



HL7 Generator Tool Overview (Manual Entry)

This tool is built into Microsoft Excel and has various tabs, some of which are for data input and some of which are for configuration data.

Description of Tabs in the HL7 Generator Tool

Instructions Tab: Contains overall instructions and buttons to execute the generation

Gap Analysis7-8 Tab: Contains the overall data guidance/constraints provided by CDC and HHS on 7/8/2020

Flatfile_Result_Use Tab: Data entry tab which allows the user to manually enter data into those fields whose values cannot be pre-configured. This tab supports drop down menus for several elements. The macro used ensures that all fields required to generate an HL7 v.2.5.1 compliant message are populated and follow the expected format, when important.

Configuration Tab: Contains two parts that determine data mapping for each message generated by the tool:

1. Static values to be included in specific data fields for all messages generated
 - a. If Column E – “Corresponding input column name (to replace if empty)” is populated, the tool will only populate this entry if the corresponding input column is empty.
2. References that map valid values from the dropDownValues tab to the data input fields on Flatfile_Result_Use tab

dropDownValues Tab: Defines specific value sets that are valid for certain HL7 elements and fields. Referenced by Configuration Tab and Flatfile_Result_Use Tab and allows for mapping local codes used in the csv file that is being imported to the standard codes to be included in the HL7 messages. If the lookup of the local value fails, it will then check to see if the input is in column D (Standard code). If it matches the value in Column D, it will map the replacement value to the HL7 message for that field.

Admin Tab: Defines overall flat file configuration (input/output directories for processing, flatfile naming parameters) as well as validations and lookups to be used for various fields.

Summary of Steps to Generate HL7 Output Files from Manual Entry

Step 1: Set up folder structures for files

Step 2: Open the HL7 Generator Tool

Step 3: In *Admin tab*, specify file directory paths

Step 4: In *Admin tab*, specify ‘Test’ or ‘Prod’



Step 5: In *Admin* tab, specify *Interpartner “From” Value*

Step 6: In *Admin* tab, specify the delimiter character to note multiple values (repeats) in a single segment.

Step 7: In *Instructions* tab, click “Generate HL7 from Manual Entry” button to generate test output

Step 8: In *Gap Analysis7-8* tab, view minimum required fields and indicate fields that your lab supports

Step 9: In *Configuration* tab, populate static meta-data values.

Step 10: In *dropDownValues* tab, map local lab values to standard HL7 values

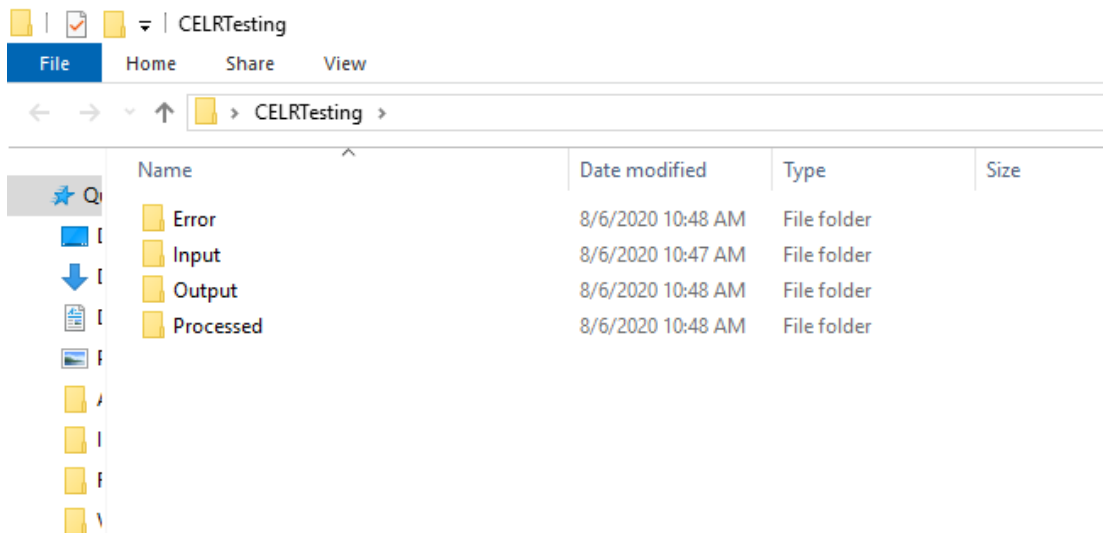
Step 11: In *Configuration* tab, ensure that all standard HL7 values from *dropDownValues* tab are represented in the bottom half of the tab

Step 12: In *Flatfile_Result_Use* tab, enter your data manually

Step 13: In *Instructions* tab, click “Generate HL7 from Manual Entry” button to generate output

Detailed Steps to Generate HL7 Output Files from Manual Entry

Step 1: Create a folder structure (suggested on Desktop of your Computer) with four folders: Input, Output, Processed, Error. Write down the full paths of each of the folders.



Step 2: Open the HL7 Generator tool Excel file (*NatELRFlatFile_GapAnalysis_HL7Generator.xlsm*). Enable all content and macros. Click on “Save As” and add your own unique filename to save your specific configurations separate from the base tool file (i.e. *NatELRFlatFile_GapAnalysis_HL7Generator_Testing.xlsm*).

Step 3. Go to the *Admin* tab of the tool. Enter the full directory paths for the Input, Output, Processed and Error Directories from Step 1. If the order of the columns is changed on the *Flatfile_result_use* tab,



update the “Flatfile_Result_Use column to count rows” to a required field. It currently points to “Patient_ID.”

NatELRFlatFile_GapAnalysis

Config Item	Value	Description	FlatFile_C
1 Input Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\input	Abnormal fl	
2 Output Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\output	Comments	
3 Processed Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\processed	Date_result	
4 Error Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\error	Disease_sym	
5 FlatFile_order_use column to count rows	A	Employed_in	
6 FlatFile_Result_Use final column	DP	Employed_in	
7		First_test	
8		flatfile_versi	
9 Timer on	FALSE	Hospitalized	
10 Number of Errors before exit	0	ICU	
11		Illness_onset	
12		Instrument_i	
13		Instrument_n	
14		Instrument_n	
15 Current Usage (and MSH-11 mapping)	Test	Link_test_to	
16 Interpartner "From" value	eTrueNorth	Link_test_to	
17 Interpartner "To" value	AIMSPlatform	Order_result	
18 Test result exclude from normal processing	Test_kit_EUA_ID,Test_kit_model_ID,Test_kit_model_name,Test_result_code_system,Test_r	Order_test_d	
19 Multiple value separator	;	Ordered_test	
20 Input file name	csvToConvert.csv	Ordered_test	
21 Debug mode	FALSE	Ordered_test	
22 Time zone	ET	Ordering_fac	
23		Ordering_fac	
24		Ordering_fac	
25 Notes:		Ordering_fac	
26 If HL7 Mapping is a particular segment configure the "Config" column with the template that will have the segment value to be replaced with		Ordering_fac	
27 the value in the input column of the flat file.		Ordering_fac	
28		Ordering_fac	

Step 4: On the *Admin* tab, select the appropriate value (Test or Prod) from the drop down for the field *Current Usage (and MSH-11 mapping)*.

NatELRFlatFile_GapAnalysis

Config Item	Value	Description	FlatFile_C
1 Input Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\input	Abnormal fl	
2 Output Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\output	Comments	
3 Processed Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\processed	Date_result	
4 Error Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\error	Disease_sym	
5 FlatFile_order_use column to count rows	A	Employed_in	
6 FlatFile_Result_Use final column	DP	Employed_in	
7		First_test	
8		flatfile_versa	
9 Timer on	FALSE	Hospitalized	
10 Number of Errors before exit	0	ICU	
11		Illness_onset	
12		Instrument_i	
13		Instrument_n	
14		Instrument_n	
15 Current Usage (and MSH-11 mapping)	Test	Link_test_to	
16 Interpartner "From" value	eTrueNorth	Link_test_to	
17 Interpartner "To" value	AIMSPlatform	Order_result	
18 Test result exclude from normal processing	Test_kit_EUA_ID,Test_kit_model_ID,Test_kit_model_name,Test_result_code_system,Test_r	Order_test_d	
19 Multiple value separator	;	Ordered_test	
20 Input file name	csvToConvert.csv	Ordered_test	
21 Debug mode	FALSE	Ordered_test	
22 Time zone	ET	Ordering_fac	
23		Ordering_fac	
24		Ordering_fac	
25 Notes:		Ordering_fac	
26 If HL7 Mapping is a particular segment configure the "Config" column with the template that will have the segment value to be replaced with		Ordering_fac	
27 the value in the input column of the flat file.		Ordering_fac	
28		Ordering_fac	



Step 5: On the *Admin* tab, in the field *Interpartner "From" Value*, input the appropriate value for your organization (example below shows "YourOrganization"). This value is used in the InterPartner file name for output files. For more information about setting up the Interpartner filename follow instructions in ["AIMS - CentralizedELR InterPartner Messaging Guide"](#). *This step is important when using AIMS routing services; when working directly with a jurisdiction they may have other information about this.*

Config Item	Value	Description	FlatFile_C
Input Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\input		Abnormal fla
Output Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\output		Comments
Processed Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\processed		Date_result_t
Error Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\error		Disease_sym
FlatFile_order_use column to count rows	A		Employed_in
FlatFile_Result_Use final column	DP		Employed_in
Timer on	FALSE		First_test
Number of Errors before exit	0		flatfile_versi
			Hospitalized
			ICU
			Illness_onset
			Instrument_i
			Instrument_n
Current Usage (and MSH-11 mapping)	Test		Instrument_n
Interpartner "From" value	eTrueNorth		Link_test_to
Interpartner "To" value	AIMSPlatform		Link_test_to
Test result exclude from normal processing	Test_kit_EUA_ID,Test_kit_model_ID,Test_kit_model_name,Test_result_code_system,Test_r		Order_result
Multiple value separator	;		Order_test_d
Input file name	csvToConvert.csv		Ordered_test
Debug mode	FALSE		Ordered_test
Time zone	ET		Ordered_test
			Ordering_faci
			Ordering_faci
			Ordering_faci
Notes:			Ordering_faci
If HL7 Mapping is a particular segment configure the "Config" column with the template that will have the segment value to be replaced with			Ordering_faci
the value in the input column of the flat file.			Ordering_faci
			Ordering_faci

On the *Admin* tab, note that Columns D-K contain the logic by which the different data fields are read, transformed and output to the flat file. Please do not change these columns or the tool macros may break.

On the Admin tab, the fields "Timer on" , "Number of Errors before exit" and "Debug mode" should be used by developers or those trained with the macro to perform integration testing. This is documented in "Developer Instructions". By default "Timer on" and "Debug Mode" should be set to "FALSE" and "Number of Errors before exit" should be set to 0.

If you notice any issues please contact AIMS Technical Assistance at informatics.support@aphl.org.

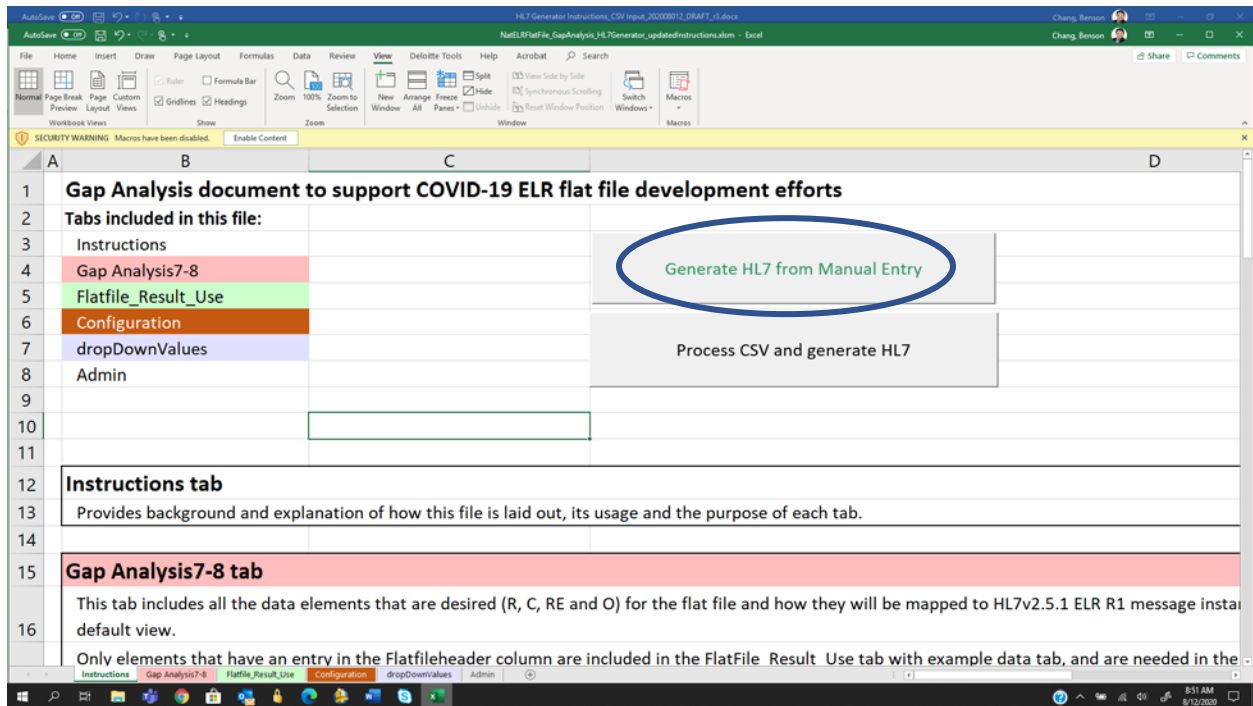


Step 6: In *Admin* tab, specify the delimiter character to note multiple values (repeats) in a single field. Note that the default character used is a semicolon (;). Use this delimiter to list multiple values in the *Disease_symptoms* column. In the output, each value will be mapped to a separate OBX segment.

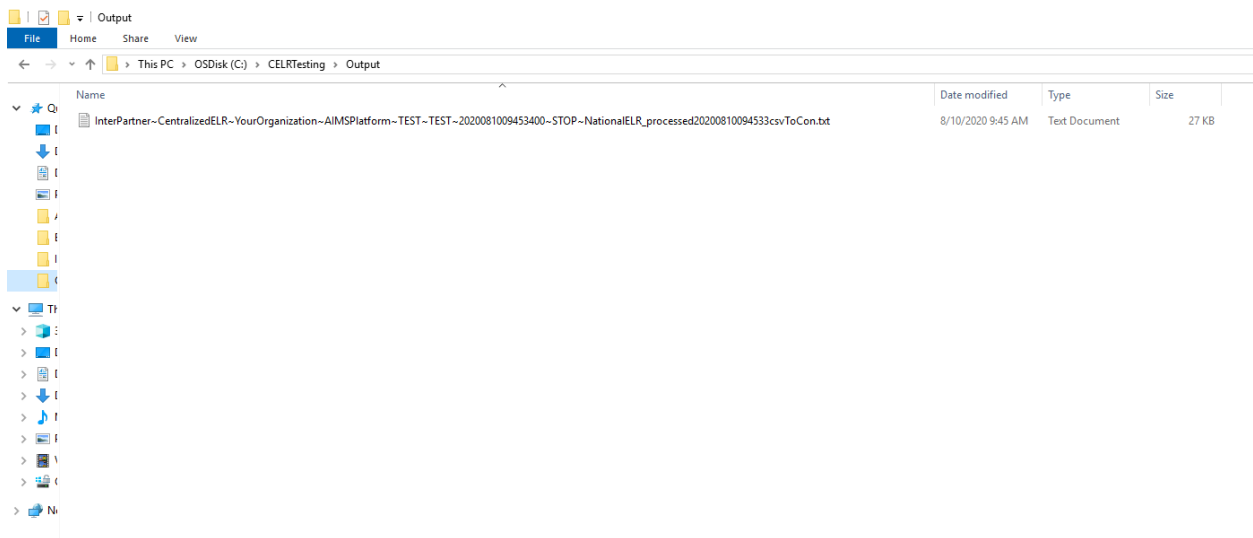
NatELRFlatFile_GapAnalysis

Config Item	Value	Description	FlatFile_C
Input Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\input		Abnormal_file
Output Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\output		Comments
Processed Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\processed		Date_result_i
Error Directory	C:\Users\riki.merrick\Documents\ELR\flatfileProject\centralized ELR\error		Disease_sym
FlatFile_order_use column to count rows	A		Employed_in
FlatFile_Result_Use final column	DP		Employed_in
			First test
Timer on	FALSE		flatfile_versi
Number of Errors before exit	0		Hospitalized
			ICU
			Illness_onset
			Instrument_ij
			Instrument_n
Current Usage (and MSH-11 mapping)	Test		Instrument_n
Interpartner "From" value	eTrueNorth		Link test to
Interpartner "To" value	AIMSPlatform		Link test to
Test result exclude from normal processing	Test_kit_EUA_ID,Test_kit_model_ID,Test_kit_model_name,Test_result_code_system,Test_r		Order_result
Multiple value separator	;		Order_test_d
Input file name	CSVtoConvert.csv		Ordered_test
Debug mode	FALSE		Ordered_test
Time zone	ET		Ordered_test
			Ordering_fac
			Ordering_fac
			Ordering_fac
Notes:			Ordering_fac
If HL7 Mapping is a particular segment configure the "Config" column with the template that will have the segment value to be replaced with			Ordering_fac
the value in the input column of the flat file.			Ordering_fac
			Ordering_fac

Step 7: Under the *Instructions* tab, click the "Generate HL7 from Manual Entry" button to generate a test output. If a runtime error pops up, go through Steps 1 to 6 (especially Step 3) to ensure that all setup steps are correct. If no runtime error is generated or no message appears, go to the Output directory set up in Step 3 to find output files generated from the sample data that were included through the *Flatfile_Result_Use* tab.



Output folder showing generated file:



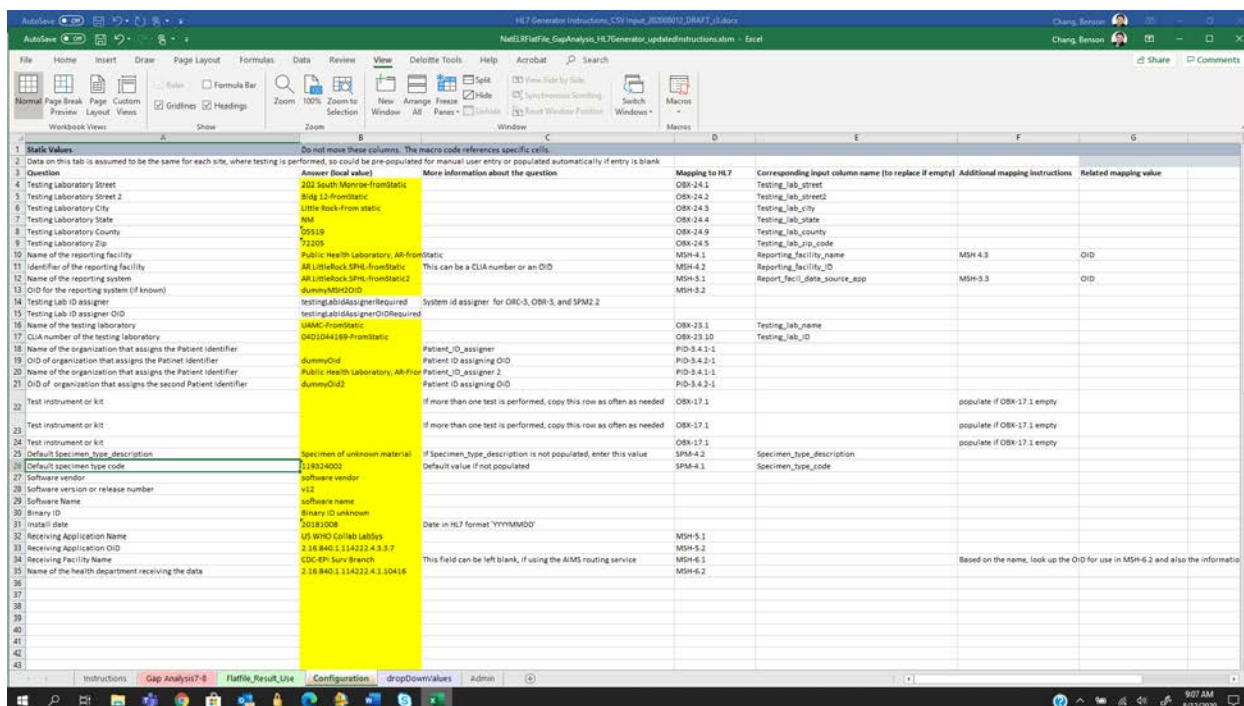
Step 8: Go to the *Gap Analysis7-8* tab. Filter on Column L, *MUST SUPPORT in flatfile* = Y. This displays the minimum data fields that must be included in the input and output files.



	I	J	K	L	M	N	O	P
1	HHS guidance elements							
	HHS element name / description	HHS Guidance comment	HHS guidance 6/4/2020 verbiage	MUST SUPPORT in flatfile	Supported by Lab (Y/N)	GAP ANALYSIS NOTES	Sort for HL7 mapping	HL7 Field
2								
3	Performing facility name and/or CLIA number, if known		C(R/RE)	Y			121	OBX-23.1
4	Performing facility name and/or CLIA number, if known		RF	Y			123	OBX-23.1

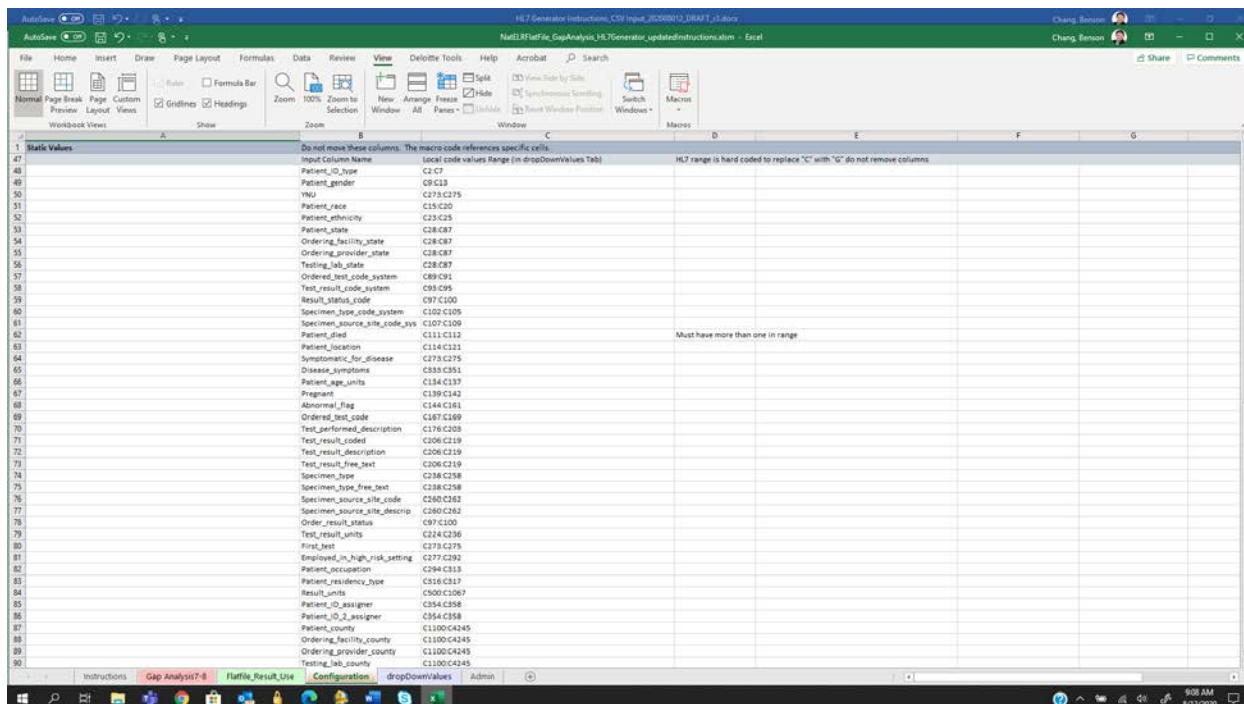
Review each data element and mark in Column M, *Supported by Lab* whether your lab can support the particular required data field (Y/N). Enter any notes, other documentation that may help with understanding what you are using to populate the field or anything needed for follow up in Column N, *Gap Analysis Notes*, as necessary. Once you have validated that your lab can provide data for each of the minimum required fields, proceed to Step 9.

Step 9: Go to the *Configuration* tab. The top part of the tab specifies static values that will be sent with every HL7 message generated (i.e. your lab address and CLIA number) and which fields they are mapped to in the HL7 message. If a field is left empty on the “Flatfile_Result_Use” tab, the field will be automatically populated with the appropriate value from the “Configuration” tab if column E “Corresponding input column name (to replace if empty)” is configured. Populate all fields in Column B, *Answer (local value)* that are highlighted in yellow. The tool will reference these values to populate the appropriate field when generating the HL7 message. You will need to create 1 tool file for each submitting laboratory, if you are a data aggregator.



Static Values	Do not move these columns. The macro code references specific cells.	More information about the questions	Mapping to HL7	Corresponding input column name (to replace if empty)	Additional mapping instructions	Related mapping value
1. Question	Answer (local value)					
2. Data on this tab is assumed to be the same for each site, where testing is performed, so could be pre-populated for manual user entry or populated automatically if entry is blank						
3. Testing Laboratory Street	202 South Monroe from static		OBX-24.1	Testing_lab_street		
4. Testing Laboratory Street 2	Big 12 from static		OBX-24.2	Testing_lab_street2		
5. Testing Laboratory City	Little Rock from static		OBX-24.3	Testing_lab_city		
6. Testing Laboratory State	AR		OBX-24.4	Testing_lab_state		
7. Testing Laboratory County	5559		OBX-24.9	Testing_lab_county		
8. Testing Laboratory Zip	72105		OBX-24.5	Testing_lab_zip_code		
9. Name of the reporting facility	Public Health Laboratory - AR from static		MSH-4.1	Reporting_facility_name	MSH-4.3	OID
10. Identifier of the reporting facility	AR-1016000-SPH from static	This can be a CLIA number or an OID	MSH-4.2	Reporting_facility_id		
11. Name of the reporting system	AR-1016000-SPH from static 2		MSH-3.1	Report_facil_data_source_app	MSH-3.3	OID
12. OID for the reporting system (if known)	dummyMSH-4.2		MSH-3.2			
13. Testing Lab ID assigner	testinglabidassignerRequired	System id assigner for ORC-5, ORC-5, and SPH-2				
14. Testing Lab ID assigner OID	testinglabidassignerOIDRequired					
15. Name of the testing laboratory	UWAC from static		OBX-23.1	Testing_lab_name		
16. CLIA number of the testing laboratory	0401044189 from static		OBX-23.10	Testing_lab_id		
17. Name of the organization that assigns the Patient Identifier	ArmedMD	Patient_ID_assigner	PID-3.4.1-1			
18. OID of organization that assigns the Patient Identifier	Public Health Laboratory - AR from static	Patient ID assigning OID	PID-3.4.2-1			
19. Name of the organization that assigns the Patient Identifier	ArmedMD	Patient ID assigning OID	PID-3.4.3-1			
20. OID of organization that assigns the second Patient Identifier	ArmedMD	Patient ID assigning OID	PID-3.4.2-1			
21. Test instrument or kit		If more than one test is performed, copy this row as often as needed	OBX-17.1		populate if OBX-17.1 empty	
22. Test instrument or kit		If more than one test is performed, copy this row as often as needed	OBX-17.1		populate if OBX-17.1 empty	
23. Default Specimen Type Description	Specimen of unknown material		OBX-17.1	Specimen_type_description	populate if OBX-17.1 empty	
24. Default specimen type code	118324002	Default value if not populated, enter this value	SPH-4.1	Specimen_type_code		
25. Software vendor	software vendor					
26. Software version or release number	V12					
27. Software Name	software name					
28. Binary ID	Binary ID unknown					
29. Install date	20181008	Date in HL7 format YYYYMMDD				
30. Receiving Application Name	US-WHO Covid-19 Lab		MSH-5.1			
31. Receiving Application OID	2.16.840.1.114322.4.3.3.7		MSH-5.2			
32. Receiving Facility Name	CDC-EPH Surv Branch	This field can be left blank, if using the AIMS routing service	MSH-6.1			
33. Name of the health department receiving the data	2.16.840.1.114322.4.1.10418		MSH-6.2		Based on the name, look up the OID for use in MSH-6.2 and also the information	

The bottom part of the *Configuration* tab refers to cells on the *dropDownValues* tab and indicates which range of dropdown values are mapped to particular HL7 fields. See next step for more details on the *dropDownValues* tab.



Static Values	Do not move these columns. The macro code references specific cells.	Local code values Range (in dropDownValues Tab)	HL7 range is hard coded to replace "C" with "O" do not remove columns
47. Input Column Name			
48. Patient_ID_type	C2-C7		
49. Patient_gender	C9-C13		
50. Race	C273-C275		
51. Patient_race	C15-C20		
52. Patient_ethnicity	C23-C25		
53. Patient_state	C28-C87		
54. Ordering_facility_state	C28-C87		
55. Ordering_provider_state	C28-C87		
56. Testing_lab_state	C28-C87		
57. Ordered_test_code_system	C89-C91		
58. Test_result_code_system	C93-C95		
59. Result_status_code	C97-C100		
60. Specimen_type_code_system	C102-C105		
61. Specimen_source_site_code_sys	C107-C109		
62. Patient_died	C111-C112		Must have more than one in range
63. Patient_location	C114-C121		
64. Symptomatic_for_disease	C273-C275		
65. Disease_symptoms	C333-C351		
66. Patient_age_units	C134-C137		
67. Pregnant	C139-C142		
68. Abnormal_flag	C144-C161		
69. Ordered_test_code	C187-C189		
70. Test_performed_description	C178-C203		
71. Test_result_code	C206-C219		
72. Test_result_description	C206-C219		
73. Test_result_free_text	C206-C219		
74. Specimen_type	C238-C258		
75. Specimen_type_free_text	C238-C258		
76. Specimen_source_site_code	C260-C262		
77. Specimen_source_site_desc	C260-C262		
78. Order_result_status	C97-C100		
79. Test_result_units	C214-C236		
80. First_test	C273-C275		
81. Employed_in_high_risk_setting	C277-C292		
82. Patient_occupation	C294-C313		
83. Patient_residency_type	C316-C317		
84. Result_units	C300-C309		
85. Patient_ID_assigner	C354-C358		
86. Patient_ID_2_assigner	C354-C358		
87. Patient_county	C1100-C1245		
88. Ordering_facility_county	C1100-C1245		
89. Ordering_provider_county	C1100-C1245		
90. Testing_lab_county	C1100-C1245		

Step 10: The *dropDownValues* tab maps input values from your lab for certain fields that may be plaintext or locally coded to be standard values to be included in the HL7 output. Note that any input



values in the Column C of the *dropDownValues* tab will be replaced with corresponding values in Column G of the same row.

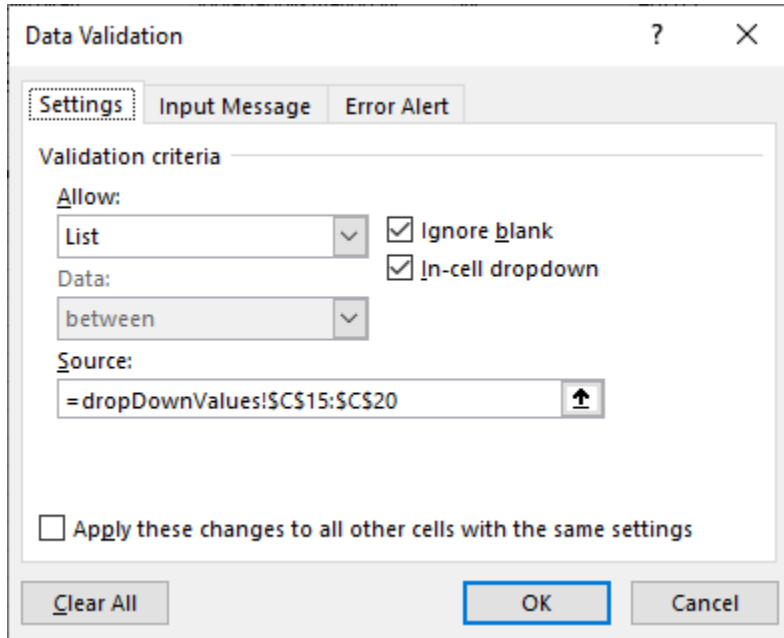
- On the *dropDownValues* tab, enter any transformation values for particular data fields as new rows at the bottom of the tab, if additional values are needed, else update to your local values in column C.
- Ensure that Column A, *HL7 element / Field Name* matches the name of the data column in Row 1 of the *Flatfile_Result_Use* tab.
- Also ensure that each row in Column C, *Local Code* represents all the local values that could be received from your system / are familiar to your users; those are the values that will populate the drop down menus.
 - Notes:
 - Transformation for county values starts on row 1100 (scroll way down!) – because many counties have the same name in different states, it is recommended that you include the state in the same field (we may update the tool in the future to use a combined search, but for now) to get the right county mapped.
- Column G *Replacement Value* is the standard value that will populate and replace your local code in the output file. Verify that that this replacement value is correct. In most instances you will want to use the standard code found in Column D. For example, in the screen below, a Local Code value of “Medical Record Number” in cell C2 (yellow) will be replaced with the value of “MR” as specified in cell G2 (orange), which is the standard code populated in cell D2.

NatELRFlatFile_GapAnalysis_HL7Generator - Excel							
Riki Merrick							
A	B	C	D	E	F	G	H
HL7 element / Field name	Local Description	Local Code	Standard Code	Standard Code Description	Standard Code System	Replacement Value	Comment
Patient_ID_Type		Medical Record Number	MR	Medical Record Number		MR	
Patient_ID_Type		Specimen Identifier	SID	Specimen Identifier		SID	
Patient_ID_Type		Patient Internal ID	PI	Patient Internal ID		PI	
Patient_ID_Type		Social Security Number	SS	Social Security Number		SS	
Patient_ID_Type		Patient External ID	PT	Patient External ID		PT	
Patient_ID_Type		Public Health Case ID	PHC	Public Health Case ID		PHC	
Patient_gender		Male	M	M		M	
Patient_gender		Female	F	F		F	
Patient_gender		Other	O	O		O	
Patient_gender		Unknown	U	U		U	
Patient_gender		Ambiguous	A	A		A	
Patient_race		American Indian or Alaska Native	1002-5	American Indian or Alaska Nat	HL70005	1002-5*American Indian or Alaska Native*HL70005	
Patient_race		Asian	2028-9	Asian	HL70005	2028-9*Asian*HL70005	
Patient_race		Black or African American	2054-5	Black or African American	HL70005	2054-5*Black or African American*HL70005	
Patient_race		Native Hawaiian or Other Pacific Islander	2076-8	Native Hawaiian or Other Pacific Islander	HL70005	2076-8*Native Hawaiian or Other Pacific Islander*HL70005	
Patient_race		White	2106-3	White	HL70005	2106-3*White*HL70005	
Patient_race		Other Race	2131-1	Other Race	HL70005	2131-1*Other Race*HL70005	
Patient_race		Asked but no answer / unknown	ASKU	Asked but unknown	NULLFL	ASKU*Asked but unknown*NULLFL	
Patient_ethnicity		Hispanic or Latino	H	Hispanic or Latino	HL70189	H*Hispanic or Latino*HL70189	
Patient_ethnicity		Not-Hispanic or latino	N	Not-Hispanic or latino	HL70189	N*Not-Hispanic or latino*HL70189	
Patient_ethnicity		Unknown	U	Unknown	HL70189	U*Unknown*HL70189	
Patient_ethnicity		Asked but no answer / unknown	ASKU	Asked but unknown	NULLFL	ASKU*Asked but unknown*NULLFL	

Step 11: Once you are done entering transformation values in the *dropDownValues* tab, go back to the *Configuration* tab and ensure that all values from the *dropDownValues* tab match those listed in the bottom half of the tab. For example, it specifies that rows C15 through C21 will be input values for the field Patient_Race. To update the dropdown values on the Flatfile_Result_Use tab, select the entire

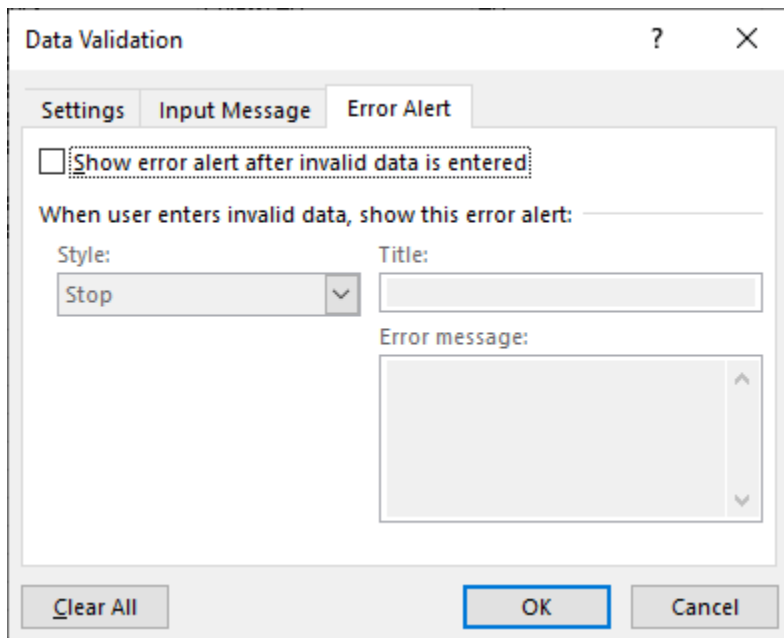


column (and control-left click the top item to prevent validation in the header) and select “Data Validation” and update the source per what was entered in the dropDownvalues tab. The “Source:” input can be clicked and then values can be selected in the dropDownValues tab to populate the range.



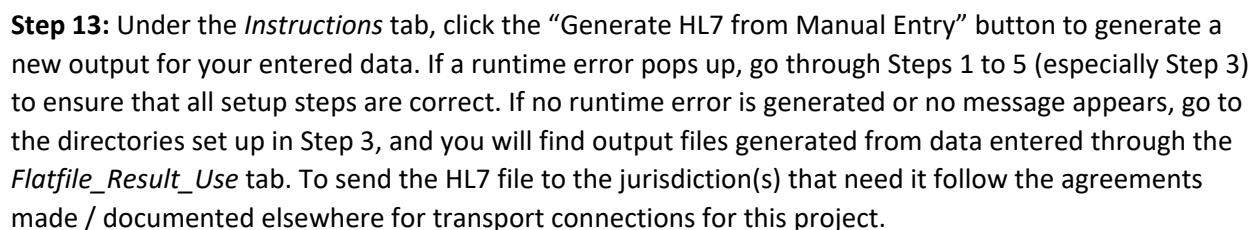
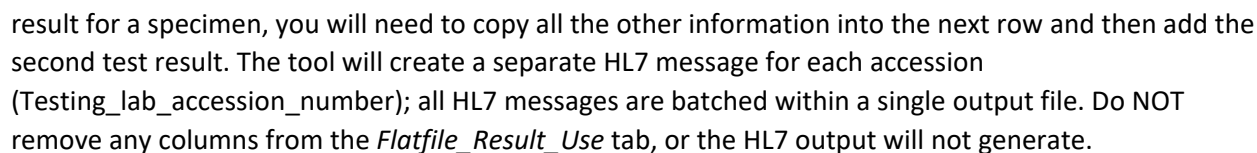
The image shows the 'Data Validation' dialog box with the 'Settings' tab selected. Under 'Validation criteria', 'Allow:' is set to 'List', 'Ignore blank' is checked, and 'In-cell dropdown' is checked. The 'Data:' dropdown is set to 'between'. The 'Source:' field contains the formula '=dropDownValues!\$C\$15:\$C\$20'. At the bottom, there is an unchecked checkbox for 'Apply these changes to all other cells with the same settings' and buttons for 'Clear All', 'OK', and 'Cancel'.

Make sure that “Show error alert after invalid data is entered” is unchecked. This allows the macro to also check for HL7 code values.



The image shows the 'Data Validation' dialog box with the 'Error Alert' tab selected. The checkbox 'Show error alert after invalid data is entered' is unchecked. Below it, the text 'When user enters invalid data, show this error alert:' is followed by a line for 'Style:' (set to 'Stop') and a line for 'Title:'. There is also a larger text area for 'Error message:'. At the bottom, there are buttons for 'Clear All', 'OK', and 'Cancel'.

Step 12: Go to the *Flatfile_Result_Use* tab to enter your data manually. Note that there are sample data rows in the default tool file. Please delete those rows before or after you put in your actual data. Note that each row in the *Flatfile_Result_Use* tab represents one test result. If there are more than one test



When the “Generate HL7 from Manual Entry” is selected, the following happens:

- Version 1.1

