New Jersey Department of Health

Electronic Laboratory Reporting

Inbound HL7 Implementation Guide

Version 2.40

Revision History

Date	Version	Description
17-OCT-2012	2.00	First Draft
27-SEP-2013	2.01	Updated "Please note" to "NOTE". Removed static link references to NJDOH message profiles
16-OCT-2013	2.02	Updated formatting
31-OCT-2013	2.03	Corrected all version typos in conditions for ORC-12, OBR-17. Removed OBX-15 condition references to OBX-24 for v2.3z, 2.3.1
1-NOV-2013	2.10	Final Added repeating table headers Added section breaks for readability and PDF conversion
8-JAN-2014	2.11	Updated Batch & 2.5.1 PID sample message's assigning auth & assign facility for SSN
7-MAR-2014	2.20	Changed subject to match that of "ELR Main" page Added HL7 2.5.1 MSH 7.1.8 – GMT Offset required usage Added HL7 2.5.1 SPM-4 Specimen Type value set SNOMED CT acceptance
19-MAR-2014	2.30	Removed incorrect condition/description for OBX-19 requesting the collection date/time in place of analysis. Updated UCUM units reference, OID
26-JUN-2014	2.40	Constrained 2.5.1 abstract message syntax to permit a single specimen segment repeat Updated MSH-4 description to permit ISO OIDs Added OBX-23.10 Organization Identifier requirement Corrected HL7 table names typos. Missing 0's Corrected 2.5.1 table headers to reflect "HL7 IG Usage" in place of "CDC IG Usage"

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NJDOH Electronic Laboratory Reporting

1. Introduction

The New Jersey Department of Health (NJDOH) Electronic Laboratory Reporting Inbound HL7 Interface Control Document provides constrained specifications for ORUR01 messages, based upon HL7 standards and their derived implementation guides.

1.1 Purpose

This document defines the requirements of a valid HL7 message, packaged within batches, which an interface implementer may use to facilitate the creation of HL7 messages for the purpose of reporting to the NJDOH.

1.2 Scope

In an effort to provide a concise guide, only required and conditionally required segments, fields, as well as select components and sub-component items with expected, static values will be included. Cardinality is reflected only in cases an item may repeat. Items' usages which differ from that of their derived CDC IG are highlighted for quick identification of further constraints.

For a complete listing of all structural components, please refer to the references section for the respective HL7 guide and NJDOH ELR message profiles.

1.3 References

- NJAC 8:57 Communicable Diseases Regulations
  - http://www.lexisnexis.com/hottopics/njcode/
- HL7 Specifications and implementation guides
  - **HL7 2.3z** : Health Level Seven Specifications for Electronic Laboratory-Based Reporting of Public Health Information (CDC, 1997)

- **HL7 2.3.1** : Implementation Guide for Transmission of Laboratory-Based Reporting of Public Health Information using Version 2.3.1 of the Health Level Seven (HL7) (CDC, 2005)
- **HL7 2.5.1** Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1 (US Realm) (electronic version in PDF) with errata (HL7, 2010)

- NJDOH HL7 message implementation profiles
  - Complete profiles for NJDOH HL7 messages may be found online.

NOTE: The aforementioned guides and standards upon which they are based are available free of charge through the CDC or HL7.org.

2. Message Implementation Guides

This section will be divided into three parts, each detailing the requirements for each HL7 version which may be utilized.

***NOTE**: Only a single message version per electronic reporting partner is permitted.*

2.1 File format

All transmitted files should be sent using 7-bit ASCII. If another character set/encoding is used, the election should be noted within MSH-18 (Character Set).

Transmitted file names must be unique, no duplicates may be sent.

All transmitted HL7 files must be denoted using the ".hl7" file extension, unless otherwise permitted.

2.2 Acknowledgements

HL7 acknowledgments will *NOT* be generated by the NJDOH receiving system. However, email notifications of files received may be sent to partners as requested.

2.3 HL7 Data Types

The respective HL7 base specifications and CDC IG's define HL7 data types that are the building blocks of an HL7 message. This guide will avoid potentially ambiguous situations and will not attempt to redefine an already defined section.

For detailed profile information regarding NJDOH implementation specifications, please refer to the references section for the respective NJDOH ELR message profile.

2.4 Item lengths

As with HL7 data types, item lengths are defined in their respective HL7 base specifications and CDC IG's and will not be duplicated

here. Issues identified with length constraints will be addressed on a case by case basis.

HL7 ELR to Public Health 2.5.1 includes the pre-adoption of truncation for particular fields. However, as of this writing, the NJ ELRS system will only accept item data which do not exceed length constraints.

For detailed profile information regarding NJDOH implementation specifications, please refer to the references section for the respective NJDOH ELR message profile.

2.5 Escape Sequences

Special characters that are utilized within HL7 messages as separators (also referred to as delimiters) should not be included within those same HL7 messages as data because their presence would interfere with the parsing of the message. If an HL7 message does contain one of these special delimiter characters as part of the message content (e.g. , an ampersand as part of an address: "Apt. A & B"), then the electronic partner must utilize a special escape sequence to indicate that the character is a text character and not a delimiter content (e.g., "Apt. A \T\ B" to represent "Apt. A & B"); otherwise, the NJ Electronic Laboratory Reporting System (ELRS) cannot distinguish between the delimiter character and a character that is part of the text. In order to include any one of these special characters as data within an HL7 message, those characters must be converted into a predefined sequence of characters that begin and end with the escape character "\". Electronic partners should utilize the following table to convert special characters into escape sequences when creating messages sent to the NJ ELRS and to convert escape sequences to special characters when parsing messages coming from the NJ ELRS.

Separator Type	Description	Value	Replacement
Field Repeat	Repetition separator	~	\R\
1st Level Field	Field separator	|	\F\
2nd Level Field	Component separator	^	\S\

Separator Type	Description	Value	Replacement
3rd Level Field	Subcomponent separator	&	\T\
	Escape character	\	\E\

2.6 HL7 Batch Protocol

All HL7 messaging conducted with the NJDOH is required to utilize HL7 file and batch wrappers. These wrappers are a standard part of batch messaging and help to not only differentiate the actual data transmitter from the producer, but the number of batches and messages which should be present.

NOTE: The NJDOH requires that only one batch be sent per file and all messages within the batch are of the same HL7 version, and derived from the same messaging profile. As of this writing, no exception to this rule may be made.

2.6.1 Batch Message Syntax

FHS	File Header segment
{	*Batch begin*
BHS	Batch Header segment
{	*Message begin*
Message(s)	One or more messages
}	*Message end*
BTS	Batch trailer segment
}	*Batch end*
FTS	File trailer segment

2.6.2 Segments

While batch protocol headers and trailer segments' fields differ slightly between HL7 versions, the fields included below reflect those common to all versions of HL7 mentioned in this guide. Please note that encoding characters between HL7 versions may differ.

2.6.2.1 FHS

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Field Separator	ST	R	R		|		
2	Encoding Characters	ST	R	R		(as per used HL7 version)		
4	File Sending Facility	HD	O	R				Must match MSH-4 if sent directly from facility. If batch is being sent by vendor or health system which incorporates multiple facilities' messages into a single batch, the sending facility name (FHS-4) should reflect the vendor/health system name and specific OID. If the batch will contain messages from a single facility only, this field

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
								should reflect the facility's name and CLIA, matching MSH-4.
5	File Receiving Application	HD	O	RE		ELRS^2.16.840.1.113883.3.1299.5.1.6.1^ISO		
6	File Receiving Facility	HD	O	RE		NJDOH^2.16.840.1.113883.3.1299^ISO		

2.6.2.2 FTS

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	File Batch Count	ST	O	R		1		The number of batches within this file. **Please note that this guide constrains all files to a single batch only.**

2.6.2.3 BHS

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Field Separator	ST	R	R		|		
2	Encoding Characters	ST	R	R		(as per used HL7 version)		

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
4	Batch Sending Facility	HD	O	R				Must match MSH-4 if sent directly from facility. If batch is being sent by vendor or health system which incorporates multiple facilities' messages into a single batch, the sending facility name (BHS-4) should reflect the vendor/health system name and specific OID. If the batch will contain messages from a single facility only, this field should reflect the facility's name and CLIA, matching MSH-4.
5	Batch Receiving Application	HD	O	RE		ELRS^2.16.840.1.113883.3.1299.5.1.6.1^ISO		
6	Batch Receiving Facility	HD	O	RE		NJDOH^2.16.840.1.113883.3.1299^ISO		

2.6.2.4 BTS

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Batch Message Count	ST	R	R				Reflects the number of messages sent within the batch.

2.6.2.5 Sample HL7 Batch message

```
FHS|^~\&#|SendingAppName^2.4.3.5.2.333.34.1^ISO|NonLabEntity^2.4.3.5.2.222.1.2^ISO|
ELRS^2.16.840.1.113883.3.1299.5.1.6.1^ISO|NJDOH^2.16.840.1.113883.3.1299^ISO|20110811014910.0000-0500
BHS|^~\&#|SendingAppName^2.4.3.5.2.333.34.1^ISO|NonLabEntity^2.4.3.5.2.222.1.2^ISO|ELRS^2.16.840.1.113883.3.1299.5.1.6.1^ISO|NJDOH^2.16.840.1.113883.
3.1299^ISO|20110811014910.0000-0500
MSH|^~\&#|SendingAppName^2.4.3.5.2.333.34.1^ISO|LabName^1D32484983^CLIA|Rhapsody^2.16.840.1.113883.3.89.200.1.3.2^ISO|NJDOH^2.16.840.1.113883.3.1299^
ISO|20110811014910.0000-0500||ORU^R01^ORU_R01|20110811033501811|P|2.5.1|||||USA||||PHLabReport-Batch^^2.16.840.1.113883.9.11^ISO
SFT|Orion Health|3.2|Rhapsody|3.2.0.58783
PID|1||16891111060^^^LabName&1.2.3.3.4.6.7&ISO^PI^LabName&1.2.3.3.4.6.7&ISO~123456789^^^SSA&2.16.840.1.113883.3.184&ISO^SS~10-200-3000^^^University
Med Ctr MPI&2.9.8.7.6.5.4&ISO^PT^University Med Ctr&2.9.8.7.6.5.4&ISO||PATIENTLASTNAME^PATIENTFIRSTNAME^PATIENTMIDDLEINITORNAME||19340925|M||2054-
5^Black or African American^CDCREC^B^Black^L^1^^^^^^^2.16.840.1.114222.4.11.836|123 Main Street^Apartment 2^Big
City^NJ^00000^USA^H||^NET^Internet^sampleEmail@wxyzdomain.com^^^^^Please note person is hearing impaired|||||||||2186-5^Not Hispanic or
Latino^CDCREC^NH^^L^1.1^^^^^^^2.16.840.1.113883.6.238
ORC|RE||1B2D0989888^SystemName^1.2.3.4.5.6.7^ISO|||||||||019237311^DRLASTNAME^H^^^^MD^^NPI&2.16.840.1.113883.4.6&ISO^^^^NPI^LabName&1.2.3.4.5.6.7&ISO
||^WPN^PH^^1^111^1234567^1~^WPN^PH^^1^111^1234567^24|||||||University Health System^^^^^HL7&2.16.840.1.113883&ISO^XX^University
Hospital&2.5.2.3.4.6.432.4&ISO^^1234|350 Boulevard^Suite 3000^SomeCity^NJ^07055|^WPN^PH^^1^111^1234567^1|350 Boulevard^^PASSAIC^NJ^07055^USA
OBR|1||1B2D0989888^SystemName^1.2.3.4.5.6.7^ISO|543-9^Mycobacterium sp identified^LN^182675^AFB Cult/Smear, Broth,
Suscep^L^2.36^NA^^^^^^2.16.840.1.113883.11.16492|||20110809145706-
0500|||||||||019237311^DRLASTNAME^H^^^^MD^^NPI&2.16.840.1.113883.4.6&ISO^^^^NPI^LabName&1.2.3.4.5.6.7&ISO|^WPN^PH^^1^111^1234567^1~^WPN^PH^^1^111^123
4567^24|||||201108091457-0500|||F||||||521.00^Unspecified dental caries^I9CDX^^^^1^^^^^^^2.16.840.1.113883.11.15931
OBX|1|CWE|6463-4^Bacteria identified^LN^080306^RSLT#3^L^2.36^NA^^^^^^2.16.840.1.113883.11.16492||113861009^Mycobacterium tuberculosis
complex^SCT^TBDP^Culture report:^L^5^^^^^^^2.16.840.1.113883.6.5|||A^^HL70078^^^^2.5.1|||F|||20110809145706-0500|||||20110810013504-
0500||||LabName^^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^^1D32484983|1253 Highway #33^Suite
20^SmallCity^NJ^03977^USA|^DiectorLastName^DirectorFirstName^DirectorMiddleName
SPM|1|^293813&LabName&1.2.3.4.5.6.7&ISO||122554006^Capillary blood
specimen^SCT^BLDC^BLDC^L^20080131^^^^^^^2.16.840.1.113883.6.96||||108350001^Abdomen, excluding retroperitoneal region (body
structure)^SNM^Abd^Abdomen^L^^^^^^^^2.16.840.1.113883.3.88.12.3221.8.9|||||||||20110809145706-0500|201106172239-0500
BTS|1
FTS|1
```

2.7 HL7 2.3z

2.7.1 ORU^R01 Observation reporting - Unsolicited Observation Message

The following table describes the minimum required groups and segments for each message.

MSH	Message Header segment
{	*(ordered group) Observation Message begin*
{	*(ordered group) Patient Information*
PID	Patient Identification segment
}	*Patient Information end*
{	*(ordered group) Order begin*
OBR	Observations request segment
ZLR	Additional information segment
{	*(ordered group) Observation begin*
OBX	Observation related to OBR
}	*Observation end*
}	*Order end*
}	*Observation Message end*

2.7.2 Segments

2.7.2.1 MSH

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Field Separator	ST	R	R		|		
2	Encoding Characters	ST	R	R		^~\&		
4	Sending Facility	HD	O	R				
4.1	Namespace Id	IS		R				
4.2	Universal Id	ST		RE				
4.3	Universal Id Type	ID		RE		CLIA		
5	Receiving Application	HD	O	RE		ELRS		
6	Receiving Facility	HD	O	RE		NJDOH		
7	DateTime of Message	TS	O	R				
7.1	Time	DTTM		R				Time granularity to seconds is required. Milliseconds are preferred.
7.1.1	Year	Numeric		R				
7.1.2	Month	Numeric		R				
7.1.3	Day	Numeric		R				
7.1.4	Hours	Numeric		R				
7.1.5	Minutes	Numeric		R				
7.1.6	Seconds	Numeric		RE				
9	Message Type	CM_MT	R	R		ORU^R01		
10	Message Control ID	ST	R	R				
11	Processing ID	PT	R	R				
12	Version ID	ID	R	R		2.3z		

2.7.2.2 PID

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
3	Internal Patient ID	CX	R	R	[0..*]			
5	Patient Name	XPN	R	R	[0..*]			First repetition must be legal name
7	DateTime of Birth	TS	O	RE				
8	Sex	IS	O	RE			HL70001	
10	Race	IS	O	RE			HL70005	
11	Patient Address	XAD	O	RE	[0..*]			
13	Home Phone Number	XTN	O	RE	[0..*]			
22	Ethnic Group	IS	O	RE			HL70189	

2.7.2.3 OBR

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Set ID	SI	C	RE			HL70119	
3	Filler Order Number	EI	C	R				
4	Universal Service Identifier	CE	R	R			LOINC	Local codes accepted

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
7	Observation DateTime	TS	R	R				Date/time the specimen was collected. Must match OBX-14 if OBX segment sent.
7.1	Time	DTTM		R				
7.2	Year	Numeric		R				
7.3	Month	Numeric		R				
7.4	Day	Numeric		R				
15	Specimen Source	CM_SS	O	C				
15.1	Specimen Source Name or Code	CE		C			HL70070	Must be valued if LOINC's system = "XXX". If valued, must match LOINC's system.
16	Ordering Provider	XCN	O	C	[0..*]			ORC-12 must match OBR-16's value
17	Order Callback Phone Number	XTN	O	C	[0..2]			ORC-14 must match OBR-17's value
25	Result Status	ID	C	R			HL70123	
26	Parent Result	CM_PR	O	C				Required when linking child sensitivities to the parent culture.
29	Parent Number	CM_PA	O	C				Required if OBR-24 = "MB" and OBR-4 indicates culture & sensitivity.

2.7.2.4 ZLR

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Ordering Provider Address	XAD		RE				
2	Ordering Facility Name	XON		C				
3	Ordering Facility Address	XAD		RE				
4	Ordering Facility Phone Number	XTN		C				

2.7.2.5 OBX

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Set ID	SI	O	R				
2	Value Type	ID	C	CE			HL70125	OBX-2 is required if OBX-5 is populated.
3	Observation Identifier	CE	R	R			LOINC	
4	Observation Sub ID	ST	C	CE				OBX-4 is required if the LOINC in OBX-3 is repeated in the same order (OBR) group
5	Observation Value	Variable	C	CE	[0..*]			
6	Units	CE	O	C				Required if OBX-3 specified test results quantitatively. (OBX-2 = SN, NM)
7	References Range	ST	O	RE				
8	Abnormal Flags	ID	O	CE	[0..5]		HL70078	Required if OBX-3 specified test results quantitatively. (OBX-2 = SN, NM)

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
11	Observation Result Status	ID	R	R			HL70085	
15	Producers ID	CE	O	RE				The name and CLIA of the laboratory which performed the test.

Sample HL7 2.3z message

```
MSH|^~\&|LABNAME|LABNAME^34D1234566^CLIA|ELRS|NJDOH|201203280142||ORU^R01|20120328032436401408|T|2.3z
PID|1||05443673000^^^^^LABNAME&34D1234566&CLIA||PLASTNAME^PFIRSTNAME^PMIDDLE||19900101|F||U|123 MAIN RD^^CITY^NJ^12345||^^^^^123^1234567|||||||||U
OBR|1||05443673000|5393-4^Treponema pallidum Ab^LN^006379^T pallidum Ab (FTA-
Ab)^L|||201202231003|||||||201202231717||^PROVLNAME^PROVFNAME|^^^^^732^1234567|||||||F
ZLR|53 Provider Rd^^BCity^NJ^07731|Ordering Facility|21 Facility Rd^^ACity^NJ^08690|^^^^^609^1234567
OBX|1|CE|5393-4^Treponema pallidum Ab^LN^006379^T pallidum Ab (FTA-Ab)^L||^^^NR^Non Reactive^L||Non
Reacti||||F|||20120224170226|34D1234566^LABNAME^CLIA||^IF
NTE|1|L|Non Reactive
```

2.8 HL7 2.3.1

2.8.1 ORU^R01 Observation reporting - Unsolicited Observation Message

The following table describes the minimum required groups and segments for each message.

MSH	Message Header segment
{	*(ordered group) Observation Message begin*
{	*(ordered group) Patient Information begin*
PID	Patient Identification segment
}	*Patient Information end*
{	*(ordered group) Order begin*
[ORC]	Order Common
OBR	Observations request segment
{	*(ordered group) Observation begin*
OBX	Observation related to OBR
}	*Observation end*
}	*Order end*
}	*Observation Message end*

2.8.2 Segments

2.8.2.1 MSH

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Field Separator	ST	R	R		|		
2	Encoding Characters	ST	R	R		^~\&		
4	Sending Facility	HD	R	R				
4.1	Namespace Id	IS		R				
4.2	Universal Id	ST		R				
4.3	Universal Id Type	ID		R		CLIA		
5	Receiving Application	HD	R	R		ELRS		
6	Receiving Facility	HD	R	R		NJDOH		
7	DateTime of Message	TS	R	R				
7.1	Time	DTTM		R				Time granularity to seconds is required. Milliseconds are preferred.
7.1.1	Year	Numeric		R				
7.1.2	Month	Numeric		R				
7.1.3	Day	Numeric		R				
7.1.4	Hours	Numeric		R				
7.1.5	Minutes	Numeric		R				
7.1.6	Seconds	Numeric		RE				
9	Message Type	MSG	R	R		ORU^R01		
10	Message Control ID	ST	R	R				
11	Processing ID	PT	R	R				
12	Version ID	VID	R	R				
12.1	Version ID	ID		R		2.3.1		

2.8.2.2 PID

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
3	Patient Identifier List	CX	R	R	[0..*]			First repetition must be MRN or Internal Patient ID
5	Patient Name	XPN	R	R	[0..*]			First repetition must be legal name - Type code 'L'
7	DateTime of Birth	TS	O	RE				
8	Sex	IS	O	RE			HL7001	
10	Race	CE	O	RE	[0..*]		HL7005	
11	Patient Address	XAD	O	RE	[0..*]			
13	Home Phone Number	XTN	O	RE	[0..*]			
22	Ethnic Group	CE	O	RE	[0..*]		HL7189	

2.8.2.3 ORC

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Order Control	ID	O	RE		RE		
12	Ordering Provider	XCN	O	C	[0..*]			If OBR-16 Ordering Provider is populated, this field must contain the same value.

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
14	CallBack Phone Number	XTN	O	C	[0..2]			If OBR-17 Callback Phone Number is populated, this field must contain the same value. This should be a phone number associated with the original order placer.
21	Ordering Facility Name	XON	O	C	[0..*]			
22	Ordering Facility Address	XAD	O	RE	[0..*]			
23	Ordering Facility Phone Number	XTN	O	C	[0..*]			
24	Ordering Provider Address	XAD	O	RE	[0..*]			

2.8.2.4 OBR

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Set ID	SI	O	RE				
3	Filler Order Number	EI	R	R				
4	Universal Service Identifier	CE	R	R			LOINC	Local codes accepted
7	Observation DateTime	TS	R	R				Date/time the specimen was collected. Must match OBX-14 if OBX segment sent.
7.1	Time	DTTM		R				
7.2	Year	Numeric		R				

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
7.3	Month	Numeric		R				
7.4	Day	Numeric		R				
15	Specimen Source	SPS	O	C				
15.1	Specimen Source Name or Code	CE		C			HL70070	Must be valued if LOINC's system = "XXX". If valued, must match LOINC's system.
16	Ordering Provider	XCN	O	C	[0..*]			ORC-12 must match OBR-16's value
17	Order Callback Phone Number	XTN	O	C	[0..2]			ORC-14 must match OBR-17's value
25	Result Status	ID	R	R			HL70123	
26	Parent Result	PRL	O	C				Required when linking child sensitivities to the parent culture.
29	Parent Number	EIP	O	C				Required if OBR-24 = "MB" and OBR-4 indicates culture & sensitivity.

2.8.2.5 OBX

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Set ID	SI	R	R				
2	Value Type	ID	C	CE			HL70125	OBX-2 is required if OBX-5 is populated.
3	Observation Identifier	CE	R	R			LOINC	

Seq	Name	Data Type	CDC IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
4	Observation Sub ID	ST	C	CE				OBX-4 is required if the LOINC in OBX-3 is repeated in the same order (OBR) group
5	Observation Value	Variable	C	CE	[0..*]			
6	Units	CE	O	CE				Required if OBX-3 specified test results quantitatively. (OBX-2 = SN, NM)
7	References Range	ST	O	RE				
8	Abnormal Flags	ID	O	CE	[0..5]		HL70078	Required if OBX-3 specified test results quantitatively. (OBX-2 = SN, NM)
11	Observation Result Status	ID	R	R			HL70085	
15	Producers ID	CE	O	RE				The name and CLIA of the laboratory which performed the test.

2.8.2.6 Sample HL7 2.3.1 message

```
MSH|^~\&|LABNAME|LABNAME^34D1234566^CLIA|ELRS|NJDOH|201203290815||ORU^R01|19095.43830|T|2.3.1
PID|1||D-95353^^^^PI||PLASTNAME^PFIRSTNAME^^^^^L||19900101|M||U^Unknown|123 MAIN RD^^CITY^NJ^12345^USA^M
NTE|1|L|D-95353
ORC|||||||||||||||||||Ordering Facility|160 BLANK ST.^^ACity^NJ^07601^USA^B|^^PH^^^201^1234567|160 BLANK ST.^^ACity^NJ^07601^USA^B
OBR|1||107352702|11084-1^REAGIN AB^LN^0142-0^RPR^L|||201203271153|||||||201203280257|SER&Serum||^^PH^^^201^1234567|||||201203280719|||F
OBX|1|SN|11084-1^REAGIN AB^LN^0142-0^RPR^L|1|^1^:^8||<1:1|A|||F|||201203291153|34D1234566^LABNAME^CLIA
NTE|1|L|Notes regarding the observation
OBR|2||107352702|24312-1^TREPONEMA PALLIDUM AB^LN^0334-3^T.
pallidum^L|||201203271153|||||||201203281313|SER&Serum||^^PH^^^201^1234567|||||201203280719|||F
OBX|1|ST|24312-1^TREPONEMA PALLIDUM AB^LN^0334-3^T. pallidum^L|1|Positive||NEGATIVE|A|||F|||201203271153|34D1234566^LABNAME^CLIA
```

2.9 HL7 2.5.1

2.9.1 ORU^R01 Observation reporting - Unsolicited Observation Message

The following table describes the minimum required groups and segments for each message.

MSH	Message Header segment
SFT	Software Segment
{	*(ordered group) Patient Result begin*
{	*(ordered group) Patient Information*
PID	Patient Identification segment
}	*Patient Information end*
{	*(ordered group) Order Observation begin*
[ORC]	Order Common
OBR	Observations request segment
{	*(ordered group) Observation begin*
OBX	Observation related to OBR
}	*Observation end*
[	*(ordered group) Specimen begin*
SPM	Specimen
]	*Specimen end*

}	*Order Observation end*
}	*Patient Result end*

2.9.2 Segments

2.9.2.1 MSH

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Field Separator	ST	R	R		|		
2	Encoding Characters	ST	R	R		^~\&#		
3	Sending Application	HD	R	R				
4	Sending Facility	HD	R	R				
4.1	Namespace Id	IS		R				
4.2	Universal Id	ST		R				Lab CLIA or ISO OID
4.3	Universal Id Type	ID		R				"CLIA" or "ISO"
5	Receiving Application	HD	R	R		ELRS^2.16.840.1.113883.3.1299.5.1.6.1^ISO		
6	Receiving Facility	HD	R	R		NJDOH^2.16.840.1.113883.3.1299^ISO		
7	DateTime of Message	TS	R	R				Time granularity to seconds is required. Milliseconds are preferred.
7.1	Time	DTTM		R				
7.1.1	Year	Numeric		R				
7.1.2	Month	Numeric		R				
7.1.3	Day	Numeric		R				
7.1.4	Hours	Numeric		R				
7.1.5	Minutes	Numeric		R				
7.1.6	Seconds	Numeric		R				
7.1.7	Miliseconds	ST		O				.SSSS
7.1.8	GMT offset	ST		R				+/-ZZZZ

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
9	Message Type	CM_MT	R	R		ORU^R01		
10	Message Control ID	ST	R	R				
11	Processing ID	PT	R	R				
12	Version ID	VID	R	R				
12.1	Version ID	ID		R		2.5.1		
21	Message Profile Identifier	EI	R	R	[1..*]	PHLabReport-Batch^^2.16.840.1.113883.9.11^ISO		

2.9.2.2 SFT

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Software Vendor Organization	XON	R	R				
2	Software Certified Version or Release Number	ST	R	R				
3	Software Product Name	ST	R	R				
4	Software Binary ID	ST	R	R				
6	Software Install Date	TS	RE	RE				

2.9.2.3 PID

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Set ID	SI	R	R		1		

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
3	Patient Identifier List	CX	R	R	[0..*]			First repetition must be MRN or Internal Patient ID
5	Patient Name	XPN	R	R	[0..*]			First repetition must be legal name - Type code 'L'
6	Mother's Maiden Name	XPN	RE	RE				
7	DateTime of Birth	TS	RE	RE				
8	Sex	IS	RE	RE			HL70001	
10	Race	IS	RE	RE	[0..*]		HL70005	
11	Patient Address	XAD	RE	RE	[0..*]			
13	Home Phone Number	XTN	RE	RE	[0..*]			
14	Phone Number – Business	XTN	RE	RE	[0..*]			
22	Ethnic Group	IS	RE	RE	[0..*]		HL70189	
29	Patient Death Date and Time	TS	RE	RE				
33	Last Update Date/Time	TS	RE	RE				
34	Last Update Facility	HD	CE	CE				If PID-33 is present this field is required.
35	Species Code	CWE	RE	RE			Animal Value Set	

2.9.2.4 ORC

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Order Control	ID	R	R		RE		
2	Placer Order Number	EI	CE	CE				If OBR-2 (Placer Order Number) is populated, this field must contain the same value
3	Filler Order Number	EI	R	R				This field must contain the same value as OBR-3 Filler Order Number.
4	Placer Group Number	EI	RE	RE				
12	Ordering Provider	XCN	CE	CE	[0..*]			If OBR-16 Ordering Provider is populated, this field must contain the same value.
14	CallBack Phone Number	XTN	CE	CE	[0..2]			If OBR-17 Callback Phone Number is populated, this field must contain the same value. This should be a phone number associated with the original order placer.
21	Ordering Facility Name	XON	R	R	[1..*]			
22	Ordering Facility Address	XAD	R	R	[1..*]			
23	Ordering Facility Phone Number	XTN	R	R	[0..*]			
24	Ordering Provider Address	XAD	RE	RE	[0..*]			

2.9.2.5 OBR

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Set ID	SI	R	R				
2	Placer Order Number	EI	RE	RE				
3	Filler Order Number	EI	R	R				This field should not contain the accession number or specimen identifier for a specimen unless these identifiers meet the criteria for a filler order number. This number must be unique and not cycle.
4	Universal Service Identifier	CWE	R	R			LOINC	Local codes accepted
7	Observation DateTime	TS	R	R				Date/time the specimen was collected. Must match OBX-14 if OBX segment sent. Must match SPM-17.1 value if SPM segment sent.
7.1	Time	DTM		R				
7.1.2	Year	Numeric		R				
7.1.3	Month	Numeric		RE				
7.1.4	Day	Numeric		RE				

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
8	Observation End Date/Time	TS	CE	CE				If the specimen was collected over a range of time and this field is valued, and an SPM segment is sent, OBR-8 must match SPM-17's second component (Specimen Collection Date/Time - RangeEndDateTime)
13	Relevant Clinical Information	ST	RE	RE				
15	Specimen Source	SPS	X	C(R/RE)				
15.1	Specimen Source Name or Code	CWE		C(R/RE)			HL70070, SNOMED-CT	Must be valued if LOINC's system = "XXX". If valued, must match LOINC's system.
16	Ordering Provider	XCN	RE	RE	[0..*]			ORC-12 must match OBR-16's value
17	Order Callback Phone Number	XTN	RE	RE	[0..2]			ORC-14 must match OBR-17's value
22	Results Rpt/Status Chng - Date/Time	TS	R	R				
25	Result Status	ID	R	R			HL70123	
26	Parent Result	PRL	CE	CE				Required when linking child sensitivities to the parent culture.
29	Parent Number	EIP	CE	CE				Required if OBR-24 = "MB" and OBR-4

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
								indicates culture & sensitivity.
31	Reason for Study	CWE	RE	RE	[0..*]		ICD-9	
32	Principal Result Interpreter	NDL	RE	RE				

2.9.2.6 OBX

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Set ID	SI	R	R				
2	Value Type	ID	CE	CE			HL70125	OBX-2 is required if OBX-5 is populated.
3	Observation Identifier	CWE	R	R			LOINC	
4	Observation Sub ID	ST	CE	CE				OBX-4 is required if the LOINC in OBX-3 is repeated in the same order (OBR) group
5	Observation Value	Variable	CE	CE				
6	Units	CWE	CE	CE			Unified Code for Units of Measure (UCUM)	Required if OBX-3 specified test results quantitatively. (OBX-2 = SN, NM)
7	References Range	ST	RE	RE				
8	Abnormal Flags	CWE	CE	CE	[0..*]		HL70078 (v2.7)	Required if OBX-3 specified test results quantitatively. (OBX-2 = SN, NM)
11	Observation Result Status	ID	R	R			HL70085	

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
15	Producers ID/Reference	CWE	O	RE				The name and CLIA of the laboratory which performed the test. If populated, the field must identify the same performing organization as that identified in OBX-23 (Performing Organization Name).
17	Observation Method	CWE	RE	RE	[0..*]		HL7 V3 Observation Method	
19	Date/Time of the Analysis	TS	RE	RE				
19.1	Time	DTM		R				
19.1.2	Year	Numeric		R				
19.1.3	Month	Numeric		RE				
19.1.4	Day	Numeric		RE				
23	Performing Organization Name	XON	R	R				
23.1	Organization Name	ST	CE	R				
23.2	Organization Name Type Code	IS	RE	RE				
23.10	Organization Identifier	ST	RE	R				Must reflect a CLIA
24	Performing Organization Address	XAD	R	R				

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
25	Performing Organization Medical Director	XCN	RE	RE				

2.9.2.7 SPM

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Set ID	SI	R	R				
2	Specimen ID	EIP	R	R				Specimen ID associated with specimen, this should NOT reflect an order number.
4	Specimen Type	CWE	R	R			Specimen Type Value Set / SNOMED CT	
5	Specimen Type Modifier	CWE	RE	RE	[0..*]		Specimen Modifier or Qualifier Value Set	
6	Specimen Additives	CWE	RE	RE	[0..*]		HL70371	
7	Specimen Collection Method	CWE	RE	RE			Specimen Collection Method Value Set	
8	Specimen Source Site	CWE	RE	RE			Body Site Value Set	
9	Specimen Source Site Modifier	CWE	RE	RE	[0..*]		Specimen Modifier or Qualifier Value Set	

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
11	Specimen Role	CWE	RE	RE	[0..*]		HL70369	
12	Specimen Collection Amount	CQ	RE	RE			Unified Code for Units of Measure (UCUM)	
17	Specimen Collection Date/Time	DR	R	R				The first component of SPM-17 (start date) must match OBR-7. The second component, OBR-8, if the specimen was collected over a range of time. If an observation result (OBX) is based on this specimen, OBX-14 should also match this field's first component (start date).
17.1	RangeStartDateTime	TS		R				
17.1.1	Year	Numeric		R				
17.1.2	Month	Numeric		RE				
17.1.3	Day	Numeric		RE				
17.1	RangeEndDateTime	TS		CE				
17.1.1	Year	Numeric		CE				
17.1.2	Month	Numeric		CE				
17.1.3	Day	Numeric		CE				
18	Specimen Received Date/Time	TS	R	R				
18.1	Year	Numeric		R				

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
18.2	Month	Numeric		RE				
18.3	Day	Numeric		RE				
21	Specimen Reject Reason	CWE	RE	RE	[0..*]		HL70490	

2.9.2.8 NTE

Seq	Name	Data Type	HL7 IG Usage	NJ ELR Usage	Cardinality	Default Value	Value Set	Condition Predicate/ Description
1	Set ID	SI	R	R				
2	Source of Comment	ID	RE	RE			HL70105	
3	Comment	FT	R	R	[1..*]			
4	Comment Type	CWE	RE	RE			HL70364	

2.9.2.9 Sample HL7 2.5.1 message

```
MSH|^~\&#|SendingAppName^2.4.3.5.2.333.34.1^ISO|LabName^1D32484983^CLIA|ELRS^2.16.840.1.113883.3.1299.5.1.6.1^ISO|NJDOH^2.16.840.1.113883.3.1299^ISO|
20110811014910.0000-0500||ORU^R01^ORU_R01|20110811033501811|P|2.5.1|||||USA||||PHLabReport-Batch^^2.16.840.1.113883.9.11^ISO
SFT|Orion Health|3.2|Rhapsody|3.2.0.58783
PID|1||16891111060^^^LabName&1.2.3.3.4.6.7&ISO^PI^LabName&1.2.3.3.4.6.7&ISO~123456789^^^SSA&2.16.840.1.113883.3.184&ISO^SS~10-200-3000^^^University
Med Ctr MPI&2.9.8.7.6.5.4&ISO^PT^University Med Ctr&2.9.8.7.6.5.4&ISO||PATIENTLASTNAME^PATIENTFIRSTNAME^PATIENTMIDDLEINITORNAME||19340925|M||2054-
5^Black or African American^CDCREC^B^Black^L^1^^^^^^^2.16.840.1.114222.4.11.836|123 Main Street^Apartment 2^Big
City^NJ^00000^USA^H||^NET^Internet^sampleEmail@wxyzdomain.com^^^^^Please note person is hearing impaired|||||||||2186-5^Not Hispanic or
Latino^CDCREC^NH^^L^1.1^^^^^^^2.16.840.1.113883.6.238
NK1|1|KinLastName^KinFirstName^KinMiddleName^^^^L|PAR^Parent^HL70063^^^^^^^^^^^2.16.840.1.113883.12.63|||||||||||||||||gle^Irish^ISO6392^^^^1^^^^^^^2
.16.840.1.113883.6.100
ORC|RE||1B2D0989888^SystemName^1.2.3.4.5.6.7^ISO|||||||||019237311^DRLASTNAME^H^^^^MD^^NPI&2.16.840.1.113883.4.6&ISO^^^^NPI^LabName&1.2.3.4.5.6.7&ISO
||^WPN^PH^^1^111^1234567^1~^WPN^PH^^1^111^1234567^24|||||||University Health System^^^^^HL7&2.16.840.1.113883&ISO^XX^University
Hospital&2.5.2.3.4.6.432.4&ISO^^1234|350 Boulevard^Suite 3000^SomeCity^NJ^07055|^WPN^PH^^1^111^1234567^1|350 Boulevard^^PASSAIC^NJ^07055^USA
OBR|1||1B2D0989888^SystemName^1.2.3.4.5.6.7^ISO|543-9^Mycobacterium sp identified^LN^182675^AFB Cult/Smear, Broth,
Suscep^L^2.36^NA^^^^^^2.16.840.1.113883.11.16492|||20110809145706-
0500|||||||||019237311^DRLASTNAME^H^^^^MD^^NPI&2.16.840.1.113883.4.6&ISO^^^^NPI^LabName&1.2.3.4.5.6.7&ISO|^WPN^PH^^1^111^1234567^1~^WPN^PH^^1^111^123
4567^24|||||201108091457-0500|||F||||||521.00^Unspecified dental caries^I9CDX^^^^1^^^^^^^2.16.840.1.113883.11.15931
OBX|1|CWE|6463-4^Bacteria identified^LN^080306^RSLT#3^L^2.36^NA^^^^^^2.16.840.1.113883.11.16492||113861009^Mycobacterium tuberculosis
complex^SCT^TBDP^Culture report:^L^5^^^^^^^2.16.840.1.113883.6.5|||A^^HL70078^^^^2.5.1|||F|||20110809145706-0500|||||20110810013504-
0500||||LabName^^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^^1D32484983|1253 Highway #33^Suite
20^SmallCity^NJ^03977^USA|^DiectorLastName^DirectorFirstName^DirectorMiddleName
NTE|1|L|Culture report:
NTE|2|L|Mycobacterium tuberculosis complex isolated. Identification was
NTE|3|L|performed using a DNA Probe. Biochemical confirmation is in progress.
NTE|4|L|NOTIFIED/FAXED TO EPI ON 7/20/11. AC
SPM|1|^293813&LabName&1.2.3.4.5.6.7&ISO||122554006^Capillary blood
specimen^SCT^BLDC^BLDC^L^20080131^^^^^^^2.16.840.1.113883.6.96||||108350001^Abdomen, excluding retroperitoneal region (body
structure)^SNM^Abd^Abdomen^L^^^^^^^^2.16.840.1.113883.3.88.12.3221.8.9|||||||||20110809145706-0500|201106172239-0500
OBR|2||16891111060^LabName^1.2.3.4.5.6.7^ISO|^^^080544^Result 1^L^^NA|||201106171302-
0500|||||||||019237311^DRLASTNAME^H^^^^MD^^NPI&2.16.840.1.113883.4.6&ISO^^^^NPI^LabName&1.2.3.4.5.6.7&ISO|^WPN^PH^^1^111^1234567^1~^WPN^PH^^1^111^123
4567^24|||||20110809145706-0500|||F|9825-1&Mycobacterium sp identified&LN&080544&RSLT#1&L&&&&&&&&2.16.840.1.113883.6.1^1^Mycobacterium
tuberculosis|||^1BB37FD7383&LabName&1.2.3.4.5.6.7&ISO
OBX|1|CWE|241-0^Ethambutol^LN^997625^Ethambutol (2.5)
```

```
mcg/mL^L^^^^^^^^2.16.840.1.113883.11.16492||83185005^SENSITIVE^SCT^S^SENSITIVE^L^5^^^^^^^2.16.840.1.113883.6.5|||S^^HL70078^^^^2.5.1|||F|||2011061713
02-0500|||||||||LabName^^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^^1D32484983|1253 Highway #33^Suite
20^SmallCity^NJ^03977^USA|^DiectorLastName^DirectorFirstName^DirectorMiddleName
OBX|2|CWE|287-3^Isoniazid^LN^997622^Isoniazid (0.1)
mcg/mL^L^^^^^^^^2.16.840.1.113883.11.16492||83185005^SENSITIVE^SCT^S^SENSITIVE^L^5^^^^^^^2.16.840.1.113883.6.5|||S^^HL70078^^^^2.5.1|||F|||2011061713
02-0500|||||||||LabName^^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^^1D32484983|1253 Highway #33^Suite
20^SmallCity^NJ^03977^USA|^DiectorLastName^DirectorFirstName^DirectorMiddleName
OBX|3|CWE|424-2^Pyrazinamide^LN^997626^Pyrazinamide
(100)^L^^^^^^^^2.16.840.1.113883.11.16492||83185005^SENSITIVE^SCT^S^SENSITIVE^L^5^^^^^^^2.16.840.1.113883.6.5|||S^^HL70078^^^^2.5.1|||F|||20110617130
2-0500|||||||||LabName^^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^^1D32484983|1253 Highway #33^Suite
20^SmallCity^NJ^03977^USA|^DiectorLastName^DirectorFirstName^DirectorMiddleName
OBX|4|CWE|428-3^Rifampin^LN^997624^Rifampin (2)
mcg/mL^L^^^^^^^^2.16.840.1.113883.11.16492||83185005^SENSITIVE^SCT^S^SENSITIVE^L^5^^^^^^^2.16.840.1.113883.6.5|||S^^HL70078^^^^2.5.1|||F|||2011061713
02-0500|||||||||LabName^^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^^1D32484983|1253 Highway #33^Suite
20^SmallCity^NJ^03977^USA|^DiectorLastName^DirectorFirstName^DirectorMiddleName
OBX|5|CWE|460-6^Streptomycin^LN^997847^Streptomycin (2)
mcg/mL^L^^^^^^^^2.16.840.1.113883.11.16492||83185005^SENSITIVE^SCT^S^SENSITIVE^L^5^^^^^^^2.16.840.1.113883.6.5|||S^^HL70078^^^^2.5.1|||F|||2011061713
02-0500|||||||||LabName^^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^^1D32484983|1253 Highway #33^Suite
20^SmallCity^NJ^03977^USA|^DiectorLastName^DirectorFirstName^DirectorMiddleName
```

3. Common item information

3.1 PID-3 Internal Patient Identifier / Patient Identifier List

Due to the ability of this field to repeat, PID-3.5 (Identifier Type Code) should be valued, utilizing validation table HL70203 for acceptable values. If this is not possible, the first iteration of this field's data must contain the electronic reporting partner's internal patient identifier.

3.2 PID-5 Patient Name

Due to the ability of this field to repeat, PID-5.7 (Name Type Code) should be valued, utilizing validation table HL70200 for acceptable values. If this is not possible, the first iteration of this field's data must contain the patient's legal name. Should the legal name not be available, a name type code is required.

3.3 OBR-15.1 Specimen Source- Specimen Source Name or Code

This component may be left empty in the case the LOINC reported in OBX-3.1 (Observation Identifier) specifies a source. If valued, this component **must** match the source reported by the LOINC, except when the LOINC system lists "XXX"(specified elsewhere). In these cases, a source **must** be supplied.

For instance, LOINC 20789-4 lists a system (source) of "Isolate". Since the LOINC already specifies this as the source, OBR-15 may be left blank, or populated with "Isolate".

LOINC 44089-1 lists a system of "XXX". In this case, OBR-15 must convey specimen source value.

3.4 OBR-16, ORC-12 Ordering Provider, ZLR-2 / ORC-21 Ordering Facility

It is strongly recommended that the partner report this information to facilitate follow-up from public health staff. Both the facility and provider information may be reported, but one or the other will be accepted in HL7 versions 2.3z and 2.3.1 if both are not available. In conjunction, OBR-14, ORC-17 Order Callback Phone Number should also be valued.

3.5 OBR-17, ORC-14 Order Callback Phone Number

It is strongly recommended that the partner report this information to facilitate follow-up from public health staff. Both the facility and provider phone information may be reported and is preferred, but one in the absence of the other within HL7 2.3.1 is acceptable. The use of OBR-17 is preferred over ORC-14. In conjunction, OBR-16, ORC-12 Ordering Provider and/or ZLR-2 (HL7 2.3z only) / ORC-21 Ordering Facility should also be valued.

In cases where the partner is a healthcare entity, a provider may not have a direct phone; the facility's phone number should be provided.

3.6 OBR-26 Parent Result, OBR-29 Parent Number

In the case susceptibilities will be reported, this field and associated components must be valued in order to associate parent and child tests/results. As the explanations and examples detailing the proper use of these items are extensive, they have not been included in this guide. Please consult the respective HL7 version's implementation guide for more information.

3.7 OBX-4 Observation Sub-id

This field is used to distinguish between multiple OBX segments with the same observation ID organized under one OBR. In such a case, the sub-id should always be valued; otherwise it may be left blank. Thus, the Sub-ID allows related OBX segments to be linked.

For example a blood culture may have three different organisms growing. By putting a "1" in the Sub-ID of the first of these OBX segments, "2" in the second, and "3" in the third, each OBX segment can be uniquely identified for editing or replacement.

3.8 OBX-6 Units

Quantitative OBX-5 results, regardless of OBX-2 Value Type, must complete this field to facilitate accurate interpretations.

3.9 OBX-7 References range

All OBX-5 results, regardless of OBX-2 Value Type, must complete this field when the data is available to facilitate accurate

interpretations.

3.10 OBX-8 Abnormal Flags

Quantitative OBX-5 results, regardless of OBX-2 Value Type, should complete this field to facilitate accurate interpretations. If susceptibility results are sent, this must be valued.

3.11 OBX-15 Producer's ID

For most reports, the CLIA identifier here will be identical to the CLIA identifier listed as the assigning facility in MSH-4 (Sending Facility). When the test results are produced at outside laboratories, the CLIA identifier for the laboratory that performed the test should appear here and will differ from the CLIA identifier listed as the assigning facility in MSH-4. In these cases, it is strongly recommended that this field is valued.

4. Code Systems and Value Sets

Code systems and value sets are only listed in this section if specified by a field cited within this document. For the full list of code systems and value sets, please see the respective CDC implementation guide or HL7 standard.

4.1 HL70001 – Sex

Value	Description
F	Female
M	Male
O	Other
U	Unknown

4.2 HL70005 – Race

Value	Description
W	White
B	Black
A	Asian or Pacific Islander
I	American Indian or Alaskan Native
M	Multiracial
O	Other
U	Unknown
1002-5	American Indian or Alaskan Native
2028-9	Asian or Pacific Islander
2054-5	Black or African American
2076-8	Native Hawaiian or Other Pacific Islander
2131-1	Other Race
2106-3	White

4.3 HL70189 – Ethnicity

Value	Description
H	Hispanic
N	Non-Hispanic
U	Unknown
2135-2	Hispanic or Latino
2186-5	Not Hispanic or Latino

4.4 HL70070 - Specimen Source Codes

Value	Description
ABS	Abcess
AMN	Amniotic fluid
ASP	Aspirate
BPH	Basophils
BIFL	Bile fluid
BLDA	Blood arterial
BBL	Blood bag
BLDC	Blood capillary
BPU	Blood product unit
BLDV	Blood venous
BON	Bone
BRTH	Breath (use EXHLD)
BRO	Bronchial
BRN	Burn
CALC	Calculus (=Stone)
CDM	Cardiac muscle
CNL	Cannula
CTP	Catheter tip
CSF	Cerebral spinal fluid
CVM	Cervical mucus

CVX	Cervix
COL	Colostrum
CBLD	Cord blood
CNJT	Conjunctiva
CUR	Curettage
CYST	Cyst
DIAF	Dialysis fluid
DOSE	Dose med or substance
DRN	Drain
DUFL	Duodenal fluid
EAR	Ear
EARW	Ear wax (cerumen)
ELT	Electrode
ENDC	Endocardium
ENDM	Endometrium
EOS	Eosinophils
RBC	Erythrocytes
EYE	Eye
EXHLD	Exhaled gas (=breath)
FIB	Fibroblasts
FLT	Filter
FIST	Fistula
FLU	Body fluid, unsp
GAS	Gas
GAST	Gastric fluid/contents
GEN	Genital
GENC	Genital cervix
GENL	Genital lochia
GENV	Genital vaginal
HAR	Hair
IHG	Inhaled Gas
IT	Intubation tube
ISLT	Isolate
LAM	Lamella

WBC	Leukocytes
LN	Line
LNA	Line arterial
LNV	Line venous
LIQ	Liquid NOS
LYM	Lymphocytes
MAC	Macrophages
MAR	Marrow
MEC	Meconium
MBLD	Menstrual blood
MLK	Milk
MILK	Breast milk
NAIL	Nail
NOS	Nose (nasal passage)
ORH	Other
PAFL	Pancreatic fluid
PAT	Patient
PRT	Peritoneal fluid /ascites
PLC	Placenta
PLAS	Plasma
PLB	Plasma bag
PLR	Pleural fluid (thoracentesis fld)
PMN	Polymorphonuclear neutrophils
PPP	Patelet poor plasma
PRP	Platelet rich plasma
PUS	Pus
RT	Route of medicine
SAL	Saliva
SEM	Seminal fluid
SER	Serum
SKN	Skin
SKM	Skeletal muscle
SPRM	Spermatozoa
SPT	Sputum

SPTC	Sputum - coughed
SPTT	Sputum - tracheal aspirate
STON	Stone (use CALC)
STL	Stool = Fecal
SWT	Sweat
SNV	Synovial fluid (Joint fluid)
TEAR	Tears
THRT	Throat
THRB	Thrombocyte (platelet)
TISS	Tissue
TISG	Tissue gall bladder
TLGI	Tissue large intestine
TLNG	Tissue lung
TISPL	Tissue placenta
TSMI	Tissue small intestine
TISU	Tissue ulcer
TUB	Tube NOS
ULC	Ulcer
UMB	Umbilical blood
UMED	Unknown medicine
URTH	Urethra
UR	Urine
URC	Urine clean catch
URT	Urine catheter
URNS	Urine sediment
USUB	Unknown substance
VOM	Vomitus
BLD	Whole blood
BDY	Whole body
WAT	Water
WICK	Wick
WND	Wound
WNDA	Wound abscess
WNDE	Wound exudate

WNDD	Wound drainage
XXX	To be specified in another part of the message

4.5 HL70123 – Result Status

Value	Description
A	Some, but not all, results available
C	Correction to results
F	Final results; results stored and verified. Can only be changed with a corrected result.
I	No results available; specimen received, procedure incomplete
O	Order received; specimen not yet received
P	Preliminary: A verified early result is available, final results not yet obtained
R	Results stored; not yet verified
S	No results available; procedure scheduled, but not done
X	No results available; Order canceled.
Y	No order on record for this test. (Used only on queries)

4.6 HL70125 – Value Type

Value	Description
CE	Coded Entry
CWE	Coded With Exceptions

CX	Extended Composite ID With Check Digit
DT	Date
ED	Encapsulated Data
FT	Formatted Text (Display)
NM	Numeric
RP	Reference Pointer
SN	Structured Numeric
ST	String Data.
TM	Time
TS	Time Stamp (Date & Time)
TX	Text Data (Display)

4.7 HL70078 - Abnormal Flags

Value	Description
L	Below low normal
H	Above high normal
LL	Below lower panic limits
HH	Above upper panic limits
<	Below absolute low-off instrument scale
>	Above absolute high-off instrument scale
N	Normal (applies to non-numeric results)
A	Abnormal (applies to non-numeric results)
AA	Very abnormal (applies to non-numeric units, analogous to panic limits for numeric units)
null	No range defined, or normal ranges don't apply

U	Significant change up
D	Significant change down
B	Better-use when direction not relevant
W	Worse-use when direction not relevant
S	Susceptible. Indicates for microbiology susceptibilities only.
R	Resistant. Indicates for microbiology susceptibilities only.
I	Intermediate. Indicates for microbiology susceptibilities only.
MS	Moderately susceptible. Indicates for microbiology susceptibilities only.
VS	Very susceptible. Indicates for microbiology susceptibilities only.
POS	Positive
NEG	Negative
IND	Indeterminate
DET	Detected
ND	Not Detected
AC	Anti-complementary substances present
TOX	Cytotoxic substance present
QCF	Quality Control Failure
RR	Reactive
WR	Weakly reactive
NR	Non-reactive

4.8 HL70085 - Observation result status codes interpretation

Value	Description

D	Deletes the OBX record
F	Final results; Can only be changed with a corrected result.
N	Not asked; used to affirmatively document that the observation identified in the OBX was not sought when the universal service ID in OBR-4 implies that it would be sought.
O	Order detail description only
S	Partial results
W	Post original as wrong e.g. transmitted for wrong patient
P	Preliminary results
C	Record coming over is a correction and thus replaces a final result
X	Results cannot be obtained for this observation
R	Results entered -- not verified
U	Results status change to final without retransmitting results already sent as _preliminary._ E.g. radiology changes status from preliminary to final
I	Specimen in lab; results pending

4.9 HL70371 - Additive/Preservative

Value	Description
F10	10% Formalin
C32	3.2% Citrate
C38	3.8% Citrate
HCL6	6N HCL
ACDA	ACD Solution A

ACDB	ACD Solution B
ACET	Acetic Acid
AMIES	Amies transport medium
HEPA	Ammonium heparin
BACTM	Bacterial Transport medium
BOR	Borate Boric Acid
BOUIN	Bouin's solution
BF10	Buffered 10% formalin
WEST	Buffered Citrate Westergren Sedimentation Rate
BSKM	Buffered skim milk
CARS	Carson's Modified 10% formalin
CARY	Cary Blair Medium
CHLTM	Chlamydia transport medium
CTAD	CTAD this should be spelled out if not universally understood
ENT	Enteric bacteria transport medium
ENT+	Enteric plus
JKM	Jones Kendrick Medium
KARN	Karnovsky's fixative
LIA	Lithium iodoacetate
HEPL	Lithium/Li Heparin
M4	M4
M4RT	M4-RT
M5	M5
MICHTM	Michel's transport medium
MMDTM	MMD transport medium
HNO3	Nitric Acid
NONE	None
PAGE	Pages's Saline
PHENOL	Phenol
KOX	Potassium Oxalate
EDTK	Potassium/K EDTA
EDTK15	Potassium/K EDTA 15%

EDTK75	Potassium/K EDTA 7.5%
PVA	PVA polyvinylalcohol
RLM	Reagan Lowe Medium
SST	Serum Separator Tube Polymer Gel
SILICA	Siliceous earth 12 mg
NAF	Sodium Fluoride
FL100	Sodium Fluoride 100mg
FL10	Sodium Fluoride 10mg
NAPS	Sodium polyanethol sulfonate 0.35% in 0.85% sodium chloride
HEPN	Sodium/Na Heparin
EDTN	Sodium/Na EDTA
SPS	SPSthis should be spelled out if not universally understood
STUTM	Stuart transport medium
THROM	Thrombin
FDP	Thrombin NIH; soybean trypsin inhibitor Fibrin Degradation Products
THYMOL	Thymol
THYO	Thyoglycollate broth
TOLU	Toluene
URETM	Ureaplasma transport medium
VIRTM	Viral Transport medium

4.10 HL70369 - Specimen Role

Value	Description
B	Blind Sample
C	Calibrator
E	Electronic QC used with manufactured reference providing signals that simulate QC results

F	Specimen used for testing proficiency of the organization performing the testing Filler
G	Group where a specimen consists of multiple individual elements that are not individually identified
L	Pool aliquots of individual specimens combined to form a single specimen representing all of the components.
O	Specimen used for testing Operator Proficiency
P	Patient default if blank component value
Q	Control specimen
R	Replicate of patient sample as a control
V	Verifying Calibrator used for periodic calibration checks

4.11 HL70490 - Specimen Reject Reason

Value	Description
RB	Broken container
RC	Clotting
RN	Contamination
EX	Expired
RH	Hemolysis
RI	Identification problem
RR	Improper storage
RM	Labeling
RD	Missing collection date
RA	Missing patient ID number
RE	Missing patient name

RP	Missing phlebotomist ID
RS	Name misspelling
QS	Quantity not sufficient

4.12 HL70105 - Source of comment

Value	Description
L	Ancillary (filler) department is source of comment
O	Other system is source of comment
P	Orderer (placer) is source of comment

4.13 HL70364 - Comment Type

Value	Description
AI	Ancillary Instructions
DR	Duplicate/Interaction Reason
GI	General Instructions
GR	General Reason
PI	Patient Instructions
1R	Primary Reason
RE	Remark
2R	Secondary Reason

4.14 Other value sets

The following section includes sets which may contain large numbers of values or are dynamic in nature and better suited for review online. Those listed below may be retrieved through PHIN VADS https://phinvads.cdc.gov/.

Value Set / Code System Name	Value Set/Code System Source	Value Set/Code System Identifier	Description
Animal Value Set	CDC PHIN VADS	2.16.840.1.114222.4.11.1074	PHVS_Animal_CDC
SNOMED CT Specimen	SNOMED CT	2.16.840.1.113883.6.96	PHVS_Specimen_CDC
Unified Code for Units of Measure (UCUM)	http://loinc.org/downloads/usage/units	2.16.840.1.114222.4.11.838	PHVS_UnitsOfMeasure_CDC
HL7 V3 Observation Method	HL7 Version 3.0	2.16.840.1.113883.5.84	PHVS_LabTestMethods_CDC
Specimen Type Value Set	CDC PHIN VADS	2.16.840.1.114222.4.11.6046	PHVS_SpecimenType_HL7_2x
Specimen Modifier or Qualifier Value Set	CDC PHIN VADS	2.16.840.1.114222.4.11.1014	PHVS_ModifierOrQualifier_CDC
Specimen Collection Method Value Set	CDC PHIN VADS	2.16.840.1.114222.4.11.3282	PHVS_SpecimenCollectionMethod_CDC
Body Site Value Set	HITSP C-80,20090708 V1.1	2.16.840.1.113883.3.88.12.3221.8.9	PHVS_BodySite_HITSP