STC|ONE and SEROLOGY
Documentation

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OVERVIEW

STC|ONE allows the display and entry of serology tests at the patient level for all users who are given the **View Serology** permission through the Serology Module. These tests are accepted into the IIS from HL7 and manual data entry. STC|ONE includes a small set of serology tests as defaults in the module. The default tests provided include the current Covid-19 tests published by LOINC.org and those tests that CDSI have indicated are used in the forecast evaluation for a patient. The default tests will insert a permanent contraindication which will be used by Immucast 1.0 in calculating the patient forecast. Once the CDSI recommendations are released for COVID-19, any updates required will be made.

Enabling

The Serology module can be enabled by navigating to **Administration > Properties** and clicking the **Enable Serology** option. Once enabled:

1. The web user permissions will be available to assign to a user
2. The registry will accept serology tests from PHC Hub

Enable Require Confidentiality Agreement	☑
Enable Serology	☑
Enable Subtotal by Vaccine in Lot Number Summary Report	☐

Administration

Managing Serology Tests and Results

1. A user with **Serology Management Access** can access the Config Serology page. This page allows a user to add and update serology tests as well as add and update serology results. To access this page, a user would:
   a. Click Administration
   b. Click Config Serology

Administration Main Menu
Settings
Registry Vaccine Group Settings
Properties
Waitlist Codes Administration
Additional Registry Settings
Product Settings
Vaccine Settings
Confidentiality Agreement
Config Serology
Health Promotion Block Mail Rule Settings
Password Rules
Provider Mapping

2. The Config Serology page allows a user to Manage Serology Tests by
   a. Inactivating default tests.
      i. Inactivating a test will prevent the test from displaying on the serology test drop down list on the patient serology page. This prevents a manual data entry user from adding a serology test.

Add/Update Serology Configuration

Disease Name	varicella
Serology Code	001
Asiis Vacc Code	varicella
Loinc Code	
Inactive	☑
Shortcut	☐

Reset Save Changes
Back

   b. Adding shortcuts to default tests.
      i. A shortcut will display the test on the serology page, so the user does not have to select the test from the drop-down list. This will allow the display of frequently used tests to simplify new serology test data entry.

Add/Update Serology Configuration

Disease Name	varicella
Serology Code	001
Asiis Vacc Code	varicella
Loinc Code	
Inactive	☐
Shortcut	☑

Reset Save Changes
Back

   c. Adding a new test as an option for selection by a user
      i. Test results are not required for user defined tests
      ii. Contraindications will not be automatically entered for user defined tests

Add/Update Serology Configuration

Disease Name	
Serology Code	
Asiis Vacc Code	--select--
Loinc Code	
Inactive	☐
Shortcut	☐

Reset Save Changes
Back

Click here to configure serology results

   d. Updating an existing user defined test
      i. Default test will be viewable, but they will not be editable by a user

3. The Configure Serology Results page allows a user to Manage Serology Results by
   a. Inactivating results for default tests
   b. Adding new results for user defined tests
   c. Results cannot be added for default tests

User Access

Manual Data Entry Add, update, Delete, View a serology test

1. In order to view and add serology tests a user must be given the permission **Serology View Access**
2. Access to serology is available after a patient is in context
3. A user can view all serology tests entered for a patient
4. A patient must be active for a user to add/update/delete a serology test
5. A user can only edit serology tests entered by their organization
6. A user is not restricted on how many tests are manually entered for the same date/test combination

PHC Hub

PHC Hub accepts serology tests in HL7 messages. There is now an option which allows the configuration of the return of the patient serology history in the response. This can be configured under the Query Settings section of the profile. After selecting a profile, click the edit button. The option to **Send patient serology history** is located under the Query Settings header. Check the box and then click the save button.

HL7 Add, Update, Delete a serology test

1. The IIS allows the insert, update and delete of a serology lab records.

2. A serology record will be updated when the test code in **OBX-3.1** and the draw date in **RXA-3** are the same.
3. If two HL7 serology messages do not have the same test code and draw date, they will be treated as two separate serology records.
4. A serology record can be deleted by submitting a serology message with the letter **D** in **RXA-21**.
5. The IIS will record multiple lab tests of a single type per patient.

HL7 Invalid Data for serology tests

1. An HL7 message with a missing or invalid serology test code in **OBX-3** is not forwarded to the registry.
2. An HL7 message with a missing, invalid, or mismatched test result code in **OBX-5** is forwarded to the registry where it is marked as invalid. An invalid serology record of this type is not displayed in the UI, does not issue or remove a contraindication, and is not returned in a QBP.
3. An HL7 message with a future draw date in **RXA-3** is not forwarded to the registry.
4. An HL7 message with an incorrect test result description in **OBX-5.2** saves the incorrect description in the database for auditing purposes, but the correct description is displayed in IWeb.

Contraindications

An automatic contraindication is added for default tests that CDSI has indicated are used in the forecast evaluation for a patient. The subset of default tests is indicated in table 1 If a patient has multiple tests for the same vaccine group, STC|ONE looks at the test results of the most recent draw date to determine what action should be taken.

1. When the most recent test result is positive, a contraindication for the vaccine group outlined in table1 is added for the patient.
2. When the most recent test result is negative, no contraindication is added
3. When the most recent test result is negative, all contraindications for the vaccine group and applicable contraindication that have a date documented (draw date) that is older than the draw date of the negative test will be removed
4. When the most recent test result is not positive or not negative, the test result has no impact on issuing or removing a contraindication.

Deduplication

1. When two patient records are considered the same patient, the serology test records from both records are carried over.
2. When two patient records are not considered the same patient, the patient records retain their original serology test records.

3. When a bad merge is separated, the two patient records return to their original serology test records.

What tests are included by default in STC|ONE?

The default tests provided include the current Covid-19 tests published by LOINC.org, those tests that CDSI have indicated are used in the forecast evaluation for a patient and existing tests currently in use. Once the CDSI information is published for Covid-19 any required updates on test or contraindication inclusion will be made.

The first table is the list of tests and which one's contraindications are created for. The second table is the test and known CDSI observation mapping provided in the CDSI documentation (CLINICAL DECISION SUPPORT FOR IMMUNIZATION (CDSI): LOGIC SPECIFICATION FOR ACIP RECOMMENDATIONS published June 2, 2020)

Table 1

Serology Test	Contraindication?
Serology confirmed Mumps	Y
Serology confirmed Rubella	Y
Serology confirmed Measles	Y
Serology confirmed Varicella	Y
Serology confirmed Hepatitis B	Y
Serology confirmed Hepatitis A	Y
TB Gold, QuantiFERON	
Diphtheria Antitoxoid Ab	
Tetanus Antitoxoid Antibodies	
Poliovirus Antibody	
SARS-CoV-2 IgG qualitative	Y
SARS-CoV-2 RdRp gene result	Y
SARS-CoV-2 result overall SARS-CoV-2 result	Y

SARS-CoV-2 N gene result	Y
SARS-related CoV result	Y
SARS-CoV-2 ORF1ab region result	Y
SARS-CoV-2 Ab qualitative	Y

*Because the Diseases with serologic evidence of immunity is the LOINC description for each of the disease immunities that CDSI considers, STC|ONE uses the naming from the HL7 guide for description display.

Table 2

Observation Code	Observation Title	SNOMED (Code)	Maps to LOINC (Code)	LOINC Description	HL7 Concept Code	HL7 Definition
018	Laboratory Evidence of Immunity or confirmation of Hepatitis A disease	Hepatitis A Immune [Finding] (278971009)	75505-8	Diseases with serologic evidence of immunity	278971009	Serology confirmed hepatitis A
019	Laboratory Evidence of Immunity or confirmation of Hepatitis B disease	Hepatitis B Immune [Finding] (271511000)	75505-8	Diseases with serologic evidence of immunity	271511000	Serology confirmed hepatitis B
020	Laboratory Evidence of Immunity for Measles	Measles Immune [finding] (371111005)	75505-8	Diseases with serologic evidence of immunity	371111005	Serology confirmed measles
021	Laboratory Evidence of Immunity for Mumps	Mumps Immune [finding] (371112003)	75505-8	Diseases with serologic evidence of immunity	371112003	Serology confirmed mumps
022	Laboratory Evidence of Immunity for Rubella	Rubella Immune [finding] (278968001)	75505-8	Diseases with serologic evidence of immunity	278968001	Serology confirmed Rubella
023	Laboratory Evidence of Immunity or confirmation of Varicella disease	Varicella Immune (371113008)	75505-8	Diseases with serologic evidence of immunity	371113008	Serology confirmed varicella

How to format an HL7 serology message

Lab result results are exchanged as observations using a question and answer format. In HL7 v2, this equates to an **OBX** segment where the question is found in **OBX-3** as a LOINC code and answer is found in **OBX-5** as a SNOMED code. A message uses an **RXA** segment of 998.

- RXA segment of 998 (not a vaccine)
- RXA-3 records the serology draw date
- OBX-3.1 records the serology test code
- OBX-3.2 records the serology test description
- OBX-5.1 records the serology test result code
- OBX-5.1 records the serology test result description

RXA|0|0|20200215||998^no vaccine administered^CVX|0||||||||||||||||20200510|

OBX|1|CE|75505-8^Serology confirmed Measles^LN|1|371111005^Positive^SCT||||||F|||20200610|

Test Case Processing Expectations

Please refer to the spreadsheets **Serology UI Testing** and **Serology HL7 Messages** for further testing information.