



APHL Informatics
Messaging Services
Electronic Lab Reporting
Reporting Variants of Concern

Guidance for Reporting SARS-CoV-2 Sequencing

- With the rise of more variants some variants require close tracking to ascertain if they have clinical implications.
- Variants are of concern may vary over time and not all may remain of importance. New ones may be detected in the future, so we opted to have them reported as string.
- **Guidance:**
 - [CDC Guidance \(https://www.cdc.gov/coronavirus/2019-ncov/lab/resources/reporting-sequencing-guidance.html\)](https://www.cdc.gov/coronavirus/2019-ncov/lab/resources/reporting-sequencing-guidance.html)
 - [https://confluence.hl7.org/pages/viewpage.action?pageId=86967947#ProposedHHSELRSubmissionGuidanceusingHL7v2Messages-Reportingvariants\(ofconcern\)](https://confluence.hl7.org/pages/viewpage.action?pageId=86967947#ProposedHHSELRSubmissionGuidanceusingHL7v2Messages-Reportingvariants(ofconcern))

CSV Converter Senders

Sending Variant Data Via CSV Converter

1

ADD SEQUENCING LOINC TO 'dropDownValues' TAB FOR OBR-4

A	B	C	D
HL7 element / Field name	Local Description	Local Code	Standard Code
OBR-4 / Ordered_test_*		96741-4	96741-4

E	F	G
Standard Code Description	Standard Code System	Replacement Value
SARS-CoV-2 (COVID-19) variant [Type] in Specimen by Sequencing	LN	96741-4^SARS-CoV-2 (COVID-19) variant [Type] in Specimen by Sequencing^LN^^^2.69

Sending Variant Data Via CSV Converter

2 ADD SEQUENCING LOINCS TO 'dropDownValues' TAB FOR OBX-3

A	B	C	D
HL7 element / Field name	Local Description	Local Code	Standard Code
OBX-3 / Test_performed_*		96741-4	96741-4
OBX-3 / Test_performed_*		PLT2397	PLT2397

E	F	G
Standard Code Description	Standard Code System	Replacement Value
SARS-CoV-2 (COVID-19) variant [Type] in Specimen by Sequencing	LN	96741-4^SARS-CoV-2 (COVID-19) variant [Type] in Specimen by Sequencing^LN^^^^2.69
Filler Lab Assigned Genetic Sequence Identifier	PLT	PLT2397^Filler Lab Assigned Genetic Sequence Identifier^PLT^^^^Vunknown

Sending Variant Data Via CSV Converter

3 UPDATE 'Configuration' TAB ORDERED/PERFORMED MAPPING RANGE

A	B	C
Dropdown/Mapping configuration	Input Column Name	Local code values Range (in dropDownValues Tab)
	Ordered_test_code	C163:C169
	Test_performed_code	C176:C204

	A	B	
1	HL7 element / Field name	Local Description	Local Code
162			
163	OBR-4 / Ordered_test_*		94531-1
164	OBR-4 / Ordered_test_*		94306-8
165	OBR-4 / Ordered_test_*		94503-0
166	OBR-4 / Ordered_test_*		94504-8
167	OBR-4 / Ordered_test_*		96741-4
168	OBR-4 / Ordered_test_*		
169	OBR-4 / Ordered_test_*		
	Input Column Name	Local code values Range (in dropDownValues	
	Ordered_test_code	C163:C169	
	Test_performed_code	C176:C204	

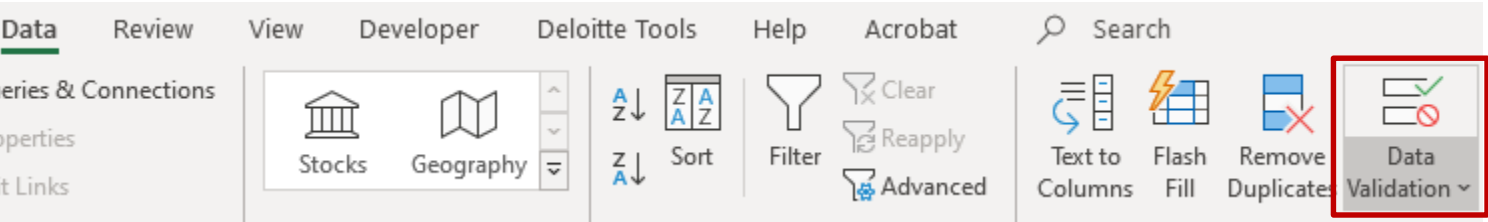
Adjust ranges (if applicable) to mirror the ranges in the 'dropDownValues' tab.

Sending Variant Data Via CSV Converter

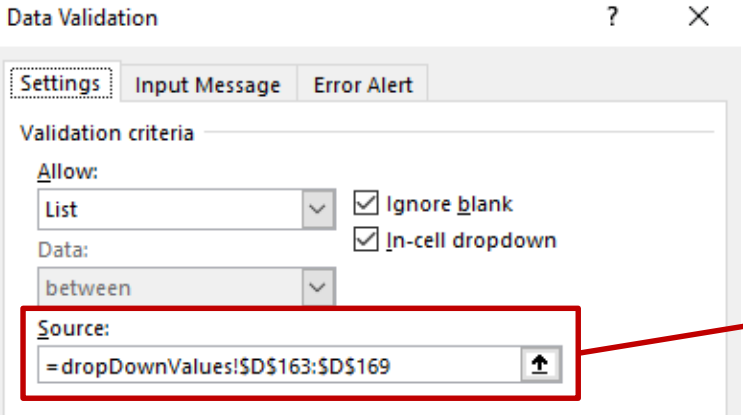
4 IF MANUAL ENTRY, UPDATE DROPDOWNS TO REFLECT CHANGES

CM	...	CU	...	CW
Ordered_test_code		Test_result_coded		Test_performed_code

Select columns **CM**, **CU**, **CW** and update the dropdown ranges.



Click 'Data' then 'Data Validation'



Update source of dropdown list to reflect the newly added values (if applicable). This step is only needed if you are manually entering data to produce HL7 messages.

Sending Variant Data Via CSV Converter

5 TEST CONFIGURATION CHANGES – REPORTING LINEAGE AS STRING

In order to report the lineage, use a separate row in the csv file to report the lineage as string and a separate row for testing lab assigned sequence identifier.

BF	...	CM	CN
Test_Result_free_text		Ordered_test_code	Ordered_test_code_system
Enter lineage string		96741-4	LN
Enter genetic sequence identifier from filler lab		96741-4	LN

Example lineages are listed on [CDC website](#).

CW	CX
Test_performed_code	Test_performed_code_system
96741-4	LN
PLT2397	PLT

Sending Variant Data Via CSV Converter

6 ENTER LINEAGE AS STRING IN OBX-5 (EXAMPLES SEEN SO FAR BELOW)

- SARS-CoV-2 B.1.1.7 lineage
- SARS-CoV-2 B.1.351 lineage
- SARS-CoV-2 B.1.427 lineage
- SARS-CoV-2 B.1.429 lineage
- SARS-CoV-2 B.1.525 lineage
- SARS-CoV-2 B.1.526 lineage
- SARS-CoV-2 B.1.526.1 lineage
- SARS-CoV-2 P.1 lineage
- SARS-CoV-2 P.2 lineage
- Unable to complete sequencing

Sending Variant Data Via CSV Converter

7 REVIEW HL7 MESSAGE – REPORTING VARIANT AS STRING

OBR | 1 | | M00000494-250^UAMC^04D1044169^CLIA | 96741-4^SARS-CoV-2 (COVID-19) variant [Type] in Specimen by Sequencing^LN^^^^2.69^^ | | 2021040163900-0500 | | | | | ^Everman^Anna^^^^^^^^^^^^^^^^^^^^ | ^^^^^501^2197386 | | | | 20210414163900-0500 | | F | | | |

NTE | 1 | L | Illumina COVIDSeq Test_Illumina, Inc._EUA

OBX | 1 | ST | 96741-4^SARS-CoV-2 (COVID-19) variant [Type] in Specimen by Sequencing^LN^^^^2.69 | | SARS-CoV-2 B.1.1.7 lineage

| | | A^Abnormal^HL70078^^^^Vunknown | | F | | | 04D1044169 | | Illumina COVIDSeq Test_Illumina, Inc._EUA^^99ELR^^^^Vunknown | | 20210413163900-0500 | | | UAMC^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^04D1044169 | 202 South Monroe^Bldg 12^Little Rock^AR^72205^USA^^05119

OBX | 2 | ST | PLT2397^Filler Lab Assigned Genetic Sequence Identifier^PLT^^^^Vunknown | | EPIISL250390 | | A^Abnormal^HL70078^^^^Vunknown | | F | | | 04D1044169 | | Illumina COVIDSeq Test_Illumina, Inc._EUA^^99ELR^^^^Vunknown | | 20210413163900-0500 | | | UAMC^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^04D1044169 | 202 South Monroe^Bldg 12^Little Rock^AR^72205^USA^^05119

Native HL7 Senders

Sending Variant Data Via HL7

1 MAP SEQUENCING LOINC TO OBR-4

SEG	FIELD	DATA ELEMENT NAME	FIELD VALUE
OBR	4.1	Universal Service Identifier (Order)	96741-4
OBR	4.2	Description for Order	SARS-CoV-2 (COVID-19) variant [Type] in Specimen by Sequencing
OBR	4.3	Coding System Name	LN
OBR	4.7	Coding System Version ID	2.69

Sending Variant Data Via HL7

2 MAP SEQUENCING

SEG	FIELD	DT	DATA ELEMENT NAME	FIELD VALUE
OBX	2	ID	Value Type	ST
OBX	3.1	ST	Observation Identifier	96741-4
OBX	3.2	ST	Observation Description	SARS-CoV-2 (COVID-19) variant [Type] in Specimen by Sequencing
OBX	3.3	ID	Observation Name of Coding System	LN
OBX	3.7	ST	Observation Coding System Version ID	2.69
OBX	17.1	ST	Observation Method Identifier	LIVD Mapping Tool Column M_Column N Column O_P (if applicable)
OBX	17.3	ID	Obs Method Name of Coding System	99ELR
OBX	17.7	ST	Obs Method Coding System Version ID	Vunknown
OBX	19.1	DTM	Date/Time of Analysis	YYYYMMDD[HHMMSS+/-ZZZZ]

Sending Variant Data Via HL7

3 MAP LAB ASSIGNED SEQUENCE IDENTIFIER

SEG	FIELD	DT	DATA ELEMENT NAME	FIELD VALUE
OBX	2	ID	Value Type	ST
OBX	3.1	ST	Observation Identifier	PLT2397
OBX	3.2	ST	Observation Description	Filler Lab Assigned Genetic Sequence Identifier
OBX	3.3	ID	Observation Name of Coding System	PLT
OBX	3.7	ST	Observation Coding System Version ID	Vunknown
OBX	17.1	ST	Observation Method Identifier	LIVD Mapping Tool Column M_Column N Column O_P (if applicable)
OBX	17.3	ID	Obs Method Name of Coding System	99ELR
OBX	17.7	ST	Obs Method Coding System Version ID	Vunknown
OBX	19.1	DTM	Date/Time of Analysis	YYYYMMDD[HHMMSS+/-ZZZZ]

Sending Variant Data Via HL7

4 REPORTING LINEAGE & LAB ASSIGNED IDENTIFIER AS STRING

SEG	FIELD	DT	DATA ELEMENT NAME	FIELD VALUE
OBX	5	ST	Observation Value	Enter lineage as string SEE NEXT SLIDE FOR VALUES (*so far)

OBX | 1 | ST | 96741-4^SARS-CoV-2 (COVID-19) variant [Type] in Specimen by Sequencing^LN^^^2.69 | | **SARS-CoV-2 B.1.1.7 lineage** |

SEG	FIELD	DT	DATA ELEMENT NAME	FIELD VALUE
OBX	5	ST	Observation Value	Enter lab assigned identifier WHATEVER FORMAT THE LAB USES

OBX | 2 | ST | PLT2397^Filler Lab Assigned Genetic Sequence Identifier^PLT^^^Vunknown | | **EPIISL250390** |

Sending Variant Data Via HL7

5 ENTER LINEAGE AS STRING IN OBX-5 (EXAMPLES SEEN SO FAR BELOW)

- SARS-CoV-2 B.1.1.7 lineage
- SARS-CoV-2 B.1.351 lineage
- SARS-CoV-2 B.1.427 lineage
- SARS-CoV-2 B.1.429 lineage
- SARS-CoV-2 B.1.525 lineage
- SARS-CoV-2 B.1.526 lineage
- SARS-CoV-2 B.1.526.1 lineage
- SARS-CoV-2 P.1 lineage
- SARS-CoV-2 P.2 lineage
- Unable to complete sequencing

Sending Variant Data Via HL7

6 REVIEW HL7 MESSAGE – REPORTING VARIANT AS STRING

OBR | 1 | | M00000494-250^UAMC^04D1044169^CLIA | 96741-4^SARS-CoV-2 (COVID-19) variant [Type] in Specimen by Sequencing^LN^^^^2.69^^ | | 2021040163900-0500 | | | | | ^Everman^Anna^^^^^^^^^^^^^^^^^^^^ | ^^^^^501^2197386 | | | | 20210414163900-0500 | | F | | | |

NTE | 1 | L | Illumina COVIDSeq Test_Illumina, Inc._EUA

OBX | 1 | ST | 96741-4^SARS-CoV-2 (COVID-19) variant [Type] in Specimen by Sequencing^LN^^^^2.69 | | SARS-CoV-2 B.1.1.7 lineage

| | A^Abnormal^HL70078^^^^Vunknown | | F | | | 04D1044169 | | Illumina COVIDSeq Test_Illumina, Inc._EUA^^99ELR^^^^Vunknown | | 20210413163900-0500 | | | UAMC^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^04D1044169 | 202 South Monroe^Bldg 12^Little Rock^AR^72205^USA^^05119

OBX | 2 | ST | PLT2397^Filler Lab Assigned Genetic Sequence Identifier^PLT^^^^Vunknown | | EPIISL250390 | | A^Abnormal^HL70078^^^^Vunknown | | F | | | 04D1044169 | | Illumina COVIDSeq Test_Illumina, Inc._EUA^^99ELR^^^^Vunknown | | 20210413163900-0500 | | | UAMC^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^04D1044169 | 202 South Monroe^Bldg 12^Little Rock^AR^72205^USA^^05119