Oregon Public Health Division
Electronic Laboratory Reporting
Local Implementation Guide
HL7 Version 2.5.1: ORU^R01

September 13, 2016

Version 3.1

Oregon Electronic Laboratory Reporting

Contents

For Information about Oregon ELR, visit us on the web at: healthoregon.org/elr
Or contact us at 971-673-1111

Revision History	Issue Date	Summary of Changes
0.1	February 22, 2013	First unpublished version.
0.2	April 26, 2013	Cleaned typos – available as unpublished draft.
1.0	July 24, 2013	First published draft.
1.1	October 15, 2013	Removed reference to HL7 International fee for complete specification. Fixed broken hyperlinks, spelling, and grammar. Corrected example PID-3 repetition; added example PID-6; added recommended values for OBR-13; changed notes in OBR-17.
2.0	June 6, 2014	Added PV1 segment construction. Added Appendix B – Example Message Susceptibility Results. Added Appendix C – Batch Header and Trailer Segments.
2.1	June 25, 2014	Corrected PV1-44 and PV1-45 examples; added PV1-19 (visit number)
2.2	August 14, 2014	Updated Appendix B with carbapenems and some of the 3rd generation cephalosporins for completeness.
3.0	December 19, 2014	Added PID-18 to allow submitters to provide patient account numbers. Added optional FT1 segment to allow submitters to send insurance information on ordered tests.
3.1	September 13, 2016	Added optional NK1 components to capture occupation and job title for associated employer information, and primary language spoken for next of kin. Also added SPM-10 Specimen Collection Site.

Electronic Laboratory Reporting in Oregon

Thank you for your interest in Health Level Seven (HL7) electronic data exchange with the Oregon Electronic Laboratory Reporting (ELR) project. Getting timely and accurate information on reportable conditions is critical for Public Health disease surveillance and improving population health. In Oregon, licensed laboratories are required to report all test results indicative of and specific for the diseases, infections, microorganisms, and conditions specified by statute. Oregon ELR encourages the least burdensome method for laboratories to submit data, and mandates ELR for laboratories sending an average of more than 30 records per month to the Oregon Public Health Division (OPHD). For details, please review Oregon Administrative Rules (OARs), Divisions 18 (Disease Reporting) and 26 (Enforcement of Public Health Rules).

Participating in ELR allows incoming laboratory data to be translated, processed, and routed to appropriate public health recipients (Local Health Departments and State Programs) for swift public health action. Standardized HL7 messaging is the preferred format for ELR in Oregon, and to meet Federal Meaningful Use requirements, HL7 version 2.5.1 is the only acceptable message format for ELR.

Scope of This Document

The OPHD ELR system conforms to the HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1, published by HL7 International. As an HL7 Organizational Member, OPHD has permission to create a local implementation guide based on the official standard. This guide is designed for use by analysts and developers who must understand and implement elements of the HL7 Version 2.5.1 Unsolicited Observation Message for submission to the Oregon ELR Project. While the information included in this document is consistent with the more comprehensive Informative Document published by HL7 International, this guide specifies how to construct electronic laboratory reports for Oregon using the HL7 2.5.1 ORU^R01 message. Construction and submission of other HL7 message types or for other jurisdictions are beyond the scope of this document. For example, this document does not cover querying patient demographics or querying of laboratory results.

This document does not address Meaningful Use (MU) attestation. However, messages constructed using this guide and transmitted to Oregon ELR are appropriate for meeting MU. For more information on MU attestation, please visit healthoregon.org/mu.

Lastly, information on message transport is not included in this document. At this time, Oregon ELR accepts batch HL7 messages via secure file transfer protocol (SFTP) or the Public Health Informatics Network Messaging System (PHIN-MS). Questions regarding transport should be addressed to elr.project@state.or.us.

Health Level Seven (HL7) Standard

The ANSI HL7 standards are widely used for data exchange in the health care industry. The full standard covers a variety of situations in patient care and health care finance, and no single application is likely to use all of its content. This document covers the subset of HL7 that will be used for generation of messages suitable for ELR in Oregon. This section contains definitions of basic HL7 terminology, conventions, and table attributes.

HL7 Terminology[1]

Term	Definition
Message	The basic unit of information transferred between systems. For Oregon ELR, multiple messages are typically batched and sent in a single transmission. A message is comprised of a series of segments in a defined sequence.
Segment	A segment is a logical grouping of data fields. Segments within a defined message may be required or optional and may occur only once or may be allowed to repeat. Each segment is named and identified by a segment ID, a unique 3-character code (e.g., OBX). This guide only includes segments needed to construct an ORU-R01 message type.
Field	A field is a string of characters delimited by field separators (|). Each field has an element name and is identified by the segment it is in and its sequence within the segment. Usage and cardinality requirements are defined in the Segment Definitions. A field is referenced by the 3-character segment code, followed by the field position (e.g., OBX-5).
Component	A component is an element within a composite field and is delimited within the field by component separators (^). Within a field having several components, not all components may be required. Leading empty components must be represented by a delimiter (^); trailing empty components may be eliminated from the field. A component is referenced by the 3-character segment code, followed by the field position, and the component position within that field (e.g., OBX-5.2 denotes the second component of the fifth field of the OBX segment).
Data Type	A data type restricts the contents and format of the data field. Data types are given a 2- or 3- letter code specified by HL7. Some data types are composite types and include several components. The applicable HL7 data type is listed in each field definition. See Appendix A for data types used in this document.
Delimiters	Delimiter values in MSH-1 (|) and MSH-2 (^&~\) are used throughout the message. | Field Separator (ASCII 124) ^ Component Separator (ASCII 094) & Sub-Component Separator (ASCII 038) ~ Repetition Separator (ASCII 126) \ Escape Character (ASCII 091)
Segment Terminator	Only the ASCII 013 carriage return is allowed. Throughout this document this character is represented as <cr>. **This value cannot be changed by implementers.**

Each of the tables in the subsequent sections will have information about how to construct the message presented in a table structured with the following attributes:

[1] Multiple messages sent in a single file should contain Batch Header (BHS) and Trailer (BTS) segments. As the focus of this document is on message construction, BHS and BTS segment construction is not described in detail. A brief description can be found in Appendix C.

HL7 Table Attributes

Term	Definition
Seq	The position (sequence) of the field within the segment. **Oregon ELR does not evaluate every field within the HL7 standard.** *For example, Oregon ELR ignores MSH fields 8, 13-16, 18-20 so those are not present in the MSH definition table.*
Type	HL7 data type required for the field. See Appendix A for data types accepted by Oregon ELR.
Use	Indicates whether the segment element (field, component, or subcomponent) is required (R), required if available, but may be empty (RE), optional (O), or conditional and may be empty (CE).
Name	Descriptive name of the field
Guidance	Notes, examples, value and code sets needed for proper field construction.

Resources

The resources listed below will be valuable as you create your ELR messages. Several of these are large data sets or documents that you may want to have on hand, but we recommend that you use these links so that you always retrieve the latest version.

HL7 Implementation Guide

The full HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1 (US Realm) Informative Document published in February 2010 can be downloaded from HL7 International at https://www.hl7.org/store/index.cfm. This 230 page document is comprehensive and includes detailed specifications on ELR messages for profiles other than Public Health submission. As mentioned above, this Oregon-specific document is based on the larger document but has been summarized to include only the most pertinent information.

Guidance for Object Identifiers (OIDs)

An OID is a globally unique International Organization for Standardization (ISO) identifier. OIDs represented in HL7 models consists of numbers and dots (e.g., 2.16.840.1.113883.3.1) and are created by a Registration Authority. OIDs are the preferred scheme for unique identifiers in HL7 and should be used unless a different scheme is specified (e.g., use of a CLIA number instead of an OID in MSH-4). The HL7 OID registry (https://www.hl7.org/oid/) can be used to retrieve information on what a particular OID represents.

Logical Observation Identifiers Names and Codes (LOINC)

LOINC is a universal standard for identifying medical laboratory observations and is the recommended[2] code set for OBR-4 (ordered test) and OBX-3 (observation identifier). The

[2] Use of LOINC is required for successful attestation in Stage 2 Meaningful Use.

Regenstrief Institute has developed an on-line utility to facilitate mapping laboratory tests and results to LOINC (http://loinc.org/relma) and the complete LOINC database can be downloaded at http://loinc.org/. Where use of LOINC is specified in this document, the field should be constructed as follows: LOINC^Text^LN (i.e., 45335-7^Bacteria Identification [Presence] in Isolate by Culture^LN).

Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT)

SNOMED CT is a structured collection of coded medical terms, including diseases and organisms that are isolated from laboratory specimens. SNOMED CT is the recommended[3] code set for OBX-5 (observation result). The Virginia-Maryland Regional College of Veterinary Medicine has developed an on-line utility to facilitate mapping laboratory results to SNOMED CT (http://vtsl.vetmed.vt.edu/) or you can download the complete SNOMED CT database at http://www.nlm.nih.gov/research/umls/licensedcontent/snomedctfiles.html. For the purposes of this implementation guide, when use of SNOMED is specified, the field should be constructed as follows: SNOMED^Text^SCT (78181009^Giardia lamblia (organism)^SCT).

PHIN – Vocabulary Access and Distribution Center (VADS)

The main purpose of PHIN VADS is to distribute the value sets associated with HL7 message implementation guides. PHIN VADS is a web-based enterprise vocabulary system for accessing, searching, and distributing vocabularies used in public health and clinical care practice. Users can access and view vocabularies in the context of public health with file download options for Value Sets, Value Set Concepts, Views and Groups available in a tab-delimited text format and also in Microsoft Excel format. All value sets associated with ELR 2.5.1 messaging can be downloaded from the PHIN VADS site at https://phinvads.cdc.gov/vads/SearchVocab.action. Relevant value sets are included (and hyperlinked) in the segment construction tables that follow (e.g., *Value set: HL70005*).

Additional Resources

See Appendix A for Data Types relevant to the ORU^R01 message.

Visit the Oregon ELR website (healthoregon.org/elr) for information on reportable conditions, Administrative Rules and Revised Statutes that pertain to ELR in Oregon, and how to meet the Meaningful Use objective for Public Health reporting.

[3] Use of SNOMED is required for successful attestation in Stage 2 Meaningful Use.

Public Health Laboratory Messaging – ORU^R01 – Unsolicited Observation Results

The ORU^R01 message is an unsolicited observation result message and is used for transmitting laboratory results to Oregon ELR. Segments that are not supported by Oregon ELR are not included in this guide. For information on these segments, refer to the comprehensive ELR Implementation Guide published by HL7 International. As Oregon ELR adopts additional segments and elements, this document will be updated.

The table below provides information on the general construction of an ORU^R01 message. If a segment is not described in this document, it is not supported by Oregon ELR and it should not be sent. Segments displayed without braces are required (e.g., MSH). Segments enclosed in curly braces are required and may repeat (e.g., {SFT}). Segments enclosed in both square and curly braces are optional, but if included these segments may repeat (e.g., [{NTE}]).

Segment	Name	Description
MSH	Message Header	Includes information on message delimiters, sender, receiver, message type, and time stamp of the message
{SFT}	Software Segment	A minimum of a single SFT segment is required by the original sending facility. Oregon ELR ignores multiple SFT segments.
PID	Patient Identification	Demographic data on the subject of the test (i.e., the patient)
[{NK1}]	Next of Kin/Associated Party	Used to document next of kin or associated party (employer, guardian, etc.). Required when reporting lead results for children.
[PV1]	Patient Visit	Basic inpatient or outpatient encounter information.
{ [ORC]	Order Common	Information about the order including who placed it and when it was placed, etc. This segment is only required for the first order observation group.
OBR	Observation Request	Information about the test being performed; linked to subsequent results
[{NTE}]	Notes regarding the OBR	
{ OBX	Observation related to OBR	Information regarding a single result
[{NTE}] }	Notes regarding the OBX	

Segment	Name	Description
[{FT1}]	Financial transaction information related to the OBR	Contains the detail data necessary to post charges, payments, adjustments, etc. to patient accounting records.
SPM }	Specimen information related to the OBR	Characteristics of a single sample – specimen number for a single sample, specimen type, collection date, collection site, collection location, who collected the specimen

The simplest interpretation of message construction is that all messages must have a single instance of the MSH, SFT, and PID segments; zero or more NK1 segments; zero or one PV1 segment; a minimum of one ORC segment; a minimum of one OBR segment with at least one OBX, zero or more FT1 segments, only one SPM segment, and zero or more NTE segments per grouping.

Example ORU^R01 Message

The following message contains each of the segments described above and will be used throughout the document as an example of how to construct each segment. Optional components that are excluded in following pages are ignored by Oregon ELR; optional components that are included will be evaluated by Oregon ELR if they are present.

MSH|^~\&|LabSender^2.27.951.1.113883.3.13.2.2.1^ISO|County Hospital^41D0733684^CLIA|OR ELR|OPHD|201301250446||ORU^R01^ORU_R01|20130125044643282991|P|2.5.1|||||USA||||PHLabReport-NoAck^^2.16.840.1.114222.4.10.3^ISO**<cr>**
SFT|Level Seven Healthcare, Inc.^L^^^^Lab&2.16.840.1.113883.19.4.6&ISO^XX^^^1234|1.2|LabWare Systems|56734||20080817**<cr>**
PID|1||36363636^^^MPI&2.16.840.1.113883.19.3.2.1&ISO^MR~1234567890^^^SSN&2.16.840.1.113883.4.1&ISO^SS||Jones^Jonathon^James^Jr^^^L|Clemmons^Carrie^C^^^^L|19660606|M||2106-3^White^HL70005^^^^2.5.1|1234 NW Rocky Rd^^Portland^OR^97232^USA^C^^Multnomah||^PRN^CP^^^503^5555555|^WPN^PH^^^503^4444444|| S^single^HL70002||36363636^^^MPI&2.16.840.1.113883.19.3.2.1&ISO^MPI||||N^Non Hispanic^HL70189^^^^2.5.1|||||||201302060827|Y||201302061133<cr>
NK1|1|Mum^Martha^M^^^^L|MTH^Mother^HL70063^^^^2.5.1|444 Home Street^Apt B^Ann Arbor^MI^99999^USA^H|^PRN^PH^^1^888^8888888<cr>
PV1|1|O|^Room 615^^Good Health Hospital&2.16.840.1.113883.19.3.2.3&ISO|R|||||||||||||||12345||||||||||||||||||||||||200808151000|200808151200<cr>
ORC|RE|98765432112345678900^EHR^2.16.840.1.113883.19.3.2.3^ISO|CHEM9700122^MediLabCo-Seattle^45D0470381^CLIA|||||||||1234^Admit^Alan^A^III^Dr^^^Lab&2.16.840.1.113883.19.4.6&ISO^L^^^EI^^^^^^^^MD||^^PH^^^503^2223333|||||||Smith Clinic Cooperative^L^^^^ County Hospital&41D0733684&CLIA |987 SE Main St^^Seattle^WA^88888^USA^B^^067 |^WPN^PH^^^503^8889999|Sleep Medicine Institute^4444 Healthcare Drive^Seattle^WA^88888^USA^B<cr>
OBR|1|98765432112345678900^EHR^2.16.840.1.113883.19.3.2.3^ISO|CHEM9700122^MediLabCo-Seattle^45D0470381^CLIA|50545-3^Bacterial susceptibility panel^LN|||201212130810|||||Outpatient Clinic|||1234^Admit^Alan^A^III^Dr^^^Lab&2.16.840.1.113883.19.4.6&ISO^L^^^EI^^^^^^^^MD|^^PH^^^503^2223333|||||20130124122200||CH|F| 625-4^identified:Prid:Pt:Stool:Nom:Culture&LN ^1^Campylobacter jejuni|||23456&EHR&2.16.840.1.113883.19.3.2.3&ISO^9700122&Lab&2.16.840.1.113883.19.3.1.6&ISO||787.91^ DIARRHEA^I9CDX^^^^07/09/2008<cr>
OBX|1|CWE|625-4^Bacteria identified^LN|1|66543000^Campylobacter jejuni^SCT||| N^Normal^HL70078^^^^2.5.1|||P|||201212130810|||0086^Bacterial identification^OBSMETHOD^^^^501-20080815||200906051700||

|| GHH Lab^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^Portland^OR^97232^USA^B|9876543^Slide^Stan^S^^^^^NPPES&2.16.840.1.113883.19.4.6 &ISO^L^^^NPI<cr>
FT1|1|||20121213||CG|303756^Blood Draw^L|||||||112233445^Moda Health^L <cr>
SPM|1|20121213130700151382381776558000000A20120000199111469050^OA20120000199&EHR&38D0622795&CLIA|| 119297000^Blood^SCT ||||49852007^Structure of median cubital vein (body structure)^SCT||BCAE^Blood Culture, Aerobic Bottle^HL70488|P^Patient^HL60369|2.0^mL&MilliLiter& UCUM&&&&1.6|||||201212130810|20121213130700<cr>
NTE|1|L|A comment or note goes here.|RE^Remark^HL70364^^^^2.5.1<cr>

The following pages describe how to construct each segment starting with a description of the purpose of the segment, followed by an example of that segment, and concluding with a table that defines how each data element should be composed. Data elements ignored by Oregon ELR are not presented in the tables and can be identified by skip patterns in the Seq column. In the Guidance column, required literal values (**bold**), vocabulary standards (*italics*), and value sets (*hyperlinked italics*), and examples are defined. Details on selected data types can be found in Appendix A. Data types and value sets not included in this document are omitted because either Oregon ELR expects a literal value for that element or Oregon ELR only accepts a limited range of the value set and those options are included in the Guidance column.

MSH – Message Header Segment

The MSH segment contains information about how to parse and process the message.

Example:

MSH|^~\&|LabSender^2.27.951.1.113883.3.13.2.2.1^ISO|County Hospital^41D0733684^CLIA|OR ELR|OPHD|201301250446||ORU^R01^ORU_R01|20130125044643282991|P|2.5.1|||||USA||||PHLabReport-NoAck^^2.16.840.1.114222.4.10.3^ISO<cr>

MSH – Message Header Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
1	ST	R	Field Separator	Literal value: **|**
2	ST	R	Encoding Characters	Literal value: **^~\&**
3	HD	R	Sending Application	Name and OID for the sending application Example: LabSender^2.27.951.1.113883.3.13.2.2.1^ISO
4	HD	R	Sending Facility	Name and **CLIA** number for the sending facility Example: County Hospital^41D0733684^CLIA
5	HD	R	Receiving Application	Literal value: **OR ELR**
6	HD	R	Receiving Facility	Literal value: **OPHD**

MSH – Message Header Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
7	TS	R	Date/Time of Message	Date and time of the message creation to the minute Example: 201301250446
9	MSG	R	Message Type	Literal value: **ORU^R01^ORU_R01**
10	ST	R	Message Control ID	Unique message identifier generated by the sending application; MSH-3 plus MSH-10 must be globally unique; OR ELR recommends timestamp to the millisecond Example: 20130125044643282991
11	PT	R	Processing ID	Denotes whether the message is for testing (**T**), debugging (**D**), or production (**P**); currently ignored by Oregon ELR Example: P
12	VID	R	Version ID	Literal value: **2.5.1**
17	ID	O	Country Code	Value Set: *PHVS_Country_ISO_3166-1* Example: USA
21	EI	R	Message Profile Identifier	While Oregon ELR ignores this field at this time, we recommend populating with the following literal value: **PHLabReport-NoAck^^2.16.840.1.114222.4.10.3^ISO**

SFT – Software Segment

The SFT segment provides information about the sending application or other applications that manipulate the message. The Laboratory Result Sender is required to populate the first SFT segment. Any other application that transforms the message must add an SFT segment for that application. Oregon ELR does not evaluate multiple SFT segments.

Example:

SFT|Level Seven Healthcare, Inc.^L^^^^Lab&2.16.840.1.113883.19.4.6&ISO^XX^^^1234|1.2|LabWare Systems|56734||20080817<cr>

SFT – Software Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
1	XON	R	Software Vendor Organization	Example: Level Seven Healthcare, Inc.^L^^^^Lab&2.16.840.1.113883.19.4.6&ISO^XX^^^1234
2	ST	R	Software Version or Release Number	Example: 1.2
3	ST	R	Software Product Name	Example: LabWare Systems

SFT – Software Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
4	ST	R	Software Binary ID	Example: 56734
6	TS	RE	Software Install Date	Minimum granularity to the day Example: 20080817

PID – Patient Identification Segment

The PID segment is used to provide basic demographics regarding the subject of the testing. The subject may be a person or an animal.

Example:

PID|1||36363636^^^MPI&2.16.840.1.113883.19.3.2.1&ISO^MR~1234567890^^^SSN&2.16.840.1.113883.4.1&ISO^SS||Jones^Jonathon^James^Jr^^^L|Clemmons^Carrie^C^^^^L|19660606|M||2106-3^White^HL70005^^^^2.5.1|1234 NW Rocky Rd^^Portland^OR^97232^USA^C^^Multnomah||^PRN^CP^^^503^5555555|^WPN^PH^^^503^4444444||S^single^HL70002||36363636^^^MPI&2.16.840.1.113883.19.3.2.1&ISO^MPI||||N^Non Hispanic^HL70189^^^^2.5.1|||||||201302060827|Y||201302061133<cr>

PID – Patient Identification Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
1	SI	R	Set ID – PID	Literal value: **1**
3	CX	R	Patient Identifier List	Patient identifiers may include: medical record number, social security, etc. Up to 4 identifiers separated with ~ Example: 6363636^^^MPI&2.16.840.1.113883.19.3.2.1&ISO^MR
5	XPN	R	Patient Name	Value sets: *HL70200*, *HL70360* Example: Jones^Jonathon^James^Jr^^^L
6	XPN	RE	Mother's Maiden Name	Value sets: *HL70200*, *HL70360* Example: MaidenLast^MomFirst^MomMI^^^^L
7	TS	RE	Date/Time of Birth	Minimum granularity to the day Example: 19660606
8	IS	RE	Administrative Sex	Gender: Female (**F**), Male (**M**), Other (**O**), or Unknown (**U**) Example: M
10	CWE	RE	Race	One or more race codes (multiple entries delimited with ~) Value set: *HL70005*, *HL70396* Example: 2106-3^White^HL70005^^^^2.5.1

PID – Patient Identification Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
11	XAD	RE	Patient Address	Value sets: *HL70190*, *PHVS_County_FIPS_6-4*, *PHVS_State_FIPS_5-2* Example: 1234 NW Rocky Rd^^Portland^OR^97232^USA^C^^Multnomah
13	XTN	RE	Phone Number – Home	Value sets: *HL70201*, *HL70202* Example: ^PRN^CP^^^503^5555555
14	XTN	RE	Phone Number – Business	Value sets: *HL70201*, *HL70202* Example: ^WPN^PH^^^503^4444444
18	CX	O	Patient Account Number	Use PID-3, with identifier type of 'AN'. Example: 36363636^^^MPI&2.16.840.1.113883.19.3.2.1&ISO^MPI
22	CWE	RE	Ethnic Group	Hispanic (**H**), Not Hispanic (**N**), or Unknown (**U**) Value sets: *HL70189*, *HL70396* Example: N^Non Hispanic^HL70189^^^^2.5.1
29	TS	RE	Patient Death Date and Time	Minimum granularity to the day *Example: 201302060827*
30	ID	RE	Patient Death Indicator	If PID-29 is populated then PID-30 must be **Y**
33	TS	RE	Last Update Date/Time	Minimum granularity to the minute *Example: 201302061133*
35	CWE	RE	Species Code	Used for animal rabies testing related to human testing Value sets: *PHVS_Animal_CDC*, *HL70396* Example: |91230005^American short haired guinea pig^LN^^^^5^PHVS_Animal_CDC|

NK1 – Next of Kin Segment

The NK1 segment is used to document information about a party associated with the patient. This is particularly important for lead testing of minors, since the NK1 is used to document information about the parent or guardian. For animal patients, the NK1 documents the person or organization that is responsible for the animal. This is also where employment information for a patient is documented.

Example:

NK1|1|Mum^Martha^M^^^^L|MTH^Mother^HL70063^^^^2.5.1|444 Home Street^Apt B^Ann Arbor^MI^99999^USA^H|^PRN^PH^^1^888^8888888<cr>

NK1 – Next of Kin Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
1	SI	R	Set ID – NK1	Sequential number for each NK1 segment, must start with 1
2	XPN	CE	Name	Name of the patient's next of kin (use NK1-13 if the associated party is an organization) Value sets: *HL70200*, *HL70360* Example: Mum^Martha^M^^^^L
3	CWE	RE	Relationship	The associated party's relationship to the patient Value sets: *HL70063*, *HL70396* Example: MTH^Mother^HL70063^^^^2.5.1
4	XAD	RE	Address	Address of the associated party Value sets: *HL70190*, *PHVS_County_FIPS_6-4*, *PHVS_State_FIPS_5-2* Example: 444 Home Street^Apt B^Ann Arbor^MI^99999^USA^H
5	XTN	RE	Phone Number	Telephone number(s) of associated party Value sets: *HL70201*, *HL70202* Example: ^PRN^PH^^1^888^8888888
10	ST	O	Occupation/Job Title	Occupation of the associated party Example: Construction
11	JCC	O	Job Type/Class	Specific job class of the associated party Example: 6360^Glazier^Glass setter^CDC Census 2010
13	XON	CE	Organization Name – NK1	Use when the associated party is an organization Value sets: *HL70204*, *HL70203* Example: Level Seven Healthcare, Inc.^L^^^^&2.16.840.1.113883.19.4.6^ISO^XX^^^1234|
20	CE	O	Primary Language	Primary spoken language of the associated party Example: GER^German^ISO 639

NK1 – Next of Kin Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
30	XPN	CE	Contact Person's Name	Use if NK1-13 is populated Value sets: *HL70200*, *HL70360* Example: Mum^Martha^M^^^^L
31	XTN	RE	Contact Person's Telephone Number	Use if NK1-13 is populated Value sets: *HL70201*, *HL70202* Example: ^PRN^PH^^1^888^8888888
32	XAD	RE	Contact Person's Address	Use if NK1-13 is populated Value sets: *HL70190*, *PHVS_County_FIPS_6-4*, *PHVS_State_FIPS_5-2* Example: 444 Home Street^Apt B^Ann Arbor^MI^99999^USA^H

PV1 – Patient Visit Segment

The PV1 segment is used to document basic inpatient or outpatient information. While this is an optional segment, the PV1-2 field is of particular importance to public health surveillance systems. If a sending facility cannot send this segment, OPHD requests that the value of PV1-2 be provided in OBR-13 (relevant clinical information).

Example:

PV1|1|O|^Room 615^^Good Health Hospital&2.16.840.1.113883.19.3.2.3&ISO|R|||||||||||||||12345||||||||||||||||||||||||200808151000|200808151200<cr>

PV1 – Patient Visit Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
1	SI	R	Set ID – PV1	Literal value: **1**
2	IS	R	Patient Class	A gross identification of the classification of the patient's visit (e.g., I for inpatient, O for outpatient, etc.). Value sets: *HL70004* Example: O
3	PL	O	Assigned Patient Location	Use when PV1-2 is "inpatient" Example: ^Room 615^^Good Health Hospital&2.16.840.1.113883.19.3.2.3&ISO
4	IS	RE	Admission Type	Use when PV1-2 is "inpatient" Value sets: *PHVS_AdmissionType_HL7_2x* Example: R

PV1 – Patient Visit Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
19	CX	O	Visit Number	Example: 12345
44	TS	RE	Admit Date/Time	Date and time patient arrived for services Example: 200808151000
45	TS	RE	Discharge Date/Time	Date and time patient services ended Example: 200808151000

ORC – Common Order Segment

The ORC segment includes identifiers related to ordering the specimen (i.e., who placed the order, when it was placed, what action to take regarding the order, etc.).

Example:

ORC|RE|98765432112345678900^EHR^2.16.840.1.113883.19.3.2.3^ISO|CHEM9700122^MediLabCo-Seattle^45D0470381^CLIA|||||||||1234^Admit^Alan^A^III^Dr^^^Lab&2.16.840.1.113883.19.4.6&ISO^L^^^EI^^^^^^^^MD||^^PH^^^503^2223333||||||Smith Clinic Cooperative^L^^^^County Hospital&41D0733684&CLIA|987 SE Main S ^^Seattle^WA^88888^USA^B^^067|^WPN^PH^^^503^8889999|Sleep Medicine Institute^4444 Healthcare Drive^Seattle^WA^88888^USA^B<cr>

ORC – Common Order Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
1	ID	R	Order Control	Literal value: **RE**
2	EI	CE	Placer Order Number	Must contain the same value as OBR-2 if populated (Identifier assigned to the placer of the specific order) Example: 98765432112345678900^EHR^ 2.16.840.1.113883.19.3.2.3^ISO
3	EI	R	Filler Order Number	Must contain the same value as OBR-3 (Identifier assigned to the test by the organization performing the test) Example: CHEM9700122^MediLabCo-Seattle^45D0470381 ^CLIA
4	EI	RE	Placer Group Number	Requisition number for the order; Oregon ELR ignores this field at this time Example: 123^Lab^1.22.333.4555555667.8.9^ISO

ORC – Common Order Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
12	XCN	CE	Ordering Provider	Must contain the same value as OBR-16; provider that ordered the test; Oregon ELR recommends use of the National Provider Index (NPI) Value sets: *HL70200*, *HL70203*, *HL70360* Example: 1234^Admit^Alan^A^III^Dr^^^Lab& 2.16.840.1.113883.19.4.6&ISO^L^^^EI^^^^^^^^MD
14	XTN	CE	Call Back Phone Number	Must contain the same value as OBR-17; (contact number of ordering provider) Value sets: *HL70201*, *HL70202* Example: ^PH^^^503^2223333
21	XON	R	Ordering Facility Name	Value sets: *HL70204*, *HL70203* Example: Smith Clinic Cooperative^L^^^^County Hospital& 41D0733684&CLIA
22	XAD	R	Ordering Facility Address	Value sets: *HL70190*, *PHVS_County_FIPS_6-4*, *PHVS_State_FIPS_5-2* Example: 987 SE Main S^^Seattle^WA^88888^USA^B^^ 067
23	XTN	R	Ordering Facility Phone Number	Value sets: *HL70201*, *HL70202* Example: ^WPN^PH^^^503^8889999
24	XAD	O	Ordering Provider Address	Value sets: *HL70190*, *PHVS_County_FIPS_6-4*, *PHVS_State_FIPS_5-2* Example: Sleep Medicine Institute^4444 Healthcare Drive^Seattle^WA^88888^USA^B

OBR – Observation Request Segment

The OBR identifies the type of testing to be performed on the specimen and links that information to the testing order.

Example:

OBR|1|98765432112345678900^EHR^2.16.840.1.113883.19.3.2.3^ISO|CHEM9700122^MediLabCo-Seattle^45D0470381^CLIA|50545-3^Bacterial susceptibility panel^LN|||201212130810|||||Outpatient Clinic|||1234^Admit^Alan^A^III^Dr^^^Lab&2.16.840.1.113883.19.4.6&ISO^L^^^EI^^^^^^^^MD|^^PH^^^503^2223333|||||20130124122200||CH|F| 625-4^identified:Prid:Pt:Stool:Nom:Culture&LN ^1^Campylobacter jejuni|||23456&EHR&2.16.840.1.113883.19.3.2.3&ISO^9700122&Lab&2.16.840.1.113883.19.3.1.6&ISO||787.91^DIARRHEA^I9CDX^^^^07/09/2008|<cr>

OBR – Observation Request Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
1	SI	R	Set ID – OBR	Sequential number for each OBR segment, must start with 1
2	EI	RE	Placer Order Number	Identifier assigned to the placer of the specific order; must contain the same value as ORC-2 Example: 98765432112345678900^EHR^ 2.16.840.1.113883.19.3.2.3^ISO
3	EI	R	Filler Order Number	Identifier assigned to the test by the organization performing the test; when combined with OBR-2 must be unique; must contain the same value as ORC-3 Example: CHEM9700122^MediLabCo-Seattle^45D0470381 ^CLIA
4	CWE	R	Universal Service Identifier	Vocabulary standard: *LOINC* Value set: *HL70396* Example: 50545-3^Bacterial susceptibility panel^LN
7	TS	R	Observation Date/Time	Specimen collection date; granularity to the day; must contain the same value as SPM-17.1 and OBX-14 Example: 201212130810
13	ST	RE	Relevant Clinical Information	Example: Outpatient Recommended values: Emergency, Inpatient, Obstetrics, Outpatient, Preadmit, Recurring patient
16	XCN	RE	Ordering Provider	Provider who ordered the test; must be the same as ORC-12; Oregon ELR recommends use of NPI Value sets: *HL70200*, *HL70203*, *HL70360* Example: 1234^Admit^Alan^A^III^Dr^^^Lab& 2.16.840.1.113883.19.4.6&ISO^L^^^E
17	XTN	RE	Order Callback Phone Number	Contact number for the ordering provider; same as ORC-14 Value sets: *HL70201*, *HL70202* Example: ^^PH^^^503^2223333
22	TS	R	Results Report/Status Change – Date/Time	A subsequent message with the same filler number and a different status in this field implies additional processing to update a previous report; minimum granularity to the minute Example: 20130124122200
24	ID	RE	Diagnostic Services Section ID	Value set: *HL70074* Example: CH

OBR – Observation Request Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
25	ID	R	Result Status	Indicates preliminary (**P**), final (**F**) or corrected (**C**) result Example: F
26	PRL	CE	Parent Result	Used with OBR-29 (Parent); allows linkages with specific OBX segment associated with another OBR Example: 625-4^identified:Prid:Pt:Stool:Nom:Culture&LN ^1^Campylobacter jejuni
29	EIP	CE	Parent	Used to link this OBR with a parent OBR; commonly used with microbiology results; OBR-2 and OBR-3 must uniquely identify the parent OBR; required if OBR-24 is 'MB' and OBR-4 indicates culture and sensitivity Example: 23456&EHR&2.16.840.1.113883.19.3.2.3&ISO^ 9700122&Lab&2.16.840.1.113883.19.3.1.6&ISO
31	CWE	RE	Reason for Study	Value sets: *PHVS_AdministrativeDiagnosis_CDC_ICD-9CM*, *HL70396* Example: 787.91^DIARRHEA^I9CDX^^^^07/09/2008

OBX – Observation/Result Segment

The OBX contains information regarding a single observation (result) related to a single test (OBR) or specimen (SPM) (including the specific type of observation, the result for the observation, when the observation was made, etc.).

Example:

OBX|1|CWE|625-4^Bacteria identified^LN|1|66543000^Campylobacter jejuni^SCT||| N^Normal^HL70078^^^^ 2.5.1|||P|||201212130810|||0086^Bacterial identification^OBSMETHOD^^^^501-20080815||200906051700 ||||GHH Lab^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^Portland^OR^97232^ USA^B|9876543^Slide^Stan^S^^^^^NPPES&2.16.840.1.113883.19.4.6 &ISO^L^^^NPI<cr>

OBX – Observation/Result Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
1	SI	R	Set ID – OBX	Sequential number for each OBX segment, must start with 1
2	ID	CE	Value Type	Identify the data type used for OBX-5; if data type is CWE (coded with elements), use SNOMED CT in OBX-5 Value set: *HL70125* Example: CWE
3	CWE	R	Observation Identifier	Vocabulary standard: *LOINC* Example: 625-4^Bacteria identified^LN

OBX – Observation/Result Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
4	ST	CE	Observational Sub-ID	Required if there is more than one OBX with the same OBX-3; typically a sequential number Example: 1
5	Var	CE	Observation Value	Value must correspond to the data type entered in OBX-2; when OBX-2 is CWE, use SNOMED CT/ Vocabulary standard: *SNOMED CT* Example: 66543000^Campylobacter jejuni^SCT
6	CWE	CE	Units	If OBX-2 is NM or SN *Value sets: PHVS_UnitsOfMeasure_CDC, HL70396* Example: uL^MicroLiter [SI Volume Units]^UCUM^^^^1.6
7	ST	RE	Reference Ranges	Interpretation range that applies to OBX-5; should be enough information to understand abnormal flags in OBX-8; required if OBX-2 is SN and represents ordinal structured data Example: 0.0-0.9
8	CWE	CE	Abnormal Flags	Indicates the normalcy of OBX-5 Value sets: HL70078, HL70396 Example: N^Normal^HL70078^^^^ 2.5.1
11	ID	R	Observation Result Status	Indicates the status of the observation result, typically preliminary (**P**), final (**F**), or corrected (**C**) Value set: HL70085 Example: P
14	TS	CE	Date/Time of the Observation	Specimen collection date/time; must be the same as OBR-7 and SPM-17.1; minimum granularity to the day Example: 201212130810
17	CWE	CE	Observation Method	Method of testing used by the laboratory Value sets: PHVS_LabTestMethods_CDC, HL70396 Example: 0086^Bacterial identification^OBSMETHOD^^^^ 501-20080815
19	TS	RE	Date/Time of the Analysis	Date/Time the test was performed; minimum granularity to the day Example: 200906051700

OBX – Observation/Result Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
23	XON	R	Performing Organization Name	The laboratory that produced the test result in this OBX Value sets: *HL70204*, *HL70203* Example: GHH Lab^L^^^^CLIA&2.16.840.1.113883.19.4.6& ISO^XX ^^^1236
24	XAD	R	Performing Organization Address	Address of the lab that performed the test Value sets: *HL70190*, *PHVS_County_FIPS_6-4*, *PHVS_State_FIPS_5-2* Example: 3434 Industrial Loop^^Portland^OR^97232^ USA^B
25	XCN	RE	Performing Organization Medical Director	Medical Director of the reference lab Value sets: *HL70200*, *HL70203*, *HL70360* Example: 9876543^Slide^Stan^S^^^^^NPPES& 2.16.840.1.113883.19.4.6 &ISO^L^^^NPI

FT1 – Financial Transaction Segment

The FT1 segment contains the detail data necessary to post charges, payments, adjustments, etc. to patient accounting records. The Oregon ELR project does not necessarily need details about the cost of the service, but is requesting information about the insurance plan.

Example:

FT1|1|||20121213||CG|303756^Blood Draw^L|||||||112233445^Moda Health^L <cr>

SPM – Specimen Segment				
Seq	**Type**	**Use**	**Name**	**Note**
1	SI	O	Set ID	Sequential number for each FT1 segment, must start with 1
4	DR	R	Transaction Date	Should reflect the date the specimen was collected. Only the first component needs to be valued. Example: 20121213
6	IS	R	Transaction Type	The code that identifies the type of transaction (credit, payment, etc.) *Values:* **CG** (charge), **CD** (credit), **PY** (payment), or **AJ** (adjustment)
7	CE	R	Transaction Code	The code assigned to uniquely identifying the transaction based on the Transaction Type.
14	CE	O	Insurance Plan ID	The identifier of the primary insurance plan with which this transaction should be associated

SPM – Specimen Segment

The SPM segment carries information regarding the type of specimen, where and how it was collected, who collected it, and some basic characteristics of the specimen.

Example:

SPM|1|20121213130700151382381776558000000A20120000199111469050^OA20120000199&EHR&38D0622795&CLIA|| 119297000^Blood^SCT ||||49852007^Structure of median cubital vein (body structure)^SCT||BCAE^Blood Culture, Aerobic Bottle^HL70488|P^Patient^HL60369|2.0^mL&MilliLiter&UCUM&&&&1.6|||||201212130810|20121213130700<cr>

SPM – Specimen Segment				
Seq	**Type**	**Use**	**Name**	**Note**
1	SI	R	Set ID – SPM	Sequential number for each SPM segment, must start with 1
2	EIP	R	Specimen ID	Unique identifier for the specimen as referenced by the Placer and Filler applications. Example: 20121213130700151382381776558000000A20120000199111469050^OA20120000199&EHR&38D0622795&CLIA
4	CWE	R	Specimen Type	Value set: *PHVS_SpecimenType_HL7_2x*, *HL70396* Example: 119297000^Blood^SCT
5	CWE	RE	Specimen Type Modifier	Use when SPM-4 is a SNOMED CT code Value sets: *PHVS_ModifierOrQualifier_CDC*, *HL70396* Example: 260304006^0.5 (qualifier value)^SCT
6	CWE	RE	Specimen Additives	Value set: *HL70371*, *HL70396* Example: THYO^Thyoglycollate broth^HL70371^^^^2.5.1
7	CWE	RE	Specimen Collection Method	Value sets: *PHVS_SpecimenCollectionMethod_HL7_2x*, *HL70396* Example: BCAE^Blood Culture, Aerobic Bottle^HL70488^^^^^2.5.1
8	CWE	RE	Specimen Source Site	For environmental samples, describe the location of the source specimen; for biological samples, describe the anatomical site from which the specimen was collected Value sets: *PHVS_BodySite_HITSP*, *HL70396* Example: 49852007^Structure of median cubital vein (body structure)^SCT

SPM – Specimen Segment				
Seq	**Type**	**Use**	**Name**	**Note**
9	CWE	RE	Specimen Source Site Modifier	Only used if SPM-8 is a SNOMED CT code Value sets: *PHVS_ModifierOrQualifier_CDC*, *HL70396* Example: 260304006^0.5 (qualifier value)^SCT
10	CWE	O	Specimen Collection Site	This field differs from SPM-8 in those cases where the source site must be approached via an anatomic location. E.g., where a liver biopsy is obtained via a percutaneous needle, the collection site would be the point of entry of the needle. For venous blood collected from the left radial vein, the collection site could be "antecubital fossa".
11	CWE	RE	Specimen Role	Value sets: *PHVS_SpecimenRole_CDC*, *HL70396* Example: P^Patient^HL60369
12	CQ	RE	Specimen Collection Amount	Amount of specimen collected (weight or mass) Value set: *PHVS_UnitsOfMeasure_CDC* Example: 2.0^mL&MilliLiter& UCUM&&&&1.6
17	DR	R	Specimen Collection Date/Time	Component 1 must match OBR-7 and OBX-14, component 2 must match OBR-8; minimum granularity to the day Example: 201212130810
18	TS	R	Specimen Received Date/Time	Date and time the specimen was received by the laboratory; minimum granularity to the minute Example: 20121213130700
21	CWE	RE	Specimen Reject Reason	Value sets: *HL70490*, *HL70396* Example: RN^Contamination^HL70490^^^^2.5.1

NTE – Notes and Comments Segment

The NTE is used to convey additional information regarding the associated segment. While one or more NTE segments can be associated with PID and OBR segments, Oregon ELR only expects NTEs associated with OBX segments. The contents of the NTE segment are primarily intended for human use and therefore should not be used to relay relevant clinical information.

Example:

NTE|1|L|A comment or note goes here.|RE^Remark^HL70364^^^^2.5.1<cr>

NTE – Notes and Comments Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
1	SI	R	Set ID – NTE	Sequential number for each NTE segment, must start with 1

NTE – Notes and Comments Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
2	ID	RE	Source of Comment	Specifies where the comment came from: Ancillary source (**L**), the orderer or provider (**P**), or other source (**O**) Example: L
3	FT	R	Comment	Example: A comment or note goes here.
4	CWE	RE	Comment Type	Value set: *HL70364* Example: RE^Remark^HL70364^^^^2.5.1

Concluding Remarks

This document was developed as an Oregon specific companion to the HL7 International Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1 (US Realm) Informative Document. This guide represents the minimum expectation for message construction and submission to Oregon ELR. For more information about Oregon ELR statutes, data quality assurance, and current reportable conditions visit https://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/ReportingCommunicableDisease/ElectronicLabReporting/Pages/index.aspx

Appendix A – Data Types

Only data types used in this guide are represented in the table below. For more explicit details on data type construction, please visit http://www.HL7.org. Selected tables and value sets referenced in this table are available in Appendix B – Value Sets.

Data Type	Name	Structure (Relevant Value Set)	Examples
CQ	Composite Quantity with Units	|Quantity^Units (*PHVS_UnitsOfMeasure_CDC*)|	|150^m&meter&UCUM|
CE	Coded Element	|ID^Text^ Coding System (*HL70396*)^Alternate ID^Alternate Text^Alternate Coding System (*HL70396*)|	|625-4^Bacteria identified:Prid:Pt:Stool: Nom:Culture^LN^BAC^Bacteria Culture ^99Lab^2.26^May 2006|
CWE	Coded with Exceptions	|ID^Text^ Coding System (*HL70396*)^Alternate ID^Alternate Text^Alternate Coding System (*HL70396*)^Coding System Version ID^Alternate Coding System Version ID^Original Text|	**Except OBX-5** |625-4^Bacteria identified:Prid:Pt:Stool: Nom:Culture^LN^BAC^Bacteria Culture ^99Lab^2.26^May 2006| **OBX-5 only** |302620005^Salmonella group B phase 1 a-e^SCT^Sal^ Salmonella group B^ 99LabMicro^20080731|
CX	Extended Composite ID with Check Digit	|ID^^^Assigning Authority^Identifier Type (*HL70203*)|	|36363636^^^MPI&2.16.840.1.113883.1 9.3.2.1&ISO^MR|
DR	Date/Time Range	|Start Date^End Date|	|20080602^20090602|
EI	Entity Identifier	|Entity ID^Namespace ID^OID^ISO|	|23456^EHR^2.16.840.1.113883.19.3.2.3 ^ISO|
EIP	Entity Identifier Pair	|Placer ID^Filler ID|	|23456&EHR&2.16.840.1.113883.19.3.2. 3&ISO^9700122&Lab&2.16.840.1.11388 3.19.3.1.6&ISO|
FT	Formatted Text Data	|Formatted Text|	|Culture \T\ Sensitivity Report| *Use escape character to format text*
HD	Hierarchic Designator	|Namespace ID^Universal ID (OID or CLIA Number)^Universal ID Type (ISO or CLIA)|	|Lab^2.16.840.1.113883.19.3.1.1^ISO| *HD.2 must be an OID except MSH-3 where it must be a CLIA identifier; HD.3 must be ISO except MSH-3 where it must be CLIA*
ID	Coded Value for HL7 Defined Tables	|Coded Value|	|ABC|

Data Type	Name	Structure (Relevant Value Set)	Examples
IS	Coded Value for User-Defined Tables	|Coded Value|	|XYZ|
NM	Numeric	|Numeric|	|123.4|
JCC	Job Code Class	|Code^Class^Text|	|6360^Glazier^Glass setter^CDC Census 2010|
PL	Person Location	|Point of Care^Room^Bed^Facility^ Person Location Type^Building^Floor ^Location Description^Location Identifier^ Assigning Authority|	**Note:** While all components are optional room number and facility are encouraged |^615^^ Hospital& 2.16.840.1.113883.19.3.2.3&ISO|
PRL	Parent Result Link	|Parent OBR ID^Parent OBR Sub-ID^Parent OBR Value Descriptor|	|625-4^1^Campylobacter jejuni|
SI	Sequence ID	|ID|	|1|
SN	Structured Numeric	|Comparator^Num1^Separator/Suffix^Num2|	|^0^-^1| **OR** |^1^/^2| **OR** |^1^:^2| **OR** |<^10| **OR** |2^+|
ST	String	|String Data|	|Just about anything goes in here|
TS	Time Stamp	|YYYYMMDDHHMM.SSSS-ZZZZ|	|200806021328.0001-0005|
TX	Text Data	|Text|	| can have leading spaces.|
VID	Version Identifier	|Version ID|	|2.5.1|
XAD	Extended Address	|Street Address^Other Designation^City^State (*PHVS_State_FIPS_5-2*)^Zip^Country (*PHVS_Country_ISO_3166-1*)^Address Type (*HL70190*)^^County (*PHVS_County_FIPS_6-4*)	|4444 Healthcare Drive^Suite 123^Portland^OR^97232^USA^B^^Multnomah|
XCN	Extended Composite ID Number and Name	|ID Number^Family Name^Given Name^Middle Name^Suffix^Prefix ^^^Assigning Authority^Name Type (*HL70200*)^^^ID Type (*HL70203*)^^^ ^^^^ Professional Suffix (*HL70360*)|	|1234^Admit^Alan^A^III^Dr^^^Lab&2.16.840.1.113883.19.4.6&ISO^L^^^EI^^^^^^^^MD|
XON	Extended Composite Name and ID Number for Organizations	|Organization Name^Organization Name Type (*HL70204*)^^^^Assigning Authority^ID Type (*HL70203*) ^^^Organization ID|	|Level Seven Healthcare, Inc.^L^^^^Lab&2.16.840.1.113883.19.4.6&ISO^XX^^^1234|

Data Type	Name	Structure (Relevant Value Set)	Examples
XPN	Extended Person Name	|Family Name^Given Name^MI^ Suffix^Prefix^^Name Type (*HL70200*) ^^^^^^Professional Suffix *HL70360*)|	|Admit^Alan^A^III^Dr^^L^^^^^^^MD|
XTN	Extended telecommunications number	|^Telecommunication Use (*HL70201*)^Equipment Type (*HL70202*)^Email Address^Country Code^Area Code^Local Number^Extension^Any Text|	|^PRN^PH^^1^555^5552003| **OR** |^NET^Internet^eve.woman@hl7.org| ****HL7 specifies only sending email address if phone number is not present*

Appendix B – Example Message: Susceptibility Results

The sample message below demonstrates proper construction of susceptibility results for Carbapenem Resistant *Enterobacteriacae* (CRE). For information on which organisms and results are reportable, please review the most recent CRE reporting poster (available online).

MSH|^~\&|LabSender^2.27.951.1.113883.3.13.2.2.1^ISO|County Hospital^41D0733684^CLIA|OR ELR|OPHD |201301250446||ORU^R01^ORU_R01|20130125044643282991|P|2.5.1|||||USA||||PHLabReport-NoAck^^ 2.16.840.1.114222.4.10.3^ISO**<cr>**
SFT|Level Seven Healthcare, Inc.^L^^^^Lab&2.16.840.1.113883.19.4.6&ISO^XX^^^1234|1.2|LabWare Systems| 56734||20080817**<cr>**
PID|1||36363636^^^MPI&2.16.840.1.113883.19.3.2.1&ISO^MR~1234567890^^^SSN&2.16.840.1.113883.4.1&ISO ^SS||Jones^Jonathon^James^Jr^^^L|Clemmons^Carrie^C^^^^L|19660606|M||2106-3^White^HL70005^^^^2.5.1 |1234 NW Rocky Rd^^Portland^OR^97232^USA^C^^Multnomah||^PRN^CP^^^503^5555555|||S^single^ HL70002||||||H^Hispanic^HL70189^^^^2.5.1|||||||201302060827|Y|| 201302061133<cr>
NK1|1|Mum^Martha^M^^^^L|MTH^Mother^HL70063^^^^2.5.1|444 Home Street^Apt B^Ann Arbor^MI^99999^USA^H|^PRN^PH^^1^888^8888888**<cr>**
PV1|1|O|^Room 615^^Good Health Hospital&2.16.840.1.113883.19.3.2.3&ISO|R|||||||||||||||||||||||||||||||||||||||||200808151000|200808151200**<cr>**
ORC|RE|98765432112345678900^EHR^2.16.840.1.113883.19.3.2.3^ISO|CHEM9700122^MediLabCo-Seattle^ 45D0470381^CLIA|||||||||1234^Admit^Alan^A^III^Dr^^^Lab&2.16.840.1.113883.19.4.6&ISO^L^^^EI^^^^^^^^MD||^^PH^^^503^2223333|||||||Smith Clinic Cooperative^L^^^^ County Hospital&41D0733684&CLIA|987 SE Main St^^Seattle^WA^88888^USA^B^^067 |^WPN^PH^^^503^8889999|Sleep Medicine Institute^4444 Healthcare Drive^Seattle^WA^88888^USA^B**<cr>**
OBR|1|98765432112345678900^EHR^2.16.840.1.113883.19.3.2.3^ISO|CHEM9700122^MediLabCo-Seattle^ 45D0470381^CLIA|630-4:Bacteria identifiedLN|||201212130810||||||Outpatient Clinic|||1234^Admit^Alan^A^ III^Dr^^^Lab&2.16.840.1.113883.19.4.6&ISO^L^^^EI^^^^^^^^MD|^^PH^^^503^2223333|||||20130124122200|||F||||||599.0^ Urinary Tract Infection Site Not Specified^I9CDX^^^^07/09/2008**<cr>**
OBX|1|CWE|630-4^Bacteria identified:Prid:Pt:Urine:Nom:Culture^LN|1|446870005^Carbapenem resistant Klebsiella pneumoniae(organism)^SCT^^^^January 2007||||||F|||200808151030|||0086^Bacterial identification ^OBSMETHOD^^^^501-20080815||200808161030||||GHH Lab^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX ^^^1236 |3434 Industrial Loop^^Portland^OR^97232^ USA^B|9876543^Slide^Stan^S^^^^^NPPES& 2.16.840.1.113883.19.4.6 &ISO^L^^^NPI**<cr>**
OBX|2|SN|564-5^Colony Count:Num:Pt:XXX:QN:VC^LN^^^^2.26|1|>^100000|1^^UCUM^^^^1.6|||||F|||200808151030|||||200808161030||||GHH Lab^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX ^^^1236 |3434 Industrial Loop^^Portland^OR^97232^ USA^B|9876543^Slide^Stan^S^^^^^NPPES& 2.16.840.1.113883.19.4.6 &ISO^L^^^NPI**<cr>**
FT1|1|||20121213||CG|303756^Blood Draw^L|||||||112233445^Moda Health^L <cr>

SPM|1|20121213130700151382381776558000000A20120000199111469050^OA20120000199&EHR&38D0622795&CLIA||122575003^Urine specimen (specimen)^SCT^^^^20080131|||||||P^Patient^HL60369^^^^2.5.1|10^g&gram&UCUM&&&&1.6|||||200808151030|200808151100**<cr>**
OBR|2||9700124^Lab^2.16.840.1.113883.19.3.1.6^ISO|50545-3^Bacterial susceptibility panel:-:Pt:Isolate:OrdQn:MIC^LN^^^^2.26|||200808151030|||||||||1234^Admit^Alan^A^III^Dr^^^&2.16.840.1.113883.19.4.6^ISO^L^^EI^&2.16.840.1.113883.19.4.6^ISO^^^^^^^^MD|^WPN^PH^^1^555^5551005|||||2008081830|||F|630-4&Bacteria identified:Prid:Pt:Urine:Nom:Culture&LN^1^Carbapenem resistant Klebsiella pneumoniae|||98765432112345678900 &EHR&2.16.840.1.113883.19.3.2.3&ISO^CHEM9700122&MediLabCo-Seattle&2.16.840.1.113883.19.3.1.6&ISO||599.0^Urinary Tract Infection Site Not Specified^I9CDX^^^^07/09/2008**<cr>**
OBX|1|SN|28-1^AMPICILLIN ISLT MIC^LN^^^^2.26|1|≥^32|ug/mL^^UCUM^^^^1.6||R|||F|||200808151030|||||200808161030||||GHH Lab^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX ^^^1236 |3434 Industrial Loop^^Portland^OR^97232^ USA^B|9876543^Slide^Stan^S^^^^^NPPES& 2.16.840.1.113883.19.4.6 &ISO^L^^^NPI**<cr>**
OBX|2|SN|20-8^AMOXICILLIN+CLAV ISLT MIC^LN^^^^2.26|1|≥^32ug/mL^^UCUM^^^^1.6||R|||F|||200808151030|||||200808161030||||GHH Lab^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX ^^^1236 |3434 Industrial Loop^^Portland^OR^97232^ USA^B|9876543^Slide^Stan^S^^^^^NPPES& 2.16.840.1.113883.19.4.6 &ISO^L^^^NPI**<cr>**
OBX|3|SN|412-7^Pip+Tazo Islt MIC^LN^^^^2.26|1|≥^128|ug/mL^^UCUM^^^^1.6||R|||F|||200808151030-0700|||||200808161030-0700||||Reliable Labs, Inc^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^AnnArbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^^^NPPES& 2.16.840.1.113883.19.4.6 &ISO^L^^^NPI**<cr>**
OBX|4|SN|76-0^Cefazolin Islt MIC^LN^^^^2.26|1|≥^64|ug/mL^^UCUM^^^^1.6||R|||F|||200808151030-0700|||||200808161030-0700||||Reliable Labs, Inc^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434Industrial Loop^^Ann Arbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^^^NPPES& 2.16.840.1.113883.19.4.6 &ISO^L^^^NPI**<cr>**
OBX|5|SN|133-9^Ceftazidime Islt MIC^LN^^^^2.26|1|≥^64|ug/mL^^UCUM^^^^1.6||R|||F|||200808151030-0700|||||200808161030-0700||||Reliable Labs, Inc^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^Ann Arbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^^^NPPES& 2.16.840.1.113883.19.4.6&ISO^L^^^NPI**<cr>**
OBX|6|SN|141-2^Ceftriaxone Islt MIC^LN^^^^2.26|1|≥^64|ug/mL^^UCUM^^^^1.6||R|||F|||200808151030-0700|||||200808161030-0700||||Reliable Labs, Inc^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^AnnArbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^^^NPPES& 2.16.840.1.113883.19.4.6&ISO^L^^^NPI**<cr>**
OBX|7|SN|6644-9^Cefepime Islt MIC^LN^^^^2.26|1|^2|ug/mL^^UCUM^^^^1.6||S|||F|||200808151030-0700|||||200808161030-0700||||Reliable Labs, Inc^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^Ann Arbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^^^NPPES& 2.16.840.1.113883.19.4.6&ISO^L^^^NPI**<cr>**
OBX|8|SN|35801-0^Ertapenem Islt MIC^LN^^^^2.26|1|^2|ug/mL^^UCUM^^^^1.6||R|||F|||200808151030-0700|||||200808161030-0700||||Reliable Labs, Inc^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^Ann Arbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^^^NPPES& 2.16.840.1.113883.19.4.6&ISO^L^^^NPI**<cr>**
OBX|9|SN|6652-2^Meropenem Islt MIC^LN^^^^2.26|1|≥^4|ug/mL^^UCUM^^^^1.6||R|||F|||200808151030-0700|||||200808161030-0700||||Reliable Labs, Inc^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^Ann Arbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^^^NPPES& 2.16.840.1.113883.19.4.6&ISO^L^^^NPI**<cr>**

OBX|10|SN|279-0^Imipenem Islt MIC^LN^^^^2.26|1|^4|ug/mL^^UCUM^^^^1.6||R|||F|||200808151030-0700|||||200808161030-0700||||Reliable Labs, Inc^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^Ann Arbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^^^NPPES&2.16.840.1.113883.19.4.6&ISO^L^^^NPI**<cr>**
OBX|11|SN|12-5^Amikacin Islt MIC^LN^^^^2.26|1|≤^2|ug/mL^^UCUM^^^^1.6||S|||F|||200808151030-0700|||||200808161030-0700||||Reliable Labs, Inc^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^Ann Arbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^^^NPPES&2.16.840.1.113883.19.4.6&ISO^L^^^NPI**<cr>**
OBX|12|SN|267-5^Gentamicin Islt MIC^LN^^^^2.26|1|≤^1|ug/mL^^UCUM^^^^1.6||S|||F|||200808151030-0700|||||200808161030-0700||||Reliable Labs, Inc^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^Ann Arbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^^^NPPES&2.16.840.1.113883.19.4.6&ISO^L^^^NPI**<cr>**
OBX|13|SN|508-2^Tobramycin Islt MIC^LN^^^^2.26|1|≤^1|ug/mL^^UCUM^^^^1.6||S|||F|||200808151030-0700|||||200808161030-0700||||Reliable Labs, Inc^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^Ann Arbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^^^NPPES&2.16.840.1.113883.19.4.6&ISO^L^^^NPI**<cr>**
OBX|14|SN|185-9^Ciprofloxacin Islt MIC^LN^^^^2.26|1|≤^0.25|ug/mL^^UCUM^^^^1.6||S|||F|||200808151030-0700|||||200808161030-0700||||Reliable Labs, Inc^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^Ann Arbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^^^NPPES&2.16.840.1.113883.19.4.6&ISO^L^^^NPI**<cr>**
OBX|15|SN|20396-8^Levofloxacin Islt MIC^LN^^^^2.26|1|≤^0.12|ug/mL^^UCUM^^^^1.6||S|||F|||200808151030-0700|||||200808161030-0700||||Reliable Labs, Inc^L^^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^Ann Arbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^^^NPPES&2.16.840.1.113883.19.4.6&ISO^L^^^NPI**<cr>**
OBX|16|SN|516-5^TMP SMX Islt MIC^LN^^^^2.26|1|≤^20|ug/mL^^UCUM^^^^1.6||S|||F|||200808151030-0700|||||200808161030-0700||||Reliable Labs, Inc^L^^^^CLIA&2.16.840.1.113883.19.4.6 &ISO^XX^^^1236|3434 Industrial Loop^^Ann Arbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^^^NPPES&2.16.840.1.113883.19.4.6 &ISO^L^^^NPI**<cr>**

Appendix C – Batch Header and Trailer Segments

While not required for submission, Batch Header and Trailer segments are recommended. The more important of the two segments is the Batch Trailer which should provide a count of the number of messages in the batch. Oregon ELR strongly encourages use of these segments.

BHS – Batch Header Segment

The BSH segment precedes a group of messages and sets the expectation of a BTS segment.

Example:

BHS|^~\&<cr>

BHS – Batch Header Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
1	ST	R	Field Separator	Literal value: **|**
2	ST	R	Encoding Characters	Literal value: **^~\&**

BTS – Batch Trailer Segment

The BTS segment follows a group of messages and provides the count of the number of messages in the batch.

Example:

BTS|100<cr>

BTS – Batch Header Segment				
Seq	**Type**	**Use**	**Name**	**Guidance**
1	NM	R	Batch Message Count	The value should reflect the number of messages in the batch.