ReportStream

Programmer’s Guide for Testing Facilities and Senders

VERSION 1 .0 – AUGUST 5 , 2021

[Introduction 3](#_Toc79049941)

[Release Notes 4](#_Toc79049942)

[Onboarding Process Summary 5](#_Toc79049943)

[Step 1: Sample Data 5](#_Toc79049944)

[Step 2: Onboard to Staging 6](#_Toc79049945)

[Step 3: Onboard to Production in Training Mode 6](#_Toc79049946)

[Step 4: Production 6](#_Toc79049947)

[Sending to ReportStream 7](#_Toc79049948)

[Example 7](#_Toc79049949)

[Notes 7](#_Toc79049950)

[Errors and warnings 8](#_Toc79049951)

[Fast Facts for ReportStream Senders 10](#_Toc79049952)

[Appendix A: Fields List for a Typical Covid-19 Submission 12](#_Toc79049953)

[Appendix B: Sample Payloads and Output 16](#_Toc79049954)

[Sample CSV Payload and Output 16](#_Toc79049955)

[Sample HL7 2.5.1 Payload and Output 17](#_Toc79049956)

[Appendix C: ReportStream Data Models 19](#_Toc79049957)

[Examples 19](#_Toc79049958)

[Additional Resources 20](#_Toc79049959)

# Introduction

ReportStream is a free, open-sourced data platform that makes it easy for public health data to be transferred from testing facilities to public health departments.

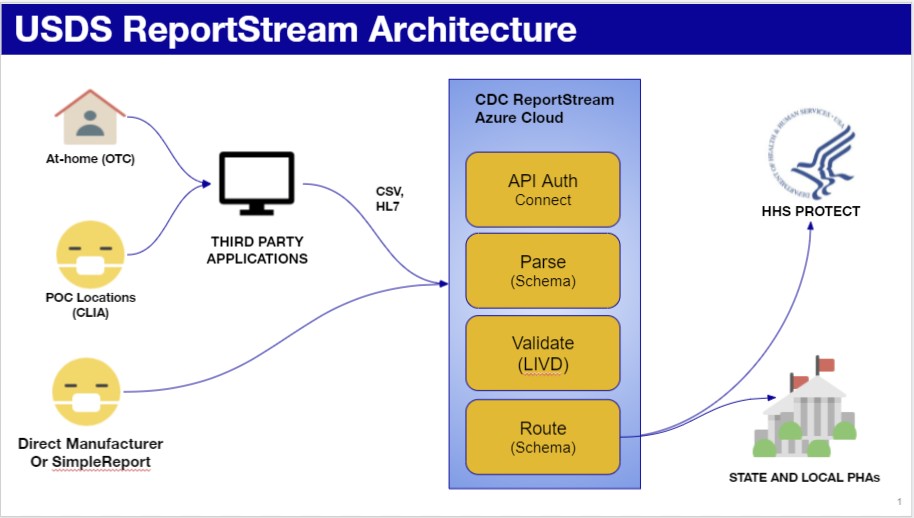
This programmer’s guide enables those who are writing automated systems and tools to send laboratory and other health-related data to local, state, and federal jurisdictions. It helps you, the technical user at the testing facility or sending location (sender), learn how to send data using the ReportStream Restful (REST) API.

Examples in this guide use curl commands for simplicity with the assumption you’ll be coding these calls into your sending system. You can also use a program like PostMan to test submissions.

# Release Notes

You can find ReportStream release notes here: <https://github.com/CDCgov/prime-reportstream/tree/master/prime-router/docs/releases>

# Onboarding Process Summary



Here’s a high-level outline of the *technical* steps involved in a typical ReportStream testing facility / sender onboarding process. There are other onboarding activities, such as acknowledging the [Terms of Service](https://github.com/CDCgov/prime-reportstream/blob/a7912153548fd6a70519f8466c9a92864ce8d2c6/frontend/src/terms-of-service.html), not covered in this guide.

## Step 1: Sample Data

You’ll share artificially created data (“fake data”)/non-PII example data with the ReportStream team via email. Currently, ReportStream can accept either a CSV file or HL7 input data. We’ll work together to help you use one of our existing standard data models or derive new data models as needed. We’ll provide detailed documentation for expected data types and values in your data model, as well as fake data or synthetic data using that model.

## Step 2: Onboard to Staging

After jointly agreeing on a stable draft or existing data model, the ReportStream team will onboard you to our staging environment. You’ll need to set up an account in Keybase (more information in "[Sending to ReportStream](#_Sending_to_ReportStream)” section) so we can share the API Keys/tokens and the URL with you. We expect you’ll keep all such private information secured both at rest and in transit.

You can use curl commands to send test submissions to the staging environment. Using the Staging API, you can then test your automation code as well as your code that handles responses. **Do not send any PII or PHI to the Staging system – only fake/ dummy/ example/ synthetic data is acceptable.** Let us know when you send submissions to the Staging environment. We’ll review that data and work with you to correct any issues. Feel free to send as many fake data submissions to staging as you like.

## Step 3: Onboard to Production in Training Mode

Upon receiving the signed Terms of Service (TOS) agreement and jointly agreeing on a stable final data model, the ReportStream team will onboard you to our Production system, in “Training” mode. You’ll receive API Keys/tokens and the URL via Keybase so you can test connectivity using PII data. ReportStream doesn’t forward or transport data received in Training mode. To help in troubleshooting, the ReportStream team can provide detailed information on where your data would have flowed if Production mode was active.

## Step 4: Production

After jointly agreeing on a Training period end date, the ReportStream team will enable full production mode, with data automatically flowing to appropriate state, local, and federal jurisdictional systems.

# Sending to ReportStream

## Example

Here’s an example bash shell curl command submission to ReportStream. The command submits the contents of the file ‘./healthy-labs-nonPII-data.csv‘ to the endpoint using the client name healthy-labs. You’ll use your own client name and your own token (API key).

curl -X POST -H “client:healthy-labs” -H “content-type:text/csv” –data-binary “@./healthy-labs-nonPII- data.csv” -H “x-functions-key:<place-token-here>” https://staging.prime.cdc.gov/api/reports

Here’s an example HL7 submission

curl -X POST -H “client:super-labs” -H “content-type:application/hl7-v2” –data-binary “@./super-labs-nonPII- data.hl7” -H “x-functions-key:<place-token-here>” https://staging.prime.cdc.gov/api/reports

(See “[Appendix A: Fields List](#_Appendix_A:_Fields)” for field definitions and sample values. See the “[Appendix B: Sample Payloads and Output](#_Appendix_B:_Sample)” for sample data and expected output.)

## Notes

* As part of the onboarding process, the ReportStream team will pre-configure ReportStream with your client information and give you a client-id. The client configuration tells ReportStream what type of data to expect for that client-id. ReportStream will look up the associated data model and format (CSV, HL7), and validate the attached payload.
* The ReportStream team will provide you with the token to use as the x-functions- key value for submissions to that client-id. We’ll share secrets using Keybase, so you’ll need to have a Keybase account (if you don’t have a Keybase account, set one up at [https://keybase.io](https://keybase.io/)).
* In the examples, data are submitted via an HTTP POST to the ReportStream Staging (test) system "reports" endpoint.
* The data submitted are sent as the payload of the POST, as is, with no changes.
* There’s a flag allowing partial submissions. With this flag, successful elements in a batch will succeed, and the unsuccessful ones won’t. This flag requires extra code on your part to handle partial failures.
* Here’s the complete end point and response [OpenAPI specification](https://github.com/CDCgov/prime-reportstream/blob/master/prime-router/docs/openapi.yml)

## Errors and warnings

The ReportStream response may include warnings and/or errors based on validation of the submission against the expected schema (schemas are described in “[Appendix C: ReportStream Data Models](#_Appendix_C:_ReportStream)”).

A successfully accepted submission returns a 201 HttpStatus code. Submissions with *warnings* but no errors will still be accepted. However, one or more *errors* fails the entire submission (the entire batch).

### Common errors

* Missing or mislabeled required columns/fields
* Missing or malformed data in required columns/fields
* CSV with “jagged” rows – differing number of columns within the payload
* Empty payload (an empty response is often a sign of a failed authorization, with a 401 response status). Make sure your token and the URL are correct.
* Incorrect client-id or other headers
* Incorrect data types (send a character string when a numeric value is expected)

### Common validation warnings

* Missing optional columns/fields
* Missing or malformed data in optional columns/fields

# Fast Facts for ReportStream Senders

* ReportStream is meant to handle any kind of health, laboratory, or health system data.
* ReportStream has a simple REST API endpoint, secured with a secret/token, sent as a HTTP header.
* Data is sent in the HTTP payload, either in CSV or HL7 2.5.1 formats.
* You can send a single record or up to 10,000 records in a single submission.
* You can send as often as you want.
* When you send data, you specify a unique client-id we assign you in an HTTP header. ReportStream uniquely maps the client-id to information about your application and the data format you’re using.
* ReportStream will automatically filter, transform, batch, and forward data to local, state, and federal jurisdictions based on both geographical and data quality filters provided by those jurisdictions.
* We can specify filters about which jurisdictions will receive the data.
* ReportStream responds to each API call with a response (json formatted) about the disposition of your data.
* ReportStream is not a permanent repository for health data. We only keep the data long enough to ensure it gets to the proper local, state, and federal jurisdictions.
* It’s often easier to look at sample data than at a schema. The ReportStream team can send you fake data files. We can synthesize data in CSV based on any of our schemas. The fake data will always successfully validate against the schema used to generate it. We’ve made efforts to make many datatypes like names, addresses, and LOINC and SNOMED code value sets look somewhat real. Since it’s computer-generated, the fake data may look strange.

# Appendix A: Fields List for a Typical Covid-19 Submission

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Fed Mandatory | | Fed Requested | State Mandatory | | State Requested | | **Nice to Have** |
| **HHS# FAQ** | **HL7 2.5.1** | **CSV fieldname** | | **HL7 Sample Output** | | **Use Notes** | |
| **1** | OBR-4.1 | **testOrdered** | | 94531-1 | | test performed | |
| **1.1** | OBR-4.2 | **testName** | | SARS-CoV-2 (COVID-19)  RNA panel | |  | |
| **1.2** | OBR-4.3 | **testCodingSystem** | | LN | |  | |
| **2** | OBX-5.1 | **testResult** | | 260373001 | |  | |
| **2.1** | OBX-5.2 | **testResultText** | | DETECTED | |  | |
| **2.2** | OBX-3.1 | **testPerformed** | | 94500-6 | |  | |
| **2.3** | OBX-5.3 | **testResultCodingSystem** | | SCT | |  | |
| **3** | OBX-14.1 | **testResultDate** | | 20210111 | |  | |
| **4** | OBX-19.1 | **testReportDate** | | 20210112 | | SNOMED-CT code | |
| **5** | ORC-15.1 | **testOrderedDate** | | 20210108 | |  | |
| **6** | SPM-17.1 | **specimenCollectedDate** | | 20210113 | |  | |
| **7** | OBX-17.1 | **deviceIdentifier** | | Cue012345678910 | | Emergency use auth (EUA), UDI issuance, GUDID | |
| **7.1** | OBX-17.2 | **deviceName** | | Cue COVID-19 Test | | Nice to have | |
| **8** | SPM-2.2 | **specimenId** | | 445c148beb2f4a | | Unique and consistent identifier for the individual test performed (ex.  Barcode number, serial number, or GUID). HHS FAQ  says this is requested. PLEASE INCLUDE IT HERE  OR IN OBX-18.1 | |
| **8a** | SPM-2.2 | **testId** | | 445c148beb2f4a | | **Optional**. A unique  identifier for this | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  | submitted test result. If this value is blank, or if the CSV column is missing, ReportStream will copy the specimenId into the testId. |
| **n/a** | n/a | **correctedTestId** | 445c148beb2f4a | **Optional**. Pointer/link to the testId (or specimenId, if no testId is provided) of a previously submitted result. Usually blank. Or, if an item modifies/corrects a prior item, this field holds the testId (or specimenId) of the  prior item |
| **8.1** | OBX-18.1 | **serialNumber** | 12345-67890-abcd | (1) Specified in HHS lab reporting guidance #7. Important to identify a specific test. |
| **9** |  | **patientAge** | 34 | \* Derived from DOB |
| **9** |  | **patientAgeUnits** | yr | yr (years) or mo (months) for babies  up to 2 years |
| **10** | PID-7.1 | **patientDob** | 19830608 | PII |
| **11** | PID-10.1 | **patientRace** | 2106-3 |  |
| **11.1** | PID-10.2 | **patientRaceText** | White |  |
| **12** | PID-22.1 | **patientEthnicity** | 2135-2 |  |
| **12.1** | PID-22.2 | **patientEthnicityText** | Non Hispanic or Latino |  |
| **13** | PID-8.1 | **patientSex** | M |  |
| **14** | PID-11.5 | **patientZip** | 94806 |  |
| **15** | PID-11.9 | **patientCounty** | Contra Costa County |  |
| **16** | ORC-12.1 | **orderingProviderNpi** | 1659388452 | NPI or "OTC" |
| **16.1** | ORC-12.2 | **orderingProviderLname** | Rakhmilevich |  |
| **16.2** | ORC-12.3 | **orderingProviderFname** | Mark |  |
| **17** | ORC-24.5 | **orderingProviderZip** | 10003 |  |
| **18** | OBX-23.1 | **performingFacility** | HEALTHY-LABS | CLIA. For self- administered use "SA" |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **19** | OBX-24.5 | **performingFacilityZip** | 90036 | Prefer zip code where test was  performed. Use SA  for self-administered |
| **20** | SPM-4.1 | **specimenSource** | 258500001 | SNOMED-CT code |
| **21.1** | PID-5.1 | **patientNameLast** | Meree | PII |
| **21.2** | PID-5.2 | **patientNameFirst** | Joseph | PII |
| **21.3** | PID-5.3 | **patientNameMiddle** | Middle | PII |
| **22** | PID-3.1 | **patientUniqueId** | 0099000223440 | Until HHS CIO cATO: Id from your system - NOT SSN(PII) |
| **23.1** | PID-11.1 | **patientHomeAddress** | 30 High Street | PII |
| **23.2** | PID-11.2 | **patientHomeAddress2** | Apartment 245 | PII |
| **23.3** | PID-11.3 | **patientCity** | San Pablo | PII |
| **23.4** | PID-11.4 | **patientState** | CA |  |
| **24** | PID-13.7 | **patientPhone** | 562-5551555 | PII |
| **24.1** | PID-13.6 | **patientPhoneArea** | 562 |  |
| **25.1** | ORC-24.1 | **orderingProviderAddress** | 817 BROADWAY |  |
| **25.2** | ORC-24.2 | **orderingProviderAddress2** | 33nd Floor |  |
| **25.3** | ORC-24.3 | **orderingProviderCity** | New York City |  |
| **25.4** | ORC-24.4 | **orderingProviderState** | NY |  |
| **26** | ORC-14.7 | **orderingProviderPhone** | 310-5557123 |  |
| **26.1** | ORC-14.6 | **orderingProviderPhoneArea** | 310 |  |
|  | ORC-22- 4 | **orderingFacilityState** | LA | States like to get test results from facilities  in their state |
| **27** |  | **firstTest** | NO | AOE |
| **27.1** |  | **previousTestType** | 94558-4 | AOE |
| **27.2** |  | **previousTestDate** | 20201213 | AOE |
| **27.3** |  | **previousTestResult** | 260415000 | AOE |
| **28** |  | **healthcareEmployee** | YES | AOE |
| **28.1** |  | **healthcareEmployeeType** | 6816002 | AOE |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **29** |  | **symptomatic** | NO | AOE |
| **29.1** |  | **symptomsList** | 44169009^20201219;  426000000^20201220 | AOE |
| **30** |  | **hospitalized** | YES | AOE patient is or has been hospitalized for COVID |
| **30.1** |  | **hospitalizedCode** | 840539006 | AOE |
| **31** |  | **symptomsIcu** | NO | AOE |
| **32** |  | **congregateResident** | YES | AOE |
| **32.1** |  | **congregateResidentType** | 30629002 | AOE |
| **33** |  | **pregnant** | 60001007 | AOE |
| **33.1** |  | **pregnantText** | NO | AOE |
| **34** | PID-13.4 | **patientEmail** | [joe.meree@datarobot.com](mailto:joe.meree@datarobot.com) | PII no number in FAQ |
| **35** | ORC-12.1 | **reportingFacility** | 1659388452 | SA (for OTC/self- administered), NPI from ordering Provider |

# Appendix B: Sample Payloads and Output

## Sample CSV Payload and Output

Input:

congregateResident,congregateResidentType,deviceIdentifier,deviceName,firstTest,healthcareEmployee,healthcare EmployeeType,hospitalized,hospitalizedCode,orderingFacilityState,orderingProviderAddress,orderingProviderAddres s2,orderingProviderCity,orderingProviderFname,orderingProviderLname,orderingProviderNpi,orderingProviderPhone, orderingProviderPhoneArea,orderingProviderState,orderingProviderZip,patientAge,patientAgeUnits,patientCity,patien tCounty,patientDob,patientEmail,patientEthnicity,patientEthnicityText,patientHomeAddress,patientHomeAddress2,pat ientNameFirst,patientNameLast,patientNameMiddle,patientPhone,patientPhoneArea,patientRace,patientRaceText,pa tientSex,patientState,patientUniqueId,patientUniqueIdHash,patientZip,performingFacility,performingFacilityZip,pregna nt,pregnantText,previousTestDate,previousTestResult,previousTestType,reportingFacility,serialNumber,specimenCol lectedDate,specimenId,specimenSource,symptomatic,symptomsIcu,symptomsList,testCodingSystem,testName,testO rdered,testOrderedDate,testPerformed,testReportDate,testResult,testResultCodingSystem,testResultDate,testResult Text

YES,74056004,"BinaxNOW COVID-19 Antigen Self Test\_Abbott Diagnostics Scarborough, Inc.",BinaxNOW COVID- 19 Antigen Self Test,YES,YES,3842006,YES,895231008,CA,11304 Lori Drive,,Basile,Verla,Duff,4490193417,310- 742-0168,310,CA,70515,20,yr,Basile,Evangeline,20010218,charlene.meree@email.com,2135-2,Hispanic or Latino,873 Tatum Crest,,Charlene,Meree,Emery,252-256-3219,252,2106- 3,White,F,LA,99000223440,98732498797494739877745A5,20195,10D2243349,34588,60001007,Not Pregnant,20210214,260415000,94558-4,10D2243349,20210422-AAA,20210411,258500001-AAA- BBB,697989009,YES,NO,44169009^20201219;426000000^20201220,SCT,SARS-CoV-2 nucleocapsid protein antigen,94558-4,20210411,94558-4,20210414,455371000124106,SCT,20210413,Invalid result

Response:

{

"id" : "6b0ecd05-4e2b-43f7-9d60-ca0b86c80c5f", "timestamp" : "2021-07-15T22:10:50.801291Z",

"topic" : "covid-19", "reportItemCount" : 1, "destinations" : [ { "organization" : "HHSProtect",

"organization\_id" : "hhsprotect", "service" : "elr",

"sending\_at" : "2021-07-15T18:12-04:00",

"itemCount" : 1

}, {

"organization" : "California Department of Public Health", "organization\_id" : "ca-dph",

"service" : "elr",

"sending\_at" : "2021-07-15T18:12-04:00",

"itemCount" : 1

}, {

"organization" : "Louisiana Department of Health", "organization\_id" : "la-doh",

"service" : "elr",

"sending\_at" : "2021-07-15T17:12-05:00",

"itemCount" : 1

} ],

"destinationCount" : 3,

"warningCount" : 0,

"errorCount" : 0, "errors" : [ ],

"warnings" : [ ]

}

## Sample HL7 2.5.1 Payload and Output

Input:

FHS|^~\&|CDC PRIME - Atlanta,^2.16.840.1.114222.4.1.237821^ISO|CDC PRIME - Atlanta,^2.16.840.1.114222.4.1.237821^ISO|||202108031315+0000

BHS|^~\&|CDC PRIME - Atlanta,^2.16.840.1.114222.4.1.237821^ISO|CDC PRIME - Atlanta,^2.16.840.1.114222.4.1.237821^ISO|||202108031315+0000

MSH|^~\&|CDC PRIME - Atlanta,^2.16.840.1.114222.4.1.237821^ISO|Winchester House^05D2222542^ISO|CDPH CA REDIE^2.16.840.1.114222.4.3.3.10.1.1^ISO|CDPH\_CID^2.16.840.1.114222.4.1.214104^ISO|20210803131511.0147

+0000||ORU^R01^ORU\_R01|1234d1d1-95fe-462c-8ac6-46728dba581c|P|2.5.1|||NE|NE|USA|UNICODE UTF-

8|||PHLabReport-NoAck^ELR\_Receiver^2.16.840.1.113883.9.11^ISO

SFT|Centers for Disease Control and Prevention|0.1-SNAPSHOT|PRIME Data Hub|0.1-SNAPSHOT||20210726 PID|1||09d12345-0987-1234-1234-111b1ee0879f^^^Winchester House&05D2222542&ISO^PI^&05D2222542&ISO||Bunny^Bugs^C^^^^L||19000101|M||2106- 3^White^HL70005^^^^2.5.1|12345 Main St^^San Jose^CA^95125^USA^^^06085||(123)456-

7890^PRN^PH^^1^123^4567890|||||||||N^Non Hispanic or Latino^HL70189^^^^2.9||||||||N

ORC|RE|1234d1d1-95fe-462c-8ac6-46728dba581c^Winchester House^05D2222542^ISO|1234d1d1-95fe-462c- 8ac6-46728dba581c^Winchester House^05D2222542^ISO|||||||||1679892871^Doolittle^Doctor^^^^^^CMS&2.16.840.1.113883.3.249&ISO^^^^NPI||(123

)456-7890^WPN^PH^^1^123^4567890|20210802||||||Winchester House|6789 Main St^^San Jose^CA^95126^^^^06085|(123)456-7890^WPN^PH^^1^123^4567890|6789 Main St^^San Jose^CA^95126 OBR|1|1234d1d1-95fe-462c-8ac6-46728dba581c^Winchester House^05D2222542^ISO|1234d1d1-95fe-462c-8ac6- 46728dba581c^Winchester House^05D2222542^ISO|94558-4^SARS-CoV-2 (COVID-19) Ag [Presence] in Respiratory specimen by Rapid immunoassay^LN^^^^2.68|||202108020000-0500|202108020000- 0500||||||||1679892871^Doolittle^Doctor^^^^^^CMS&2.16.840.1.113883.3.249&ISO^^^^NPI|(123)456-

7890^WPN^PH^^1^123^4567890|||||202108020000-0500|||F

OBX|1|CWE|94558-4^SARS-CoV-2 (COVID-19) Ag [Presence] in Respiratory specimen by Rapid immunoassay^LN^^^^2.68||260415000^Not detected^SCT|||N^Normal (applies to non-numeric results)^HL70078^^^^2.7|||F|||202108020000- 0500|05D2222542^ISO||10811877011290\_DIT^^99ELR^^^^2.68^^10811877011290\_DIT||202108020000-

0500||||Winchester House^^^^^ISO&2.16.840.1.113883.19.4.6&ISO^XX^^^05D2222542|6789 Main St^^San Jose^CA^95126^^^^06085

OBX|2|CWE|95418-0^Whether patient is employed in a healthcare setting^LN^^^^2.69||N^No^HL70136||||||F|||202108020000-0500|05D2222542||||202108020000-0500||||Winchester House^^^^^ISO&2.16.840.1.113883.19.4.6&ISO^XX^^^05D2222542|6789 Main St^^San Jose^CA^95126- 5285^^^^06085|||||QST

OBX|3|CWE|95417-2^First test for condition of interest^LN^^^^2.69||N^No^HL70136||||||F|||202108020000- 0500|05D2222542||||202108020000-0500||||Winchester House^^^^^ISO&2.16.840.1.113883.19.4.6&ISO^XX^^^05D2222542|6789 Main St^^San Jose^CA^95126- 5285^^^^06085|||||QST

OBX|4|CWE|95421-4^Resides in a congregate care setting^LN^^^^2.69||Y^Yes^HL70136||||||F|||202108020000- 0500|05D2222542||||202108020000-0500||||Winchester House^^^^^ISO&2.16.840.1.113883.19.4.6&ISO^XX^^^05D2222542|6789 Main St^^San Jose^CA^95126- 5285^^^^06085|||||QST

OBX|5|CWE|95419-8^Has symptoms related to condition of interest^LN^^^^2.69||N^No^HL70136||||||F|||202108020000-0500|05D2222542||||202108020000-0500||||Winchester House^^^^^ISO&2.16.840.1.113883.19.4.6&ISO^XX^^^05D2222542|6789 Main St^^San Jose^CA^95126- 5285^^^^06085|||||QST

SPM|1|1234d1d1-95fe-462c-8ac6-46728dba581c&&05D2222542&ISO^1234d1d1-95fe-462c-8ac6-

46728dba581c&&05D2222542&ISO||445297001^Swab of internal nose^SCT^^^^2.67||||53342003^Internal nose structure (body structure)^SCT^^^^2020-09-01|||||||||202108020000-0500|20210802000006.0000-0500

Response:

{

"id" : "f08ccba0-c5ff-4ef5-924c-f72747603f02", "timestamp" : "2021-08-05T11:33:01.060209Z",

"topic" : "covid-19", "reportItemCount" : 1, "destinations" : [ {

"organization" : "California Department of Public Health", "organization\_id" : "ca-dph",

"service" : "elr",

"sending\_at" : "2021-08-05T07:34-04:00",

"itemCount" : 1

} ],

"destinationCount" : 1,

"warningCount" : 0,

"errorCount" : 0, "errors" : [ ],

"warnings" : [ ]

}

# Appendix C: ReportStream Data Models

While ReportStream’s initial uses have focused on COVID-19 test results, it’s designed to accept a wide variety of healthcare data in CSV or HL7 2.5.1 formats.

During the onboarding process, the ReportStream team configures a data model or schema associated with your client-id. When ReportStream receives a submission, its data gets validated against that schema, prior to ingesting, transforming, and routing the data.

If you send us non-PII sample/example data, we can work with you to develop a schema meeting your needs. Or you can send data meeting one of our existing schemas.

## Examples

COVID-19 data matching HHS Guidance: <https://github.com/CDCgov/prime-reportstream/blob/master/prime-router/docs/schema_documentation/direct-direct-covid-19.md>

A simple schema meant for testing and demos: <https://github.com/CDCgov/prime-reportstream/blob/master/prime-router/docs/schema_documentation/sample-phd1-sample.md>

A complex real-life schema used by our sister project, SimpleReport, for submitting COVID-19 data: <https://github.com/CDCgov/prime-reportstream/blob/master/prime-router/docs/schema_documentation/primedatainput-pdi-covid-19.md>

Other examples of COVID-19 schemas: <https://github.com/CDCgov/prime-reportstream/tree/master/prime-router/docs/schema_documentation>

# Additional Resources

[COVID-19 Diagnostic Data Standards: Frequently Asked Questions](https://www.hhs.gov/sites/default/files/hhs-diagnostic-data-faqs.pdf)