Reportable Lab Results for the State of Missouri

HL7 ELR Message Validation

Release 1.0.0 – October 7, 2013

Missouri Department of Health and Senior Services

Contents

Revision History

Ver/Rel #	Issue Date	Author	Summary of Changes
R1.0.0	October 1, 2013	Shondra Johnson	Initial draft
	October 7, 2013	Shondra Johnson	Review and confirmation
	May 1, 2014	Matt Keller	Added additional segments to Data Validation
	July 14, 2014	Brenna Davidson	Added validation volume requirements

The following narrative is organized into three sections:

- **Initial HL7 Message Validation** – provides the steps to establish interfaces with the DHSS production surveillance systems.
- **Data Validation** – includes detail specifications regarding extracting data from the submitter's system which is evaluated by DHSS as part of the initial HL7 message validation process.
- **HL7 Message Revalidation** – describes the effort needed to revalidate messages when either the facility is planning on an upgrade to their software that includes the interfaces to the DHSS or when DHSS determines that the HL7 messages being transmitted contain an unacceptable level of errors.

Initial HL7 Message Validation

Each ***submitter*** who seeks to establish ELR interfaces with the DHSS must follow the steps below to achieve initial ELR HL7 message validation. Appendix A –ELR HL7 Message Validation Form incorporates these steps into a work plan based format which is used to track the submitter's progress toward achieving message validation.

Initiation

a. Complete registration form at http://health.mo.gov/atoz/mophie/form.php.
b. Receive a copy of the Reportable Lab Results HL7 2.5.1 Implementation Guide, list of Missouri Reportable Conditions, and the Reportable Conditions Mapping table. This documentation can be found on the DHSS Meaningful Use website, http://health.mo.gov/atoz/mophie/index.php.
c. Participate in an ELR HL7 2.5.1 Implementation Guide document review with DHSS.
d. Assist in the development of an implementation timetable (Appendix A – ELR HL7 Message Validation Form contains the framework for such a timetable). A number of factors will influence the duration of this effort, including: has the software used by the facility been validated previously, what is the quality of the data maintained by the facility, the number of other facilities already scheduled for ELR HL7 message validation testing.

Validation

e. Message Structure and Content- The submitter will need to submit ORU messages to this URL: https://hl7elr.dhss.mo.gov/Services/ELR_ProviderInterface_EXT_WS/ProviderInterface_EXT_WS.asmx/ELRHL7_ORU_VAL(). This will allow the DHSS to validate that all required segments, separators, message type & versions are correct. If the message passes structure validation, the content of the message is validated ensuring that all fields that are required are populated and the coded values are valid. If the message fails at either the structure or content validation, the submitter will receive a report that indicates the number of errors as well as the errors that were encountered.
f. Message Content Quality – After the structure and content are validated, the submitter must submit two text files with existing ELR data for content quality validation. Submitters should send:
    a. 10% of total patient population with a minimum of 100 records
    b. 10% of total laboratory testing records in 30 days with a minimum of 50 records

    If errors exist, a report that indicates the errors will be given to the submitter. See Data Validation steps below.
g. Revise implementation timetable based on the results of Steps e-f.
h. Receive test environment configuration parameters from DHSS.

i. Configure EHR test system to transmit messages to the DHSS ELR test environment.
j. Generate, receive and test transmission of HL7 ORU via secured communications protocol.
k. Generate, receive and test HL7 ELR message content. DHSS Programs will validate data in the test environment.

Production Initiation

l. Receive production environment configuration parameters from DHSS.
m. Reconfigure submitter EHR to transmit to the DHSS ELR production environment.
n. Initiate first production HL7 message - confirming results.
o. Receive submitter message validation signoff. This will be achieved when the submitter receives a signed ELR HL7 Message Validation Form from DHSS.
p. Assess whether to terminate/eliminate other existing reporting. Based on results of preceding step, terminate existing reporting.
q. Transmit and monitor production messages.

Data Validation

The purpose of this section is to provide the specifications for the process that will be used to validate the quality of the ELR data. This validation analyzes the contents of a number of ELR data elements as defined below. The steps in this process include:

Validation

a. Submitter generates two extract files. One file will contain a set of patient data and the second will contain the laboratory testing records for the same patients.
b. Submitter transmits the two files to DHSS. The mechanism used for this transmittal will depend on the combined size of the files and the appropriate data security available.
c. DHSS program reviews the two files, validating the data provided.
d. DHSS generates a report that specifies which records contain data fields that fail one or more validation checks, and why they failed.
e. DHSS transmits validation report to submitter.
f. Submitter staff corrects ELR data on its system.
g. Repeat Steps a – f until validation report contains an acceptable level of errors.

Data Extracts

The formats of the two extract files produced by the submitter are provided below. The key factor of the two file formats is the inclusion of the submitter's patient identifier as the first element on each file. The submitter's patient identifier will be used by DHSS to reconnect the patient and their corresponding ELR records. The definition of these items is as specified in the Reportable Lab Results HL7 2.5.1 Implementation Guide document as defined for the ORU message. The two record definitions are provided below.

General Specifications

CSV format. It is preferred that the two files be generated using the comma separated value (CSV) format. If not in CSV format, submitter is to indicate format used to create the file.

Remove Embedded Commas. If the files are generated in CSV format, remove all embedded commas (e.g., address lines, names, etc.).
All Fields. It is preferred that all the fields be included in the submitted files, even if they are blank/null – particularly if the data is submitted in CSV format. If fields are omitted, please provide a list of those omitted.
Field Sequence. It is preferred that the data elements be submitted in the sequence specified. If not in the specified sequence, a definition of the format used will need to be submitted in addition to the data.
Non-HL7 Codes. As part of the implemented interfaces, certain fields (e.g., Race, Ethnic Group, etc.) require the use of HL7 specific codes. These fields are marked as such in the following definitions. If as part of this validation, non-HL7 codes are supplied, the submitter is to submit a translation/definition of their non-HL7 codes used (e.g., Race: W = White, B = Black/African American, etc.)

Patient Record Definition

Related HL7 Field #	Element Name	Comments
PID		
PID-1	Set ID	
PID-3	Patient Identifier List	Patient Identifier (i.e. Medicaid #, Medical Record #)
PID-5	Patient Name	
PID-7	Patient Date of Birth	
PID-8	Patient Sex	
PID-10	Patient Race	
PID-11	Patient Address	
PID-22	Patient Ethnic Group	
PID-29	Patient Date of Death	
PID-30	Patient Death	Y or N

Lab Result Definition

Related HL7 Field #	Element Name	Comments
ORC		
ORC-1	Order Control	
ORC-3	Filler Order Number	Uniquely identifies the order
ORC-5	Order Status	Value set HL7 Table 0038
ORC-21	Ordering Facility Name	
ORC-22	Ordering Facility Address	
OBR		
OBR-1	Set ID	
OBR-3	Filler Order Number	Uniquely identifies the order
OBR-4	Universal Service Number	LOINC and Local code of Test Ordered
OBR-7	Observation Date/Time	Specimen collection time

OBR-22	Results Rpt/Status Chng – Date/Time	Date/Time of reporting status
OBR-25	Result Status	Final or Corrected report
OBR-26	Parent Result	
OBR-29	Parent	Combined field for parent child relationship
OBR-31	Reason for Study	
SPM		
SPM-1	Set ID	
SPM-2	Specimen ID	Uniquely identifies specimen
SPM-4	Specimen Type	
SPM-8	Specimen Source Site	
SPM-22	Specimen Quality	
OBX		
OBX-1	Set ID	
OBX-2	Value Type	
OBX-3	Observation Identifier	LOINC and Local Code (Test Performed)
OBX-5	Observation Value	SNOMED and/or Local Code (Result of Test)
OBX-6	Units	
OBX-11	Observation Result Status	Status of Test Performed
OBX-23	Performing Organization Name	
OBX-24	Performing Organization Address	

HL7 Message Revalidation

Each submitter is responsible for ensuring that data transmitted remains in compliance with data transmission requirements tested and confirmed during the initial ELR HL7 Message Validation.

a. Notify DHSS of pending upgrade to facility software that impacts ELR HL7 content and generation.
b. Repeat Validation Steps f – k, under the heading of "Initial HL7 Message Validation" above.
c. DHSS may request revalidation of a given facility if the ELR transmission encounters a significant number of processing errors in handling the HL7 messages.

Appendix A - ELR HL7 Message Validation Form

State of Missouri –ELR HL7 Message Validation Form		
Facility:	***Contact:***	
Address:	***Phone:***	
Task Description	***Planned Compl. Date***	***Approved Date***
Initiation		
a. Complete registration form at http://health.mo.gov/atoz/mophie/form.php.		
b. Receive a copy of the Reportable Lab Results HL7 2.5.1 Implementation Guide, list of Missouri Reportable Conditions, and the Reportable Conditions Mapping table.		
c. Participate in an ELR HL7 2.5.1 Implementation Guide document review with DHSS.		
d. Assist in the development of an implementation timetable (Appendix A – ELR HL7 Message Validation Form contains the framework for such a timetable).		
Validation		
e. Complete Message Structure and Content Population Validation.		
f. Complete Message Content Quality Validation .		
g. Revise implementation timetable based on the results of Step d.		
h. Receive test environment configuration parameters from DHSS.		
i. Configure EHR test system to transmit messages to the DHSS ELR test environment.		
j. Generate, receive and test transmission of HL7 ORU via secured communications protocol.		
k. Generate, receive and test HL7 ELR message content.		
• Test ORU transmittal		
• Test ACK receipt		
Production Initiation		
l. Receive production environment configuration parameters from DHSS.		
m. Reconfigure submitter EHR to transmit to the DHSS ELR production environment.		
n. Initiate first production HL7 message - confirming results.		
o. Receive submitter message validation signoff. This will be achieved when the submitter receives a signed ELR HL7 Message Validation Form from DHSS.		
p. Assess whether to terminate/eliminate other existing reporting. Based on results of preceding step, terminate existing reporting.		
q. Transmit and monitor production messages.		
Sign off		
Facility Representative:	**Date:**	
DHSS Representative:	**Date:**	