

Oregon ALERT IIS Onboarding Guide for Provider Organizations

Process and activities for provider organizations to establish and test an electronic data interface with Oregon ALERT IIS

Oregon Immunization Program V1.1

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Introduction

Purpose

This guide provides information about the process to establish and test an electronic data exchange interface between an electronic health record (EHR) system and the Oregon immunization information system (IIS), Oregon ALERT IIS. This process is referred to as “onboarding.”

This guide is intended for use by provider organizations and representatives associated with these organizations or their EHR vendor to support establishing and testing these interfaces.

Data exchange

EHR-IIS interfaces are supported by immunization messaging standards, including HL7 Version 2.5.1 and SOAP Web Services. The HL7 Version 2.5.1 Implementation Guide for Immunization Messaging, Release 1.5 and Addendum provides a framework for using the HL7 standard to support immunization data exchange and the SOAP Web Services Specifications provide detail on this transport standard.

Additional detail on HL7 requirements to support exchange with Oregon ALERT IIS are provided in the Real Time Data Exchange HL7 Guide. The Local Implementation Guide provides specifications for an electronic data interface between an EHR and Oregon ALERT IIS. These interfaces may be used to:

- Automatically transmit immunization information recorded in the EHR to the IIS (VXU/submission messaging) and/or
- Query the IIS for a patient’s immunization record and forecast, from within the EHR (QBP/query messaging).

Provider organizations are encouraged to establish bi-directional interfaces with the IIS, to support both submission and query messaging. The process outlined within this document assumes both submission and query messaging; see [Special Topics: Query Only Interfaces](#) if the interface will not include submission to the IIS.

Contact

If you have questions about onboarding with Oregon ALERT IIS, please reach out to the IIS Data Exchange team at ALERT_DataExchange@odhsoha.oregon.gov.

Overview of the Onboarding Process

Steps in the process

The onboarding process involves four main steps, including 1) Discovery and Planning, 2) Development and Testing, 3) Production Approval, and 4) Ongoing Monitoring, as outlined in Figure 1 below.

Figure 1. Overview of the steps in the Oregon ALERT IIS onboarding process



Provider organizations are expected to complete required activities associated with each step to successfully onboard with the IIS. Table 1 provides an overview of each step and sub-step within the process, including the goal, the required activities, and an indication of exit criteria to move on in the process.

Project duration

An HL7 onboarding project should take approximately 6 weeks, from the onboarding kickoff with the IIS staff through onboarding close. However, this timeline may be extended to ensure issues identified during onboarding testing and/or immediate post-go-live monitoring are sufficiently addressed. Thorough review of this guide can help your organization prepare to meet testing and data quality expectations outlined.

Resource allocation

Provider organization representatives are expected to be responsive to IIS requests and questions to ensure an efficient process. Organizations are expected to ensure resource allocation and commitment across the following roles for the duration of the onboarding project. Depending on the size of your organization, these roles may be fulfilled by one or more individuals:

- **Onboarding project lead:** person responsible for oversight and coordination of the provider organization’s onboarding efforts.
- **Onboarding technical lead:** person responsible for the technical implementation of the electronic interface.
- **Onboarding clinical/immunization lead:** person responsible for immunization data quality and clinical confirmation of query and response messaging.

In addition, your provider organization should identify the **interface production support lead**; this person is responsible for ongoing monitoring and maintenance of the electronic interface and resolution of issues post-production.

Review [Appendix A](#) for an overview of responsibilities across stakeholders, during and after the onboarding process. Refer to [Appendix B](#) for a list of onboarding activities presented in checklist format. This checklist can support project planning and resource allocation.

Table 1. Overview of the process to onboard for data exchange with Oregon ALERT IIS

Step	1. Discovery and Planning		2. Development and Testing		3. Production Approval and Go-Live	4. Ongoing Monitoring
	1a. Ensure readiness	1b. Onboarding kickoff	2a. Establish connectivity	2b. Message and data review		
Goal	Demonstrate readiness to onboard	Confirm commitment to onboard	Establish connectivity with the IIS test environment	Submit properly formatted messages containing quality data	Initiate successful production data exchange	Ensure successful ongoing data exchange with quality data
Duration		1week	1 week	2 weeks*	2 weeks*	Ongoing
Required Activities	<ul style="list-style-type: none"> <input type="checkbox"/> Enroll in the IIS <input type="checkbox"/> Ensure base technical capability to support immunization data exchange <input type="checkbox"/> Complete IIS data exchange forms: Registration and Questionnaire <input type="checkbox"/> Prepare for data exchange with the IIS <input type="checkbox"/> Prepare for the onboarding process 	<ul style="list-style-type: none"> <input type="checkbox"/> Participate in an onboarding kickoff call <input type="checkbox"/> Ensure resource allocation to the project 	<ul style="list-style-type: none"> <input type="checkbox"/> Implement credentials to connect with the IIS test environment <input type="checkbox"/> Troubleshoot to resolve issues as needed 	<ul style="list-style-type: none"> <input type="checkbox"/> Submit production messages to the IIS test environment for review and validation <input type="checkbox"/> Implement changes and resolve issues as needed to meet expectations <input type="checkbox"/> Prepare legacy data and submit for data quality review 	<ul style="list-style-type: none"> <input type="checkbox"/> Implement credentials to connect with the IIS production environment <input type="checkbox"/> Enable and monitor the production interface <input type="checkbox"/> Clinically confirm query and response messaging, if applicable <input type="checkbox"/> Submit legacy data <input type="checkbox"/> Troubleshoot to resolve issues as needed to meet expectations 	<ul style="list-style-type: none"> <input type="checkbox"/> Conduct ongoing interface maintenance and monitoring <input type="checkbox"/> Maintain quality data submission

					<input type="checkbox"/> Confirm onboarding close	
Exit Criteria	<input checked="" type="checkbox"/> Receive an invitation to onboard	<input checked="" type="checkbox"/> Agree to proceed; commit to onboarding	<input checked="" type="checkbox"/> Confirm successful connectivity with IIS test environment	<input checked="" type="checkbox"/> Receive approval to proceed with go-live	<input checked="" type="checkbox"/> Confirm successful production exchange	

*Subject to extension in one-week increments to ensure issues are sufficiently resolved to meet IIS expectations. Additional detail about activities within each step is further outlined below.

Step 1. Discovery and Planning

Step 1) discovery and planning, includes 1a) ensure readiness and 1b) onboarding kickoff.

1a. Ensure readiness

Goal: Demonstrate readiness to onboard

Complete the activities in 1a) Ensure readiness to prepare for onboarding and demonstrate readiness to exchange data with the IIS. Table 2 lists additional detail for each of the required activities. Once these activities are completed and as IIS resources allow, you will receive an invitation to participate in an onboarding kickoff call.

If there is a wait list to schedule the onboarding kickoff with the IIS team, organizations will be prioritized based on several considerations, including:

Completion of the readiness activities

- Desired data submission format and transport (bi-directional exchange in HL7 2.5.1 using the CDC WSDL of SOAP Web Services is preferred)
- Participation in the Vaccines for Children (VFC) program
- Volume of immunizations administered
- Number of associated facilities
- Organization type
- Patient population served; and
- Length of time in the onboarding queue

Table 2. Activities to complete in step 1a) ensure readiness

Complete	Activity	Description
<input type="checkbox"/>	Enroll in the IIS here .	Ensure your organization is currently enrolled in the IIS by completing the ALERT IIS Registration Form. Ensure all facilities associated with your organization are also properly enrolled in the IIS.
<input type="checkbox"/>	Ensure base technical capability to support immunization data exchange	Ensure your EHR system is capable of supporting SOAP Web Services using the CDC WSDL and capable of supporting HL7 v2.5.1, release 1.5 immunization messaging . If your EHR product is certified under the ONC Health IT Certification Program ¹ , editions 2015 and 2015 Cures Update, your EHR is capable of supporting submission of data to an

¹ <https://www.healthit.gov/topic/certification-ehrs/certification-health-it>

		<p>IIS and the ability for an EHR user to query the IIS for an evaluated immunization history and forecast, using HL7 v2.5.1 messaging.</p> <p>If your EHR is not certified or you're unsure of its certification status, check with your EHR/technical vendor to ask about these capabilities.</p>
<input type="checkbox"/>	Complete IIS data exchange forms: Registration here and the ALERT IIS Questionnaire here	<p>First, complete the IIS Data Exchange Registration here. Register your intent to exchange data with the IIS. Provide basic information about your organization, your facilities, and your EHR.</p> <p>Once registration is submitted, please complete the IIS Data Exchange Questionnaire here. Provide detailed information about your EHR and data exchange capabilities and your organization's immunization practice to inform data quality testing in the onboarding process.</p>
<input type="checkbox"/>	Prepare for the onboarding process	Review this onboarding guide to understand the steps and activities involved in the onboarding process and expectations of your organization in participating in this process.
Exit Criteria	Receive an invitation to onboard	Completion of the IIS enrollment, the registration for data exchange, the data exchange questionnaire, as well as submission of your self-service testing validation report will place your organization in queue to be invited to an onboarding kickoff call, as IIS resources allow.

1b. Onboarding kickoff

Goal: Confirm commitment to onboard

Step 1b) Onboarding kickoff, initiates activities with IIS staff to onboard to data exchange. Table 3 lists additional detail for each of the required activities associated with this step.

Organizations are expected to be available and responsive from the onboarding kickoff through the remaining steps to complete the onboarding process in a timely manner. This will require regular ongoing correspondence with IIS staff, via email, phone, and/or virtual

meetings, as needed. Provider organizations that are not responsive to IIS outreach/requests during onboarding may be put on hold until sufficient resources are allocated to the project.

Table 3. Activities to complete in step 1b) onboarding kickoff

Complete	Activity	Description
<input type="checkbox"/>	Participate in an onboarding kickoff call	Organization representatives responsible for technical aspects of onboarding as well as those responsible for clinical immunization practice/immunization data quality should attend the onboarding kickoff with IIS staff. The kickoff will provide an opportunity to discuss provider organization readiness, review the onboarding process, discuss onboarding expectations, discuss options around submission of legacy data, and address questions.
<input type="checkbox"/>	Ensure resource allocation	Ensure appropriate and sufficient resources are allocated and committed to working with IIS staff through the remainder of the onboarding process, as outlined in the onboarding kickoff call, to ensure an efficient process.
Exit Criteria	Agree to proceed; commit to onboarding	If you are ready to proceed with the process as outlined in the onboarding kickoff and have resources committed to the project, IIS staff will work with you on the next step.

Step 2. Development and Testing

Step 2) development and testing, includes 2a) establish connectivity and 2b, message and data review.

2a. Establish connectivity

Goal: Establish connectivity with the IIS environment used for testing

Once a provider organization participates in an onboarding kickoff call and commits to proceeding, the next step is to establish connectivity between the EHR and the IIS environment used for testing. Table 4 lists additional detail for each of the required activities associated with this step.

Table 4. Activities to complete in step 2a) establish connectivity

Complete	Activity	Description
<input type="checkbox"/>	Implement credentials to connect with the IIS test environment	IIS staff will provide credentials to establish connectivity with the IIS test environment.
<input type="checkbox"/>	Troubleshoot to resolve issues as needed	Provider organizations are expected to troubleshoot connectivity issues until connectivity is confirmed.
Exit Criteria	Confirm successful connectivity with IIS test environment	IIS staff will work with you to confirm successful connectivity.

2b. Message and data review

Goal: Submit properly formatted messages containing quality data

After connectivity is established, the next step involves testing in the IIS test environment. Testing includes both HL7 message conformance as well as data quality review and validation. Table 5 lists additional details for each of the required activities associated with this step.

To facilitate testing, provider organizations are expected to submit production data (i.e., real patient data) to the IIS test environment using the connection established in the previous step. Use of real patient data gives the best depiction of the quality of exchange between the two systems in production.

Organizations are expected to address issues identified in testing to receive an approval to proceed with go-live.

Table 5. Activities to complete in step 2b) message and data review

Complete	Activity	Description
<input type="checkbox"/>	Submit production messages to the IIS test system for review and validation	See detail below on expectations for testing, including: <ul style="list-style-type: none"> • HL7 message conformance testing • Data quality review and validation; and • Query testing, if applicable
<input type="checkbox"/>	Implement changes and resolve issues as needed to meet expectations	Issues identified in testing can have several different causes and may require changes to the EHR, the interface, and/or workflow. Once changes have been made, messages will be retested to ensure that the issues have been satisfactorily resolved.

		Organizations are required to address these issues and meet expectations as indicated below before receiving an approval to proceed with go-live. Testing will be extended in one-week increments until issues are sufficiently addressed.
<input type="checkbox"/>	Prepare legacy data and submit for data quality review	Legacy data refers to data already held in the EHR system, on patients with previously administered and historical vaccinations known to your organization. Submission of this data to the IIS helps ensure IIS data completeness. See the AIRA guidance document, <i>Importing Legacy Data to Improve IIS Saturation</i> ² for further information.
Exit Criteria	Receive approval to proceed with go-live	Once you have completed these activities, you will receive an approval to proceed with go-live.

HL7 message conformance testing: VXU and/or QBP messaging

Expectations for successful HL7 message conformance testing are noted below. Provider organization and EHR representatives are expected to work in collaboration with IIS staff to resolve issues identified.

- Proper formatting of VXU and/or QBP messages, in alignment with the [National Implementation Guide for Immunization Messaging](#)³
- Inclusion of IIS-specific codes, as appropriate.
 - o ALERT will accept [CDC Issued Vaccine codes](#) in the form of CPT, CVX or NDC codes for administered vaccines.
 - o For patient eligibility coding, Oregon ALERT IIS uses national “V Codes” and has two state specific codes as well. Eligibility codes must be collected for all State supplied vaccines for patients of all ages at the vaccine level.
 - Please see below table for HL7 code translation:

HL7 Code	Patient Eligibility Description
V01	B – Billable/Not Eligible
V02	M - Medicaid, OHP
V03	N - No Insurance

² <https://repository.immregistries.org/resource/importing-legacy-data-to-improve-iis-saturation/>

³ <https://repository.immregistries.org/resource/hl7-version-2-5-1-implementation-guide-for-immunization-messaging-release-1-5-1/>

V04	A - Am. Indian/AK Native
V05	F - Underinsured, FQHC
V07	O - Other State Supplied
ORA01	S - Special Projects
ORA02	L - Locally Owned

- At least two consecutive weeks of messages with minimal critical errors, failures, or significant issues caused by the EHR, as indicated in IIS acknowledgement (ACK) messaging, i.e.,

- No messages resulting in AR (application reject)
- Minimal messages resulting in AE (application error) because of fatal errors i.e., acknowledgement message ERR segments with severity of 'E'
- Minimal messages resulting in AE (application error) because of warnings, i.e., acknowledgement message ERR segments with severity of 'W'

IIS staff will work with you to review the cause of any errors/warnings generated and discuss how to address issues that need correction. See [Appendix C](#) for further information on interpreting ACK messaging

Data quality review and validation: VXU messaging

Expectations for successful data review and validation for data submissions to the IIS are noted below. Provider organization and EHR representatives are expected to work in collaboration with IIS staff to resolve issues identified.

Completeness

- Submission of data from each facility associated with the organization, appropriately identified in the HL7 messages and mapped to the organization/facility record within the IIS.
- Submission reflects appropriate proportion of historical and administered vaccinations, given the organization's immunization practice.
- Submission of key data elements associated with patient immunizations, including:
 - Medical record number/client ID
 - Patient name (first and last)
 - Mother's maiden name (if the patient is a minor)
 - Patient date of birth
 - Patient race
 - Patient ethnicity
 - Patient gender
 - Patient address
 - Patient phone
 - Mother/Father/Guardian, aka next of kin (if the patient is a minor)
 - Vaccination encounter date
 - Vaccine administered product type (CVX/CPT/NDC)

- Administered/historical indicator (unless refused/not administered)
- Submission of key data elements, for administered vaccines:
 - Lot number
 - Vaccine lot expiration date
 - Dosage (administered amount)
 - Manufacturer
 - Dose-level vaccine eligibility, aka vaccine funding program eligibility
 - Vaccine funding source
 - Route
 - Body site

Accuracy

- The volume of vaccines submitted appropriately reflects the organization's immunization practice.
- Vaccines administered by the organization are represented in the data received by the IIS.
- Administered vaccinations have active and specific CVX/CPT/NDC codes.
- Administered vaccinations should not be coded with an "unspecified" CVX code.
- Historic vaccinations have historically correct CVX codes.
- Vaccination encounter date must not be before a patient date of birth.
- Vaccination encounter date must be less than or equal to (before or the same as) the submission date.
- Every administered vaccine should be recorded as a single vaccination event (i.e., a combination vaccine should be recorded as 1 event rather than separate events for each component).
- Vaccination encounter date should not be the same as the patient date of birth, unless it is recommended for administration on the date of birth, e.g., Hepatitis B.
- Manufacturer and CVX/CPT/NDC code should not contradict one another.
- Route and site should not contradict each other for a given vaccine type and patient age.

Depending on data quality review and validation findings, provider organizations may also be asked to participate in patient record review, to compare IIS data to the originating medical record. IIS staff will work with you if needed to complete this record review/chart audit.

Query testing: QBP messaging

Expectations for successful QBP message testing are noted below.

- Submission of 25-50 records via VXU to the IIS test environment, with subsequent 1) query initiated by an EHR user to the IIS test environment and 2) successful IIS response to these queries to retrieve an exact match and patient forecast.

Step 3. Production Approval and Go-Live

Goal: Initiate successful production data exchange

Step 3) production approval and go-live, involves establishing connectivity between the EHR and the IIS production environment, enabling of the production interface, and close monitoring of the new interface in the production environment. Details related to each of these activities is listed in Table 6 below.

Close monitoring of a new production interface helps ensure quality data exchange. If there are significant issues identified at this step, a provider organization may be required to go back to step 2b) message and data review to address.

Table 6. Activities to complete in step 3) production approval and go-live

Complete	Activity	Description
<input type="checkbox"/>	Implement credentials to connect with the IIS production environment	IIS staff will provide credentials to establish connectivity with the IIS production environment.
<input type="checkbox"/>	Enable and monitor the production interface	Initiate the production interface between the EHR and the IIS. See further detail below on monitoring a new production interface.
<input type="checkbox"/>	Clinically confirm query and response messaging, if applicable	For interfaces that include query and response messaging, a physician or clinical user must confirm successful messaging in the production environment. See further detail below on expectations for this clinical confirmation.
<input type="checkbox"/>	Submit legacy data	Work with IIS staff to submit legacy data to help ensure IIS data completeness.
<input type="checkbox"/>	Troubleshoot to resolve issues as needed to meet expectations	Organizations are required to address identified issues and meet expectations as indicated below before close-out of an onboarding project. Post-go-live monitoring will be extended in one-week increments until issues are sufficiently addressed.
<input type="checkbox"/>	Confirm onboarding close	Work with IIS staff to confirm all activities associated with onboarding are complete. Review post-onboarding responsibilities (see Appendix A). Ensure appropriate resources are allocated to ongoing interface monitoring and maintaining quality data submission for the lifetime of the interface.

Exit Criteria	Confirm successful production exchange	Once the production interface meets expectations as outlined you can proceed to the next step, ongoing monitoring.
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Monitoring a newly established production interface

Expectations for successful production interface monitoring are noted below. Provider organization and EHR representatives are expected to monitor and resolve any issues identified, in collaboration with IIS staff.

- At least two consecutive weeks of messages with minimal critical errors, failures, or significant issues caused by the EHR, as indicated in IIS acknowledgement (ACK) messaging, i.e.,
 - No messages resulting in AR (application reject)
 - Minimal messages resulting in AE (application error) because of fatal errors, i.e., acknowledgement message ERR segments with severity of 'E'
 - Minimal messages resulting in AE (application error) because of warnings, i.e., acknowledgement message ERR segments with severity of 'W'

IIS staff will work with you to review the cause of any errors/warnings generated and discuss how to address issues that need correction. See [Appendix C](#) for further information on interpreting ACK messaging.

- Submission of data from each facility associated with the organization, appropriately identified in the HL7 messages and mapped to the organization within the IIS.
- Continued submission of quality data to the IIS production environment (see data quality review and validation expectations in Step 2b).

Clinical confirmation of QBP messaging

Expectations for clinical confirmation (confirmation by a physician or clinical user) are noted below. Provider organization and EHR representatives are expected to work in collaboration with IIS staff to resolve issues identified.

- Clinical confirmation that queries retrieve appropriate matches from the IIS.
- Clinical confirmation that query responses are appropriately displayed and consumed by the EHR.

Step 4. Ongoing Monitoring

Goal of step 4: Ensure successful ongoing data exchange with quality data

The final step of the onboarding process is to transition to ongoing monitoring and maintenance for the lifetime of the interface. Detailed activities associated with this step are outlined in Table 7 below.

Table 7. Activities to complete in step 4) ongoing monitoring

Complete	Activity	Description
ongoing	Conduct ongoing interface maintenance and monitoring	Organizations (and associated facilities) are expected to monitor IIS acknowledgement messages and follow-up on and address errors for the lifetime of the interface. Organizations are also expected to maintain interfaces, by ensuring inclusion of new vaccine codes, for example.
ongoing	Maintain quality data submission	Follow-up on data quality questions and/or concerns as needed. Ensure maintenance of the interface over time, including ensuring new vaccines are incorporated into the interface.

Special Topics

Query only interfaces

A query only interface may be needed to support facilities that don't administer vaccinations but need access to patient histories and vaccine forecasts. This connection is supported through query and response (QBP/RSP) messaging. While a query only interface will still require stakeholders to work together to establish connectivity, the onboarding process may be abbreviated. If you believe a query only connection is appropriate for your organization, please reach out to the IIS to obtain approval and discuss next steps.

Changes to existing interfaces: Re-testing and re-validation

Reach out to the IIS regarding any changes to an existing interface, including:

- Addition of new facilities (who use the same EHR)
- Addition of query messaging to an existing submission interface
- Transition in message format; and/or
- Transition in transport method.

IIS staff will work with your organization to complete re-testing and re-validation in these scenarios.

Re-onboarding

Re-onboarding, or completion of the full onboarding process, is required in certain circumstances, including:

- Transition to a new EHR system; or
- To address a poor-quality interface (as evidenced by connectivity issues, messaging errors, and/or significant data quality concerns).

IIS staff will work with your organization to complete re-onboarding in these scenarios.

Appendices

Appendix A. Onboarding Responsibilities

A successful onboarding process relies on the engagement of representatives from the IIS, the provider organization, and the EHR/technical team. The following table provides general information about the responsibilities of each of the primary stakeholders during and after the onboarding process.

Table 8. Stakeholder responsibilities during and after the IIS onboarding process

Stakeholder	Responsibilities during onboarding	Responsibilities post onboarding (ongoing monitoring)
IIS and immunization program staff	<ul style="list-style-type: none">• Provide general coordination/project management, communication, and customer service.• Provide specific contacts with technical and programmatic expertise.• Provide an appropriate testing/validation platform.• Communicate details about the onboarding process and thresholds for success.• Make onboarding documentation easily accessible/readily available and ensure that it is always up to date.• Provide timely feedback on message conformance and data quality.• Assist with issue identification and troubleshooting.• Manage expectations about process, milestones, and timelines.• Inform stakeholders of any system updates/changes.• Provide input on VFC requirements.	<ul style="list-style-type: none">• Provide training on effective use of the IIS.• Communicate ongoing expectations around maintaining the production interface.• Monitor data feeds for errors.• Notify provider organizations of any changes or outages that may impact existing interfaces. Note: this should be done as early as possible so other partners can properly prepare and execute any changes required on their end.• Continue to post updated documentation as requirements and standards evolve.

<p>Provider organization staff</p>	<ul style="list-style-type: none"> • Complete all necessary enrollment forms/paperwork and engage the EHR vendor to get onboarding resources assigned. • Identify a primary representative to be an active participant in all elements of the onboarding process and attend meetings/conference calls as appropriate. • Provide production or production quality data for testing and validation. • Coordinate appropriate staff for end user testing and troubleshooting. • Identify and resolve issues caused by improper workflows or poor data entry that adversely impact data quality. • Work with EHR vendor or provider organization technical staff to resolve issues with the interface or submitted messages. 	<ul style="list-style-type: none"> • Verify initial setup is correct and data from the EHR is successfully populating the production IIS. • Monitor ACK interface and appropriate EHR/IIS reports to identify changes in volume or quality of messages or anything else that raises red flags about the interface. • Immediately report issues to the IIS and EHR contacts for assistance in troubleshooting. • Correct data entry errors and establish appropriate policies/procedures to address issues with workflow and data quality; train staff as needed. • Communicate with IIS about any system changes/updates or outages that may impact existing interfaces. • Provide updated contact information for staff changes at either the provider organization or EHR vendor. • Notify the IIS of any mergers, acquisitions, or closures. • Keep vaccinating!
<p>EHR/IT vendor/ technical staff</p>	<ul style="list-style-type: none"> • Provide project management and technical expertise (testing and development) on behalf of the EHR team. • Be an active participant in all elements of the onboarding process and 	<ul style="list-style-type: none"> • Assist provider organization with proper configuration of their EHR. • Train provider organization staff on how to monitor their interface (performance and ACKs) and resolve issues or seek assistance as needed.

	<p>attend all meetings/conference calls.</p> <ul style="list-style-type: none"> • Ensure the EHR system aligns with HL7 transport and messaging standards. • Work with IIS to identify, troubleshoot, and quickly resolve any issues with the interface or submitted messages. • Help IIS manage expectations about process, milestones, and timelines with the provider organization. • Assist provider organizations with proper configuration of their EHR. 	<ul style="list-style-type: none"> • Facilitate transition from the onboarding/implementation team to the long-term support team. • Assist with maintaining the connection and monitoring the interface for performance and errors. • Provide technical support to the provider organization and resolve any technical issues. • Maintain conformance with HL7 transport and messaging standards. • Notify provider organization (and possibly IIS) of any changes or outages that may impact existing interfaces.
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Appendix B. Provider Organization IIS Onboarding Checklist

Table 9. Provider organization IIS onboarding checklist

Step/ Activity	Resources	Status
Step 1. Discovery and Planning		
Step 1a. Ensure Readiness		
Enroll in the IIS		
Ensure base technical capability to support immunization data exchange		
Complete the IIS Data Exchange Registration		
Complete the IIS Data Exchange Questionnaire		
Prepare for data exchange with the IIS: review local HL7 requirements		
Demonstrate capability to produce HL7 v2.5.1 messages		
Prepare for the onboarding process		
Step 1b. Onboarding Kickoff		
Participate in an		

onboarding kickoff call		
Ensure resource allocation		
Step 2. Development and Testing		
Step 2a. Establish Connectivity		
Implement credentials to connect with the IIS test environment		
Troubleshoot to resolve issues as needed		
Step 2b. Message and data review		
Submit production messages to the IIS test environment for review and validation		
Implement changes and resolve issues as needed to meet expectations		
Prepare legacy data and submit for data quality review		
Step 3. Production Approval and Go-live		
Implement credentials to connect with the IIS production environment		
Enable and monitor the production interface		
Clinically confirm query and response messaging, if applicable		
Submit legacy data		
Troubleshoot to resolve issues as needed to meet expectations		
Confirm onboarding close		
Step 4. Ongoing Monitoring		
Conduct ongoing interface maintenance and monitoring		
Maintain quality data submission		

Appendix C. Interpreting ACK Messages⁴

MSA-1 Value	Description	National IG Description	Scenario: ERR segment(s) and ERR-4 severity	Understanding of IIS Response	Sender Follow-Up Expectation
AA	Application acknowledgement: accept	Message accepted and processed.	No ERR segments.	Message accepted.	No action needed.
			ERR segment(s) with severity of 'I' for information . (No severity 'W' or 'E' errors).	Message accepted with returned information.	
AE	Application acknowledgement: error	Message accepted and processed, and errors are being reported.	At least one ERR segment with severity of 'W' for warning . (No severity 'E' errors).	Message accepted but there may be issues. These may include non-fatal errors with potential for loss of data.	Take action to correct issue(s) in sending system*.
			At least one ERR segment with severity of 'E' for error (aka fatal error).	Message and/or data rejected. The IIS rejected data that it views as important.	Take action to correct issue(s) in sending system and resubmit. *
AR	Application acknowledgement: reject	Message rejected due to: <ul style="list-style-type: none"> • unsupported message type • unsupported event code • unsupported processing ID • unable to process for reasons unrelated to format or content 	At least one ERR segment with severity of 'E' for error (aka fatal error), with 1 of 4 conditions specified.	Message rejected. The message was not processed.	Take action to correct issue(s) in sending system and resubmit. *

⁴ Adapted from [Guidance for HL7 Acknowledgement Messages to Support Interoperability](#)

*If the cause of the issue is determined to be the sending system. In some cases, the issue may be due to the IIS; work with IIS staff to identify the cause of the issue and appropriate next step.