition, while all final requirements will be included in a “guidance” document to support software developers and users, testing and certification processes will also be developed for a critical subset of the requirements. We therefore also seek your opinion on whether this requirement is important enough to warrant inclusion in the subset for which testing and certification processes will be developed.

Immunization-Related Capabilities for Electronic Health Records

1. Requirement 5.1: Provide Access to Vaccine Information Statement(s)

Overview of Requirement

The EHR or other clinical software system provides the Vaccine Information Statement (VIS) sheets, as required by federal law, so that patients can review them prior to receiving a vaccination. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

2. Requirement 5.2: Record Vaccine Administration Deferral

Overview of Requirement

The EHR or other clinical software system allows a user to enter a reason or reasons why a specific immunization was not given to a patient (e.g., due to contraindication, refusal, etc.). The system also stores that information in a structured way so it can be reported and analyzed as needed. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

3. Requirement 5.3: Record Past Immunizations

Overview of Requirement

The EHR or other clinical software system allows providers to enter information about immunizations given elsewhere (e.g., by another doctor, at a public health clinic, pharmacy, etc.) with incomplete details. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

4. Requirement 5.4: Notify of Vaccine Dose Ineligibility

Overview of Requirement

The EHR or other clinical software system provides a method for alerting a provider if a vaccine is selected for a patient who is not eligible for the inventory item selected. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

5. Requirement 5.5: Document Vaccine Ineligibility Override Reason

Overview of Requirement

The EHR or other clinical software system prompts the provider to document the reasons for selecting a vaccine from inventory if the patient is not eligible. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

6. Requirement 5.6 Enter Vaccination Order

Overview of Requirement

The EHR or other clinical software system allows providers to order immunizations for a patient using filters for type of vaccine, including combination vaccines. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

7. Requirement 5.7: Review Patient Immunization History

Overview of Requirement

To assist with the ordering process, the EHR or other clinical software system allows a user to specify standard views of patient immunization information for each vaccine dose administration, including patient-specific data (e.g., age on dates of administration, etc.).

[Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

8. Requirement 5.8: Link Standard Codes to Immunization Data

Overview of Requirement

The EHR or other clinical software system links standard codes (i.e., LOINC for lab tests or evaluation tools, SNOMED-CT for conditions or observations, CVX for immunizations) to discrete data elements associated with an immunization. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

9. Requirement 5.9: Record Vaccine Administration

Overview of Requirement

The EHR or other clinical software system records information about each vaccine administered. The EHR records this information as structured data elements, including, at a minimum: date administered, administering clinician, site of administration (e.g., left arm), immunization type, product, lot number, manufacturer, Vaccine Information Statement date, and quantity of vaccine/dose size. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

10. Requirement 5.10: Produce Standard Patient Immunization History Report

Overview of Requirement

The EHR or other clinical software system produces a report of a patient's immunization history that is appropriate for various entities, such as schools and day-care centers. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

11. Requirement 5.11: Transmit Standard Patient Immunization History Report

Overview of Requirement

The EHR or other clinical software system directly or indirectly through an intermediary creates and transmits a report of a patient's immunization history to public health immunization registries. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

12. Requirement 5.12: Produce Configurable Patient Immunization History Report

Overview of Requirement

The EHR or other clinical software system allows users to modify and save a template that produces a patient's immunization history to meet the needs of the populations served by the practice. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

13. Requirement 5.13: Transmit Configurable Patient Immunization History Report

Overview of Requirement

The EHR or other clinical system transmits a locally-configured report of a patient's immunization history to meet the needs of the populations served by the practice. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

14. Requirement 5.14: Produce Immunization Forecast Report

Overview of Requirement

The EHR or other clinical software system creates a list of immunizations to be administered within a specified time frame. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Workflow 6: Manage Cohort of Patients

This workflow describes how EHRs and other clinical software systems use information to assist with managing groups (cohorts) of patients. While there are many examples of cohorts, common ones include those who received vaccines which were later recalled, those who may be overdue for immunizations, and those who are up-to-date with immunizations, and many others.

There are 2 requirements contained in this workflow:

6.1: Produce Population-Level Report

6.2: Notify Patients of Immunization Status

For more information on this workflow, refer to the resource materials on the right-hand side of this web page.

Through the questions below, we seek your opinion on both the value and impact of this requirement, as well as general readiness for its implementation.

In addition, while all final requirements will be included in a “guidance” document to support software developers and users, testing and certification processes will also be developed for a critical subset of the requirements. We therefore also seek your opinion on whether this requirement is important enough to warrant inclusion in the subset for which testing and certification processes will be developed.

Immunization-Related Capabilities for Electronic Health Records

1. Requirement 6.1: Produce Population-Level Report

Overview of Requirement

The EHR or other clinical system generates aggregate, population-level reports based on known patient immunization data. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

2. Requirement 6.2: Notify Patients of Immunization Status

Overview of Requirement

The EHR or other clinical software system notifies patients based on specific known immunization data. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

Workflow 7: Manage Adverse Event Reporting

This workflow describes how EHRs and other clinical software systems use information to assist with documenting, reporting, and storing adverse event information. General User Workflow 7 also describes how systems make adverse event information available in settings where providers administer immunizations to patients.

There are 4 requirements contained in this workflow:

7.1: Identify Adverse Event

7.2: Initiate and Submit a VAERS Report

7.3: Notify of Previous Adverse Event

7.4: Notify Public Health Immunization Registry (IIS) of Update from Adverse Event

For more information on this workflow, refer to the resource materials on the right-hand side of this web page.

Through the questions below, we seek your opinion on both the value and impact of this requirement, as well as general readiness for its implementation.

In addition, while all final requirements will be included in a “guidance” document to support software developers and users, testing and certification processes will also be developed for a critical subset of the requirements. We therefore also seek your opinion on whether this requirement is important enough to warrant inclusion in the subset for which testing and certification processes will be developed.

Immunization-Related Capabilities for Electronic Health Records

1. Requirement 7.1: Identify Adverse Event

Overview of Requirement

The EHR or other clinical software system enables capture of structured data regarding adverse events. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

2. Requirement 7.2: Initiate and Submit a VAERS Report

Overview of Requirement

The EHR or other clinical software initiates and submits a Vaccine Adverse Event Reporting System (VAERS) report. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

3. Requirement 7.3: Notify of Previous Adverse Event

Overview of Requirement

EHRs and other clinical software systems alert providers to previous adverse events for a specific patient, in order to inform clinical decision-making when providers view an existing immunization record. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

4. Requirement 7.4: Notify Public Health Immunization Registry (IIS) of Update from Adverse Event

Overview of Requirement

The EHR or other clinical software system notifies the public health immunization registry (IIS) of an update due to an adverse event. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

Workflow 8: Provide Patient Access

This workflow describes how EHRs and other clinical software systems use information to provide patients or their caregivers with access to immunization histories via a patient portal within an EHR or other consumer-facing application. Ideally, immunization histories can be printed or electronically transmitted to support a user's need for sending information to schools, day care centers, summer camps, employers, and others. This workflow is not intended to be the exclusive mechanism for patient access to immunization reports. For example, direct access also may be provided from a public health immunization registry. It is included here to address requirements defined by providers.

There are 5 requirements contained in this workflow:

- 8.1: Provide Access to Patient Immunization Record
- 8.2: Provide Access to Recommendations and Vaccine Information Statement(s)
- 8.3: Provide Access to Printable Immunization Record
- 8.4: Provide Access to Update Immunization Information
- 8.5: Review Patient-Provided Immunization Information

For more information on this workflow, refer to the resource materials on the right-hand side of this web page.

Through the questions below, we seek your opinion on both the value and impact of this requirement, as well as general readiness for its implementation.

In addition, while all final requirements will be included in a "guidance" document to support software developers and users, testing and certification processes will also be developed for a critical subset of the requirements. We therefore also seek your opinion on whether this requirement is important enough to warrant inclusion in the subset for which testing and certification processes will be developed.

Immunization-Related Capabilities for Electronic Health Records

1. Requirement 8.1: Provide Access to Patient Immunization Record

Overview of Requirement

The EHR or other clinical software system provides patients and their authorized representatives with electronic access to immunization records (either directly or by interacting with an external system such as a patient portal). [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

2. Requirement 8.2: Provide Access to Recommendations and Vaccine Information Statement(s)

Overview of Requirement

The immunization record displays immunization recommendations to be discussed with a provider, displaying the relevant Vaccine Information Statement. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

3. Requirement 8.3: Provide Access to Printable Immunization Record

Overview of Requirement

The EHR or other clinical software system provides a printable version of the immunization record. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

4. Requirement 8.4: Provide Access to Update Immunization Information

Overview of Requirement

The patient is able to add or request an update to immunization information for review by the provider. [Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

5. Requirement 8.5: Review Patient-Provided Immunization Information

Overview of Requirement

The EHR or other clinical software system provides a mechanism for the provider to review patient-generated immunization data. It also provides a mechanism for the provider to update or annotate the immunization history, indicating the source of the information.

[Click here](#) for more information.

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know | N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. The requirement has a positive impact on any of the following: quality, safety, cost-effectiveness, patient experience of care, health outcomes, or workflow | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Individuals in your stakeholder group are generally ready to implement this requirement | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. The requirement is important enough to warrant validation through software testing and/or certification | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Comments

Immunization-Related Capabilities for Electronic Health Records

Usability

Usability of EHRs and other clinical software systems has received considerable attention from health care stakeholders and in the lay press. While usability is a fundamental issue for any EHR's functionality, there is no existing program or set of standards that address usability and which is specifically focused on immunization management.

Usability for immunization-related activities addresses:

1. Safely and effectively providing the correct immunization to the right patient at the right time, and
2. Efficiently managing clinical workflow to provide immunizations within an appropriate time and resource constraints.¹

[Click here](#) for more information about usability, including a graphical representation.

The National Institute for Standards and Technology (NIST) published a set of critical user interactions that should be addressed to support EHR usability for pediatric patient care.² That report listed five specific interactions that directly affect immunizations, summarized below.

1. Allow ordering vaccination via reminder
2. Allow data entry for vaccinations given at other institutions
3. Support display and tracking of components of combination vaccines
4. Display the days prior vaccinations were given and support alerts for recommended minimum, ideal, and maximum intervals between vaccinations, and
5. Allow sorting of vaccination data by multiple fields.

The questions below are designed to gain input on whether such interactions--or other usability factors--should be addressed in immunization-related software guidance and/or testing and certification.

For more information on usability, refer to the resources on the right-hand side of this web page.

¹ Lowry SZ, Quinn MT, Ramaiah M. Technical Evaluation, Testing and Validation of the Usability of Electronic Health Records. National Institute of Standards and Testing. (NISTIR 7804). February 2012. Available at: http://www.nist.gov/customcf/get_pdf.cfm?pub_id=909701. Accessed 30 November 2014

² Lowry SZ, Quinn MT, Ramaiah M, et. al. Human Factors Guide to Enhance EHR Usability of Critical User Interactions when Supporting Pediatric Patient Care. (NISTIR 7865, June 2012). Available at: <http://www.nist.gov/healthcare/usability/upload/NIST-IR-7865.pdf>. Accessed 29 September 2014.

1. Usability

Please list the top three critical immunization-related functions that should be tested for usability.

| | |
|------------|----------------------|
| Priority 1 | <input type="text"/> |
| Priority 2 | <input type="text"/> |
| Priority 3 | <input type="text"/> |
| Other | <input type="text"/> |

Immunization-Related Capabilities for Electronic Health Records

Value of Guidance and Testing/Certification for Immunization-Related Softwa...

Improved immunization rates have been linked to better health outcomes, reductions in health care costs, and higher levels of productivity.

EHRs have been shown to increase the effectiveness of various interventions that improve immunization rates, such as provider reminders, standing orders, provider assessment and feedback processes, and patient reminders. EHRs and other clinical software also have the potential of improving vaccine tracking, vaccine safety, and the ease by which patients can gain access to their immunization histories.

This section of the survey—which is stakeholder-specific—is designed to gain input on the value of immunization-related software capabilities generally, as well as guidance and/or testing and certification processes designed to support users and developers of software.

***1. The remaining questions focus on value and are stakeholder-specific. Please describe the stakeholder or perspective you best represent.**

- Clinician or other immunization provider
- EHR or other clinical software developer
- Immunization information system (IIS) or public health professional
- Employer or health plan
- Other

Immunization-Related Capabilities for Electronic Health Records

Questions on Value for Clinicians and Other Immunization Providers

1. For Clinicians and Other Immunization Providers

Immunization-related software capabilities, such as those outlined in this survey, will:

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know or N/A |
|--|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|
| 1. Enable me to deliver better care to my patients | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Reduce burden associated with reporting to immunization registries | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Reduce burden associated with the Vaccines for Children Program | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. Reduce burden associated with reporting on immunization-related performance measures | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. Enhance my ability to meet Meaningful Use requirements under the CMS Medicare and Medicaid EHR Incentive Programs | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. Reduce burden associated with providing immunization-related information to my patients or their caregivers | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Immunization-Related Capabilities for Electronic Health Records

2. For Clinicians and Other Immunization Providers

I am willing to consider immunization-related software capabilities--such as the ones contained in this survey--when making my next EHR or other clinical software purchasing decision.

- Strongly Agree
- Agree
- Neither Agree or Disagree
- Disagree
- Strongly Disagree
- I Don't Know or N/A

Other (please specify)

Immunization-Related Capabilities for Electronic Health Records

Question on Value for Immunization Information Systems

1. For Immunization Registries or IIS'

Immunization-related software capabilities, such as those outlined in this survey, will:

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know or N/A |
|--|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|
| 1. Enable me to receive more immunization-related information from clinicians and other immunization providers | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Improve the timeliness of receipt of immunization-related information from clinicians and other immunization providers | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Improve the data quality of immunization-related information received from clinicians and other immunization providers | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. Reduce the burden associated with the receipt of immunization-related information from clinicians and other immunization providers | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. Reduce the burden associated with the transmission of immunization-related information to clinicians and other immunization providers | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Other (please specify)

Immunization-Related Capabilities for Electronic Health Records

Questions on Value for EHR and Other Clinical Software Developers

1. For EHR and Other Clinical Software Developers

Immunization-related software capabilities, such as those outlined in this survey, will:

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know or N/A |
|---|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|
| 1. Enable my customers who are clinicians and other immunization providers to deliver better care to their patients | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 2. Reduce the burden associated with developing and implementing software changes associated with reporting to immunization registries (as required under the CMS Medicare and Medicaid EHR Incentives Programs and related Standards and Certification Criteria) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|

Other (please specify)

Immunization-Related Capabilities for Electronic Health Records

2. For EHR and Other Clinical Software Developers

I am willing to consider pursuit of a voluntary testing and/or certification program to demonstrate software adherence to immunization-related capabilities or requirements.

- Strongly Agree
- Agree
- Neither Agree or Disagree
- Disagree
- Strongly Disagree
- I Don't Know or N/A

Other (please specify)

Immunization-Related Capabilities for Electronic Health Records

Question on Value for Those Who Pay for Health Care

1. For Those Who Pay for Health Care (e.g., Public and Private Sector Employers and Health Plans)

Immunization-related software capabilities, such as those outlined in this survey, will:

| | Strongly Agree | Agree | Neither Agree or Disagree | Disagree | Strongly Disagree | I Don't Know or N/A |
|--|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|-----------------------|
| 1. Enable clinicians and other immunization providers to deliver better care to their patients | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Improve the accuracy and timeliness of reporting on immunization-related performance measures | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. Improve the quality and safety of health care and/or health outcomes | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. Improve the cost of care | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. Improve the patient experience of care | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Other (please specify)