HL7 Messaging Tool – EHR Vendor

CIIS Resource Center User Guidance

The HL7 Messaging Tool, in the CIIS Resource Center, allows provider staff or an EHR vendor the ability to validate HL7 messages for a practice or for specific EHR products. This tool provides instantaneous, detailed error reporting, information necessary to correct formatting/content issues without delay.

The HL7 Messaging Tool accepts HL7 version 2.5.1. It can be used for validating VXU and QBP HL7 Message Types.

This guide describes how to produce and interpret the HL7 Messaging Tool in the CIIS Resource Center. It will focus on VXU Message Types, but the process for testing QBP Message Types follows the same process.

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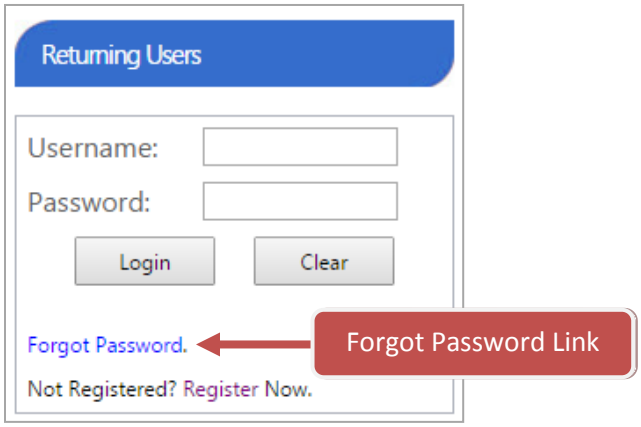
Getting Started

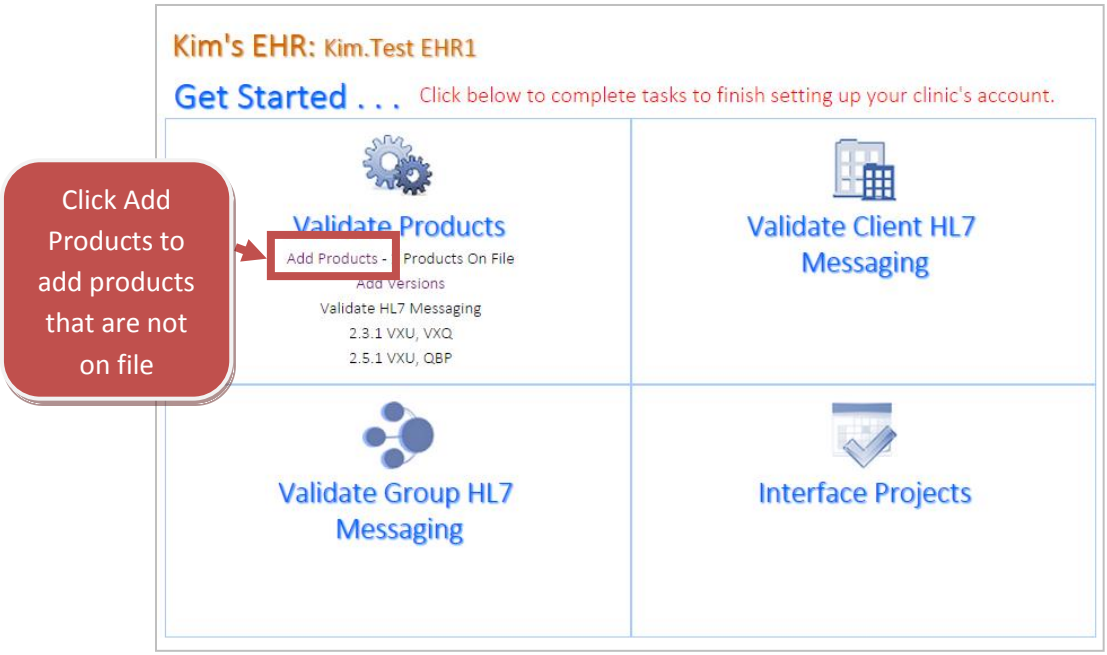
1. Log into the CIIS Resource Center (https://www.ciisresources.com/) using your username and password.
   a. If you cannot log into the CIIS Resource Center because you do not have an account, please contact your CIIS Clinic Administrator to create an account (they can reference the User Enrollment Guidance Document).
   b. If you have forgotten your password, click the "Forgot Password" link and follow the instructions.
   c. If you have forgotten your username, you will need to contact the CIIS Help Desk.



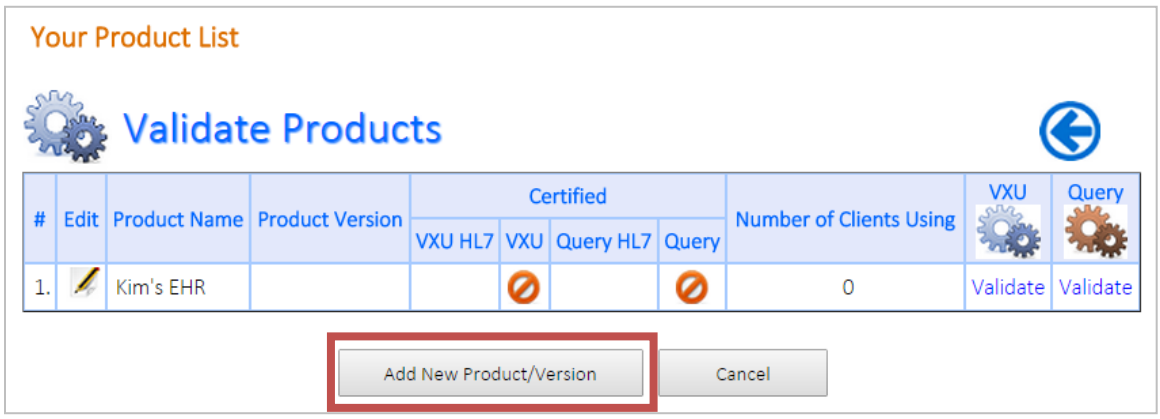
CIIS Help Desk
Phone: 303-692-2437 option 2
Toll Free: 1-888-611-9918 option 1
Fax: 303-758-3640

Send us an email:
cdphe.ciis@state.co.us

2. If your EHR has products that the CIIS Resource Center does not have on file you will need to add these products if you want to validate them. You can do this by clicking Add Products under the Validate Products widget on the Main Screen. If you do not need to add products you can skip to the **Validating HL7 Messages** section.

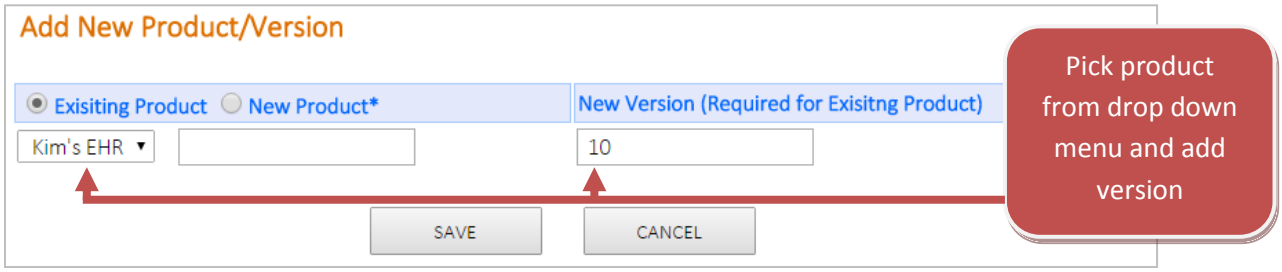


a. All current products are listed under Your Product List. To add a new product, click on Add New Product/Version.

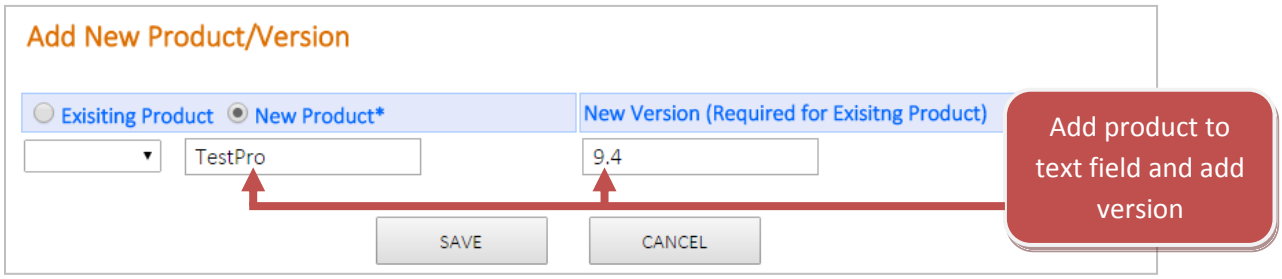


b. On the Add New Product/Version screen do the following steps:

- Select the radio button to update an Existing Product or add a New Product
- If updating an Existing Product, select the product from the drop down menu and add the Version in the New Version field.

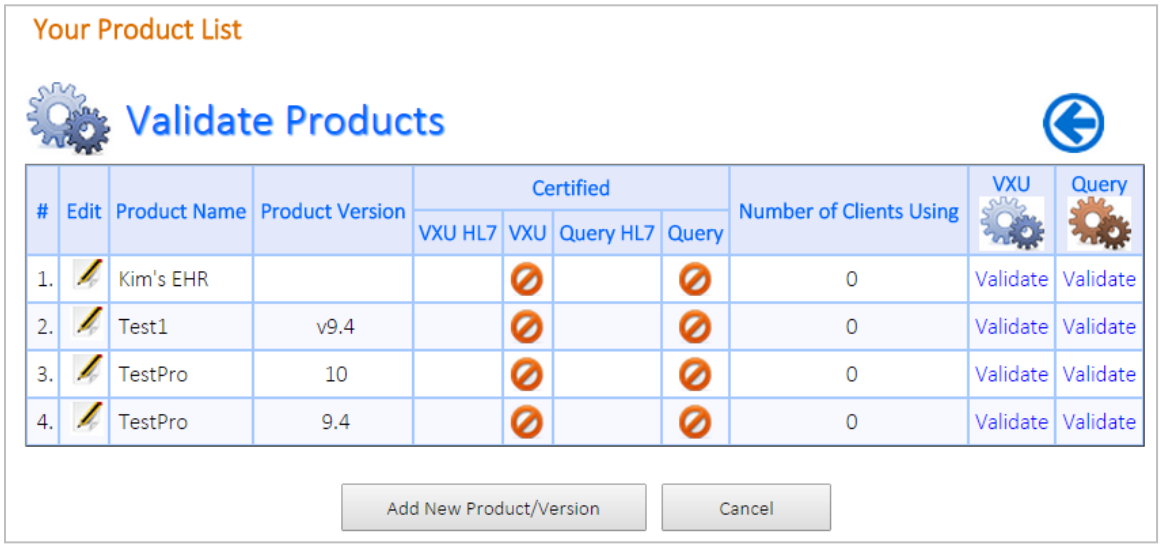


- If adding a New Product, type in the product in the New Product field and add the Version in the New Version field



- Click Save

- All new products will be listed under Your Product List. To start validating products go to the *Validating EHR Projects/Versions* section under **Validating HL7 Messages**.



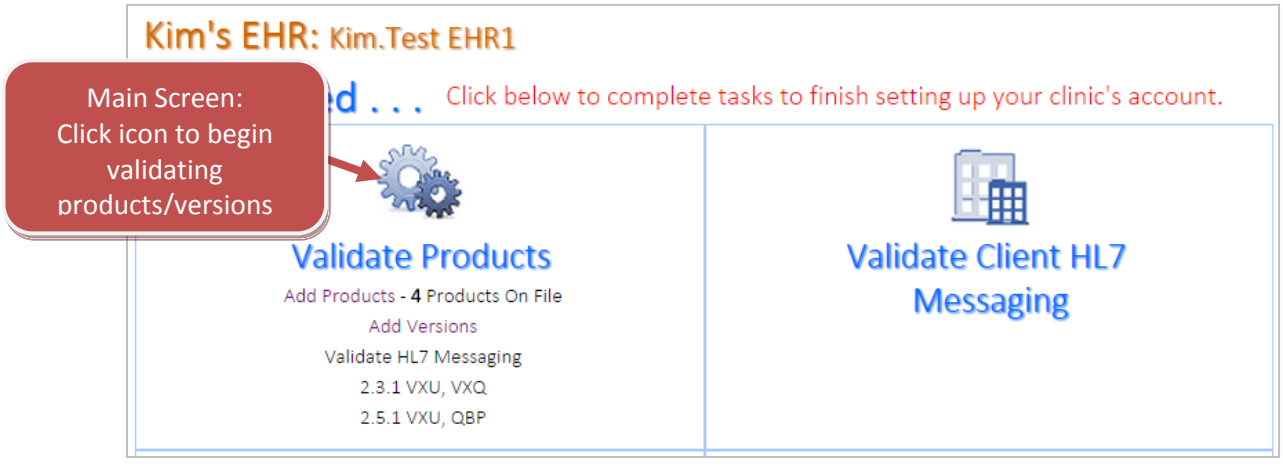
Validating HL7 Messages

This section will go into detail on how to validate each EHR Product, Group HL7 Messages, and Practice HL7 Messages. Prior to validating HL7 messages for a group or practice you should validate each EHR product and version.

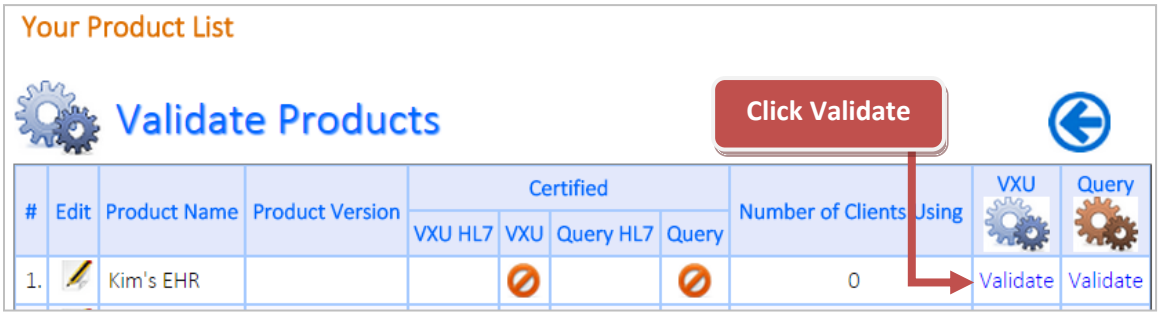
Note: This guidance document will focus on submitting VXU messages, but testing query messages will follow the same process.

Validating EHR Products/Versions

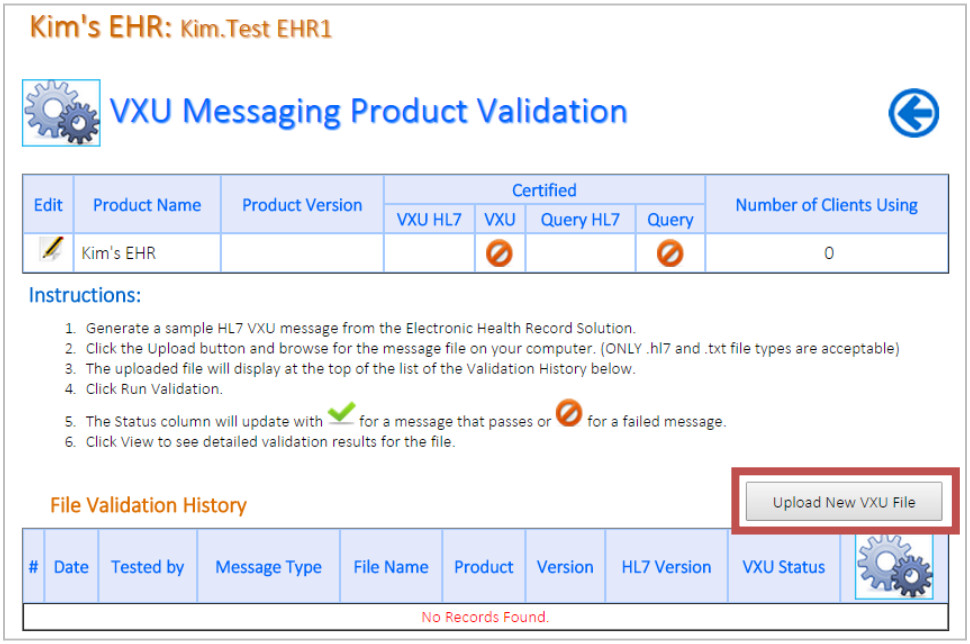
1. If on the Main Screen, click on the Validate Products icon on the Validate Products widget. If on the Validate Products screen then skip to Step 2.



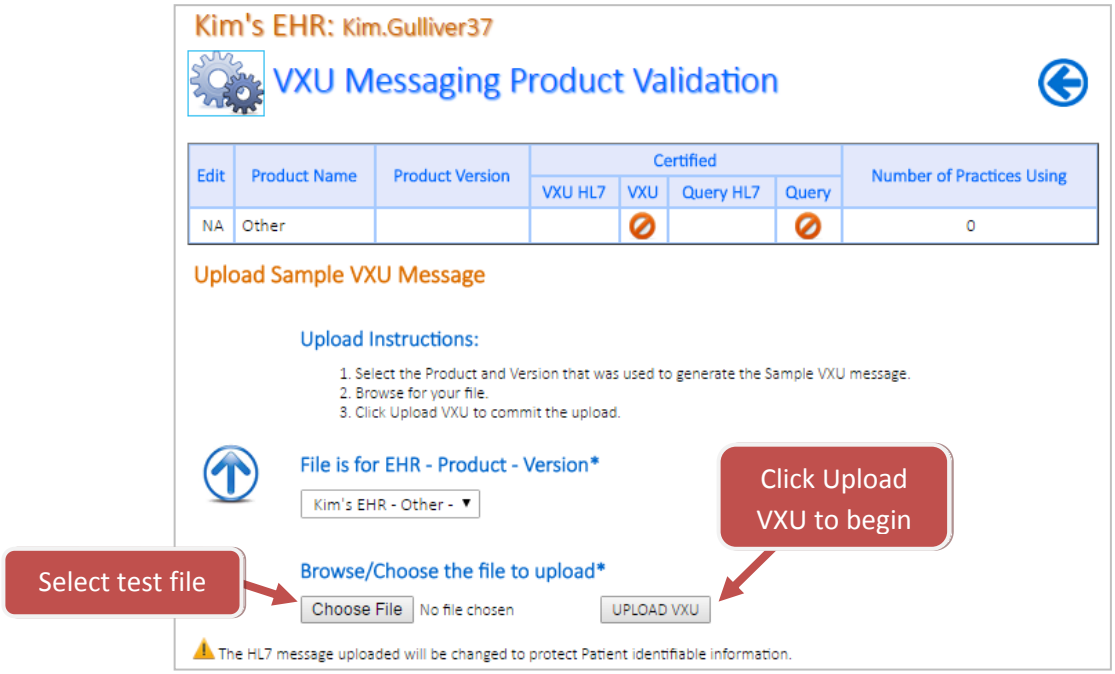
2. Click on Validate under the VXU column based on the product/version being tested.



3. Click Upload New VXU File.



4. On the Upload Sample VXU Message screen, do the following steps:
   a. File is for EHR – Product – Version* - The EHR Product and Version should be pre-populated.
   b. Click **Choose File** to select the message to be uploaded. Once the file is found, click **Upload VXU**.
   Note: The HL7 Messaging Tool only accepts .txt and .hl7 file formats. All other file formats will result in an error message.
   Note: The HL7 Messaging Tool has a built in anonymizer that will allow for real-patient data to be submitted. The system will change all identifying information.

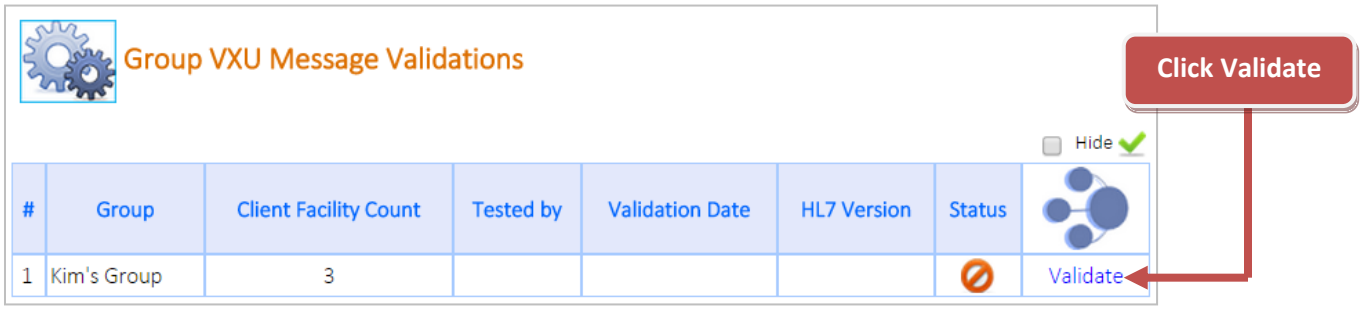


5. For next steps on running the validation go to the *Running a HL7 Validation* section.
   Note: You will only need to have one message pass for each EHR product to obtain a passing status.

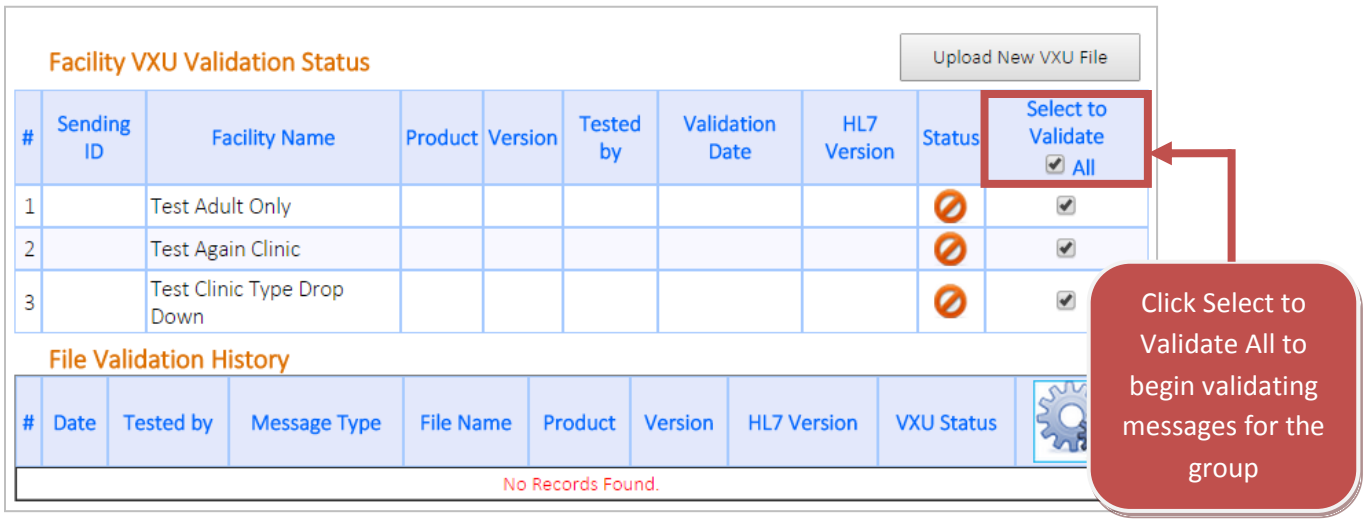
Validating Group HL7 Messages

1. On the Main Screen, click on the Group icon on the Validate Group HL7 Messaging widget.

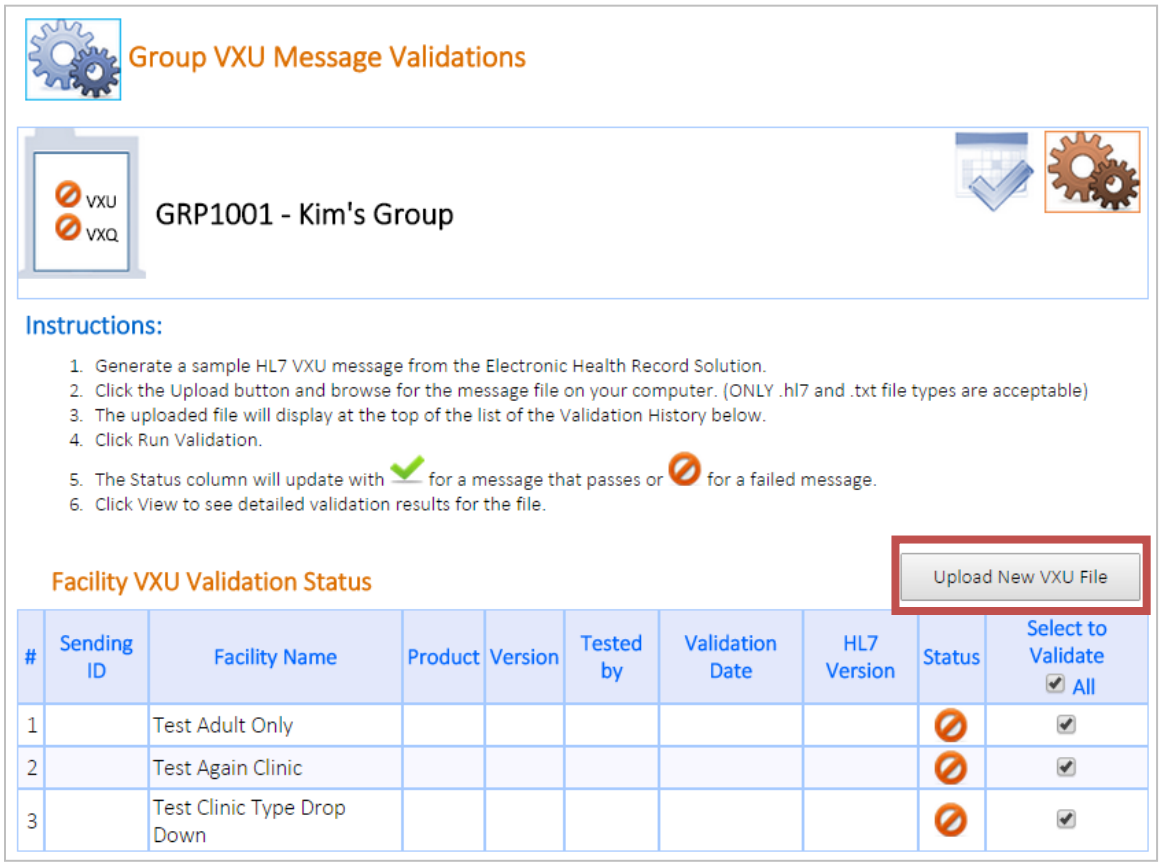
2. The Group VXU Validation sub tab will be highlighted. Click on Validate under the icon for the group you want to test.



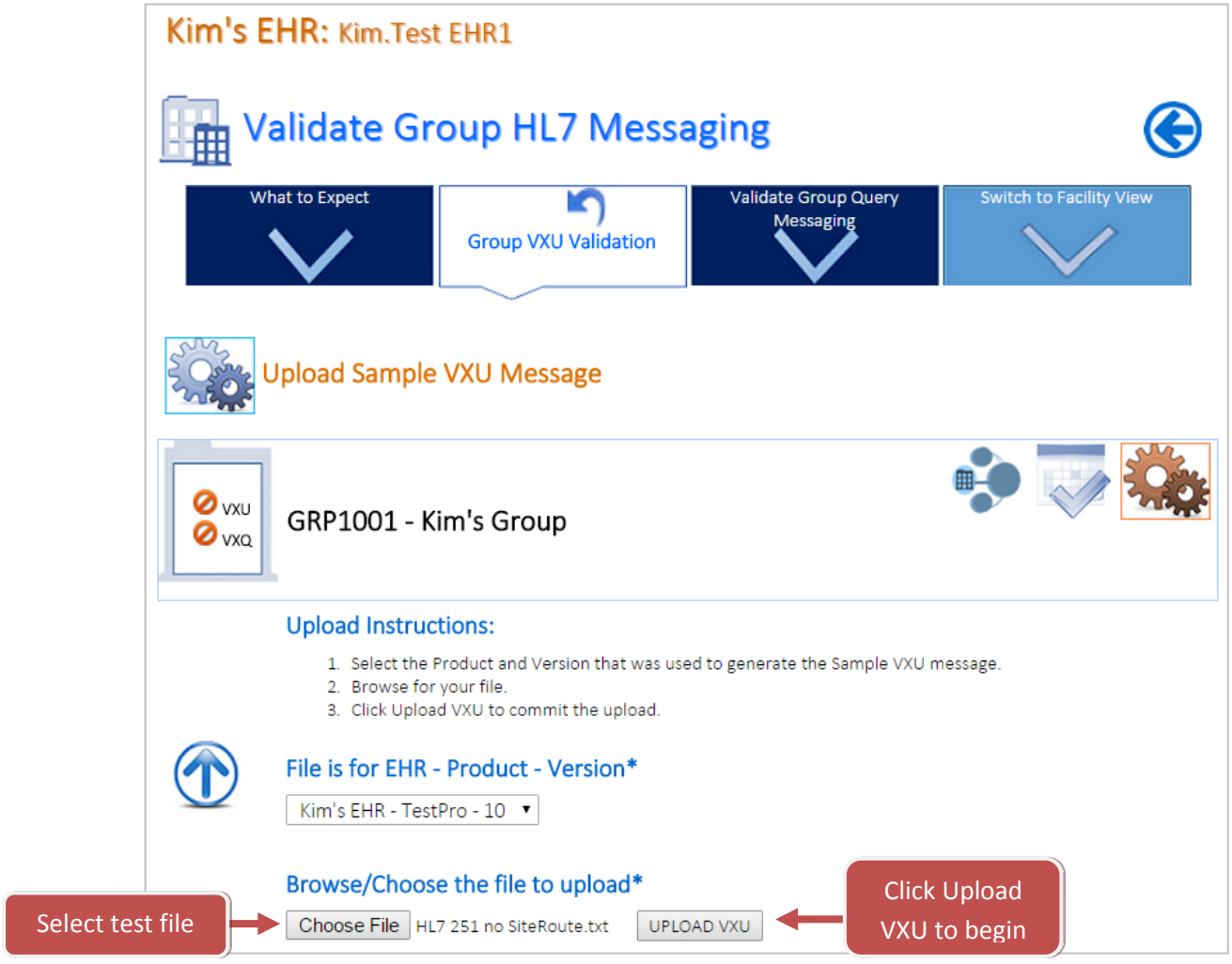
3. You can validate messages for the entire group or for each individual facility. To validate all sites at once, click on the Select to Validate All box.



4. Click Upload New VXU File.



6. On the Upload Sample VXU Message screen, do the following steps:
   a. File is for EHR – Product – Version* - Select the Product and Version that was used to generate the Sample VXU message.
   b. Click **Choose File** to select the message to be uploaded. Once the file is found, click **Upload VXU**.
   Note: The HL7 Messaging Tool only accepts .txt and .hl7 file formats. All other file formats will result in an error message.
   Note: The HL7 Messaging Tool has a built in anonymizer that will allow for real-patient data to be submitted. The system will change all identifying information.

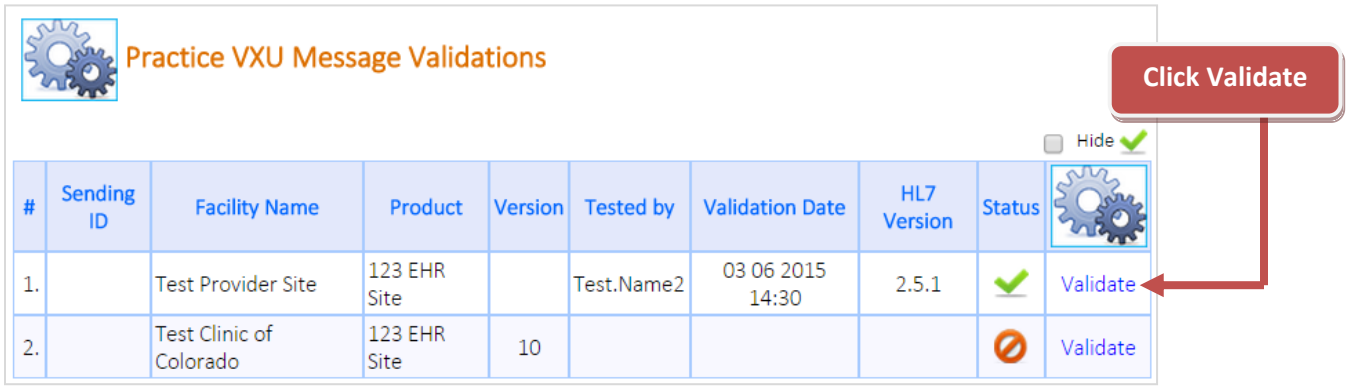


7. For next steps on running the validation go to the **Running a HL7 Validation** section.

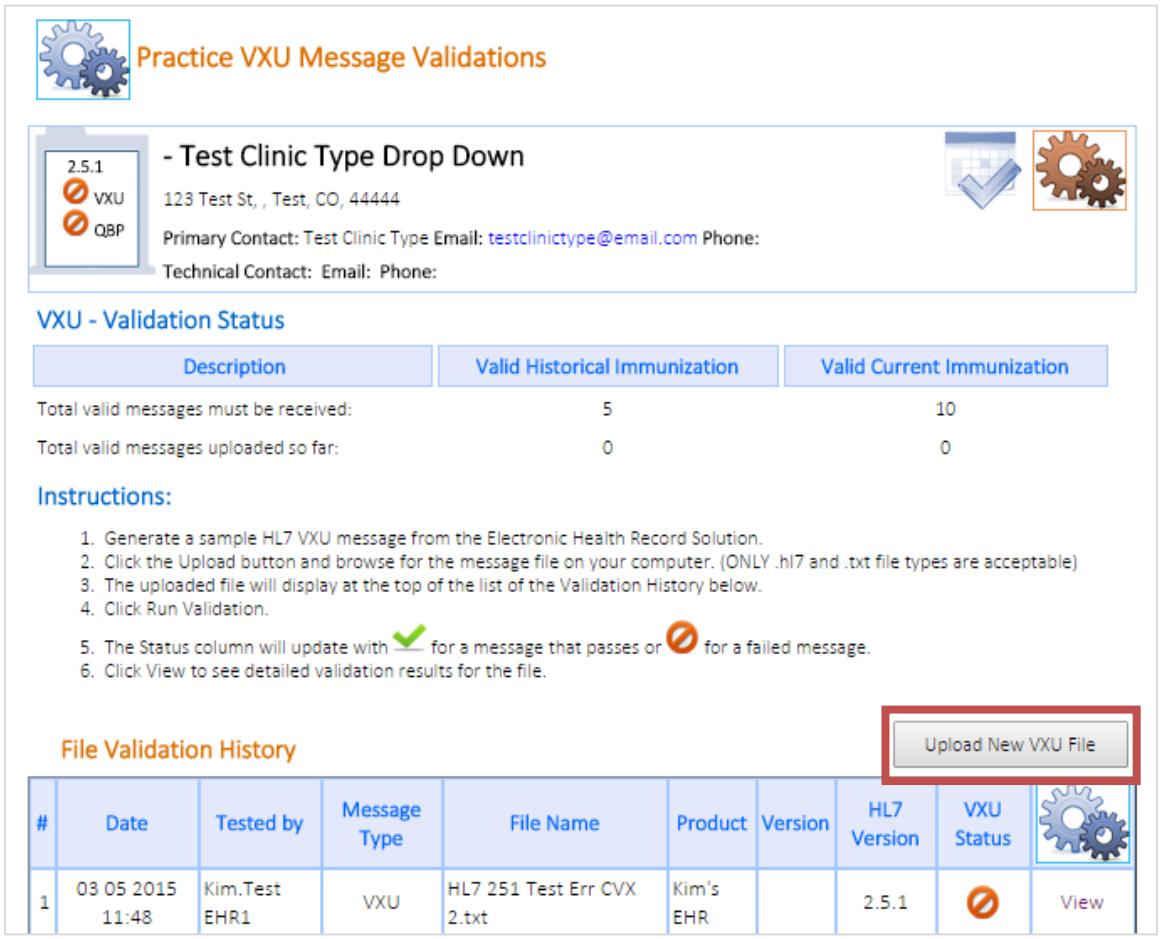
Validating Practice HL7 Messages

1. On the Main Screen, click on the Practice icon on the Validate Practice HL7 Messaging widget.

2. Click the Validate VXU Messaging sub tab. Click on Validate under the icon for the practice you want to test.



3. Click Upload New VXU File.



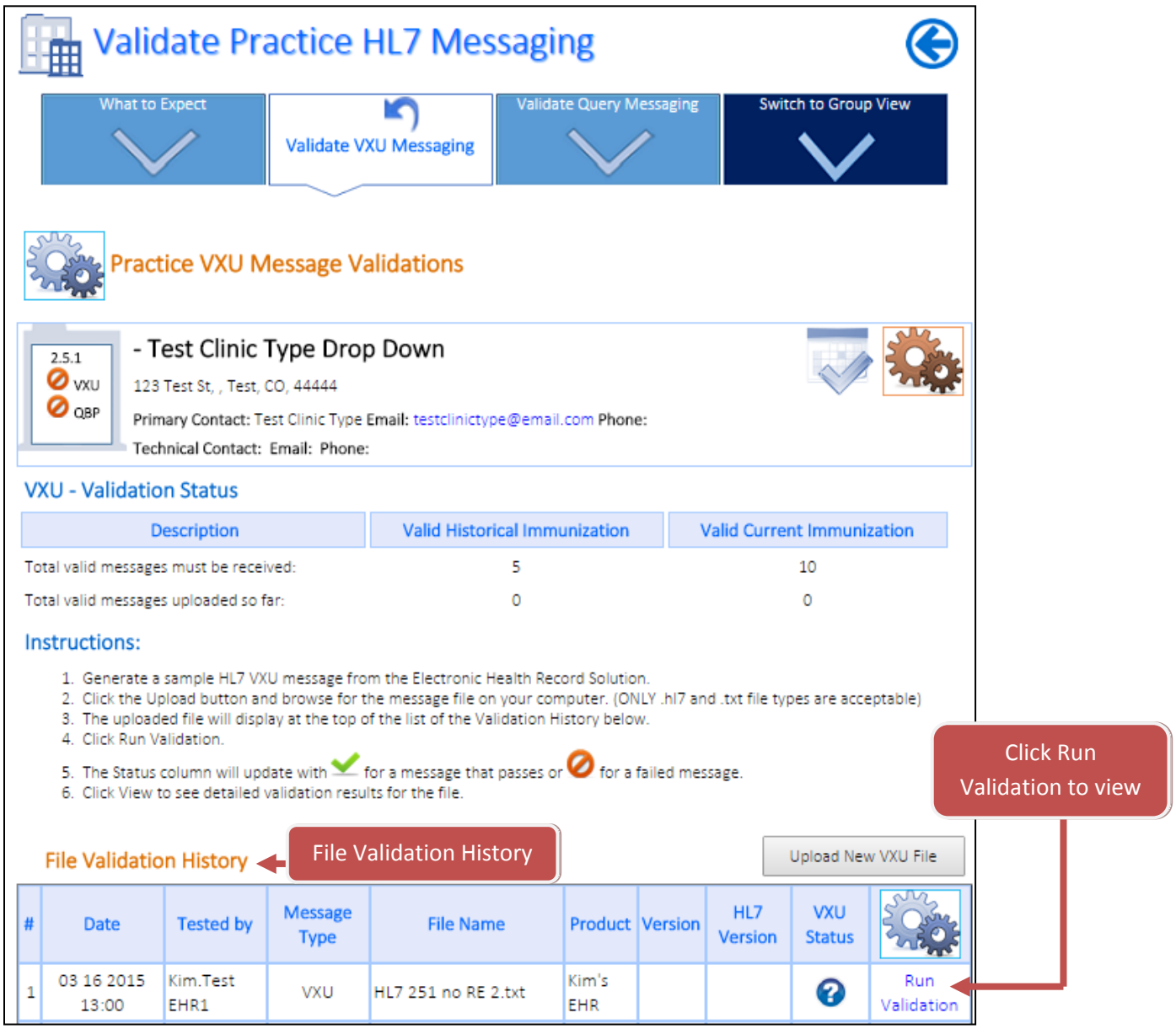
4. On the Upload Sample VXU Message screen, do the following steps:
   a. File is for EHR – Product – Version* - Select the Product and Version that was used to generate the Sample VXU message.
   b. Click **Choose File** to select the message to be uploaded. Once the file is found, click **Upload VXU**.
   Note: The HL7 Messaging Tool only accepts .txt and .hl7 file formats. All other file formats will result in an error message.
   Note: The HL7 Messaging Tool has a built in anonymizer that will allow for real-patient data to be submitted. The system will change all identifying information.

5. For next steps on running the validation go to the **Running a HL7 Validation** section.

Running a HL7 Validation

This section will go into detail describing how to run a validation, the immediate results displayed, and the next steps based on the outcome.

1. Once the file has been uploaded (covered in the Validating HL7 Messages section), the system returns to the VXU Messaging Product Validation screen. The new file will be listed under the "File Validation History" section (the newest submitted file will be listed at the top of the list). Click on **Run Validation** in the last column.

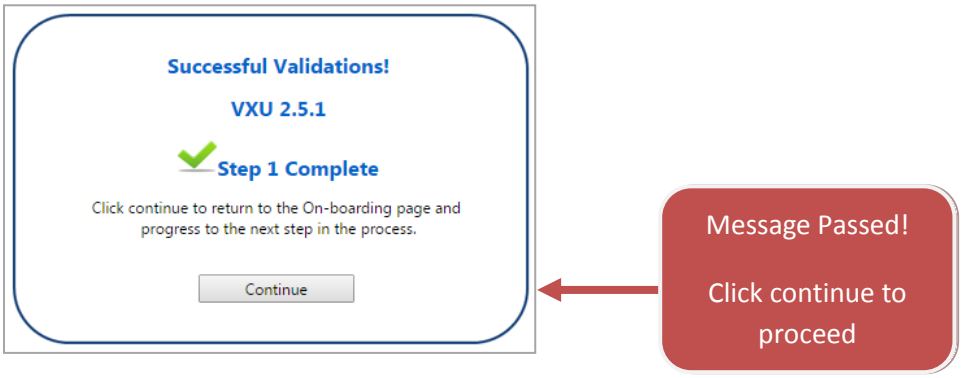


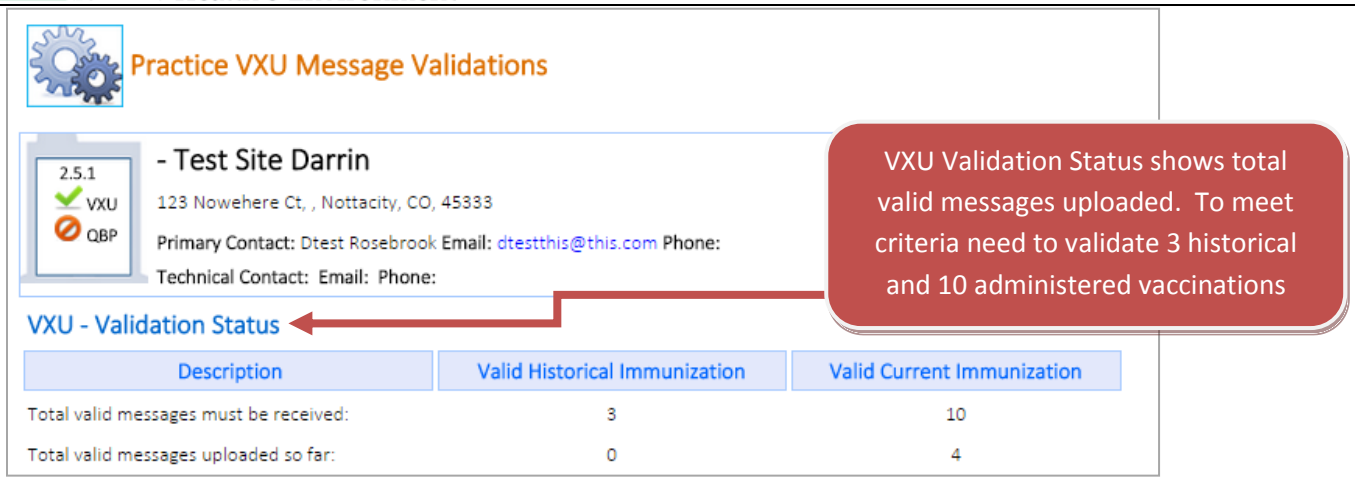
2. The Validation Results will be immediately posted with a Validation Passed or Validation Failed notification. See the *Validation Passed and Validation Failed* sections for status and next steps.

Validation Passed – Status & Next Steps

1. If your message meets the CIIS HL7 File Specifications a Validation Passed icon will display after the validation processes. One of two messages will be displayed.
   a. Validation Passed with Warning – The message passed but has Warnings! CIIS staff would like the Warnings reviewed and corrected, if possible. Click View Validation Summary to be directed to the Message Summary Report. For more information on interpreting this report review the *Viewing Summary Report* under the **Running and Interpreting Reports section.**

   b. Validation Passed – The message passed and has NO Warnings. Click Continue proceed and to receive an update on message status.



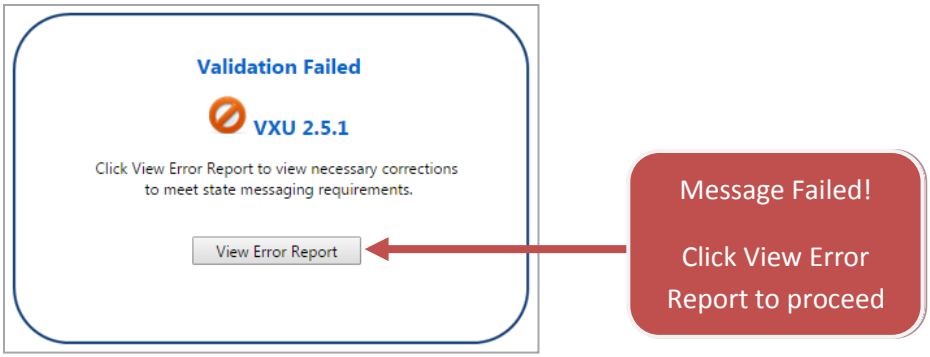


2. The next steps include:
   a. If this is the first message submitted, then repeat the process, under the **Uploading a HL7 Test Message** section, to submit 10 distinct administered and 3 distinct historical test vaccinations for review (if testing Group or Individual Practice messages).
   b. Once all 13 distinct messages have passed then the process is finished and the organization will be listed in the CIIS Resource Center as having met the CIIS HL7 messaging requirements. The organization will be placed on the interface wait list and will be invited to onboard when resources are available.

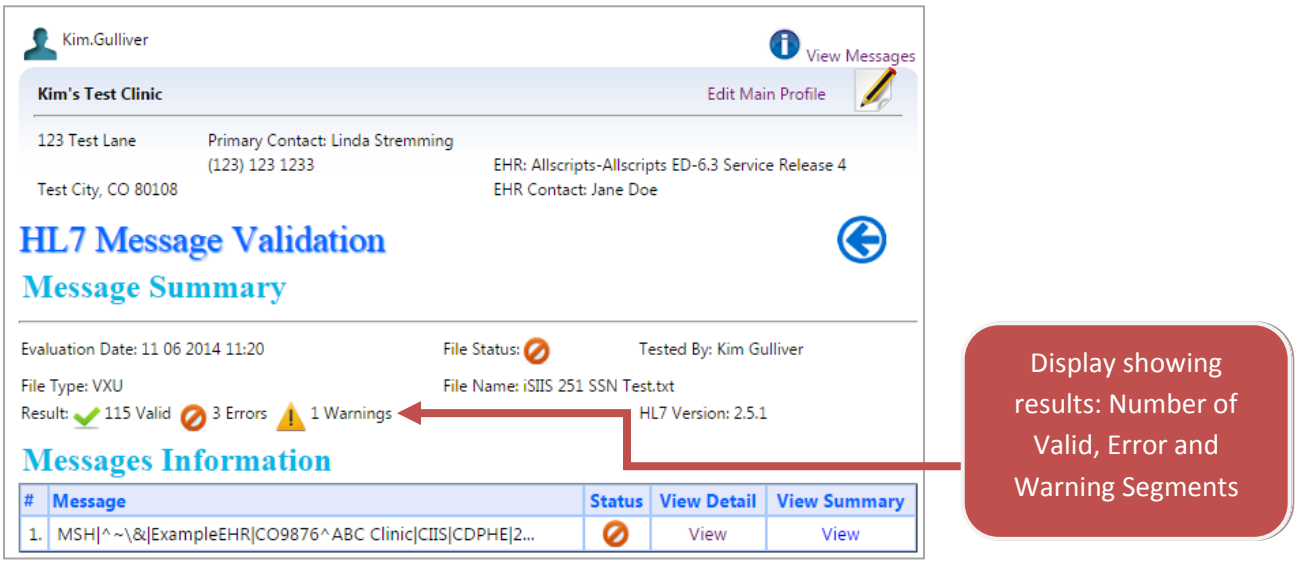
   Note: If there are Warnings within the message, review each segment and correct for the next round of testing.

Validation Failed – Status & Next Steps

1. If your message does not meet the CIIS HL7 File Specifications a Validation Failed icon will display after the validation processes. Click View to proceed.



2. The next steps include:
   a. After clicking View Error Report a Message Summary screen displays. You will be able to see the results, broken down by number of valid, error, and warning segments.



✓	No Changes Needed – Segment Passed
⊘	Changes Required for Segment to Pass
⚠	Changes May Be Required Based on CIIS Requirements

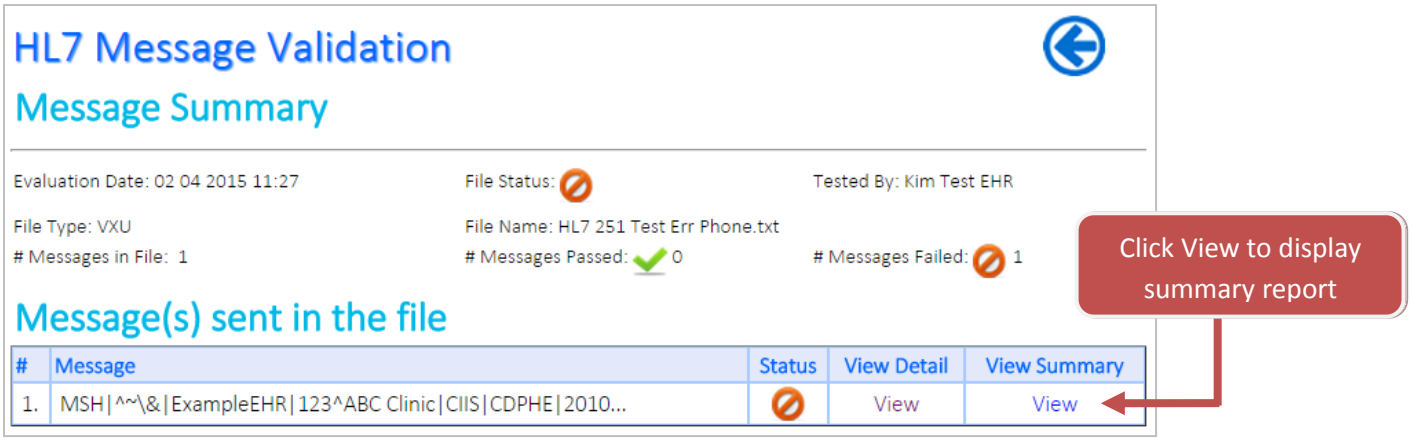
   a. Review the *Viewing Summary and Detailed Report* section, explained in the **Running and Interpreting Reports** section, to find out where the errors occurred.
   b. Resubmit a new test file, including the changes, by repeating the process under the **Uploading a HL7 Test Message** section.

Running and Interpreting Reports

This section will go into detail describing how to view summary and detailed reports, how to interpret each of these reports, and next steps.

Viewing Summary Report

1. On the HL7 Message Validation Message Summary screen, click on View under the View Summary column to view a Message Validation Summary Report. This will present a screen that highlights only the fields with issues. This is the quickest way to discover and address any issues with the test message.

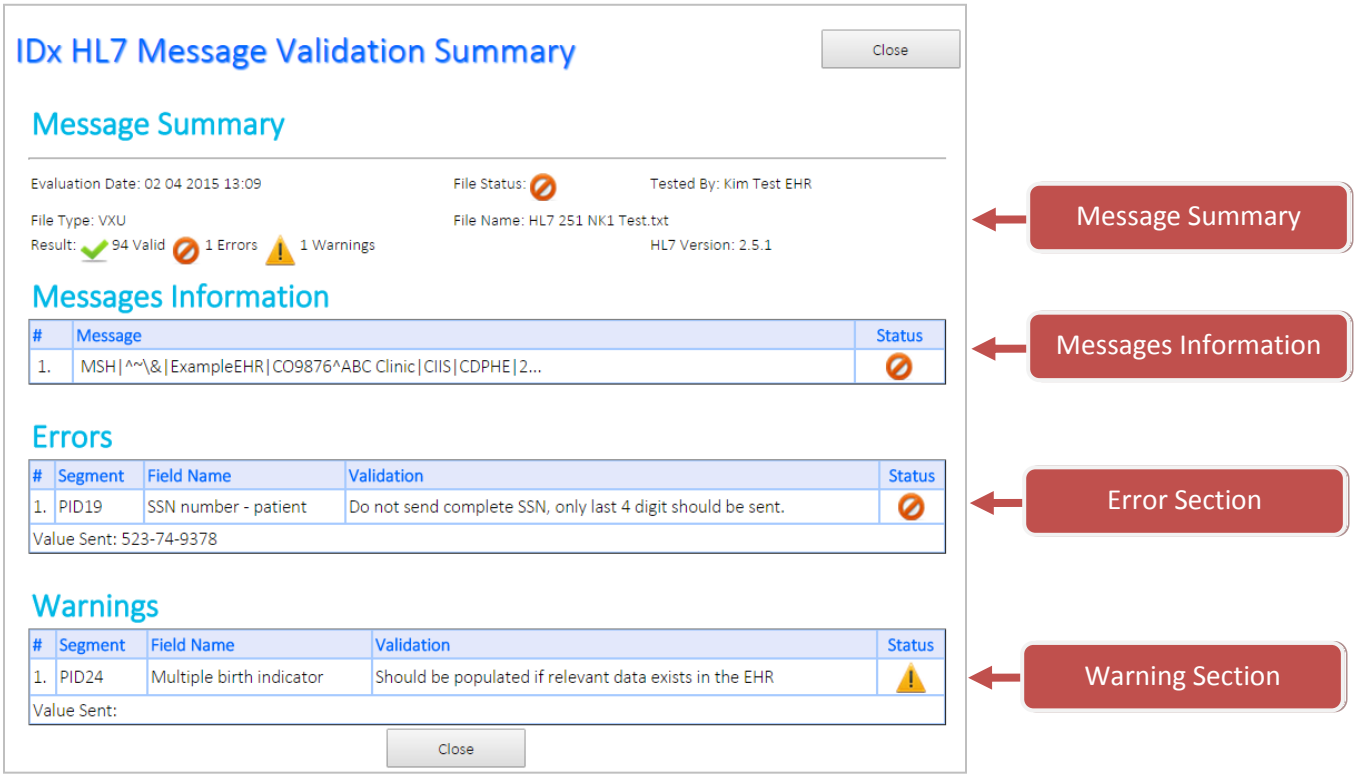


2. After clicking View under View Summary, a Message Validation Summary report is displayed with the following information:
   a. Message Summary - displays the number of segments in the following categories: passed, errors, and warnings.

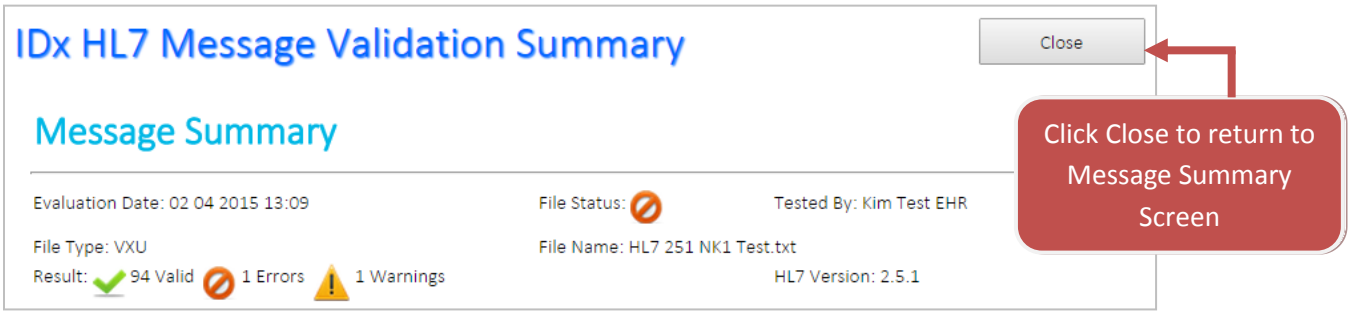
✓	No Changes Needed – Message Passed
⊘	Changes Required for Message to Pass
⚠	Changes May Be Required Based on CIIS Requirements

   b. Messages Information – displays information about the message and the status.
   c. Errors – displays detailed information showing the segment, field name, and validation/information for each error. It is required for these to be corrected before the segment will pass and meet CIIS HL7 Messaging Specifications.
   d. Warnings – displays detailed information showing segment, field name, and validation/information for each warning. Changes may be required, based on CIIS requirements, before this segment will pass and meet CIIS HL7 Messaging Specifications. These issues are usually caused because CIIS desired data elements are left

blank. If the data for these fields is entered into the EHR and available, CIIS requires it be populated in the message.

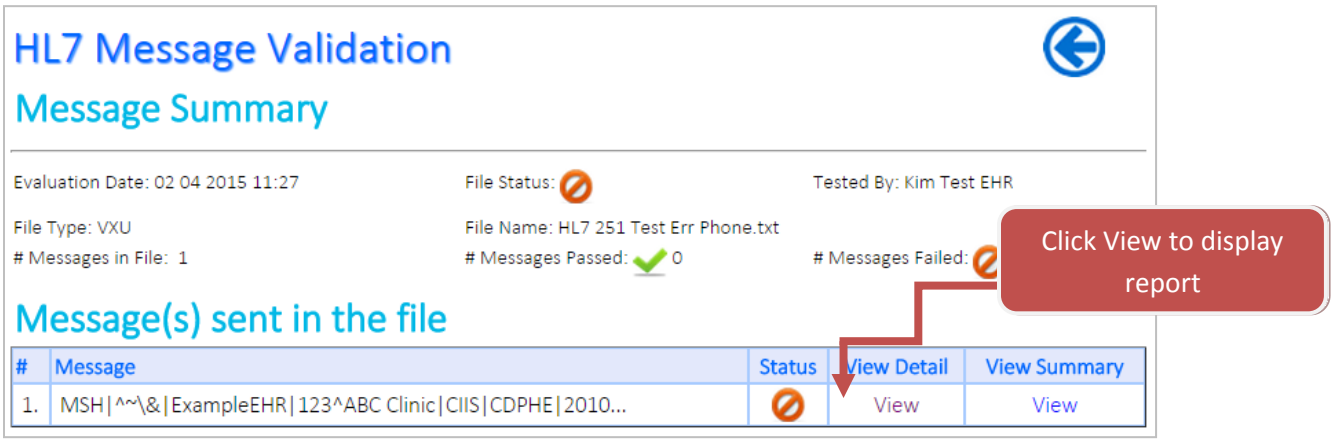


3. Click Close to be taken back to the Message Summary screen.



Viewing Detailed Report

1. On the HL7 Message Validation Message Summary screen, click on View under the View Detail column to view a Message Validation Detailed Report.



2. After clicking View under View Detail, a Message Validation Summary report is displayed and includes the following sections.
   a. Message Summary - displays the number of segments in the following categories: passed, errors, and warnings.

✓	No Changes Needed – Segment Passed
⊘	Changes Required for Segment to Pass
⚠	Changes May Be Required Based on CIIS Requirements

   b. Messages Information - displays information about the message, the status, and links to view detailed and summary reports.
   c. Message Detail Validations – detailed listing of each segment, field name, validation, value, and status.
      - Segment – displays the HL7 segment.
      - Field Name – displays the HL7 field name.
      - Validation – displays a message explaining how segment/field is validated based on standard HL7 messaging rules and CIIS local implementation guide.
      - Value – this field allows you to see what information was submitted in the HL7 test message.
      - Status – displays the passed, error, and warning explaining the status of that segment

HL7 Message Validation

Message Summary

Evaluation Date: 12 26 2014 12:51 File Status: Tested By: Kim Gulliver

File Type: VXU File Name: Questions HL7 Validations.txt

Result: 67 Valid 84 Errors 65 Warnings HL7 Version:

Messages Information

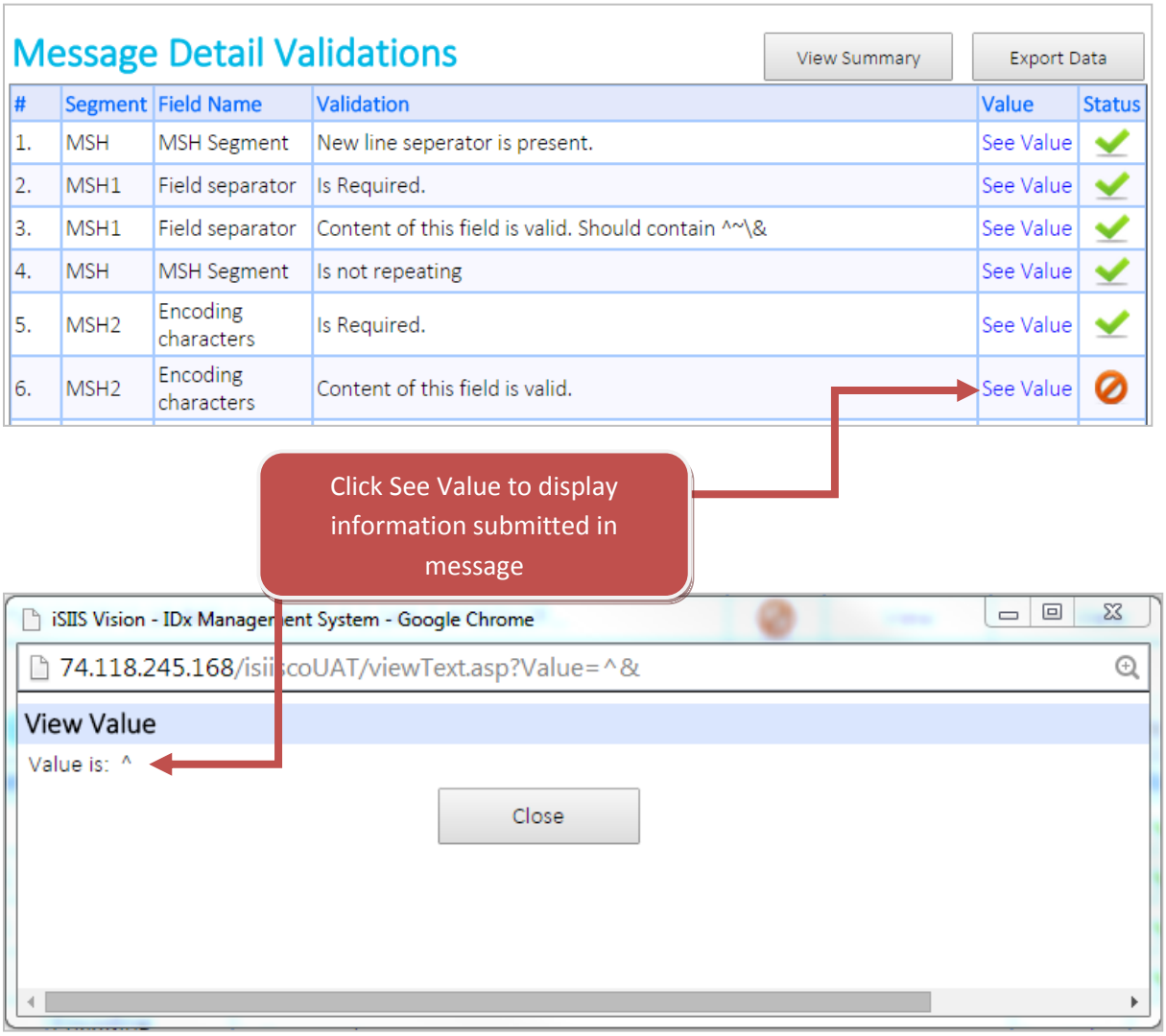
#	Message	Status	View Detail	View Summary
1.	- MSH-4 value?? - How to get link to code set in v...		View	View

Message Detail Validations

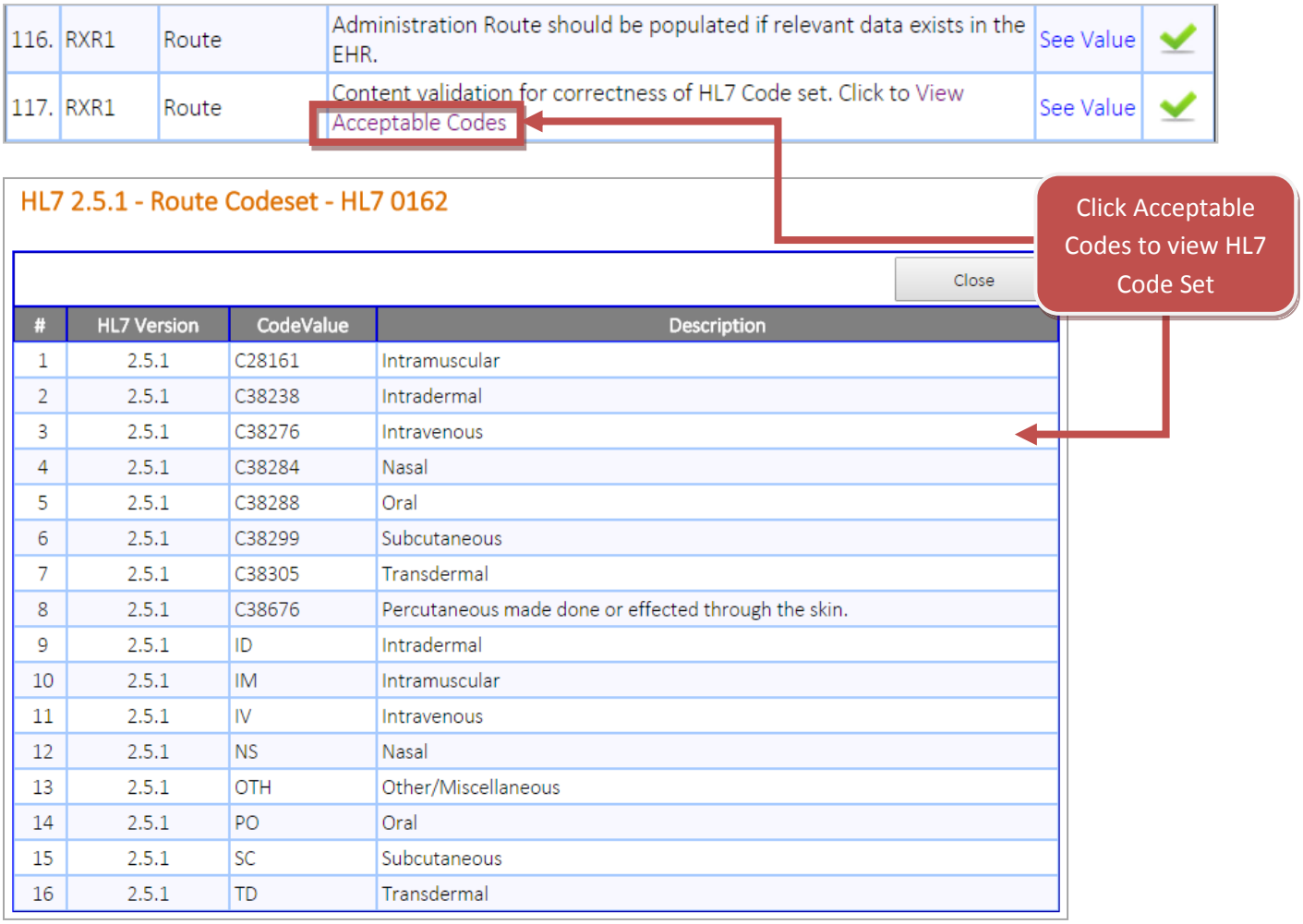
View Summary Export Data

#	Segment	Field Name	Validation	Value	Status
1.	MSH	MSH Segment	New line seperator is present.	See Value	
2.	ORC	Order Request Segment	Each RXA segment must be associated with one ORC segment.	See Value	
3.	RXA1	Give sub-ID counter	Is Required. Default value is 0	See Value	
4.	RXA2	Administration sub-ID counter	Is Required. Default value is 999	See Value	
5.	RXA3	Date/time start of administration	Is Required.	See Value	
6.	RXA3	Date/time start of administration	Validated for correct date format.	See Value	
7.	RXA3	Date/time start of administration	Is not before patient DOB	See Value	
8.	RXA5	Administered code	Either CVX or CPT Code is Required.	See Value	
9.	RXA5	Administered code	CPT Code is not blank.	See Value	
10.	RXA5	Administered code	Content validation for correctness of CPT HL7 Code set. Click to View Acceptable Codes	See Value	
11.	RXA5	Administered code	CVX Code is not blank.	See Value	
12.	RXA5	Administered code	Content validation for correctness of CVX HL7 Code set. Click to View Acceptable Codes	See Value	

3. Review the status column and fix any segments with an error and warning (may not be required for all warnings) messages.
   a. For any segments with an error or warning status click See Value under the Value column to view what value was submitted in the original message. After complete, click Close.



b. If there is a HL7 Code Set available for the segment data, with an error or warning status, click on View Acceptable Codes under the Validation Column to display the appropriate HL7 Code Set. After complete, click Close.



116.	RXR1	Route	Administration Route should be populated if relevant data exists in the EHR.	See Value	✓
117.	RXR1	Route	Content validation for correctness of HL7 Code set. Click to View Acceptable Codes	See Value	✓

HL7 2.5.1 - Route Codeset - HL7 0162

Close

#	HL7 Version	CodeValue	Description
1	2.5.1	C28161	Intramuscular
2	2.5.1	C38238	Intradermal
3	2.5.1	C38276	Intravenous
4	2.5.1	C38284	Nasal
5	2.5.1	C38288	Oral
6	2.5.1	C38299	Subcutaneous
7	2.5.1	C38305	Transdermal
8	2.5.1	C38676	Percutaneous made done or effected through the skin.
9	2.5.1	ID	Intradermal
10	2.5.1	IM	Intramuscular
11	2.5.1	IV	Intravenous
12	2.5.1	NS	Nasal
13	2.5.1	OTH	Other/Miscellaneous
14	2.5.1	PO	Oral
15	2.5.1	SC	Subcutaneous
16	2.5.1	TD	Transdermal

c. Once changes have been made resubmit a new test message, including the changes, by repeating the process described under the **Uploading a HL7 Test Message** section.