

# Electronic Laboratory Reporting (ELR) HL7 Implementation Guide

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HL7 version 2.5.1

Includes: Electronic Laboratory Reporting (ELR) for Order  
Requests and Results

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**Missouri Department of Health and Senior Services**

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This implementation guide contains descriptions of HL7 Version 2.5.1 message types OML^O21 and ORU^R01 to be sent from approved facilities for laboratory order requests and laboratory results. These messages are sent to Missouri Department of Health and Senior Services for laboratory reporting purposes.

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**Revision History**

Ver/Rel #	Issue Date	Author	Summary of Changes
Draft V1.0	April 18, 2011		Initial Draft.
V1.1			
V1.2			
R1.0	April 29, 2011	DHSS	Incorporated initial review feedback.
R1.0.1	July 29, 2011	DHSS	Refined message samples and component detail.
R1.0.2	August 31, 2011	DHSS	Table and component description updates.
R1.0.3	October 31, 2011	DHSS	Component description updates
R1.0.4	March 28, 2013	DHSS	Incorporated ELR Technical Assistance review feedback.

# **1 ELR Message Infrastructure**

## **1.1 Introduction**

Missouri Department of Health and Senior Services (DHSS) will use Electronic Laboratory Reporting (ELR) information from HL7 Version 2.5.1 of the Implementation Guide: Electronic Laboratory Reporting to Public Health.

This Implementation Guide addresses electronic submission of laboratory orders to the Missouri State Public Health Lab (SPHL) by approved facilities, and electronic transmission of the test results back to the order submitter. This Implementation Guide also addresses electronic submission of laboratory results for reportable conditions to the DHSS Communicable Disease program by approved facilities.

Only the following message types will be accepted by SPHL for laboratory orders:

- OML^O21 Laboratory Order Message

The SPHL will provide an electronic results message back to the order submitter using the following message type:

- ORU^R01 Unsolicited Observation Message

Only the following message types will be accepted by DHSS for laboratory results of reportable diseases and conditions:

- ORU^R01 Unsolicited Observation Message

A general acknowledgement message will be returned to the message sender for OML and ORU messages sent in single message form. Reference [Appendix C](#) for the ACK message format.

- ACK^O21 General Acknowledgement Message
- ACK^R01 General Acknowledgement Message

This ELR Implementation Guide is based on standard HL7 version 2.5.1 with further constraints defined by PHIN specifically for laboratory reporting requirements. For more information on HL7, go to <http://www.hl7.org/> and for more information on ELR PHIN guides, go to <http://www.cdc.gov>.

## **1.2 Message Transmission Methods**

Messages can be transmitted by batch or individually. Batch messages will be transmitted using SFTP. While facilities will have two options for transmitting single HL7 messages will be sent via the HTTPS protocol, SOAP or POST. Each real-time HL7 message must include a valid username password and facility identifier to authenticate a facility's right to access the State data network.

**Single Messages:** Facilities who submit messages (OML or ORUs) one at a time, will transmit those using SOAP or POST protocols via HTTPS. DHSS will generate a General Acknowledgement (ACK) message for each OML or ORU message indicating that the message

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was received. This ACK does not represent or imply that the message was successfully applied to the State database, only that the message was received.

**Batched Messages:** Facilities who transmit messages (OML or ORUs) as a batch will do so using SFTP. These messages will be placed in a secured file transfer protocol directory (SFTP). Batched OML or ORUs must be accompanied by the appropriate batch header and footer segments. ACKs are NOT generated by this process.

For more information, reference [Appendix A](#), Message Transmission.

### 1.3 Basic HL7 Terms

Table 1.3	Basic HL7 Terms
Term	Definition
<b>Message</b>	A message is the entire unit of data transferred between systems in a single transmission. It is a series of segments in a defined sequence, with a message type and a trigger event.
<b>Segment</b>	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 is identified by a segment ID, a unique 3-character code.
<b>Field</b>	A field is a string of characters. 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.
<b>Component</b>	A component is one of a logical grouping of items that comprise the contents of a coded or composite field. Within a field having several components, not all components are necessarily required to be populated.
<b>Data Type</b>	A data type restricts the contents and format of the data field. Data types are given a 2- or 3- letter code. Some data types are coded or composite types with several components. The applicable HL7 data type is listed in each field definition.
<b>Delimiters</b>	The delimiter values are given in MSH-1 and MSH-2 and are used throughout the message. The delimiters supported by SPHLELR and MOELR are:   Field Separator ^ Component Separator & Sub-Component Separator ~ Repetition Separator \ Escape Character

### 1.4 ELR Implementation Guide Data Types

The following data types have been used in the ELR HL7 2.5.1 Implementation Guide.

Table 1.4	Applies to OML	Applies to ORU	Data Types used in ELR Implementation Guide
Data type			Data Type Name
CE	X	X	Coded Element
CQ	X	X	Composite Quantity with Units
CWE	X	X	Coded With Exceptions
CX	X	X	Extended Composite ID with check Digit
DR	X	X	Date/Time Range
EI	X	X	Entity Identifier

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Table 1.4	Applies to OML	Applies to ORU	Data Types used in ELR Implementation Guide
Data type			Data Type Name
EIP	X	X	Entity Identifier Pair
FN	X	X	Family Name
FT	X	X	Formatted Text Data
HD	X	X	Hierarchic Designator
ID	X	X	Coded Value for HL7-defined tables
IS	X	X	Coded Value for user-defined tables
MSG	X	X	Message Type
NM	X	X	Numeric
PRL		X	Parent Result Link
PT	X	X	Processing Type
SAD	X	X	Street Address
SI	X	X	Sequence Identifier
SN	X	X	Structured Numeric
ST	X	X	String Data
TS	X	X	Timestamp
VAR	X	X	Varies
VID	X	X	Version Identifier
XAD	X	X	Extended Address
XCN	X	X	Extended Composite ID Number and Name for Persons
XON	X	X	Extended Composite Name and ID Number for Organizations
XPN	X	X	Extended Person Name
XTN	X	X	Extended Telephone Number

For further definition of these Data Types, please reference HL7 Standard Version 2.5.1 located at <http://www.hl7.org/>.

## 1.5 Encoding Rules

- Encode each segment in the order specified in the ELR Message Structure.
- Begin each segment with the 3-letter segment ID (for example “PID”).
- End each segment with the carriage return terminator (hex 0D).
- Encode the data fields in the sequence given in the corresponding segment definition tables.
- Encode each data field according to the data type format listed in this guide.
- Components, subcomponents or repetitions that are not valued at the end of a field need not be represented by component separators. Likewise, field separators are not required for empty fields at the end of a segment. For example, the data fields and segments below are equivalent:

`|^XXX&YYY&&^|` is equal to `|^XXX&YYY|`  
`|ABC^DEF^|` is equal to `|ABC^DEF|`

- If a data segment is not documented in this guide, the segment should not be sent.
- If a data field is not documented in this guide, the data field should not be sent.

## 1.6 ELR Message Structure Attributes

Table 1.6		ELR Message Structure Attributes	
Attribute	Definition		
<b>Segment</b>	A three-character code for the segment plus the square and curly braces structure syntax. If a segment is not documented in this guide, it should not be sent. [XXX] Optional {XXX} Repeating XXX Required [{XXX}] Optional and Repeating		
<b>Name</b>	A short, descriptive name of the segment.		
<b>Description</b>	Explanation of the use of the segment.		
	Describes the use of the message elements by ELR. Values used in this implementation are: Indicates whether the message element (segment, segment group, field, component, or subcomponent) is required, optional, or conditional in the corresponding message element.		
<b>Usage</b>	R	Required. All “R” elements shall be populated with a non-empty value.	
	RE	Required, but can be empty. The element may be missing from the message, but must be sent by the sending application if there is relevant data. A conforming sending application must be capable of providing all "RE" elements.	
	O	Optional. HL7 Definition: This code indicates that the Usage for this element has not yet been defined. A usage of ‘Optional’ may not be used in ‘implementation’ profiles (no-optionality profiles). Conformance may not be tested on an Optional field. Narrower profiles may be defined based on this profile, and may assign any usage code to the element	
	C(a/b)	Conditional. The usage code has an associated condition predicate true. <ul style="list-style-type: none"> <li>• If the condition predicate associated with the element is true, follow the rules for <b>a</b> which shall one of “R”, “RE”, “O” or X”:</li> <li>• If the condition predicate associated with the element is false, follow the rules for <b>b</b> which shall one of “R”, “RE”, “O” or X”.</li> <li>• <b>a</b> and <b>b</b> can be the same.</li> </ul>	
	X	Not used for this profile. For conformant sending applications, the element will not be sent. Conformant receiving applications may ignore the element if it is sent, or may raise an application error.	
<b>Cardinality</b>	Defines the minimum and maximum number of times the segment may appear in this message. [0..1] Segment may be omitted and can have, at most, one occurrence. [1..1] Segment must have exactly one occurrence. [0..*] Segment may be omitted or may repeat an unlimited number of times. [1..*] Segment must appear at least once, and may repeat unlimited number of times.		

## 1.7 Message Structure

The following sections detail the structure of each message, including segment name, description, usage, and cardinality, as well as the definition of each segment used in the message structure.

Note that the first column (Segment) is listing the cardinality and optionality according to the base standard, the second column (Name) provides the segment or group name from the base standard, while the remaining columns (Description, Usage, Cardinality) define the constraints for this implementation guide. It is therefore possible that the base standard defines a segment as optional with a cardinality of up to 1, while this implementation guide defines the segment in the Usage column as R thus a cardinality of [1..1].

### 1.7.a OML^O21 Message Structure

The OML^O21^OML\_O21 message is constrained for transmitting laboratory orders from the Sender to the Receiver.

<b>Table 1.7 OML^O21 Message Structure</b>				
<b>Segment</b>	<b>Name</b>	<b>Description</b>	<b>Usage</b>	<b>Cardinality</b>
MSH	Message Header	Information explaining how to parse and process the message. This includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
SFT	Software Segment	Provides information about the sending application or other applications that manipulate the message before the receiving application processes the message.	R	[1..1]
[	<b>PATIENT Begin</b>	For public health reporting, the patient group is required.	R	[1..1]
PID	Patient Identification	Patient identifying and demographic information.	R	[1..1]
[PD1]	Additional Demographics		O	[0..1]
[NTE]	Notes and Comments for PID	This notes and comments (NTE) segment should contain notes or comments pertaining to the patient identified in the PID segment. It should not contain order or result related comments. The Lab to EHR profile allows only a single NTE currently.	RE	[0..1]
[[NK1]]	Next of Kin/Associated Parties	Used to document the patient's next of kin, employer, guardian, etc. Particular jurisdictions may require the NK1 segment to contain parent/guardian information when reporting lead testing results for children. When reporting results of animal testing (for example testing animals for rabies) the NK1	O	[0..*]

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Table 1.7		OML^O21 Message Structure		
Segment	Name	Description	Usage	Cardinality
		segment can be used to identify the owner of the animal.		
]	<b>PATIENT End</b>			
{	<b>ORDER Begin</b>	The order group is required and can repeat. This means that multiple ordered tests may be performed on a specimen.	R	[1..*]
ORC	Common Order	Used to transmit fields that are common to all orders. Includes identifiers for the order, who placed the order, when it was placed, what action to take regarding the order, etc.	R	[1..1]
	<b>OBSERVATION_REQ UEST Begin</b>		R	[1..1]
OBR	Observation Request	Used to capture information about one test being performed on the specimen. Identifies the type of test to be performed on the specimen and ties that information to the order for the testing.	R	[1..1]
{{NTE}}	Notes and Comments for OBR		RE	[0..*]
{{	<b>OBSERVATION Begin</b>	Multiple results may be associated with an order. There will always be a single OBX in the results group.	RE	[0..*]
[OBX]	Observation/Result (Observation Request)	Contains information regarding a single observation related to a single test (OBR). This includes identification of the specific type of observation, the result for the observation, when the observation was made, etc.	O	[0..1]
{{NTE}}	Notes and Comments	The notes and comment (NTE) segment may carry comments related to the result being reported in the OBX segment.	O	[0..*]
}}	<b>OBSERVATION End</b>			
{{	<b>SPECIMEN Begin</b>		R	[1..1]
SPM	Specimen	Describes characteristics of a single sample. 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.	R	[1..1]
[OBX]	Observation/Result	Contains information regarding a single observation related to a single specimen (SPM). This includes identification of the specific type of observation, the result for the observation, when the observation was made, etc.	O	[0..1]
}}	<b>SPECIMEN End</b>			
}	<b>ORDER OBSERVATION End</b>			

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**1.7.b ORU^R01 Message Structure**

The ORU message is for transmitting laboratory results to other systems.

<b>Table 1.8 ORU^R01 Message Structure</b>				
<b>Segment</b>	<b>Name</b>	<b>Description</b>	<b>Usage</b>	<b>Cardinality</b>
MSH	Message Header	Information explaining how to parse and process the message. This includes identification of message delimiters, sender, receiver, message type, timestamp, etc.	R	[1..1]
SFT	Software Segment	Provides information about the sending application or other applications that manipulate the message before the receiving application processes the message.	R	[1..1]
{	<b>PATIENT_RESULT Begin</b>	The NHSN Receiver profile can receive only 1 Patient_Result group.	R	[1..1]
[	<b>PATIENT Begin</b>	For public health reporting, the patient group is required.	R	[1..1]
PID	Patient Identification	Patient identifying and demographic information.	R	[1..1]
[PD1]	Additional Demographics		O	[0..1]
[[NTE]]	Notes and Comments for PID	This notes and comments (NTE) segment should contain notes or comments pertaining to the patient identified in the PID segment. It should not contain order or result related comments. The Lab to EHR profile allows only a single NTE currently.	RE	[0..1]
[[NK1]]	Next of Kin/Associated Parties	Used to document the patient's next of kin, employer, guardian, etc. Particular jurisdictions may require the NK1 segment to contain parent/guardian information when reporting lead testing results for children. When reporting results of animal testing (for example testing animals for rabies) the NK1 segment can be used to identify the owner of the animal.	O	[0..*]
]	<b>PATIENT End</b>			
{	<b>ORDER_OBSERVATION Begin</b>	The order group is required and can repeat. This means that multiple ordered tests may be performed on a specimen.	RE	[1..*]
ORC	Common Order	Used to transmit fields that are common to all orders. Includes identifiers for the order, who placed the order, when it was placed, what action to take regarding the order, etc.	R	[1..1]
OBR	Observation Request	Used to capture information about one test being performed on the specimen. Identifies the type of test to be performed on the specimen and ties that information to the	R	[1..1]

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Table 1.8	ORU^R01 Message Structure			
Segment	Name	Description	Usage	Cardinality
		order for the testing.		
[[NTE]]	Notes and Comments for OBR		RE	[0..*]
[[	<b>OBSERVATION Begin</b>	Multiple results may be associated with an order. There will always be a single OBX in the results group. Condition Predicate: This group can be empty if the OBR 25, Results Status, contains "A".	C(R/RE)	[1..*]
OBX	Observation/Result (Observation Request)	Contains information regarding a single observation related to a single test (OBR). This includes identification of the specific type of observation, the result for the observation, when the observation was made, etc.	O	[1..*]
[[NTE]]	Notes and Comments	The notes and comment (NTE) segment may carry comments related to the result being reported in the OBX segment.	RE	[0..*]
]]	<b>OBSERVATION End</b>			
[[	<b>SPECIMEN Begin</b>		R	[1..1]
SPM	Specimen	Describes characteristics of a single sample. 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.	R	[1..1]
OBX	Observation/Result	Contains information regarding a single observation related to a single specimen (SPM). This includes identification of the specific type of observation, the result for the observation, when the observation was made, etc.	RE	[0..*]
]]	<b>SPECIMEN End</b>			
}]	<b>ORDER_ OBSERVATION End</b>			
}]	<b>PATIENT_RESULT End</b>			

## 2 ELR Segment Attributes and Definitions

### 2.1 ELR Segment Attributes

Table 2.1	Segment Attributes
Attribute	Definition
<b>Sequence (Seq)</b>	Sequence of the elements as they are numbered in the HL7 segment.
<b>Element Name</b>	Descriptive name of a field.
<b>Description</b>	Explanation of the use of the field, component or sub-component.
<b>Value Set</b>	Indicates where valid values for coded fields may be found.
<b>Length (Len)</b>	Maximum length of the field.
<b>Data Type (DT)</b>	A data type restricts the content and format of the data field. Data types are given a 2- or 3- letter code. Some data types are coded or composite types with several components. The applicable HL7 data type is listed in each field definition.
<b>Usage</b>	<p>This indicates whether a field is required, required when the information is available, optional or conditional as specified in the field description. The designations are:</p> <ul style="list-style-type: none"> <li>R Required.</li> <li>RE Required if available, but may be empty.</li> <li>O Optional.</li> <li>C(a/b) Conditional. The usage code has an associated condition predicate true. <ul style="list-style-type: none"> <li>▪ If the condition predicate associated with the element is true, follow the rules for <b>a</b> which shall one of “R”, “RE”, “O” or “X”:</li> <li>▪ If the condition predicate associated with the element is false, follow the rules for <b>b</b> which shall one of “R”, “RE”, “O” or “X”.</li> <li>▪ <b>a</b> and <b>b</b> can be the same.</li> </ul> </li> <li>X Not supported. Senders must not populate. Receivers may ignore the element if it is sent, or may raise an error if field is present.</li> </ul>
<b>Cardinality</b>	<p>Defines the minimum and maximum number of times the field may appear in this segment.</p> <ul style="list-style-type: none"> <li>[0..1] Field may be omitted and can have, at most, one occurrence.</li> <li>[0..*] Field may be omitted or repeat an unlimited number of times.</li> <li>[1..1] Field must have exactly one occurrence.</li> <li>[1..*] Field must appear at least once, and may repeat an unlimited number of times.</li> <li>[m..n] Field must appear at least <i>m</i>, and at most, <i>n</i> times.</li> </ul>

This section identifies the specific formats for the segments. If a segment or field is not listed, do not send it.

## **2.2 MSH: Message Header Segment Definition**

The MSH segment defines the intent, source, destination and some specifics of the syntax of a message and is the first segment for an OML or ORU message type. The following table defines common elements for an OML and an ORU message type. Elements that relate to the specific message type of OML or ORU are flagged with an “X” in the Message Type column. The definition of some data elements will vary between the OML and ORU message types (i.e., the literal value, usage or cardinality may be different). When this occurs the Description column will contain an explanation of this difference. The MSH is a required segment.

### **OML: MSH Example:**

```
MSH|^~\&|EHR^1.111.33.3...4^ISO|ORGANIZATION  
NAME^111.122311.222.44^ISO|SPHLELR^2.16.840.1.114222.4.3.3..2.7.1^ISO|MODHSS^2.16.840.1.114222.4.3.2.2.1.163.1^ISO|201007070237||OML^O21^OM  
L_O21|20111128070123463|P|2.5.1||AL|NE|USA|||ELR-V2.5.1^PHIN^2.16.840.1.114222.4^ISO<cr>
```

### **ORU: MSH Example:**

#### **From SPHL to Order Submitter:**

```
MSH|^~\&|SPHLELR^2.16.840.1.114222.4.3.3..2.7.1^ISO|MODHSS^2.16.840.1.114222.4.3.2.2.1.163.1^ISO|EHR^1.111.33.3...4^ISO|ORGANIZATION  
NAME^111.122311.222.44^ISO|201007070237||ORU^R01^ORU_R01|20111128070123463|P|2.5.1||AL|NE|USA|||ELR-  
V2.5.1^PHIN^2.16.840.1.114222.4^ISO<cr>
```

#### **From Laboratory to DHSS, Communicable Disease:**

```
MSH|^~\&|EHR^1.111.33.3...4^ISO|ORGANIZATION  
NAME^111.122311.222.44^ISO|MOELR^2.16.840.1.114222.4.3.3.36^ISO|MODHSS^2.16.840.1.114222.4.3.2.2.1.163.1^ISO|201007070237||ORU^R01^ORU_R0  
1|20111128070123463|P|2.5.1||AL|NE|USA|||ELR-V2.5.1^PHIN^2.16.840.1.114222.4^ISO<cr>
```

Table 2.2			MSH: Message Header Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	1	Field Separator	Character to be used as the field separator for the rest of the message. The supported value is “ ” (ASCII 124).		1	ST	R	[1..1]
X	X	2	Encoding Characters	Characters to be used as the component separator, repetition separator, escape character and subcomponent separator. The supported values are: “^~\&” (ASCII 94, 126, 92, and 38)		4	ST	R	[1..1]
X	X	3	Sending Application	Identifies the sending application from the other HL7 message exchange applications belonging to the sender, i.e., name of software vendor or an internally developed system here. Ex: MYEHR-2010^12345^ISO		227	HD	R	[1..1]
X	X	3.1	Namespace ID	Local code for application. Null flavors are not allowed.		20	IS	RE	[0..1]
X	X	3.2	Universal ID	Must be an OID.		199	ST	R	[1..1]
X	X	3.3	Universal ID Type	Literal Value: “ISO”		3	ID	R	[1..1]
X	X	4	Sending Facility	Identifies the facility where the data contained in this individual message originated (i.e., the “owner” of the message information).		227	HD	R	[1..1]
X	X	4.1	Namespace ID	Local code for the facility. Null flavors are not allowed.		20	IS	RE	[0..1]
X	X	4.2	Universal ID	This element should contain the submitter’s CLIA number or the OID.		199	ST	R	[1..1]

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Table 2.2			MSH: Message Header Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	4.3	Universal ID Type	If using a CLIA number as the Universal ID, then “CLIA” If using an OID number as the Universal ID, then “ISO”		4	ID	R	[1..1]
X	X	5	Receiving Application	Unique identifier for the receiving application.		227	HD	R	[1..1]
X	X	5.1	Namespace ID	OML Literal Value: “SPHLELR” ORU Literal Value: “MOELR”  Note: For ORU messages sent from SPHL to an Order submitter, this will be the Submitter application name received in the OML Order request.		20	IS	R	[1..1]
X	X	5.2	Universal ID	OML Literal Value: “2.16.840.1.114222.4.3.3.2.7.1” ORU Literal Value: “2.16.840.1.114222.4.3.3.36”  Note: For ORU messages sent from SPHL to an Order submitter, this will be the Submitter application OID received in the OML Order request.		199	ST	R	[1..1]
X	X	5.3	Universal ID Type	Literal Value: “ISO”		3	ID	R	[1..1]
X	X	6	Receiving Facility	Unique identifier for the receiving facility.		227	HD	R	[1..1]
X	X	6.1	Namespace ID	Literal Value: “MODHSS”  Note: For ORU messages sent from SPHL to an Order submitter, this will be the submitter’s Facility ID received in the OML Order request.		6	IS	R	[1..1]

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Table 2.2			MSH: Message Header Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	6.2	Universal ID	Literal Value: "2.16.840.1.114222.4.3.2.2.1.163.1" Note: For ORU messages sent from SPHL to an Order submitter, this will be the submitter's Facility ID received in the related OML Order request.		199	ST	R	[1..1]
X	X	6.3	Universal ID Type	Literal Value: "ISO"		3	ID	R	[1..1]
X	X	7	Date/Time of Message	Date/Time sending system created the message: YYYYMMDDHHMM[SS[S[S[S[S]]]]] [+/-ZZZZ] The minimum acceptable precision is to the nearest minute; seconds and microseconds are desirable; the Greenwich Mean Time offset is not required. Ex: 20111209143807		26	DTM	R	[1..1]
X	X	9	Message Type			15	MSG	R	[1..1]
X	X	9.1	Message Code	OML: Literal Value: "OML"		3	ST	R	[1..1]
				ORU: Literal Value: "ORU"					
X	X	9.2	Trigger Event	OML: Literal Value: "O21"		3	ST	R	[1..1]
				ORU: Literal Value: "R01"					
X	X	9.3	Message Structure	OML: Literal Value: "OML_O21"		7	ID	R	[1..1]
				ORU: Literal Value: "ORU_R01"					

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Table 2.2			MSH: Message Header Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	10	Message Control ID	A number or other identifier that uniquely identifies the message and is echoed back in the message acknowledgment segment (MSA). Some hospitals send a Date/Time stamp using microsecond precision or a Date/Time stamp using minute precision plus a sequence number that restarts each day at one or wraps around when it reaches all 9's. Ex: 20101128070123463 or 8X34562 or 201011280701_01234		199	ST	R	[1..1]
X	X	11	Processing ID	Indicates how to process the message as defined in HL7 processing rules. Literal values: "P" for Production, "D" for Debug or "T" for Training.	<a href="#">PHVS_ProcessingID_HL7_2X</a>	1	PT	R	[1..1]
X	X	12	Version ID	The version of HL7 encoding for this message. Literal Value: "2.5.1".		60	VID	R	[1..1]
	X	15	Accept Acknowledgment Type	For real time messaging, "AL" is the literal value. For batch messaging, "NE" is the literal value.	<a href="#">PHVS_AcceptApplicationAcknowledgmentConditions_HL7</a>	2	ID	RE	[1..1]
	X	16	Application Acknowledgment Type	Condition Predicate: Literal value "AL" is required when MSH-21.1, Entity Identifier, is PHLabReport-Ack, otherwise it may be empty or "NE".  Note: For real time messaging, "AL" is the literal value. For batch messaging, "NE" is the literal value.	<a href="#">PHVS_AcceptApplicationAcknowledgmentConditions_HL7</a>	2	ID	C(R/RE)	[1..1]

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Table 2.2			MSH: Message Header Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
	X	17	Country Code	The country of origin for the message. HL7 specifies that the 3-character (alphabetic) form be used for the country code.	<a href="#">PHVS_Country_ISO_3166-1</a>	3	ID	RE	[0..1]
X	X	21	Message Profile Identifier	Field used to reference or assert adherence to a message profile. Message profiles contain detailed explanations of grammar, syntax and usage for a particular message or set of messages.		427	EI	OML: O ORU: R	OML: [0..1] ORU: [1..1]
X	X	21.1	Entity Identifier	For real time messaging, "PHLabReport-Ack" is the literal value. For batch messaging, "PHLabReport-Batch" is the literal value.		199	ST	R	[1..1]
X	X	21.2	Namespace ID	Literal Value: "PHIN"		20	IS	RE	[0..1]
X	X	21.3	Universal ID	OID for PHIN. Literal Value: "2.16.840.1.113883.9.10"		199	ST	R	[1..1]
X	X	21.4	Universal ID Type	Literal Value: "ISO"		6	ID	R	[1..1]

### 2.3 SFT: Software Segment Definition

The software segment provides information about the sending application or other applications that manipulate the message before the receiving application processes the message. SFT is the second segment for both OML or ORU message types. The following table defines common elements for an OML and an ORU message type. Elements that relate to the specific message type of OML or ORU are flagged with an “X” in the Message Type column. The definition of some data elements will vary between the OML and ORU message types (i.e., the literal value, usage or cardinality may be different). When this occurs the Description column will contain an explanation of this difference.

**OML and ORU Example:**

SFT|Orion Health|4.0|Orion Rhapsody|789654||20110101<cr>

Table 2.3		SFT: Software Segment Definition							
O M L	O R U	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
X	X	1	Software Vendor Organization				XON	R	[1..1]
X	X	2	Software Certified Version or Release Number	Latest software version number of the sending system.		15	ST	R	[1..1]
	X	3	Software Product Name	The name of the software product that submitted the transaction.		50	ST	R	[1..1]
	X	4	Software Binary ID	Issued by a vendor for each unique software version instance to distinguish between like versions of the same software e.g., a checksum.		20	ST	R	[1..1]
	X	6	Software Install Date	Date the submitting software was installed at the sending site.		26	DTM	RE	[0..1]

## 2.4 PID: Patient Identification Segment Definition

The PID segment is used as the primary means of communicating patient identification information. This segment contains patient identifying and demographic information that does not change frequently. The following table defines common elements for an OML and an ORU message type. Elements that relate to the specific message type of OML or ORU are flagged with an “X” in the Message Type column. The definition of some data elements will vary between the OML and ORU message types (i.e., the literal value, usage or cardinality may be different). When this occurs the Description column will contain an explanation of this difference. The PID is a required segment.

### OML and ORU Example:

```
PID|1||987654321A^^^XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^PI^XYZSPHLLab1&2.16.840.1.114222.4.1.10412.1&ISO-45AQ12345^^^Napa General
Hosp&2.16.840.1.113883.19.3.2.1&ISO^MR^Napa General
HospLab&2.16.840.1.222.4.1.10412.013&ISO||Everyman^Adam^A^^^L^^^BS|Mum^Martha^M^^^M|19640619|M||2106-
3^White^CDCREC^W^White^L^2.5.1^2222 Home Street^^Napa^CA^94558^USA^C^^06055|^PRN^PH^^1^707^2272608|||||||2186-5^Not Hispanic or
Latino^CDCREC^N^Not Hispanic^L^2.5.1^2010|||||||N||||201102081000-0700|LastUpdater^2.16.840.1.113883.19.3.1^ISO<cr>
```

Table 2.4		PID: Patient Identifier Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	1	Set ID	Numbers the repetitions of the segments. Only one patient per message is supported. Literal Value: '1', if populated.		4	SI	R	[1..1]
X	X	3	Patient Identifier List	Field used to convey all types of unique patient/person identifiers.		250	CX	R	[1..*]
X	X	3.1	ID Number	Identifier value that corresponds to the Identifier Type Code specified in 3.5. <b>Note:</b> If “anonymous” is used a Patient First and Last Name in PID 5.1 or 5.2, the Patient Internal Identifier “PI” must		36	ST	R	[1..1]

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Table 2.4		PID: Patient Identifier Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				<i>be provided for OML submission.</i>					
	X	3.4	Assigning Authority	The PHIN namespace ID and OID for the LIMS			HD	R	[1..1]
	X	3.4.1	Namespace ID	Namespace ID for your LIMS		20	IS	RE	[0..1]
	X	3.4.2	Universal ID	OID for your LIMS		199	ST	R	[1..1]
	X	3.4.3	Universal ID Type	Literal Value: "ISO"		6	ID	R	[1..1]
X	X	3.5	Identifier Type Code	<p><b>Note:</b> Use the Identifier Type code that corresponds to the type of ID Number specified in PID-3.1. Ex Patient Internal Identifier use literal value "PI".</p> <p>Expected OML Literal Values:</p> <ul style="list-style-type: none"> <li>MA – Patient Medicaid Number</li> <li>MC – Patient Medicare Number</li> <li>MR – Medical Record Number</li> <li>PI – Patient Internal Identifier</li> </ul> <p>Expected ORU Literal Values:</p> <ul style="list-style-type: none"> <li>MA – Patient Medicaid Number</li> <li>MC – Patient Medicare Number</li> <li>MR – Medical Record Number</li> <li>PI – Patient Internal Identifier</li> <li>SS – Social Security Number</li> <li>PIN – Prison Identification Number</li> </ul>	<a href="#">PHVS_IdentifierType_CDC</a>	5	ID	R	[1..1]
X	X	3.6	Assigning Facility	Condition Predicate: If a Patient Internal Identifier or Medical Record Number is used in PID 3.1, Patient ID Number, then the Assigning Facility must be identified in this field.		224	HD	C(R/RE)	[0..1]
X	X	5	Patient Name	Patient name or aliases. Primary or legal name appears in the first instance.		250	XPN	R	OML: [1..1]

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Table 2.4			PID: Patient Identifier Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				Ex. BRADLEY^B^BRADFORD  <i>Note: It is highly recommended to send a Patient Name in the record however, in the case that de-identified data must be sent, please submit “anonymous” in both 5.1 and 5.2 as the literal value.</i>					ORU: [1..*]
X	X	5.1	Family Name	The patient’s last name. Ex. BRADFORD		50	FN	R	[1..1]
X	X	5.2	Given Name	The patient’s first name. Ex. BRADLEY		30	ST	R	[1..1]
X	X	5.3	Second and Further Given Names or Initials Thereof	The patient’s middle name or initial. Ex. B		30	ST	O	[0..1]
X	X	5.4	Suffix (e.g., JR or III)			20	ST	O	[0..1]
	X	5.5	Prefix (e.g.. DR)	Prefix		20	ST	RE	[0..1]
X	X	5.7	Name Type Code		<a href="#">PHVS NameType_H L7_2X</a>	1	ID	O	[0..1]
	X	5.14	Professional Suffix			199	ST	RE	[0..1]
	X	6	Mother’s Maiden Name				XPN	RE	[0..1]
	X	6.1	Family Name	Surname		50	ST	R	[1..1]
	X	6.2	Given Name	Mother’s first name.		30	ST	RE	[0..1]
	X	6.3	Second and Further Given Names or Initials Therof	Mother’s middle name or initial.		30	ST	RE	[0..1]
	X	6.4	Suffix (e.g.. JR or III)			20	ST	RE	[0..1]
	X	6.5	Prefix (e.g..DR)			20	ST	RE	[0..1]
	X	6.7	Name Type Code		<a href="#">PHVS NameType_H L7_2X</a>	5	ID	RE	[0..1]
	X	6.14	Professional Suffix			199	ST	RE	[0..1]

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Table 2.4			PID: Patient Identifier Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	7	Patient Date/Time of Birth	<p>Patient's date of birth. Date/Time sending system created the message: YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ]</p> <p>The minimum acceptable precision is to the nearest minute; seconds and microseconds are desirable; the Greenwich Mean Time offset is not required. Ex: 20111209143807</p> <p>ORU Condition Predicate: Required if Specimen Result OBX 5, Patient Reported Age, is not populated.</p>		26	DTM	OML - R	[0..1]
								ORU – C (R/RE)	
X	X	8	Patient Sex	<p>Patient's sex. Ex: M, F or U Ex.  M </p>	<a href="#">PHVS Administrative Sex HL7 2X</a>	1	IS	O	[0..1]
X	X	10	Patient Race	<p>One or more codes that broadly refer to the patient's race(s). Ex.  2131-1^OTHER RACE^CDCREC </p>	<a href="#">PHVS RaceCategory CDC</a>	250	CWE	RE	[0..*]
X	X	10.1	Identifier	CDC Race Category code. Ex. 2131-1		20	ST	R	[1..1]
X	X	10.2	Text	CDC Race Category description associated with code used in PID-10.1. Ex. OTHER RACE		199	ST	RE	[0..1]
X	X	10.3	Name of Coding System	Condition Predicate: If PID 10.1, Identifier, is identified, the literal value "CDCREC" is required.		199	ID	C(R/RE)	[0..1]
	X	10.4	Alternate Identifier			20	ST	RE	[0..1]
	X	10.5	Alternate Text	It is strongly recommended to send the text if PID 10.4, Alternate Identifier, is populated.		199	ST	RE	[0..1]

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Table 2.4			PID: Patient Identifier Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O	M								
	X	10.6	Name of Alternate Coding System	Condition Predicate: If a local race code is used in PID 10.4, Alternate Identifier, the literal value “L” is required.		12	ID	C(R/RE)	[0..1]
	X	10.7	Coding System Version ID	Expecting the literal value “2.5.1”.		10	ST	RE	[0..1]
	X	10.8	Alternate Coding System Version ID	It is strongly recommended to send the System Version ID if a coding system is identified in PID 10.6, Name of Alternate Coding System.		10	ST	RE	[0..1]
	X	10.9	Original Text	Condition Predicate: Required if PID 10.1, Identifier, and PID 10.4, Alternate Identifier, are both empty.		199	ST	C(R/RE)	[0..1]
X	X	11	Patient Address	Resident address of the patient. Multiple addresses for the same person may be sent. Primary mailing address must be sent in first sequence. If a mailing address is not sent, then a repeat delimiter must be sent in the first sequence. <i>Note: Expecting only the patient primary (current) address information in the supported components.)</i>		250	XAD	RE	[0..*]
X	X	11.1	Street Address			120	SAD	RE	[1..1]
X	X	11.2	Other Designation			120	ST	RE	[0..1]
X	X	11.3	City			50	ST	RE	[0..1]
X	X	11.4	State or Providence	Use the FIPS 5-2 two character codes here (e.g., MO for Missouri)	<a href="#">PHVS State FIPS 5-2</a>	50	ST	RE	[0..1]
X	X	11.5	Zip or Postal Code	Minimum of five digits.	<a href="#">USPS</a>	12	ST	RE	[0..1]
	X	11.6	Country		<a href="#">PHVS Country ISO 3166-1</a>	3	ID	RE	[0..1]

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Table 2.4		PID: Patient Identifier Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	11.7	Address Type	Address type from the PHVS_AddressType_CDC table.	<a href="#">PHVS_AddressType_CDC</a>	3	ID	RE	[0..1]
X	X	11.9	County/Parish Code	For this implementation, use FIPS 6-4 codes.	<a href="#">PHVS_County_FIPS_6-4</a>	20	IS	RE	[0..1]
X	X	13	Patient Phone Number - Home	May contain a telephone number of a residence where the patient may be contacted. All personal phone numbers for the patient may be sent with the first sequence containing the primary number; if primary number is not sent, the first sequence shall contain the repeat delimiter.		250	XTN	RE	[0..*]
	X	13.2	Telecommunication Use Code	Provides type of phone number received in PID 13.6, Area/City Code, and PID 13.7, Local Number.	<a href="#">PHVS_TelecommunicationUseCode_HL7_2x</a>	3	ID	RE	[0..1]
	X	13.3	Telecommunication Equipment Type	For example PH = phone. Note: Should use 'Internet' if PID 13.4, Email Address, is present.	<a href="#">PHVS_TelecommunicationEquipmentType_HL7_2x</a>	8	NM	RE	[0..1]
	X	13.4	Email Address	Condition Predicate: Required if PID 13.7, Local Number, is not populated. Must be blank if if PID 13.7, Local Number, is populated.		199	ST	C(R/X)	[0..1]
	X	13.5	Country Code	Condition Predicate: Required if PID 13.7, Local Number, is populated otherwise it must be empty. Within the US the code is 1.		3	NM	C(R/RE)	[0..1]
X	X	13.6	Area/City Code	Condition Predicate: Required if PID 13.7, Local Number, is populated otherwise it must be empty.		3	NM	C(R/RE)	[0..1]
X	X	13.7	Local Number	Condition Predicate: Required if PID 13.4, Email Address, is not present.		9	NM	C(R/X)	[0..1]

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Table 2.4		PID: Patient Identifier Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				Must be empty if PID 13.4, Email Address, is populated.					
	X	13.8	Extension	Condition Predicate: Required or empty (RE) if PID 13.7, Local Number, is present otherwise it must be empty.		5	NM	C(RE/X)	[0..1]
	X	13.9	Any Text			199	ST	RE	[0..1]
X	X	14	Phone Number – Business	May contain the patient’s business telephone number or a telephone number of a business where the patient may be contacted. All business phone numbers for the patient may be sent with the first sequence containing the primary number; if primary number is not sent, the first sequence shall contain the repeat delimiter.		250	XTN	RE	[0..*]
	X	14.2	Telecommunication Use Code	Provides type of phone number received in PID 14.6, Area/City Code, and PID 14.7, Local Number.	<a href="#">PHVS TelecommunicationUseCode_HL7_2x</a>	3	ID	RE	[0..1]
	X	14.3	Telecommunication Equipment Type	For example PH = phone. Note: Should use ‘Internet’ if PID 14.4, Email Address, is present.	<a href="#">PHVS TelecommunicationEquipmentType_HL7_2x</a>	8	NM	RE	[0..1]
	X	14.4	Email Address	Condition Predicate: Required if PID 14.7, Local Number, is not populated. Must be blank if if PID 14.7, Local Number, is populated.		199	ST	C(R/X)	[0..1]
	X	14.5	Country Code	Condition Predicate: Required if PID 14.7, Local Number, is populated otherwise it must be empty. Within the US the code is 1.		3	NM	C(R/X)	[0..1]
X	X	14.6	Area/City Code	Condition Predicate: Required if PID 14.7, Local Number, is populated		3	NM	C(RE/X)	[0..1]

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Table 2.4			PID: Patient Identifier Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				otherwise it must be empty.					
X	X	14.7	Local Number	Condition Predicate: Required if PID 14.4, Email Address, is not present. PID 14.7, Local Number, must be empty if PID 14.4, Email Address, is present.		9	NM	C(R/X)	[0..1]
X	X	14.8	Extension	Condition Predicate: Required or empty (RE) if PID 14.7, Local Number, is present otherwise it must be empty.		5	NM	C(RE/X)	[0..1]
	X	14.9	Any Text			199	ST	RE	[0..1]
X	X	22	Ethnic Group	Field that identifies the patient as either Hispanic or Non-Hispanic. Ex.  2135-2^HISPANIC or LATINO^ CDCREC	<a href="#">PHVS EthnicGroup CDC</a>	250	CWE	RE	[0..1]
X	X	22.1	Identifier	Standardized code for patient ethnic group. Ex. 2135-2		20	ST	R	[1..1]
X	X	22.2	Text	Condition Predicate: It is strongly recommended to send the standardized description associated with code in PID 22.1. If PID 22.1 is not populated, then this component must be empty.  Ex. HISPANIC or LATINO		199	ST	C(RE/X)	[0..1]
X	X	22.3	Name of Coding System	Condition Predicate: Literal vaule “CDCREC” is required if an identifier is provided in PID 22.1, Identifier.		199	ID	C(R/X)	[0..1]
	X	22.4	Alternate Identifier			20	ST	RE	[0..1]
	X	22.5	Alternate Text	Condition Predicate: It is strongly recommended to send the text if PID 22.4, Alternate Identifier, is populated. If PID 22.4 is not populated, then this component must be empty.		199	ST	C(RE/X)	[0..1]
	X	22.6	Name of Alternate	Condition Predicate: If a local race code		12	ID	C(R/X)	[0..1]

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Table 2.4			PID: Patient Identifier Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
			Coding System	is used in PID 22.4, Alternate Identifier, then the literal value “L” is required.					
	X	22.7	Coding System Version ID	Expecting the literal value “2.5.1”.		10	ST	RE	[0..1]
	X	22.8	Alternate Coding System Version ID	It is strongly recommended to send the System Version ID if a coding system is identified in PID 22.6, Name of Alternate Coding System.		10	ST	RE	[0..1]
	X	22.9	Original Text	Condition Predicate: Required if PID 22.1, Identifier, and PID 22.4, Alternate Identifier, are both empty.		199	ST	C(R/RE)	[0..1]
X		23	Birth Place	Name of birth facility where patient was born.		250	ST	O	[0..1]
X	X	29	Patient Death Date and Time	<p>Condition Predicate: If PID 30, Patient Death Indicator, is “Y”, then this field is required to contain the patient death date and time.</p> <p>Patient’s date and time of death. Date/Time sending system created the message: YYYYMMDDHHMMI[SS[.S[S[S[S]]]]] [+/- ZZZZ]</p> <p>The minimum acceptable precision is to the nearest minute; seconds and microseconds are desirable; the Greenwich Mean Time offset is not required.</p> <p>Ex: 20111209143807</p>		26	DTM	C(R/RE)	[0..1]
	X	30	Patient Death	If the patient expired, this field should		1	ID	RE	[0..1]

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Table 2.4			PID: Patient Identifier Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
			Indicator	contain the patient death indicator. Literal values: “Y” or “N”.					
	X	33	Last Update Date/Time	Note: If Patient Information is updated, then this component must be present.		26	TS	RE	[0..1]
	X	34	Last Update Facility	Condition Predicate: Required if PID-33, Last Update Date/Time, is populated.			HD	C(RE/X)	[0..1]
	X	34.1	Namespace ID	Namespace ID of the laboratory updating the PID information.		20	IS	RE	[0..1]
	X	34.2	Universal ID	OID of the laboratory updating the PID information.		199	ST	R	[1..1]
	X	34.3	Universal ID Type	Expected Value: “ISO”		6	ID	R	[1..1]
	X	35	Species Code	For this implementation, ONLY human samples. The standard codes populates the first triplet and the local code the second.	<a href="#">PHVS Animal CDC</a>		CWE	RE	[0..1]
	X	35.1	Identifier	Standardized code for species code.		20	ST	RE	[0..1]
	X	35.2	Text	Condition Predicate: If the Identifier PID 35.1, Identifier, is empty, then this component must be empty as well.		199	ST	C(RE/X)	[0..1]
	X	35.3	Name of Coding System	Condition Predicate: Literal value, “SNOMED-CT” required if an PID 35.1, Identifier, is populated.		20	ID	C(R/X)	[0..1]
	X	35.4	Alternate Identifier	Local code for Species.		20	ST	RE	[0..1]
	X	35.5	Alternate Text	Condition Predicate: It is strongly recommended to send the text if PID 35.4, Alternate Identifier, is populated. If PID 35.4 is not populated, then this component must be empty.		199	ST	C(RE/X)	[0..1]
	X	35.6	Alternate Name of Coding System	Condition Predicate: If a local species code is used in PID 35.4, the literal value “L” is <i>required</i> .		12	ID	C(R/X)	[0..1]

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Table 2.4		PID: Patient Identifier Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
	X	35.7	Coding System Version ID	Required if an identifier is provided in PID 35.1.		10	ST	RE	[0..1]
	X	35.8	Alternate Coding System Version ID	It is strongly recommended to send the system version id if a coding system is identified in PID 35.6, Name of Alternate Coding System.		10	ST	RE	[0..1]
	X	35.9	Original Text	Condition Predicate: Required if PID 35.1, Identifier, and PID 35.4, Alternate Identifier, are both empty.		199	ST	C(R/X)	[0..1]

## 2.5 PD1: Additional Demographics Segment

The patient additional demographic segment contains demographic information that is likely to change about the patient. This is an optional segment.

### ORU Example:

PD1|C|F||F|||||||||<cr>

Table 2.5		PD1: Additional Demographics Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
	X	1	Living Dependency	This field identifies specific living conditions (e.g., spouse dependent on patient, walk-up) that are relevant to an evaluation of the patient’s healthcare needs.	<a href="#">HL70223</a>	2	IS	O	[0..1]
	X	2	Living Arrangement	This field identifies the situation in which the patient lives at his residential address. Examples might include Alone, Family, Relatives, Institution, etc.	<a href="#">HL70220</a>	2	IS	O	[0..*]
	X	3	Patient Primary Facility	This field contains the name and identifier that specifies the “primary care” healthcare facility selected by the patient at the time of enrollment in an HMO Insurance Plan. Multiple names and identifiers are allowed for the same facility. The legal name of the healthcare facility must be sent in the first sequence.		250	XON	O	[0..1]
	X	4	Patient Primary Care Provider Name & ID No.	This field is retained for backward compatibility only.		250	XON	B	[0..1]
	X	5	Student Indicator	This field indicates if the patient is currently a student or not, and whether the patient is	<a href="#">HL70231</a>	2	IS	O	[0..1]

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Table 2.5		PD1: Additional Demographics Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				a fulltime or a part-time student. This field does not indicate the student's degree level (high school, college, elementary) or the student's field of study (accounting, engineering, etc.).					
	X	6	Handicap	This field indicates the nature of the patient's permanent handicapped condition (e.g., deaf, blind). A handicapped condition is defined as a physical or mental disability that is permanent. Transient handicapped conditions should be sent in the ambulatory status.		2	IS	O	[0..1]
	X	8	Organ Donor Code	This field indicates whether the patient wants to donate his/her organs and whether an organ donor card or similar documentation is on file with the healthcare organization.	<a href="#">HL70316</a>	2	IS	O	[0..1]
	X	19	Military Branch	This field is defined by CMS or other regulatory agencies.	<a href="#">HL70140</a>	5	IS	O	[0..1]
	X	20	Military Rank/Grade	This user-defined field identifies the military rank/grade of the patient.	<a href="#">HL70141</a>	2	IS	O	[0..1]
	X	21	Military Status	This field is defined by CMS or other regulatory agencies.	<a href="#">HL70142</a>	3	IS	O	[0..1]

## 2.6 NK1: Next Of Kin Segment

If the subject of the testing is something other than a person, the NK1 will document the person or organization responsible for or owning the subject. For patients who are persons, the NK1 documents the next of kin of 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 owns or is responsible for the animal. This is where the employment information for the patient is documented.

### ORU 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^^1^555^5552006<cr>

Table 2.6		NK1: Next of Kin Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
	X	1	Set ID – NK1	The number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.		4	SI	R	[1..1]
	X	2	Name	Name of the next of kin or associated party. Multiple names for the same entity are allowed, but the legal name must be sent in the first sequence. If the legal name is not sent, the repeat delimiter must be sent in the first sequence. Condition Predicate: If next of kin or associated party is a person use this field, otherwise, use field NK1-13, Organization Name.		250	XPN	C(R/X)	[0..*]
	X	2.1	Family Name	Next of Kin Last Name	<a href="#">PHVS Relationship HL7 2x</a>	50	CWE	R	[1..1]
	X	2.2	Given Name	Next of Kin First Name		30	ST	RE	[0..1]

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Table 2.6			NK1: Next of Kin Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
	X	2.3	Second and Further Given Names or Initials Thereof	Next of Kin Middle Initial/Middle Name		30	ST	RE	[0..1]
	X	2.4	Suffix (e.g., JR or III)			20	ST	RE	[0..1]
	X	2.5	Prefix (e.g., DR)			20	ST	RE	[0..1]
	X	2.7	Name Type Code		<a href="#">PHVS_NameType_HL7_2X</a>	5	ID	RE	[0..1]
	X	2.14	Professional Suffix		<a href="#">PHVS_DegreeLicenseCertificate_HL7_2x</a>	199	ST	RE	[0..1]
	X	3	Relationship	The actual personal relationship that the next of kin/associated party has to the patient.		250	CWE	RE	[0..1]
	X	3.1	Identifier	The next of kin relationship code.	<a href="#">PHVS_Relationship_HL7_2x</a>	20	ST	RE	[0..1]
	X	3.2	Text	Condition Predicate: It is strongly recommended to send the standardized description associated with code in NK1 3.1, Identifier. If NK1 3.1 is not populated, this component must be empty.		199	ST	C(RE/X)	[0..1]
	X	3.3	Name of Coding System	Condition Predicate: If NK1 3.1, Identifier, is populated, the literal value "HL70063" is required. If NK1 3.1 is not populated, this component must be empty.		20	ID	C(R/X)	[0..1]
	X	3.4	Alternate Identifier	Local Next of Kin Relationship code		20	ST	RE	[0..1]
	X	3.5	Alternate Text	Condition Predicate: It is strongly recommended to send the text if NK1 3.4, Alternate Identifier, is populated. If NK1 3.4 is not populated, then this component must be empty.		199	ST	C(RE/X)	[0..1]

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Table 2.6		NK1: Next of Kin Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
	X	3.6	Name of Alternate Coding System	Condition Predicate: If a local relationship code is used in NK1 3.4, "L" must be used in NK1 3.6.		12	ID	C(R/X)	[0..1]
	X	3.7	Coding System Version ID	Strongly recommended if a coding system is identified in component 3.3, Name of Coding System.		10	ST	RE	[0..1]
	X	3.8	Alternate Coding System Version ID	Strongly recommended if a coding system is identified in NK1 3.6, Name of Alternate Coding System. If no local coding system version is known, default to "v unknown".		10	ST	RE	[0..1]
	X	3.9	Original Text	Condition Predicate: If no identifier and alternate identifier are present, then this component is required. If all you have is text put it here.		199	ST	C(R/RE)	[0..1]
	X	4	Address	Next of Kin Address			XAD	RE	[0..*]
	X	4.1	Street Address or Street or Mailing Address			120	SAD	RE	[0..1]
	X	4.2	Other Designation			120	ST	RE	[0..1]
	X	4.3	City			50	ST	RE	[0..1]
	X	4.4	State or Province	Use the FIPS 5-2 two character codes here (e.g., MO for Missouri)	<a href="#">PHVS State FIPS 5-2</a>	50	ST	RE	[0..1]
	X	4.5	Zip or Postal Code	Minimum of five digits.	<a href="#">USPS</a>	12	ST	RE	[0..1]
	X	4.6	Country	Usually this will be USA, but it might be another country code from ISO 3166-1.	<a href="#">PHVS Country ISO 3166-1</a>	3	ID	RE	[0..1]

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Table 2.6		NK1: Next of Kin Segment Definition							
Msg Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O
M									
L									
	X	4.7	Address Type	Typical values are H (Home), L (Legal Address), M (Mailing), C (Current Or Temporary) etc.	<a href="#">PHVS_AddressType_CDC</a>	3	ID	RE	[0..1]
	X	4.9	County/Parish Code	For this implementation, use FIPS 6-4 codes.	<a href="#">PHVS_County_FIPS_6-4</a>	20	IS	RE	[0..1]
	X	5	Phone Number	Next of Kin Phone number			XTN	RE	[0..*]
	X	5.2	Telecommunication Use Code	Provides type of phone number received in NK1 5.6, Area/City Code, and NK1 5.7, Local Number.	<a href="#">PHVS_TelecommunicationUseCode_HL7_2x</a>	3	ID	RE	[0..1]
	X	5.3	Telecommunication Equipment Type	For example PH = phone. Note: Should use 'Internet' if NK1 5.4 (Email Address) is present.	<a href="#">PHVS_TelecommunicationEquipmentType_HL7_2x</a>	8	ID	RE	[0..1]
	X	5.4	Email Address	Condition Predicate: Required if NK1 5.7, Local Number, is not populated. Must be blank if NK1 5.7, Local Number, is populated.		199	ST	C(R/X)	[0..1]
	X	5.5	Country Code	Condition Predicate: This component is required if NK1 5.7 (Local Number) is present otherwise it must be empty. Within the US the code is 1.		3	NM	C(R/RE)	[0..1]
	X	5.6	Area/City Code	Condition Predicate: Required if NK1 5.7, Local Number, is populated otherwise it must be empty.		3	NM	C(R/RE)	[0..1]
	X	5.7	Local Number	Condition Predicate: Required if NK1 5.4, Email Address, is not present. NK1 5.7, Local Number, must be empty if NK1 5.4, Email Address, is present.		9	NM	C(R/X)	[0..1]
	X	5.8	Extension	Condition Predicate: Required or empty (RE) if NK1 5.7, Local Number, is present otherwise it must be empty.		5	NM	C(RE/X)	[0..1]

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Table 2.6		NK1: Next of Kin Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
	X	5.9	Any Text	For example: "Regular hours 8 am to 5 pm."		199	ST	RE	[0..1]
	X	13	Organization Name – NK1	Condition Predicate: If an organization is an associated party to the patient use this field, otherwise, use field NK1-2 for persons.			XON	C(R/X)	[0..1]
	X	13.1	Organization Name	Condition Predicate: Required if NK1 13.10, Organization Identifier, is empty.		50	ST	C(R/RE)	[1..1]
	X	13.2	Organization Name Type Code	Example L Legal Name, A Alias Name, D Display Name	<a href="#">HL70204</a>	20	IS	RE	[0..1]
	X	13.6	Assigning Authority	Identifies the system, application, organization, etc. that assigned the ID in NK1 13.10, Organization Identifier.  Condition Predicate: Required if NK1 13.10 is populated.	Local		HD	C(R/X)	
	X	13.6.1	Namespace ID	The assigning authority for the Ordering Facility ID		20	IS	RE	[0..1]
	X	13.6.2	Universal ID	The assigning authority OID		199	ST	R	[1..1]
	X	13.6.3	Universal ID Type	ISO	<a href="#">HL70301</a>	6	ID	R	[1..1]
	X	13.7	Identifier Type Code	Condition Predicate: Required if NK1 13.10, Organization Identifier, is populated. Ex. NPI National Provider Identifier, XX Organization Identifier, U Unspecified Identifier	HL70203	5	ID	C(R/X)	[1..1]
	X	13.10	Organization Identifier	Organization Identifier (ID) Replaces the the third and fourth component of XON data type used in version 2.3.1 and 2.3.z.		20	ST	RE	[0..1]

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Table 2.6		NK1: Next of Kin Segment Definition							
Msg Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O
	X	30	Contact Person's Name	Condition Predicate: Required if NK1 13, Organization Name, is populated.			XPN	C(R/X)	
	X	30.1	Family Name	Contact Person Last Name		50	FN	RE	[1..1]
	X	30.2	Given Name	Contact Person First Name		30	ST	RE	[0..1]
	X	30.3	Second and Further Given Names or Initials Thereof	Contact Person Middle Name or Initial		30	ST	RE	[0..1]
	X	30.4	Suffix (e.g., JR or III)			20	ST	RE	[0..1]
	X	30.5	Prefix (e.g., DR)			20	ST	RE	[0..1]
	X	30.7	Name Type Code	The Name Type Code from HL7 Table 200	<a href="#">PHVS NameType HL7 2X</a>	5	ID	RE	[0..1]
	X	30.14	Professional Suffix		<a href="#">PHVS DegreeLicenseCertificate HL7 2x</a>	199	ST	RE	[0..1]
	X	31	Contact Person's Telephone Number				XTN	RE	
	X	31.2	Telecommunication Use Code	Provides type of phone number received in NK1 31.6, Area/City Code, and NK1 31.7, Local Number.	<a href="#">PHVS TelecommunicationUseCode HL7 2x</a>	3	ID	RE	[0..1]
	X	31.3	Telecommunication Equipment Type	For example PH = phone. Note: Should use 'Internet' if NK1 31.4, Email Address, is present.	<a href="#">PHVS TelecommunicationEquipmentType HL7 2x</a>	8	ID	RE	[0..1]
	X	31.4	Email Address	Condition Predicate: This component is required if NK1 31.7 (local number) is not populated. Must be blank if NK1 31.4, Local Number, is populated.		199	ST	C(R/X)	[0..1]
	X	31.5	Country Code	Condition Predicate: This component is required if NK1 31.7, Local Number) is present otherwise it must be empty. Within the US the code is 1.		3	NM	C(R/RE)	[0..1]
	X	31.6	Area/City Code	Condition Predicate: Required if NK1		3	NM	C(R/RE)	[0..1]

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Table 2.6		NK1: Next of Kin Segment Definition							
Msg Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O
				31.7, Local Number, is populated otherwise it must be empty.					
	X	31.7	Local Number	Condition Predicate: Required if NK1 31.4, Email Address, is not present. NK1 31.7, Local Number, must be empty if NK1 31.4, Email Address, is present.		9	NM	C(R/X)	[0..1]
	X	31.8	Extension	Condition Predicate: Required or empty (RE) if NK1 31.7, Local Number, is present otherwise it must be empty.		5	NM	C(RE/X)	[0..1]
	X	31.9	Any Text	For example: "Regular hours 8 am to 5 pm."		199	ST	RE	[0..1]
	X	32	Contact Person's Address				XAD	RE	
	X	32.1	Street Address			120	SAD	RE	[1..1]
	X	32.2	Other Designation			120	ST	RE	[0..1]
	X	32.3	City			50	ST	RE	[0..1]
	X	32.4	State or Province	Use the FIPS 5-2 two character codes here (e.g., MO for Missouri)	<a href="#">PHVS State FIPS 5-2</a>	50	ST	RE	[0..1]
	X	32.5	Zip or Postal Code	Minimum of five digits.	<a href="#">USPS</a>	12	ST	RE	[0..1]
	X	32.6	Country	Usually this will be USA, but it might be another country code from ISO 3166-1.	<a href="#">PHVS Country ISO 3166-1</a>	3	ID	RE	[0..1]
	X	32.7	Address Type	Example values are B Firm/Business, M mailing, O Office.	<a href="#">PHVS AddressType CDC</a>	3	ID	RE	[0..1]
	X	32.9	County/Parish Code	For this implementation, use FIPS 6-4 codes.	<a href="#">PHVS County FIPS 6-4</a>	20	IS	RE	[0..1]

## 2.7 ORC: Common Order Segment Definition

The Common Order Segment (ORC) identifies basic information about the order for specimen testing. This segment includes identifiers for the order, who placed the order, when it was placed, what action to take regarding the order, etc. The following table defines common elements for an OML and an ORU message type. Elements that relate to the specific message type of OML or ORU are flagged with an “X” in the Message Type column. The definition of some data elements will vary between the OML and ORU message types (i.e., the literal value, usage or cardinality may be different). When this occurs the Description column will contain an explanation of this difference. The ORC is a required segment.

### OML Example:

```
ORC|NW|1234^ EHR^1.111.33.3...4^ISO |||||||1500000000^JONES^JOHN^J^JR^MD^NPI&|||||SAMPLE HOSPITAL^^^^^1.1123.333.555.1^ISO|5830
NW BARRY RD^201^KANSAS CITY^MO^64154|^^^^816^4692101|1515 W TRUMAN ROAD^306^INDEPENDENCE^MO^64050<cr>
```

### ORU Example:

```
ORC|RE|1234^ EHR^1.111.33.3...4^ISO|12345678^PERFORMING ORGANIZATION NAME^1.
111.122311.222.44.2.3.3^ISO|||||||1500000000^JONES^JOHN^J^JR^MD^NPI&1. 111.122311.222.44.2.3.3&ISO|||||||SAMPLE
HOSPITAL^^^^NPI&1.1123.333.555.1&ISO^NPI^^1234567891|5830 NW BARRY RD^201^KANSAS CITY^MO^64154|^^^^816^4692101|1515 W TRUMAN
ROAD^306^INDEPENDENCE^MO^64050<cr>
```

Table 2.7		ORC: Common Order Segment Definition							
Message Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O M L
X	X	1	Order Control	OML: Literal Value: 'NW ' ORU: Literal Value: 'RE'	<a href="#">PHVS OrderControl Codes HL7 2X</a>	2	ID	R	[1..1]
X	X	2	Placer Order Number	This identifier is assigned by the placer of the order being fulfilled by this message. This identifier distinguishes the placer's order from all other orders created by the placer. Normally, it is a type of system identifier assigned by the		424	EI	C(R/RE)	[0..1]

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Table 2.7		ORC: Common Order Segment Definition							
Message Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O M L
			<p>placer software application. The Universal ID and Universal ID type are required to be populated to ensure global uniqueness of this identifier within PHIN.</p> <p>Condition Predicate: The Placer Order Number must be the same as the Placer Order Number identified in OBR 2, if populated.</p>						
X	X	2.1	Entity Identifier	Actual identifier, typically system-generated.	199	ST	R	[1..1]	
X	X	2.2	Namespace ID	Local code for the assigning authority. Null flavors are not allowed.	20	IS	RE	[0..1]	
X	X	2.3	Universal ID	Assigning authority OID for the application/organization responsible for creating the placer order number (required). The placer order number is expected to be unique within this assigning authority.	199	ST	R	[1..1]	
X	X	2.4	Universal ID Type	Literal Value: 'ISO'. Null flavors are not allowed.	6	ID	R	[1..1]	
X	X	3	Filler Order Number	This field is the order number associated with the filling application. This is the number assigned to the test by the organization performing the test. This string must uniquely identify the order (as specified in the order detail	424	EI	OML: C ORU: R	OML: [0..1] ORU: [1..1]	

Table 2.7		ORC: Common Order Segment Definition							
Message Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O M L
			segment) from other orders in a particular filling application (e.g., public health laboratory). This uniqueness must persist over time.  <i>Note: ORC-3-filler order number is the same as OBR-3-filler order number. If the filler order number is not present in the OBR, it must be present in the associated ORC. This note applies to the OML message type when the submitting facility is requesting a confirmation test.</i>						
X	X	3.1	Entity Identifier	Actual identifier, typically system-generated.		199	ST	R	[1..1]
X	X	3.2	Namespace ID	Local code for the assigning authority. Null flavors are not allowed.		20	IS	RE	[0..1]
X	X	3.3	Universal ID	Assigning authority OID for the application/organization responsible for creating the placer order number (required). The filler order number is expected to be unique within this assigning authority.		199	ST	R	[1..1]
X	X	3.4	Universal ID Type	Literal Value: "ISO". Null flavors are not allowed.		6	ID	R	[1..1]
	X	4	Placer Group Number				EI	RE	[0..1]
	X	4.1	Entity Identifier			199	ST	R	[1..1]
	X	4.2	Namespace ID			20	IS	RE	[0..1]

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Table 2.7		ORC: Common Order Segment Definition							
Message Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O M L
	X	4.3	Universal ID		199	ST	R	[1..1]	
	X	4.4	Universal ID Type		6	ID	R	[1..1]	
	X	5	Order Status	For this implementation the Lab Sender and ELR Receiver Usage has been changed from O- undefined to RE - required, empty. This will probably be CM (Order is completed). Other values from HL7 Table 0038 include A (Some, but not all, results available), RP (Order has been replaced), etc.	HL70038	2	ID	RE	[0..1]
X	X	12	Ordering Provider	Identifier of the provider who ordered the testing being performed.  Condition Predicate: Required to be populated with the same values as OBR 16, Ordering Provider			XCN OML: O ORU: C(R/RE)	[0..1]	
X	X	12.1	ID Number	Unique identifier for the medical provider. The preferred value is the ten digit National Provider ID (NPI).		15	ST	RE	[0..1]
X	X	12.2	Family Name	Ordering Provider's last name. Ex. JONES		50	FN	RE	[0..1]
X	X	12.3	Given Name	Order Provider's first name. Ex. MARY		30	ST	RE	[0..1]
X	X	12.4	Second and Further Given Names or Initials Thereof	Ordering Provider's middle name or initial. Ex. J		30	ST	RE	[0..1]
X	X	12.5	Suffix (e.g., JR or III)	Ordering Provider's name suffix.		20	ST	RE	[0..1]
	X	12.6	Prefix (e.g., DR)	Ordering Provider's name prefix.		20	ST	RE	[0..1]
X	X	12.7	Degree (e.g., MD)	Indicates type of degree(s) held by the Ordering Provider.	<a href="#">PHVS DegreeLicenseCertificate HL7_2x</a>	20	ST	O	[0..1]

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Table 2.7		ORC: Common Order Segment Definition							
Message Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O M L
X	X	12.9	Assigning Authority	Condition Predicate: Required if an ORC 12.1, ID Number is populated.			HD	C(R/X)	[0..1]
X	X	12.9.1	NamespaceID	Name of the organization, if the ID Number is a PHIN OID for an organization. Null flavors are not allowed.		20	IS	RE	[0..1]
X	X	12.9.2	Universal ID	OID		199	ST	R	[1..1]
X	X	12.9.3	Universal ID Type	Literal Value: "ISO". Null flavors are not allowed.		6	ID	R	[1..1]
	X	12.10	Name Type Code		<a href="#">PHVS NameType HL7 2X</a>	5	ID	RE	[0..1]
	X	12.13	Identifier Type Code	Condition Predicate: Required if ORC 12.10, Organization Identifier, is populated. Ex. "NPI" National Provider Identifier or "PRN" Provider Number		5	ID	C(R/X)	[0..1]
	X	12.21	Professional Suffix	Ordering Provider's name suffix	<a href="#">PHVS DegreeLicenseCertificate HL7 2x</a>	199	ST	RE	[0..1]
	X	14	Call Back Phone Number	Submitter's contact information.			XTN	RE	[0..1]
	X	14.2	Telecommunication Use Code	Provides type of phone number received in ORC 14.6, Area/City Code, and ORC 14.7, Local Number.	<a href="#">PHVS TelecommunicationUseCode HL7 2x</a>	3	ID	RE	[0..1]
	X	14.3	Telecommunication Equipment Type	For example PH = phone. Note: Should use 'Internet' if ORC 14.4, Email Address, is present.	<a href="#">PHVS TelecommunicationEquipmentType HL7 2x</a>	8	NM	RE	[0..1]
	X	14.4	Email Address	Condition Predicate: Required if ORC 14.7, Local Number, is not populated. Must be blank if if ORC 14.7, Local		199	ST	C(R/X)	[0..1]

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Table 2.7		ORC: Common Order Segment Definition							
Message Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O M L
			Number, is populated.						
	X	14.5	Country Code	Condition Predicate: This component is required if ORC 14.7, Local Number, is present otherwise it must be empty. Within the US the code is 1.		3	NM	C(R/X)	[0..1]
	X	14.6	Area/City Code	Condition Predicate: Required if ORC 14.7, Local Number, is populated otherwise it must be empty.		3	NM	C(R/X)	[0..1]
	X	14.7	Local Number	Condition Predicate: Required if ORC 14.4, Email Address, is not present. Must be empty if ORC 14.4 is present.		9	NM	C(R/X)	[0..1]
	X	14.8	Extension	Condition Predicate: Required or empty (RE) if ORC 14.7, Local Number, is present otherwise it must be empty.		5	NM	C(RE/X)	[0..1]
	X	14.9	Any Text			199	ST	RE	[0..1]
X	X	21	Ordering Facility Name	Name of the organization.		250	XON	R	[1..1]
X	X	21.1	Organization Name	Condition Predicate: Required if ORC 21.10, Organization ID, is empty.		50	ST	C(R/RE)	[1..1]
	X	21.2	Organization Name Type Code			20	IS	RE	[0..1]
	X	21.6	Assigning Authority	Condition Predicate: Required if ORC 21.10, Organization ID, is populated.			HD	C(R/X)	[0..1]
	X	21.6.1	Namespace ID	The assigning authority for the Ordering Facility ID		20	IS	RE	[0..1]
	X	21.6.2	Universal ID	The assigning authority OID		199	ST	R	[1..1]
	X	21.6.3	Universal ID Type	Expected value: "ISO"		6	ID	R	[1..1]
	X	21.7	Identifier Type Code			5	ID	R	[0..1]
X	X	21.10	Organization ID			199	ST	R	[1..1]

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Table 2.7		ORC: Common Order Segment Definition							
Message Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O M L
X	X	22	Ordering Facility Address	Address of the facility placing the order.			XAD	R	[1..*]
X	X	22.1	Street Address			120	SAD	RE	[0..1]
X	X	22.2	Other Designation			120	ST	RE	[0..1]
X	X	22.3	City			50	ST	RE	[0..1]
X	X	22.4	State or Province	Use the FIPS 5-2 two character codes here (e.g., MO for Missouri)	<a href="#">PHVS_State_FIPS_5-2</a>	50	ST	RE	[0..1]
X	X	22.5	Zip or Postal code	Minimum of five digits.	<a href="#">USPS</a>	12	ST	RE	[0..1]
	X	22.6	Country		<a href="#">PHVS_Country_ISO_3166-1</a>	3	ID	RE	[0..1]
	X	22.7	Address Type		<a href="#">PHVS_AddressType_CDC</a>	3	ID	RE	[0..1]
	X	22.9	County/Parish Code	For this implementation, use FIPS 6-4 codes.	<a href="#">PHVS_County_FIPS_6-4</a>	20	IS	RE	[0..1]
X	X	23	Ordering Facility Phone Number	Telephone of the facility placing the order.		250	XTN	O	[0..1]
	X	23.2	Telecommunication Use Code	Provides type of phone number received in ORC 23.6, Area/City Code, and ORC 23.7, Local Number.	<a href="#">PHVS_TelecommunicationUseCode_HL7_2x</a>	3	ID	RE	[0..1]
	X	23.3	Telecommunication Equipment Type	For example PH = phone. Note: Should use 'Internet' if ORC 23.4, Email Address, is present.	<a href="#">PHVS_TelecommunicationEquipmentType_HL7_2x</a>	8	NM	RE	[0..1]
	X	23.4	Email Address	Condition Predicate: Required if ORC 23.7, Local Number, is not populated. Must be blank if if ORC 23.7, Local Number, is populated.		199	ST	C(R/X)	[0..1]
	X	23.5	Country Code	Condition Predicate: Required if ORC 23.7, Local Number, is populated otherwise it must be empty.		3	NM	C(R/X)	[0..1]

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Table 2.7		ORC: Common Order Segment Definition							
Message Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O
M									
L									
U									
			Within the US the code is 1.						
X	X	23.6	Area/City Code	Ordering Facility Area Code. Condition Predicate: Required if ORC 23.7, Local Number, is populated otherwise it must be empty.		3	NM	C(RE/X) [0..1]	
X	X	23.7	Local Number	Ordering Facility phone number. Condition Predicate: Required if ORC 23.4, Email Address, is not present. If the number is unknown, use "555555". Must be empty if ORC 23.4, Email Address, is populated.		9	NM	C(R/X) [0..1]	
X	X	23.8	Extension	Condition Predicate: Required or empty (RE) if ORC 23.7, Local Number, is present otherwise it must be empty.		5	NM	C(RE/X) [0..1]	
	X	23.9	Any Text	Any text.		199	ST	RE [0..1]	
X	X	24	Ordering Provider Address	Address of the care provider requesting the order.		250	XAD	RE [0..1]	
X	X	24.1	Street Address			120	SAD	RE [1..1]	
X	X	24.2	Other Designation			120	ST	RE [0..1]	
X	X	24.3	City			50	ST	RE [1..1]	
X	X	24.4	State or Province	Use the FIPS 5-2 two character codes here (e.g., MO for Missouri)	<a href="#">PHVS_State_FIPS_5-2</a>	50	ST	RE [1..1]	
X	X	24.5	Zip or Postal Code	Minimum of five digits.	<a href="#">USPS</a>	12	ST	RE [1..1]	
	X	24.6	Country		<a href="#">PHVS_Country_ISO_3166-1</a>	3	ID	RE [0..1]	
	X	24.7	Address Type		<a href="#">PHVS_AddressType_CDC</a>	3	ID	RE [0..1]	
	X	24.9	County/Parish Code	For this implementation, use FIPS 6-4 codes.	<a href="#">PHVS_County_FIPS_6-4</a>	20	IS	RE [0..1]	

## 2.9 OBR: Observation Request Segment Definition

The Observation Request Segment (OBR) is used to capture information about one specific test being performed on the specimen. Most importantly, the OBR identifies the type of testing to be performed on the specimen and ties that information to the order for the testing. The OBR is the fourth segment for an OML or ORU message type. The following table defines common elements for an OML and an ORU message type. Elements that relate to the specific message type of OML or ORU are flagged with an “X” in the Message Type column. The definition of some data elements will vary between the OML and ORU message types (i.e., the literal value, usage or cardinality may be different). When this occurs the Description column will contain an explanation of this difference.

### OML Example:

```
OBR|1|1234^EHR^1.111.33.3...4^ISO|625-4^BACTERIA IDENTIFIED IN STOOL BY CULTURE^2.16.840.1.113883.6.1^008144^RAW
STOOL^L||201107051215|||||1500000000^JONES^JOHN^J^JR^MD^NPI&|^^^816^5551212|||||558.9^OTHER AND UNSPECIFIED NONINFECTIOUS
GASTROENTERITIS AND COLITIS^2.16.840.1.113883.6.103~578.1^BLOOD IN STOOL^2.16.840.1.113883.6.103<cr>
```

### ORU Example:

```
OBR|1|1234^EHR^1.111.33.3...4^ISO|12345678^PERFORMING ORGANIZATION NAME^1.111.122311.222.44.2.3.3^ISO|625-4^BACTERIA IDENTIFIED IN
STOOL BY CULTURE^LN^008144^Stool CULTURE^L^2010||201107061215|||||1500000000^JONES^JOHN^J^
JR^MD^NPI&1.111.122311.222.44.2.3.3&ISO^^^NPI^^^MD|^^^1^816^5551212||||201107062150||F||||558.9^OTHER AND UNSPECIFIED
NONINFECTIOUS GASTROENTERITIS AND COLITIS^2.16.840.1.113883.6.103^578.1^BLOOD IN STOOL^2.16.840.1.113883.6.103^2010<cr>
```

Table 2.9		OBR: Observation Request Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	1	Set ID – OBR	Sequence number of one of multiple OBRs under one PID. For the first order transmitted, the sequence number shall be 1; for the second order, it shall be 2; and so on.		4	SI	R	[1..1]

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Table 2.9			OBR: Observation Request Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	2	Placer Order Number	<p>This identifier is assigned by the placer of the order being fulfilled by this message. This identifier distinguishes the placer’s order from all other orders created by the placer. Normally, it is a type of system identifier assigned by the placer software application. The Universal ID and Universal ID type are required to be populated to ensure global uniqueness of this identifier within PHIN.</p> <p><i>Note: The Placer Order Number must be the same as the Placer Order Number identified in ORC 2, if populated.</i></p>		424	EI	RE	[0..1]
X	X	2.1	Entity Identifier	Actual identifier, typically system-generated.		199	ST	R	[1..1]
X	X	2.2	Namespace ID	Local code for assigning authority.		20	IS	RE	[0..1]
X	X	2.3	Universal ID	Assigning authority OID for the application/organization responsible for creating the placer order number. The placer order number is expected to be unique within this assigning authority.		199	ST	R	[1..1]
X	X	2.4	Universal ID Type	Literal Value: “ISO”		6	ID	R	[1..1]
X	X	3	Filler Order Number	This field is the order number		424	EI	OML: C	[0..1]

Table 2.9			OBR: Observation Request Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				<p>associated with the filling application. This is the number assigned to the test by the organization performing the test. This string must uniquely identify the order (as specified in the order detail segment) from other orders in a particular filling application (e.g., public health laboratory). This uniqueness must persist over time.</p> <p><i>Note: ORC-3-filler order number is the same as OBR-3-filler order number. If the filler order number is not present in the ORC, it must be present in the associated OBR. This note applies to the OML message type when the submitting facility is requesting a confirmation test.</i></p>				ORU: R	[1..1]
X	X	3.1	Entity Identifier	Actual identifier, typically system-generated.		199	ST	R	[1..1]
X	X	3.2	Namespace ID	Local code for the assigning authority.		20	IS	RE	[0..1]
X	X	3.3	Universal ID	Assigning authority OID for the application/organization responsible for creating the filler order number. The filler order number is expected to be unique within this assigning authority.		199	ST	R	[1..1]
X	X	3.4	Universal ID Type	Literal Value: "ISO"		6	ID	R	[1..1]
X	X	4	Universal Service Identifier	Identifier code for the requested observation/test/battery. This should be based on local and/or "universal" codes.		841	CWE	R	[1..1]

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Table 2.9			OBR: Observation Request Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	4.1	Identifier	<p>Required component for PHIN. This component should include the LOINC code that identifies the test ordered.</p> <p>Note: For OML message type, reference the literal values to be used listed in Appendix B, PHVS_LabTestOrderables_CDC.</p>	<p>OML: Literal Value list from: PHVS_LabTestOrderables_CDC</p>	20	ST	R	[1..1]
X	X	4.2	Text	<p>Condition Predicate: It is strongly recommended to send the standard description of the identifier in OBR 4.1. This component should include the LOINC description.</p>		199	ST	C(RE/X)	[0..1]
X	X	4.3	Name of Coding System	<p>Condition Predicate: If OBR 4.1, Identifier, is identified, the literal value “LN” is required.</p>		199	ID	C(R/X)	[1..1]
X	X	4.4	Alternate Identifier	<p>This component should include the local code for the test ordered.</p>		20	ST	RE	[0..1]
X	X	4.5	Alternate Text	<p>Condition Predicate: It is strongly recommended to send descriptive text if OBR 4.4, Alternate Identifier, is populated. If OBR 4.4 is not populated, then this component must be empty.</p>		199	ST	C(RE/X)	[0..1]
X	X	4.6	Name of Alternate Coding System	<p>This component should include the local coding system identification.</p> <p>Condition Predicate: If a local race code is used in PID 22.4, Alternate Identifier, then the literal value “L” is required.</p>		199	ID	C(R/X)	[0..1]

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Table 2.9			OBR: Observation Request Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
	X	4.7	Coding System Version ID	Recommended if a LN is identified in OBR 4.3, Name of Coding System. This can be hardcoded LOINC is versioned every 6 Month		10	ST	RE	[0..1]
	X	4.8	Alternate Coding System Version ID	Conditional Predicate: Required if a coding system is identified in OBR 4.6, Name of Alternate Coding System.		10	ST	C(R/X)	[0..1]
	X	4.9	Original Text	Conditional Predicate: Required if OBR 4.1, Identifier, and OBR 4.4, Alternate Identifier, are both empty.		199	ST	C(R/X)	[0..1]
X	X	7	Observation Date/Time	For specimen-based observations, the time the specimen was collected.  Note: This field must contain the same value as the first component of SPM-17 Specimen Collection Date/Time. HL7 requires this field in an OBR in a result message.		26	DTM	OML: C ORU: R	OML: [0..1] ORU: [1..1]
	X	8	Observation End Date/Time	End point date and time the specimen was collected.  Condition Predicate: Required when the specimen was collected over a period of time.			DTM	C(RE/X)	[0..1]
	X	13	Relevant Clinical Information			300	ST	RE	[0..1]
X	X	16	Ordering Provider	Identifier of the provider who ordered the testing being performed. This is required to contain the same values as ORC-12.		2925	XCN	RE	[0..1]
X	X	16.1	ID Number			15	ST	RE	[0..1]

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Table 2.9			OBR: Observation Request Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	16.2	Family Name	Ordering Provider's last name. Ex. JONES		50	FN	RE	[0..1]
X	X	16.3	Given Name	Ordering Provider's first name. Ex. MARY		30	ST	RE	[0..1]
X	X	16.4	Second and Further Given Names or Initials Thereof	Ordering Provider's middle name or initial. Ex. J		30	ST	RE	[0..1]
X	X	16.5	Suffix (e.g., JR or III)			20	ST	RE	[0..1]
	X	16.6	Prefix (e.g., DR)	Prefix		20	ST	RE	[0..1]
X	X	16.7	Degree (e.g., MD)	Indicates type of degree(s) held by Ordering Provider.	PHVS_DegreeLicenseCertificate_HL7_2x	20	ST	O	[0..1]
X	X	16.9	Assigning Authority	Condition Predicate: Required is OBR 16.1, Id Number, is populated. If OBR 16.1 is NOT populated, then this component must be empty.		224	HD	C(R/X)	[0..1]
X	X	16.9.1	Namespace ID	Name of the organization, if the ID Number is a PHIN OID for an organization. Null flavors are not allowed.		20	IS	RE	[0..1]
X	X	16.9.2	Universal ID	OID		199	ST	R	[1..1]
X	X	16.9.3	Universal ID Type	Literal Value: "ISO". Null flavors are not allowed.		6	ID	R	[1..1]
	X	16.10	Name Type Code		<a href="#">PHVS_NameType_HL7_2X</a>	5	ID	RE	[0..1]
	X	16.13	Identifier Type Code	Condition Predicate: Required if OBR 16.1, ID Number, is populated.		5	ID	C(R/X)	[0..1]
	X	16.21	Professional Suffix	Indicates the type of degree(s) held by the Ordering Provider.	<a href="#">PHVS_DegreeLicenseCertificate_HL7_2x</a>	199	ST	RE	[0..1]
X	X	17	Order Callback	Field that should contain the telephone		250	XTN	OML: O	[0..1]

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Table 2.9			OBR: Observation Request Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
			Phone Number	number for the provider who ordered services associated with this encounter.				ORU: RE	
	X	17.2	Telecommunication Use Code	Provides type of phone number received in OBR 17.6, Area/City Code, and OBR 17.7, Local Number.	<a href="#">PHVS TelecommunicationUseCode HL7_2x</a>	3	ID	RE	[0..1]
	X	17.3	Telecommunication Equipment Type	For example PH = phone. Note: Should use 'Internet' if OBR 17.4, Email Address, is present.	<a href="#">PHVS TelecommunicationEquipmentType HL7_2x</a>	8	NM	RE	[0..1]
	X	17.4	Email Address	Condition Predicate: Required if OBR 17.7, Local Number, is not populated. Must be blank if if OBR 17.7, Local Number, is populated.		199	ST	C(R/X)	[0..1]
	X	17.5	Country Code	Condition Predicate: Required if OBR 17.7, Local Number, is present otherwise it must be empty. Within the US the code is 1.		3	NM	C(R/X)	[0..1]
X	X	17.6	Area/City Code	Submitter's Area Code.  Condition Predicate: Required if OBR 17.7, Local Number, is present otherwise it must be empty.		3	NM	C(RE/X)	[0..1]
X	X	17.7	Local Number	Submitter's Phone Number  Condition Predicate: Required if OBR 17.4, Email Address, is not present. Must be empty if OBR 17.4, Email Address, is populated.		9	NM	C(R/X)	[0..1]
	X	17.8	Extension	Condition Predicate: Required or empty (RE) if OBR 17.7, Local Number, is present otherwise it must		5	NM	C(RE/X)	[0..1]

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Table 2.9		OBR: Observation Request Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				be empty.					
	X	17.9	Any Text			199	ST	RE	[0..1]
	X	22	Results Rpt/Status Chng – Date/Time	Date/Time that corresponds to a result status in OBR 25.  Required field in this message applies to the entire report.		26	DTM	R	[1..1]
	X	25	Result Status	Required in this message; applies to the entire report. Null flavors are not allowed. Expected Values: F – Final , C – Corrected.  <b>Note:</b> Receipt of subsequent message with the same filler number and a different status in this field implies that processing may need to occur at the receiving application level to update a previous report.  If a positive result is submitted and a subsequent result is negative for the same patient/condition, the negative result should be submitted as a correction.	PHVS_ResultStatus_HL7_2x	1	ID	R	[1..1]
	X	26	Parent Result	Condition Predicate OBR 29. This field is required when linking a child test (i.e. sensitivities, confirmatory) to a parent test (i.e. culture, PCR).		1113	PRL	C(R/RE)	[0..1]
	X	26.1	Parent Observation Identifier	Identifier of the OBX-3 Observation ID of the parent result. Typically, this is		841	CWE	R	[1..1]

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Table 2.9			OBR: Observation Request Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				used in microbiology results where the sensitivities are linked to the specific culture OBX where the organism was identified.					
	X	26.1.1	Identifier	The OBX 3.1, Identifier, of the parent results.		20	ST	RE	[0..1]
	X	26.1.2	Text	Condition Predicate: It is strongly recommended to send the standardized description associated with code in OBR 26.2.1. If OBR 26.2.1 is not populated, then this component must be empty.		199	ST	C(RE/X)	[0..1]
	X	26.1.3	Name of Coding System	Condition Predicate: Required if OBR 26.1.1, Identifier, is populated. If OBR 26.1.1 is empty this component must be empty as well.		199	ID	C(R/X)	[0..1]
	X	26.1.4	Alternate Identifier	The identifier of OBX 3.4, Alternate Identifier, of the parent result		20	ST	RE	[0..1]
	X	26.1.5	Alternate Text	The text of OBX 3.5, Alternate Text, of the parent result.  Condition Predicate: It is strongly recommended to send the text if OBR 26.1.4, Alternate Identifier, is populated.		199	ST	C(RE/X)	[0..1]
	X	26.1.6	Name of Alternate Coding System	Local coding system OID.  Condition Predicate: Required if OBR 26.1.4, Alternate Identifier, is populated. If OBR 26.1.4 is empty this component must be empty as well.		199	ID	C(R/X)	[0..1]

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Table 2.9		OBR: Observation Request Segment Definition							
Msg Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O
M									
L									
	X	26.1.7	Coding System Version ID	Strongly recommended if OBR 26.1.6, Name of Alternate Coding System, is populated.		10	ST	RE	[0..1]
	X	26.1.8	Alternate Coding System Version ID	Condition Predicate: Required if a coding system is identified in OBR 26.1.6, Name of Alternate Coding System.		10	ST	C(R/X)	[0..1]
	X	26.1.9	Original Text	Condition Predicate: Required if OBR 26.1.1, Identifier, and OBR 26.1.4, Alternate Identifier, are both empty.		199	ST	C(R/X)	[0..1]
	X	26.2	Parent Observation Sub-Identifier	The OBX 4 of the Parent result.		20	ST	RE	[0..1]
	X	26.3	Parent Observation Value Descriptor	The OBX 5.2 of the parent result.		250	TX	RE	[0..1]
	X	28	Result Copies To				XCN	RE	[0..1]
	X	28.1	ID Number			15	ST	RE	[0..1]
	X	28.2	Family Name				FN	RE	[0..1]
	X	28.3	Given Name			30	ST	RE	[0..1]
	X	28.4	Second and Further Given Names or Initials Thereof			30	ST	RE	[0..1]
	X	28.5	Suffix (e.g., JR or III)			20	ST	RE	[0..1]
	X	28.6	Prefix (e.g., DR)	Ordering Provider's name prefix.		20	ST	RE	[0..1]
	X	28.9	Assigning Authority	Conditional Predicate: Required if OBR 28.1, ID Number is provided.			HD	C(R/X)	[0..1]
	X	28.9.1	Namespace ID	Name of the organization, if the ID Number is a PHIN OID for an organization. Null flavors are not allowed.		20	IS	RE	[0..1]
	X	28.9.2	Universal ID	OID (required). If the ID Number is a		199	ST	R	[1..1]

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Table 2.9			OBR: Observation Request Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				PHIN OID for an organization, this will be the OID for PHIN. Otherwise, it will be the PHIN OID for the organization that assigned the identifier in the ID Number component.					
	X	28.9.3	Universal ID Type	Literal Value: "ISO". Null flavors are not allowed.		6	ID	R	[1..1]
	X	28.10	Name Type Code		<a href="#">PHVS_NameType_HL7_2X</a>	5	ID	RE	[0..1]
	X	28.13	Identifier Type Code	Conditional Predicate: Required if OBR 28.1, ID Number, is populated.	HL70203	5	ID	C(R/X)	[0..1]
	X	28.14	Assigning Facility				HD	RE	[0..1]
	X	28.14.1	Namespace ID			20	IS	RE	[0..1]
	X	28.14.2	Universal ID			199	ST	RE	[0..1]
	X	28.14.3	Universal ID Type			6	ID	RE	[0..1]
	X	28.21	Professional Suffix			199	ST	RE	[0..1]
X	X	29	Parent	OBR-29 is a complex field that contains both the Placer order number (OBR-2) and the Filler order number (OBR-3). OBR-29 is only needed if you need to reference a parent result. Harmonized condition predicate: This field is required if OBR-24 carries the value "MB" and OBR-4 indicates the ordered test is a culture and sensitivity. Parent/child linking should be used when the specimen type changes between the parent and child result (specimen and isolate/component specimen) or for reflex tests.		849	EIP	OML: O ORU: C(R/X)	[0..1]

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Table 2.9			OBR: Observation Request Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				DHSS is considering each OBR as its own test and NOT using the parent-child relationship. Applies to all its subcomponents.					
X	X	29.1	Placer-Assigned Identifier	Condition Predicate: Required to contain the same number as reported in SPM 2.1, Placer-Assigned Identifier, if populated.		424	EI	C(R/RE)	[0..1]
X	X	29.1.1	Entity Identifier	Actual identifier, typically system-generated.		199	ST	R	[1..1]
X	X	29.1.2	Namespace ID	Local code for the assigning authority.		20	IS	RE	[0..1]
X	X	29.1.3	Universal ID	Assigning authority OID for the application/organization responsible for creating the filler order number. The filler order number is expected to be unique within this assigning authority.		199	ST	R	[1..1]
X	X	29.1.4	Universal ID Type	Literal Value: "ISO"		3	ID	R	[1..1]
	X	29.2	Filler Assigned Identifier	Parent order number info			EI	R	[1..1]
	X	29.2.1	Entity Identifier	The parent order number in the LIMS.		199	ST	R	[1..1]
	X	29.2.2	Namespace ID	The PHIN namespace ID of the LIMS		20	IS	RE	[0..1]
	X	29.2.3	Universal ID	OID for the LIMS		199	ST	R	[1..1]
	X	29.2.4	Universal ID Type	ISO		20	ID	R	[1..1]
X	X	31	Reason for Study	For laboratory result reporting, this field may be used to carry a diagnosis justifying the testing.  Acceptable values: ICD-9 Clinical Modification diagnosis code (including E-codes and V-codes)		841	CWE	RE	[0..*]

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Table 2.9			OBR: Observation Request Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				Or ICD-10 Clinical Modification diagnosis code Or SNOMED Disorder/Disease domain					
X	X	31.1	Identifier	ICD-9 codes currently populate this field in the ELR messages.	PHVS_Administrative Diagnosis_CDC_ICD 9-9CM	20	ST	R	[0..1]
X	X	31.2	Text	Condition Predicate: Strongly recommend to send the standard text if OBR 31.1, Identifier, is populated.		199	ST	C(RE/X)	[0..1]
X	X	31.3	Name of Coding System	Condition Predicate: If OBR 31.1, Identifier, is populated, the Coding System OID is required. Null flavors are not allowed. Literal Values: <ul style="list-style-type: none"> <li>• IC9: "2.16.840.1.113883.6.103"</li> <li>• IC10: "2.16.840.1.113883.6.3"</li> <li>• SN: "2.16.840.1.113883.6.96"</li> </ul>		199	ID	C(R/X)	[0..1]
	X	31.4	Alternate Identifier			20	ST	RE	[0..1]
	X	31.5	Alternate Text	Condition Predicate: It is strongly recommended to send the text if OBR 31.4, Alternate Identifier, is populated. If OBR 31.4 is not populated, then this component must be empty.		199	ST	C(RE/X)	[0..1]
	X	31.6	Name of Alternate Coding System	Condition Predicate: If OBR 31.4, Alternate Identifier, is populated, the Name of Alternate Coding System OID is required.		12	ID	C(R/X)	[0..1]

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Table 2.9		OBR: Observation Request Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
	X	31.7	Coding System Version ID	Note: Required if a coding system is identified in component OBR 31.3.		10	ST	RE	[0..1]
	X	31.8	Alternate Coding System Version ID	It is strongly recommended to send the System Version ID if a coding system is identified in OBR 31.6, Name of Alternate Coding System.		10	ST	RE	[0..1]
	X	31.9	Original Text	Condition Predicate: Required if OBR 31.1, Identifier, and OBR 31.4, Alternate Identifier, are both empty.		199	ST	C(R/X)	[0..1]
	X	32	Principal Result Interpreter				NDL	RE	[0..1]
	X	32.1.1	ID Number			15	ST	R	[1..1]
	X	32.1.2	Family Name			50	ST	RE	[0..1]
	X	32.1.3	Given Name			30	ST	RE	[0..1]
	X	32.1.4	Second and Further Given Names or Initials Thereof			30	ST	RE	[0..1]
	X	32.1.5	Suffix (e.g., JR or III)			20	ST	RE	[0..1]
	X	32.1.6	Prefix (e.g., DR)			20	ST	RE	[0..1]
	X	32.1.7	Degree (e.g., MD)			5	IS	RE	[0..1]
	X	32.1.9	Assigning Authority – Namespace ID			20	IS	RE	[0..1]
	X	32.1.10	Assigning Authority - Universal ID	Conditional Predicate: Required if OBR 32.1.1, IID Number, is populated.		199	ST	C(R/X)	[0..1]
	X	32.1.11	Assigning Authority - Universal ID Type	Conditional Predicate: Required if a value is present in OBR 32.1.10, Assigning Authority – Universal ID.		6	ID	C(R/X)	[0..1]

## 2.10 OBX: Observation/Result (for the Observation Request Section) Segment Definition (OML)

This OBX segment is applicable only for the OML message type for the Observation Request Segment with regard to the OBR for the order request. This OBX is the fifth segment for an OML message type.

### OML Example:

```
OBX|1|CWE|625-4^BACTERIA IDENTIFIED IN STOOL BY CULTURE^2.16.840.1.113883.6.1^008144^RAW STOOL^L||372342007^SALMONELLA SPECIES^2.16.840.1.113883.6.96^1234^SALMONELLA FOUND^L|||||P<cr>
```

Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X		1	Set ID – OBX	Sequence number of the OBX in relation to the OBR Observation segment to which it refers. The sequence number should increment by 1 for each OBX in the group.		4	SI	R	[1..1]
X		2	Value Type	Literal Value: “CWE”	PHVS_ValueType_H L72x	2	ID	R	[1..1]
X		3	Observation Identifier	Unique identifier for the type of observation.		250	CE	R	[1..1]
X		3.1	Identifier	The LOINC code associated with the observation.	PHVS_LabTestName _CDC	20	ST	O	[0..1]
X		3.2	Text	The LOINC code text description.		199	ST	C	[0..1]
X		3.3	Name of Coding System	Literal Value: “2.16.840.1.113883.6.1”		199	ID	C	[0..1]
X		3.4	Alternate Identifier			20	ST	O	[0..1]
X		3.5	Alternate Text	It is recommended to send the text if OBX 3.4, Alternate Identifier, is populated.		199	ST	O	[0..1]

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Table 2.10		OBX: Observation/Result (for the Observation Request Section) Segment Definition (OML)							
Msg Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O M L
X	3.6	Name of Alternate Coding System			199	ID	C	[0..1]	
X	5	Observation Value			999 99	VAR	R	[1..1]	
<b>CWE Data Type – Variable data based on OBX.2 Value Type</b>									
X	5	Observation Value	Data type to be used where it is important to communicate the coding system version with the coded result being reported.		250	CWE	R	[1..1]	
X	5.1	Identifier		PH_SNOMED-CT	20	ST	O	[0..1]	
X	5.2	Text			199	ST	O	[0..1]	
X	5.3	Name of Coding System	Literal Value: "2.16.840.1.113883.6.96"		199	ID	C	[0..1]	
X	5.4	Alternate Identifier			20	ST	O	[0..1]	
X	5.5	Alternate Text	It is recommended to send the text if OBX 5.4, Alternate Identifier, is populated.		199	ST	O	[0..1]	
X	5.6	Name of Alternate Coding System	Coding system OID, populated if the alternate identifier component is populated. Null flavors are not allowed.		199	ID	C	[0..1]	
X	5.7	Coding System Version ID			10	ST	O	[0..1]	
X	5.8	Alternate Coding System Version ID	The System Version ID of the coding system is identified in OBX 5.6, Name of Alternate Coding System.		10	ST	O	[0..1]	
X	5.9	Original Text	Required if the identifier and alternate identifier components are not populated.		199	ST	C	[0..1]	
X	11	Observation Result Status	Status of the observation result. Null flavors are not allowed.	PHVS_ObservationResultStatus_HL7_2x	1	ID	R	[1..1]	

## 2.11 SPM: Specimen Segment Definition

The Specimen Information Segment (SPM) describes the characteristics of a single sample. 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. The SPM segment is the sixth segment in an OML message type and the seventh segment in an ORU message type. The following table defines common elements for an OML and an ORU message type. Elements that relate to the specific message type of OML or ORU are flagged with an “X” in the Message Type column. The definition of some data elements will vary between the OML and ORU message types (i.e., the literal value, usage or cardinality may be different). When this occurs the Description column will contain an explanation of this difference.

### OML Example

```
SPM|1|38294526&EHR&1.111.33.3...4&ISO||119339001^STOOL^2.16.840.1.113883.6.96|||372237002^RECTUM^2.16.840.1.113883.12.163||||STOOL CULTURE| ||20110706_1215^20110706_1220<cr>
```

### ORU Example

```
SPM|1|^12345678&PERFORMING ORGANIZATION NAME&1. 111.122311.222.44.2.3.3&ISO ||119339001^STOOL^2.16.840.1.113883.6.96|||372237002^RECTUM^2.16.840.1.113883.12.163||||STOOL CULTURE |||201107061215|201107061220<cr>
```

Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	1	Set ID – SPM	Numbers the repetitions of the segment. Only one specimen per message is supported. Literal Value: ‘1’, if populated.		1	SI	OML: R ORU: R	[1..1]
X	X	2	Specimen ID	Unique identifier for the specimen as referenced by the Placer application, the Filler application, or both.		80	EIP	R	[1..1]

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Table 2.11			SPM: Specimen Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	2.1	Placer-Assigned Identifier	Condition Predicate: Required if SPM 2.2 , Filler-Assigned Identifier, is not populated. Note: Should be the same data as OBR 29.1, Placer-Assigned Identifier, if populated.		424	EI	C(R/X)	[0..1]
X	X	2.1.1	Entity Identifier			199	ST	R	[1..1]
X	X	2.1.2	Namespace ID	Local code for the assigning authority. Null flavors are not allowed.		20	IS	RE	[0..1]
X	X	2.1.3	Universal ID	Must contain an assigning authority OID for the application/organization responsible for creating the specimen ID. The ID is expected to be unique within this assigning authority.		199	ST	R	[1..1]
X	X	2.1.4	Universal ID Type	Must contain the literal value, 'ISO'. Null flavors are not allowed.		3	ID	R	[1..1]
	X	2.2	Filler-Assigned Identifier	Filler-assigned specimen ID, required if there is no placer-assigned ID.		424	EI	R	[1..1]
	X	2.2.1	Entity Identifier			199	ST	R	[1..1]
	X	2.2.2	Namespace ID	Local code for assigning authority. Null flavors are not allowed.		20	IS	RE	[0..1]
	X	2.2.3	Universal ID	Must contain an assigning authority OID for the application/organization responsible for creating the specimen ID. The ID is expected to be unique within this assigning authority.		199	ST	R	[1..1]
	X	2.2.4	Universal ID Type	Literal Value: "ISO"		3	ID	R	[1..1]
X	X	4	Specimen Type	Description of the precise nature of the entity that will be the source material for the observation.		250	CWE	R	[1..1]

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Table 2.11			SPM: Specimen Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	4.1	Identifier	<i>Note: For the OML message type, reference the literal values to be used listed in Appendix B, PHVS_Specimen_CDC table.</i>	<a href="#">PHVS_Specimen_CDC</a>	20	ST	R	[1..1]
X	X	4.2	Text	Strongly recommend to send the standard text description for the SPM 4.1, Identifier.		199	ST	RE	[0..1]
X	X	4.3	Name of Coding System	Literal Value: SCT		199	ID	R	[1..1]
	X	4.4	Alternate Identifier			20	ST	RE	[0..1]
	X	4.5	Alternate Text	Condition Predicate: It is strongly recommended to send the text if SPM 4.4, Alternate Identifier, is populated. If SPM 4.4 is not populated, then this component must be empty.		199	ST	C(RE/X)	[0..1]
	X	4.6	Name of Alternate Coding System	Condition Predicate: Required if SPM 4.4, Alternate Identifier, is populated. If SPM 4.4 is not populated, then this component must be empty.		12	ID	C(R/X)	[0..1]
	X	4.7	Coding System Version ID	Snomed Version ID		10	ST	RE	[0..1]
	X	4.8	Alternate Coding System Version ID	It is strongly recommended to send the System Version ID of the coding system is identified in SPM 4.6, Name of Alternate Coding System.		10	ST	RE	[0..1]
	X	4.9	Original Text	Condition Predicate: Required if SPM 4.1, Identifier, and SPM 4.4, Alternate Identifier, is not populated. IF all you have is free text description of the Specimen enter it here.		199	ST	C(R/RE)	[0..1]
X	X	8	Specimen Source Site	Source from which the specimen was		1063	CWE	RE	[0..1]

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Table 2.11			SPM: Specimen Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				obtained. For environmental samples, this may describe the location of the source of the specimen. For biological samples it may represent the anatomical site from which the specimen was collected.					
X	X	8.1	Identifier	Note: For the OML message type, reference the literal values to be used listed in Appendix B, PHVS_BodySite_HL7_2x	OML: Literal value list located in Appendix B from: PHVS_BodySite_HL7_2x  ORU: <a href="#">PHVS_BodySite_HL7_2x</a>	20	ST	RE	[0..1]
X	X	8.2	Text	Specimen type description.  Conditional Predicate: Strongly recommended to send the standard description text when SPM 8.1, Identifier, is populated.		199	ST	C(RE/X)	[0..1]
X	X	8.3	Name of Coding System	Conditional Predicate: Expected value: "SCT" for SNOMED. Do not populate if SPM 8.1 is NOT populated.		199	ID	C(R/X)	[0..1]
	X	8.4	Alternate Identifier			20	ST	RE	[0..1]
	X	8.5	Alternate Text	Condition Predicate: It is strongly recommended to send the text if SPM 8.4, Alternate Identifier, is populated. If SPM 8.4 is not populated, then this component must be empty.		199	ST	C(RE/X)	[0..1]

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Table 2.11			SPM: Specimen Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	R U								
	X	8.6	Name of Alternate Coding System	Condition Predicate: Required if SPM 8.4, Alternate Identifier, is populated. If SPM 8.4 is not populated, then this component must be empty.		12	ID	C(R/X)	[0..1]
	X	8.7	Coding System Version ID			10	ST	RE	[0..1]
	X	8.8	Alternate Coding System Version ID	It is strongly recommended to send the System Version ID if a coding system is identified in SPM 8.6, Name of Alternate Coding System.		10	ST	RE	[0..1]
	X	8.9	Original Text	Condition Predicate: Required if SPM 8.1, Identifier, and SPM 8.4, Alternate Identifier, is not populated.		199	ST	C(R/RE)	[0..1]
	X	12	Specimen Collection Amount		PHVS_UnitsOfMeasure_CDC		CQ	RE	[0..1]
	X	12.1	Quantity			16	NM	R	[1..1]
	X	12.2	Units		PHVS_UnitsOfMeasure_CDC		CWE	RE	[0..1]
	X	12.2.1	Identifier			20	ST	RE	[0..1]
	X	12.2.2	Text	Condition Predicate: Strongly recommend to send the standard text if SPM 12.2.1, Identifier, is populated.		199	ST	C(RE/X)	[0..1]
	X	12.2.3	Name of Coding System	Condition Predicate: If SPM 12.2.1, Identifier, is populated, the Name of Coding System is required.	HL70396	20	ID	C(R/X)	[0..1]
	X	12.2.4	Alternate Identifier			20	ST	RE	[0..1]
	X	12.2.5	Alternate Text	Condition Predicate: It is strongly recommended to send the text if SPM 12.2.4, Alternate Identifier, is populated. If SPM 12.2.4 is not populated, then this		199	ST	C(RE/X)	[0..1]

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Table 2.11			SPM: Specimen Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				component must be empty.					
	X	12.2.6	Name of Alternate Coding System	Condition Predicate: Required if SPM 12.2.4, Alternate Identifier, is populated. If SPM 12.2.4 is not populated, then this component must be empty.	HL70396	12	ID	C(R/X)	[0..1]
	X	12.2.7	Coding System Version ID			10	ST	RE	[0..1]
	X	12.2.8	Alternate Coding System Version ID	It is strongly recommended to send the System Version ID if a coding system is identified in SPM 12.2.6, Name of Alternate Coding System.		10	ST	RE	[0..1]
	X	12.2.9	Original Text	Condition Predicate: Required if SPM 12.2.1, Identifier, and SPM 12.2.4, Alternate Identifier, is not populated.		199	ST	C(R/RE)	[0..1]
X	X	14	Specimen Description	Additional information specifically about the specimen. This is a text field.		250	ST	O	[0..*]
X	X	17	Specimen Collection Date/Time	Time range over which the sample was collected, as opposed to the time the sample collection device was recovered.		26	DR	RE	[0..1]
X	X	17.1	Range Start Date/Time	Note: <i>If populated, date should be same as date found in OBR 7.</i> YYYYMMDDHHMMI[SS.S[S[S[S]]]] [+/-ZZZZ] where at least the first eight digits are used to specify to a precision of “day”.		24	TS	R	[1..1]
X	X	17.2	Range End Date/Time	YYYYMMDDHHMMI[SS.S[S[S[S]]]] [+/-ZZZZ] where at least the first eight digits are used to specify to a precision of “day”.		24	TS	RE	[1..1]

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Table 2.11			SPM: Specimen Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
	X	18	Specimen Received Date/Time	Time the specimen is received at the diagnostic service. The actual time that is recorded is based on how specimen receipt is managed, and may correspond to the time the sample is logged in. YYYYMMDDHHMM[SS[.S[S[S[S]]]]] [+/-ZZZZ] where at least the first eight digits are used to specify to a precision of “day”.		26	TS	R	[1..1]
	X	21	Specimen Reject Reason	Any reason(s) why the specimen was not suitable for testing.	PHVS_SpecimenRejectReason_HL7_2x	250	CWE	O	[0..*]
	X	21.1	Identifier			20	ST	RE	[0..1]
	X	21.2	Text	Condition Predicate: Strongly recommend to send the standard text if SPM 21.1, Identifier, is populated.		199	ST	C(RE/X)	[0..1]
	X	21.3	Name of Coding System	Condition Predicate: If SPM 21.1, Identifier, is populated, the Name of Coding System is required.	HL70396	20	ID	C(R/X)	[0..1]
	X	21.4	Alternate Identifier			20	ST	RE	[0..1]
	X	21.5	Alternate Text	Condition Predicate: It is strongly recommended to send the text if SPM 21.4, Alternate Identifier, is populated. If SPM 21.4 is not populated, then this component must be empty.		199	ST	C(RE/X)	[0..1]
	X	21.6	Name of Alternate Coding System	Condition Predicate: Required if SPM 21.4, Alternate Identifier, is populated. If SPM 21.4 is not populated, then this component must be empty.	HL70396	12	ID	C(R/X)	[0..1]
	X	21.7	Coding System Version ID			10	ST	RE	[0..1]

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Table 2.11			SPM: Specimen Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
	X	21.8	Alternate Coding System Version ID			10	ST	RE	[0..1]
	X	21.9	Original Text	Condition Predicate: Required if SPM 21.1, Identifier, and SPM 21.4, Alternate Identifier, is not populated.		199	ST	C(R/RE)	[0..1]
	X	22	Specimen Quality	Possible values are E - Excellent, F- Fair, G- Good, P- Poor	HL70491	CWE	RE	RE	[0..1]
	X	22.1	Identifier			20	ST	RE	[0..1]
	X	22.2	Text	Condition Predicate: Strongly recommend to send the standard text if SPM 22.1, Identifier, is populated.		199	ST	C(RE/X)	[0..1]
	X	22.3	Name of Coding System	Condition Predicate: If SPM 22.1, Identifier, is populated, the Name of Coding System is required.	HL70396	20	ID	C(R/X)	[0..1]
	X	22.4	Alternate Identifier			20	ST	RE	[0..1]
	X	22.5	Alternate Text	Condition Predicate: It is strongly recommended to send the text if SPM 22.4, Alternate Identifier, is populated. If SPM 22.4 is not populated, then this component must be empty.		199	ST	C(RE/X)	[0..1]
	X	22.6	Name of Alternate Coding System	Condition Predicate: Required if SPM 22.4, Alternate Identifier, is populated. If SPM 22.4 is not populated, then this component must be empty.	HL70396	12	ID	C(R/X)	[0..1]
	X	22.7	Coding System Version ID			10	ST	RE	[0..1]
	X	22.8	Alternate Coding System Version ID			10	ST	RE	[0..1]
	X	22.9	Original Text	Condition Predicate: Required if SPM 22.1, Identifier, and SPM 22.4, Alternate Identifier, is not populated.		199	ST	C(R/RE)	[0..1]

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Table 2.11			SPM: Specimen Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
	X	24	Specimen Condition		HL70493 PHVS_SpecimenCondi on_CDC		CWE	RE	[0..1]
	X	24.1	Identifier			20	ST	RE	[0..1]
	X	24.2	Text	Condition Predicate: Strongly recommend to send the standard text if SPM 24.1, Identifier, is populated.		199	ST	C(RE/X)	[0..1]
	X	24.3	Name of Coding System	Condition Predicate: If SPM 24.1, Identifier, is populated, the Name of Coding System is required.	HL70396	20	ID	C(R/X)	[0..1]
	X	24.4	Alternate Identifier			20	ST	RE	[0..1]
	X	24.5	Alternate Text	Condition Predicate: It is strongly recommended to send the text if SPM 24.4, Alternate Identifier, is populated. If SPM 24.4 is not populated, then this component must be empty.		199	ST	C(RE/X)	[0..1]
	X	24.6	Name of Alternate Coding System	Condition Predicate: Required if SPM 24.4, Alternate Identifier, is populated. If SPM 24.4 is not populated, then this component must be empty.	HL70396	12	ID	C(R/X)	[0..1]
	X	24.7	Coding System Version ID			10	ST	RE	[0..1]
	X	24.8	Alternate Coding System Version ID			10	ST	RE	[0..1]
	X	24.9	Original Text	Condition Predicate: Required if SPM 24.1, Identifier, and SPM 24.4, Alternate Identifier, is not populated.		199	ST	C(R/RE)	[0..1]

## 2.12 OBX: Observation/Result Segment Definition (ORU)

The Observation/Result Segment (OBX) contains information regarding a single observation. This includes: identification of the specific type of observation, the result for the observation, when the observation was made, etc. Its principal mission is to carry information about observations in report messages. This OBX segment is applicable only for the ORU message type and is the fifth segment in an ORU message type.

### ORU Example:

```
OBX|1|CWE|17563-8^Salmonella XXX Cult^2.16.840.1.113883.6.1^008144^RAW STOOL^L||372342007^SALMONELLA SPECIES^2.16.840.1.113883.6.96^1234^SALMONELLA FOUND^L||||F|||201107061215|||278^AGAR SCREEN^2.16.840.1.113883.5.84||||PERFORMING ORGANIZATION^L^^^CLIA&1.111.122311.222.44.2.3&ISO^XX^^^26D0446044&CLIA|1241 STADIUM BLVD^^JEFFERSON CITY^MO^65109^USA^O<cr>
```

Table 2.12		OBX: Observation/Result Segment Definition (ORU)								
Msg Type	O M L	O R U	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
	X	2	Value Type	Identifies the structure of data in OBX 5, Observation Value.  Condition Predicate: If OBX 5, is populated, then OBX 2, Value Type, is required. Must be empty if OBX 5 is not populated.	PHVS_ValueType_HL7_2x	3	ID	C(R/X)	[0..1]	
	X	3	Observation Identifier	Unique identifier for the type of observation to be identified in OBX.5.	<a href="#">Reportable Condition Mapping Table</a>	841	CWE	R	[1..1]	
	X	3.1	Identifier	The LOINC code associated with the observation.	PHVS_LabTestName_CDC	20	ST	RE	[0..1]	

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Table 2.12			OBX: Observation/Result Segment Definition (ORU)						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				<p><i>Note: The RCMT code list should be used for reporting tests for notifiable conditions to public health. This list is available on <a href="http://www.cdc.gov">http://www.cdc.gov</a></i></p> <p><i>For a complete list of Missouri's reportable conditions see: <a href="http://health.mo.gov/living/healthcondiseases/communicable/communicabledisease/pdf/reportablediseaseelist1.pdf">http://health.mo.gov/living/healthcondiseases/communicable/communicabledisease/pdf/reportablediseaseelist1.pdf</a></i></p>					
	X	3.2	Text	Condition Predicate: Required to send the LOINC code text description of the LOINC identified in OBX 3.1, Identifier.		199	ST	C(R/X)	[0..1]
	X	3.3	Name of Coding System	Condition Predicate: If OBX 3.1, Identifier, is populated the literal value: "LN" is required.		199	ID	C(R/X)	[0..1]
	X	3.4	Alternate Identifier			20	ST	RE	[0..1]
	X	3.5	Alternate Text	Condition Predicate: It is strongly recommended to send the text if OBX 3.4, Alternate Identifier, is populated. If OBX 3.4 is not populated, then this component must be empty.		199	ST	C(RE/X)	[0..1]
	X	3.6	Name of Alternate Coding System	Conditional Predicate: Required if OBX 3.4, Alternate Identifier, is populated. For example, if a local test code is populated in OBX 3.4, "L" must be populated in OBX 3.6.		199	ID	C(R/X)	[0..1]
	X	3.7	Coding System Version ID	Recommended if a LOINC code is identified in OBX 3.1, Identifier.		10	ST	RE	[0..1]
	X	3.8	Alternate Coding System Version ID	If a coding system is identified in OBX 3.6. If no local coding system version is		10	ST	RE	[0..1]

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Table 2.12			OBX: Observation/Result Segment Definition (ORU)						
Msg Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O
			known, literal value "v unknown" is expected.						
	X	3.9	Original Text	Condition Predicate: Required if OBX 3.1, Identifier, and OBX 3.4, Alternate Identifier, is not populated.		199	ST	C(R/RE)	[0..1]
	X	4	Observation Sub-ID	Required if there is more than one OBX with the same OBX-3 (Observation Identifier) associated with the same OBR. Normally, this field is populated with a number, but text values may also be used.		20	ST	C(R/RE)	[0..1]
<b>CWE Data Type – Variable based on OBX.2 Value Type</b>									
	X	5	Observation Value	Data type to be used where it is important to communicate the coding system version with the coded result being reported.		1063	CWE	R	[1..1]
	X	5.1	Identifier		PH_SNOMED-CT	20	ST	R	[1..1]
	X	5.2	Text			199	ST	RE	[0..1]
	X	5.3	Name of Coding System	Literal Value: "2.16.840.1.113883.6.96"		199	ID	R	[1..1]
	X	5.4	Alternate Identifier			20	ST	RE	[0..1]
	X	5.5	Alternate Text	It is strongly recommended to send the text if OBX 5.4, Alternate Identifier, is populated.		199	ST	RE	[0..1]
	X	5.6	Name of Alternate Coding System	Condition Predicate: Required if OBX 5.4, Alternate Identifier, is populated. If OBX 5.4 is not populated, then this component must be empty. Null flavors are not allowed.		199	ID	C(R/X)	[0..1]
	X	5.7	Coding System Version			10	ST	RE	[0..1]

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Table 2.12			OBX: Observation/Result Segment Definition (ORU)							
Msg Type	O M L	O R U	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
				ID						
		X	5.8	Alternate Coding System Version ID			10	ST	RE	[0..1]
		X	5.9	Original Text	Strongly recommend if the Identifier in component 5.1 and Alternate Identifier in component 5.4 are not populated.		199	ST	RE	[0..1]
<b>SN Data Type – Variable data based on OBX.2 Value Type</b>										
		X	5	Observation Value	Field using the SN data type to carry a structured numeric result value. Structured numeric include intervals ( $^0\text{--}^1$ ), ratios ( $^1\text{--}^2$ or $^1\text{--}^2$ ), inequalities ( $<^10$ ), or categorical results ( $2^+$ ). The units for the structured numeric value should be reported in OBX-6.		36	SN	R	[1..1]
		X	5.1	Comparator	Must be one of ">" or "<" or ">=" or "<=" or "=" or "<>". This component defaults to "=" if empty.  Note: For the ORU message type sent by SPHL, if the data type is "SN" and 5.1 Comparator is null assume it is an "equal to" value.		2	ST	RE	[0..1]
		X	5.2	Num1			15	NM	RE	[0..1]
		X	5.3	Separator/Suffix	Must be one of "-" or "+" or "/" or "." or ":",		1	ST	RE	[0..1]
		X	5.4	Num2			15	NM	RE	[0..1]
		X	6	Units	Units of measure, populated if the data type identified in OBX.2 (and carried in OBX.5) is SN.		250	CWE	C(R/RE)	[0..1]

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Table 2.12		OBX: Observation/Result Segment Definition (ORU)							
Msg Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O
M									
L									
	X	6.1	Identifier		PHVS_UnitsOfMeasure_CDC	20	ST	RE	[0..1]
	X	6.2	Text	Condition Predicate: Strongly recommend to send the standard text if OBX 6.1, Identifier, is populated.		199	ST	C(RE/X)	[0..1]
	X	6.3	Name of Coding System	Condition Rule: The literal value, "UCUM", is required if OBX 6.1, Identifier, is populated.		199	ID	C(R/X)	[0..1]
	X	6.4	Alternate Identifier			20	ST	RE	[0..1]
	X	6.5	Alternate Text	Condition Predicate: It is strongly recommended to send the text if OBX 6.4, Alternate Identifier, is populated. If OBX 6.4 is not populated, then this component must be empty.		199	ST	C(RE/X)	[0..1]
	X	6.6	Name of Alternate Coding System	Condition Predicate: This will be L (for Local) - can be hardcoded if always populate first triplet with LOINC and second triplet with local codes. If you put a local unit code in OBX6.4, you must put L in OBX6.6. If you leave OBX6.4 empty, you should also leave OBX6.6 empty	HL70396	199	ID	C(R/X)	[0..1]
	X	6.7	Coding System Version ID	Recommended if a UCUM is identified in component 3. This can be Hardcoded Current version is 1.8.2		10	ST	RE	[0..1]
	X	6.8	Alternate Coding System Version ID	Lab Sender Profile Condition: Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, suggest using the string value "v unknown"		10	ST	RE	[0..1]

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Table 2.12			OBX: Observation/Result Segment Definition (ORU)						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
	X	6.9	Original Text	Condition Predicate: If no identifier and alternate identifier are present, then this component is Required. If all you have is text put it here		199	ST	C(R/RE)	[0..1]
	X	7	References Range	Interpretation range that applies to the value reported in OBX-5. It should provide enough information to understand the abnormal flags reported in OBX-8. For this implementation this element is a common core data element for quantitative ( SN or NM) results - Need to send it if you have it.		60	ST	RE	[0..1]
	X	8	Abnormal Flags	Indicator of the normalcy of the result found in OBX-5. For this implementation the use of this field is encouraged to provide both the quantitative ( numeric ) value in OBX.5 and the interpretation here.	PHVS_AbnormalFlag_HL7_2x	5	CWE	C(RE/X)	[0..*]
	X	8.1	Identifier	Abnormal Flags Identifier	HL70078 – Abnormal Flags	20	ST	RE	[0..1]
	X	8.2	Text	Standardized description associated with code in OBX 8.1, Identifier.		199	ST	C(RE/X)	[0..1]
	X	8.3	Name of Coding System	Condition Rule: If an identifier is provided in OBX 8.1, the literal value, “HL70078”, is required in OBX 6.3.		20	ID	C(R/X)	[0..1]
	X	8.4	Alternate Identifier			20	ST	RE	[0..1]
	X	8.6	Name of Alternate Coding System	Condition Predicate: Required if OBX 8.4, Alternate Identifier, is populated. If OBX 8.4 is not populated, then this component must be empty.	HL70396	199	ST	C(RE/X)	[0..1]
	X	8.7	Coding System	Condition Predicate: Literal value		12	ID	C(R/X)	[0..1]

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Table 2.12			OBX: Observation/Result Segment Definition (ORU)						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
			Version ID	“HL70078” is required if OBX 8.3, Name of Coding System, is populated.					
	X	8.8	Alternate Coding System Version ID			10	ST	RE	[0..1]
	X	8.9	Original Text			10	ST	RE	[0..1]
	X	8.10	Second Alternate Identifier			199	ST	C(R/RE)	[0..1]
	X	9	Probability	Field containing the probability of a result being true for results with categorical values. It should be between 0 and 1 (inclusive).		5	NM	O	[0..1]
	X	10	Nature of Abnormal Test	Identifier for the basis of test interpretation. As many of the codes as apply may be included, separated by repeat delimiters. For example, normal values based on age, sex, and race would be codes as A~S~R. (e.g., age- or sex based interpretation).	PHVS_NatureOfAbnormalTesting_HL7_2x	4	ID	O	[0..*]
	X	11	Observation Result Status	Status of the observation result. Null flavors are not allowed.	PHVS_ObservationResultStatus_HL7_2x	1	ID	R	[1..1]
	X	14	Date/Time of the Observation	Date and time of the specimen collection. <b>Note:</b> Must be the same as OBR 7 and SPM 17.		26	DTM	C(R/RE)	[0..1]
	X	17	Observation Method	Identifier of the method used to find the result. The field repeats to allow for identification of multiple methods.		841	CWE	RE	[0..*]
	X	17.1	Identifier	Identifier that should be the PHIN OID for the laboratory originating the result.	PHVS_LabTestMethods_CDC	199	ST	RE	[0..1]
	X	17.2	Text	Condition Predicate: Standardized description associated with code in		199	ST	C(R/X)	[0..1]

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Table 2.12			OBX: Observation/Result Segment Definition (ORU)						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				OBX 17.1, Identifier is required.					
	X	17.3	Name of Coding System	Condition Predicate: If an identifier is provided in OBX 17.1, this component is required.	HL70396	199	ID	C(R/X)	[0..1]
	X	17.4	Alternate Identifier			20	ST	RE	[0..1]
	X	17.5	Alternate Text	Condition Predicate: It is strongly recommended to send the text if OBX 17.4, Alternate Identifier, is populated. If OBX 17.4 is not populated, then this component must be empty.		199	ST	C(RE/X)	[0..1]
	X	17.6	Name of Alternate Coding System	Condition Predicate: Required if OBX 17.4, Alternate Identifier, is populated. If OBX 17.4 is not populated, then this component must be empty.	HL70396	12	ID	C(R/X)	[0..1]
	X	17.7	Coding System Version ID			10	ST	RE	[0..1]
	X	17.8	Alternate Coding System Version ID			10	ST	RE	[0..1]
	X	17.9	Original Text	Condition Predicate: Required if OBX 17.1, Identifier, and OBX 17.4, Alternate Identifier, is not populated.		199	ST	C(R/RE)	[0..1]
	X	19	Date/Time of the Analysis	Time at which the testing was performed. Note: This is NOT the time of collection.		26	DTM	RE	[0..1]
	X	23	Performing Organization Name	The organization or service responsible for performing the service. When this field is null, the receiving system assumes that the observations were produced by the sending organization.		258	XON	R	[1..1]

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Table 2.12			OBX: Observation/Result Segment Definition (ORU)						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				For laboratories, this field specifies the laboratory that produced the test result described in this OBX segment. It should be reported explicitly when the test results are produced at outside laboratories, for example. This information supports CLIA regulations in the US. For producing laboratories which are CLIA-certified, the CLIA identifier should be used for the organization identifier (component 23.10).					
	X	23.1	Organization Name	The performing Lab name.		50	ST	R	[1..1]
	X	23.2	Organization Name Type Code	Example L Legal Name, A Alias Name, D Display Name	HL70204	20	IS	RE	[0..1]
	X	23.6	Assigning Authority	Organization that assigned LAB ID			HD	C(R/X)	[0..1]
	X	23.6.1	Namespace ID	Example: CLIA for CLIA certified labs		20	IS	RE	[0..1]
	X	23.6.2	Universal ID			199	ST	R	[1..1]
	X	23.6.3	Universal ID Type	Example: ISO	HL70301	6	ID	R	[1..1]
	X	23.7	Identifier Type Code	Condition Predicate: Required if OBX 23.10, Organization Identifier, is populated.	HL70203	5	ID	C(R/X)	[0..1]
	X	23.10	Organization Identifier	This value should be the Performing Organization's CLIA number or assigned OID. DHSS preference is the CLIA if the Performing Organization is certified.		50	ST	R	[1..1]
	X	24	Performing Organization Address	The address of the organization or service responsible for performing the			XAD	R	[1..1]

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Table 2.12			OBX: Observation/Result Segment Definition (ORU)						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				service. For laboratories, this field specifies the address of the laboratory that produced the test result described in this OBX segment. It should be reported explicitly when the test results are produced at outside laboratories, for example. This information supports CLIA regulations in the US.					
	X	24.1	Street Address			120	SAD	R	[0..1]
	X	24.2	Other Designation	Example: Suite 555		120	ST	RE	[0..1]
	X	24.3	City			50	ST	R	[0..1]
	X	24.4	State or Province	Use the FIPS 5-2 two character codes here (e.g., MO for Missouri)	<a href="#">PHVS State FIPS 5-2</a>	5	ST	R	[0..1]
	X	24.5	Zip or Postal Code	Minimum of five digits.	<a href="#">USPS</a>	12	ST	R	[0..1]
	X	24.6	Country		<a href="#">PHVS Country ISO 3166-1</a>	3	ID	RE	[0..1]
	X	24.7	Address Type	Typical values for a facility address are O (Office), B (Business), M (Mailing), L (Legal Address)	<a href="#">PHVS AddressType CDC</a>	4	ST	RE	[0..1]
	X	24.9	County/Parish Code	For this implementation, use FIPS 6-4 codes.	<a href="#">PHVS County FIPS 6-4</a>	20	IS	RE	[0..1]
	X	25	Performing Organization Medical Director	Your Lab Director			XCN	RE	[0..1]
	X	25.1	ID Number	Lab Director ID		15	ST	RE	[0..1]
	X	25.2	Family Name	Lab Director's Last Name			FN	R	[1..1]
	X	25.3	Given Name	Lab Director's First Name		30	ST	RE	[0..1]
	X	25.4	Second and Further Given Names or	Lab Director's Middle Initial		30	ST	RE	[0..1]

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Table 2.12			OBX: Observation/Result Segment Definition (ORU)						
Msg Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O M L
		Initials Thereof							
X	25.5	Suffix (e.g., JR or III)	Lab Director's Suffix		20	ST	RE	[0..1]	
X	25.6	Prefix (e.g., DR)	Lab Director's Prefix		20	ST	RE	[0..1]	
X	25.9	Assigning Authority	Conditional Predicate: Required if OBX 25.1, ID Number is populated. The assigning authority for OBX 25.1. For example, the system, application, organization, etc..			HD	C(R/X)	[0..1]	
X	25.9.1	Namespace ID	NPI		20	IS	RE	[0..1]	
X	25.9.2	Universal ID	OID of the assigning authority.		199	ST	R	[1..1]	
X	25.9.3	Universal ID Type	ISO	HL70301	6	ID	R	[1..1]	
X	25.10	Name Type Code		<a href="#">PHVS NameType_HL7_2X</a>	5	ID	RE	[0..1]	
X	25.13	Identifier Type Code	For example: NPI National Provider Identifier	HL70203	5	ID	C(R/X)	[0..1]	
X	25.14	Assigning Facility	The Assigning Facility identifies the place or location that the ID Number was assigned for use.			HD	RE	[0..1]	
X	25.14.1	Namespace ID			20	IS	RE	[0..1]	
X	25.14.2	Universal ID			199	ST	RE	[0..1]	
X	25.14.3	Universal ID Type			6	ID	RE	[0..1]	
X	25.21	Professional Suffix		<a href="#">PHVS DegreeLicenseCertificate_HL7_2x</a>	199	ST	RE	[0..1]	

### 2.13 NTE: Notes and Comments Segment Definition

The Notes and Comments Segment (NTE) is used to convey additional comments regarding the associated segment. For electronic laboratory reporting, the NTE segment is only allowed after an OBX segment. The NTE is the seventh segment for an OML message type and the sixth segment for an ORU message type. The following table defines common elements for an OML and an ORU message type. Elements that relate to the specific message type of OML or ORU are flagged with an “X” in the Message Type column. The definition of some data elements will vary between the OML and ORU message types (i.e., the literal value, usage or cardinality may be different). When this occurs the Description column will contain an explanation of this difference.

**OML and ORU Example:**

NTE|1||SALMONELLA IDENTIFIED<cr>

Table 2.13		NTE: Notes and Comments Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	1	Set ID - NTE	Field used when multiple NTE segments are included in a message.		4	SI	R	[1..1]
X		2	Source of Comment	Field used when source of comment must be identified. It is an optional field.	PHVS_SourceOfComment_HL7_2x	8	ID	RE	[0..1]
X	X	3	Comment	Comment contained in the segment.		64K	FT	OML: O	OML: [0..*]
								ORU: R	ORU: [1..*]
X	X	4	Comment Type	Identification of the type of comment text being sent in the specific comment record.	PHVS_CommentType_CDC	OML: 60 ORU: 841	CWE	RE	[0..1]
	X	4.1	Identifier	Identifier that should be the PHIN OID for the laboratory originating the result.	HL70364	20	ST	RE	[0..1]
	X	4.2	Text	Standardized description associated		199	ST	C(RE/X)	[0..1]

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Table 2.13			NTE: Notes and Comments Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
				with code in NTE 4.1, Identifier.					
	X	4.3	Name of Coding System	Condition Rule: If an identifier is provided in NTE 4.11, the literal value, "HL70364", is required in NTE 4.3.	HL70396	20	ID	C(R/X)	[0..1]
	X	4.4	Alternate Identifier			20	ST	RE	[0..1]
	X	4.5	Alternate Text	Condition Predicate: It is strongly recommended to send the text if NTE 4.4, Alternate Identifier, is populated. If NTE 4.4 is not populated, then this component must be empty.		199	ST	C(RE/X)	[0..1]
	X	4.6	Name of Alternate Coding System		HL70396	12	ID	C(R/X)	[0..1]
	X	4.7	Coding System Version ID			10	ST	RE	[0..1]
	X	4.8	Alternate Coding System Version ID			10	ST	RE	[0..1]
	X	4.9	Original Text			199	ST	C(R/RE)	[0..1]

### 3 Sample Messages

Note: Samples will be refined based on further discussions about open items, (i.e., OIDS and State defined LOINC and SNOMED codes tables and values).

#### 3.1 OML^O21 Laboratory Order Request (Order Request from approved facility to SPHL)

---

```
MSH|^~\&|EHR^1.111.33.3...4^ISO|ORGANIZATION
NAME^111.122311.222.44^ISO|SPHLELR^2.16.840.1.114222.4.3.3..2.7.1^ISO|MODHSS^2.16.840.1.114222.4.3.2.2.1.163.1^ISO|20100707023
7||OML^O21^OML_O21|20111128070123463 |P|2.5.1|||||ELR-V2.5.1^PHIN^2.16.840.1.114222.4^ISO<cr>
PID|1||12345678^MA^ ORGANIZATION NAME^111.122311.222.44^ISO||DOE^JANE^S^L||19810401|F||2131-1^OTHER
RACE^2.16.840.1.113883.6.238|111 E MAPLE^B^INDEPENDENCE^MO^64050^P^095||^PRN^816^7566787|||||2135-2^HISPANIC OR
LATINO^2.16.840.1.113883.6.238<cr>
ORC|NW|1234^ EHR^1.111.33.3...4^ISO |||||1500000000^JONES^JOHN^J^JR^MD^NPI&|||||SAMPLE
HOSPITAL^1.1123.333.555.1^ISO|5830 NW BARRY RD^201^KANSAS CITY^MO^64154|^816^4692101|1515 W TRUMAN
ROAD^306^INDEPENDENCE^MO^64050<cr>
OBR|1|1234^EHR^1.111.33.3...4^ISO |625-4^BACTERIA IDENTIFIED IN STOOL BY CULTURE^2.16.840.1.113883.6.1^008144^RAW
STOOL^L||201107051215|||||1500000000^JONES^JOHN^J^JR^MD^NPI&|^816^5551212|||||558.9^OTHER AND UNSPECIFIED
NONINFECTIOUS GASTROENTERITIS AND COLITIS^2.16.840.1.113883.6.103~578.1^BLOOD IN STOOL^2.16.840.1.113883.6.103<cr>
OBX|1|CWE|625-4^BACTERIA IDENTIFIED IN STOOL BY CULTURE^2.16.840.1.113883.6.1^008144^RAW
STOOL^L||372342007^SALMONELLA SPECIES^2.16.840.1.113883.6.96^1234^SALMONELLA FOUND^L|||||P<cr>
SPM|1|38294526&EHR&1.111.33.3...4&ISO||119339001^STOOL^2.16.840.1.113883.6.96||372237002^RECTUM^2.16.840.1.113883.12.163|||||
STOOL CULTURE| ||20110706_1215^20110706_1220<cr>
NTE|1||SALMONELLA IDENTIFIED<cr>
```

---

### 3.2 ORU^R01 Unsolicited Laboratory Observation Message (Order Result from SPHL to Facility Placing Order)

---

```
MSH|^~\&| SPHLELR^2.16.840.1.114222.4.3.3..2.7.1^ISO| MODHSS^2.16.840.1.114222.4.3.2.2.1.163.1^ISO |
EHR^1.111.33.3...4^ISO|ORGANIZATION NAME^111.122311.222.44^ISO|201007070237||ORU^R01^ORU_R01|20111128070123463
|P|2.5.1|||||ELR-V2.5.1^PHIN^2.16.840.1.114222.4^ISO<cr>
PID|1||12345678^MA^ ORGANIZATION NAME^111.122311.222.44^ISO||DOE^JANE^S^ML||19810401|F||2131-1^OTHER
RACE^2.16.840.1.113883.6.238|111 E MAPLE^B^INDEPENDENCE^MO^64050^MP^095||^PRN^816^7566787|||||2135-2^HISPANIC OR
LATINO^2.16.840.1.113883.6.238<cr>
ORC|OE|1234^ EHR^1.111.33.3...4^ISO|12345678^PERFORMING ORGANIZATION NAME^1.
111.122311.222.44.2.3.3^ISO|||||1500000000^JONES^JOHN^J^JR^MD^NPI&|||||SAMPLE
HOSPITAL^1.1123.333.555.1^ISO|5830 NW BARRY RD^201^KANSAS CITY^MO^64154|^816^4692101|1515 W TRUMAN
ROAD^306^INDEPENDENCE^MO^64050<cr>
OBR|1|1234^EHR^1.111.33.3...4^ISO|12345678^PERFORMING ORGANIZATION NAME^1. 111.122311.222.44.2.3.3^ISO|625-4^BACTERIA
IDENTIFIED IN STOOL BY CULTURE^2.16.840.1.113883.6.1^008144^Stool
CULTURE^L|||201107061215|||||1500000000^JONES^JOHN^J^JR^MD^NPI&|^816^5551212|||201107062150||F||||558.9^OTHER
AND UNSPECIFIED NONINFECTIOUS GASTROENTERITIS AND COLITIS^2.16.840.1.113883.6.103~578.1^BLOOD IN
STOOL^2.16.840.1.113883.6.103<cr>
OBX|1|CWE|17563-8^Salmonella XXX Cult^2.16.840.1.113883.6.1^008144^RAW STOOL^L||372342007^SALMONELLA
SPECIES^2.16.840.1.113883.6.96^1234^SALMONELLA FOUND^L ||||F||||278 AGAR SCREEN^2.16.840.1.113883.5.84|||||PERFORMING
ORGANIZATION^26D0446044^CLIA|1241 STADIUM BLVD^JEFFERSON CITY^MO^65109^O<cr>
NTE|1||SALMONELLA IDENTIFIED<cr>
SPM|1|38294526&EHR&1.111.33.3...4&ISO^12345678&PERFORMING ORGANIZATION NAME&1. 111.122311.222.44.2.3.3&ISO
||119339001^STOOL^2.16.840.1.113883.6.96|||372237002^RECTUM^2.16.840.1.113883.12.163|||||STOOL CULTURE
||201107061215|201107061220|201107070800<cr>
```

---

### 3.3 ORU^R01 Unsolicited Laboratory Observation Message (Results from Approved Submitter Facility to DHSS Communicable Disease)

---

```
MSH|^~\&| SPHLELR^2.16.840.1.114222.4.3.3..2.7.1^ISO| MODHSS^2.16.840.1.114222.4.3.2.2.1.163.1^ISO |
EHR^1.111.33.3...4^ISO|ORGANIZATION NAME^111.122311.222.44^ISO|201007070237||ORU^R01^ORU_R01|20111128070123463
|P|2.5.1|||||ELR-V2.5.1^PHIN^2.16.840.1.114222.4^ISO<cr>
PID|1||12345678^MA^ ORGANIZATION NAME^111.122311.222.44^ISO||DOE^JANE^S^ML||19810401|F||2131-1^OTHER
RACE^2.16.840.1.113883.6.238|111 E MAPLE^B^INDEPENDENCE^MO^64050^MP^095||^PRN^816^7566787|||||2135-2^HISPANIC OR
LATINO^2.16.840.1.113883.6.238<cr>
ORC|OE|1234^ EHR^1.111.33.3...4^ISO|12345678^PERFORMING ORGANIZATION NAME^1.
111.122311.222.44.2.3.3^ISO|||||1500000000^JONES^JOHN^J^JR^MD^NPI&|||||SAMPLE
HOSPITAL^1.1123.333.555.1^ISO|5830 NW BARRY RD^201^KANSAS CITY^MO^64154|^816^4692101|1515 W TRUMAN
ROAD^306^INDEPENDENCE^MO^64050<cr>
OBR|1|1234^EHR^1.111.33.3...4^ISO|12345678^PERFORMING ORGANIZATION NAME^1. 111.122311.222.44.2.3.3^ISO|625-4^BACTERIA
IDENTIFIED IN STOOL BY CULTURE^2.16.840.1.113883.6.1^008144^Stool
CULTURE^L|||201107061215|||||1500000000^JONES^JOHN^J^JR^MD^NPI&|^816^5551212|||201107062150||F||||558.9^OTHER
AND UNSPECIFIED NONINFECTIOUS GASTROENTERITIS AND COLITIS^2.16.840.1.113883.6.103~578.1^BLOOD IN
STOOL^2.16.840.1.113883.6.103<cr>
OBX|1|CWE|17563-8^Salmonella XXX Cult^2.16.840.1.113883.6.1^008144^RAW STOOL^L||372342007^SALMONELLA
SPECIES^2.16.840.1.113883.6.96^1234^SALMONELLA FOUND^L ||||F||||278 AGAR SCREEN^2.16.840.1.113883.5.84||||PERFORMING
ORGANIZATION^26D0446044^CLIA|1241 STADIUM BLVD^JEFFERSON CITY^MO^65109^O<cr>
NTE|1||SALMONELLA IDENTIFIED<cr>
SPM|1|38294526&EHR&1.111.33.3...4&ISO^12345678&PERFORMING ORGANIZATION NAME&1. 111.122311.222.44.2.3.3&ISO
||119339001^STOOL^2.16.840.1.113883.6.96|||372237002^RECTUM^2.16.840.1.113883.12.163||||STOOL CULTURE
||201107061215|201107061220|201107070800<cr>
```

---

## Appendix A – Message Transmission

### A.1 Memorandum of Agreement

Each facility who seeks to establish an interface with MODHSS must be validated prior to processing HL7 messages. Reference the MODHSS website for information on how to receive the Electronic Laboratory Reporting Message Validation document for the steps required to achieve this validation.

### A.2 Transmission Methods

**Web Service Messages:** HTTPS can be used to connect to the SOAP Registry web service. The following is a sample SOAP request and response. The placeholders shown would be replaced with actual values.

```
POST /hl7services/HL7WS.asmx HTTP/1.1
Host: http://xxxxxxx.dhss.mo.gov/webservices/ELR/hl7services
Content-Type: text/xml; charset=utf-8
Content-Length: length

SOAPAction: http://tempuri.org/Request or Post Information from Electronic Laboratory Reporting
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
<soap:Body>

<Request_x0020_or_x0020_Post_x0020_Information_x0020_from_x0020_the_x0020_EL_R_x0020_Registry
xmlns="http://tempuri.org/">
<USERID>string</USERID>
<PASSWORD>string</PASSWORD>
<FACILITYID>string</FACILITYID>
<MESSAGEDATA>base64Binary</MESSAGEDATA>
</Request_x0020_or_x0020_Post_x0020_Information_x0020_from_x0020_the_x0020_Electronic
Laboratory_x0020_Reporting>
</soap:Body>

</soap:Envelope>
```

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**HTTPS POST Messages:** HTTPS POST can be used to access the State data network. POST messages will contain the following fields:

Field Name	Data Type	Notes
UserID	String	<ul style="list-style-type: none"> <li>The authentication web service expects this to be exactly 8 characters in length.</li> <li>DHSS will assign each facility a unique user ID.</li> <li>If an invalid user ID is given, the authentication web service will not pass the Message field to the applicable MODHSS database. Processing of the message will cease without returning a message.</li> </ul>
Password	String	<ul style="list-style-type: none"> <li><b><u>DHSS will assign each approved provider a unique password</u></b> for their user id.</li> <li>If an invalid password is transmitted by the provider, the authentication web service will not pass the Message field to the applicable MODHSS database. Processing of the provider submitted message will cease <b><u>without</u></b> a return from MODHSS.</li> </ul>
Facility Id	String	<ul style="list-style-type: none"> <li>The authentication web service expects this to be the exact facility id identified in MSH 4.1, Sending Facility Namespace Id.</li> <li>If an invalid Facility Id is transmitted, the authentication web service will not pass the Message field to the applicable MODHSS application. Processing of the facility submitted message will cease <b><u>without</u></b> MODHSS returning a message.</li> </ul>
Message	String	<ul style="list-style-type: none"> <li>The HL7 message being sent to MODHSS.</li> </ul>

### A.3 HL7 Batch Protocol

The HL7 Batch Protocol can be utilized to allow for periodic reporting. The HL7 file and batch header and trailer segments are defined in exactly the same manner as the HL7 message segments; hence, the same HL7 message construction rules used for individual messages can be used to encode and decode HL7 batch files. The main difference is that the value in FHS-3 File Sending Facility and BHS-3 Batch Sending Facility is the site where the interface resides, but the value in MSH-4 Sending Facility in the individual message reflects the facility that originated that message.

The structure of the batch file is constrained as follows:

Table A.3		Batch File Structure					
Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
FHS	File Header Segment	Information explaining how to parse and process the file. This includes identification of file delimiters, sender, receiver, timestamp, etc.				R	[1..1]
BHS	Batch Header Segment	Trigger event information for receiving application.				R	[1..1]
{HL7 messages}						R	[1..*]
[BTS]	Batch Trailer Segment					O	[0..1]
[FTS]	File Trailer Segment					O	[0..1]

### A.3.1 FHS: File Header Segment

The FHS segment is used to head a file of HL7 messages and appears before the MSH segment. Although the State prefers to receive the FHS segment, it is optional.

**OML Example:**

FHS|^~\&|ELRAPP|FACILITYNAME^0987654321^CLIA|SPHLELR|MODHSS|20110127093425|YCI-MO20090126||IMMYCI20090127-003.HL7

**ORU Example:**

FHS|^~\&|ELRAPP|FACILITYNAME^0987654321^CLIA|MOELR|MODHSS|20110127093425|YCI-MO20090126||IMMYCI20090127-003.HL7

Table A.3.1		FHS: File Header Segment Definition								
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
O M L	O R U									
X	X	1	FHS-1: Field Separator			1	ST	R	[1..1]	
X	X	2	FHS-2: Encoding			4	ST	R	[1..1]	
X	X	3	FHS-3:Sending Application			227	ST	O	[0..1]	
X	X	4	FHS-4:Sending Facility			227	ST	R	[1..1]	
X	X	4.1	FHS-4.1:Namespace ID			20	IS	O	[0..1]	
X	X	4.2	FHS-4.2:Universal ID			199	ST	R	[1..1]	
X	X	4.3	FHS-4.3:Universal ID Type			3	ID	R	[1..1]	
X	X	5	FHS-5:Receiving Application	OML Literal Value: "SPHLELR" ORU Literal Value: "MOELR"		15	ST	R	[1..1]	
X	X	6	FHS-6:Receiving Facility	Literal Value: "MODHSS"		20	ST	R	[1..1]	

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Table A.3.1			FHS: File Header Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
O M L	O R U									
X	X	7	FHS-7:File Creation Date/Time			26	TS	R	[1..1]	
X	X	9	FHS-9:File Name	<p>This field can be used by the application processing the file. It can have extra components if needed. MODHSS requires all file names to begin with “ELR” and prefers for file names to include something that indicates where the file came from (e.g., abbreviation or ID of sending facility) and a date. The date might represent the date(s) of the data, date prepared, or date sent. Note that if the date is the date sent and if multiple files are sent on the same day, something additional must be included to ensure uniqueness. Ex:</p> <p> ELR-COLECO200801-200806.HL7 </p> <p> ELRMOZFAM-01104161033.hl7 </p> <p> ELR260999-MAR11.HL7</p>		20	ST	R	[1..1]	
X	X	11	FHS-11:File Control ID	This field is used to uniquely identify a particular file. It can be echoed back in FHS-12 Reference File Control ID.		20	ST	O	[0..1]	
X	X	12	FHS-12: Reference File Control ID	This field contains the value of FHS-11-file control ID when this file was originally transmitted. This field is not valued if this file is being sent for the first time.		20	ST	O	[0..1]	

**A.3.2 FTS: File Trailer Segment**

The FTS segment is used to define the end of a file. The FTS segment is optional.

**Example:**

|FTS|30

Table A.3.2		FTS: File Trailer Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O M L	O R U								
X	X	1	FTS-1: File Message Count	This field contains the number of messages contained in the file.		10	NM	O	[0..1]
X	X	2	FTS-2:File Trailer Comment	This field is a free text field which may be included for convenience, but is not further defined in the HL7 protocol.		80	ST	O	[0..1]

**A.3.3 BHS: Batch Header Segment**

The BHS segment is used to head a group of HL7 messages that comprise a batch.

**BHS Example:**

BHS|^~\&|ELRAPP|FACILITYNAME^0987654321^NPI|MOHESS^|MODHSS^2.16.840.1.114222.4.3.2.2.1.163.1^ISO|20110127093425<cr>

Table A.3.3		BHS: Batch Trailer Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O	R								
X	X	1	Batch Field Separator	Literal Value “ ” (ASCII 124).		1	ST	R	[1..1]
X	X	2	Batch Encoding Characters	Literal Values “^~\&” (ASCII 94,126,92, and 38).		4	ST	R	[1..1]
X	X	3	Batch Sending Application			227	HD	R	[1..1]
X	X	4	Batch Sending Facility			227	HD	R	[1..1]
X	X	5	Batch Receiving Application	OML Literal Value: “SPHLELR” ORU Literal Value: “MOELR”  <i>Note: For ORU messages sent from SPHL to an Order submitter, this will be the Submitter application name received in the OML Order request.</i>		227	HD	R	[1..1]
X	X	6	Batch Receiving Facility	ORU Literal Value: “MODHSS”		227	HD	R	[1..1]
X	X	7	Batch Creation Date/Time			26	TS	R	[1..1]
X	X	9	Batch Name/ID			20	ST	O	[0..1]
X	X	10	Batch Header Comment			80	ST	O	[0..1]
X	X	11	Batch Control ID			20	ST	O	[0..1]
X	X	12	Reference Batch Control ID			20	ST	O	[0..1]

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**A.3.4 BTS: Batch Trailer Segment**

The BTS segment defines the end of a batch of HL7 messages.

Example: BTS|30|cr>

Table A.3.4		BTS: Batch Trailer Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O	R								
X	X	1	Batch Message Count	The number of messages contained in the preceding batch.		10	NM	O	[0..1]
X	X	2	Batch Comment			80	ST	O	[0..1]

## Appendix B – ELR Code Sets

The following tables are HL7 and PHIN defined tables. These tables are referenced in the Value Set column for each segment outlined in section 2. PHIN\_VAD tables referenced in this document can be found at: <http://www.cdc.gov>.

### B.1 HL7 and/or CDC Tables

HL7 Table 0076	Message Type (values suggested by HL7 v2.5.1) Only Message Types outlined in this Implementation Guide are included.
Value	Description
ACK	General Acknowledgment Message
OML	Laboratory Order Message
ORU	Unsolicited Transmission of an Observation Message

HL7 Table 0104	Version ID (values suggested by HL7 v 2.5.1)
Value	Description
2.0	Release 2.0
2.0D	Demo 2.0
82.1	Release 2.1
2.2	Release 2.2
2.3	Release 2.3
2.3.1	Release 2.3.1
2.4	Release 2.4
2.5	Release 2.5
2.5.1	Release 2.5.1

HL7 Table 0140	Military Service (values suggested by HL7 v 2.5.1)
Value	Description
AUSA	Australian Army
AUSAF	Australian Air Force
AUSN	Australian Navy
NATO	North Atlantic Treaty Organization
NOAA	National Oceanic and Atmospheric Administration
USA	US Army
USAF	US Air Force
USCG	US Coast Guard
USMC	US Marine Corps
USN	US Navy
USPHS	US Public Health Service

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HL7 Table 0141	Military Rank/Grade (values suggested by HL7 v 2.5.1)
Value	Description
E1... E9	Enlisted
O1 ... O9	Officers
W1 ... W4	Warrant Officers

HL7 Table 0142	Military Status (values suggested by HL7 v 2.5.1)
Value	Description
ACT	Active duty
DEC	Deceased
RET	Retired

HL7 Table 0204	Organizational Name Type (values suggested by HL7 v 2.5.1)
Value	Description
A	Alias name
D	Display name
L	Legal name
SL	Stock exchange listing name

HL7 Table 0220	Living Arrangement (values suggested by HL7 v 2.5.1)
Value	Description
A	Alone
F	Family
I	Institution
R	Relative
S	Spouse Only
U	Unknown

HL7 Table 0223	Living Dependency (values suggested by HL7 v 2.5.1)
Value	Description
C	Small Children Dependent
M	Medical Supervision Required
O	Other
S	Spouse Dependent
U	Unknown

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HL7 Table 0231	Student Status (values suggested by HL7 v 2.5.1)
Value	Description
F	Full-time student
N	Not a Student
P	Part-Time Student

HL7 Table 0301	Universal ID Type (values suggested by HL7 v 2.5.1)
Value	Description
DNS	An Internet dotted name. Either in ASCII or as Integers
GUID	Same as UUID.
HCD	The CEN Healthcare Coding Scheme Designator. (Identifiers used in DICOM follow this assignment scheme.)
HL7	Reserved for future HL7 registration schemes
ISO	An International Standards Organization Object Identifier
L,M,N	These are reserved for locally defined coding schemes.
Random	Usually a base64 encoded string of random bits.<p>The uniqueness depends on the length of the bits. Mail systems often generate ASCII string "unique names," from a combination of random bits and system names. Obviously, such identifiers will not be cons
URI	Uniform Resource Identifier
UUID	The DCE Universal Unique Identifier
x400	An X.400 MHS format identifier
x500	An X.500 directory name

HL7 Table 0316	Organ Donor Code (values suggested by HL7 v 2.5.1)
Value	Description
F	Yes, patient is a documented donor, but documentation is not on file
I	No, patient is not a documented donor, but information was provided
N	No, patient has not agreed to be a donor
P	Patient leaves organ donation decision to a specific person
R	Patient leaves organ donation decision to relatives
U	Unknown
Y	Yes, patient is a documented donor and documentation is on file

Table: PHVS_AbnormalFlag_HL7_2x(values suggested by HL7 v2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.78	
Value	Description
<	Below absolute low-off instrument scale
>	Above absolute high-off instrument scale
A	Abnormal (applies to non-numeric results)

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<b>Table: PHVS_AbnormalFlag_HL7_2x</b> (values suggested by HL7 v2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.78	
<b>Value</b>	<b>Description</b>
AA	Very abnormal (applies to non-numeric units, analogous to panic limits for numeric units)
B	Better-use when direction not relevant
D	Significant change down
H	Above high normal
HH	Above upper panic limits
I	Intermediate. Indicates for microbiology susceptibilities only.
L	Below low normal
LL	Below lower panic limits
MS	Moderately susceptible. Indicates for microbiology susceptibilities only.
N	Normal (applies to non-numeric results)
Null	No range defined, or normal ranges don't apply
OTH	Other abnormal
R	Resistant. Indicates for microbiology susceptibilities only.
S	Susceptible. Indicates for microbiology susceptibilities only.
U	Significant change up
VS	Very susceptible. Indicates for microbiology susceptibilities only.
W	Worse-use when direction not relevant

<b>Table: PHVS_AcceptApplicationAcknowledgmentConditions_HL7</b> (values suggested by HL7 v2.5.1 and CDC) Coding System OID: 2.16.840.1.114222.4.11.3344	
<b>Value</b>	<b>Description</b>
AL	Always
ER	Error/reject conditions only
NE	Never
SU	Successful completion only

<b>Table: PHVS_AddressType_CDC</b> (values suggested by HL7 v2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.190	
<b>Value</b>	<b>Description</b>
B	Firm/Business
BA	Bad Address
BDL	Birth Delivery Location (address where birth occurred)
BR	Residence At Birth (home address at time of birth)
C	Current Or Temporary
F	Country Of Origin
H	Home
L	Legal Address
M	Mailing
N	Birth (nee) (birth address, not otherwise specified)

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<b>Table: PHVS_AddressType_CDC</b> (values suggested by HL7 v2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.190	
<b>Value</b>	<b>Description</b>
O	Office
P	Permanent
RH	Registry Home. Refers to the information system, typically managed by a public health agency, that stores patient information such as immunization histories or cancer data, regardless of where the patient obtains services.

<b>Table: PHVS_AdministrativeSex_HL7_2x</b> (values suggested by HL7 v 2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.1	
<b>Value</b>	<b>Description</b>
A	Ambiguous
F	Female
M	Male
N	Not applicable
O	Other
U	Unknown / Not Stated

<b>Table: PHVS_Animal_CDC</b> (based on SNOMED domain) Coding System OID: 2.16.840.1.114222.4.11.1074	
<b>Code Term</b>	<b>Description</b>
	Please see the following link... <a href="https://phinvads.cdc.gov/vads/ViewValueSet.action?id=A5F8AA4C-F482-452B-A335-2417B4D3D5CC">https://phinvads.cdc.gov/vads/ViewValueSet.action?id=A5F8AA4C-F482-452B-A335-2417B4D3D5CC</a>

<b>Table: PHVS_CommentType_CDC</b> (suggested values from HL7 v 2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.364	
<b>Code Term</b>	<b>Description</b>
AI	Ancillary Instructions
DR	Duplicate/Interaction Reason
GI	General Instructions
GR	General Reason
PI	Patient Instructions
1R	Primary Reason
RE	Remark
2R	Secondary Reason

<b>Table: PHVS_Country_ISO_3166-1</b> (suggested values from HL7 v 2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.364	
<b>Code Term</b>	<b>Description</b>
CAN	Canada

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<b>Table: PHVS_Country_ISO_3166-1</b> (suggested values from HL7 v 2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.364	
<b>Code Term</b>	<b>Description</b>
MEX	Mexico
USA	United States

<b>Table: PHVS_County_Fips_6-4</b> Coding System OID: 2.16.840.1.113883.6.93 A complete list of FIPS 6-4 US county codes is at: <a href="http://www.itl.nist.gov/fipspubs/co-codes/states.htm">http://www.itl.nist.gov/fipspubs/co-codes/states.htm</a>					
<b>FIPS Code</b>	<b>County Name</b>	<b>FIPS Code</b>	<b>County Name</b>	<b>FIPS Code</b>	<b>County Name</b>
001	ADAIR	079	GRUNDY	157	PERRY
003	ANDREW	081	HARRISON	159	PETTIS
005	ATCHISON	083	HENRY	161	PHELPS
007	AUDRAIN	085	HICKORY	163	PIKE
009	BARRY	087	HOLT	165	PLATTE
011	BARTON	089	HOWARD	167	POLK
013	BATES	091	HOWELL	169	PULASKI
015	BENTON	093	IRON	171	PUTNAM
017	BOLLINGER	095	JACKSON	173	RALLS
019	BOONE	097	JASPER	175	RANDOLPH
021	BUCHANAN	099	JEFFERSON	177	RAY
023	BUTLER	101	JOHNSON	179	REYNOLDS
025	CALDWELL	103	KNOX	181	RIPLEY
027	CALLAWAY	105	LACLEDE	183	ST. CHARLES
029	CAMDEN	107	LAFAYETTE	185	ST. CLAIR
031	CAPE GIRARDEAU	109	LAWRENCE	186	STE. GENEVIEVE
033	CARROLL	111	LEWIS	187	ST. FRANCOIS
035	CARTER	113	LINCOLN	189	ST. LOUIS
037	CASS	115	LINN	195	SALINE
039	CEDAR	117	LIVINGSTON	197	SCHUYLER
041	CHARITON	119	MCDONALD	199	SCOTLAND
043	CHRISTIAN	121	MACON	201	SCOTT
045	CLARK	123	MADISON	203	SHANNON
047	CLAY	125	MARIES	205	SHELBY
049	CLINTON	127	MARION	207	STODDARD
051	COLE	129	MERCER	209	STONE
053	COOPER	131	MILLER	211	SULLIVAN
055	CRAWFORD	133	MISSISSIPPI	213	TANEY
057	DADE	135	MONITEAU	215	TEXAS
059	DALLAS	137	MONROE	217	VERNON
061	DAVISS	139	MONTGOMERY	219	WARREN
063	DE KALB	141	MORGAN	221	WASHINGTON
065	DENT	143	NEW MADRID	223	WAYNE
067	DOUGLAS	145	NEWTON	225	WEBSTER
069	DUNKLIN	147	NODAWAY	227	WORTH
071	FRANKLIN	149	OREGON	229	WRIGHT
073	GASCONADE	151	OSAGE	510	ST. LOUIS CITY
075	GENTRY	153	OZARK		

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<b>Table: PHVS_County_Fips_6-4</b>					
Coding System OID: 2.16.840.1.113883.6.93					
A complete list of FIPS 6-4 US county codes is at: <a href="http://www.itl.nist.gov/fipspubs/co-codes/states.htm">http://www.itl.nist.gov/fipspubs/co-codes/states.htm</a>					
FIPS Code	County Name	FIPS Code	County Name	FIPS Code	County Name
077	GREENE	155	PEMISCOT		

<b>Table: PHVS_DegreeLicenseCertificate_HL7_2x</b> (selected values suggested by HL7 v 2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.360			
Value	Description	Value	Description
PN	Advanced Practice Nurse	PharmD	Doctor of Pharmacy
AAS	Associate of Applied Science	PHD	Doctor of Philosophy
AA	Associate of Arts	PHS	Doctor of Science
ABA	Associate of Business Administration	EMT	Emergency Medical Technician
AE	Associate of Engineering	EMTP	Emergency Medical Technician - Paramedic
AS	Associate of Science	FPNP	Family Practice Nurse Practitioner
BA	Bachelor of Arts	HS	High School Graduate
BBA	Bachelor of Business Administration	JD	Juris Doctor
BFA	Bachelor of Fine Arts	MA	Master of Arts
BN	Bachelor of Nursing	MBA	Master of Business Administration
BS	Bachelor of Science	MCE	Master of Civil Engineering
BSL	Bachelor of Science _ Law	MDI	Master of Divinity
BT	Bachelor of Theology	MED	Master of Education
BSN	Bachelor on Science - Nursing	MEE	Master of Electrical Engineering
BE	Bachelor or Engineering	ME	Master of Engineering
CER	Certificate	MFA	Master of Fine Arts
CANP	Certified Adult Nurse Practitioner	MME	Master of Mechanical Engineering
CMA	Certified Medical Assistant	MS	Master of Science
CNM	Certified Nurse Midwife	MSL	Master of Science _ Law
CNP	Certified Nurse Practitioner	MSN	Master of Science _ Nursing
CNS	Certified Nurse Specialist	MT	Master of Theology
CPNP	Certified Pediatric Nurse Practitioner	MDA	Medical Assistant
CRN	Certified Registered Nurse	NG	Non-Graduate
DIP	Diploma	NP	Nurse Practitioner
DBA	Doctor of Business Administration	PA	Physician Assistant
DED	Doctor of Education	RMA	Registered Medical Assistant
PHE	Doctor of Engineering	RPH	Registered Pharmacist
MD	Doctor of Medicine	SEC	Secretarial Certificate
DO	Doctor of Osteopathy	TS	Trade School Graduate

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<b>Table: PHVS_EthnicityGroup_CDC</b> (values suggested by HL7 v2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.6.238	
<b>Value</b>	<b>Description</b>
2135-2	Hispanic or Latino
2186-5	Not-Hispanic or Latino

<b>Table: PHVS_IdentifierType_CDC</b> (values suggested by HL7 v 2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.203	
<b>Value</b>	<b>Description</b>
MA	Patient Medicaid Number
MC	Patient's Medicare Number
MR	Medical Record Number
PI	Patient Internal Identifier
PIN	Prison Identification Number
SS	Social Security Number

<b>Table: PHVS_NameType_HL7_2x</b> (values suggested by HL7 v 2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.200	
<b>Value</b>	<b>Description</b>
A	Alias Name
B	Name at Birth
C	Adopted Name
D	Display Name
I	Licensing Name
L	Legal Name
M	Maiden Name
N	Nickname / _Call me_ Name/Street Name
P	Name of Partner/Spouse (retained for backward compatibility only)
R	Registered Name (animals only)
S	Coded Pseudo-Name to ensure anonymity
T	Indigenous/Tribal/Community Name
U	Unspecified

<b>Table: PHVS_NatureofAbnormalTesting_HL7_2x</b> (values suggested by HL7 v2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.80			
<b>Value</b>	<b>Description</b>	<b>Value</b>	<b>Description</b>
A	An age-based population	S	A sex-based population
B	Breed	SP	Species
N	None-generic normal range	ST	Strain
R	A race-based population		

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<b>Table: PHVS_ObservationResultStatus_HL7_2x</b> (values suggested by HL7 v2.5.1 and CDC)	
Coding System OID: 2.16.840.1.113883.12.85	
<b>Value</b>	<b>Description</b>
C	Record coming over is a correction and thus replaces a final result.
D	Deletes the OBX record
F	Final results; Can only be changed with a corrected result
I	Specimen in lab; results pending
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 (no result)
P	Preliminary results
R	Results entered-not verified
S	Partial results
U	Results status change to final without transmitting results already sent as a preliminary, e.g., radiology changes status from preliminary to final
W	Post original as wrong, e.g., transmitted for wrong patient
X	Results cannot be obtained for this observation

<b>Table: PHVS_OrderControlCodes_HL7_2x</b> (values suggested by HL7 v 2.5.1 and CDC)	
Coding System OID: 2.16.840.1.113883.12.119	
<b>Value</b>	<b>Description</b>
AF	Order/service refill request approval
CA	Cancel order/service request
CH	Child order/service
CN	Combined result
CR	Cancelled as requested
DC	Discontinue order/service request
DE	Data errors
DF	Order/service refill request denied
DR	Discontinued as requested
FU	Order/service refilled, unsolicited
HD	Hold order request
HR	On hold as requested
LI	Link order/service to patient care problem or goal
NA	Number assigned
NW	New order/service
OC	Order/service cancelled
OD	Order/service discontinued
OE	Order/service released
OF	Order/service refilled as requested
OH	Order/service held
OK	Order/service accepted & OK

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<b>Table: PHVS_OrderControlCodes_HL7_2x</b> (values suggested by HL7 v 2.5.1 and CDC)	
Coding System OID: 2.16.840.1.113883.12.119	
<b>Value</b>	<b>Description</b>
OP	Notification of order for outside dispense
OR	Released as requested
PA	Parent order/service
PR	Previous Results with new order/service
PY	Notification of replacement order for outside dispense
RE	Observations/Performed Service to follow
RF	Refill order/service request
RL	Release previous hold
RO	Replacement order
RP	Order/service replace request
RQ	Replaced as requested
RR	Request received
RU	Replaced unsolicited
SC	Status changed
SN	Send order/service number
SR	Response to send order/service status request
SS	Send order/service status request
UA	Unable to accept order/service
UC	Unable to cancel
UD	Unable to discontinue
UF	Unable to refill
UH	Unable to put on hold
UM	Unable to replace
UN	Unlink order/service from patient care problem or goal
UR	Unable to release
UX	Unable to change
XO	Change order/service request
XR	Changed as requested
XX	Order/service changed, unsol.

<b>Table: PHVS_ProcessingID_HL7_2x</b> (values suggested by HL7 v 2.5.1 and CDC)	
Coding System OID: 2.16.840.1.113883.12.103	
<b>Value</b>	<b>Description</b>
D	Debugging
P	Production
T	Training

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<b>Table: PHVS_RaceCategory_CDC</b> (values suggested by HL7 v2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.6.238	
<b>Value</b>	<b>Description</b>
1002-5	American Indian or Alaska Native
2028-9	Asian
2054-5	Black or African American
2076-8	Native Hawaiian or Other Pacific Islander
2106-3	White
2131-1	Other Race

<b>Table: PHVS_Relationship_HL7_2x</b> (values suggested by HL7 v2.5.1 and CDC) Coding System OID: 2.16.840.1.114222.4.11.813			
<b>Value</b>	<b>Description</b>	<b>Value</b>	<b>Description</b>
ASC	Associate	MGR	Manager
BRO	Brother	MTH	Mother
CGV	Care giver	NCH	Natural child
CHD	Child	NON	None
DEP	Handicapped dependent	OAD	Other adult
DOM	Life partner	OTH	Other
EMC	Emergency contact	OWN	Owner
EME	Employee	PAR	Parent
EMR	Employer	SCH	Stepchild
EXF	Extended family	SEL	Self
FCH	Foster child	SIB	Sibling
FND	Friend	SIS	Sister
FTH	Father	SPO	Spouse
GCH	Grandchild	TRA	Trainer
GRD	Guardian	UNK	Unknown
GRP	Grandparent	WRD	Ward of court

<b>Table: PHVS_ResultStatus_HL7_2x</b> (values suggested by HL7 v2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.123	
<b>Value</b>	<b>Description</b>
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

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Table: PHVS_ResultStatus_HL7_2x(values suggested by HL7 v2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.123	
Value	Description
Y	No order on record for this test. (Used only on queries)
Z	No record of this patient. (Used only on queries)

Table: PHVS_SourceofComment_HL7_2x(values suggested by HL7 v 2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.105	
Value	Description
L	Ancillary (filler) department is source of comment
O	Other system is source of comment
P	Orderer (placer) is source of comment

Table: PHVS_SpecimenRejectReason_HL7_2x (values suggested by HL7 v 2.5.1 and CDC) Coding System OID: 2.16.840.1.113883.12.490	
Value	Description
EX	Expired
QS	Quantity not sufficient
RA	Missing patient ID number
RB	Broken container
RC	Clotting
RD	Missing collection date
RE	Missing patient name
RH	Hemolysis
RI	Identification problem
RM	Labeling
RN	Contamination
RP	Missing phlebotomist ID
RR	Improper storage
RS	Name misspelling

Table: PHVS_State_FIPS_5-2					
FIPS Numeric Code	FIPS Alpha Code	State Name	FIPS Numeric Code	FIPS Alpha Code	State Name
1	AL	Alabama	34	NJ	New Jersey
2	AK	Alaska	35	NM	New Mexico
4	AZ	Arizona	36	NY	New York
5	AR	Arkansas	37	NC	North Carolina
6	CA	California	38	ND	North Dakota
8	CO	Colorado	39	OH	Ohio
9	CT	Connecticut	40	OK	Oklahoma
10	DE	Delaware	41	OR	Oregon

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Table: PHVS_State_FIPS_5-2					
FIPS Numeric Code	FIPS Alpha Code	State Name	FIPS Numeric Code	FIPS Alpha Code	State Name
11	DC	District of Columbia	42	PA	Pennsylvania
12	FL	Florida	44	RI	Rhode Island
13	GA	Georgia	45	SC	South Carolina
15	HI	Hawaii	46	SD	South Dakota
16	ID	Idaho	47	TN	Tennessee
17	IL	Illinois	48	TX	Texas
18	IN	Indiana	49	UT	Utah
19	IA	Iowa	50	VT	Vermont
20	KS	Kansas	51	VA	Virginia
21	KY	Kentucky	53	WA	Washington
22	LA	Louisiana	54	WV	West Virginia
23	ME	Maine	55	WI	Wisconsin
24	MD	Maryland	56	WY	Wyoming
25	MA	Massachusetts	60	AS	American Samoa
26	MI	Michigan	64	FM	Federated States of Micronesia
27	MN	Minnesota	66	GU	Guam
28	MS	Mississippi	68	MH	Marshall Islands
29	MO	Missouri	69	MP	Northern Mariana Islands
30	MT	Montana	70	PW	Palau
31	NE	Nebraska	72	PR	Puerto Rico
32	NV	Nevada	74	UM	U.S. Minor Outlying Islands
33	NH	New Hampshire	78	VI	Virgin Islands of the U.S.

**Table: PHVS\_TelecommunicationEquipmentType\_HL7\_2x** (values suggested by HL7 v2.5.1 and CDC)

Coding System OID: 2.16.840.1.114222.4.11.817

Value	Description
BP	Beeper
CP	Cellular Phone
FX	Fax
Internet	Internet Address: Use Only If Telecommunication Use Code Is NET
MD	Modem
TDD	Telecommunications Device for the Deaf
PH	Telephone
TTY	Teletypewriter
X.400	X.400 email address: Use Only If Telecommunication Use Code Is NET

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<b>Table: PHVS_TelecommunicationUseCode_HL7_2x</b> (values suggested by HL7 v2.5.1 and CDC)	
Coding System OID: 2.16.840.1.114222.4.11.818	
<b>Value</b>	<b>Description</b>
ASN	Answering Service Number
BPN	Beeper Number
EMR	Emergency Number
NET	Network (email) Address
ORN	Other Residence Number
PRN	Primary Residence Number
VHN	Vacation Home Number
WPN	Work Number

<b>Table: PHVS_ValueType_HL7_2x</b> (values suggested by HL7 v2.5.1 and CDC)	
Coding System OID: 2.16.840.1.113883.12.125	
<b>Value</b>	<b>Description</b>
AD	Address
CE	Coded Entry
CF	Coded Element With Formatted Values
CK	Composite ID With Check Digit
CN	Composite ID And Name
CP	Composite Price
CWE	Coded with Exceptions
CX	Extended Composite ID With Check Digit
DT	Date
ED	Encapsulated Data
FT	Formatted Text (Display)
MO	Money
NM	Numeric
PN	Person Name
RP	Reference Pointer
SN	Structured Numeric
ST	String Data.
TM	Time
TN	Telephone Number
TS	Time Stamp (Date & Time)
TX	Text Data (Display)
XAD	Extended Address
XCN	Extended Composite Name And Number For Persons
XON	Extended Composite Name And Number For Organizations
XPN	Extended Person Name
XTN	Extended Telecommunications Number

## B.2 PHVS/PHIN – VADS Tables

The following table represents the OML literal values (PHVS\_LabTestOrderables\_CDC) to be used for populating OBR 4 Universal Service Identifier. This list will be amended as LOINC code mappings to SPHLELR become available.

<b>Table: PHVS_LabTestOrderables_CDC (from CDC)</b>	
<b>Coding System OID: 2.16.840.1.113883.6.1</b>	
<b>LOINC® Code Term</b>	<b>Description</b>
625-4	Bacteria identified in stool by culture
17563-8	Salmonella sp identified in unspecified specimen by organism specific culture
20507-0	RPR Ser QI-aCnc
5290-2	VDRL CSF QI-aCnc
45076-7	C trach+GC rRNA XXX QI Prb
48345-3	HIV 1+O+2 Ab SerPI QI
35437-3	HIV 1 Ab:ACnc:Pt:Saliva:Ord:EIA
46454-5	Shigella sp [Presence] in Unspecified specimen by Organism specific culture

The following table represents the OML literal values (PHVS\_Specimen\_CDC) to be used for populating SPM 4 Specimen Type.

<b>Table: PHVS_Specimen_CDC (from CDC)</b>	
<b>Coding System OID: 2.16.840.1.113883.6.96</b>	
<b>Specimen Code</b>	<b>Description</b>
119303007	Microbial isolate specimen (specimen)
119339001	Stool specimen
258450006	Cerebrospinal fluid sample (specimen)
258524009	Cervical swab (specimen)
409876003	Oral mucosal transudate sample (specimen)
258529004	Throat swab (specimen)
119361006	Plasma specimen (specimen)
258528007	Rectal swab (specimen)
122590004	Serum specimen from patient (specimen)
258530009	Urethral swab (specimen)
122575003	Urine specimen (specimen)
258520000	Vaginal swab (specimen)

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The following table represents the OML literal values (PHVS\_BodySite\_HL7\_2x) to be used for populating SPM 8 Specimen Source Site.

<b>Table: PHVS_BodySite_HL7_2x (from CDC)</b>	
<b>Coding System OID: 2.16.840.1.113883.12.163</b>	
<b>Specimen Code</b>	<b>Description</b>
416949008	Abdomen and/or pelvis structure (body structure)
43701009	Abdominal air sac (body structure)
123961009	Back region (body structure)
76752008	Breast structure (body structure)
71252005	Cervix uteri structure (body structure)
280401006	Spinal cerebrospinal fluid pathway (body structure)
117590005	Ear structure (body structure)
371398005	Eye region structure (body structure)
85562004	Hand structure (body structure)
39352004	Joint structure (body structure)
72651009	Nail structure (body structure)
272650008	Naris, entire, anterior or posterior (body structure)
279549004	Nasal cavity structure (body structure)
71836000	Nasopharyngeal structure (body structure)
400112001	Nose and nasopharynx structure (body structure)
119230000	Penis part (body structure)
78067005	Placental structure (body structure)
34402009	Rectum structure (body structure)
277695006	Sinus septum (body structure)
39937001	Skin structure (body structure)
314818000	Skin tissue (body structure)
44567001	Tracheal structure (body structure)
13648007	Urethral structure (body structure)
76784001	Vaginal structure (body structure)

Other tables used by an OML or ORU Message type are outlined in the following table. Refer to <http://phinvals.cdc.gov/vads> website for values.

<b>PHVS Tables</b>		
<b>Value Set</b>	<b>Coding System OID</b>	<b>Value Set Name / Description</b>
PHVS_AdministrativeDiagnosis_CDC_ICD-9CM	2.16.840.1.113883.6.103	ICD-9 CM Administrative Diagnosis Codes used for billing purposes, Reason for Study

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PHVS Tables		
Value Set	Coding System OID	Value Set Name / Description
PHVS_BodySite_HL7_2X  <i>Note: For the OML message type, literal values can be found in the preceding PHVS_BodySite_HL7_2x.</i>	2.16.840.1.113883.12.163	Body Site Body site from which specimen taken or where disease or injury occurs. This is based on the SNOMED hierarchy (Anatomical Structure - 91723000).
PHVS_CauseOfDeath_ICD-10_CDC	2.16.840.1.113883.6.3	ICD-10 CM Administrative Diagnosis Codes used for Reason for Study and Cause of Death.
PHVS_LabTestMethods_CDC	2.16.840.1.113883.5.84	Laboratory test method identifiers
PHVS_LabTestName_CDC	2.16.840.1.113883.6.1	Lab Test Result Name Laboratory Resulted Test identifiers and names - LOINC is the starter set.
PHVS_LabTestOrderables_CDC  <i>Note: For the OML message type, literal values can be found in the preceding PHVS_LabTestOrderables_CDC table.</i>	2.16.840.1.113883.6.1	Ordered Test Lab test orderables that could be used in OBR segment. This value set also includes panels from LOINC. Keywords: Lab Test Orderables, Lab Test Order
PH_SNOMED-CT	2.16.840.1.113883.6.96	SNOMED Clinical Terms (SNOMED CT) is an extensive clinical terminology that was formed by the merger, expansion, and restructuring of SNOMED RT® (Reference Terminology) and the United Kingdom National Health Service (NHS) Clinical Terms.
PHVS_Specimen_CDC  <i>Note: For the OML message type, literal values can be found in the preceding PHVS_Specimen_CDC table.</i>	2.16.840.1.113883.6.96	Specimen based on SNOMED hierarchy (123038009) Keyword: specimen Source, Specimen Type
PHVS_UnitsOfMeasure_CDC	2.16.840.1.113883.6.8	Volume Mass Units Volume Mass units of measure based on UCUM std.
USPS Zip Code Look Up		
<a href="http://www.usps.com">www.usps.com</a>		United States Postal Service Zip Code look-up database.

## Appendix C – ACK General Acknowledgement Message

This message type will be returned to the OML and ORU message sender when the message is submitted to DHSS in single message format using the following segments:

- MSH
- MSA

### C.1 MSH: Message Header for General Acknowledgement Message Segment Definition

The following table provides detail for the MSH segment that will be included in the ACK General Acknowledgement message type.

**OML Example:**

```
MSH|1|SPHLELR|MODHSS^2.16.840.1.114222.4.3.2.2.1.163.1^ISO|ACK|20111128070123463|P|2.5.1<cr>
MSA|AA|201102091114007|||0<cr>
```

**ORU Example:**

```
MSH|1|MOELR|MODHSS^2.16.840.1.114222.4.3.2.2.1.163.1^ISO|ACK|20111128070123463|P|2.5.1<cr>
MSA|AA|201102091114007|||0<cr>
```

Table C.1		MSH: Message Header for General Acknowledgement Message Segment Definition							
Msg Type	Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality	
									O
X	X	1	Field Separator	Character to be used as the field separator for the rest of the message. The supported value is “ ” (ASCII 124).		1	ST	R	[1..1]
X	X	2	Encoding Characters	Characters to be used as the component separator, repetition separator, escape character and subcomponent separator. The		227	HD	R	[1..1]

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Table C.1			MSH: Message Header for General Acknowledgement Message Segment Definition						
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O	R								
M									
L	U								
				supported values are: “^~\&” (ASCII 94, 126, 92, and 38)					
X	X	3	Sending Application	Identifies the sending application from the other HL7 message exchange applications belonging to the sender, i.e., name of the software vendor or an internally developed system. Ex: MYEMR-2000		227	HD	R	[1..1]
X	X	4	Sending Facility	Identifies the facility where the data contained in this individual message originated (i.e., the “owner” of the message information).		227	HD	R	[1..1]
X	X	5	Receiving Application	Unique identifier for the receiving application.		227	HD	R	[1..1]
X	X	6	Receiving Facility	Unique identifier for the receiving application.		6	HD	R	[1..1]
X	X	7	Date/Time of Message	Date/time sending system created the message.		26	TS	R	[1..1]
X	X	9	Message Type	Literal Value: “ACK”		15	MSG	R	[1..1]
X	X	10	Message Control ID	This field uniquely identifies the message. The receiving system echoes this ID back to the sending system in the message acknowledgement segment (MSA).		20	ST	R	[1..1]
X	X	11	Processing ID		PHVS_Pro cessingID_ HL7_2x	3	PT	R	[1..1]

Table C.1		MSH: Message Header for General Acknowledgement Message Segment Definition							
Msg Type		Seq	Element Name	Description	Value Set	Len	DT	Usage	Cardinality
O	R								
L	U								
X	X	12	Version ID	The version of HL7 encoding for this message. Literal Value: "2.5.1"	0104	60	VID	R	[1..1]

## C.2 MSA: Message Acknowledgement Segment Definition

In order to acknowledge a correct receipt of a message, message receivers use the MSA segment. Two types of MSA are in use at the State: Acknowledgement code AA and AR.

When receiving an ACK with an Acknowledgement Code of AA the intended message has been successfully received.

When receiving an ACK with an Acknowledgement Code of AR the intended message has been received with errors and will need to be corrected and resent.

### MSA Example:

Successful message MSA - MSA|AA|201102091114007|||0<cr>

Message received with Errors MSA - MSA|AR|201102091114007|||0<cr>

Table C.2		MSA: Message Acknowledge Segment Definition					
Field Name	Seg	DT	Length	Sender Usage	Receiver Usage	Cardinality	Values/Value Set
Acknowledgement Code	1	ID	2	R	R	[1..1]	Table 0008
Message Control ID	2	ST	20	R	R	[1..1]	Specifies the value in MSH 10 of the message being acknowledged.
Error Condition	6	CE	250	RE	RE	[0..1]	Table 0357