TEXAS Health and Human Services | Texas Department of State Health Services

Texas Immunization Registry

Bidirectional Data Exchange Onboarding Guide (Syntropi)

Texas Department of State Health Services
Immunization Unit

Stock No. 11-16666
Rev. 04/2023

Contents

Introduction 1
Benefits of the Bidirectional Data Exchange in Syntropi 2
Onboarding Steps for Bidirectional Data Exchange 2
Accessing Bidirectional Data Exchange in Syntropi 2
1. Registration of Intent 5
Overview 5
Bidirectional Registration of Intent 5
Parent Organization 6
Contacts 6
Readiness 8
EHR 8
Authorization to Release Credentials 9
3rd Party Data Aggregation 9
Exchange Method 10
Electronically Signing and Submitting 11
Registration for Query-Only Data Exchange 13
Registration for Update-Only and Bidirectional Data Exchange 13
Choosing a Consent Mode 14
2. Preparation - Message Pre-Testing 15
VXU Update Messages 16
QBP Messages 27
3. Connectivity and Transport 32
4. Pre-Production Testing – Message Validation 34
VXU Test Cases 36
QBP Test Cases 36
Step 1: Submit HL7 Test Messages to ImmTrac2 Test Environment 37
Step 2: Review ACK Messages & Make Corrections 39
Step 3: Download Query Test Cases 39

5. Pre-Production Testing – Data Quality Review 40
Bidirectional and Update-Only Onboarding 40
Submit Test Messages 41
Query-Only Onboarding 47
6. Go-Live – Connectivity and Transport 48
Overview 48
Support 48

This page is intentionally left blank.

Introduction

Parent or standalone organizations (orgs) interested in bidirectional data exchange (BiDX) with the Texas Immunization Registry can indicate their interest and perform BiDX onboarding via the Texas DSHS Immunization Portal (aka Syntropi).

Please refer to the 11-15952 Texas DSHS Immunization Portal Registration Guide, found on our Forms and Documents webpage at https://www.dshs.texas.gov/immunize/immtrac/forms.shtm for instructions on how to indicate interest in establishing a BiDX connection or onboarding with the registry.

The tile (widget) option **Bidirectional Data Exchange** becomes enabled or viewable to parent or standalone orgs once DSHS has approved the parent or standalone orgs ImmTrac2 registration. See *Figure 1: Bidirectional Data Exchange Widget*.

Child or subsites of parent orgs **are not** able to access the new Bidirectional Data Exchange option.

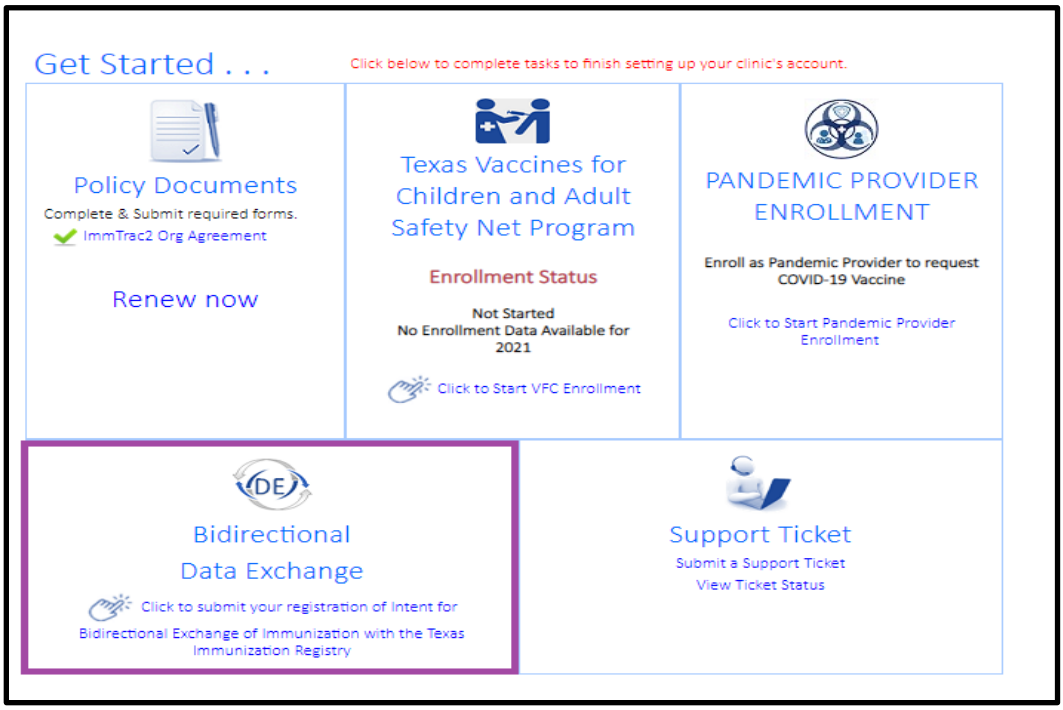


Figure 1: Bidirectional Data Exchange Widget

Benefits of the Bidirectional Data Exchange in Syntropi

By using the Bidirectional Data Exchange widget, parent and standalone orgs can:

- Experience a streamlined process for BiDX onboarding
- Register their sites with the registry and BiDX using the same application
- Submit their registration of intent for BiDX
- Submit test messages for HL7 message validation
- Download test and production WSDL to establish a BiDX interface with the registry
- Receive auto-generated data quality metrics and reports

Additionally, electronic health records (EHR) vendors can track their providers' status for BiDX onboarding.

Onboarding Steps for Bidirectional Data Exchange

A parent or standalone org must complete all the steps below to be fully onboarded for BiDX with the registry.

1. Registration
2. Preparation, Message Pre-Testing
3. Preparation, Connectivity & Transport
4. Pre-Production Testing, Message Validation
5. Pre-Production Testing, Data Quality Review
6. Go-Live, Connectivity & Transport

These steps are outlined in detail in this guide.

Accessing Bidirectional Data Exchange in Syntropi

To access the Bidirectional Data Exchange widget, you must:

1. Login to the HHS Enterprise Portal.
2. Select the **Syntropi – CRC** option under "Applications."
3. Select the **Skip** button to bypass the "Pandemic Provider Enrollment" application. See *Figure 2: Pandemic Provider Enrollment*.

PANDEMIC PROVIDER ENROLLMENT

Enroll to request COVID-19 Vaccine

In order to receive COVID-19 vaccine, you must enroll with Texas DSHS.

You will need to provide the following information to complete enrollment.

- Confirm location and shipping address
- Provide days and times of the week when shipments of vaccine can be received.
- ***PLEASE NOTE:*** *You MUST HAVE at least one (1) day other than a Monday, which has a four (4) hour designated window for delivery of your vaccine shipment. For example: Thursday 8am to 12pm.*

Proof of Vaccine Storage Capacity (On site refrigeration and freezer storage units)

Information needed for each storage unit:

- Storage Unit Location (within the facility)
- Brand and Model
- Storage Capacity (cubic feet)
- Use [Primary, Backup/Overflow, Day Use]
- Refrigerator Type [Under the counter (freezerless), Standalone (freezerless), Combination (Single Control), Combination (Dual Control), Other]
- Refrigerator Grade [Household, Commercial, Medical/Laboratory/Pharmaceutical]
- Freezer Type [Standalone Upright, Standalone Chest, Combination (Single Control), Combination (Dual Control), Other]
- Freezer Grade [Household, Commercial, Medical/Laboratory/Pharmaceutical]

Needed Data Logger Information (for refrigerators, freezer and backup freezer data logger)

- Data Logger Type [Built-In, Digital Data Logger (WIFI), Digital Data Logger (Wired), Other]
- Brand and Model
- Serial Number
- Calibration Expiration Date [Proof for each Data Logger of a calibration certificate not expiring within 60 days of submitting your enrollment request.]
- Copy of the data logger certificate to upload into the enrollment form.

Vaccine Administering Capacity

- This is the number of medical practitioners currently licensed in the state of Texas working in the facility who have Prescribing Authority.

Patient Profile

- Information pertaining to the current patients served in the facility. (ex. Children, Adults and high-risk categories.)

Enroll Now | SKIP

Figure 2: Pandemic Provider Enrollment

4. Locate the Bidirectional Data Exchange widget on the main menu. See *Figure 3: Main Menu - Bidirectional Data Exchange*.

The widget only appears if you are a parent or standalone org, and DSHS has approved your recently submitted registration.

Figure 3: Main Menu - Bidirectional Data Exchange

1. Registration of Intent

Overview

In this section, you will learn to:

- Fill out and sign the Bidirectional Registration of Intent
- Access the BiDX Onboarding menu
- Indicate how your organization will submit registry consent

Note: The Bidirectional Data Exchange widget is only available once ImmTrac2 has approved the parent or standalone organization.

Bidirectional Registration of Intent

Once available, the Bidirectional Data Exchange widget indicates "Click to submit your registration of intent for Bidirectional Exchange of Immunization with the Texas Immunization Registry." See *Figure 4: Link to Begin Bidirectional DX Onboarding*.

Figure 4 - Link to Begin Bidirectional DX Onboarding

Parent Organization

Select "Yes" or "No" to indicate whether your organization will pass on information for other locations. See *Figure 5 – Will Your Organization Pass Info to/for Other Organizations*.

Will your organization report or submit for multiple locations/facilities? (•) Yes ( ) No

Figure 5 - Will Your Organization Pass Info to/for Other Organizations

Contacts

Review your organization's Point of Contact. Note that the point of contact provided will be responsible for ongoing data exchange communications between the organization and the registry. *See Figure 6 – Organization Point of Contact*.

Organization Point of Contact

When the Registration of Intent is received by the Texas Immunization Registry, the person listed below will receive an email with instructions on how to complete the onboarding process for bidirectional data exchange.

Note: The person listed must be an employee of the facility indicated above.

First Name	Last Name	Title	Phone Number	Email
Fred	Sproutz	Manager	(123) 123-1234	FredS@sproutcare.com

Figure 6 - Organization Point of Contact

Next, designate three contacts for data exchange (see *Figure 7 – Three Contacts for Data Exchange*):

- Primary Data Exchange Contact
- Secondary Data Exchange Contact
- Information Technology (IT) Contact

Note that these contacts must be different people with unique email addresses.

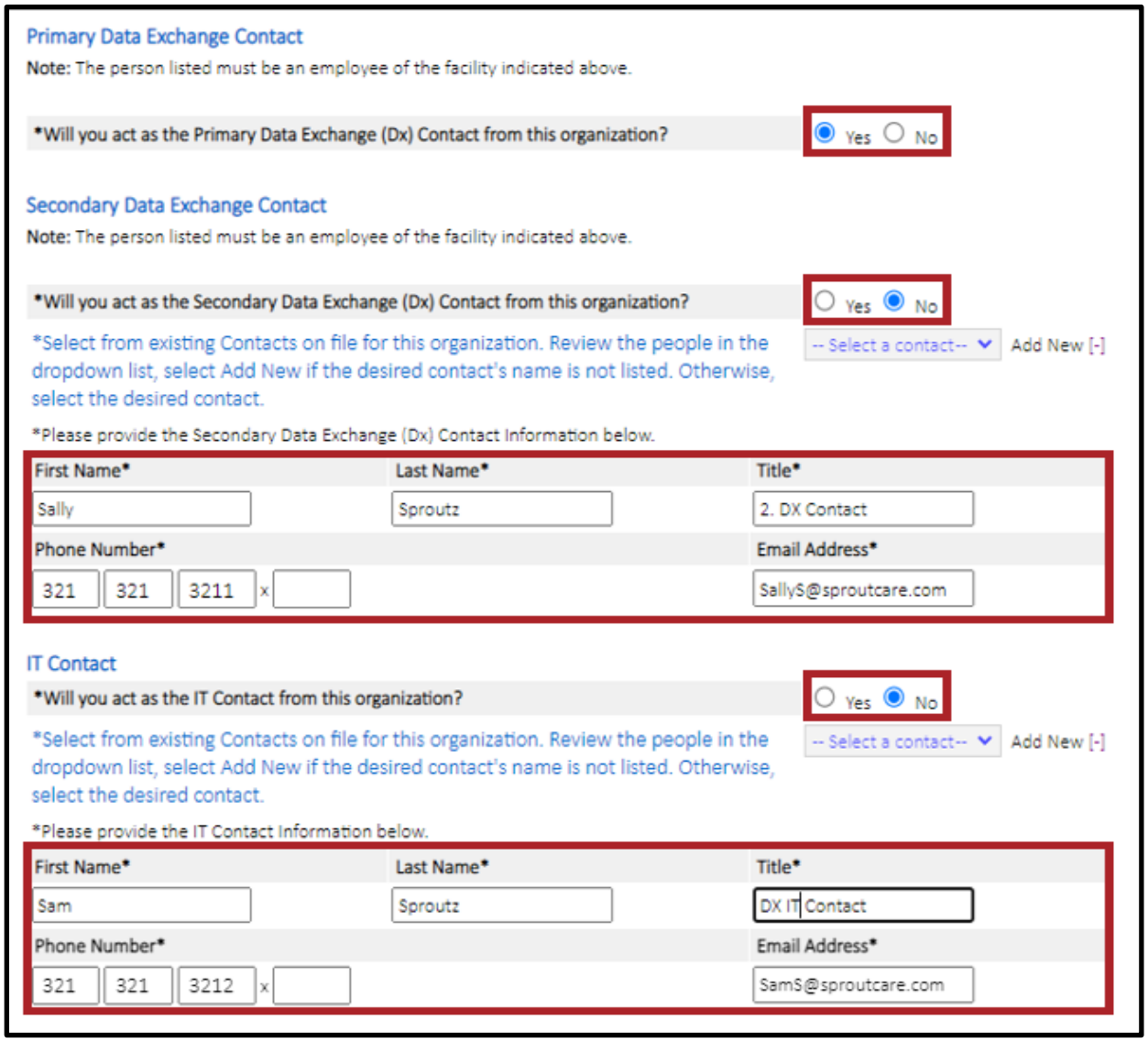


Figure 7 - Three Contacts for Data Exchange

Readiness

Confirm whether you are already submitting HL7 data to ImmTrac2, and whether your facility and EHR can both send and receive data. See *Figure 8 – Readiness*.

*Is your facility currently exchanging HL7 data with the registry?	◉ Yes	○ No
*Are your facility and EHR vendor ready and able to perform bidirectional data exchange?	◉ Yes	○ No

Figure 8 - Readiness

EHR

Fill in details for your EHR solution, including whether they can send HL7 2.5.1 formatted data. See *Figure 9 – Electronic Health Record (EHR) Vendor*.

Electronic Health Record Vendor

Review the current information for your EHR and make updates as needed.

*Select the company name of your EHR Vendor. Allscripts

If your EHR Vendor is not listed, please select OTHER from the list.

*Select the EHR Product used in this location. Allscripts ED Version- 7

*Can the EHR send HL7 2.5.1 formatted data? ◉ Yes ○ No

If your EHR vendor cannot support HL7 2.5.1, your organization cannot proceed with bidirectional data exchange onboarding. Please contact ImmTracMU@dshs.texas.gov for assistance with unidirectional data exchange onboarding.

*Select/Add your Electronic Health Record Contact from the company selected above. Add New [-]

EHR Contact Name (Not in the list above)

First Name	Last Name	Phone Number*				Email Address*
Solomon	Alscrip	565	444	8798	x	solomon@allscripts.com

While entering other contact name for EHR, please enter at least phone number or email address.

Figure 9 - Electronic Health Record (EHR) Vendor

Authorization to Release Credentials

Authorize ImmTrac2 to release your credentials to your EHR vendor. See *Figure 10 – Authorization to Release Your Credentials to Your EHR Vendor*.

Figure 10 - Authorization to Release Your Credentials to Your EHR Vendor

Data Exchange Credentials will only be released to the organization Point of Contact (POC). If you wish to have the registry provide your chosen EHR vendor BiDX credentials you must choose "Yes, I authorize the registry to release the BiDX credentials to the EHR vendor". If you choose "No I DO NOT authorize the registry to release the BiDX credentials to the HER vendor", it will be the responsibility of the organization POC to provide the EHR vendor with BiDX credentials.

3rd Party Data Aggregation

Indicate whether your organization will connect to ImmTrac2 via a 3rd party aggregation bridge. See *Figure 11 – Data Aggregation Bridge*.

A data aggregation bridge acts as a connection to ImmTrac2 where data is sent from your organization's EHR solution to the data bridge, then is forwarded onto ImmTrac2 from the data bridge. For example, the CDC Immunization Gateway (aka the IZ Gateway), Iron Bridge or a Health Information Exchange (HIE).

If 3rd part data aggregation does not apply to your organization, please leave these fields blank.

Figure 11 - Data Aggregation Bridge

Exchange Method

Indicate which method of bidirectional data exchange your facility will use:

- Update-Only, meaning only sending immunization date (see *Figure 12 – Update Only*).

Figure 12 - Update Only

- Query-Only, meaning look up/receive immunization data (see *Figure 13 – Query Only*).

Figure 13 - Query Only

- Update and Query, meaning Bidirectional-both send and receive immunization data (see *Figure 14 – Update and Query*).

Figure 14 - Update and Query

Note that you must be able to perform bidirectional exchange formatted in HL7 2.5.1 to proceed with onboarding. Contact ImmTracMU@dshs.texas.gov for assistance with unidirectional data exchange onboarding.

Electronically Signing and Submitting

To submit your Registration of Intent (see *Figure 15 – Submitting the Registration of Intent*):

1. Review your information.
2. Check the box to verify that you are authorized to sign for your organization.
3. If you are not authorized to sign for your organization, send to the authorized signer to complete registration.
4. Click the **Edit** button to return and revise it, or **Sign & Submit** to proceed. On the next screen check the box to sign electronically and click the **Submit** button.

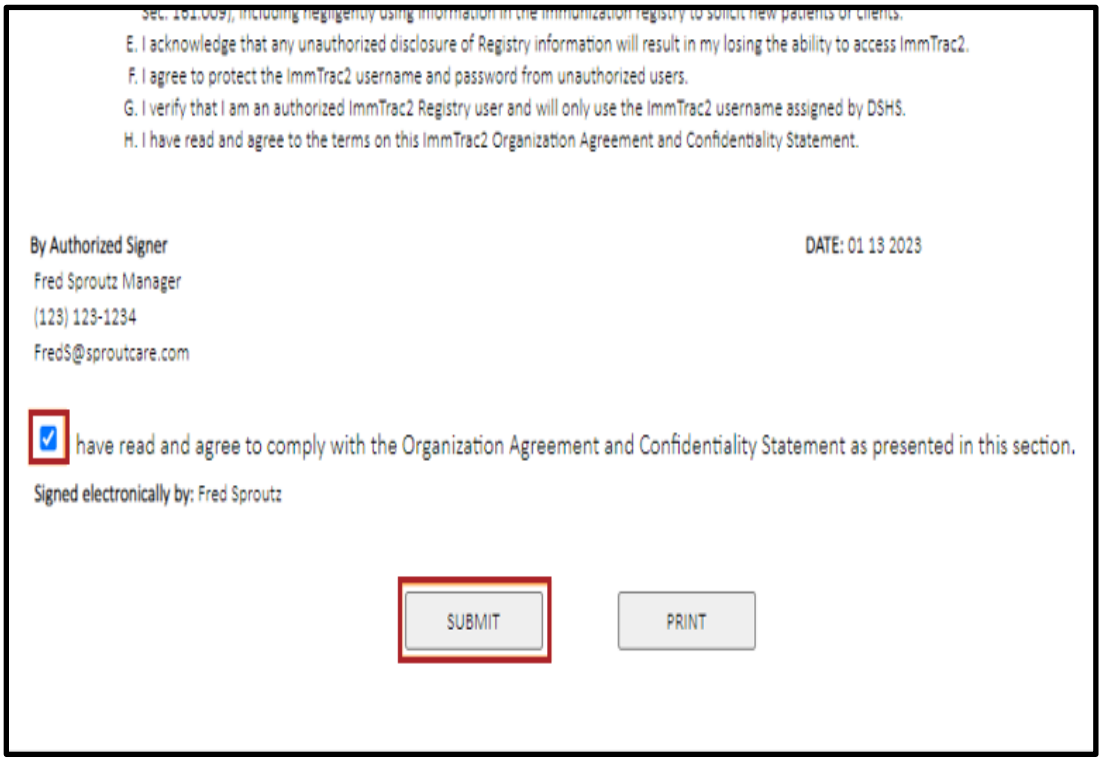


Figure 15 - Submitting the Registration of Intent

After you submit your registration of intent, you will see a confirmation message. Click the **Continue** button (see *Figure 16 – Continue to Onboard*).

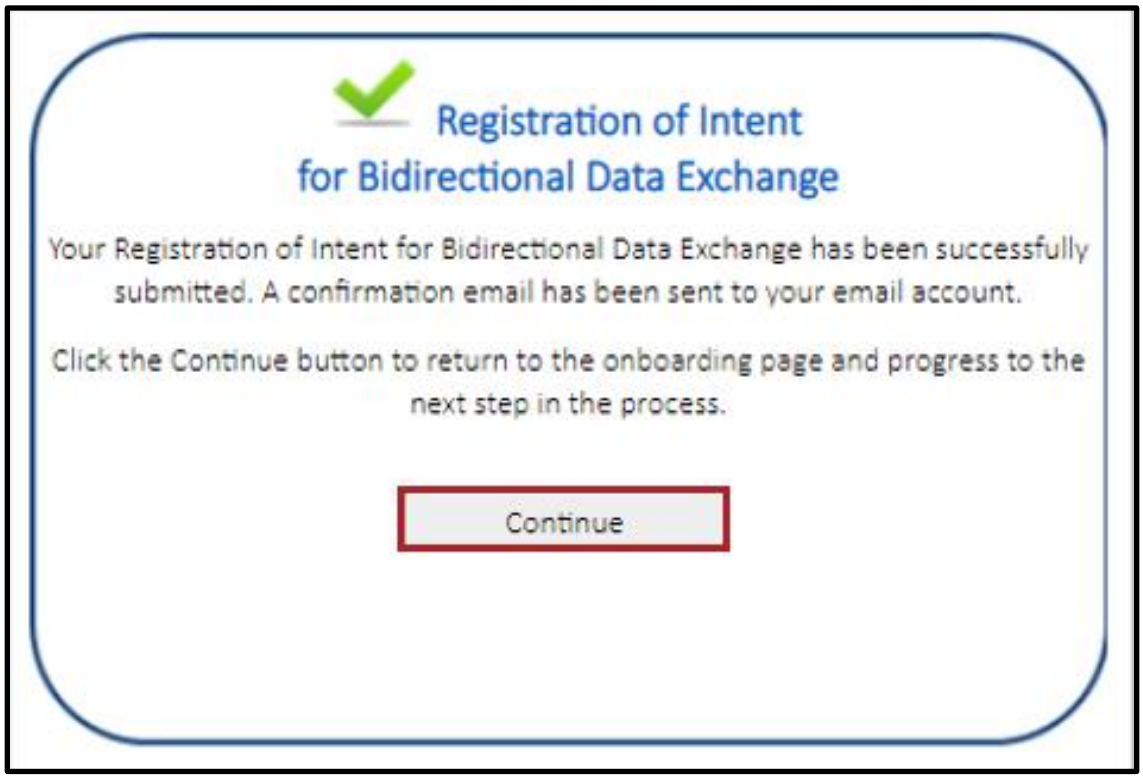


Figure 16 - Continue to Onboard

Registration for Query-Only Data Exchange

On the following screen, for organizations that indicated a Query-Only data exchange connection during registration, you will see that the registration step is already completed, and you can proceed to Onboarding Step 2.

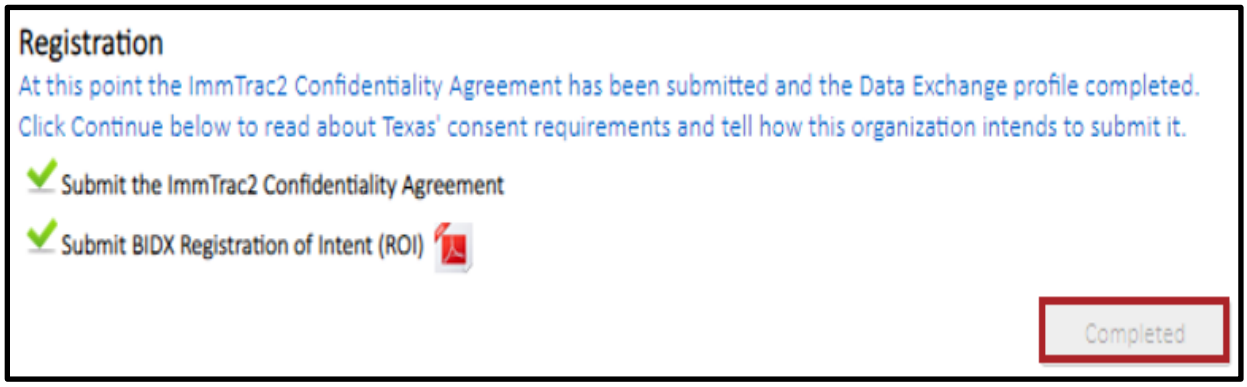


Figure 17 - Registration for Query-Only is Complete

Registration for Update-Only and Bidirectional Data Exchange

For organizations that indicated an Update-Only or a Bidirectional data exchange connection, you will see that the registration step is partially complete now. Click the **Continue** button to designate the mode you will use to submit consent information.

Figure 18 - Registration for Update-Only and Bidirectional is Partially Complete

Choosing a Consent Mode

A patient's written consent (minor and adult) using an official DSHS registry consent form is required for inclusion of all data in the registry, except in the event of a publicly declared disaster. Written consent must be given by a parent or legal custodian if a patient is younger than 18 years of age. Official ImmTrac2 Consent Forms are available on our Department of State Health Services (DSHS) website:

- ImmTrac2 – Minor Consent Form
- ImmTrac2 – Adult Consent Form
- ImmTrac2 – Disaster Retention Information Consent Form

The signed registry consent form must be archived with the provider's office and in the patients' medical records after your organization has reported the registry consent to ImmTrac2 via one of the below methods.

Do NOT send (by fax, mail, or email) the signed registry consent forms to the registry for storage or processing.

Please review the Texas Immunization Registry – Consent Overview to understand Texas' unique registry consent legislation and requirements.

- **Flat File:** Separate from HL7 submissions to ImmTrac2 and follows the Electronic Standards for Affirmation of Registry Consent.
- **HL7 Submission:** Included in updates from your electronic health record's HL7 submission to ImmTrac2 and follows the standards for Affirmation of Registry Consent via Health Level Seven. This is the preferred option for BiDX onboarding but is dependent on your EHR's capabilities to support Texas' unique registry consent values.
- **Manually:** Manually entered the ImmTrac2 online application by a staff member from your organization.
- Select the consent mode for your organization, then click the **Save & Continue** button.

Note: Flat File and Manually reporting methods are not recommend for BiDX onboarding. If Flat File or Manual methods of reporting registry consent apply to your organization, please email ImmTracMU@dshs.texas.gov for further assistance.

2. Preparation - Message Pre-Testing

Note: For Bidirectional (Update and Query) onboarding, you will need to pass pre-testing for both VXU update and QBP messages. For Update-Only or Query-Only onboarding, you only need to pass pre-testing for only the connection type selected.

This section of the onboarding allows your organization to manually upload test HL7 messages to ensure they are formatted to comply with the Texas' and CDC's HL7 Message Requirements. You are responsible for creating your own HL7 (VXU and QBP) messages that will be validated through this section.

We strongly recommend coordinating with your EHR vendor to obtain HL7 messages that can be used for pre-testing. Pre-testing files are not submitted to the registry but are validated by the Syntropi application based on the Texas' and CDC's HL7 Implementation Guides. Test files must be in .hl7 or .txt format. Any files uploaded are changed to protect patient identifiable information (i.e., the patient information is de-identified).

To successfully complete pre-testing, you must submit one error free messages of the following:

- Historical VXU
- New VXU
- QBP

In the section, organizations will learn how to:

- Upload HL7 test messages
- Run the validation of HL7 test messages
- Identify if HL7 test messages marked as passed or failed
- Identify the HL7 segments and/or fields that require correction

To successfully complete pre-testing and testing, your organization will need to be familiar with the following resources. All are available on our Forms and Documents webpage at https://www.dshs.texas.gov/immunize/immtrac/forms.shtm:

- Texas Immunization Registry HL7 2.5.1 Implementation Guide
- Texas Immunization Registry HL7 2.5 1 Error Guide

- Informational Guide on Bidirectional Data Exchange
- Affirmation of Registry Consent via Health Level Seven
- Electronic Standards for Affirmation of Registry Consent

VXU Update Messages

To pass pre-testing for VXU update messages, your organization must submit a valid historical immunization and a valid new immunization message.

1. Click the **Begin** button to start HL7 message pre-testing. See *Figure19–Message Pre-Testing*.

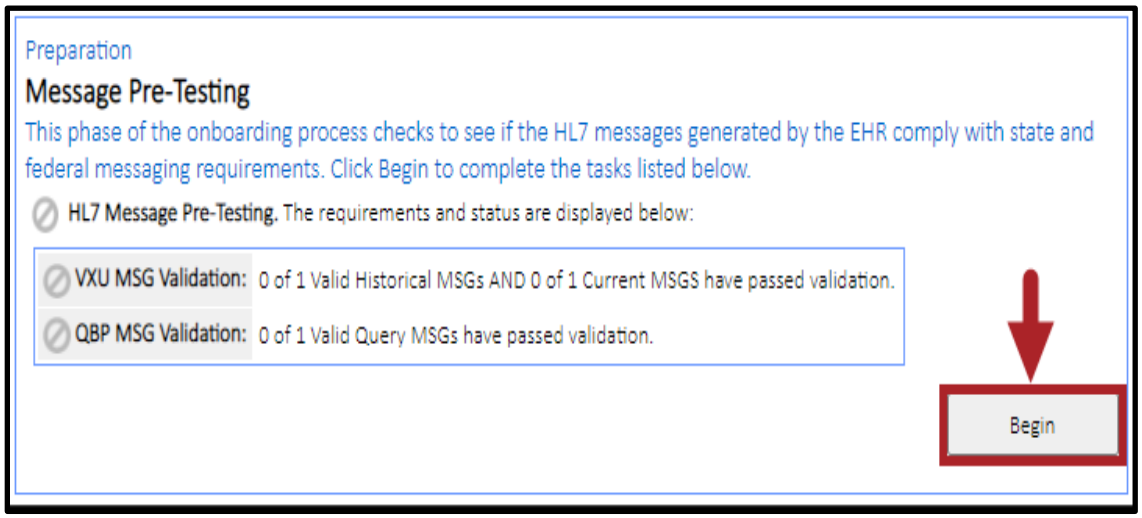


Figure 19 - Message Pre-Testing

2. You are taken to the **HL7 Validation Tool** to where you can upload HL7 messages for testing and validation. Generate a sample HL7 VXU message from the Electronic Health Record Solution. Click the "**Upload New File**" button. See *Figure 20 – VXU- Validation Status*.

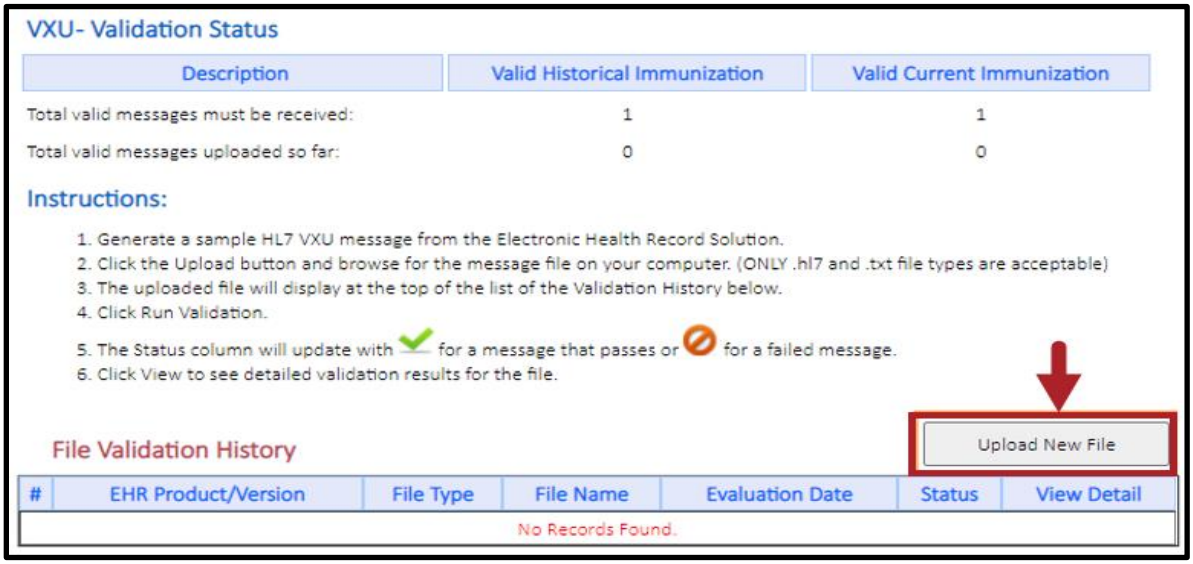


Figure 20 - VXU Validation Status

3. The **Upload New File** page displays, allowing you to choose the following, see Figure 21: HL7 Message Type:

   a. HL7 Message Type to be uploaded: VXU or QBP

   b. What EHR-Product-Version the file was generated from

   c. Choose the file to be uploaded

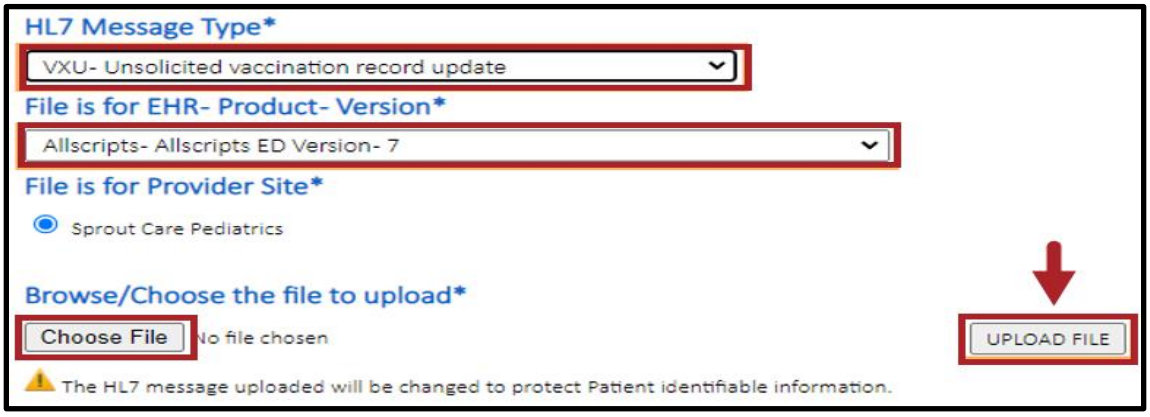


Figure 21 - HL7 Message Type

4. If submitting a VXU test file, then no changes are needed as the HL7 Message Type default. Click the Choose File button to browse files on your computer to locate the file you want to upload.

   a. Once you have located the HL7 file you want to upload, select the HL7 test file and press the OK button.

      Your file is attached to the application. You can now see the name of your file listed next to the Choose File button. See *Figure 22: Chosen File Listed*.

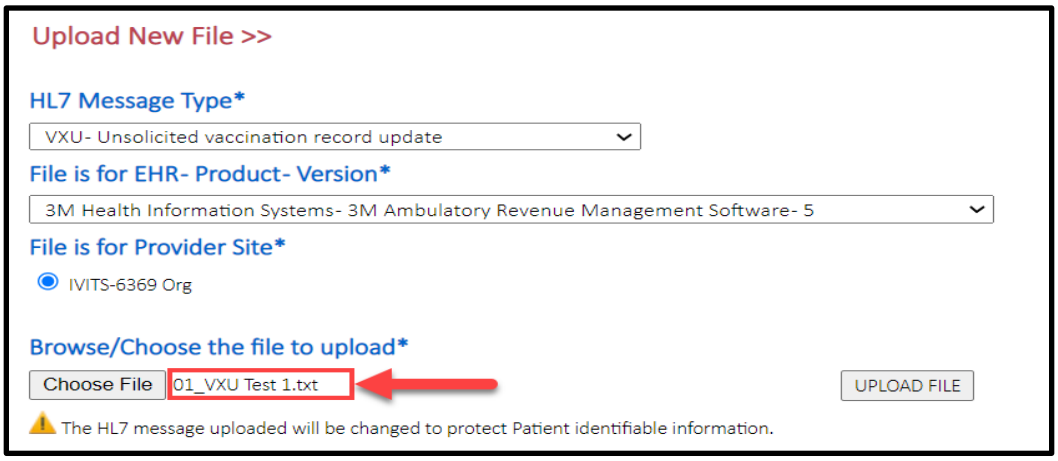


Figure 22: Chosen File Listed

5. Select the **Upload File** button to upload the test file for validation. See *Figure 23: Upload Test File*.

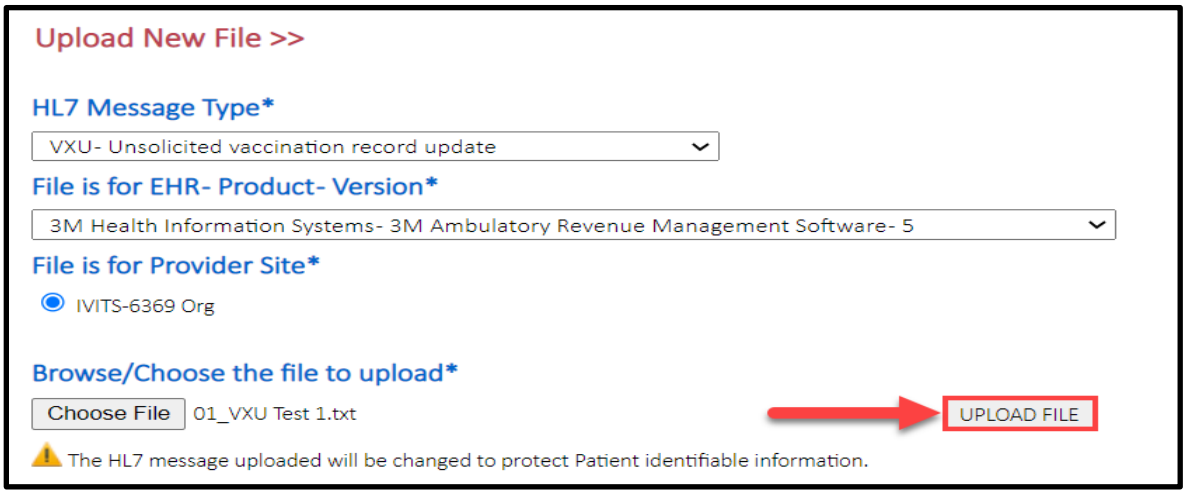


Figure 23: Upload Test File

6. You are taken to the **File Validation History** screen, which displays all the test files uploaded. In this case, you see only the first test file uploaded. Select the **Run Validation** hyperlink, under the View Detail column, to validate the uploaded test file. See *Figure 24: Run Validation*.

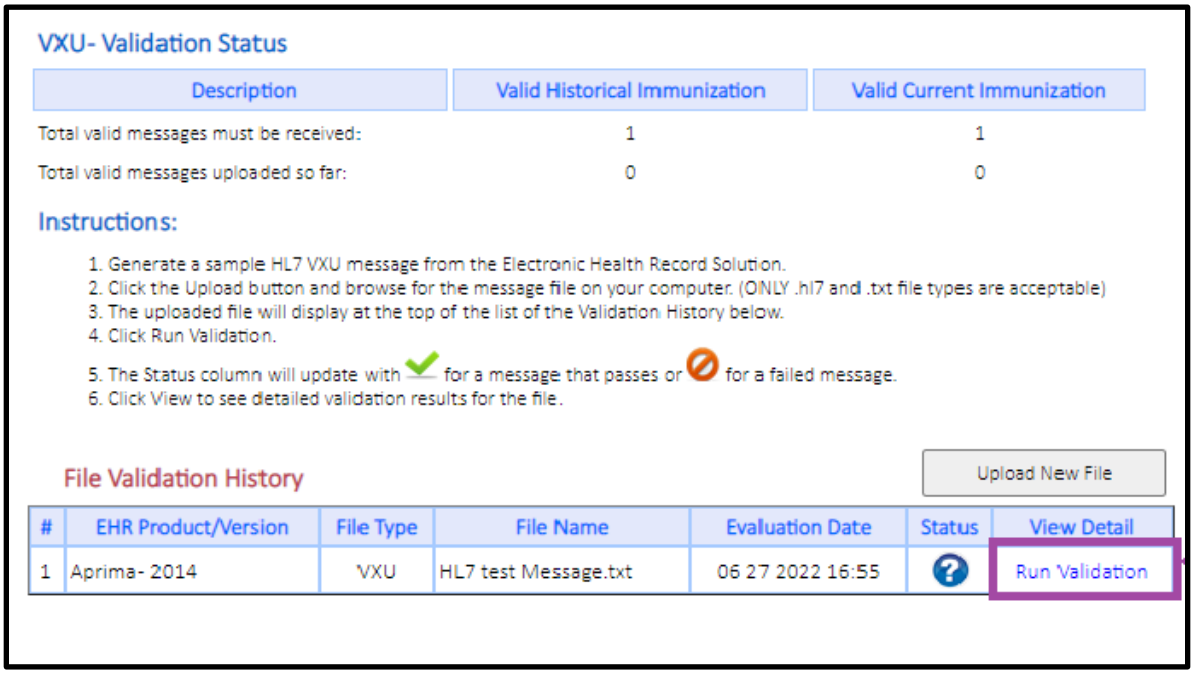


Figure 24: Run Validation

The file is validated, for a temporary moment the View Detail column displays "In progress…" indicating the validation is occurring.

7. At the top of the File Validation History screen, is a validation summary of the file. The summary will indicate either Validation Failed or Validation Passed. See *Figure 25: View Validation Results*. Select the **View Error Report** button to view the detailed validation results of the uploaded test file.

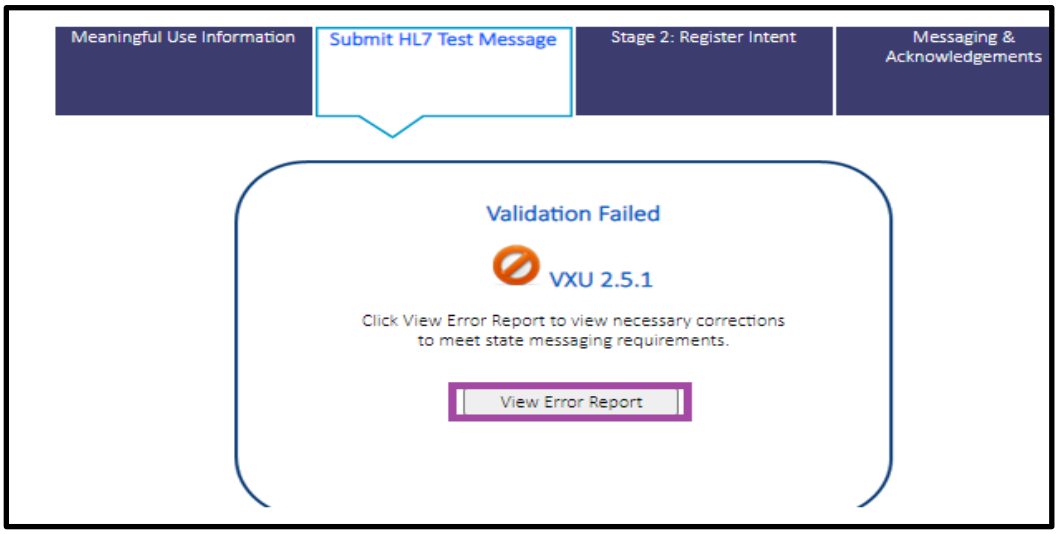


Figure 25: Viewing Validation Results

8. You are given a high-level detailed summary of the validation results. See *Figure 26: Message Summary Described*.

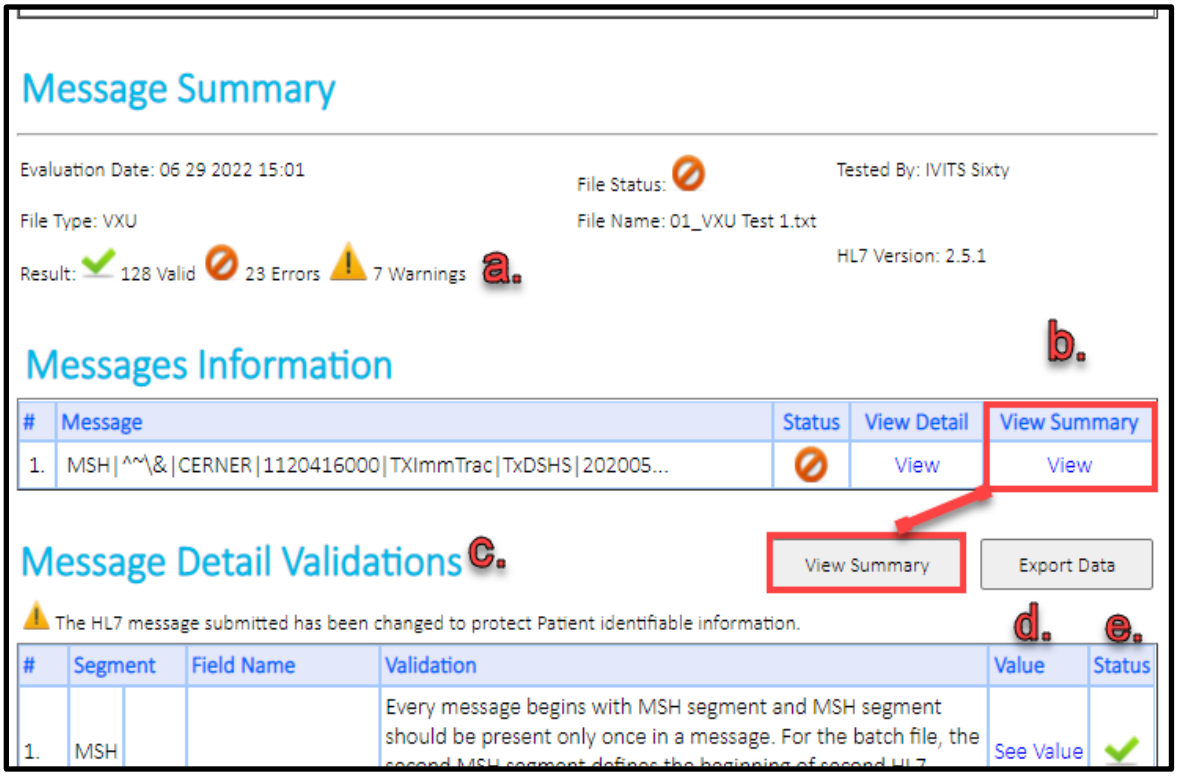


Figure 26: Message Summary Described

- The **Result** area in the above screenshot shows the summarized results of how many segments/fields were valid, had error or had warnings.
- The **View Summary** area in the above screenshot (either the hyperlink or button) shows the specific hl7 segments/fields that had error or warnings as summarized in the Results.
- The **Message Detail Validation** area in the above screenshot provides a breakdown of each field and indicates if the submitted value is valid.
- The **Value** column in the above screenshot provides a pop-up window showing the value you reported in the test file for each row.
- The **Status** column in the above screenshot, , provides an icon summarizing pass, fail or warning results.

Under the Message Detail Validations section of the summary you are given a breakdown of each segment and field, provided the value that was in your test file and a status icon. See *Figure 27: Message Summary Columns*.

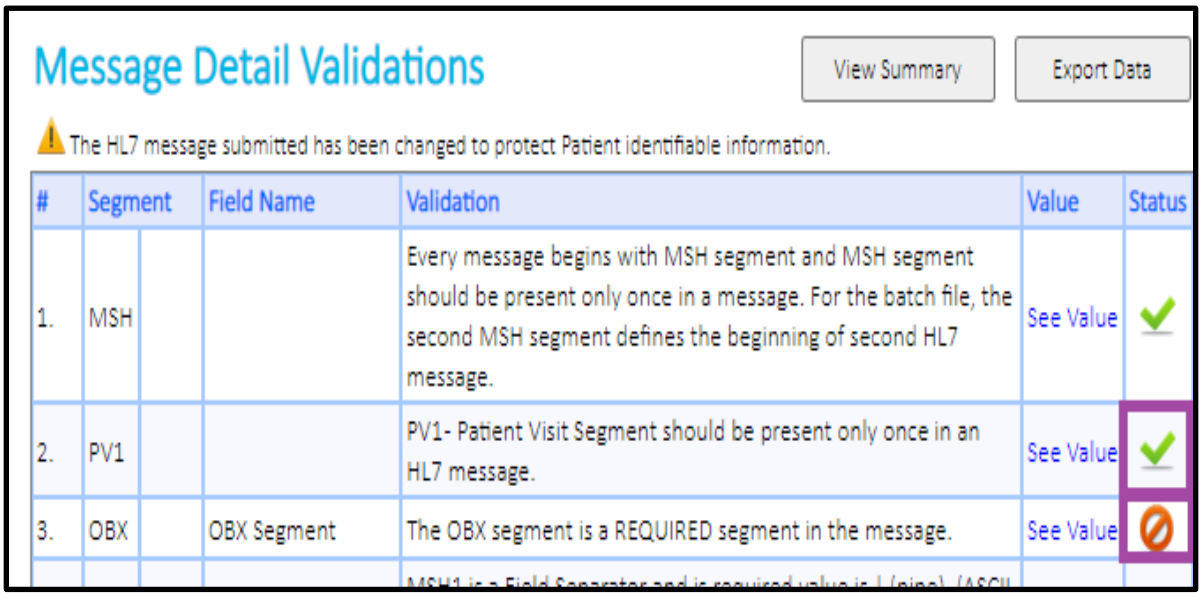


Figure 27: Message Summary Columns

Description of columns:

- The first column, #, identifies a unique number for each segment/field captured in the message reported.
- The second column, Segment, identifies the HL7 segment for the item validated.
- The third column, Field Name, identifies the specific field in the listed segment validated.
- The fourth column, Validation, provides a description of the validation that is performed on that specific field.
- The fifth column, Value, contains the value that was reported in the specific message. By clicking the **See Value** hyperlink, you can see what you reported in that field/segment.
- The sixth column, Status, provides an icon summarizing pass, fail, or warning results.
    - The green checkmark indicates a pass of data quality review with no error or warning.
    - The orange-reddish circle with a slash icon indicates a failure of data quality review. A failure indicates data must be corrected and resubmitted.
    - The yellow caution icon indicates a warning of data quality review.
- Click the Export Data button to download an annotated copy of the message. See *Figure 28: Export Option*.

Messages Information

#	Message	Status	View Detail	View Summary
1.	MSH|^~\&||1122635011|TXImmTrac|TxDSHS|201608051025...	✔	View	View

Message Detail Validations

View Summary | Export Data

⚠ The HL7 message submitted has been changed to protect Patient identifiable information.

#	Segment		Field Name	Validation	Value	Status
1.	MSH			Every message begins with MSH segment and MSH segment should be present only once in a message. For the batch file, the second MSH segment defines the beginning of second HL7 message.	See Value	✔
2.	MSH	1	Field separator	MSH1 is a Field Separator and is required value is | (pipe), (ASCII 124).	See Value	✔
3.	MSH	2	Encoding characters	MSH-2 Encoding Characters is required. This field contains the four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. Required values are ^~\& (ASCII 94, 126, 92, and 38, respectively).	See Value	✔
4.	MSH	2	Encoding Characters	The content of this field is valid.	See Value	✔
5.	MSH	4	Sending Facility	MSH-4 Sending Facility is Required.	See Value	✔
6.	MSH	4	Sending Facility	MSH-4 Sending Facility must be a 9 digit numeric value.	See Value	✔
7.	MSH	5.1	Receiving Application	MSH-5.1 is required. Content of the first component MUST BE populated with "TXImmTrac".	See Value	✔

Figure 28 – Export Option

Select the **View Summary** button to see an overview of the errors and warnings detected in the submitted test HL7 message. See *Figure 29: View Summary Selected*.

Message Detail Validations

View Summary | Export Data

The HL7 message submitted has been changed to protect Patient identifiable information.

#	Segment		Field Name	Validation	Value	Status
1.	MSH			Every message begins with MSH segment and MSH segment should be present only once in a message. For the batch file, the second MSH segment defines the beginning of second HL7 message.	See Value	✓
2.	PV1			PV1- Patient Visit Segment should be present only once in an HL7 message.	See Value	✓
3.	RXR		RXR	RXR segment is required.	See Value	⚠
4.	OBX		OBX Segment	The OBX segment is a REQUIRED segment in the message.	See Value	⊘
				MSH1 is a Field Separator and is required value is | (pipe), (ASCII		

Figure 29: View Summary Selected

Focus on reviewing the errors and warnings listed in this section as they need to be corrected. See *Figure 30: Warning and Errors Analysis*. Passing segments are not shown.

Message Summary

Evaluation Date: 06 27 2022 16:55
File Type: VXU
Result: 97 Valid ⊘ 18 Errors ⚠ 5 Warnings

File Status: ⊘
File Name: HL7 test Message.txt

Tested By: Bidx Interface
HL7 Version: 2.5.1

Messages Information

#	Message	Status
1.	MSH|^~\&|READYSET|1146780024|TXImmTrac|TxDSHS|2021...	⊘

Errors

#	Segment		Field Name	Validation	Status
1.	RXA	4	Administration End Date	RXA-4: Administration End Date MUST equal value provide for Date/time start of administration in RXA-3.	⊘
Value Sent:					
2.	PID	22.1	Ethnicity	PID-22.1 Ethnicity Code, if populated, is validated for value sent from HL7 table 0189. This field further defines the patient's ancestry.	⊘
Value Sent: Unknown					
3.	PD1	16	Immunization Registry Status	Immunization Registry Status is Required, but May be Empty. It identifies the current status of the patient in relation to the sending provider organization. The term "sending provider" refers to the organization that is accountable for the content of the message.	⊘

Figure 30: Warning and Errors Analysis

Continue to repeat the steps outlined in this section, Message Pre-Testing, to address all errors and warnings.

QBP Messages

To pass pre-testing for QBP messages, your org must submit a valid query message. Click the **Upload New File** button again to upload a QBP message.

1. Click the **Begin** button to start HL7 message pre-testing. See *Figure 31 – QBP Message Pre-Testing*.

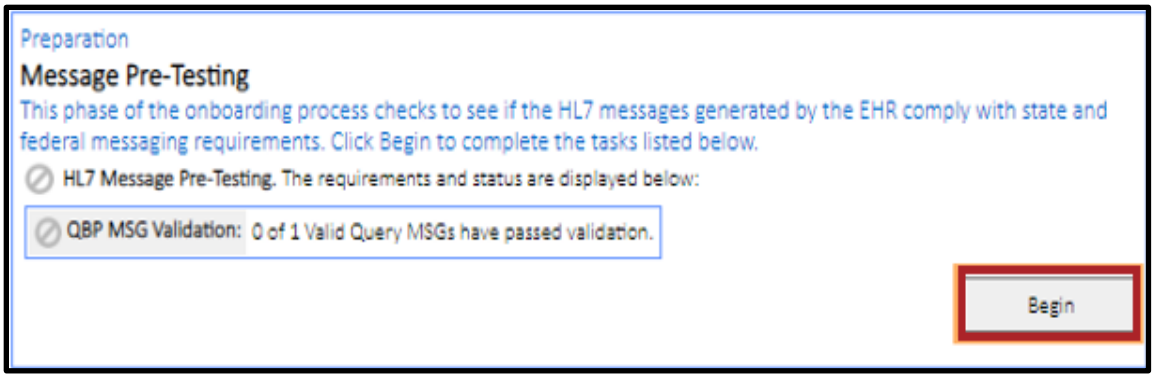


Figure 31 - QBP Message Pre-Testing

2. Generate a sample HL7 QBP message from the Electronic Health Record Solution.
3. Click the **Upload New File** button and browse for the message file on your computer. (ONLY .HL7 and .txt file types are acceptable)

Figure 32 - Upload New File

4. On the following view, set the message type to QBP, then choose and upload the test message file. See *Figure 33 – Set Message Type to QBP and Upload File*.

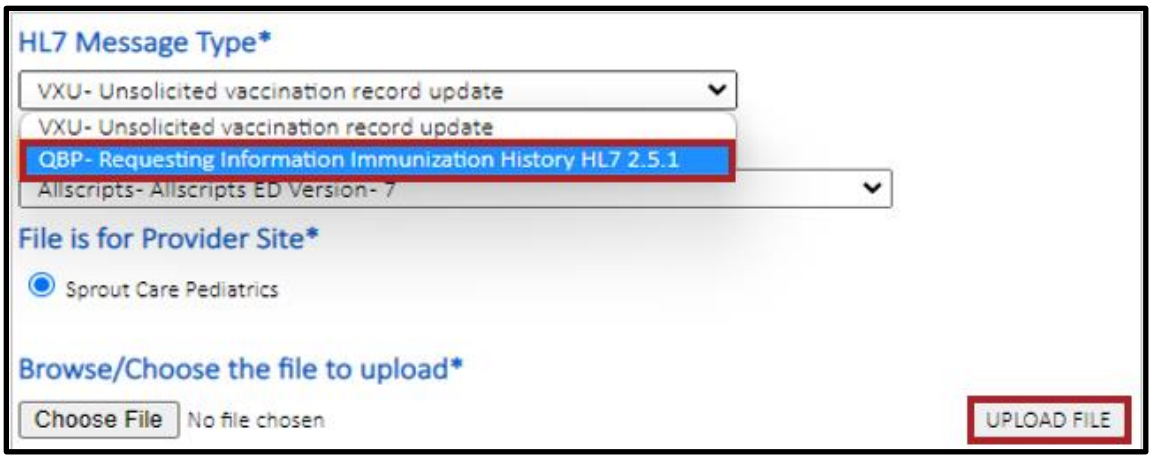
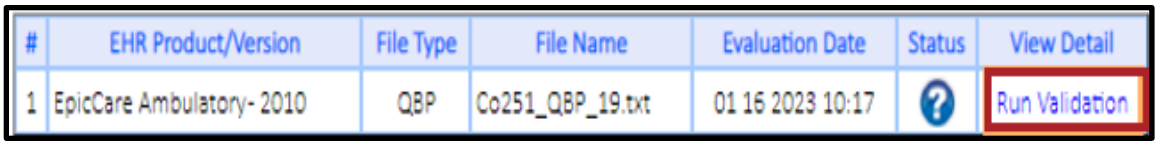


Figure 33 - Set Message Type to QBP and Upload File

5. The uploaded file will display at the top of the list of the Validation History below. Click the **Run Validation**. See *Figure 34 – QBP Run Validation*.



#	EHR Product/Version	File Type	File Name	Evaluation Date	Status	View Detail
1	EpicCare Ambulatory- 2010	QBP	Co251_QBP_19.txt	01 16 2023 10:17	?	Run Validation

Figure 34 - QBP Run Validation

The Status column will update with Passed for a message that passes or Failed for a failed message. See *Figure 35 – QBP Failed Validation* and *Figure 36 – QBP Passed Validation*.

Failed

#	EHR Product/Version	File Type	File Name	Evaluation Date	Status	View Detail
1	EpicCare Ambulatory- 2010	QBP	Co251_QBP_19.txt	01 16 2023 10:17		View

Figure 35 - QBP Failed Validation

Passed

#	EHR Product/Version	File Type	File Name	Evaluation Date	Status	View Detail
1	EpicCare Ambulatory- 2010	QBP	Co251_QBP_19.txt	01 16 2023 10:17		View

Figure 36 - QBP Passed Validation

Click the **View** link to see detailed validation results for the file.

On the following view, you can select to view the detailed view or the summary view. See *Figure 37 – Select Detailed View or Summary View*.

#	Message	Status	View Detail	View Summary
1.	MSH|^~\&|EZEMRX|10|TXImmTrac|TxDSHS|20200817052424...		View	View

Figure 37 - Select Detailed View or Summary View

The detailed view allows you to see which segments passed validation and allows you to click to see a specific value. See Figure 38 – Detailed View of Validation Results. Click the **Export Data** button to download an annotated copy of the message.

Messages Information

#	Message	Status	View Detail	View Summary
1.	MSH|^~\&||1122635011|TXImmTrac|TxDSHS|201608051025...	✓	View	View

Message Detail Validations

View Summary | Export Data

⚠ The HL7 message submitted has been changed to protect Patient identifiable information.

#	Segment		Field Name	Validation	Value	Status
1.	MSH			Every message begins with MSH segment and MSH segment should be present only once in a message. For the batch file, the second MSH segment defines the beginning of second HL7 message.	See Value	✓
2.	MSH	1	Field separator	MSH1 is a Field Separator and is required value is | (pipe), (ASCII 124).	See Value	✓
3.	MSH	2	Encoding characters	MSH-2 Encoding Characters is required. This field contains the four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. Required values are ^~\& (ASCII 94, 126, 92, and 38, respectively).	See Value	✓
4.	MSH	2	Encoding Characters	The content of this field is valid.	See Value	✓
5.	MSH	4	Sending Facility	MSH-4 Sending Facility is Required.	See Value	✓
6.	MSH	4	Sending Facility	MSH-4 Sending Facility must be a 9 digit numeric value.	See Value	✓
7.	MSH	5.1	Receiving Application	MSH-5.1 is required. Content of the first component MUST BE populated with "TXImmTrac".	See Value	✓

Figure 38 - Detailed View of Validation Results

The summary view gives higher level view of the message's status broken down into errors and warnings (see *Figure 39 – Errors and Warnings*). Passing segments are not shown.

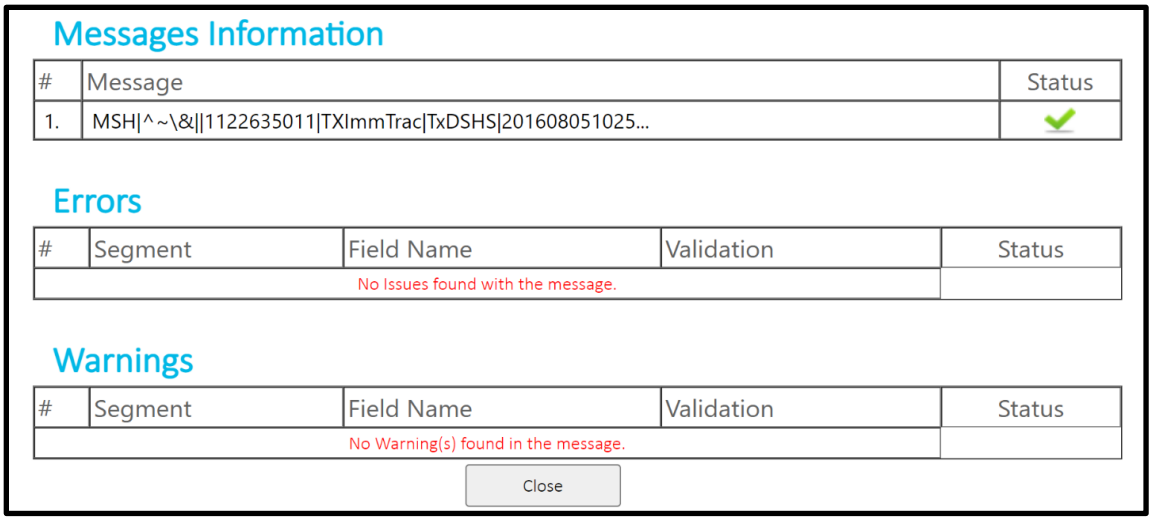


Figure 39 - Errors and Warnings

Click the **Close** button to return to upload more messages.

When you have passed the message type requirements specific to your organization, you can proceed to the next onboarding step.

Note: In bidirectional (Update and Query) onboarding, you will have to pass both message type requirements to proceed to onboarding step 3. VXU update and QBP only connections will display only the message validation necessary for that connection. (*see Figure 40 – Message Pre-Testing for Bidirectional Onboarding*)

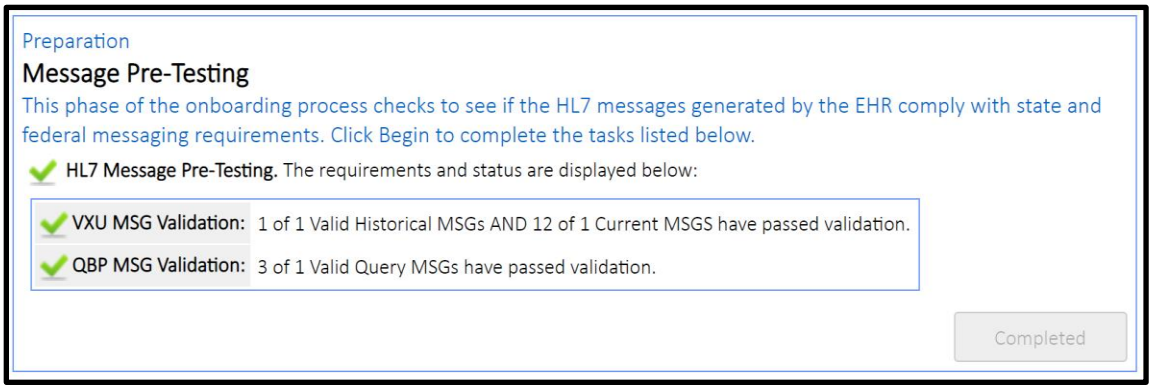


Figure 40 - Message Pre-Testing for Bidirectional Onboarding

3. Connectivity and Transport

For Update-Only, Query-Only, and Bidirectional onboarding, click the **Begin** button to start Step 3. See *Figure 41 – For Update-Only, Query-Only, and Bidirectional Onboarding – Begin Connectivity and Transport*.

IMPORTANT: This step will be simplified if you connect through a 3rd party aggregation system like an IDNS or HIE. You will not need to download the WSDL file or establish the test interface.

In this section you will be able to:

- Download the WSDL to connect to the ImmTrac2 testing environment
- Establish an electronic data exchange interface for testing needs
- Validate whether you successfully connected to the registry's test environment

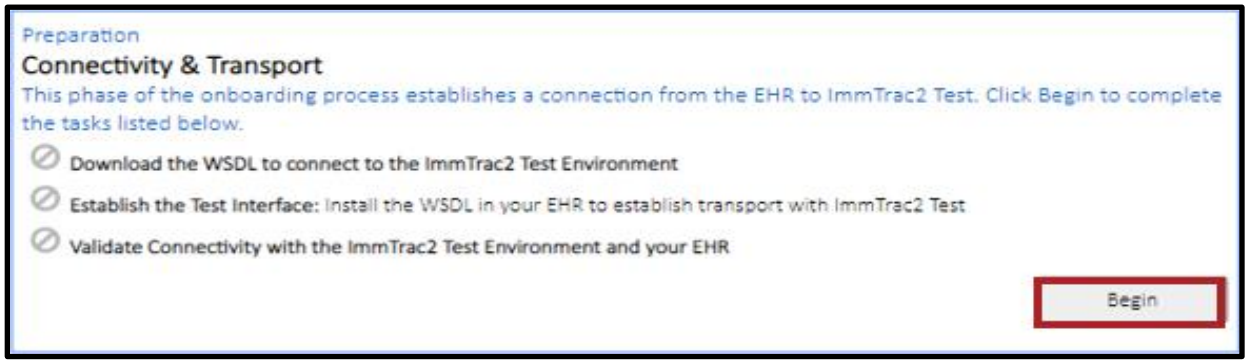


Figure 41 - For Update-Only, Query-Only, and Bidirectional Onboarding – Begin Connectivity and Transport

Click the link to **Download** the WSDL file to set up your test connection to the ImmTrac2 Test environment.

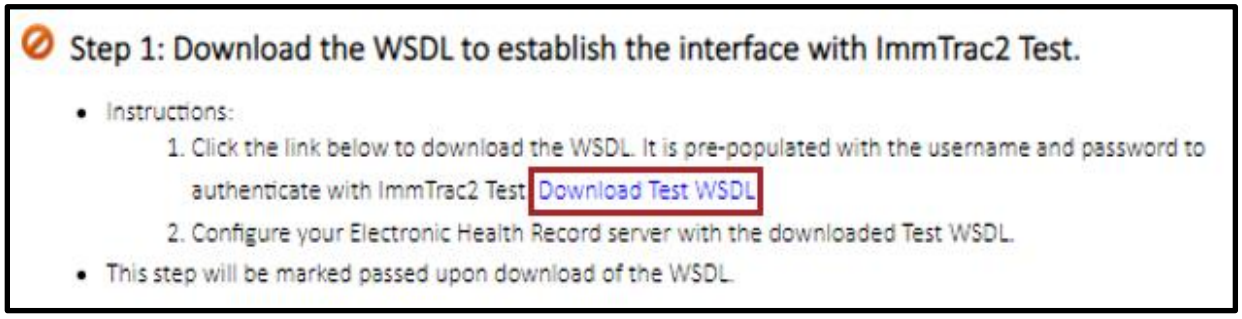


Figure 42 - Download the Test WSDL File

To establish the test interface, configure your EHR with the WSDL settings and then begin submitting HL7 test messages. The system will monitor messages received and mark this step as passed upon the first successful message received indicating connectivity has been established between ImmTrac2 Test and your EHR.

1. Once configured, your organization must submit one test hl7 message to determine if you are successfully connected to the registry's test environment.

   a. A successful connection returns an hl7 response back based on the submitted test message.

   b. An unsuccessful connection returns a response back of "Credential check failed" or an xml message indicating there is an issue. To troubleshoot, please contact our Interoperability Team for technical support.

   c. Note – Only VXU messages sent with consented clients or QBP's will trigger the step "Validate Connectivity with the ImmTrac2 Test Environment and your EHR." To reflect as passed. See Figure 41: For Update Only, Query Only, and Bidirectional Onboarding – Begin Connectivity and Transport.

This section is marked as pass upon successfully connecting to the registry's test environment using the test WSDL.

4. Pre-Production Testing – Message Validation

To begin pre-production testing download the VXU Test Cases and QBP Test Cases document. If you require only VXU update or QBP connections, the associated message validation window and test cases document will display only.

In this section you will be able to:

- Submit test HL7 message
- Identifies if the test HL7 messages pass or fail based on ACK response
- Review ACK breakdown for pass rate
- Download the query test cases
- Complete pre-production testing

Follow and fill in the Test Cases form, and then click the **Choose File** button to select and the **Upload** button to upload the document. See *Figure 43 – Pre-Production Testing – Message Validation*.

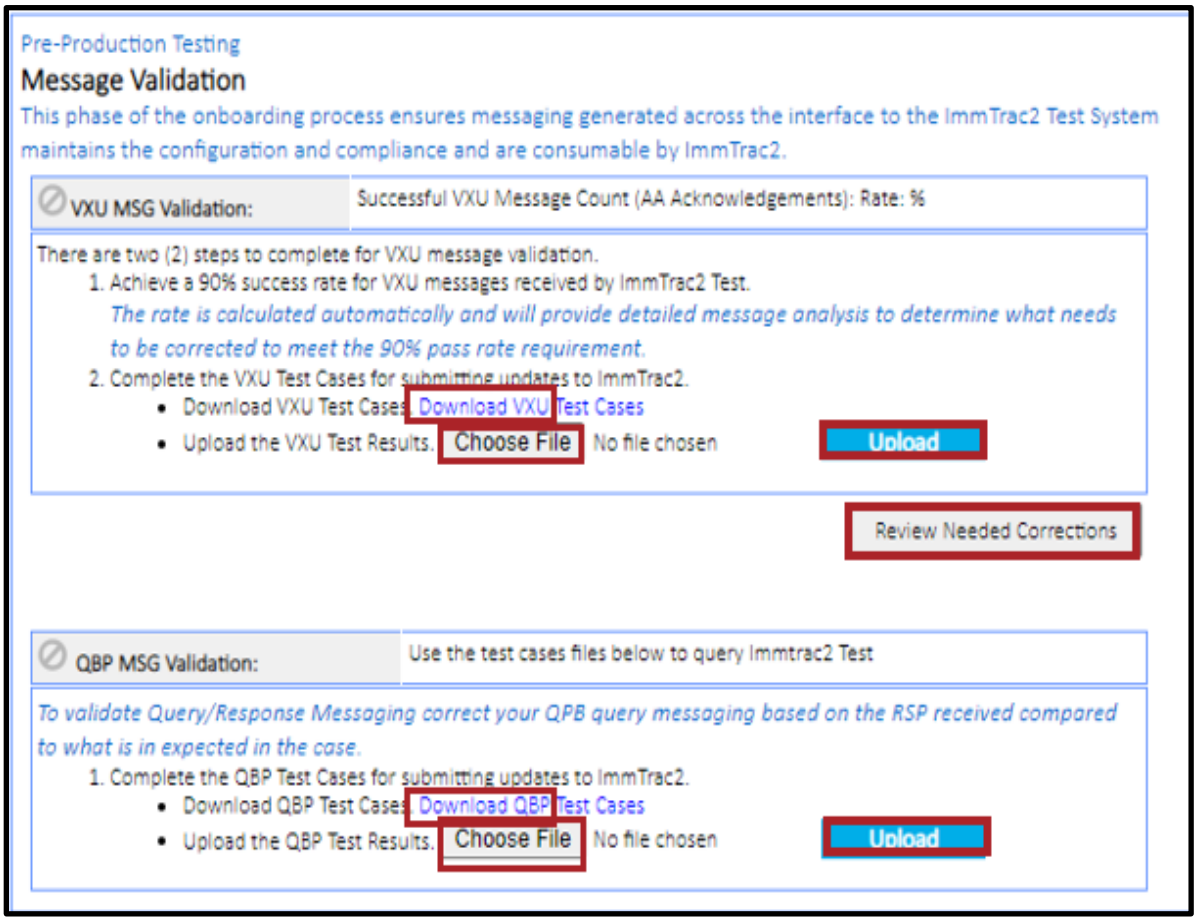


Figure 43 - Pre-Production Testing - Message Validation

To successfully complete pre-production testing, your organization will need to be familiar with the following resources. All are available on our DSHS website:

- Texas Immunization Registry HL7 2.5.1 Implementation Guide
- Texas Immunization Registry HL7 2.5.1 Error Guide

VXU Test Cases

See *Figure 44 – VXU Test Patients*.

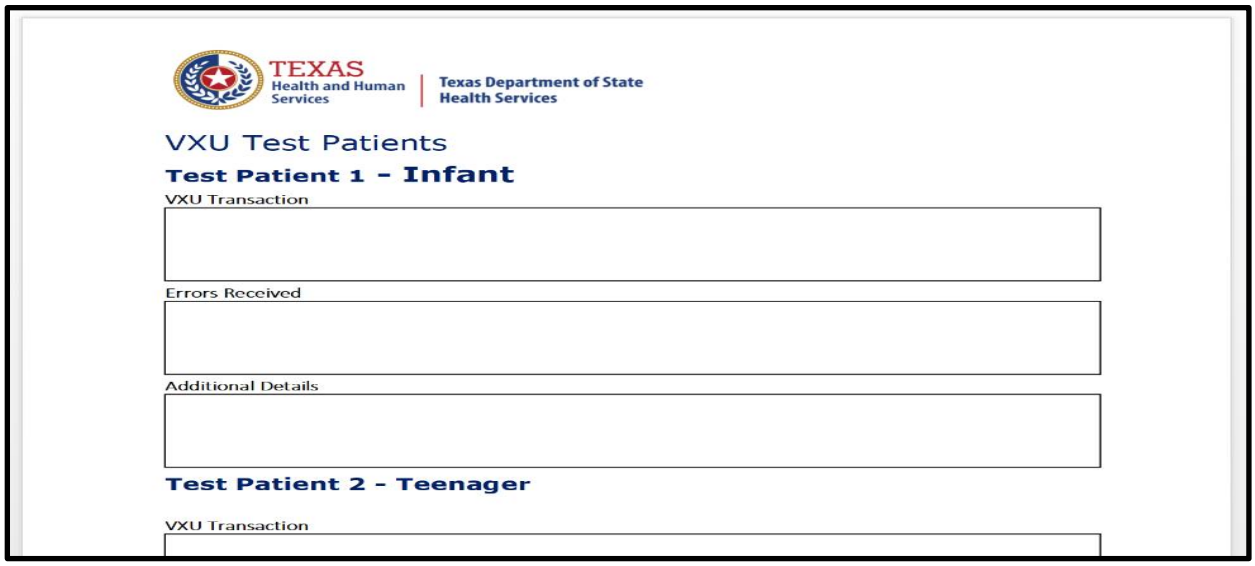


Figure 44 - VXU Test Patients

QBP Test Cases

See *Figure 45 – QBP Test Patients.*

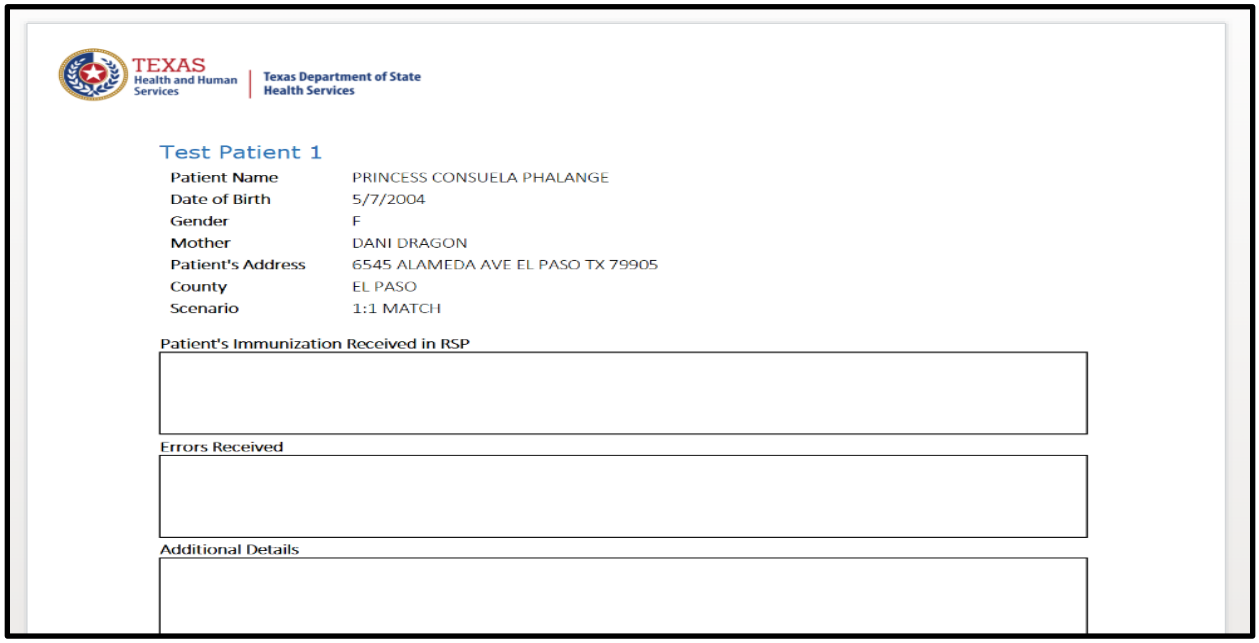


Figure 45 - QBP Test Patients

Step 1: Submit HL7 Test Messages to ImmTrac2 Test Environment

Using your organization's test bidirectional data exchange account, submit test messages to the registry's test environment for validation of the ACK responses.

Upon the submission of test HL7 messages, Syntropi monitors all messages submitted to track the information below in the Test Validation Status Summary section of the page. See *Figure 46: Test Validation Status Summary*.

Fields include:

- Validation of connection to test
- # of Messages received (# MSG's Rec'd)
- Last Submit Date
- Pass/Fail indication of the number of minimum requirements met (# Min Req Met)
- VXU Validation Summary
    - # of AA ACK responses
    - # of AE-E ACK responses
    - # of AE-W ACK responses
    - # of AR ACK responses
    - # of RSP
    - # Minimum Requirement to Pass (#Min Req to Pass)
    - Current Rate (pass rate)

Click the **Review Needed Corrections** button *(see Figure 43 – Pre-Production Testing – Message Validation*) to bring up the Message Validation Summary page and get feedback on test messages (see *Figure 46 – Message Validation Summary*).

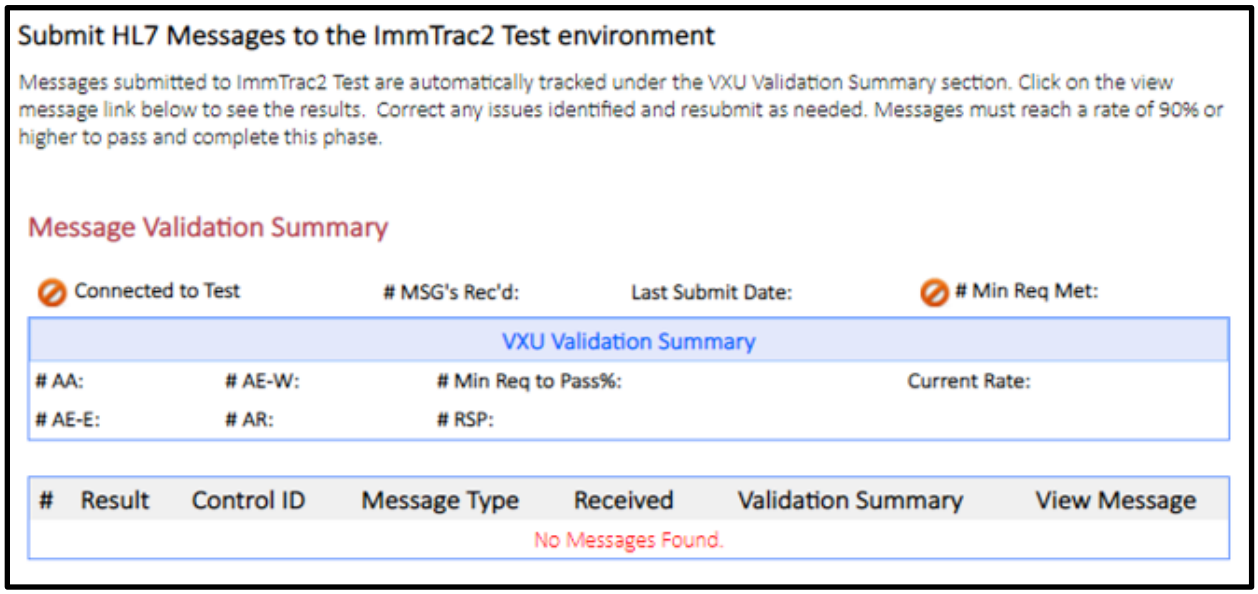


Figure 46 – Message Validation Summary

For Bidirectional onboarding, you will perform this process for the VXU Test Cases first, and then the QBP Test Cases.

Step 2: Review ACK Messages & Make Corrections

You are required to review the returned responses form ImmTrac2 Test environment to identify the areas in your hl7 messages that require correction.

1. You must work with your IT Support and EHR vendor for assistance with interpreting the HL7 ACK and RSP messages.
2. Identify what specific areas of the HL7 messaging need to be corrected.
3. Correct the HL7 messaging.
4. Submit new test messages.

As you submit a test message, the test validation statistics are calculated.

Step 3: Download Query Test Cases

1. Select the **Download Query Test Cases** hyperlink to retrieve the necessary test plan your organization must complete.
2. Work internally with your organization, IT Support and EHR vendor to perform the query test cases.
3. Monitor the RSP back for the query test cases and make corrections to your system according to the test plan.

5. Pre-Production Testing – Data Quality Review

Your ongoing messages to the ImmTrac2 Test environment will be automatically monitored for quality. Step 5 allows you to review the quality of your message stream.

Bidirectional and Update-Only Onboarding

To begin, click the **Review Data Quality Corrections Needed** button. See *Figure 47 – Data Quality Review.*

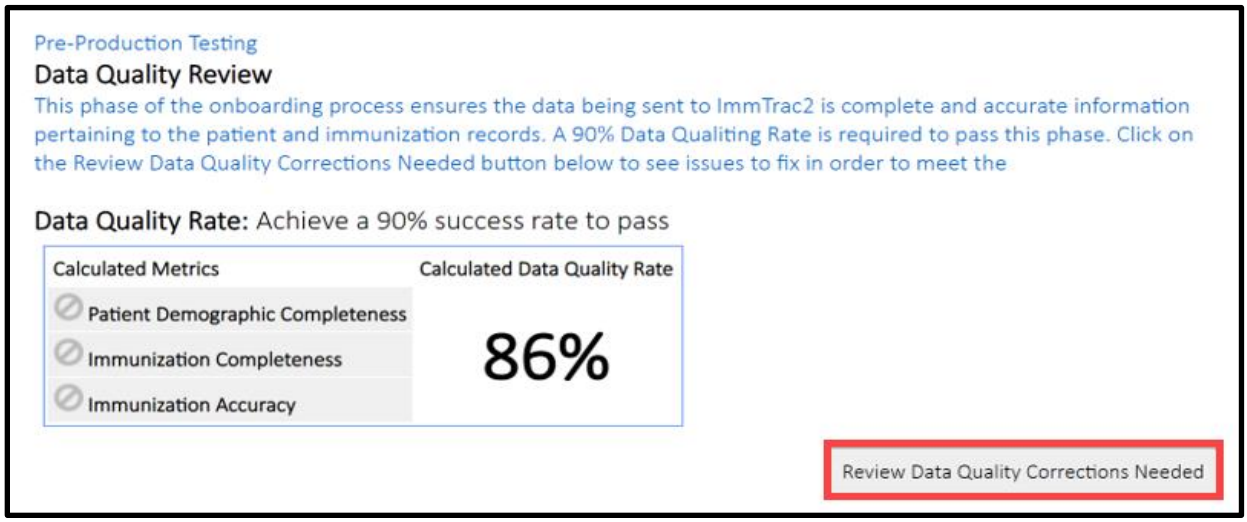


Figure 47 – Data Quality Review

Like the last section, you will use your organization's test bidirectional data exchange account to submit test messages to the registry's test environment.

The only difference is that in this part of the onboarding the messages are being validated for:

- Patient Completeness
- Immunization Completeness
- Immunization Accuracy

In this section, you will be able to:

- Submit test HL7 messages
- Review test HL7 messages for gaps in completeness and accuracy
- Achieve data quality metrics

Select the **Review Data Quality** button to begin.

Submit Test Messages

1. Upload test files using established test interface.
2. Use the Data Quality Review section of the onboarding to identify areas in the HL7 messaging that are not complete or accurate.

Messages Tab

This tab gives a list of messages sent. It refers to the complete history of all messages sent across the test data exchange connection. See *Figure 48: Messages Tab*.

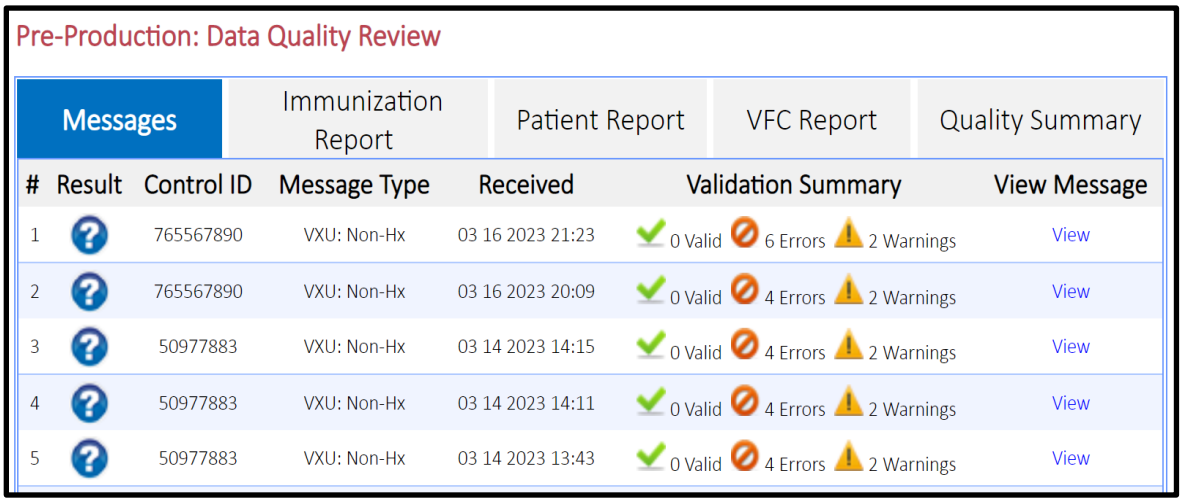


Figure 48 - Messages Tab

Immunization Report Tab (Completeness)

Locate the Immunization Completeness summary that refers to the complete recording of all data elements for the immunization event. See *Figure 49: Immunization Report Tab (Completeness)*.

Pre-Production: Data Quality Review

Messages | Immunization Report | Patient Report | VFC Report | Quality Summary

Reporting Period From 02 / 19 / 2023 To: 03 / 21 / 2023 Run Report

Completeness

Field	% Required To Pass Completeness	Current % of Completeness	Pass/Fail
Action Code Set	90%	100.00%	✓
Administering Provider	90%	100.00%	✓
Administration Site	95%	100.00%	✓
Dosage- Completeness	95%	100.00%	✓
Lot ID Number	95%	100.00%	✓
Manufacturer	90%	100.00%	✓
Vaccination Date	100%	100.00%	✓
Vaccine Expiration Date	95%	100.00%	✓
Vaccine Program Eligibility	90%	0.00%	⊘
Vaccine Type (CVX)	100%	100.00%	✓

Figure 49 - Immunization Report Tab (Completeness)

Immunization Report Tab (Accuracy)

Locate the *Immunization Accuracy Summary* that refers to all data elements of a given immunization event. Ensure they are consistent and appropriate compared to the originating medical record. See *Figure 50: Immunization Report Tab (Accuracy)*.

Accuracy

Field	Description	Issue	Accuracy Score
Administered Date After DOB	Administered Date is after patient's DOB as expected		100.00%
Administration Route	Administration Route, RXR-1, is Required and Populated		100.00%
Age Range	Percentage of Records submitted where the vaccine is given within recommended age range		100.00%
Body Site	Body site is valid.		100.00%
Dosage- Accuracy	Validates that the administered dosage matches the accepted amount.		100.00%
Licensure Date	Vaccination administered within vaccine's licensure start and end dates		100.00%
Lot ID- Accuracy	Substance Lot Number is contains a valid lot number format for manufacturer.		100.00%
LotID, MVX, CVX 1	Administered vaccine's CVX code is linked to a valid, specified vaccine.		100.00%
LotID, MVX, CVX 2	Manufacturer code is a valid match for the CVX Code.	MVX MUST Match CVX	100.00%
Route Accuracy	Administered Route is valid for administered vaccine	Route must match vaccine	100.00%
Vaccine Expiration Date-Accuracy	Checks to ensure that the Vaccine Administration Date precedes the Vaccine Expiration Date		100.00%
VIS	VIS form date is correct		0.00%

Figure 50 - Immunization Report Tab (Accuracy)

Patient Report Tab - Patient Completeness Summary

This summary refers to the complete recording of all data elements for a patient. See *Figure 51: Patient Report Tab*.

Pre-Production: Data Quality Review

Messages | Immunization Report | **Patient Report** | VFC Report | Quality Summary

Reporting Period From 02 / 19 / 2023 To: 03 / 21 / 2023 Run Report

Completeness

Field	% Required To Pass Completeness	Current % of Completeness	Pass/Fail
Address	100%	87.50%	⊘
Mother/Father/Guardian	90%	100.00%	✓
Patient Name	100%	100.00%	✓
Phone Number	95%	100.00%	✓

Figure 51 - Patient Report Tab

VFC Report Tab

This report tallies VFC Eligibility by eligibility category. See *Figure 52 – VFC Report Tab*.

Pre-Production: Data Quality Review

Messages | Immunization Report | Patient Report | **VFC Report** | Quality Summary

VFC Eligibility	Count	Percentage
Adult, No Insurance	0	0.00%
Adult, Private Pay/Insurance	0	0.00%
Adult, Underinsured	0	0.00%
American Indian/Alaskan Native	0	0.00%
CHIP	0	0.00%
Medicaid	0	0.00%
No Insurance	0	0.00%
Private Pay/Insurance	0	0.00%
Underinsured, FQHC/RHC/Deputized	0	0.00%
Underinsured, Not FQHC/RHC/Deputized	0	0.00%

The VFC Report indicates counts of patients eligible for VFC (Vaccines for Children) by VFC Eligibility Category for a given date range.

12/14/2022 to 1/13/2023

No Data Available

Figure 52 - VFC Report Tab

Quality Summary Tab

This tab displays overall message quality trends. See *Figure 53 – Quality Summary Tab.*

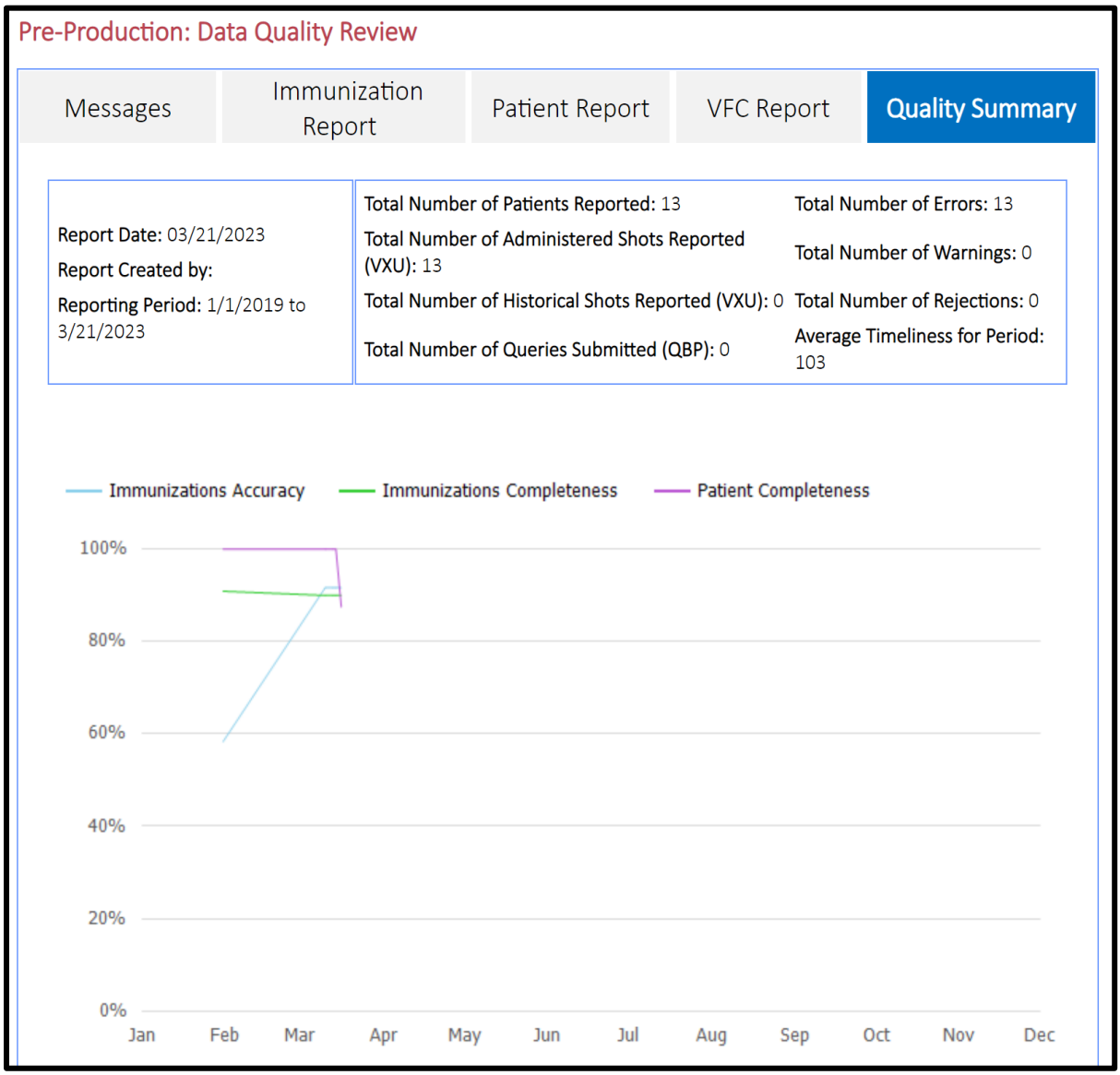


Figure 53 - Quality Summary Tab

Query-Only Onboarding

If you are doing Query-Only onboarding, Step 5 will be shorter. When your data quality review is complete, the Texas BiDX Team is automatically notified of your readiness to connect to the ImmTrac2 production environment. You will be contacted by the team to schedule your Go Live meeting. See *Figure 54 – Query-Only Onboarding – Transition to Production*.

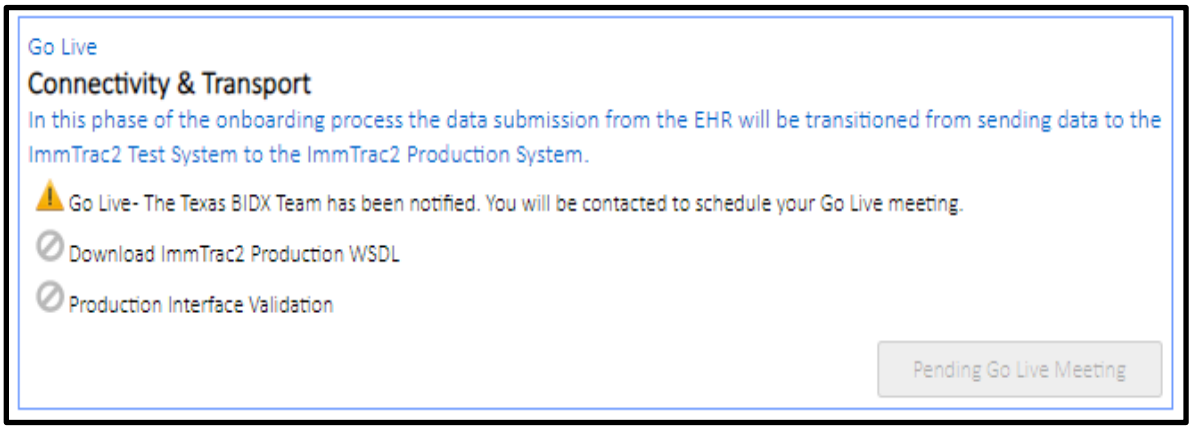


Figure 54 - Query-Only Onboarding - Transition to Production

6. Go-Live – Connectivity and Transport

Overview

This last section in the onboarding process allows the organization to establish a connection to the registry's production environment to begin submitting real patient and immunization data to the registry.See *Figure 55 – Go-Live Notification*.

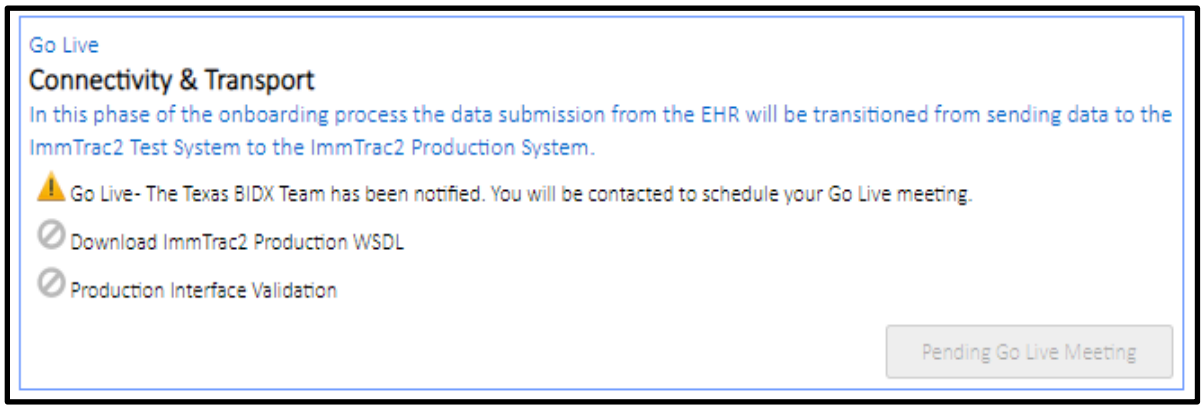


Figure 55 – Go-Live Notification

In this section you will:

- Meet live with the registry's Interoperability Team
- Download the WSDL to connect to the ImmTrac2 production environment
- Establish an electronic data exchange interface for production
- Validate whether you successfully connected to the registry's production environment
- Submit real patient and immunization data to the ImmTrac2 production environment

Support

For questions or concerns, please contact the ImmTrac2 help desk:

- **Email:** ImmTracMU@dshs.texas.gov
- **Toll-Free:** (800) 348-9158, Option 3