APHL-CDC Public Health Laboratory Interoperability Project (PHLIP)

ELECTRONIC TRANSMISSION OF ORDER AND RESULT MESSAGES BY STATE PUBLIC HEALTH LABORATORIES

OML^O33 / OUL^R22

HL7 Version 2.6

**IMPORTANT STATUS NOTE**

**This document is released for Production Phase 1.**

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IMPLEMENTATION PROFILES

Salmonella

*(Production Phase 1)*

**RELEASE**

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# Introduction

## Purpose

This guide contains the specifications used to develop standardized order and result messaging capability between state public health laboratories and between state public health laboratories and laboratories at the Centers for Disease Control and Prevention. Specifically, this guide addresses both the messaging interactions and specific message-level topics: type, structure, composition and vocabulary.

## Audience

This guide is intended to be used by business analysts and developers (interface engine programmers, data integration specialists, LIMS/LIS programmers, EDI developers, etc.) – those responsible for the development and maintenance of systems used in the course of generating, transmitting, receiving, collecting information, and processing electronic orders and results.

## Scope

While the specific scope covered by this guide is outlined in detail in section *2.1 - Use Cases*, the general scope covers the inter-laboratory exchange of electronic order and result messages by and between state public health laboratories and between state public health laboratories and the laboratories at the Centers for Disease Control and Prevention.

### Out of Scope – For Future Release

The following items are deemed out of scope in the current release; however, it is expected that these items will be implemented and supported in a future release of this guide.

* Support RP (reference pointer) in results (OBX-5) to support, for example, messaging URI
* Support ED (encapsulated data) in results (OBX-5) to support, for example, messaging a PDF document
* Support ORL (application-level response to order message) for message accept/reject
* Support order cancellation via electronic messaging
* Support order revisions (updates) via electronic messaging
* Handling filler created electronic orders (e.g. filler receives paper requisition from placer and creates an electronic order)
* Batch transmission and processing
* Orders/results related to environmental and non-human specimens
* Support TQ1 for specifying order urgency/priority
* State to State Salmonella ETOR

## Assumptions

This guide is not intended to serve as a reference or tutorial on HL7 and does not provide details on much of the underlying HL7 standard. The reader is assumed to have knowledge of and access to version 2.6 of the HL7 Standard.

## Conventions

Field lengths, at the segment level, are only provided for “simple” data types (e.g., TX, ST, NM, etc.) The field length of “complex” data types (e.g., EI, SN, XAD, etc.) are specified using “◊”, indicating the length is further described in the data type’s associated sub-section under section *4 - Data Types*.

## Versioning

This guide, in an effort to facilitate rapid changes to the general/explanatory documentation apart from specific implementation-related documentation, maintains a single version number, with 2 significant levels.

The Profile Version Number is carried in the digit(s) before and after the first dot. It will be changed whenever there are changes made to this guide that affect the implementation (e.g. messaging interactions, message structure, etc.) For example, if a particular segment’s field was previously marked as ‘X’ (not supported) and is subsequently changed to ‘R’ (required), then the Profile Version Number will be increased since this type of change affects the implementation. Additionally, any change to the Profile Version Number would also necessitate a change to the literal value used in MSH-21 (Message Profile Identifier.) So a minor change in the profile would result in a change from 1.0 to 1.1.

The Document Version Number always references the profile version it belongs to and is carried in the digit(s) after the second dot. It will be changed whenever there are changes made to this guide that do not affect the specific implementation areas (like clarifications, updated hyperlinks, sample messages etc.) For example, if a section is added to explain a particular concept or provide specific examples of a field’s usage, then the Document Version Number will be increased since this type of change affects the document without affecting/changing the implementation. So a change only in the document would result in a version number change from 1.0.1 to 1.0.2.

When profile and document change, the number would change from 1.0.1 to 1.1.1.

While both types of changes will be handled in an open, structured manner via a formal change control process (facilitated by the PHLIP Change Control Board), it is expected that all proposed profile-related changes will receive a significantly higher level of scrutiny and be required to meet very stringent guidelines.

## Definitions

### Cardinality

Cardinality identifies the minimum and maximum number of repetitions for a particular element (Segment Group, Segment or Field). Cardinalities are expressed as a minimum-maximum pair of non-negative integers. A conformant application must always send at least the minimum number of repetitions, and may never send more than the maximum number of repetitions.

There are two special values for cardinality. If the minimum number of repetitions is 0, the element may be omitted from a message. In certain circumstances, the maximum number of repetitions may have no practical limit. In this case, it is identified as '\*'. Examples of common cardinality combinations are:

| Value | Description |
| --- | --- |
| [0..0] | Element never present |
| [0..1] | Element may be omitted and it can have at most one Occurrence |
| [1..1] | Element must have exactly one Occurrence |
| [0..n] | Element may be omitted or may repeat up to n times |
| [1..n] | Element must appear at least once, and may repeat up to n times |
| [0..\*] | Element may be omitted or repeat for an unlimited number of times |
| [1..\*] | Element must appear at least once, and may repeat unlimited number of times |
| [m..n] | Element must appear at least “m” and at most” n” times |

### Usage

Usage refers to the circumstances under which an element appears in a message. Some elements must always be present, others may never be present, and others may only be present in certain circumstances. A set of codes has been defined to clearly identify the rules governing the presence of a particular element.

The rules govern the expected behavior of the sending application and limited restrictions on the receiving application with respect to the element. These usage codes expand/clarify the optionality codes defined in the HL7 standard.

| Value | Description | Comment |
| --- | --- | --- |
| R | Required | A conforming sending application shall populate all “R” elements with a non-empty value. Conforming receiving application shall process (save/print/archive/etc.) or ignore the information conveyed by required elements. A conforming receiving application must not raise an error due to the presence of a required element, but may raise an error due to the absence of a required element.  Any element designated as required in a standard HL7 message definition shall also be required in all HL7 message profiles of that standard message. |
| RE | Required but may 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. If the conforming sending application knows the required values for the element, then it must send that element. If the conforming sending application does not know the required values, then that element will be omitted.  Receiving applications will be expected to process (save/print/archive/etc.) or ignore data contained in the element, but must be able to successfully process the message if the element is omitted (no error message should be generated because the element is missing). |
| O | Optional | 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  **NOTE: The Optional usage code is not utilized in this guide; all message elements are fully constrained** |
| C | Conditional | **If the predicate1 is satisfied:**  A conformant sending application must always send the element. A conformant receiving application must process or ignore data in the element. It may raise an error if the element is not present.  **If the predicate1 is NOT satisfied:**  A conformant sending application must NOT send the element. A conformant receiving application must NOT raise an error if the condition predicate is false and the element is not present, though it may raise an error if the element IS present. |
| CE | Conditional but it may be empty | **If the predicate1 is satisfied:**  If the conforming sending application knows the required values for the element, then the application must send the element. If the conforming sending application does not know the values required for this element, then the element shall be omitted. The conforming sending application must be **capable** of knowing the element (when the predicate is true) for all 'CE' elements.  If the element is present, the conformant receiving application shall process (display/print/archive/etc.) or ignore the values of that element. If the element is not present, the conformant receiving application shall not raise an error due to the presence or absence of the element.  **If the predicate1 is not satisfied:**  The conformant sending application shall not populate the element.  The conformant receiving application may raise an application error if the element is present. |
| X | Not supported | 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. |

1Condition Predicate: If the usage code of an element is C or CE, then a conditionality predicate must be associated with this element that identifies the conditions under which the element must be or is allowed to be present. The predicate must be testable and based on other values within the message. This predicate may be expressed as a mathematical expression or in text and may utilize operators such as equivalence, logical AND, logical OR and NOT. The conforming sending and receiving applications shall both evaluate the predicate. When the Usage is not 'C' or 'CE', the conditionality predicate will not be valued.

## Messaging Infrastructure

Messaging partners utilizing PHINMS as their transport mechanism in conjunction with a Route-Not-Read (RNR) Hub for sending and/or receiving messages should note that PHINMS, in this configuration, has a 10-megabyte limit on payload content. As such, and since continuation segments/messages are not supported, the maximum message size is effectively limited to 10 megabytes.

## Snapshot Processing

HL7 distinguishes between two methods of update: the “snapshot” and the “action code/unique identifier” modes. Both modes apply to repeating segments and repeating segment groups. For repeating fields, only snapshot processing applies. For the purposes of this guide, only snapshot processing is supported for segments, segment groups and fields.

### Repeating Segments and Segment Groups

HL7 defines (HL7 v2.6, Section 2.10.4.1) snapshot processing for segments as follows:

In the “snapshot” mode, the information contained in the set of repeating segments or segment groups from the incoming message replaces the corresponding information in the receiving application. This is equivalent to a deletion of the prior information followed by the addition of the newly supplied information. In this mode, everything (all repeating segments and segment groups) must be sent with every subsequent message in the series of messages. There is no other way to indicate which ones changed and which ones did not.

To specify “delete all of the segment in this repeating group” in the snapshot mode, send a single segment with the “delete data” (indicated by a value of “”) in all fields. This actively signals the receiver that there is information that needs to be deleted. If no segment were sent, this would equate to “no information.” No information should not signal the receiver to take an action. There would be risk that the receiver might misinterpret the sender’s intent.

### Repeating Fields

Snapshot processing for repeating fields requires sending a full list of repetitions for each transaction. If the intent is to delete an element, the element is left off the list. This is analogous to the snapshot mode for repeating segments and segment groups. To delete the whole list, transmit the field once with a |””| (null) in the first component.

Repetitions of fields shall not have empty repetitions followed by repetitions containing data, except where the HL7 standard clearly reserves certain repetitions for specific purposes. For instance, PID-5 (Patient Name) is a repeating field, the first repetition of which is reserved by HL7 for the legal name. In the case where a name is known for the patient, but is not the legal name, format the name field as follows: |~lastname^firstname^mi^^^^A|.

### Message Snapshots

Snapshot processing for messages means that the contents of the current message are used to replace the contents from a prior message for the same information object. The information object refers to a laboratory result associated with a specific patient. To do the snapshot update properly, key identifiers must be shared across the messages, and must together uniquely identify the specific laboratory result that is to be updated. For the purposes of this guide, the key identifiers that tie results together are the Placer Order Number (ORC-2/OBR-2) and Filler Order Number (ORC-3/OBR-3).

For example, the following message represents a preliminary finding sent by the filler to the placer:

MSH|…

PID|…

SPM|…

OBX|…

OBX|…

OBR|1|12345^XYXSPHL^2.16.840.1.11422.1.1^ISO|10001^CDC^2.16.840.1.1.1.1^ISO||||||||||||||||||||||P

ORC|RE|12345^XYXSPHL^2.16.840.1.11422.1.1^ISO|10001^CDC^2.16.840.1.1.1.1^ISO||A

ROL|…

ROL|…

OBX|1|…

At some point the filler follows the preliminary result with a final result, transmitting the previously reported contents of the result along with a set of new observations that are part of the same result:

MSH|…

PID|…

SPM|…

OBX|…

OBX|…

OBR|1|12345^XYXSPHL^2.16.840.1.11422.1.1^ISO|10001^CDC^2.16.840.1.1.1.1^ISO||||||||||||||||||||||F

ORC|SC|12345^XYXSPHL^2.16.840.1.11422.1.1^ISO|10001^CDC^2.16.840.1.1.1.1^ISO||CM

ROL|…

ROL|…

OBX|1|…

OBX|2|…

## Revision History

| Date | Document Version | Profile Version | Release Status | Description |
| --- | --- | --- | --- | --- |
| 05-21-2009 | 0.0.1 | 0.0.1 | Alpha | Initial draft release |
| 06-10-2009 | 0.0.3 | 0.0.3 | Alpha | Various document and profile refinements |
| 07-29-2009 | 0.0.4 | 0.0.4 | Alpha | Various document and profile refinements |
| 08-17-2009 | 0.0.5 | 0.0.5 | Alpha | Various document and profile refinements |
| 12-09-2009 | 0.0.6 | 0.0.6 | Alpha | Various document and profile refinements |
| 11-03-2010 | 0.0.7 | 0.0.7 | alpha | Various document and profile refinements |
| 12-15-2010 | 1.0.1 | 1.0.1 | Production Phase 1 | Release scope of production phase 1 implementation |
| 2/7/2011 | 1.0.2 | 1.0.2 – to be created after this document is approved | Production Phase 1 | Changed ORC.2 from SC to RE in all result messages. |
| 3/30/2011 | 1.0.2 | 1.0.2 – to be created after this document is approved | Production Phase 1 | Updated the sample messages with all changes from the mapping workbook and Vocab Appendix document  Added Vocab appendix table and description to this document  OML message definition - per Vocab appendix we always need to send at least 2 OBXes after SPM - change cardinality from [1..\*] to [2..\*]  OUL message definition - change cardinality for ROL from [1..\* to [2..\*], because CDC will always send reviewer information and contact person  Datatypes:  HD datatype - made HD.1 required, made HD.2 and HD.3 conditional - either both or none must be populated  IS datatype - added comment to extend length from 20 to 40 or 200  XCN datatype added default value for XCN.2  in all segments identified, when value set references were constrained from HL7 standard tables  PID segment  PID.5 changed cardinality from [1..1] to [1..2] to accommodate the default when patient name is not known and added that into the description.  PID.22 updated valueset from HL70189 to PHVS\_EthnicityGroup\_CDC\_Unk  PID.30 - updated OPT from CE to C  SPM Segment  SPM.2.2 in OUL - added explanation that this is equivalent to the CSID  ORC segment  ORC.9 - changed OPT from R to RE and cardinality from [1..1] to [0..1]  ORC.12 - added clarification that the ordering provider is at the SPHL for ETOR phase 1.  OBR segment  OBR.16 - added clarification that the ordering provider is at the SPHL for ETOR phase 1.  OBR.22 added clarification that the granularity is to the minute.  OBX segment:  Consider adding explicitly which datatypes this guide supports in OBX.5 here  OBX.14 - added clinically relevant as clarification and copied language from the ELR guide (Do we need to worry about HL7 copyright here?)  OBX.19 - added clarification that time of analysis is the time the supervisor released the result after review. Added granularity of field to the day.  ROL segment:  added clarification about the use of the ROL segment in both OML and OUL.  ROL.2 - added clarification about which codes to use in OML and OUL.  Changed ROL.3 valueset from HL7 to 99Rol and ROL.10 valueset from HL7 to 99Org. |
| 4/5/2011 | 1.0.2 | 1.0.2 – to be created after this document is approved | Production Phase 1 | Added non-standard value set tables to section 6.2  Updated table of contents |
| 4/6/2011 | 1.0.2 | 1.0.2 – to be created after this document is approved | Production Phase 1 | During ETOR call made final adjustments to Appendix table for Specimen related observations and ROL segments  Updated the message structure cardinality based on these changes |
| 4/7/2011 | 1.0.2 | 1.0.2 – to be created after this document is approved | Production Phase 1 | Email exchange with CDC brought to light that we are missing the CUID from the message – added a data element for OBX/SPM for CUID to the Vocab Appendix table and updated the cardinality for the OBX/SPM in the OUL to [1..\*] |
| 4/13/2011 | 1.0.2 | 1.0.2 – to be created after this document is approved | Production Phase 1 | Updated sample messages to reflect no echo back of OBX/SPM  Increase field length for XON.10 from 20 to 199 to match HD.2 datatype length and accommodate OIDs. |
| 4/28/2011 | 1.0.2 | 1.0.2 | Production Phase 1 | Publish per CCB vote  **ERRATA: During publishing it was found that XCN.1 length was not extended to accommodate OIDS – I have increased field length from 15 to 199 to match the HD.2 datatype length** |

# Message Profile

## Use Cases

### ELECTRONIC TRANSMISSION OF ORDER AND RESULT MESSAGES BY AND BETWEEN PUBLIC HEALTH ENTITES

| **Use Case Name:** | **Establishing Laboratory Partnership for Electronic Transmission of Orders and Results** |
| --- | --- |
| **Primary Actors:** | Placer, Filler |
| **Secondary Actors:** | None |
| **Description:** | This use case encompasses setting up the basic infrastructure that must be in-place in order for the participating laboratories to electronically exchange requests for laboratory services and receive associated results. |
| **Trigger:** | Placer and Filler wish to interoperate with one another. |
| **Pre-conditions:** | None |
| **Post-conditions (for Normal Flow):** | 1. Placer and Filler are prepared (e.g. legally, technically, logistically, etc.) to do business with one another. |
| **Normal Flow:** | 1. It is assumed that the sharing of electronic test orders, acknowledgements and results are covered under existing agreements between placer and filler. The Placer is responsible for other agreements they may require. 2. The manual steps, expected timelines and exception handling procedures of the ETOR process are covered in the ETOR Process Document |
| **Alternative Flows:** | None |
| **Exceptions:** | None |
| **Includes:** | None |
| **Priority:** | High |
| **Business Rules:** | NOTE: Please refer to Section 7 - *Identifiers*, for details on what constitutes a valid identifier as well as various examples of the identifiers mentioned below.   1. The following three identifiers must be both distinct (among the three identifiers) as well as unique throughout the originator’s (Placer/Filler) enterprise:    1. Patient Identifiers    2. Specimen Identifiers    3. Order Identifiers 2. An order must be associated with one and only one uniquely identified specimen. The specimen will be contained in a single container. The specimen and the specimen container can be identified via the specimen ID 3. A specimen must be described by its source, type, collection date/time and specimen ID 4. A specimen must be of human origin (i.e., no animal or environmental specimens are permitted) 5. An order must contain at least one, but may contain more than one, test request on the single specimen 6. The Filler must fully accept or fully reject an order request; if any portion of an order is accepted or rejected then the entire order is deemed accepted or rejected, respectively 7. The Filler may not revise the Placer’s original order 8. A rejected order’s response must include detailed information describing the reason(s) for rejection 9. Placer and Filler must transmit non-coded information where applicable rather than “local” codes (e.g. demographics of persons, locations, etc. – full name, address, lab director, etc. rather than CLIA number only) 10. Order cancelations, either Filler- or Placer-initiated, will be handled in a manner as specified by the ETOR Process Document |
| **Special Requirements:** | None |
| **Assumptions:** | 1. Messages are sent asynchronously 2. Order status querying is not supported 3. Filler orders changes/revisions are not supported 4. Prior result reporting (e.g. organism identification) within an electronic order request is not supported; however, prior result reporting, via hard copy included with the physical specimen or via the e-DASH, is supported 5. Transmitting specimen additive information is not supported 6. Filler has adequate capacity and is capable of filling orders sent by placer (i.e. placer has affirmed, for example, by telephone, that filler is able to accept a given number of forthcoming orders/specimens) 7. Order request message transmission and specimen shipment may occur in any sequence, as long as the order arrives at the Filler prior to the specimen 8. Actual order fulfillment requires arrival of the order request message before the physical specimen so that the filler is able to link the order request to the specimen 9. Preliminary (i.e. non-final) result reporting is supported by the placer and filler 10. Patient updates (e.g. address, date of birth, etc.), during the course of order processing and testing, from placer to filler and filler to placer, are not supported 11. Messages are US English and originate and terminate in the US |
| **Extension Points** | 1. Support non-human samples 2. Support prior result reporting 3. Support order request modifications/revisions 4. Support exchanging software related information (for debugging/troubleshooting purposes) 5. Add additional actor(s) – “Interested Party” 6. Specimen shipment tracking 7. Order status querying |
| **Notes and Open Issues:** | 1. Future OID registry support 2. Test catalog changes, exchanges, etc. |

**Note**: The New Laboratory Order/Result Transaction use case includes the Establishing Laboratory Partnership for Electronic Transmission of Orders and Results use case.

| **Use Case Name:** | **New Laboratory Order/Result Transaction** |
| --- | --- |
| **Primary Actors:** | Placer, Filler |
| **Secondary Actors:** | None |
| **Description:** | This use case describes how the placer makes a request for service to the filler and the filler provides the results, related to the original request for service, back to the placer. |
| **Trigger:** | Placer transmits new order to Filler |
| **Pre-conditions:** | None |
| **Post-conditions (for Normal Flow):** | 1. Order request is stored in Filler’s system 2. Order result is stored in Placer’s system |
| **Normal Flow:** | 1. Placer must ensure that the Order request message arrives at the Filler before the specimen.   a. Sends order request message   * 1. Sends specimen related to order request  1. Filler:    1. Receives and validates the Placer’s order request message    2. Sends an HL7 message acknowledgment to the Placer (ACK^O33)    3. Receives the specimen related to the order request message (i.e. matches the specimen to the order) 2. Once the Filler has received a specimen, matched the specimen to its associated order and confirmed the validity of the specimen with respect to the order:    * 1. Filler sends a result message, with filler order number and appropriate order status, to the Placer(OUL^R22)Placer receives, processes and validates result message    1. Filler performs requested test(s) on specimen       1. Filler sends placer result message with final test result(s)(OUL^R22)       2. Placer receives, processes and validates result message |
| **Alternative Flows:** | 1. Filler does not accept the order request message due to invalid/erroneous message content and/or structure    1. Filler sends an error acknowledgement to the Placer describing the error(s)    2. Placer receives, processes and validates the error acknowledgement message    3. Flow ends 2. Filler is unable to accept and/or process the order request message due to reasons unrelated to the message’s content and/or structure    1. Filler sends a rejection acknowledgement to the Placer describing the reason(s) for rejection    2. Placer receives, processes and validates the rejection acknowledgement message    3. Flow ends 3. Filler is unable to match a specimen to its associated order within the laboratory’s standard timeframe    1. The specimen’s handling and disposition are dealt with using site-specific, standard operating procedures    2. Flow ends 4. Filler deems the received specimen as invalid (e.g. unviable, damaged, incorrect type, etc.) for the test(s) requested    1. Filler sends a result message to Placer, indicating the reason(s) the specimen was rejected    2. Placer receives, processes and validates the result message    3. Flow ends |
| **Exceptions:** | 1. Filler does not receive specimen(s) related to previously received order request message(s) within expected time frame as outlined in the ETOR Process Document.    1. Filler follows procedures outlined in ETOR Process Document regarding specimen shipment issues    2. Flow ends 2. Placer does not receive result message within previously arranged and/or expected time-frame    1. Placer follows procedures outlined in ETOR Process Document regarding message transmission issues and/or service levels    2. Flow ends |
| **Includes:** | Establishing Laboratory Partnership for Electronic Transmission of Orders and Results |
| **Priority:** | High |
| **Business Rules:** | None |
| **Special Requirements:** | None |
| **Assumptions:** | None |
| **Extension Points** | Order status querying |
| **Notes and Open Issues:** | None |

### ELECTRONIC TRANSMISSION OF ORDER AND RESULT MESSAGES BY AND BETWEEN STATE PUBLIC HEALTH LABORATORIES AND THE CENTERS FOR DISEASE CONTROL AND PREVENTION

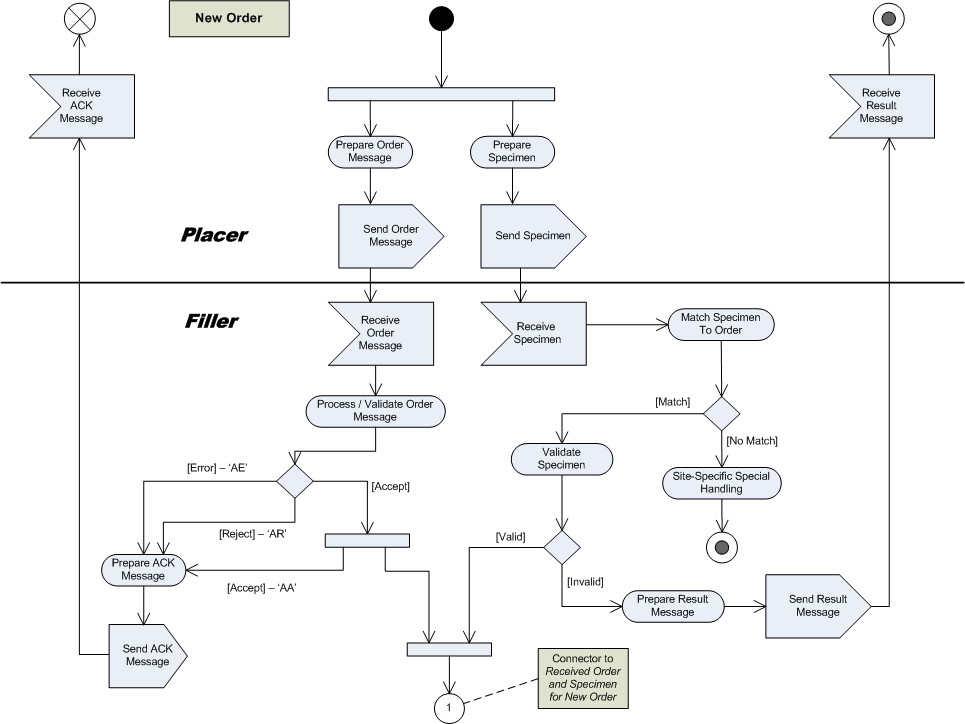
| **Use Case Name:** | **Production Phase 1 ETOR by and Between SPHL and the CDC** |
| --- | --- |
| **Primary Actors:** | Placer (SPHL), Filler (CDC) |
| **Secondary Actors:** | SPHL Requestor, SPHL Contact, CDC Recipient, CDC Result Reporter, CDC Result Reviewer, Original Submitter |
| **Description:** | See parent use case |
| **Trigger:** | See parent use case |
| **Pre-conditions:** | See parent use case |
| **Post-conditions (for Normal Flow):** | See parent use case |
| **Normal Flow:** | See parent use case |
| **Alternative Flows:** | See parent use case |
| **Exceptions:** | See parent use case |
| **Includes:** | New Laboratory Order/Result Transaction |
| **Priority:** | See parent use case |
| **Business Rules:** | * The only type of specimen accepted by the filler is a pure (i.e., non-mixed/contaminated) isolate; in other words, the specimen shall represent a homogeneous colony/organism(s) being of a single species * The tests offered by CDC include:   + PLT110 - Salmonella Identification and Serotyping * All specimens submitted to CDC must be accompanied by the ETOR-DASH form * Results obtained from previous testing on submitted specimens must be included on (i.e. electronically produced ETOR-DASH form) or with (i.e. attached as a paper report) the ETOR-DASH form |
| **Special Requirements:** | See parent use case |
| **Assumptions:** | See parent use case |
| **Extension Points** | See parent use case |
| **Notes and Open Issues:** | See parent use case |

### ELECTRONIC TRANSMISSION OF ORDER AND RESULT MESSAGES BY AND BETWEEN STATE PUBLIC HEALTH LABORATORIES

not covered in Production Phase 1 – future extension

## Dynamic Interaction Models

### New Order



The dynamic interaction model above (for “New Order”) illustrates the initial stages of the placer/filler interaction related to the placer’s request for services by the filler.

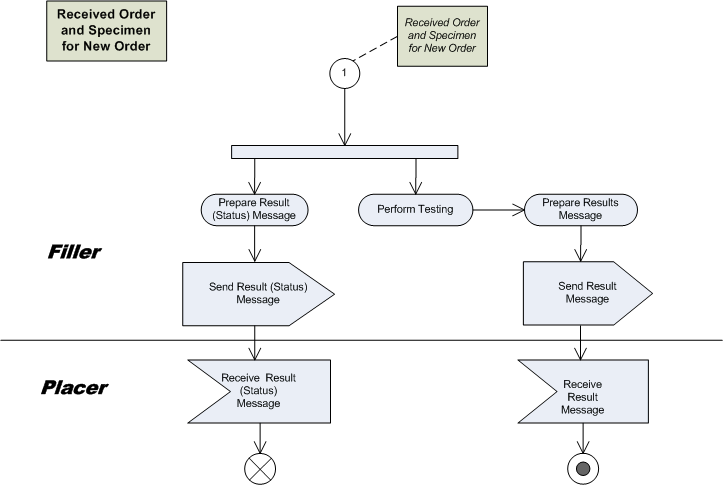
**The filler’s responsibility, when receiving an order message, is as follows:**

1. The filler processes and validates (both structure and content) the order message
2. The filler sends the placer an ACK message with the appropriate status code based on the previous step’s results:
   1. The message was successfully processed and validated – send ACK with “AA” (accept) in MSA-1
   2. There was an error processing the message (e.g. the message’s content and/or structure is invalid, invalid test requested, invalid specimen specified for test requested, etc.) – send ACK with “AE” (error) in MSA-1 along with ERR segment(s) describing the error(s)
      1. Note: The status code of “AE” (error), in general, indicates to the placer that the message is malformed and needs to be changed/fixed before reattempting to send the message

**The filler’s responsibility, when receiving a specimen, is as follows:**

1. The filler matches the specimen to one or more orders
   1. A specimen that cannot be matched against an order is handled as specified in the ETOR Process Document, ending the *New Order* interaction.
   2. A specimen that is properly matched against its associated order(s) is validated (e.g., specimen container is intact, specimen is properly preserved, specimen type is valid based on requested test(s), etc.)
      1. A valid specimen allows the interaction to continue to the next step, *Received Order and Specimen for New Order*.
      2. An invalid specimen ends the *New Order* interaction, but before the interaction ends, the filler prepares and sends the placer a result message, indicating the reason(s), in SPM-21 (Specimen Reject Reason), the specimen has been rejected

### Received Order and Specimen for New Order



## Trigger Events (Interactions)

| Event | Description | Sender | Usage | Message Type | Message Field Data Values |
| --- | --- | --- | --- | --- | --- |
| New Order | A new order generated by a placer and transmitted to the filler. | Placer | R | OML^O33 | ORC-1 = ‘NW’ |
| Message Level - Order Accepted 1 | The filler has received and accepts the placer’s order pending receipt of specimen | Filler | R | ACK^O33 | MSA-1 = ‘AA’ |
| Message Level - Order Error 1 | The filler has received the placer’s order, but is unable to accept the order due to one or more errors present in the message’s structure or content | Filler | R | ACK^O33 | MSA-1 = ‘AE’ |
| Specimen Received – and matched to the corresponding order2 | The filler, having received the placer’s order and associated specimen, notifies the placer of receipt. | Filler | R | OUL^R22 | ORC-1 = ‘RE’  ORC-5 = ‘SC’  OBR-25 = ‘I’ |
| Specimen Received – Invalid Specimen2 | The filler has received the placer’s order and associated specimen, but is unable to act upon the order due to the nature of the specimen received. | Filler | R | OUL^R22 | ORC-1 = ‘RE’  ORC-5 = ‘CM’  OBR-25 = ‘X’ |
| Preliminary Results | The filler provides preliminary test results to the placer. | Filler | R | OUL^R22 | ORC-1 = ‘RE’  ORC-5 = ‘A’  OBR-25 = ‘P’ |
| Final Results | The filler provides final test results to the placer. | Filler | R | OUL^R22 | ORC-1 = ‘RE’  ORC-5 = ‘CM’  OBR-25 = ‘F’ |
| Corrected Results | The filler provides corrected test results to the placer. | Filler | R | OUL^R22 | ORC-1 = ‘RE’  ORC-5 = ‘CM’  OBR-25 = ‘C’ |
| Amended Report | The filler provides additional test results after final report has been sent – these results have not ever been sent previously. Same as final results | Filler | R | OUL^R22 | ORC-1 = ‘RE’  ORC-5 = ‘CM’  OBR-25 = ‘F’ |

**Notes:**

1 When a message is accepted all orders in the message are accepted by the filler; similarly, when a message is not accepted (i.e., rejected or in error) none of the orders in the message are accepted by the filler.

2 We realize this is not the appropriate message type for this interaction and it is planned to change over to the appropriate OML type in the next phase.

## Message Profile Identifiers

The following message profile identifiers are available based on the particular use case and messaging context:

| Entity  Identifier | Name-space  ID | Universal  ID | Short Name | Description |
| --- | --- | --- | --- | --- |
| **PHLIP\_ETOR\_Sal\_v1.0.2** | PHIN | 2.16.840.1.114222.4.10.3 | ETOR Profile Sal | Profile used by and between State Public Health Laboratories and the CDC (i.e., state-to-CDC and CDC-to-state) when sending/receiving orders/results for Salmonella-related testing – this includes vocabulary described in this guide and the mapping workbook. |
| **PHLIP\_ETOR\_Vocab\_Sal\_v1.0.2** | PHIN | 2.16.840.1.114222.4.10.4 | ETOR Vocab Sal | Use this OID in a second repeat of MSH.21 to identify the vocabulary used with this profile – since we decided to split message structure from vocabulary definitions this is intended to identify the Salmonella specific encoding guideline |

## Implementation Profile

In order to arrive at a valid Implementation Message Profile the following portions of this Constrainable Message Profile, as outlined in this guide, must be fully constrained. In other words, change the usage of any segment, field, component, etc. from “O” (optional) to one of the following: “R” (required), “RE” (required but may be empty), “C” (conditional), “CE” (conditional but may be empty), or “X” (not supported.)

### Unconstrained Message Profile Elements

### none in this guide

| Element | Description | Message(s) |
| --- | --- | --- |
|  |  |  |

# Messages

The message definitions in this section use the following conventions to represent their usage and cardinality attributes:

|  |  |
| --- | --- |
| XXX | Required |
| [ XXX ] | Optional |
| { XXX } | Repeating |
| [ { XXX } ] | Optional and Repeating |

While segment groups do not have a segment code, the same conventions apply.

## OML^O33 - Laboratory Order for multiple orders related to a single specimen

| Segment | Name | Usage | Cardinality |
| --- | --- | --- | --- |
| MSH | Message Header | R | [1..1] |
| [{ SFT }] | Software | X | [0..0] |
| [{ UAC }] | User Authentication Credential | X | [0..0] |
| [{ NTE }] | Notes and Comments (for Header) | X | [0..0] |
| **[** | ***--- PATIENT begin*** | R | [1..1] |
| PID | Patient Identification | R | [1..1] |
| [ PD1 ] | Additional Demographics | X | [0..0] |
| [{ NTE }] | Notes and Comments (for Patient ID) | RE | [0..\*] |
| [{ NK1 }] | Next of Kin/Associated Parties | X | [0..0] |
| **[** | ***--- PATIENT\_VISIT begin*** |  | [0..0] |
| PV1 | Patient Visit | X | [0..0] |
| [ PV2 ] | Patient Visit- Additional Info | X | [0..0] |
| **]** | ***--- PATIENT\_VISIT end*** | X | [0..0] |
| **[{** | ***--- INSURANCE begin*** | X | [0..0] |
| IN1 | Insurance | X | [0..0] |
| [ IN2 ] | Insurance Additional Info | X | [0..0] |
| [ IN3 ] | Insurance Add'l Info - Cert. | X | [0..0] |
| **}]** | ***--- INSURANCE end*** |  |  |
| [ GT1 ] | Guarantor | X | [0..0] |
| [{ AL1 }] | Allergy Information | X | [0..0] |
| **]** | ***--- PATIENT end*** |  |  |
| **{** | ***--- SPECIMEN begin*** | R | [1..1] |
| SPM | Specimen | R | [1..1] |
| { OBX } | Observations related to specimen | R | [2..\*] |
| [{ SAC }] | Specimen Container | X | [0..0] |
| **{** | ***--- ORDER begin*** | R | [1..\*] |
| ORC | Common Order | R | [1..1] |
| **[{** | ***--- TIMING begin*** | X | [0..0] |
| TQ1 | Timing/Quantity | X | [0..0] |
| [{ TQ2 }] | Timing/Quantity Order Sequence | X | [0..0] |
| **}]** | ***--- TIMING end*** |  |  |
| **[** | ***--- OBSERVATION\_REQUEST begin*** | R | [1..1] |
| OBR | Observation Request | R | [1..1] |
| [ TCD ] | Test Code Details | X | [0..0] |
| [{ NTE }] | Notes and Comments (for Detail) | RE | [0..\*] |
| { ROL } | Role (for Observation) | R | [1..\*] |
| [{ DG1 }] | Diagnosis | X | [0..0] |
| **[{** | ***--- OBSERVATION begin*** | X | [0..0] |
| OBX | Observation/Result | X | [0..0] |
| [ TCD ] | Test Code Detail | X | [0..0] |
| [{ NTE }] | Notes and Comments (for Results) | X | [0..0] |
| **}]** | ***--- OBSERVATION end*** |  |  |
| **[{** | ***--- PRIOR\_RESULT begin*** | X | [0..0] |
| **[** | ***--- PATIENT\_PRIOR begin*** | X | [0..0] |
| PID | Patient Identification – previous result | X | [0..0] |
| [ PD1 ] | Additional Demographics – previous result | X | [0..0] |
| **]** | ***--- PATIENT\_PRIOR end*** |  |  |
| **[** | ***--- PATIENT\_VISIT\_PRIOR begin*** | X | [0..0] |
| PV1 | Patient Visit – previous result | X | [0..0] |
| [ PV2 ] | Patient Visit Add. Info – previous result | X | [0..0] |
| **]** | ***--- PATIENT\_VISIT\_PRIOR end*** |  |  |
| [{ AL1 }] | Allergy Information - previous result | X | [0..0] |
| **{** | ***--- ORDER\_PRIOR begin*** | X | [0..0] |
| [ ORC ] | Common Order - previous result | X | [0..0] |
| OBR | Order Detail - previous result | X | [0..0] |
| [{ NTE }] | Notes and Comments - previous result | X | [0..0] |
| [{ ROL }] | Role (for Observation) | X | [0..0] |
| **[{** | ***--- TIMING\_PRIOR begin*** | X | [0..0] |
| TQ1 | Timing/Quantity - for previous results | X | [0..0] |
| [{ TQ2 }] | Timing/Quantity Order Sequence - for previous results | X | [0..0] |
| **}]** | ***--- TIMING\_PRIOR end*** |  |  |
| **{** | ***--- OBSERVATION\_PRIOR begin*** | X | [0..0] |
| OBX | Observation/Result - previous result | X | [0..0] |
| [{ NTE }] | Notes and Comments - previous result | X | [0..0] |
| **}** | ***--- OBSERVATION\_PRIOR end*** |  |  |
| **}** | ***--- ORDER\_PRIOR end*** |  |  |
| **}]** | ***--- PRIOR\_RESULT end*** |  |  |
| **]** | ***--- OBSERVATION\_REQUEST end*** |  |  |
| [{ FT1 }] | Financial Transaction | X | [0..0] |
| [{ CTI }] | Clinical Trial Identification | X | [0..0] |
| [ BLG ] | Billing Segment | X | [0..0] |
| **}** | ***--- ORDER end*** |  |  |
| **}** | ***--- SPECIMEN end*** |  |  |

### OML^O33 (Condensed representation)

| Segment | Name | Usage | Cardinality |
| --- | --- | --- | --- |
| [MSH](#__RefHeading__147_20220208) | Message Header | R | [1..1] |
| **[** | ***--- PATIENT begin*** | R | [1..1] |
| [PID](#__RefHeading__149_20220208) | Patient Identification | R | [1..1] |
| [{ [NTE](#__RefHeading__159_20220208) }] | Notes and Comments (for Patient ID) | RE | [0..\*] |
| **]** | ***--- PATIENT end*** |  |  |
| **{** | ***--- SPECIMEN begin*** | R | [1..1] |
| [SPM](#__RefHeading__151_20220208) | Specimen | R | [1..1] |
| { [OBX](#__RefHeading__157_20220208) } | Observations related to specimen | R | [2..\*] |
| **{** | ***--- ORDER begin*** | R | [1..\*] |
| [ORC](#__RefHeading__153_20220208) | Common Order | R | [1..1] |
| **[** | ***--- OBSERVATION\_REQUEST begin*** | R | [1..1] |
| [OBR](#__RefHeading__155_20220208) | Observation Request | R | [1..1] |
| [{ [NTE](#__RefHeading__159_20220208) }] | Notes and Comments (for Detail) | RE | [0..\*] |
| { [ROL](#__RefHeading__161_20220208) } | Role (for Observation) | R | [1..\*] |
| **]** | ***--- OBSERVATION\_REQUEST end*** |  |  |
| **}** | ***--- ORDER end*** |  |  |
| **}** | ***--- SPECIMEN end*** |  |  |

### OML^O33 – Segment Usage Notes

#### Observations Related to Specimen

The following observations represent additional information related to the specimen that is not able to be conveyed in the Specimen segment. The HL7 method for relaying additional information related to the specimen is by including additional OBX segments directly after the SPM segment. Given a predefined set of codes and vocabulary, each of these OBX segments further describes and/or provides additional information about the specimen in a standards-based, interoperable fashion.

Some of the following observations will accompany the specimen segment at all times (i.e., those marked as “R”) while others will do so only under certain conditions, generally speaking, when the specimen type field (SPM-4) contains an isolate-related specimen.

Please refer to the Data elements of interest document [Data elements of interest document](file:///C:\Documents%20and%20Settings\vidotl\My%20Documents\Local%20Settings\Temporary%20Internet%20Files\VMWG\ETOR\ETOR%20Library\PHLISSA%20related%20documents\latest%20versions%20of%20ETOR%20documentation\ETOR_DataElements_DRAFT.xls) [http://www.aphlweb.org/aphl\_departments/Strategic\_Initiatives\_and\_Research/Informatics\_Program/Projects/PHLIP/VMWG/ETOR/ETOR%20Library/PHLISSA%20related%20documents/latest%20versions%20of%20ETOR%20documentation/ETOR\_DataElements\_DRAFT.xls] for detailed information of what specific information is included.

#### Roles Related to Observation Request

It is necessary to convey information related to the various roles played in the context of the observation request. The information can include an individual’s name, address, phone number, email address, fax number, organization name, etc. In addition, it is necessary that not only the role be conveyed, but also the context within which that role is being played. To convey this information a series of one or more ROL segments is included after the OBR segment.

Please refer to the [Data elements of interest document](file:///C:\Documents%20and%20Settings\vidotl\My%20Documents\Local%20Settings\Temporary%20Internet%20Files\VMWG\ETOR\ETOR%20Library\PHLISSA%20related%20documents\latest%20versions%20of%20ETOR%20documentation\ETOR_DataElements_DRAFT.xls) [http://www.aphlweb.org/aphl\_departments/Strategic\_Initiatives\_and\_Research/Informatics\_Program/Projects/PHLIP/VMWG/ETOR/ETOR%20Library/PHLISSA%20related%20documents/latest%20versions%20of%20ETOR%20documentation/ETOR\_DataElements\_DRAFT.xls] for detailed information of what specific information is included.

## OUL^R22 - Unsolicited Specimen Oriented Observation Message

| Segment | Name | Usage | Cardinality |
| --- | --- | --- | --- |
| MSH | Message Header | R | [1..1] |
| [{SFT}] | Software Segment | X | [0..0] |
| [UAC] | User Authentication Credential | X | [0..0] |
| [NTE] | Notes and Comments | X | [0..0] |
| **[** | **--- PATIENT begin** | R | [1..1] |
| PID | Patient Identification | R | [1..1] |
| [PD1] | Additional Demographics | X | [0..0] |
| [{NTE}] | Notes and Comments (for Patient ID) | RE | [0..\*] |
| [{OBX}] | Observation (for Patient ID) | X | [0..0] |
| **[** | **--- PATIENT VISIT begin** | X | [0..0] |
| PV1 | Patient Visit | X | [0..0] |
| [PV2] | Patient Visit – Additional Information | X | [0..0] |
| **]** | **--- PATIENT VISIT end** |  |  |
| **]** | **--- PATIENT end** |  |  |
| [ { NK1 } ] | Next of Kin | X | [0..0] |
| **{** | **--- SPECIMEN begin** | R | [1..1] |
| SPM | Specimen information | R | [1..1] |
| [{OBX}] | Observation Result (for Specimen) | R | [1..\*] |
| **[{** | **--- CONTAINER begin** | X | [0..0] |
| SAC | Container information | X | [0..0] |
| [INV] | Detailed Substance information (e.g., id, lot, manufacturer, … of QC specimen) | X | [0..0] |
| **}]** | **--- CONTAINER end** |  |  |
| **{** | **--- ORDER begin** | R | [1..\*] |
| OBR | Observation Order | R | [1..1] |
| [ORC] | Common Order | RE | [0..1] |
| [{NTE}] | Notes and Comments (for Detail) | RE | [0..\*] |
| [{ROL}] | Role (for Observation) | R | [2..\*] |
| **[{** | **--- TIMING\_QTY begin** | X | [0..0] |
| TQ1 | Timing/Quantity | X | [0..0] |
| [{TQ2}] | Timing/Quantity Order Sequence | X | [0..0] |
| **}]** | **--- TIMING\_QTY end** |  |  |
| **[{** | **--- RESULT begin** | RE | [0..\*] |
| OBX | Observation Result | R | [1..\*] |
| [TCD] | Test Code Detail | X | [0..0] |
| {[SID]} | Substance Identifier (e.g., reagents used for testing) | X | [0..0] |
| [{NTE}] | Notes and Comments | RE | [0..\*] |
| **}]** | **--- RESULT end** |  |  |
| [{CTI}] | Clinical Trial Identification | X | [0..0] |
| **}** | **--- ORDER end** |  |  |
| **}** | **--- SPECIMEN end** |  |  |
| [DSC] | Continuation Pointer | X | [0..0] |

### OUL^R22 (Condensed representation)

| Segment | Name | Usage | Cardinality |
| --- | --- | --- | --- |
| [MSH](#__RefHeading__147_20220208) | Message Header | R | [1..1] |
| **[** | **--- PATIENT begin** | R | [1..1] |
| [PID](#_PID_–_Patient) | Patient Identification | R | [1..1] |
| [{[NTE](#_NTE_–_Notes)}] | Notes and Comments (for Patient ID) | RE | [0..\*] |
| **]** | **--- PATIENT end** |  |  |
| **{** | **--- SPECIMEN begin** | R | [1..1] |
| [SPM](#_SPM_–_Specimen) | Specimen information | R | [1..1] |
| [{ [OBX](#OBX) }] | Observation Result (for Specimen) | R | [1..\*] |
| **{** | **--- ORDER begin** | R | [1..\*] |
| [OBR](#_OBR_–_Observation) | Observation Order | R | [1..1] |
| [[ORC](#_ORC_–_Common)] | Common Order | RE | [0..1] |
| [{[NTE](#__RefHeading__159_20220208)}] | Notes and Comments (for Detail) | RE | [0..\*] |
| [{[ROL](#_ROL_–_Role)}] | Role (for Observation) | R | [2..\*] |
| **[{** | **--- RESULT begin** | RE | [0..\*] |
| [OBX](#__RefHeading__157_20220208) | Observation Result | R | [1..\*] |
| [{[NTE](#__RefHeading__159_20220208)}] | Notes and Comments | RE | [0..\*] |
| **}]** | **--- RESULT end** |  |  |
| **}** | **--- ORDER end** |  |  |
| **}** | **--- SPECIMEN end** |  |  |

## ACK^O33 - Acknowledgement Message

| Segment | Name | Usage | Cardinality |
| --- | --- | --- | --- |
| MSH | Message Header | R | [1..1] |
| [{ SFT }] | Software Segment | X | [0..0] |
| [UAC ] | User Authentication Credential | X | [0..0] |
| MSA | Message Acknowledgment | R | [1..1] |
| [{ ERR }] | Error | RE | [0..\*] |

### ACK^O33 (Condensed Representation)

| Segment | Name | Usage | Cardinality |
| --- | --- | --- | --- |
| [MSH](#_MSH_–_Message) | Message Header | R | [1..1] |
| [MSA](#_MSA_–_Message) | Message Acknowledgment | R | [1..1] |
| [{ [ERR](#_ERR_–_Error) }] | Error | RE | [0..\*] |

# Data Types

| Table 2-1 – Data Types | | |
| --- | --- | --- |
| Data type | Data Type Name | Length |
| CWE | Coded with Exceptions | ◊ |
| CX | Extended Composite ID with Check Digit | ◊ |
| DR | Date/Time Range | ◊ |
| DT | Date | 8 |
| DTM | Date/Time | 24 |
| EI | Entity Identifier | ◊ |
| EIP | Entity Identifier Pair | ◊ |
| ERL | Error Location | ◊ |
| FN | Family Name | ◊ |
| FT | Formatted Text Data | 65536 |
| HD | Hierarchic Designator | ◊ |
| ID | Coded Values for HL7 Tables | Variable |
| IS | Coded value for User-Defined Tables | 20 |
| MSG | Message Type | ◊ |
| NM | Numeric | 16 |
| PRL | Parent Result Link | ◊ |
| PL | Person Location | ◊ |
| PT | Processing Type | ◊ |
| SAD | Street Address | ◊ |
| SI | Sequence ID | 4 |
| SN | Structured Numeric | ◊ |
| ST | String | 999 |
| TM | Time | 16 |
| TX | Text Data | 65536 |
| VID | Version Identifier | ◊ |
| XAD | Extended Address | ◊ |
| XCN | Extended Composite ID Number and Name | ◊ |
| XON | Extended Composite Name and ID Number for Organizations | ◊ |
| XPN | Extended Person Name | ◊ |
| XTN | Extended telecommunications number | ◊ |

## CWE – Coded with Exceptions

| Coded with Exceptions (CWE) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 20 | ST | RE |  | Identifier |  |
| 2 | 199 | ST | CE |  | Text | It is strongly recommended that text be sent to accompany any identifier. When a coded value is not known, the original text attribute is used to carry the text, not the text component.  Condition: if CWE-1 is empty then this component must be empty |
| 3 | 20 | ID | CE | HL70396 | Name of Coding System | Condition: Required if an identifier is provided in component 1. |
| 4 | 20 | ST | RE |  | Alternate Identifier | The alternate identifier (from the alternate coding system) should be the closest match for the identifier found in component 1. |
| 5 | 199 | ST | CE |  | Alternate Text | It is strongly recommended that alternate text be sent to accompany any alternate identifier.  Condition: if CWE-4 is empty then this component must be empty |
| 6 | 20 | ID | CE | HL70396 | Name of Alternate Coding System | Condition: Required if an alternate identifier is provided in component 4. |
| 7 | 10 | ST | RE |  | Coding System Version ID | Examples for standard coding systems:  For the July 2008 release of LOINC use the literal value, “2.24”  For the July 2008 release of SNOMED CT use the literal value, “0807Intl” |
| 8 | 10 | ST | RE |  | Alternate Coding System Version ID |  |
| 9 | 199 | ST | C |  | Original Text | Original Text is used to convey either the text which was the basis for coding, or when there is no code to be sent, only free text.  Condition: if CWE-1 and CWE-4 are empty then this component is required |

Usage: The CWE data type is used where it is necessary to communicate a code, text, coding system and the version of the coding system the code was drawn from. It also allows the communication of an alternate code drawn from another coding system. Many coded fields in this specification identify coding systems or value sets that must be used for the field. When populating the CWE data types with these values, this guide does not give preference to the triplet in which the standard code should appear. The receiver is expected to examine the coding system names in components 3 and 6 to determine if it recognizes the coding system.

“Null flavors” are not supported.

When using a local coding system the sender shall institute a versioning policy on that system and include the version number/ID associated with the local code(s).

### CWE – Coded with Exceptions for OBX-5

| Coded with Exceptions (CWE) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 20 | ST | RE |  | Identifier |  |
| 2 | 199 | ST | CE |  | Text | It is strongly recommended that text be sent to accompany any identifier. When a coded value is not known, the original text attribute is used to carry the text, not the text component.  Condition: if CWE-1 is empty then this component must be empty |
| 3 | 20 | ID | CE | HL70396 | Name of Coding System | Condition: Required if an identifier is provided in component 1. |
| 4 | 20 | ST | RE |  | Alternate Identifier | The alternate identifier (from the alternate coding system) should be the closest match for the identifier found in component 1. |
| 5 | 199 | ST | CE |  | Alternate Text | It is strongly recommended that alternate text be sent to accompany any alternate identifier.  Condition: if CWE-4 is empty then this component must be empty |
| 6 | 20 | ID | CE | HL70396 | Name of Alternate Coding System | Condition: Required if an alternate identifier is provided in component 4. |
| 7 | 10 | ST | RE |  | Coding System Version ID | Examples for standard coding systems:  For the July 2008 release of LOINC use the literal value, “2.24”  For the July 2008 release of SNOMED CT use the literal value, “0807Intl” |
| 8 | 10 | ST | RE |  | Alternate Coding System Version ID |  |
| 9 | 199 | ST | R |  | Original Text | Original Text is used to convey either the text which was the basis for coding, or when there is no code to be sent, only free text. |

Usage: The CWE data type is used where it is necessary to communicate a code, text, coding system and the version of the coding system the code was drawn from. It also allows the communication of an alternate code drawn from another coding system. Many coded fields in this specification identify coding systems or value sets that must be used for the field. When populating the CWE data types with these values, this guide does not give preference to the triplet in which the standard code should appear. The receiver is expected to examine the coding system names in components 3 and 6 to determine if it recognizes the coding system.

“Null flavors” are not supported.

When using a local coding system the sender shall institute a versioning policy on that system and include the version number/ID associated with the local code(s).

## CX – Extended Composite ID with Check Digit

| Extended Composite ID with Check Digit (CX) | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | | DT | Usage | Value Set | Component Name | Comments |
| 1 | 15 | | ST | R |  | ID Number | The ID Number component combined with the Assigning Authority component must uniquely identify the associated object, i.e., any object with which the field is associated. |
| 2 | |  | ST | X |  | Check Digit |  |
| 3 |  | | ID | X |  | Check Digit Scheme |  |
| 4 | ◊ | | HD | R |  | Assigning Authority | Uniquely identifies the system, application, organization, etc. that assigned the value in CX-1 |
| 5 | 3 | | ID | R | Identifier Type (HL70203) | Identifier Type Code |  |
| 6 | ◊ | | HD | RE |  | Assigning Facility | Uniquely identifies the place or location that assigned the value in CX-1 |
| 7 |  | | DT | X |  | Effective Date |  |
| 8 |  | | DT | X |  | Expiration Date |  |
| 9 |  | | CWE | X |  | Assigning Jurisdiction |  |
| 10 |  | | CWE | X |  | Assigning Agency or Department |  |

Usage: The CX data type is used to carry identifiers. This guide requires that all identifiers be accompanied by assigning authorities, and that all identifiers carry an identifier type. This method allows the exchange of unique identifiers for the associated object across organizational and enterprise boundaries, enabling broad interoperability.

Although the Identifier Type Code component is required, it is not a part of the actual identifier. Rather, it is metadata about the identifier. The ID Number and Assigning Authority component, together, constitute the actual identifier. The reason for this requirement is to promote forward compatibility with *HL7 Version 3* identifiers, where there is no concept of identifier type codes. Although this guide does not deal directly with *Version 3* constructs, it is intended to work within the context of the HITSP Interoperability constructs, which work with both *Version 2.x* messaging and *Version 3* constructs.

## DR – Date/Time Range

| Date/Time Range (DR) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | ◊ | DTM | RE |  | Range Start Date/Time |  |
| 2 |  | DTM | X |  | Range End Date/Time |  |

## DT – Date

| Date (DT) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 8 |  | R |  | Date | Format (unless otherwise specified): YYYY[MM[DD]] |

## DTM – Date/Time

| Date/Time (DTM) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 24 |  | R |  | Date/Time | Format (unless otherwise specified):  YYYY[MM[DD  [HH[MM[SS  [[.]S[S[S[S]]]]]]]]][+/-ZZZZ] |

Usage: Unless specifically stated otherwise, it is required that the time zone offset always be included in the DTM when the granularity is valued at a value finer than to the day (i.e. includes the hour, minute, second or sub-second). The period separating the seconds-value from the sub-second(s)-value is optional, which represents a variance from the HL7 standard data type.

## EI – Entity Identifier

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Entity Identifier (EI) | | | | | | |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 199 | ST | R |  | Entity Identifier |  |
| 2 | ◊ | IS | RE |  | Namespace ID |  |
| 3 | 199 | ST | R |  | Universal ID | Must be an OID, CLIA or NPI |
| 4 | 6 | ID | R | Universal ID Type (HL70301) | Universal ID Type |  |

Usage: The EI data type is used to carry identifiers. This guide requires that all entity identifiers be accompanied by assigning authorities. This allows the exchange of unique identifiers for the associated object across organizational and enterprise boundaries, enabling broad interoperability.

In the EI data type, the Namespace ID, Universal ID and Universal ID type correspond to the HD data type identified elsewhere. These types, together, are commonly considered the assigning authority for the identifier. The Entity Identifier and Assigning Authority components, together, constitute the actual identifier. This method promotes forward compatibility with *HL7 Version 3* identifiers, where there is no concept of identifier type codes.

Although this guide does not deal directly with *Version 3* constructs, it is intended to work within the context of the HITSP Interoperability constructs, which deal with both *Version 2.x* messaging and *Version 3* constructs.

## EIP – Entity Identifier Pair

| Entity Identifier Pair (EIP) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | ◊ | EI | R |  | Placer Assigned Identifier |  |
| 2 | ◊ | EI | RE |  | Filler Assigned Identifier |  |

## ERL – Error Location

| ERROR LOCATION (ERL) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 3 | ST | R |  | Segment ID | The 3-letter name of the segment |
| 2 | ◊ | NM | RE |  | Segment Sequence | Identifies the segment occurrence within the message |
| 3 | ◊ | NM | CE |  | Field Position | Identifies the number of the field within the segment. The first field is assigned a value of 1.  Field numbers should not be specified when referring to the entire segment.  Condition: required if ERL-4, ERL-5 and/or ERL-6 are populated |
| 4 | ◊ | NM | CE |  | Field Repetition | Identifies the repetition number of the field. The first repetition is assigned a value of 1.  If a field position is specified, but field repetition is not, field repetition is assumed to be 1.  If field position is not specified then field repetition should not be specified.  Condition: required if ERL-3 refers to a repeating field and if ERL-5 and/or ERL-6 are populated |
| 5 | ◊ | NM | CE |  | Component Number | Identifies the number of the component within the field. The first component is assigned a value of 1. Component number should not be specified when referring to the entire field.  Condition: required if ERL-6 is populated |
| 6 | ◊ | NM | RE |  | Sub-Component Number | Identifies the number of the sub-component within the component. The first sub-component is assigned a value of 1. Sub-component should not be specified when referring to the entire component. |

## FN – Family Name

| Family Name (FN) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 50 | ST | R |  | Surname |  |
| 2 |  | ST | X |  | Own Surname Prefix |  |
| 3 |  | ST | X |  | Own Surname |  |
| 4 |  | ST | X |  | Surname Prefix From Partner/Spouse |  |
| 5 |  | ST | X |  | Surname From Partner/Spouse |  |

## FT – Formatted Text Data

| Formatted Text Data (FT) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
|  | 65536 |  | R |  | Formatted Text Value |  |

Usage: The FT data type only allows use of the escape sequences documented in *HL7 Version 2.6, Chapter 2, Section 2.7.4 – Special Character* (i.e. the message delimiters: |^&~\)

## HD – Hierarchic Designator

| Hierarchic Designator (HD) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | ◊ | IS | R |  | Namespace ID | Text of code/ text string |
| 2 | 999 | ST | C |  | Universal ID | Refer to the instance where this is used for what universal ID type is expected, use an OID wherever possible. CLIA is also allowed – must use HL7.v.27 table.  Condition: Both HD.2 and HD.3 must be valued or both must be empty. |
| 3 | 6 | ID | C | Universal ID Type (HL70301) | Universal ID Type | Condition: Both HD.2 and HD.3 must be valued or both must be empty. |

Usage: The HD data type is used directly to identify objects such as applications or facilities. It is used also as a component of other data types, where it is typically an assigning authority for an identifier. It may be used to identify a Universal Resource Indicator (URI). Where this capability is used in this specification, that usage is described separately.

## ID – Coded Value for HL7-Defined Tables

| Coded Value for HL7-Defined Tables (ID) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | Variable | - | R |  | Coded Value for HL7-Defined Tables |  |

## IS – Coded Value for User-Defined Tables

| Coded Value for User-Defined Tables (ID) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 200 | - | R |  | Coded Value for User-Defined Tables |  |

## MSG – Message Type

| Message Type (MSG) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 3 | ID | R | HL70076 | Message Code | Literal value (based on message):  ‘OML’  ‘ACK’  ‘OUL’ |
| 2 | 3 | ID | R | HL70003 | Trigger Event | Literal value (based on message):  ‘O33’  ‘R22’ |
| 3 | 7 | ID | R | HL70354 | Message Structure | Literal value (based on message):  ‘OML\_O33’  ‘ACK’  ‘OUL\_R22’ |

## NM – Numeric

| Numeric (NM) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 16 | - | R |  | Numeric | HL7 allows only ASCII numeric characters as well as an optional leading plus or minus sign and an optional decimal point. Note that use of scientific notation for numbers is not supported by this data type. |

## PRL – parent result link

| parent result link (Prl) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 1 | CWE | R |  | Parent Observation Identifier | The observation identifier (OBX-3) of the parent result. |
| 2 |  | ST | X |  | Parent Observation Sub-identifier |  |
| 3 |  | TX | X |  | Parent Observation Value Descriptor |  |

## PT – Processing Type

| Processing Type (PT) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 1 | ID | R | Processing ID (HL7) | Processing ID |  |
| 2 |  | ID | X |  | Processing Mode |  |

## SAD – Street Address

| Street Address (SAD) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 120 | ST | R |  | Street or Mailing Address |  |
| 2 |  | ST | X |  | Street Name |  |
| 3 |  | ST | X |  | Dwelling Number |  |

## SI – Sequence ID

| Sequence ID (SI) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 4 | - | R |  | Sequence ID | Non-negative integer up to 9999. May be further constrained to limit the number of times a segment may repeat. |

## SN – Structured Numeric

| Structured Numeric (SN) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 2 | ST | RE |  | Comparator | Component that must be one of ">" or "<" or ">=" or "<=" or "=" or "<>". This component defaults to "=" if empty. |
| 2 | 15 | NM | RE |  | Num1 |  |
| 3 | 1 | ST | RE |  | Separator/Suffix | Component that must be one of "-" or "+" or "/" or "." or ":". |
| 4 | 15 | NM | RE |  | Num2 |  |

Usage: The SN data type carries a structured numeric result value. Structured numeric values include intervals (^0^-^1), ratios (^1^/^2 or ^1^:^2), inequalities (<^10), or categorical results (^2^+).

## ST – String Data

| String Data (St) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 999 | - | R |  | String Data |  |

Usage: The ST data type is normally used for short text strings. No leading blanks (space characters) are permitted. Trailing blanks are permitted. The ST data type allows only those escape sequences specified under the FT data type herein; see FT for allowed escape sequences.

## TM – Time

| Time (TM) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 16 | - | R |  | Time | Format:  HH[MM[SS  [[.]S[S[S[S]]]]]][+/-ZZZZ] |

Note: Unless specifically stated otherwise, it is required that the time zone offset always be included in the TM. The period separating the seconds-value from the sub-second(s)-value is optional, which represents a variance from the HL7 standard data type.

## TX – Text Data

| Text Data (TX) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 65536 | - | R |  | Text Data |  |

Usage: The TX data type is used to carry string data intended for display purposes. It can contain leading blanks (space characters). The TX data type allows only those escape sequences specified under the FT data type herein; see FT for allowed escape sequences.

## VID – Version Identifier

| Version Identifier (VID) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 5 | ID | R | HL70104 | Version ID | Literal value: ‘2.6’ |
| 2 |  | CWE | X |  | Internationalization Code |  |
| 3 |  | CWE | X |  | International Version ID |  |

## XAD – Extended Address

| Extended Address (XAD) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | ◊ | SAD | RE |  | Street Address |  |
| 2 | 120 | ST | RE |  | Other Designation |  |
| 3 | 50 | ST | RE |  | City |  |
| 4 | 2\* | ST | RE | State | State or Province |  |
| 5 | 10\* | ST | RE |  | Zip or Postal Code | For US: [99999[-9999]]  For CN: [A9A[9A9]] |
| 6 | 3 | ID | RE | Country | Country |  |
| 7 |  | ID | X |  | Address Type |  |
| 8 |  | ST | X |  | Other Geographic Designation |  |
| 9 | 5\* | IS | RE | County | County/Parish Code | See: <http://www.census.gov/geo/www/fips/fips65/index.html> |
| 10 |  | IS | X |  | Census Tract |  |
| 11 |  | ID | X |  | Address Representation Code |  |
| 12 |  | DR | X |  | Address Validity Range |  |
| 13 |  | DTM | X |  | Effective Date |  |
| 14 |  | DTM | X |  | Expiration Date |  |
| 15 |  | CWE | X |  | Expiration Reason |  |
| 16 |  | ID | X |  | Temporary Indicator |  |
| 17 |  | ID | X |  | Bad Address Indicator |  |
| 18 |  | ID | X |  | Address Usage |  |
| 19 | 199 | ST | RE |  | Addressee | Identifies the name of person or organization (also known as the “care of” or “c/o” line) |
| 20 |  | ST | X |  | Comment |  |
| 21 |  | NM | X |  | Preference Order |  |
| 22 |  | CWE | X |  | Production Code |  |
| 23 |  | EI | X |  | Address Identifier | Uniquely identifies the address, enabling the linking of the address to multiple people/contexts (e.g., a set of employees at the same laboratory would each share the same address having the same identifier) |

\* This represents a variance from the HL7 standard (length is shortened)

## XCN – Extended Composite ID Number and Name for Persons

| Extended Composite ID Number and Name for Persons (XCN) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 199\* | ST | RE |  | ID Number | If this is a person, the ID must be accompanied by an OID for the assigning authority (component 9). If this is an organization, the OID for the organization should be provided here. |
| 2 | ◊ | FN | R |  | Family Name | Default “UNKNOWN” |
| 3 | 30 | ST | RE |  | Given Name |  |
| 4 | 30 | ST | RE |  | Second and Further Given Names or Initials Thereof |  |
| 5 | 20 | ST | RE |  | Suffix (e.g., JR or III) |  |
| 6 | 20 | ST | RE |  | Prefix (e.g., DR) |  |
| 7 |  | IS | X |  | Degree (e.g., MD) |  |
| 8 |  | IS | X |  | Source Table |  |
| 9 | ◊ | HD | RE |  | Assigning Authority | If component 1 (ID Number) is populated this field should also be populated. |
| 10 | 1 | ID | RE | Name Type (HL70200) | Name Type Code |  |
| 11 |  | ST | X |  | Identifier Check Digit |  |
| 12 |  | ID | X |  | Check Digit Scheme |  |
| 13 | 5 | ID | CE | Identifier Type (HL70203) | Identifier Type Code | Condition: Required if component 1 (ID Number) is populated. |
| 14 | ◊ | HD | RE |  | Assigning Facility |  |
| 15 |  | ID | X |  | Name Representation Code |  |
| 16 |  | CWE | X |  | Name Context |  |
| 17 |  | DR | X |  | Name Validity Range |  |
| 18 |  | ID | X |  | Name Assembly Order |  |
| 19 |  | TS | X |  | Effective Date |  |
| 20 |  | TS | X |  | Expiration Date |  |
| 21 | 199 | ST | RE | Degree License Certificate (HL7) | Professional Suffix |  |
| 22 |  | CWE | X |  | Assigning Jurisdiction |  |
| 23 |  | CWE | X |  | Assigning Agency or Department |  |

\*This is a deviation from the underlying standard – the field length has been extended

## XON – Extended Composite Name and Identification Number for Organizations

| Extended Composite Name and Identification Number for Organizations (XON) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 50 | ST | R |  | Organization Name |  |
| 2 | ◊ | IS | RE | Organizational Name Type (HL7) | Organizational Name Type Code |  |
| 3 |  | NM | X |  | ID Number |  |
| 4 |  | NM | X |  | Check Digit |  |
| 5 |  | ID | X |  | Check Digit Scheme |  |
| 6 | ◊ | HD | CE |  | Assigning Authority | Condition: Required if component 10 (Organization Identifier) is populated with something other than an OID |
| 7 | 5 | ID | RE | Identifier Type (HL7) | Identifier Type Code |  |
| 8 | ◊ | HD | RE |  | Assigning Facility |  |
| 9 |  | ID | X |  | Name Representation Code |  |
| 10 | 199\* | ST | RE |  | Organization Identifier |  |

\*This is a deviation from the underlying standard – the field length has been extended

## XPN – Extended Person Name

| Extended Person Name (XPN) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | ◊ | FN | RE |  | Family Name |  |
| 2 | 30 | ST | RE |  | Given Name | i.e. First Name |
| 3 | 30 | ST | RE |  | Second and Further Given Names or Initials Thereof |  |
| 4 | 20 | ST | RE |  | Suffix (e.g., JR or III) |  |
| 5 | 20 | ST | RE† |  | Prefix (e.g., DR) |  |
| 6 |  | IS | X |  | Degree (e.g., MD) |  |
| 7 | 1 | ID | CE | Name Type (HL7) | Name Type Code | Condition: Required if all other components are empty; in this case must contain a value of ‘U’ |
| 8 |  | ID | X |  | Name Representation Code |  |
| 9 |  | CWE | X |  | Name Context |  |
| 10 |  | DR | X |  | Name Validity Range |  |
| 11 |  | ID | X |  | Name Assembly Order |  |
| 12 |  | TS | X |  | Effective Date |  |
| 13 |  | TS | X |  | Expiration Date |  |
| 14 | 199 | ST | RE† | Degree License Certificate (HL7) | Professional Suffix |  |

† The Prefix and Professional Suffix components are not supported in the XPN data type when the XPN data type is used in the context of the PID segment.

## XTN – Extended Telecommunication Number

| Extended TElecommunication Number (XTN) | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| SEQ | LEN | DT | Usage | Value Set | Component Name | Comments |
| 1 | 199 | ST | X |  | Telephone Number |  |
| 2 | 3 | ID | RE | Telecom Use Code (HL7) | Telecommunication Use Code | Use ‘NET’ if XTN-4 is populated |
| 3 | 8 | ID | RE | Telecom Equipment Type (HL7) | Telecommunication Equipment Type | Use ‘INTERNET’ if XTN-4 is populated |
| 4 | 199 | ST | CE |  | Email Address | Condition: may only be populated if XTN-5, 6, 7 and 8 are empty |
| 5 | 3 | NM | CE |  | Country Code | Condition: may only be populated if XTN-4 is empty; required or empty (RE) if XTN-6 is populated otherwise it must be empty |
| 6 | 5 | NM | CE |  | Area/City Code | Condition: may only be populated if XTN-4 is empty; required or empty (RE) if XTN- 7 is populated, otherwise it must be empty |
| 7 | 9 | NM | CE |  | Local Number | Condition: may only be populated if XTN-4 is empty; required (R) if XTN-4 is empty |
| 8 | 5 | NM | CE |  | Extension | Condition: may only be populated if XTN-4 is empty; required or empty (RE) if XTN-7 is populated, otherwise it must be empty |
| 9 | 199 | ST | RE |  | Any Text | e.g. “Regular hours 8 AM to 5 PM, CST” |
| 10 |  | ST | X |  | Extension Prefix |  |
| 11 |  | ST | X |  | Speed Dial Code |  |
| 12 |  | ST | X |  | Unformatted Telephone number |  |
| 13 |  | DTM | X |  | Effective Start Date |  |
| 14 |  | DTM | X |  | Expiration Date |  |
| 15 |  | CWE | X |  | Expiration Reason |  |
| 16 |  | CWE | X |  | Protection Code |  |
| 17 |  | EI | X |  | Shared Telecommunication Identifier |  |
| 18 |  | NM | X |  | Preference Order |  |

# Segment and Field Descriptions

## MSH – Message Header Segment

| Seq | Len | DT | HL7 Element Name | OML | | | OUL | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Usage | Cardinality | Value Set | Usage | Cardinality | Value Set |
| 1 | 1 | ST | Field Separator | R | [1..1] |  | R | [1..1] |  |
| 2 | 4 | ST | Encoding Characters | R | [1..1] |  | R | [1..1] |  |
| 3 | ◊ | HD | Sending Application | R | [1..1] | PHLIP\_Application | R | [1..1] | PHLIP\_Application |
| 4 | ◊ | HD | Sending Facility | R | [1..1] | PHLIP\_Organization | R | [1..1] | PHLIP\_Organization |
| 5 | ◊ | HD | Receiving Application | R | [1..1] | PHLIP\_Application | R | [1..1] | PHLIP\_Application |
| 6 | ◊ | HD | Receiving Facility | R | [1..1] | PHLIP\_Organization | R | [1..1] | PHLIP\_Organization |
| 7 | ◊ | DTM | Date/Time Of Message | R | [1..1] |  | R | [1..1] |  |
| 8 | X | ST | Security | X | [0..0] |  | X | [0..0] |  |
| 9 | ◊ | MSG | Message Type | R | [1..1] |  | R | [1..1] |  |
| 10 | 199 | ST | Message Control ID | R | [1..1] |  | R | [1..1] |  |
| 11 | ◊ | PT | Processing ID | R | [1..1] |  | R | [1..1] |  |
| 12 | ◊ | VID | Version ID | R | [1..1] |  | R | [1..1] |  |
| 13 | X | NM | Sequence Number | X | [0..0] |  | X | [0..0] |  |
| 14 | X | ST | Continuation Pointer | X | [0..0] |  | X | [0..0] |  |
| 15 | X | ID | Accept Acknowledgment Type | X | [0..0] |  | X | [0..0] |  |
| 16 | X | ID | Application Acknowledgment Type | X | [0..0] |  | X | [0..0] |  |
| 17 | X | ID | Country Code | X | [0..0] |  | X | [0..0] |  |
| 18 | X | ID | Character Set | X | [0..0] |  | X | [0..0] |  |
| 19 | X | CWE | Principal Language Of Message | X | [0..0] |  | X | [0..0] |  |
| 20 | X | ID | Alternate Character Set Handling Scheme | X | [0..0] |  | X | [0..0] |  |
| 21 | ◊ | EI | Message Profile Identifier | R | [2..2] |  | R | [2..2] |  |
| 22 | ◊ | XON | Sending Responsible Organization | X | [0..0] |  | X | [0..0] |  |
| 23 | ◊ | XON | Receiving Responsible Organization | X | [0..0] |  | X | [0..0] |  |
| 24 | ◊ | HD | Sending Network Address | X | [0..0] |  | X | [0..0] |  |
| 25 | ◊ | HD | Receiving Network Address | X | [0..0] |  | X | [0..0] |  |

|  |  |  |
| --- | --- | --- |
| **Sequence** | **Description/Comments** | |
| **MSH-1 (Field Separator)** | **Character used as the field separator for the rest of the message (ASCII 124)**  **Literal value: ‘|’** | |
| **MSH-2 (Encoding Characters)** | **Component separator, repetition separator, escape character, and subcomponent separator (ASCII 94, 126, 92, 38, respectively)**  **Literal value: ‘^~\&’** | |
| **MSH-3 (Sending Application)** | **Uniquely identifies the sending application for messaging purposes; contains an OID that represents the sending application instance.**  **Value must be an OID** | |
| **MSH-4 (Sending Facility)** | **Uniquely identifies the facility that sends the message**  **Value must be an OID** | |
| **MSH-5 (Receiving Application)** | **Uniquely identifies the receiving application for messaging purposes; contains an OID that represents the receiving application instance.**  **Value must be an OID** | |
| **MSH-6 (Receiving Facility)** | **Uniquely identifies the facility that is to receive the message**  **Value must be an OID** | |
| **MSH-7 (Date/Time of Message)** | **Date/time the sending system created the message**  **The minimum granularity is to the second** | |
| **MSH-8 (Security)** | **Not supported** | |
| **MSH-9 (Message Type)** | **For OML:** | **Literal value: ‘OML^O33^OML\_O33’** | | |
| **For OUL:** | **Literal value: ‘OUL^R22^OUL\_R22’** |
| **For ACK:** | **Literal value: ‘ACK^O33^ACK\_O33’** |
| **MSH-10 (Message Control ID)** | **Uniquely identifies the message instance from the sending application; the use of a counter is recommended** | |
| **MSH-11 (Processing ID)** | **Indicator of the intent for processing the message, such as ‘T’ - training, ‘D’ - de-bugging, or ‘P’ - production.** | |
| **MSH-12 (Version ID)** | **Literal value: ‘2.6’** | |
| **MSH-13 (Sequence Number)** | **Not supported** | |
| **MSH-14 (Continuation Pointer)** | **Not supported** | |
| **MSH-15 (Accept Acknowledgment Type)** | **Not supported** | |
| **MSH-16 (Application Acknowledgment Type)** | **Not supported** | |
| **MSH-17 (Country Code)** | **Not supported** | |
| **MSH-18 (Character Set)** | **Not supported** | |
| **MSH-19 (Principal Language of Message)** | **Not supported** | |
| **MSH-20 (Alternate Character Set Handling Scheme)** | **Not supported** | |
| **MSH-21 (Message Profile Identifier)** | **References or asserts adherence to a message profile identified by an OID. *[see section 2.4, Message Profile Identifiers, for valid values]***  **Literal value: ‘PHLIP\_ETOR\_Sal\_v1.0.2^PHIN^2.16.840.1.114222.4.10.3^ISO’ and**  **‘PHLIP\_ETOR\_Vocab\_Sal\_v1.0.2^PHIN^2.16.840.1.114222.4.10.4^ISO’** | | |
| **MSH-22 (Sending Responsible Organization)** | **Not supported** | |
| **MSH-23 (Receiving Responsible Organization)** | **Not supported** | |
| **MSH-24 (Sending Network Address)** | **Not supported** | |
| **MSH-25 (Receiving Network Address)** | **Not supported** | |

## PID – Patient Identification Segment

| Seq | Len | DT | HL7 Element Name | OML | | | OUL | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Usage | Cardinality | Value Set | Usage | Cardinality | Value Set |
| 1 | ◊ | SI | Set ID – PID | R | [1..1] |  | R | [1..1] |  |
| 2 | X | CX | Patient ID | X | [0..0] |  | X | [0..0] |  |
| 3 | ◊ | CX | Patient Identifier List | R | [1..3] |  | R | [1..4] |  |
| 4 | X | CX | Alternate Patient ID – PID | X | [0..0] |  | X | [0..0] |  |
| 5 | ◊ | XPN | Patient Name | R | [1..2] |  | R | [1..2] |  |
| 6 | X | XPN | Mother’s Maiden Name | X | [0..0] |  | X | [0..0] |  |
| 7 | ◊ | DTM | Date/Time of Birth | RE | [0..1] |  | RE | [0..1] |  |
| 8 | ◊ | IS | Administrative Sex | RE | [0..1] | Administrative Sex (HL7001) | RE | [0..1] | Administrative Sex (HL7001) |
| 9 | X | XPN | Patient Alias | X | [0..0] |  | X | [0..0] |  |
| 10 | ◊ | CWE | Race | RE | [0..3] | Race Category | RE | [0..3] | Race Category |
| 11 | ◊ | XAD | Patient Address | RE | [0..1] |  | RE | [0..1] |  |
| 12 | X | IS | County Code | X | [0..0] |  | X | [0..0] |  |
| 13 | ◊ | XTN | Phone Number – Home | RE | [0..1] |  | RE | [0..1] |  |
| 14 | ◊ | XTN | Phone Number – Business | X | [0..0] |  | X | [0..0] |  |
| 15 | X | CWE | Primary Language | X | [0..1] |  | X | [0..1] |  |
| 16 | X | CWE | Marital Status | X | [0..0] |  | X | [0..0] |  |
| 17 | X | CWE | Religion | X | [0..0] |  | X | [0..0] |  |
| 18 | X | CX | Patient Account Number | X | [0..0] |  | X | [0..0] |  |
| 19 | X | ST | SSN Number – Patient | X | [0..0] |  | X | [0..0] |  |
| 20 | X | DLN | Driver’s License Number – Patient | X | [0..0] |  | X | [0..0] |  |
| 21 | X | CX | Mother’s Identifier | X | [0..0] |  | X | [0..0] |  |
| 22 | ◊ | CWE | Ethnic Group | RE | [0..1] | PHVS\_EthnicityGroup\_CDC\_Unk | RE | [0..1] | PHVS\_EthnicityGroup\_CDC\_Unk |
| 23 | X | ST | Birth Place | X | [0..0] |  | X | [0..0] |  |
| 24 | X | ID | Multiple Birth Indicator | X | [0..0] |  | X | [0..0] |  |
| 25 | X | NM | Birth Order | X | [0..0] |  | X | [0..0] |  |
| 26 | X | CWE | Citizenship | X | [0..0] |  | X | [0..0] |  |
| 27 | X | CWE | Veterans Military Status | X | [0..0] |  | X | [0..0] |  |
| 28 | X | CWE | Nationality | X | [0..0] |  | X | [0..0] |  |
| 29 | ◊ | DTM | Patient Death Date and Time | RE | [0..1] |  | RE | [0..1] |  |
| 30 | ◊ | ID | Patient Death Indicator | C | [0..1] | Yes No Indicator (HL70136) | C | [0..1] | Yes No Indicator (HL70136) |
| 31 | X | ID | Identity Unknown Indicator | X | [0..0] |  | X | [0..0] |  |
| 32 | X | IS | Identity Reliability Code | X | [0..0] |  | X | [0..0] |  |
| 33 | X | DTM | Last Update Date/Time | X | [0..0] |  | X | [0..0] |  |
| 34 | X | HD | Last Update Facility | X | [0..0] |  | X | [0..0] |  |
| 35 | X | CWE | Species Code | X | [0..0] |  | X | [0..0] |  |
| 36 | X | CWE | Breed Code | X | [0..0] |  | X | [0..0] |  |
| 37 | X | ST | Strain | X | [0..0] |  | X | [0..0] |  |
| 38 | X | CWE | Production Class Code | X | [0..0] |  | X | [0..0] |  |
| 39 | X | CWE | Tribal Citizenship | X | [0..0] |  | X | [0..0] |  |

|  |  |  |
| --- | --- | --- |
| **PID-1 (Set ID)** | **Literal value: ‘1’** | |
| **PID-2 (Patient ID)** | **Not supported (*Deprecated as of HL7 Version 2.3.1.* See PID-3 Patient Identifier List.)** | |
| **PID-3 (Patient Identifier List)** | **All types of patient/person identifiers; this includes medical record numbers, internal hospital ID, State Health Department ID etc.**  **Note: Social Security Numbers are NOT supported and should NOT be used to identify a patient.** | |
| **For OUL** | **The filler may, but is not required to, append their own local patient identifier(s)** |
| **PID-4 (Alternate Patient ID)** | **Not supported (*Deprecated as of HL7 Version 2.3.1.* See PID-3 Patient Identifier List.)** | |
| **PID-5 (Patient Name)** | **Patient name or alias**  **If the patient’s name is not known or, due to laws or regulations prohibiting its transmission, is unavailable then use the literal value: ‘~^^^^^^U’ in PID-5 to indicate there is neither a patient name nor alias available.** | |
| **PID-6 (Mother’s Maiden Name)** | **Not supported** | |
| **PID-7 (Date/Time of Birth)** | **Patient’s date of birth.**  **The minimum granularity is to the day.**  **If the patient’s date of birth is not known, but the patient’s age is known then leave this field empty and include, following the SPM segment, an OBX segment containing the patient’s current age, for example:**  **OBX|1|NM|35659-2^Age at specimen collection^LN^^^^2.24||37|a^year^UCUM^^^^1.7.17169|||||F|||200812010930**  **If neither the patient’s date of birth nor the patient’s age is known then use the literal value: ‘00000000’ in PID-7 without the aforementioned observation accompanying the SPM segment.** | |
| **PID-8 (Administrative Sex)** | **Patient’s sex** | |
| **PID-9 (Patient Alias)** | **Not supported** | |
| **PID-10 (Race)** | **One or more codes that broadly refer to the patient’s race(s)** | |
| **PID-11 (Patient Address)** | **Address of the patient** | |
| **PID-12 (County Code)** | **Not supported** | |
| **PID-13 (Phone Number – Home)** | **Can carry phone numbers (home, cell, pager) or email addresses** | |
| **PID-14 (Phone Number – Business)** | **Not supported** | |
| **PID-15 (Primary Language)** | **Not supported** | |
| **PID-16 (Marital Status)** | **Not supported** | |
| **PID-17 (Religion)** | **Not supported** | |
| **PID-18 (Patient Account Number)** | **Not supported** | |
| **PID-19 (SSN Number – Patient)** | **Not supported** | |
| **PID-20 (Driver’s License Number)** | **Not supported** | |
| **PID-21 (Mother’s Identifier)** | **Not supported** | |
| **PID-22 (Ethnic Group)** | **Defines the patient as either Hispanic or Non-Hispanic** | |
| **PID-23 (Birth Place)** | **Not supported** | |
| **PID-24 (Multiple Birth Indicator)** | **Not supported** | |
| **PID-25 (Birth Order)** | **Not supported** | |
| **PID-26 (Citizenship)** | **Not supported** | |
| **PID-27 (Veterans Military Status)** | **Not supported** | |
| **PID-28 (Nationality)** | **Not supported** | |
| **PID-29 (Patient Death Date and Time)** | **Patient death date/time, if the patient is known to be deceased at the time of the message.**  **The minimum granularity is to the day** | |
| **PID-30 (Patient Death Indicator)** | **Condition: If PID-29 is populated then this field must contain the literal value: ‘Y’** | |
| **PID-31 (Identity Unknown Indicator)** | **Not supported** | |
| **PID-32 (Identity Reliability Code)** | **Not supported** | |
| **PID-33 (Last Update Date/Time)** | **Not supported** | |
| **PID-34 (Last Update Facility)** | **Not supported** | |
| **PID-35 (Species Code)** | **Not supported** | |
| **PID-36 (Breed Code)** | **Not supported** | |
| **PID-37 (Strain)** | **Not supported** | |
| **PID-38 (Production Class Code)** | **Not supported** | |
| **PID-39 (Tribal Citizenship)** | **Not supported** | |

## SPM – Specimen Segment

| Seq | Len | DT | HL7 Element Name | OML | | | OUL | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Usage | Cardinality | Value Set | Usage | Cardinality | Value Set |
| 1 | ◊ | SI | Set ID – SPM | R | [1..1] |  | R | [1..1] |  |
| 2 | ◊ | EIP | Specimen ID | R | [1..1] |  | R | [1..1] |  |
| 3 | X | EIP | Specimen Parent IDs | X | [0..0] |  | X | [0..0] |  |
| 4 | ◊ | CWE | Specimen Type | R | [1..1] | Specimentype\_PHLIP | R | [1..1] | Specimentype\_PHLIP |
| 5 | X | CWE | Specimen Type Modifier | X | [0..0] |  | X | [0..0] |  |
| 6 | X | CWE | Specimen Additives | X | [0..0] |  | X | [0..0] |  |
| 7 | X | CWE | Specimen Collection Method | X | [0..0] |  | X | [0..0] |  |
| 8 | X | CWE | Specimen Source Site | X | [0..0] |  | X | [0..0] |  |
| 9 | X | CWE | Specimen Source Site Modifier | X | [0..0] |  | X | [0..0] |  |
| 10 | X | CWE | Specimen Collection Site | X | [0..0] |  | X | [0..0] |  |
| 11 | X | CWE | Specimen Role | X | [0..0] |  | X | [0..0] |  |
| 12 | X | CQ | Specimen Collection Amount | X | [0..0] |  | X | [0..0] |  |
| 13 | X | NM | Grouped Specimen Count | X | [0..0] |  | X | [0..0] |  |
| 14 | X | ST | Specimen Description | X | [0..0] |  | X | [0..0] |  |
| 15 | X | CWE | Specimen Handling Code | X | [0..0] |  | X | [0..0] |  |
| 16 | X | CWE | Specimen Risk Code | X | [0..0] |  | X | [0..0] |  |
| 17 | ◊ | DR | Specimen Collection Date/Time | R | [1..1] |  | R | [1..1] |  |
| 18 | ◊ | DTM | Specimen Received Date/Time | X | [0..0] |  | R | [1..1] |  |
| 19 | X | DTM | Specimen Expiration Date/Time | X | [0..0] |  | X | [0..0] |  |
| 20 | X | ID | Specimen Availability | X | [0..0] |  | X | [0..0] |  |
| 21 | ◊ | CWE | Specimen Reject Reason | X | [0..0] |  | RE | [0..5] | Specimen Reject Reason (SNOMED) |
| 22 | X | CWE | Specimen Quality | X | [0..0] |  | X | [0..0] |  |
| 23 | X | CWE | Specimen Appropriateness | X | [0..0] |  | X | [0..0] |  |
| 24 | X | CWE | Specimen Condition | X | [0..0] |  | X | [0..0] |  |
| 25 | X | CQ | Specimen Current Quantity | X | [0..0] |  | X | [0..0] |  |
| 26 | X | NM | Number of Specimen Containers | X | [0..0] |  | X | [0..0] |  |
| 27 | X | CWE | Container Type | X | [0..0] |  | X | [0..0] |  |
| 28 | X | CWE | Container Condition | X | [0..0] |  | X | [0..0] |  |
| 29 | X | CWE | Specimen Child Role | X | [0..0] |  | X | [0..0] |  |

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| --- | --- | --- |
| **SPM-1 (Set ID)** | **Literal value: ‘1’** | |
| **SPM-2 (Specimen ID)** | **For OML** | **Component 1 – unique identifier for the specimen as referenced by the Placer application** |
| **For OUL** | **Component 2 – unique identifier for the specimen as referenced by the Filler application – this is always the CSID** |
| **SPM-3 (Specimen Parent IDs)** | **Not supported** | |
| **SPM-4 (Specimen Type)** | **Description of the precise nature of the entity that will be the source material for the observation**  **When a specimen being submitted for analysis is classified as an isolate, as opposed to a clinical specimen, this field must contain the following Concept IDs from SNOMED CT: ‘119303007^Microbial Isolate Specimen^SCT’** | |
| **SPM-5 (Specimen Type Modifier)** | **Not supported** | |
| **SPM-6 (Specimen Additives)** | **Not supported** | |
| **SPM-7 (Specimen Collection Method)** | **Not supported** | |
| **SPM-8 (Specimen Source Site)** | **Not supported** | |
| **SPM-9 (Specimen Source Site Modifier)** | **Not supported** | |
| **SPM-10 (Specimen Collection Site)** | **Not supported** | |
| **SPM-11 (Specimen Role)** | **Not supported** | |
| **SPM-12 (Specimen Collection Amount)** | **Not supported** | |
| **SPM-13 (Grouped Specimen Count)** | **Not supported** | |
| **SPM-14 (Specimen Description)** | **Not supported** | |
| **SPM-15 (Specimen Handling Code)** | **Not supported** | |
| **SPM-16 (Specimen Risk Code)** | **Not supported** | |
| **SPM-17 (Specimen Collection Date/Time)** | **The date/time the specimen was acquired from the source**  **The minimum granularity is to the day**  **If the specimen collection date/time is not known then use the literal value: ‘00000000’**  **Note: the first component of SPM-17 contains the same value as OBR-7** | |
| **SPM-18 (Specimen Received Date/Time)** | **For OML** | **Not supported** |
| **For OUL** | **The date/time the specimen was received by the filler (e.g. the time the specimen was logged in)**  **The actual date/time recorded is based on the filler’s specimen management/handling procedures (i.e., the specimen received date/time may represent any one of the following: specimen shipment receipt, specimen pre-logging, work-order assignment, specimen accessing, laboratory section/bench physical receipt, laboratory analyst’s receipt of specimen, etc.)**  **The minimum granularity is to the day.** |
| **SPM-19 (Specimen Expiration Date/Time)** | **Not supported** | |
| **SPM-20 (Specimen Availability)** | **Not supported** | |
| **SPM-21 (Specimen Reject Reason)** | **For OML** | **Not supported** |
| **For OUL** | **Describes reason(s) the specimen is rejected for the specified observation request** |
| **SPM-22 (Specimen Quality)** | **Not supported** | |
| **SPM-23 (Specimen Appropriateness)** | **Not supported** | |
| **SPM-24 (Specimen Condition)** | **Not supported** | |
| **SPM-25 (Specimen Current Quality)** | **Not supported** | |
| **SPM-26 (Number of Specimen Containers)** | **Not supported** | |
| **SPM-27 (Container Type)** | **Not supported** | |
| **SPM-28 (Container Condition)** | **Not supported** | |
| **SPM-29 (Specimen Child Role)** | **Not supported** | |

## ORC – Common Order Segment For Order Group

| Seq | Len | DT | HL7 Element Name | OML | | | OUL | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Usage | Cardinality | Value Set | Usage | Cardinality | Value Set |
| 1 | ◊ | ID | Order Control | R | [1..1] | Order Control Code (HL70119 constrained) | R | [1..1] | Order Control Code (HL70119 constrained) |
| 2 | ◊ | EI | Placer Order Number | R | [1..1] |  | R | [1..1] |  |
| 3 | ◊ | EI | Filler Order Number | X | [0..0] |  | R | [1..1] |  |
| 4 | X | EI | Placer Group Number | X | [0..0] |  | X | [0..0] |  |
| 5 | ◊ | ID | Order Status | X | [0..0] |  | R | [1..1] | Order Status (HL70038) |
| 6 | X | ID | Response Flag | X | [0..0] |  | X | [0..0] |  |
| 7 | X | TQ | Quantity/Timing | X | [0..0] |  | X | [0..0] |  |
| 8 | X | EIP | Parent | X | [0..0] |  | X | [0..0] |  |
| 9 | ◊ | DTM | Date/Time of Transaction | RE | [0..1] |  | RE | [0..1] |  |
| 10 | X | XCN | Entered By | X | [0..0] |  | X | [0..0] |  |
| 11 | X | XCN | Verified By | X | [0..0] |  | X | [0..0] |  |
| 12 | ◊ | XCN | Ordering Provider | R | [1..1] |  | R | [1..1] |  |
| 13 | X | PL | Enterer's Location | X | [0..0] |  | X | [0..0] |  |
| 14 | ◊ | XTN | Call Back Phone Number | R | [1..2] |  | R | [1..2] |  |
| 15 | X | DTM | Order Effective Date/Time | X | [0..0] |  | X | [0..0] |  |
| 16 | X | CWE | Order Control Code Reason | X | [0..0] |  | X | [0..0] |  |
| 17 | X | CWE | Entering Organization | X | [0..0] |  | X | [0..0] |  |
| 18 | X | CWE | Entering Device | X | [0..0] |  | X | [0..0] |  |
| 19 | ◊ | XCN | Action By | X | [0..0] |  | X | [0..0] |  |
| 20 | X | CWE | Advanced Beneficiary Notice Code | X | [0..0] |  | X | [0..0] |  |
| 21 | ◊ | XON | Ordering Facility Name | R | [1..1] |  | R | [1..1] |  |
| 22 | ◊ | XAD | Ordering Facility Address | R | [1..1] |  | R | [1..1] |  |
| 23 | ◊ | XTN | Ordering Facility Phone Number | RE | [0..2] |  | RE | [0..2] |  |
| 24 | ◊ | XAD | Ordering Provider Address | RE | [0..1] |  | RE | [0..1] |  |
| 25 | X | CWE | Order Status Modifier | X | [0..0] |  | X | [0..0] |  |
| 26 | X | CWE | Advanced Beneficiary Notice Override Reason | X | [0..0] |  | X | [0..0] |  |
| 27 | X | DTM | Filler's Expected Availability Date/Time | X | [0..0] |  | X | [0..0] |  |
| 28 | X | CWE | Confidentiality Code | X | [0..0] |  | X | [0..0] |  |
| 29 | X | CWE | Order Type | X | [0..0] |  | X | [0..0] |  |
| 30 | X | CNE | Enterer Authorization Mode | X | [0..0] |  | X | [0..0] |  |
| 31 | X | CWE | Parent Universal Service Identifier | X | [0..0] |  | X | [0..0] |  |

|  |  |  |
| --- | --- | --- |
| **ORC-1 (Order Control)** | **For OML** | **Describes the type of action or “trigger event” related to the order message – initiates an event** |
| **For OUL** | **Identifies the type of notification related to the order message; describes the type of notice being provided to the placer about some action performed on the order by the filler** |
| **ORC-2 (Placer Order Number)** | **For OML** | **The number assigned to the test request or order by the system that initiated the request for performance of the test.**    **Note: ORC-2 contains the same value as OBR-2** |
| **ORC-3 (Filler Order Number)** | **For OUL** | **The number assigned to the test request or order by the system that fulfilled the request for performance of the test.**  **Note: ORC-3 contains the same value as OBR-3** |
| **ORC-4 (Placer Group Number)** | **Not supported** | |
| **ORC-5 (Order Status)** | **For OML** | **Not supported** |
| **For OUL** | **Specifies the status of the order** |
| **ORC-6 (Response Flag)** | **Not supported** | |
| **ORC-7 (Quantity/Timing)** | **Not supported** | |
| **ORC-8 (Parent)** | **Not supported** | |
| **ORC-9 (Date/Time of Transaction)** | **The date/time of the event that initiated the current transaction as reflected in ORC-1 (this field is not equivalent to MSH-7 which reflects the date/time of the physical message); for example, if ORC-1 is ‘NW’, indicating a new order, then ORC-9 contains the date/time the order was created/”written” by the requestor (e.g. ordering laboratorian logged the ordered test into the system)**  **The minimum granularity is to the day** | |
| **ORC-10 (Entered By)** | **Not supported** | |
| **ORC-11 (Verified By)** | **Not supported** | |
| **ORC-12 (Ordering Provider)** | **Identifies the person who is responsible for initiating/creating the request (e.g. ordering physician, laboratory director, microbiology supervisor, etc.) at the Public Health Lab in phase 1.**  **Note: ORC-12 contains the same value as OBR-16** | |
| **ORC-13 (Enterer’s Location)** | **Not supported** | |
| **ORC-14 (Call Back Phone Number)** | **Telephone number used to report a status or result or to obtain more details/clarification or other information from the placer about the request. Also allows to send an email address as alternate contact information, to use if appropriate (no patientIDs allowed to be included in emails).**  **ORC-14 is used to contact the individual specified in ORC-12**  **Note: ORC-14 contains the same value as OBR-17** | |
| **ORC-15 (Order Effective Date/Time)** | **Not supported** | |
| **ORC-16 (Order Control Code Reason)** | **Not supported** | |
| **ORC-17 (Entering Organization)** | **Not supported** | |
| **ORC-18 (Entering Device)** | **Not supported** | |
| **ORC-19 (Action By)** | **Not supported** | |
| **ORC-20 (Advanced Beneficiary Notice Code)** | **Not supported** | |
| **ORC-21 (Ordering Facility Name)** | **Name of the facility placing the order**  **Note: Under the use cases presented herein, this field will always contain the name of the State Public Health Laboratory.** | |
| **ORC-22 (Ordering Facility Address)** | **Address of the facility placing the order**  **Note: Under the use cases presented herein, this field will always contain the address of the State Public Health Laboratory** | |
| **ORC-23 (Ordering Facility Phone Number)** | **Telephone number of the facility placing the order.**  **If there is another number besides the one sent in ORC-14 then use ORC-23; otherwise, ORC-23 shall be empty.**  **Note: Under the use cases presented herein, this field will always contain the phone number of the State Public Health Laboratory.** | |
| **ORC-24 (Ordering Provider Address)** | **Address of the care provider requesting the order**  **If there is another address besides the one sent in ORC-22 then use ORC-24; otherwise, ORC-24 shall be empty**  **Note: Under the use cases presented herein, this field will generally contain the address of the State Public Health Laboratory, but in certain circumstances (e.g., the State Public Health Laboratory has multiple locations/laboratories, but are still considered a single entity) this field may contain the address of a satellite-/annex-type laboratory location.** | |
| **ORC-25 (Order Status Modifier)** | **Not supported** | |
| **ORC-26 (Advanced Beneficiary Notice Override Reason)** | **Not supported** | |
| **ORC-27 (Filler’s Expected Availability Date/Time)** | **Not supported** | |
| **ORC-28 (Confidentiality Code)** | **Not supported** | |
| **ORC-29 (Order Type)** | **Not supported** | |
| **ORC-30 (Enterer Authorization Mode)** | **Not supported** | |
| **ORC-31 (Parent Universal Service Identifier)** | **Not supported** | |

## OBR – Observation Request Segment for Order Group

| Seq | Len | DT | HL7 Element Name | OML | | | OUL | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Usage | Cardinality | Value Set | Usage | Cardinality | Value Set |
| 1 | ◊ | SI | Set ID ‑ OBR | R | [1..1] |  | R | [1..1] |  |
| 2 | ◊ | EI | Placer Order Number | R | [1..1] |  | R | [1..1] |  |
| 3 | ◊ | EI | Filler Order Number | X | [0..0] |  | R | [1..1] |  |
| 4 | ◊ | CWE | Universal Service Identifier | R | [1..1] | LabTestOrder\_PHLIP\_Sal | R | [1..1] | LabTestOrder\_PHLIP\_Sal |
| 5 | X | ID | Priority – OBR | X | [0..0] |  | X | [0..0] |  |
| 6 | X | DTM | Requested Date/Time | X | [0..0] |  | X | [0..0] |  |
| 7 | ◊ | DTM | Observation Date/Time | R | [1..1] |  | R | [1..1] |  |
| 8 | X | DTM | Observation End Date/Time | X | [0..0] |  | X | [0..0] |  |
| 9 | X | CQ | Collection Volume | X | [0..0] |  | X | [0..0] |  |
| 10 | X | XCN | Collector Identifier | X | [0..0] |  | X | [0..0] |  |
| 11 | X | ID | Specimen Action Code | X | [0..0] |  | X | [0..0] |  |
| 12 | X | CWE | Danger Code | X | [0..0] |  | X | [0..0] |  |
| 13 | X | ST | Relevant Clinical Information | X | [0..0] |  | X | [0..0] |  |
| 14 | X | DTM | Specimen Received Date/Time | X | [0..0] |  | X | [0..0] |  |
| 15 | X | SPS | Specimen Source | X | [0..0] |  | X | [0..0] |  |
| 16 | ◊ | XCN | Ordering Provider | R | [1..1] |  | R | [1..1] |  |
| 17 | ◊ | XTN | Order Callback Phone Number | R | [1..2] |  | R | [1..2] |  |
| 18 | X | ST | Placer Field 1 | X | [0..0] |  | X | [0..0] |  |
| 19 | X | ST | Placer Field 2 | X | [0..0] |  | X | [0..0] |  |
| 20 | X | ST | Filler Field 1 | X | [0..0] |  | X | [0..0] |  |
| 21 | X | ST | Filler Field 2 | X | [0..0] |  | X | [0..0] |  |
| 22 | ◊ | DTM | Results Rpt/Status Chng - Date/Time | X | [0..0] |  | R | [1..1] |  |
| 23 | X | MOC | Charge to Practice | X | [0..0] |  | X | [0..0] |  |
| 24 | X | ID | Diagnostic Serv Sect ID | X | [0..0] |  | X | [0..0] |  |
| 25 | ◊ | ID | Result Status | X | [0..0] |  | R | [1..1] | Result Status (HL70123) |
| 26 | X | PRL | Parent Result | X | [0..0] |  | X | [0..0] |  |
| 27 | X | TQ | Quantity/Timing | X | [0..0] |  | X | [0..0] |  |
| 28 | X | XCN | Result Copies To | X | [0..0] |  | X | [0..0] |  |
| 29 | X | EIP | Parent | X | [0..0] |  | X | [0..0] |  |
| 30 | X | ID | Transportation Mode | X | [0..0] |  | X | [0..0] |  |
| 31 | X | CWE | Reason for Study | X | [0..0] |  | X | [0..0] |  |
| 32 | X | NDL | Principal Result Interpreter | X | [0..0] |  | X | [0..0] |  |
| 33 | X | NDL | Assistant Result Interpreter | X | [0..0] |  | X | [0..0] |  |
| 34 | X | NDL | Technician | X | [0..0] |  | X | [0..0] |  |
| 35 | X | NDL | Transcriptionist | X | [0..0] |  | X | [0..0] |  |
| 36 | X | DTM | Scheduled Date/Time | X | [0..0] |  | X | [0..0] |  |
| 37 | X | NM | Number of Sample Containers | X | [0..0] |  | X | [0..0] |  |
| 38 | X | CWE | Transport Logistics of Collected Sample | X | [0..0] |  | X | [0..0] |  |
| 39 | X | CWE | Collector's Comment | X | [0..0] |  | X | [0..0] |  |
| 40 | X | CWE | Transport Arrangement Responsibility | X | [0..0] |  | X | [0..0] |  |
| 41 | X | ID | Transport Arranged | X | [0..0] |  | X | [0..0] |  |
| 42 | X | ID | Escort Required | X | [0..0] |  | X | [0..0] |  |
| 43 | X | CWE | Planned Patient Transport Comment | X | [0..0] |  | X | [0..0] |  |
| 44 | X | CNE | Procedure Code | X | [0..0] |  | X | [0..0] |  |
| 45 | X | CNE | Procedure Code Modifier | X | [0..0] |  | X | [0..0] |  |
| 46 | X | CWE | Placer Supplemental Service Information | X | [0..0] |  | X | [0..0] |  |
| 47 | X | CWE | Filler Supplemental Service Information | X | [0..0] |  | X | [0..0] |  |
| 48 | X | CWE | Medically Necessary Duplicate Procedure Reason | X | [0..0] |  | X | [0..0] |  |
| 49 | X | IS | Result Handling | X | [0..0] |  | X | [0..0] |  |
| 50 | X | CWE | Parent Universal Service Identifier | X | [0..0] |  | X | [0..0] |  |

|  |  |  |
| --- | --- | --- |
| **OBR-1 (Set ID)** | **The literal value: ‘1’ for the first OBR segment transmitted, ‘2’ for the next OBR segment, and so on** | |
| **OBR-2 (Placer Order Number)** | **The number assigned to the test request or order by the system that initiated the request for performance of the test. When multiple orders are present, each order must be assigned a unique placer order number.**  **Note: ORC-2 contains the same value as OBR-2** | |
| **OBR-3 (Filler Order Number)** | **For OML** | **Not supported** |
| **For OUL** | **The number assigned to the test request or order by the system that fulfilled the request for performance of the test. When multiple orders are present, each order must be assigned a unique filler order number.**  **Note: ORC-3 contains the same value as OBR-3** |
| **OBR-4 (Universal Service Identifier)** | **Code for the observation request** | |
| **OBR-5 (Priority)** | **Not supported** | |
| **OBR-6 (Requested Date/Time)** | **Not supported** | |
| **OBR-7 (Observation Date/Time)** | **The date/time the specimen was acquired from the source**  **Minimum granularity is to the day**  **If the observation date/time is not known then use the literal value: ‘00000000’**  **Note: OBR-7 contains the same value as the first component of SPM-17** | |
| **OBR-8 (Observation End Date/Time)** | **Not supported** | |
| **OBR-9 (Collection Volume)** | **Not supported** | |
| **OBR-10 (Collector Identifier)** | **Not supported** | |
| **OBR-11 (Specimen Action Code)** | **Not supported** | |
| **OBR-12 (Danger Code)** | **Not supported** | |
| **OBR-13 (Relevant Clinical Information)** | **Not supported** | |
| **OBR-14 (Specimen Received Date/Time)** | **Not supported** | |
| **OBR-15 (Specimen Source)** | **Not supported** | |
| **OBR-16 (Ordering Provider)** | **Identifies the person who is responsible for initiating/creating the request (e.g. ordering physician, laboratory director, microbiology supervisor, etc.) at the Public Health Lab in phase 1.**  **Note: OBR-16 contains the same value as ORC-12** | |
| **OBR-17 (Order Callback Phone Number)** | **Telephone number used to report a status or result or to obtain more details/clarification or other information from the placer about the request. Also allows to send an email address as alternate contact information, to use if appropriate (no patientIDs allowed to be included in emails).**  **Note: OBR-17 contains the same value as ORC-14** | |
| **OBR-18 (Placer Field 1)** | **Not supported** | |
| **OBR-19 (Placer Field 2)** | **Not supported** | |
| **OBR-20 (Filler Field 1)** | **Not supported** | |
| **OBR-21 (Filler Field 2)** | **Not supported** | |
| **OBR-22 (Results Rpt/Status Chng – Date/Time)** | **For OML** | **Not supported** |
| **For OUL** | **Specifies the date/time the results were reported or the status changed; indicates when the results are composed into a report and released or that a status (ORC-5) is entered or changed.**  **Granularity is to the minute.** |
| **OBR-23 (Charge to Practice)** | **Not supported** | |
| **OBR-24 (Diagnostic Serv Sect ID)** | **Not supported** | |
| **OBR-25 (Result Status)** | **For OML** | **Not supported** |
| **For OUL** | **The status of the results for this order.** |
| **OBR-26 (Parent Result)** | **Not supported** | |
| **OBR-27 (Quantity/Timing)** | **Not supported** | |
| **OBR-28 (Result Copies To)** | **Not supported** | |
| **OBR-29 (Parent)** | **Not supported** | |
| **OBR-30 (Transportation Mode)** | **Not supported** | |
| **OBR-31 (Reason for Study)** | **Not supported** | |
| **OBR-32 (Principal Result Interpreter)** | **Not supported** | |
| **OBR-33 (Assistant Result Interpreter)** | **Not supported** | |
| **OBR-34 (Technician)** | **Not supported** | |
| **OBR-35 (Transcriptionist)** | **Not supported** | |
| **OBR-36 (Scheduled Date/Time)** | **Not supported** | |
| **OBR-37 (Number of Sample Containers)** | **Not supported** | |
| **OBR-38 (Transport Logistics of Collected Sample)** | **Not supported** | |
| **OBR-39 (Collector’s Comment)** | **Not supported** | |
| **OBR-40 (Transport Arrangement Responsibility)** | **Not supported** | |
| **OBR-41 (Transport Arranged)** | **Not supported** | |
| **OBR-42 (Escort Required)** | **Not supported** | |
| **OBR-43 (Planned Patient Transport Comment)** | **Not supported** | |
| **OBR-44 (Procedure Code)** | **Not supported** | |
| **OBR-45 (Procedure Code Modifier)** | **Not supported** | |
| **OBR-46 (Placer Supplemental Service Information)** | **Not supported** | |
| **OBR-47 (Filler Supplemental Service Information)** | **Not supported** | |
| **OBR-48 (Medically Necessary Duplicate Procedure Reason)** | **Not supported** | |
| **OBR-49 (Result Handling)** | **Not supported** | |
| **OBR-50 (Parent Universal Service Identifier)** | **Not supported** | |

## OBX – Observation/Result Segment

The intent of the OBX/SPM segment is to convey information about the specimen. In the OML it will be used to always send information about the original specimen type and the suspected agent, several other data elements may also be sent here. The OBX/SPM in the OUL will not echo back any OBXes from the OML, but include at least the additional specimen ID (CUID) assigned by the CDC-lab. In the event that the specimen was rejected, the OBX/SPM may carry additional comments about the reject reason. The OBX/OBR will carry all test results.

| Seq | Len | DT | HL7 Element Name | OML | | | OUL | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Usage | Cardinality | Value Set | Usage | Cardinality | Value Set |
| 1 | ◊ | SI | Set ID – OBX | R | [1..1] |  | R | [1..1] |  |
| 2 | ◊ | ID | Value Type | R | [1..1] | Value Type (HL70125 constrained) | R | [1..1] | Value Type (HL70125 constrained)  *Constrained to ‘CWE’ when used with OBR segments and ResultedLabTestName\_PHLIP\_Sal identifier* |
| 3 | ◊ | CWE | Observation Identifier | R | [1..1] | *When used with SPM segments:*  SpecimenRelatedObs\_Sal | R | [1..1] | *When used with OBR segments:*  ResultedLabTestName\_PHLIP\_Sal  *When used with SPM segments:*  SpecimenRelatedObs\_Sal |
| 4 | 20 | ST | Observation Sub-ID | C | [0..1] |  | C | [0..1] |  |
| 5 | Varies | Var | Observation Value | R | [1..1] | When used with SPM segments:  See table: *Observations Related to Specimen* | C | [0..1] | When used with OBR segments:  LabTestResult\_PHLIP\_Sal  When used with SPM segments:  See table: *Observations Related to Specimen* |
| 6 | ◊ | CWE | Units | CE | [0..1] | Units of Measure | CE | [0..1] | Units of Measure |
| 7 | 60 | ST | References Range | RE | [0..1] |  | RE | [0..1] |  |
| 8 | ◊ | IS | Abnormal Flags | RE | [0..1] | Abnormal Flag (HL70078) | RE | [0..1] | Abnormal Flag (HL70078) |
| 9 | X | NM | Probability | X | [0..0] |  | X | [0..0] |  |
| 10 | X | ID | Nature of Abnormal Test | X | [0..0] |  | X | [0..0] |  |
| 11 | ◊ | ID | Observation Result Status | R | [1..1] | Observation Result Status (HL70085constrained) | R | [1..1] | Observation Result Status (HL70085constrained) |
| 12 | X | DTM | Effective Date of Reference Range | X | [0..0] |  | X | [0..0] |  |
| 13 | X | ST | User-Defined Access Checks | X | [0..0] |  | X | [0..0] |  |
| 14 | ◊ | DTM | Date/Time of the Observation | R | [1..1] |  | R | [1..1] |  |
| 15 | ◊ | CWE | Producer’s ID | X | [0..0] |  | X | [0..0] |  |
| 16 | X | XCN | Responsible Observer | X | [0..0] |  | R | [1..1] |  |
| 17 | ◊ | CWE | Observation Method | X | [0..0] |  | X | [0..0] |  |
| 18 | X | EI | Equipment Instance Identifier | X | [0..0] |  | X | [0..0] |  |
| 19 | X | DTM | Date/Time of the Analysis | X | [0..0] |  | C | [1..1] |  |
| 20 | X | CWE | Observation Site | X | [0..0] |  | X | [0..0] |  |
| 21 | X | EI | Observation Instance Identifier | X | [0..0] |  | X | [0..0] |  |
| 22 | X | CNE | Mood Code | X | [0..0] |  | X | [0..0] |  |
| 23 | ◊ | XON | Performing Organization Name | X | [0..0] |  | R | [1..1] |  |
| 24 | ◊ | XAD | Performing Organization Address | X | [0..0] |  | R | [1..1] |  |
| 25 | ◊ | XCN | Performing Organization Medical Director | X | [0..0] |  | X | [0..0] |  |

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| --- | --- | --- |
| **OBX-1 (Set ID)** | **Sequence number of the OBX in relation to the segment to which it refers. The literal value: ‘1’ for the first OBX segment transmitted, ‘2’ for the next OBX segment, and so on** | |
| **OBX-2 (Value Type)** | **Specifies the data type contained in OBX-5. See *Value Type (HL7)*.** | |
| **OBX-3 (Observation Identifier)** | **Unique identifier for the observation** | |
| **OBX-4 (Observation Sub-ID)** | **Condition: Required if there are multiple OBX segments with the same observation ID (OBX-3) organized under the same OBR or SPM segment**  **When valued, this field should contain integer values, with the first occurrence starting at ‘1’ and subsequent occurrences valued sequentially.** | |
| **OBX-5 (Observation Value)** | **For OML** | **Field that contains the value observed by the observation producer** |
| **For OUL** | **Field that contains the value observed by the observation producer**  **Condition: Required in all cases except when Observation Result Status (OBX-11) contains either the value ‘I’, ‘N’, or ‘X’** |
| **OBX-6 (Units)** | **Condition: Populated with units of measure when the data type (identified in OBX-2) and data value (carried in OBX-5) is NM or SN. If the NM- or SN-typed value has no units then this field should be left empty.** | |
| **OBX-7 (Reference Range)** | **Provides interpretative details related to the observation value (e.g. normal value, toxic upper limit, lower therapeutic bounds, etc.), when it is available. Mostly expected for numeric results.** | |
| **OBX-8 (Abnormal Flags)** | **Normalcy status of the observation value carried in OBX-5.** | |
| **OBX-9 (Probability)** | **Not supported** | |
| **OBX-10 (Nature of Abnormal Test)** | **Not supported** | |
| **OBX-11 (Observation Result Status)** | **Observation result status – For data elements of interest in the OBX following SPM segment expect to use ‘F’ = Final.** | |
| **OBX-12 (Effective Date of Reference Range)** | **Not supported** | |
| **OBX-13 (User-Defined Access Checks)** | **Not supported** | |
| **OBX-14 (Clinically relevant Date/Time of the Observation)** | From the ELR guide:  The date/time of observation is intended to carry the clinically relevant time of the observation.  For specimen-based laboratory reporting, the specimen collection date and time.  For observations carried out directly on a patient for instance, such as a blood pressure, the time the observation was performed also happens to be the clinically relevant time of the observation.   The date/time the testing was performed should be reported in OBX-19   ELR Condition predicate: For observations related to the testing of a specimen, OBX-14 (Date/Time of the Observation) shall contain specimen collection time and will be the same value as OBR-7 and SPM-17.1.  Format: YYYYMMDD[HH[MM[SS[.S[S[S[S]]]]]]]]+/-ZZZZ] except when reporting an unknown date of ‘0000**”.   Note that in the past; OBX-14 was often used to carry the time of testing a specimen, even though HL7 clearly stated it should be the specimen collection date/time in that case.  In this IG, the time the testing was performed will be carried in OBX-19, and OBX-14 will be used for its HL7 intended purpose.  Previous version of HL7 did not contain OBX-19**.  **The minimum granularity is to the day** | |
| |  |  | | --- | --- | | **For OML** | **Could be any clinically relevant time if not related to a specimen or the specimen collection time, when the observation is related to the specimen – For example patient age - LOINC is for Patient age at specimen collection this would be the specimen collection date.** | | **For OUL** | **Note: Where the observation pertains to the test performed on a specimen OBX-14 contains the same value as OBR.7 and the first component of SPM-17.**  **If the specimen collection date/time is not known then use the literal value: ‘0000’** | | |
| **OBX-15 (Producer’s ID)** | **Not supported** | |
| **OBX-16 (Responsible Observer)** | **For OML** | **Not supported** |
| **For OUL** | **Identifies the individual directly responsible for either producing or verifying the observation (e.g., in a laboratory, it is the technician who performed or verified the analysis).**  For the Production Phase 1 this information should match what is transmitted in the ROL segment for the reviewer, where ROL.3.1=REV. |
| **OBX-17 (Observation Method)** | **Not supported** | |
| **OBX-18 (Equipment Instance Identifier)** | **Not supported** | |
| **OBX-19 (Date/Time of the Analysis)** | **For OML** | **Not supported** |
| **For OUL** | **Time at which the testing was performed, i.e. the time the supervisor has reviewed and released the result.**  **Granularity is to the day.**  **Condition: Required in all cases except when Observation Result Status (OBX-11) contains either the value ‘I’, ‘N’, or ‘X’** |
| **OBX-20 (Observation Site)** | **Not supported** | |
| **OBX-21 (Observation Instance Identifier)** | **Not supported** | |
| **OBX-22 (Mood Code)** | **Not supported** | |
| **OBX-23 (Performing Organization Name)** | **For OML** | **Not supported** |
| **For OUL** | **The name and unique identifier (component 10) of the organization/service responsible for performing the service.** |
| **OBX-24 (Performing Organization Address)** | **For OML** | **Not supported** |
| **For OUL** | **The address of the organization/service responsible for performing the service.** |
| **OBX-25 (Performing Organization Medical Director)** | **Not supported** | |

## NTE – Notes and Comments Segment

| Seq | Len | DT | HL7 Element Name | OML | | | OUL | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Usage | Cardinality | Value Set | Usage | Cardinality | Value Set |
| 1 | ◊ | SI | Set ID – NTE | R | [1..1] |  | R | [1..1] |  |
| 2 | ◊ | ID | Source of Comment | R | [1..1] | Source of Comment (HL70105) | R | [1..1] | Source of Comment (HL70105) |
| 3 | 4000\* | FT | Comment | R | [1..1] |  | R | [1..1] |  |
| 4 | ◊ | CWE | Comment Type | R | [1..1] | Comment Type (HL70364) | R | [1..1] | Comment Type (HL70364) |
| 5 | X | XCN | Entered By | X | [0..0] |  | X | [0..0] |  |
| 6 | X | DTM | Entered Date/Time | X | [0..0] |  | X | [0..0] |  |
| 7 | X | DTM | Effective Start Date | X | [0..0] |  | X | [0..0] |  |
| 8 | X | DTM | Expiration Date | X | [0..0] |  | X | [0..0] |  |

\* This represents a variance from the HL7 standard - field length is shortened

|  |  |
| --- | --- |
| **NTE-1 (Set ID)** | **The literal value: ‘1’ for the first segment transmitted, ‘2’ for the next segment, and so on**  **Used when multiple NTE segments are included in a message** |
| **NTE-2 (Source of Comment)** | **Conveys the source of the comment** |
| **NTE-3 (Comment)** | **Comment contained in the segment; this comment is intended for human use as opposed to automated, computer-based processing.** |
| **NTE-4 (Comment Type)** | **Conveys the type of comment contained in NTE-3** |
| **NTE-5 (Entered By)** | **Not supported** |
| **NTE-6 (Entered Date/Time)** | **Not supported** |
| **NTE-7 (Effective Start Date)** | **Not supported** |
| **NTE-8 (Expiration Date)** | **Not supported** |

## ROL – Role Segment

Intent of the ROL segment in the OML is to send contact information for the orginal submitter as often as possible, the Submitter to the Placer (intermediate submitter) as well as secondary point of contact at the placer (Submitter to CDC) if applicable, Intent of the ROL segment in the OUL message is to provide the contact for the reviewer at CDC as well as for a contact person at the CDC lab.

| Seq | Len | DT | HL7 Element Name | OML | | | OUL | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Usage | Cardinality | Value Set | Usage | Cardinality | Value Set |
| 1 | ◊ | EI | Role Instance ID | X | [0..0] |  | X | [0..0] |  |
| 2 | ◊ | ID | Action Code | R | [1..1] | Action Code (HL7) | R | [1..1] | Action Code (HL7) |
| 3 | ◊ | CWE | Role-ROL | R | [1..1] | Role (99ROL) | R | [1..1] | Role (99ROL) |
| 4 | ◊ | XCN | Role Person | R | [1..1] |  | R | [1..1] |  |
| 5 | ◊ | DTM | Role Begin Date/Time | X | [0..0] |  | X | [0..0] |  |
| 6 | ◊ | DTM | Role End Date/Time | X | [0..0] |  | X | [0..0] |  |
| 7 | ◊ | CWE | Role Duration | X | [0..0] |  | X | [0..0] |  |
| 8 | ◊ | CWE | Role Action Reason | X | [0..0] |  | X | [0..0] |  |
| 9 | ◊ | CWE | Provider Type | X | [0..0] |  | X | [0..0] |  |
| 10 | ◊ | CWE | Organization Unit Type | R | [1..1] | Organization Unit (99Org) | R | [1..1] | Organization Unit (99Org) |
| 11 | ◊ | XAD | Office/Home Address/Birthplace | RE | [0..1] |  | RE | [0..1] |  |
| 12 | ◊ | XTN | Phone | R | [1..4] |  | R | [1..4] |  |
| 13 | ◊ | PL | Person’s Location | X | [0..0] |  | X | [0..0] |  |

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| --- | --- |
| **ROL-1 (Role Instance ID)** | **Not supported** |
| **ROL-2 (Action Code)** | **Indicates the intended action of the segment.**  **For Phase 1 populate this field with the code ‘AD’ in the OML and ‘AD’ in the first OUL coming back.**  **For subsequent OUL messages, please pick the appropriate codes of ‘UC’ – unchanged, ‘CO’ – correct or ‘AD’.** |
| **ROL-3 (Role-ROL)** | **Identifies the functional involvement of the person identified in ROL-4.** |
| **ROL-4 (Role Person)** | **Identifies the person who is assuming the role specified in ROL-3.** |
| **ROL-5 (Role Begin Date/Time)** | **Not supported** |
| **ROL-6 (Role End Date/Time)** | **Not supported** |
| **ROL-7 (Role Duration)** | **Not supported** |
| **ROL-8 (Role Action Reason)** | **Not supported** |
| **ROL-9 (Provider Type)** | **Not supported** |
| **ROL-10 (Organization Unit Type)** | **Identifies the environment in which the person (in ROL-4) is acting in their specified role (in ROL-3).** |
| **ROL-11 (Office/Home Address/Birthplace)** | **Identifies the address of the person in ROL-4 while acting in the environment specified in ROL-10.** |
| **ROL-12 (Phone)** | **Identifies the phone/fax/email/etc. of the person in ROL-4 while acting in the environment specified in ROL-10.**  **At least one phone number must be present.** |
| **ROL-13 (Person’s Location)** | **Not supported** |

## ERR – Error Segment

| Seq | Len | DT | HL7 Element Name | ACK | | |
| --- | --- | --- | --- | --- | --- | --- |
| Usage | Cardinality | Value Set |
| 1 | X | ELD | Error Code and Location | X | [0..0] |  |
| 2 | ◊ | ERL | Error Location | RE | [0..1] |  |
| 3 | ◊ | CWE | HL7 Error Code | R | [1..1] | Error Code (HL7) |
| 4 | ◊ | ID | Severity | R | [1..1] | Severity (HL7) |
| 5 | X | CWE | Application Error Code | X | [0..0] |  |
| 6 | X | ST | Application Error Parameter | X | [0..0] |  |
| 7 | 2048 | TX | Diagnostic Information | RE | [0..1] |  |
| 8 | 250 | TX | User Message | RE | [0..1] |  |
| 9 | X | IS | Inform Person Indicator | X | [0..0] |  |
| 10 | X | CWE | Override Type | X | [0..0] |  |
| 11 | X | CWE | Override Reason Code | X | [0..0] |  |
| 12 | ◊ | XTN | Help Desk Contact Point | RE | [0..1] |  |

|  |  |
| --- | --- |
| **ERR-1 (Error Code and Location)** | **Not supported** |
| **ERR-2 (Error Location)** | **Identifies the location in a message related to the identified error, warning or informational message** |
| **ERR-3 (HL7 Error Code)** | **Identifies the HL7 communications error code** |
| **ERR-4 (Severity)** | **Identifies the severity of an application error** |
| **ERR-5 (Application Error Code)** | **Not supported** |
| **ERR-6 (Application Error Parameter)** | **Not supported** |
| **ERR-7 (Diagnostic Information)** | **Information that may be used by support personnel to help diagnose a problem** |
| **ERR-8 (User Message)** | **A message suitable for display to the application’s end-user** |
| **ERR-9 (Inform Person Indicator)** | **Not supported** |
| **ERR-10 (Override Type)** | **Not supported** |
| **ERR-11 (Override Reason Code)** | **Not supported** |
| **ERR-12 (Help Desk Contact Point)** | **Lists phone, e-mail, fax, and other relevant numbers for support related to the specified error(s)** |

## MSA – Message Acknowledgement Segment

| Seq | Len | DT | HL7 Element Name | ACK | | |
| --- | --- | --- | --- | --- | --- | --- |
| Usage | Cardinality | Value Set |
| 1 | 2 | ID | Acknowledgment Code | R | [1..1] | Acknowledgement Code (HL70008 constrained) |
| 2 | 199 | ST | Message Control ID | R | [1..1] |  |
| 3 | X | ST | Text Message | X | [0..0] |  |
| 4 | X | NM | Expected Sequence Number | X | [0..0] |  |
| 5 | X | - | Delayed Acknowledgment Type | X | [0..0] |  |
| 6 | X | CE | Error Condition | X | [0..0] |  |
| 7 | X | NM | Message Waiting Number | X | [0..0] |  |
| 8 | X | ID | Message Waiting Priority | X | [0..0] |  |

|  |  |
| --- | --- |
| **MSA-1 (Acknowledgment Code)** | **Code indicating receiver’s acknowledgment of message** |
| **MSA-2 (Message Control ID)** | **Contains the message control ID (MSH-10) of the corresponding message sent by the placer (allows the placer to associate this response, from the filler, with the message for which it is intended)** |
| **MSA-3 (Text Message)** | **Not supported** |
| **MSA-4 (Expected Sequence Number)** | **Not supported** |
| **MSA-5 (Delayed Acknowledgment Type)** | **Not supported** |
| **MSA-6 (Error Condition)** | **Not supported** |
| **MSA-7 (Message Waiting Number)** | **Not supported** |
| **MSA-8 (Message Waiting Priority)** | **Not supported** |

# Code Systems and Value Sets

Any type of communication, at least the type where all parties are seeking to both understand and be understood by one another, must utilize a common set of rules governing two fundamental aspects of communication: syntax and semantics. Previous sections in this guide, coupled with the underlying HL7 standard, outline the precise syntax associated with forming structurally valid requests for laboratory orders and processing laboratory results; however, without the second aspect, semantics, the request and result are ambiguous at best and meaningless at worst. In order to impart meaning to the request and result, code systems and value sets are employed to establish a common, consistent, and well-defined understanding.

## Coding Systems

The following link, maintained by Health Level Seven, Inc., provides a continually updated version of HL7 table 0396 – Coding Systems.

<http://www.hl7.org/special/committees/vocab/table_0396/index.cfm>

## Non-Standard Value Sets

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Value Set Name: Acknowledgement Code (HL7) Value Set Code: PHVS\_AcknowledgementCode\_PHLIP** | | | | | |
| **Concept Code** | **Concept Name** | **HL7\_0396 code system value** | **Code System Code** | **Code System Version** | **Comments** |
| AA | Original mode: Application Accept - Enhanced mode: Application acknowledgment: Accept | HL70008 | PH\_AcknowledgementCode\_HL7\_v2.x | Version 2.6 |  |
| AE | Original mode: Application Error - Enhanced mode: Application acknowledgment: Error | HL70008 | PH\_AcknowledgementCode\_HL7\_v2.x | Version 2.6 |  |
| AR | Original mode: Application Reject - Enhanced mode: Application acknowledgment: Reject | HL70008 | PH\_AcknowledgementCode\_HL7\_v2.x | Version 2.6 |  |

| **Value Set Name:** Observation Result Status (HL7)  **Value Set Code: PHVS\_ObservationResultStatus\_PHLIP** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Concept Code** | **Concept Name** | **HL7\_0396 code system value** | **Code System Code** | **Code System Version** | **Comments** |
| C | Record coming over is a correction and thus replaces a final result | HL70085 | PH\_ObservationResultStatus\_HL7\_2x | Version 2.6 |  |
| D | Deletes the OBX record | HL70085 | PH\_ObservationResultStatus\_HL7\_2x | Version 2.6 |  |
| F | Results; Can only be changed with a corrected result. | HL70085 | PH\_ObservationResultStatus\_HL7\_2x | Version 2.6 |  |
| I | Specimen in lab; results pending | HL70085 | PH\_ObservationResultStatus\_HL7\_2x | Version 2.6 |  |
| N | Not asked; used to document affirmatively that the observation identified in the OBX was not sought when the universal service ID in OBR-4 implies that it would be sought. | HL70085 | PH\_ObservationResultStatus\_HL7\_2x | Version 2.6 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Value Set Name: Order Control Code (HL7) Value Set Code: PHVS\_OrderControlCodes\_PHLIP** | | | | | |
| **Concept Code** | **Concept Name** | **HL7\_0396 code system value** | **Code System Code** | **Code System Version** | **Comments** |
| NW | New order/service | HL70119 | PH\_OrderControlCodes\_HL7\_2x | Version 2.6 |  |
| RE | Observations/Performed Service to follow | HL70119 | PH\_OrderControlCodes\_HL7\_2x | Version 2.6 |  |

| **Value Set Name: Value Type (HL7)**  **Value Set Code: PHVS\_ValueType\_HL7\_2x** | | | | | |
| --- | --- | --- | --- | --- | --- |
| Concept Code | Concept Name | HL7\_0396 code system value | Code System Code | Code System Version | Comments |
| CWE | Coded with Exceptions | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |
| CX | |  | | --- | | Extended Composite ID With Check Digit | | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |
| DT | Date | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |
| FT | Formatted Text (Display) | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |
| NM | Numeric | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |
| SN | Structured Numeric | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |
| ST | String Data | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |
| TM | Time | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |
| DTM | Time Stamp (Date & Time) | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |
| TX | Text Data (Display) | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |
| XAD | Extended Address | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |
| XCN | Extended Composite Name And Number For Persons | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |
| XON | Extended Composite Name And Number For Organizations | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |
| XPN | Extended Person Name | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |
| XTN | Extended Telecommunications Number | HL70125 | PH\_ValueType\_HL7\_2x | Version 2.6 |  |

| **Value Set Name: Universal ID Type Value Set Code: PHVS\_Universal\_ID\_Type\_HL7\_2x** | | | | | |
| --- | --- | --- | --- | --- | --- |
| Concept Code | Concept Name | HL7\_0396 code system value | Code System Code | Code System Version | Comments |
| ISO | ISO | HL70301 | PHVS\_Universal\_ID\_Type\_HL7\_2x | Version 2.6 | An International Standards Organization Object Identifier |
| CLIA | CLIA | HL70301 | PHVS\_Universal\_ID\_Type\_HL7\_2x | Version 2.7 | A Unique identifier assigned to laboratories by the Division of Laboratory Services, under the Centers for Medicare & Medicaid Services (CMS), Clinical laboratory Improvement Amendments (CLIA) Program |
| NPI | NPI | HL70301 | PHVS\_Universal\_ID\_Type\_HL7\_2x | Version 2.6 | A Health Insurance Portability and Accountability Act (HIPPA) standard identifier (10-digit number) for covered health care providers, assigned by the Centers for Medicare & Medicaid Services (CMS) |

| **Value Set Name: Identifier Type Value Set Code: PHVS\_IdentifierType\_CDC** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Concept Code** | **Concept Name** | **HL7\_0396 code system value** | **Code System Code** | **Code System Version** | **Comments** |
| AM | American Express |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| AN | Account number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| ANC | Account number Creditor |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| AND | Account number debitor |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| ANON | Anonymous identifier |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| ANT | Temporary Account Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| APRN | Advanced Practice Registered Nurse number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| BA | Bank Account Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| BC | Bank Card Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| BR | Birth registry number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| BRN | Breed Registry Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| CC | Cost Center number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| CY | County number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| DDS | Dentist license number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| DEA | Drug Enforcement Administration registration number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| DFN | Drug Furnishing or prescriptive authority Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| DI | Diner\_s Club card |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| DL | Driver\_s license number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| DN | Doctor number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| DO | Osteopathic License number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| DPM | Podiatrist license number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| DR | Donor Registration Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| DS | Discover Card |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| EI | Employee number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| EN | Employer number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| FI | Facility ID |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| GI | Guarantor internal identifier |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| GL | General ledger number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| GN | Guarantor external identifier |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| HC | Health Card Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| IND | Indigenous/Aboriginal |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| JHN | Jurisdictional health number (Canada) |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| LI | Labor and industries number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| LN | License number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| LR | Local Registry ID |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| MA | Patient Medicaid number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| MB | Member Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| MC | Patient's Medicare number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| MCD | Practitioner Medicaid number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| MCN | Microchip Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| MCR | Practitioner Medicare number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| MD | Medical License number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| MI | Military ID number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| MR | Medical record number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| MRT | Temporary Medical Record Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| MS | MasterCard |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| NE | National employer identifier |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| NH | National Health Plan Identifier |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| NI | National unique individual identifier |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| NII | National Insurance Organization Identifier |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| NIIP | National Insurance Payor Identifier (Payor) |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| NNxxx | National Person Identifier where the xxx is the ISO table 3166 3-character (alphabetic) country code |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| NP | Nurse practitioner number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| NPI | National provider identifier |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| OD | Optometrist license number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| PA | Physician Assistant number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| PCN | Penitentiary/correctional institution Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| PE | Living Subject Enterprise Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| PEN | Pension Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| PI | Patient internal identifier |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| PN | Person number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| PNT | Temporary Living Subject Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| PPN | Passport number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| PRC | Permanent Resident Card Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| PRN | Provider number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| PT | Patient external identifier |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| QA | QA number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| RI | Resource identifier |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| RN | Registered Nurse Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| RPH | Pharmacist license number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| RR | Railroad Retirement number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| RRI | Regional registry ID |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| SL | State license |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| SN | Subscriber Number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| SR | State registry ID |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| SS | Social Security number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| TAX | Tax ID number |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| TN | Treaty Number/ (Canada) |  | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| U | Unspecified identifier | HL70203 | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| UPIN | Medicare/CMS (formerly HCFA)\_s Universal Physician Identification numbers | HL70203 | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| VN | Visit number | HL70203 | PH\_IdentifierType\_HL7\_2x | Version 2.5 |  |
| VS | VISA | HL70203 | PH\_IdentifierType\_HL7\_2x | Version 2.6 |  |
| WC | WIC identifier | HL70203 | PH\_IdentifierType\_HL7\_2x | Version 2.6 |  |
| WCN | Workers\_ Comp Number | HL70203 | PH\_IdentifierType\_HL7\_2x | Version 2.6 |  |
| XX | Organization identifier | HL70203 | PH\_IdentifierType\_HL7\_2x | Version 2.6 |  |
| SID | Specimen identifier | HL70203 | PH\_IdentifierType\_HL7\_2x | Version 2.7 | Unique identifier assigned to a specimen preadopted from HL7 v2.7 table 203 |

**Reference**:

**Description**: [Salmonella Encoding Guideline spreadsheet](file:///C:\Documents%20and%20Settings\vidotl\My%20Documents\Local%20Settings\Temporary%20Internet%20Files\VMWG\ETOR\ETOR%20Library\PHLISSA%20related%20documents\latest%20versions%20of%20ETOR%20documentation\Salmonella_Encoding_Guideline_V1.01_DRAFT.xls)

**URL**: http://www.aphlweb.org/aphl\_departments/Strategic\_Initiatives\_and\_Research/Informatics\_Program/Projects/PHLIP/VMWG/ETOR/ETOR%20Library/PHLISSA%20related%20documents/latest%20versions%20of%20ETOR%20documentation/Salmonella\_Encoding\_Guideline\_V1.01\_DRAFT.xls

# IDentifiers

## General considerations

The ability to uniquely identify the various entities involved in a transaction is important; however, when the transaction is related to human life and safety, as is the case here, the need for unambiguous entity identification is paramount. Improper identification of any of the primary entities involved in these use cases can have potentially drastic, irreversible consequences – which is why each of the following entities: Patient, Specimen, and Order, shall be represented by and be identified with separate, globally unique identifiers.

**Unique Identifiers:**

The identifiers used in this guide follow a strict convention in order to assure unique identification. A globally unique identifier is one that is unique across both space and time with respect to the space of the identifier’s assigning authority. In other words, any identifier created by the assigning authority will never be reused. Further, in order to facilitate inter-organizational identifier exchange, the assigning authority’s identifier must be globally unique (e.g. OID, CLIA identifier, NPI, etc.) A unique identifier consists of two elements, the identifier itself and the identifier’s assigning authority ID (the assigning authority is the organization/system responsible for producing/assigning the associated object’s/entity’s identifier):

***“Unique Identifier”*** = [The object/entity identifier] + [The identifier’s assigning authority]

While using one identifier for multiple entities may be valid in certain, specific use cases and in very narrowly defined contexts, in these use cases and in this context the three primary entities are three separate and distinct real-world entities. For instance, a specimen, in this use case, is derived from a patient, but a specimen is not a patient and therefore shall not be represented by the patient’s identifier, nor shall the patient, since they are not the actual specimen upon which the order(s) have been placed, be represented by the specimen’s identifier. Put simply, a specimen is not a patient and a patient is not a specimen - these are distinct entities and their identifiers shall be distinct as well. Additionally, an order is a request for action upon a specimen where there is no notion of equality in the relationship, symmetric or otherwise (i.e., a specimen is not an order and an order is not a specimen); therefore, the specimen shall not be represented by the order’s identifier. Further, since multiple orders may be placed against the same specimen it is necessary to identify each order uniquely and separately from their associated specimen to be able to accurately identify the specimen and each individual order (allowing the order identifier to take on the same value as the specimen identifier would prohibit the placing of multiple orders on the same specimen.)

The primary entities: Patient, Specimen, and Order shall be mapped, one-to-one, to an associated identifier as follows:

* + - * Specimen : Specimen Identifier
      * Patient : Patient Identifier
      * Order : Order Identifier

The following matrix shows the allowed relationships between the primary entities (in the first column) and the various identifiers. To find the allowed identifier for an entity locate the check mark in the identifier column.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Specimen ID | Patient ID | Order ID |
| **Specimen** | **** |  |  |
| **Patient** |  | **** |  |
| **Order** |  |  | **** |
| ****= Valid entity/identifier pair  = Invalid entity/identifier pair | | | |

Additionally, in these use cases and in the context of a single message, the entities are related to one another as show below. The diagram illustrates that a single patient provides a single specimen and the single specimen has one or more orders for services/testing placed upon that single specimen.



Examples of unique identifiers for each of the three primary entities are shown in the sections below.

## Patient ID

|  |  |
| --- | --- |
| **Definition** | Uniquely and unambiguously identifies the patient associated with the order(s) requested. |
| **Allowed** | Examples:   * Medical record number * Internal hospital ID * State Public Health Laboratory patient ID |
| **Disallowed** | * Specimen ID * Order ID |
| **Example** | |  |  |  | | --- | --- | --- | | **Patient** |  |  | |  |  |  | | CX-1 | ID Number | **12345-ABC** | | CX-2 | not supported | - | | CX-3 | not supported | - | | CX-4 | Assigning Authority | *[HD data type]* | | CX-4.1 | Namespace ID | **MISYS** | | CX-4.2 | Universal ID | **2.16.840.1.114222.4.3.3.4.1.1** | | CX-4.3 | Universal ID Type | **ISO** | | CX-5 | Identifier Type Code | **PI** | | CX-6 | Assigning Facility | *[HD data type]* | | CX-6.1 | Namespace ID |  | | CX-6.2 | Universal ID |  | | CX-6.3 | Universal ID Type |  | |

## Specimen ID

|  |  |
| --- | --- |
| **Definition** | Uniquely and unambiguously identifies the specimen associated with the order(s) requested.  *A note on aliquots*: For the current use case, a placer will only be providing the filler with one specimen per order. The one specimen will be contained in a single container. On the filler’s end the assignment of specimen ID(s) depends on a number of factors, including workflow, standard operating procedures in-place at the filler, the number of orders requested by the placer, etc. For example:   * One order requested: the placer has requested one order on the specimen; the filler, upon receipt, logs in the specimen, assigning a Filler Specimen ID that will be sent back to the placer with the final results * Multiple orders requested: the placer has requested three orders on the specimen; the filler, upon receipt, logs in the specimen, assigning a Filler Specimen ID (e.g. S2345.) The filler, prior to completing the 3 ordered tests, prepares 3 separate samples (aliquots) from the original specimen, giving each aliquot a separate Filler Specimen ID (e.g. S2345-1, S2345-2, S2345-3), each one still associated with the same/original Filler Specimen ID (the association so identified via the aliquots’ Specimen Parent ID, in this case S2345.) |
| **Allowed** | Examples:   * Specimen ID   NOTE: Accession number may be used as the specimen ID when it is not being used as the order ID (i.e. accession number must not be used as both the specimen ID and the order ID.) |
| **Disallowed** | * Order ID * Patient ID (a patient identifier “never” changes; however, multiple specimens can be derived from a single patient; therefore, assigning a patient identifier to a specimen does not allow for more than one uniquely identified specimen from the patient in the current order and prevents unique identification of specimens in subsequent orders on specimens from the same patient) |
| **Example** | |  |  |  | | --- | --- | --- | | **Specimen** |  |  | |  |  |  | | EIP-1 | Placer Assigned Identifier | *[EI data type]* | | EIP-1.1 | Entity Identifier | **T45093** | | EIP-1.2 | Namespace ID | **MISYS** | | EIP-1.3 | Universal ID | **2.16.840.1.114222.4.3.3.4.1.1** | | EIP-1.4 | Universal ID Type | **ISO** | | EIP-2 | Filler Assigned Identifier | *[EI data type]* | | EIP-2.1 | Entity Identifier | **847393-A** | | EIP-2.2 | Namespace ID | **LISSYS** | | EIP-2.3 | Universal ID | **2.16.840.1.742195.2.1.8.0.4.2** | | EIP-2.4 | Universal ID Type | **ISO** | |

## Order ID

|  |  |
| --- | --- |
| **Definition** | Uniquely and unambiguously identifies an order for services related to a specimen. |
| **Allowed** | Examples:   * Requisition number * Invoice number * Test run ID   NOTE: Accession number may be used as the order ID when it is not being used as the specimen ID (i.e. accession number must not be used as both the specimen ID and the order ID.) |
| **Disallowed** | * Specimen ID * Patient ID |
| **Example** | |  |  |  | | --- | --- | --- | | **Order** |  |  | |  |  |  | | EI-1 | Entity Identifier | **A9100-1043.45** | | EI-2 | Namespace ID | **MISYS** | | EI-3 | Universal ID | **2.16.840.1.114222.4.3.3.4.1.1** | | EI-4 | Universal ID Type | **ISO** | |

# Sample Messages

Sample messages still need to be checked by SME for correct representation of result values (do the results match the Salmonella being reported)

All values should be considered made up to this point – verification of CDC related OIDS, address, descriptions, identifier format etc need to be made on the CDC side.

The following messages are to be handmade – in a future revision of this guide they will be replaced by integration engine generated and validated messages using the storyboard information for the following use cases / trigger events:

Order

Specimen received

Specimen rejected

Preliminary results

Final results

Corrected results

ACK

Error

## Salmonella Identification and Serotyping

### Actors

|  |  |
| --- | --- |
| Actor | Role |
| Atlantis General Hospital Laboratory | Original Submitter |
| XYZ State Public Health Laboratory | Submitter |
| CDC Infectious Disease Lab | Testing Laboratory |
| John Q. Doe | Patient |
| Dr. Mark A. Jones, MD | Ordering Provider |
| Robert Gray | Point of Contact at Original Submitter |
| Dr. Ken Smith, PhD | Point of Contact at Submitter |
| Dr. James Quickland, PhD | Bring to the Attention of at Testing Laboratory |
| Mike F. Jackson III | Contact at Testing Laboratory |
| Dr. Sam D. Zing, PhD | Reviewer at Testing Laboratory |

### Maximally populated Order

MSH|^~\&|MISYS^2.16.840.1.114222.4.3.3.4.1.1^ISO|XYZSPHL^2.16.840.1.114222.4.1.10412^ISO|CCID^2.16.840.1.1.1.1.1.1.1.22^ISO|CDC^2.16.840.1.1.1.1.1.1.1.1^ISO|20090211070000.0-0600||OML^O33^OML\_O33|XYZSPHL0000000002000|P|2.6|||||||||PHLIP\_ETOR\_Sal\_v1.0.2^PHIN^2.16.840.1.114222.4.10.3^ISO~PHLIP\_ETOR\_Vocab\_Sal\_v1.0.2^PHIN^2.16.840.1.114222.4.10.4^ISO

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^^^Atlantis General Hospital&31F0023456&CLIA^MR^Atlantis General Hospital Hopkins Lab&2.16.840.1.222.4.1.10412.013&ISO~45AQ12345.20090210^^^Atlantis General Hospital&31F0023456&CLIA^VN^Atlantis General Hospital Hopkins Lab&2.16.840.1.222.4.1.10412.013&ISO||Doe^John^Q^Jr.^^^L||19700301|M||21063^White^CDCREC^W^white^L^1.1^1~20289^Asian^CDCREC^A^Asian^L^1.1^1~20768^Native Hawaiian or Other Pacific Islander^CDCREC^IS^Islander^L^1.1^1|98765 Main St.^Apt. 5B^Any City^ST^12345^USA^^^31055^^^^^^^^^^Mary Doe||^PRN^PH^^^987^1234567^11^Do not call after 10PM|||||||||N^Not Hispanic or Latino^HL70189^NL^Not Latino nor Hispanic^L^2.6^5^Neither Latino nor Hispanic|||||||200902101700000000-0600|Y

NTE|1|L|I don't know what comment would be appropriate after a PID, but here is an example for an NTE segment.|RE^Remark^HL70364^R^Remark^L^2.6^1^Remarks

NTE|2|L|And a second one, since it can repeat unlimited number of times per the guide at the moment.|RE^Remark^HL70364^R^Remark^L^2.6^1^Remarks

SPM|1||X200143N02&XYZSPHL&2.16.840.1.114222.4.1.10412&ISO|119303007^Microbial Isolate Specimen^SCT^ISLT^Isolate^L^20110131^1.01^Isolate|||||||||||||20090210163000.0-0600

OBX|1|CWE|PLT210^Original Specimen Type^PLT^OST^original specimen type^L^1.0.4^1^clinical specimen type||119334006^Stool specimen^SCT^STL^Stool^L^20110131^1^hard stool||||||F|||20090210163000.0-0600

OBX|2|CWE|PLT211^Original Specimen Type Modifier^PLT^OSTM^original specimen type modifier^L^1.0.4^1^clinical specimen type modifier||72505002^Hard^SCT^H^hard^L^20110131^1^hard stool||||||F|||20090210163000.0-0600

OBX|3|CWE|PLT212^Original Specimen Source Site^PLT^OSSS^original specimen source Site^L^1.0.4^1^clinical specimen source site||34402009^Rectum structure^SCT^RECT^Rectum^L^20110131^1^Rectum||||||F|||20090210163000.0-0600

OBX|4|CWE|PLT213^Original Specimen Source Site Modifier^PLT^OSSSM^original specimen source Site modifier^L^1.0.4^1^clinical specimen source site modifier||255582007^Rectal^SCT^rectal^Rectal^L^20110131^1^rectal||||||F|||20090210163000.0-0600

OBX|5|CWE|PLT214^Original Specimen Collection Method^PLT^OSCM^original specimen collection method^L^1.0.4^1^clinical specimen collection method||225105004^Collection of stool specimen^SCT^stltube^stool tube^L^20110131^1^stool sample tube||||||F|||20090210163000.0-0600

OBX|6|DTM|PLT223^Shipment Status date/time^PLT^SD^shipdate^L^1.0.4^1^shiping date||20090211150000.0-0600||||||F|||20090210163000.0-0600

OBX|7|CWE| PLT218^Other organisms found in original sample^ PLT^pc^other organisms present^L^10.04^1^other organisms in sample||260413007^None^SCT^N^None^L^20110131^1^no other organisms present||||||F|||20090210163000.0-0600

OBX|8|CWE|PLT219^Suspected Agent^PLT^SA^Suspected Agent^L^1.0.4^1^suspected agent or organism||110378009^Salmonella enterica^SCT^SalmEnt^Salmonella enterica^L^20100731^1^Salmonella enterica||||||F|||20090210163000.0-0600

OBX|9|EI|PLT224^ShipmentPAckageID and Courier name^PLT^PackID^Courier name and ID^L^1.0.4^1^courier name and id||874791953028^FedEx||||||F|||20090210163000.0-0600

OBX|10|CX|PLT220^State Public Health Lab Specimen ID^PLT^SPHLID#2^State Public Health Lab Specimen ID #2^L^1.0.4^1^State Public Health Lab Specimen ID||12345ABC^^^XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^XX^XYZSPHLLab1&2.16.840.1.114222.4.1.10412.1&ISO||||||F|||20090210163000.0-0600

OBX|11|CX|PLT221^Original Submitter Lab Specimen ID^PLT^OSLSpecID1^Original Submitter Lab Specimen ID #1^L^1.0.4^1^Original Submitter Lab Specimen ID #1||987RQ4321A^^^Atlantis General Hospital&31F0023456&CLIA^XX^Atlantis General Hospital Hopkins Lab&2.16.840.1.222.4.1.10412.013&ISO||||||F|||20090210163000.0-0600

OBX|12|NM|356592^Age at specimen collection^LN^A^Patient Age^L^2.32^1^Patient age||38|a^year^UCUM^yrs^years^L^1.7^1.1^years|||||F|||20090210163000.0-0600

ORC|NW|56789PHL222^XYZSPHL^2.16.840.1.114222.4.1.10412^ISO||||F|||20090211070000.0-0600|||1412941681^Jones^Mark^A^Jr.^Dr.^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI^XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^^^^^^^MD||^WPN^PH^^^402^5551212^104^Business hours are 85 CST~^FAX^PH^^^402^5551213^^Business hours are 85 CST|||||||XYZ State Public Health Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^CLIA&2.16.840.1.113883.4.7&ISO^^28D0012345||4444 Y Street^Lab Section^Atlantis^XX^123456789^USA^^^XX105^^^^^^^^^^Dr. Ken Smith, MD, PHD^^WPN^PH^^^402^5551000^104^Business hours are 85 CST~^FAX^PH^^^402^5551001^^Business hours are 85 CST|4466 Y Cir.^Micro Lab^Atlantis^XX^123456789^USA^^^XX105^^^^^^^^^^Dr. Mark A. Jones Jr.

OBR|1|56789PHL222^XYZSPHL^2.16.840.1.114222.4.1.10412^ISO||PLT110^Salmonella Identification and Serotyping Battery^PLT^SalID^Salmonella Identification and Serotyping^L^1.0.4^1^Salmonella Identification and Serotyping|||20090210163000.0-0600|||||||||1412941681^Jones^Mark^A^Jr.^Dr.^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI^XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^^^^^^^MD|^WPN^PH^^^402^5551212^104^Business hours are 85 CST~^WPN^FX^^^402^5551213^^Business hours are 85 CST

NTE|1|L|Please see eDASH form for previous results.|RE^Remark^HL70364^R^Remark^^2.6^L^Remarks

NTE|2|L|The NTE segment is allowed to repeat unlimited times.|RE^Remark^HL70364^R^Remark^^2.6^L^Remarks

ROL||AD|POC^Point of Contact^99ROL^POC^Point of Contact^L^2.6^1^Point of Contact|987A^Smith^Ken^B^Sr.^Dr.^^^XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^L^^^EN^XYZSPHLLab1&2.16.840.1.114222.4.1.10412.1&ISO^^^^^^^PHD||||||SUB^Submitter^99ORG^Sub^Submitter^L^2.6^2^Submitter|4444 Y Street^Lab Section^Atlantis^XX^123456789^USA^^^XX105^^^^^^^^^^Dr. Ken B. Smith Sr.|^WPN^PH^^1^402^3342210^10^Business hours are 85 CST~^WPN^FX^^1^402^3341001^^Business hours are 85 CST~^^Internet^ken.smith@xyzsphl.org^^^^^Business hours are 85 CST~^BPN^BP^^1^402^3342219^

ROL||AD|POC^Point of Contact^99ROL^POC^Point of Contact^L^2.6^1^Point of Contact|103^Gray^Robert^D^Sr.^Dr.^^^Atlantis General Hospital&31F0023456&CLIA^L^^^EN^Atlantis General Hospital Hopkins Lab&2.16.840.1.222.4.1.10412.013&ISO^^^^^^^MD||||||OS^Original Submitter^99ORG^Original Submitter^L^2.6^2^Original Submitter|1234 X Street^^Atlantis^XX^123456789^USA^^^XX105^^^^^^^^^^Dr. Robert D. Gray Sr.|^WPN^PH^^1^402^3331111^21^Business hours are 87 CST~^WPN^FX^^1^402^3332222^^Business hours are 87 CST~^^Internet^rgray@atlantisgeneralhospital.org^^^^^Business hours are 87 CST

### 

### Maximally populated Result

MSH|^~\&|CCID^2.16.840.1.1.1.1.1.1.1.22^ISO|CDC^2.16.840.1.1.1.1.1.1.1.1^ISO|MISYS^2.16.840.1.114222.4.3.3.4.1.1^ISO|XYZSPHL^2.16.840.1.114222.4.1.10412^ISO|20090217080000.0-0500||OUL^R22^OUL\_R22|CCID0000000003000|P|2.6|||||||||PHLIP\_ETOR\_Sal\_v1.0.2^PHIN^2.16.840.1.114222.4.10.3^ISO~PHLIP\_ETOR\_Vocab\_Sal\_v1.0.2^PHIN^2.16.840.1.114222.4.10.4^ISO

PID|1||987654321A^^^XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^PI^XYZSPHL-Lab1&2.16.840.1.114222.4.1.10412.1&ISO~45A-Q-12345^^^Atlantis General Hospital&31F0023456&CLIA^MR^Atlantis General Hospital-Hopkins Lab&2.16.840.1.222.4.1.10412.013&ISO~45A-Q-12345.20090210^^^Atlantis General Hospital&31F0023456&CLIA^VN^Atlantis General Hospital-Hopkins Lab&2.16.840.1.222.4.1.10412.013&ISO~45A-Q-12345.20080729^^^Atlantis General Hospital&31F0023456&CLIA^VN^Atlantis General Hospital-Hopkins Lab&2.16.840.1.222.4.1.10412.013&ISO||Doe^John^Q^Jr.^^^L||19700301|M||2106-3^White^CDCREC^W^white^L^1.1^1~2028-9^Asian^CDCREC^A^Asian^L^1.1^1~2076-8^Native Hawaiian or Other Pacific Islander^CDCREC^IS^Islander^L^1.1^1|98765 Main St.^Apt. 5B^Any City^ST^12345^USA^^^31055^^^^^^^^^^Mary Doe||^PRN^PH^^^987^1234567^11^Do not call after 10PM|||||||||N^Not Hispanic or Latino^HL70189^NL^Not Latino nor Hispanic^L^2.6^5^Neither Latino nor Hispanic|||||||20090210170000-0600|Y

NTE|1|L|I don't know what comment would be appropriate after a PID, but here is an example for an NTE segment.|RE^Remark^HL70364^R^Remark^L^2.6^1^Remarks

NTE|2|L|And a second one, since it can repeat unlimited number of times per the guide at the moment.|RE^Remark^HL70364^R^Remark^L^2.6^1^Remarks

SPM|1|X200143N02&XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^200944001&CDC&2.16.840.1.1.1.1.1.1.1.1&ISO||119303007^Microbial Isolate Specimen^SCT^ISLT^Isolate^L^20110131^1.01^Isolate|||||||||||||20090210163000.0-0600|20090213114500.0-0500

OBX|1|CX|PLT2103^CCID -

CUID^PLT^CUID^CUID^L^1.0.4^1^CUID||N9K44001^^^CDC&2.16.840.1.1.1.1.1.1.1.1&ISO^XX^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090213114500.0-0500

OBR|1|56789-PHL-222^XYZSPHL^2.16.840.1.114222.4.1.10412^ISO|SAL-10001-A^CDC^2.16.840.1.1.1.1.1.1.1.1^ISO|PLT110^Salmonella Identification and Serotyping

Battery^PLT^SalID^Salmonella Identification and Serotyping^L^1.0.4^1^Salmonella Identification and Serotyping|||20090210163000.0-0600|||||||||1412941681^Jones^Mark^A^Jr.^Dr.^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI^XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^^^^^^^MD|^WPN^PH^^^402^5551212^104^Business hours are 8-5 CST~^WPN^FX^^^402^5551213^^Business hours are 8-5 CST|||||20090216164500.0-0500|||F

ORC|RE|56789-PHL-222^XYZSPHL^2.16.840.1.114222.4.1.10412^ISO|SAL-10001-A^CDC^2.16.840.1.1.1.1.1.1.1.1^ISO||CM|E|||20090216164500.0-0500|||1412941681^Jones^Mark^A^Jr.^Dr.^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI^XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^^^^^^^MD||^WPN^PH^^^402^5551212^104^Business hours are 8-5 CST~^FAX^PH^^^402^5551213^^Business hours are 8-5 CST|||||||XYZ State Public Health Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^CLIA&2.16.840.1.113883.4.7&ISO^^28D0012345|4444 Y Street^Lab Section^Atlantis^XX^12345-6789^USA^^^XX105^^^^^^^^^^Dr. Ken Smith, PHD|^WPN^PH^^^402^5551000^^Business hours are 8-5 CST~^FAX^PH^^^402^5551001^^Business hours are 8-5 CST|4466 Y Cir.^Micro Lab^Atlantis^XX^12345-6789^USA^^^XX105^^^^^^^^^^Dr. Mark A. Jones Jr.

NTE|1|L|Please see e-DASH form for previous results.|RE^Remark^HL70364^R^Remark^L^2.6^1^Remarks

NTE|2|L|The NTE segment is allowed to repeat unlimited times.|RE^Remark^HL70364^R^Remark^L^2.6^1^Remarks

ROL||AD|CON^Contact^ROLECLASS^REP^Reporter^L^2.6^6^Reporting Personnel|3456^Jackson^Mike^F^Dr.^III^^^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^MD||||||TL^Testing Laboratory^99Org^TLab^Testing Laboratory^L^2.6^6^Testing Laboratory|1600 Clifton Rd., N.E.^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. Mike F. Jackson III, MD|^WPN^PH^^11^404^6391218^140^Business hours are 8-5 EST~^WPN^FX^^11^404^8781001^^Business hours are 8-5 EST~^^Internet^m6k@cdc.gov^^^^^Business hours are 8-5 EST~^^Internet^salmonella@cdc.gov^^^^^Business hours are 8-5 EST

ROL||AD|REV^Reviewer^99ROL^APR^Approver^L^2.6^6^Report Approver|21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD||||||TL^Testing Laboratory^99Org^TLab^Testing Laboratory^L^2.6^6^Testing Laboratory|1600 Clifton Rd., N.E.^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. Mike F. Jackson III, MD|^WPN^PH^^11^404^6391218^140^Business hours are 8-5 EST~^WPN^FX^^11^404^8781001^^Business hours are 8-5 EST~^^Internet^m6k@cdc.gov^^^^^Business hours are 8-5 EST~^^Internet^salmonella@cdc.gov^^^^^Business hours are 8-5 EST

OBX|1|CWE|PLT113^Indole Peptone Water Islt^PLT^IND\_PH20^Indole Peptone Water^L^1.0.4^1^Indole - Peptone Water||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|2|CWE|PLT114^Methyl Red ISLT^PLT^METRED^Methyl Red^L^1.0.4^1^Methyl Red||PLR52^Positive at day 2^PLR^POS\_2^Positive at day 2^L^20110131^1^Positive at day 2||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|3|CWE|PLT115^Voges Proskauer O Meara ISLT^PLT^VP\_OM^Voges Proskauer O Meara^L^1.0.4^1^Voges Proskauer O Meara||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|4|CWE|PLT116^Citrate Simmons ISLT^PLT^CIT\_SIM^Citrate Production Simmons^L^1.0.4^1^||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|5|CWE|PTL117^H2S - TSI ISLT^PLT^H2S\_TSI^Hydrogen Sulfide (H2S) Production - TSI^L^1.0.4^1^Hydrogen Sulfide (H2S) Production - TSI||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|6|CWE|45037-9^Bacteria Urease Islt Ql^LN^UR\_HYD^Urea Hydrolysis^L^1.0.4^1^Urea Hydrolysis||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|7|CWE|PLT119^Phenylalanine deaminase ISLT^PLT^PHALA\_DA^Phenylalanine deaminase^L^1.0.4^1^Phenylalanine deaminase||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|8|CWE|PLT120^Lysine decarboxylase ISLT^PLT^LYS\_DC^Lysine decarboxylase^L^1.0.4^1^Lysine decarboxylase||PLR51^Positive at day 1^PLR^POS\_1^Positive at day

1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|9|CWE|45038-7^Bacteria arginine decase Islt Ql^PLT^ARG\_DC^Arginine decarboxylase^L^1.0.4^1^Arginine decarboxylase||PLR52^Positive at day 2^PLR^POS\_2^Positive at day 2^L^20110131^1^Positive at day 2||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|10|CWE|PLT122^Ornithine decarboxylase ISLT^PLT^ORN\_DC^Ornithine decarboxylase^L^1.0.4^1^Ornithine decarboxylase||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|11|CWE|PLT123^Motility ISLT^PLT^MOT^Motility^L^1.0.4^1^Motility||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|12|CWE|PLT124^Growth in KCN ISLT^PLT^KCN^KCN Growth in^L^1.0.4^1^KCN Growth in||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|13|CWE|PLT125^Malonate utilization ISLT^PLT^^Malonate utilization^L^1.0.4^1^Malonate utilization||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|14|CWE|PLT126^Glucose (D-) Acid ISLT^PLT^GLC\_D-\_Acid^Glucose (D-) Acid^L^1.0.4^1^Glucose (D-) Acid||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|15|CWE|PLT127^Glucose (D-) Gas ISLT^PLT^GLC\_D-\_Gas^Glucose (D-) Gas^L^1.0.4^1^Glucose (D-) Gas||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|16|CWE|PLT128^Lactose fermentation ISLT^PLT^LAC^Lactose fermentation^L^1.0.4^1^Lactose fermentation||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|17|CWE|PLT129^Sucrose fermentation ISLT^PLT^SUC^Sucrose fermentation^L^1.0.4^1^Sucrose fermentation||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|18|CWE|PLT130^Mannitol (D-) fermentation ISLT^PLT^MAN^Mannitol (D-) fermentation^L^1.0.4^1^Mannitol (D-) fermentation||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|19|CWE|PLT131^Dulcitol fermentation ISLT^PLT^DUL^Dulcitol fermentation^L^1.0.4^1^Dulcitol fermentation||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|20|CWE|PLT132^Salicin fermentation ISLT^PLT^SAL^Salicin fermentation^L^1.0.4^1^Salicin fermentation||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|21|CWE|PLT133^Adonitol fermentation ISLT^PLT^ADL^Adonitol fermentation^L^1.0.4^1^Adonitol fermentation||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|22|CWE|PLT134^Inositol (myo-) fermentation ISLT^PLT^^Inositol (myo-) fermentation^L^1.0.4^1^Inositol (myo-) fermentation||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|23|CWE|PLT135^Sorbitol (D-) fermentation ISLT^PLT^SOR\_D-^Sorbitol (D-) fermentation^L^1.0.4^1^Sorbitol (D-) fermentation||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|24|CWE|PLT136^Arabinose (L-) fermentation ISLT^PLT^ARA\_L-^Arabinose (L-) fermentation^L^1.0.4^1^Arabinose (L-) fermentation||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|25|CWE|PLT137^Raffinose fermentation ISLT^PLT^RAF^Raffinose fermentation^L^1.0.4^1^Raffinose fermentation||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|26|CWE|PLT138^Rhamnose (L-) fermentation ISLT^PLT^RHM\_L-^Rhamnose (L-) fermentation^L^1.0.4^1^Rhamnose (L-) fermentation||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|27|CWE|PLT139^Maltose fermentation ISLT^PLT^MAL^Maltose fermentation^L^1.0.4^1^Maltose fermentation||PLR51^Positive at day 1^PLR^POS\_1^Positive at day

1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|28|CWE|PLT140^Xylose (D-) fermentation ISLT^PLT^XYL\_D-^Xylose (D-) fermentation^L^1.0.4^1^Xylose (D-) fermentation||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|29|CWE|PLT141^Trehalose fermentation ISLT^PLT^TREH^Trehalose fermentation^L^1.0.4^1^Trehalose fermentation||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|30|CWE|PLT142^Cellobiose fermentation ISLT^PLT^CELB^Cellobiose fermentation^L^1.0.4^1^Cellobiose fermentation||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|31|CWE|PLT143^a-Methyl-D-Glucoside fermentation ISLT^PLT^aM\_D\_GLCD^a-Methyl-D-Glucoside fermentation^L^1.0.4^1^a-Methyl-D-Glucoside fermentation||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|32|CWE|PLT144^Erythritol fermentation ISLT^PLT^ERYT^Erythritol fermentation^L^1.0.4^1^Erythritol fermentation||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|33|CWE|PLT145^Esculin hydrolysis ISLT^PLT^ESC\_HYD^Esculin hydrolysis^L^1.0.4^1^Esculin hydrolysis||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|34|CWE|PLT146^Melibiose fermentation ISLT^PLT^MELB^Melibiose fermentation^L^1.0.4^1^Melibiose fermentation||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|35|CWE|PLT147^Arabitol (D-) fermentation ISLT^PLT^ART\_D-^Arabitol (D-) fermentation^L^1.0.4^1^Arabitol (D-) fermentation||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|36|CWE|PLT148^Glycerol fermentation ISLT^PLT^GLY^Glycerol fermentation^L^1.0.4^1^Glycerol fermentation||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|37|CWE|PLT149^Mucate fermentation ISLT^PLT^MUC^Mucate fermentation^L^1.0.4^1^Mucate fermentation||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|38|CWE|PLT150^Tartrate Jordans ISLT^PLT^TAR\_Jr.D^Tartrate Jordans^L^1.0.4^1^Tartrate Jordans||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|39|CWE|PLT151^Acetate utilization ISLT^PLT^ACT^Acetate utilization^L^1.0.4^1^Acetate utilization||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|40|CWE|PLT152^Lipase (Corn oil) ISLT^PLT^LIP^Lipase (Corn oil)^L^1.0.4^1^Lipase (Corn oil)||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|41|CWE|PLT153^DNAse (25C) ISLT^PLT^DNAS\_25^DNAse (25C)^L^1.0.4^1^DNAse (25C)||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|42|CWE|PLT154^Nitrate reduction to Nitrite ISLT^PLT^N3\_RD^Nitrate Reduction to Nitrite^L^1.0.4^1^Nitrate Reduction to Nitrite||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|43|CWE|45036-1^Bacteria Oxidase Islt Ql^PLT^OX^Oxidase^L^1.0.4^1^Oxidase||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|44|CWE|PLT156^ONPG ISLT^PLT^ONPG^ONPG^L^1.0.4^1^ONPG||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|45|CWE|PLT157^Citrate Christensens ISLT^PLT^CIT\_CHR^Citrate Christensens^L^1.0.4^1^Citrate Christensens||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|46|CWE|PLT158^H2S Peptone Iron Agar ISLT^PLT^H2S\_PIA^H2S Production Peptone Iron Agar^L^1.0.4^1^HyDr.ogen Sulfide (H2S) Production Peptone Iron Agar||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|47|CWE|PLT159^Mannose (D-) fermentation ISLT^PLT^MAN\_D-^Mannose (D-) fermentation^L^1.0.4^1^Mannose (D-) fermentation||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|48|CWE|PLT160^Tyrosine hydrolysis ISLT^PLT^TYR\_HD^Tyrosine hydrolysis^L^1.0.4^1^Tyrosine hydrolysis||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|49|CWE|PLT161^Galactose (D-) fermentation ISLT^PLT^GAL\_D-^Galactose (D-) fermentation^L^1.0.4^1^Galactose (D-) fermentation||PLR51^Positive at day 1^PLR^POS\_1^Positive at day 1^L^20110131^1^Positive at day 1||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|50|CWE|PLT162^Galacturonate (D-) fermentation ISLT^PLT^GLN\_D-^Galacturonate (D-) fermentation^L^1.0.4^1^Galacturonate (D-) fermentation||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|51|CWE|PLT163^Gelatin Strip (37C) ISLT^PLT^GEL\_37^Gelatin Strip (37C)^L^1.0.4^1^Gelatin Strip (37C)||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|52|CWE|PLT164^MUG (Glucuronidase) ISLT^PLT^MUG^Glucuronidase - MUG^L^1.0.4^1^Glucuronidase - MUG||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|53|CWE|45034-6^Bacteria catalase Islt Ql^PLT^CAT^Catalase^L^1.0.4^1^Catalase||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|54|CWE|PLT198^Melezitose fermentation ISLT^PLT^MEL^Melezitose fermentation^L^1.0.4^1^Melezitose fermentation||260385009^negative^SCT^Neg^negative^L^20110131^1^negative||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090215110000.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|55|CWE|59846-6^Salmonella ISLT^LN^SAL\_ID^Salmonella Identification^L^2.33^1^Traditional Salmonella Identification||398508004^Salmonella enterica subsp. enterica^SCT^Sal\_SSP\_I^Salmonella enterica subspecies I^^20100731^1^Salmonella enterica subspecies I||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090216164500.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|56|CWE|20951-0^Salmonella Sertyp Islt Aggl^LN^SAL\_TYP^Salmonella Serotyping^L^2.33^1^Salmonella Serotyping|1|PLR4999^Serovar Fufu^PLR^FUFU^Serovar Fufu^L^1.0.4^1^Serovar Fufu||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090216164500.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

OBX|57|CWE|20951-0^Salmonella Sertyp Islt Aggl^LN^SAL\_TYP^Salmonella Serotyping^L^2.33^1^Salmonella Serotyping|2|PLR^I 3,10:z:1,5^PLR^^^^1.0.4^1^Formula: I

3,10:z:1,5||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090216164500.0-0500||||National Salmonella Reference Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^^CLIA&2.16.840.1.113883.4.7&ISO^^11D0668319|1600 Clifton Rd., N.E.&&^Mailstop C03^Atlanta^GA^30333-1111^USA^^^XX105^^^^^^^^^^Dr. James C. Quickland Jr.

NTE|1|L|The serotyping results on this report were obtained with research procedures or research reagents. These test results must not be used for diagnosis, treatment, or for the assessment of a patient's health.|RE^Remark^HL70364^SD^Serotyping Disclaimer^L^2.6^1^Serotyping Disclaimer

NTE|2|L|This isolate was non-reactive to our standard O:6,1 monoclonal antibody, a commercial O:6,1 monoclonal antibody preparation (Sifin; Berlin, Germany), and one lot of CDC polyclonal O:6,1 antiserum. However, this isolate was reactive to a second lot of CDC polyclonal O:6,1 antiserum and to a commercial O:6,1 antiserum (SSI; Copenhagen, Denmark).|RE^Remark^HL70364^R^Remark^L^2.6^1^Remark

NTE|3|L|We have forwarded this isolate to the W.H.O. Collaborating Centre for Reference and Research on Salmonella at the Institut Pasteur for opinion and results will be provided under separate cover as they become available.|RE^Remark^HL70364^R^Remark^L^2.6^1^Remark

## Filler Rejection of Sample for All Tests

E.g., Specimen container was broken and leaked all over the shipping container; specimen arrived at improper temperature; specimen type is invalid for test requested

Note that no observations (OBXs) are present as no test(s) were performed and consequently no results are available; the order’s status is set to ‘X’ (No results available; order canceled) to indicate as such. Further, the reason for rejection is specified in SPM-21 (Specimen Reject Reason):

MSH|^~\&|CCID^2.16.840.1.1.1.1.1.1.1.22^ISO|CDC^2.16.840.1.1.1.1.1.1.1.1^ISO|MISYS^2.16.840.1.114222.4.3.3.4.1.1^ISO|XYZSPHL^2.16.840.1.114222.4.1.10412^ISO|20090216132000.0-0600||OUL^R22^OUL\_R22|CCID0000000003000|P|2.6|||||||||PHLIP\_ETOR\_Sal\_v1.0.2^PHIN^2.16.840.1.114222.4.10.3^ISO~PHLIP\_ETOR\_Vocab\_Sal\_v1.0.2^PHIN^2.16.840.1.114222.4.10.4^ISO

PID|1||987654321A^^^XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^PI~45A-Q-12345^^^Atlantis General Hospital&31F0023456&CLIA^MR||Doe^John^Q^Jr^^^L||19700301|M||2106-3^White^HL70005^^^^2.6|98765 Main St.^Apt. 5B^Any City^ST^12345^USA^^^31055||^PRN^PH^^^987^1234567|||||||||N^Not Hispanic or Latino^HL70189^^^^2.6|||||||20090210170000-0600|Y

SPM|1|X200143N02&XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^N9K44001&CDC&2.16.840.1.1.1.1.1.1.1.1&ISO||119303007^Microbial Isolate Specimen^SCT^^^^20110131|||||||||||||20080210163000.0-0600|20080213114500.0-0600||| 281265005^ Sample incorrectly labeled^SCT^^^^20110131^^ Patient name on specimen does not match test order

OBX|1|TX|PLT222^Specimen Reject reason comment^PLT^^^^1.0.4 ||Patient name on specimen does not match the order||||||F|||20090210163000.0-0600

OBR|1|56789-PHL-222^XYZSPHL^2.16.840.1.114222.4.1.10412^ISO|SAL-10001-A^CDC^2.16.840.1.1.1.1.1.1.1.1^ISO|PLT110^Salmonella Identification and Serotyping Battery^PLT^^^^1.0.4|||20080210163000.0-0600|||||||||1412941681^Jones^Mary^A^^Dr^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI^^^^^^^^MD|^WPN^PH^^^402^5551212^104^Business hours are 8-5 CST|||||20090216083000.0+0000|||X

ORC|RE|56789-PHL-222^XYZSPHL^2.16.840.1.114222.4.1.10412^ISO|SAL-10001-A^CDC^2.16.840.1.1.1.1.1.1.1.1^ISO||CM|E|||20090216083000.0-0600|||1412941681^Jones^Mary^A^^Dr^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI^^^^^^^^MD||^WPN^PH^^^402^5551212^104^Business hours are 8-5 CST|||||||XYZ State Public Health Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^^28D0012345|981180 State Medical Center^^Atlantis^XX^12345^USA|^WPN^PH^^^402^5551000|8808 North State Cir.^Micro Lab^Atlantis^XX^12345-3698^USA

ROL||AD|CON^Contact^ROLECLASS^^^^2.6|3456^Jackson^Mike^^^^^^National Salmonella Reference Laboratory&11D0668319&CLIA^^^^EN||||||TL^Testing Laboratory^99Org^^^^2.6|Clifton Rd., N.E.^Mailstop C03^Atlanta^GA^30333|^WPN^PH^^^404^6391218^140~^WPN^FX^^^404^8781001~^^Internet^m6k@cdc.gov~^^Internet^salmonella@cdc.gov

ROL||AD|REV^Reviewer^99ROL ^^^^2.6|^Zing^Sara^^^Dr.^^^National Salmonella Reference Laboratory&11D0668319&CLIA^^^^^^^^^^^^PHD||||||TL^Testing Laboratory^99Org^^^^2.6|Clifton Rd., N.E.^Mailstop C03^Atlanta^GA^30333|^WPN^PH^^^404^6391218^141~^WPN^FX^^^404^8781001~^^Internet^s2q@cdc.gov~^^Internet^salmonella@cdc.gov

## Filler unable to perform all tests in panel

E.g., Quantity Not Sufficient (QNS), filler does not have enough reagent to complete test

Note that observations 50 through 52 have empty observation values as these tests were not able to be performed along with a result status value of ‘X’ (Results cannot be obtained for this observation). Further, NTE segments follow each observation to describe the reason(s) why the result could not be obtained (i.e. why the test was not performed when it otherwise would have been under normal circumstances):

MSH|^~\&|CCID^2.16.840.1.1.1.1.1.1.1.22^ISO|CDC^2.16.840.1.1.1.1.1.1.1.1^ISO|MISYS^2.16.840.1.114222.4.3.3.4.1.1^ISO|XYZSPHL^2.16.840.1.114222.4.1.10412^ISO|20090216132000.0-0600||OUL^R22^OUL\_R22|CCID0000000003000|P|2.6|||||||||PHLIP\_ETOR\_Sal\_v1.0.2^PHIN^2.16.840.1.114222.4.10.3^ISO~PHLIP\_ETOR\_Vocab\_Sal\_v1.0.2^PHIN^2.16.840.1.114222.4.10.4^ISO

PID|1||987654321A^^^XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^PI~45A-Q-12345^^^Atlantis General Hospital&31F0023456&CLIA^MR||Doe^John^Q^Jr^^^L||19700301|M||2106-3^White^HL70005^^^^2.6|98765 Main St.^Apt. 5B^Any City^ST^12345^USA^^^31055||^PRN^PH^^^987^1234567|||||||||N^Not Hispanic or Latino^HL70189^^^^2.6|||||||20090210170000-0600|Y

SPM|1|X200143N02&XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^N9K44001&CDC&2.16.840.1.1.1.1.1.1.1.1&ISO||119303007^Microbial Isolate Specimen^SCT^^^^20110131|||||||||||||20080210163000.0-0600|20080213114500.0-0600

OBX|1|CX|PLT2103^CCID -

CUID^PLT^CUID^CUID^L^1.0.4^1^CUID||N9K44001^^^CDC&2.16.840.1.1.1.1.1.1.1.1&ISO^XX^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090213114500.0-0500

OBR|1|56789-PHL-222^XYZSPHL^2.16.840.1.114222.4.1.10412^ISO|SAL-10001-A^CDC^2.16.840.1.1.1.1.1.1.1.1^ISO|PLT110^Salmonella Identification and Serotyping Battery^PLT^^^^1.0.4|||20080210163000.0-0600|||||||||1412941681^Jones^Mary^A^^Dr^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI^^^^^^^^MD|^WPN^PH^^^402^5551212^104^Business hours are 8-5 CST|||||20090216083000.0+0000|||F

ORC|RE|56789-PHL-222^XYZSPHL^2.16.840.1.114222.4.1.10412^ISO|SAL-10001-A^CDC^2.16.840.1.1.1.1.1.1.1.1^ISO||CM|E|||20090216083000.0-0600|||1412941681^Jones^Mary^A^^Dr^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI^^^^^^^^MD||^WPN^PH^^^402^5551212^104^Business hours are 8-5 CST|||||||XYZ State Public Health Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^^28D0012345|981180 State Medical Center^^Atlantis^XX^12345^USA|^WPN^PH^^^402^5551000|8808 North State Cir.^Micro Lab^Atlantis^XX^12345-3698^USA

ROL||AD|CON^Contact^ROLECLASS^^^^2.6|3456^Jackson^Mike^^^^^^National Salmonella Reference Laboratory&11D0668319&CLIA^^^^EN||||||TL^Testing Laboratory^HL70406^^^^2.6|Clifton Rd., N.E.^Mailstop C03^Atlanta^GA^30333|^WPN^PH^^^404^6391218^140~^WPN^FX^^^404^8781001~^^Internet^m6k@cdc.gov~^^Internet^salmonella@cdc.gov

ROL||AD|REV^Reviewer^99ROL^^^^2.6|^Zing^Sara^^^Dr.^^^National Salmonella Reference Laboratory&11D0668319&CLIA^^^^^^^^^^^^PHD||||||TL^Testing Laboratory^HL70406^^^^2.6|Clifton Rd., N.E.^Mailstop C03^Atlanta^GA^30333|^WPN^PH^^^404^6391218^141~^WPN^FX^^^404^8781001~^^Internet^s2q@cdc.gov~^^Internet^salmonella@cdc.gov

OBX|1|CWE|PLT113^Indole – Peptone Water Islt^PLT^^^^1.0.4||260385009^negative^SCT^^^^20110131||||||F|||20080210163000.0-0600|||||20080215110000.0-0500

OBX|2|CWE|PLT115^Voges Proskauer – O’Meara Islt^PLT^^^^1.0.4||260385009^negative^SCT^^^^20110131||||||F|||20080210163000.0-0600|||||20080215110000.0-0500

OBX|3|CWE|PLT117^H2S - TSI Islt^PLT^^^^1.0.4||PLR51^Positive at day 1^PLR^^^^1.0.4||||||F|||20080210163000.0-0600|||||20080215110000.0-0500

OBX|4-49|CWE|PLTXXX^{{Biochemical Test}}^PLT^^^^1.0.4||XXXXXXXX^{{.....other biochemical test results elided for brevity.....}}^SCT^^^^20110131||||||F|||20080210163000.0-0600|||||20080215110000.0-0500

OBX|50|CWE|PLT160^Tyrosine hydrolysis Islt^PLT^^^^1.0.4||||||||X|||20080210163000.0-0600

NTE|1|L|Lack of reagents|1R^Primary Reason^HL70364^^^^2.6

OBX|51|CWE|PLT161^Galacturonate (D-) fermentation Islt^PLT^^^^1.0.4||||||||X|||20080210163000.0-0600

NTE|1|L|Lack of reagents|1R^Primary Reason^HL70364^^^^2.6

OBX|52|CWE|PLT164^MUG (Glucuronidase) Islt^PLT^^^^1.0.4||||||||X|||20080210163000.0-0600

NTE|1|L|Lack of reagents|1R^Primary Reason^HL70364^^^^2.6

## Filler releases a series of results on the same order/sample/patient

### Filler Releases Preliminary Results

E.g., Bio-chemical panel completed, serotyping sent to Paris

Note that the identification is preliminary and the specimen was referred to W.H.O. in Paris for confirmatory serotyping; the order’s status is ‘P’ (Preliminary Results) and each of the referred component’s observations have an empty observation value with an associated status of ‘I’ (Specimen in lab, results pending)

MSH|^~\&|CCID^2.16.840.1.1.1.1.1.1.1.22^ISO|CDC^2.16.840.1.1.1.1.1.1.1.1^ISO|MISYS^2.16.840.1.114222.4.3.3.4.1.1^ISO|XYZSPHL^2.16.840.1.114222.4.1.10412^ISO|20090216132000.0-0600||OUL^R22^OUL\_R22|CCID0000000003000|P|2.6|||||||||PHLIP\_ETOR\_Sal\_v1.0.2^PHIN^2.16.840.1.114222.4.10.3^ISO~PHLIP\_ETOR\_Vocab\_Sal\_v1.0.2^PHIN^2.16.840.1.114222.4.10.4^ISO

PID|1||987654321A^^^XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^PI~45A-Q-12345^^^Atlantis General Hospital&31F0023456&CLIA^MR||Doe^John^Q^Jr^^^L||19700301|M||2106-3^White^HL70005^^^^2.6|98765 Main St.^Apt. 5B^Any City^ST^12345^USA^^^31055||^PRN^PH^^^987^1234567|||||||||N^Not Hispanic or Latino^HL70189^^^^2.6|||||||20090210170000-0600|Y

SPM|1|X200143N02&XYZSPHL&2.16.840.1.114222.4.1.10412&ISO^N9K44001&CDC&2.16.840.1.1.1.1.1.1.1.1&ISO||119303007^Microbial Isolate Specimen^SCT^^^^20110131|||||||||||||20080210163000.0-0600|20080213114500.0-0600

OBX|1|CX|PLT2103^CCID -

CUID^PLT^CUID^CUID^L^1.0.4^1^CUID||N9K44001^^^CDC&2.16.840.1.1.1.1.1.1.1.1&ISO^XX^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO||||||F|||20090210163000.0-0600||21-2^Zing^Sam^D.^Sr.^Dr.^^^NatSalmonellaRefLab&11D0668319&CLIA^L^^^EN^NatSalmonellaRefLab&2.16.840.1.1.1.1.1.1.1.1.222&ISO^^^^^^^PHD|||20090213114500.0-0500

OBR|1|56789-PHL-222^XYZSPHL^2.16.840.1.114222.4.1.10412^ISO|SAL-10001-A^CDC^2.16.840.1.1.1.1.1.1.1.1^ISO|PLT110^Salmonella Identification and Serotyping Battery^PLT^^^^1.0.4|||20080210163000.0-0600|||||||||1412941681^Jones^Mary^A^^Dr^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI^^^^^^^^MD|^WPN^PH^^^402^5551212^104^Business hours are 8-5 CST|||||20090216083000.0+0000|||P

ORC|RE|56789-PHL-222^XYZSPHL^2.16.840.1.114222.4.1.10412^ISO|SAL-10001-A^CDC^2.16.840.1.1.1.1.1.1.1.1^ISO||A|E|||20090216083000.0-0600|||1412941681^Jones^Mary^A^^Dr^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI^^^^^^^^MD||^WPN^PH^^^402^5551212^104^Business hours are 8-5 CST|||||||XYZ State Public Health Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^^28D0012345|981180 State Medical Center^^Atlantis^XX^12345^USA|^WPN^PH^^^402^5551000|8808 North State Cir.^Micro Lab^Atlantis^XX^12345-3698^USA

ROL||AD|CON^Contact^ROLECLASS^^^^2.6|3456^Jackson^Mike^^^^^^National Salmonella Reference Laboratory&11D0668319&CLIA^^^^EN||||||TL^Testing Laboratory^99org^^^^2.6|Clifton Rd., N.E.^Mailstop C03^Atlanta^GA^30333|^WPN^PH^^^404^6391218^140~^WPN^FX^^^404^8781001~^^Internet^m6k@cdc.gov~^^Internet^salmonella@cdc.gov

ROL||AD|REV^Reviewer^99Rol^^^^2.6|^Zing^Sara^^^Dr.^^^National Salmonella Reference Laboratory&11D0668319&CLIA^^^^^^^^^^^^PHD||||||TL^Testing Laboratory^99org^^^^2.6|Clifton Rd., N.E.^Mailstop C03^Atlanta^GA^30333|^WPN^PH^^^404^6391218^141~^WPN^FX^^^404^8781001~^^Internet^s2q@cdc.gov~^^Internet^salmonella@cdc.gov

OBX|1|CWE|PLT113^Indole – Peptone Water Islt^PLT^^^^1.0.4||260385009^negative^SCT^^^^20110131||||||F|||20080210163000.0-0600|||||20080215110000.0-0500

OBX|2|CWE|PLT115^Voges Proskauer – O’Meara Islt^PLT^^^^1.0.4||260385009^negative^SCT^^^^20110131||||||F|||20080210163000.0-0600|||||20080215110000.0-0500

OBX|3|CWE|PLT117^H2S - TSI Islt^PLT^^^^1.0.4||PLR51^Positive at day 1^PLR^^^^1.0.4||||||F|||20080210163000.0-0600|||||20080215110000.0-0500

OBX|4-49|CWE|PLTXXX^{{Biochemical Test}}^PLT^^^^1.0.4||XXXXXXXX^{{.....other biochemical test results elided for brevity.....}}^SCT^^^^20110131||||||F|||20080210163000.0-0600|||||20080215110000.0-0500

OBX|50|CWE|PLT160^Tyrosine hydrolysis Islt^PLT^^^^1.0.4||260385009^negative^SCT^^^^20110131||||||F|||20080210163000.0-0600|||||20080215110000.0-0500

OBX|51|CWE|PLT161^Galacturonate (D-) fermentation Islt^PLT^^^^1.0.4||260385009^negative^SCT^^^^20110131||||||F|||20080210163000.0-0600|||||20080215110000.0-0500

OBX|52|CWE|PLT164^MUG (Glucuronidase) Islt^PLT^^^^1.0.4||260385009^negative^SCT^^^^20110131||||||F|||20080210163000.0-0600|||||20080215110000.0-0500

OBX|53|CWE|56474-0^Salmonella Islt Cult^LN^^^^2.7||||||||I|||20080210163000.0-0600

OBX|54|CWE|20951-0^Salmonella Sertyp Islt Aggl^LN^^^^2.27||||||||I|||20080210163000.0-0600

OBX|55|CWE|56475-7^Salmonella sp form Islt Aggl^LN^^^^2.27||||||||I|||20080210163000.0-0600

NTE|1|L|We have forwarded this isolate to the W.H.O. Collaborating Centre for Reference and Research on Salmonella at the Institut Pasteur for opinion and results will be provided under separate cover as they become available.|RE^Remark^HL70364^^^^2.6

## message-level Response to Order (Error – Invalid test ordered)

MSH|^~\&|CCID^2.16.840.1.1.1.1.1.1.1.22^ISO|CDC^2.16.840.1.1.1.1.1.1.1.1^ISO|MISYS^2.16.840.1.114222.4.3.3.4.1.1^ISO|XYZSPHL^2.16.840.1.114222.4.1.10412^ISO|20080216132000.0-0600||ACK^O33^ACK\_O33|CCID0000000004000|P|2.6|||||||||PHLIP\_ETOR\_Sal\_v1.0.2^PHIN^2.16.840.1.114222.4.10.3^ISO~PHLIP\_ETOR\_Vocab\_Sal\_v1.0.2^PHIN^2.16.840.1.114222.4.10.4^ISO

MSA|AE|XYZSPHL0000000002000

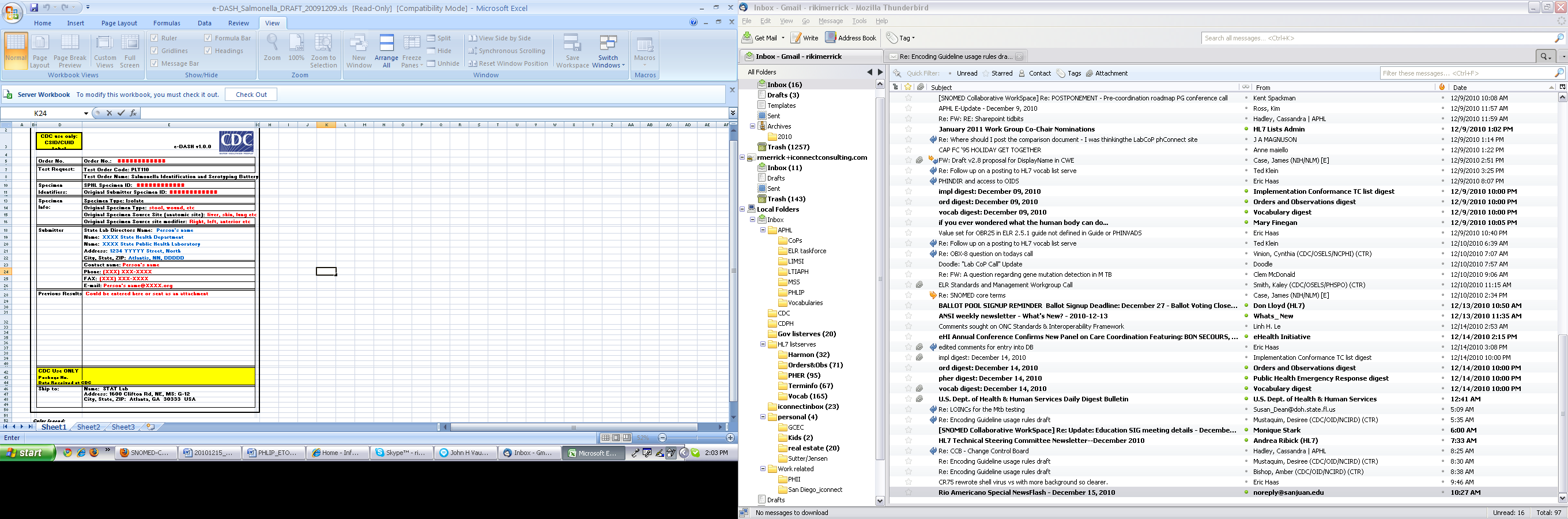
ERR||OBR^1^4^^1|103^Table value not found^HL70357^INVALIDTEST^Invalid test code^L^2.6^2008.10|E|||CCID Test Catalog v2009.06.01A|Please verify you are using the latest version of the test catalog.||||^WPN^PH^^^404^6391218^100^Helpdesk hours are 8-5 CST~^^Internet^ccidvocab@cdc.gov^^^^^Email support

# Specimen Submission form (e-Dash)

**Reference**:

**Description**: [e-DASH document](file:///C:\Documents%20and%20Settings\vidotl\My%20Documents\Local%20Settings\Temporary%20Internet%20Files\VMWG\ETOR\ETOR%20Library\PHLISSA%20related%20documents\latest%20versions%20of%20ETOR%20documentation\e-DASH_Salmonella_DRAFT_20091209.xls)

**URL**: http://www.aphlweb.org/aphl\_departments/Strategic\_Initiatives\_and\_Research/Informatics\_Program/Projects/PHLIP/VMWG/ETOR/ETOR%20Library/PHLISSA%20related%20documents/latest%20versions%20of%20ETOR%20documentation/e-DASH\_Salmonella\_DRAFT\_20091209.xls

[../../Shared Documents/Forms/AllItems.aspx?RootFolder=%2Faphl\_departments%2FStrategic\_Initiatives\_and\_Research%2FInformatics\_Program%2FProjects%2FPHLIP%2FShared%20Documents%2FPHLIP%20ETOR%20deliverables%20for%20Salmonella%20LSP&FolderCTID=&View=%7BB7D020E8-F26E-4187-905A-EC4116F04E9F%7D](file://C:\Documents%20and%20Settings\vidotl\My%20Documents\Local%20Settings\Temporary%20Internet%20Files\Shared%20Documents\Forms\AllItems.aspx)

# Test Catalog

[http://www.aphlweb.org/aphl\_departments/Strategic\_Initiatives\_and\_Research/Informatics\_Program/Projects/PHLIP/VMWG/ETOR/ETOR%20Library/PHLISSA%20related%20documents/latest%20versions%20of%20ETOR%20documentation/CCID\_TestOrder\_REDO\_201090921.xls](file:///C:\Documents%20and%20Settings\vidotl\VMWG\ETOR\ETOR%20Library\PHLISSA%20related%20documents\latest%20versions%20of%20ETOR%20documentation\CCID_TestOrder_REDO_201090921.xls)

Appendix A

Code Systems and Value Sets

Any type of communication, at least the type where all parties are seeking to both understand and be understood by one another, must utilize a common set of rules governing two fundamental aspects of communication: syntax and semantics. Previous sections in this guide, coupled with the underlying HL7 standard, outline the precise syntax associated with forming structurally valid requests for laboratory orders and processing laboratory results; however, without the second aspect, semantics, the request and result are ambiguous at best and meaningless at worst. In order to impart meaning to the request and result, code systems and value sets are employed to establish a common, consistent, and well-defined understanding.

**Description**: ETOR Vocabulary Mapping Workbook spreadsheet

**URL**:

[See also: <http://tinyurl.com/yjjvxmw>]

**Reference**:

**Description**: Salmonella Encoding Guideline spreadsheet

**URL**:

[See also: <http://tinyurl.com/yjjvxmw>]

Data Elements of Interest Unique to PHLIP ETOR

Specimen Related Observations

In Table below there are several data elements represent additional information related to the specimen and shipping information that are not able to be conveyed in the Specimen segment. The HL7 method for relaying additional information related to the specimen is by including additional OBX segments directly after the SPM segment. Given a predefined set of codes and vocabulary, each of these OBX segments further describes and/or provides additional information about the specimen and or shipment information in a standards-based, interoperable fashion.

Some of the following observations will accompany the specimen segment at all times (i.e., those marked as “R”) while others will do so only under certain conditions, generally speaking, when the specimen type field (SPM-4) contains an isolate-related specimen. (In Phase 1 of this implementation, all specimen types will be isolates and therefore many of these fields will accompany the specimen segment. This conditionality is reserved for later implementations)

ROL Segment Data Elements

In addition to the Specimen Related Observations, there are several unique data elements for the ROL segment. The special vocabulary for the the ETOR actors and associated environments are defined in the table as well.

Column Definitions:

**PHIN Variable ID:** ETOR element UID

**Label Short name:** for the data element, which is passed in the message.

**CDC Priority:**  Indicates if the the field is required by CDC.  These values have been defined as

 R –  Required

C - When the condition is met, the element becomes R, otherwise the element must be empty

“Send if you support” – send if you support the data element in your system

RE  – Required if available – Send it if you have it.

**May Repeat:**  Indicates whether element can repeat  ( values: Y,N)

**Data Type :** Coded, Numeric or Date/Time

**Value Set Name:** Name of the pre-coordinated value set from which the response is drawn. The value sets

and coding systems are accessible via the Public Health Information Network Vocabulary

Access and Distribution Services at <http://phinvads.cdc.gov/vads/SearchVocab.action>

**Message Context:** Specific HL7 segment and field mapping for the element.

**HL7 Data Type** HL7 data type used by PHIN to express the variable.

**HL7 Usage:**  Indicates if the field is required, optional, or conditional in a segment. These Values have been defined for ETOR using following definitions. Note that these definitions deviate from standard HL7:

R – Required

C - When the condition is met, the element becomes R, otherwise the element must be empty

Send it if you support.

CE – When the condition is met, the element becomes RE, otherwise the element must be empty

**HL7 Cardinality:** indicates whether the element can repeat

**HL7 Implementation Notes:** Description of the data element and if needed, condition for reporting.

TABLE A-2: Special PHLIP ETOR Data Elements:

[SpecialVocabTable]

| **PHIN Variable ID** | **Label/Short Name** | **Description** | **Data Type** | **CDC Priority** | **May Repeat** | **Value Set Name** | **HL7 Message Context** | **HL7 Data Type** | **HL7 Optionality** | **Cardinality** | **HL7 Implementation Notes** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **OML and OUL - OBX after SPM** | | | | | | | | | | | |
| PLT210 | Original Specimentype | Specimen type from which the specimen was isolated | Coded | R | N | PHVS\_SpecimenType\_PHLIP | Specimen/OBX Segment | CWE | R | [1..1] | Drawn from Snomed Specimen Hierarchy. Corresponds to SPM.2  Condition: Required if the specimen type in SPM.4 is 119303007^Microbial Isolate Specimen, so marked as R for phase 1. |
| OBX-2=CWE |
| OBX-3=PLT210^Original Specimentype^PLT |
| OBX-5= PHVS\_SpecimenType\_PHLIP Concept Code^Concept Name^SCT^Alternate Code^Alternate Name^Alternate Coding System^Code System Version^Alt Code System Version^Original Text |
| PLT211 | Original Specimentype modifier | Modifier to the specimen type from which the specimen was isolated from | Coded | send if you support | N | [PHVS\_ModifierOrQualifier\_CDC or more defined for specimen type? SpecimenTypeMod\_PHLIP](http://phinvads.cdc.gov/vads/ViewValueSet.action?id=815C6DD4-C5A6-DF11-9BDD-0015173D1785) | Specimen/OBX Segment | CWE | RE | [0..1] | Corresponds to SPM.5 Condition: Required if data available and the specimen type in SPM.4 is 119303007^Microbial Isolate Specimen, so marked as RE for phase 1. |
| OBX-2=CWE |
| OBX-3=PLT211^Original Specimentype modifier^PLT |
| OBX-5= PHVS\_ModifierOrQualifier\_CDC or more defined for specimen type? SpecimenTypeMod\_PHLIP Concept Code^Concept Name^SCT^Alternate Code^Alternate Name^Code System Version^Alt Code System Version^Original Text |
| PLT212 | Original Specimen source site | anatomic site, if not environmental specimen, from which the original specimen was taken from, if not sufficiently defined by just the original specimen type | Coded | send if you support | N | PHVS\_SpecimenSourceSite\_PHLIP | Specimen/OBX Segment | CWE | RE in ETOR phase 1 | [0..1] | Corresponds to SPM.8 Condition: Required if data available and the specimen type in SPM.4 is 119303007^Microbial Isolate Specimen, so marked as RE for phase 1. |
| OBX-2=CWE |
| OBX-3=PLT212^Original Specimen source site^PLT |
| OBX-5= PHVS\_SpecimenSourceSite\_PHLIP Concept Code^Concept Name^SCT^Alternate Code^Alternate Name^Code System Version^Alt Code System Version^Original Text |
| PLT213 | Original Specimen source site modifier | modifier to the anatomic site, if not environmental specimen, from which the original specimen was taken from, if not sufficiently defined by just the original specimen type | Coded | send if you support | N | [PHVS\_ModifierOrQualifier\_CDC  or more defined for specimen source site? SpecimenSourceSiteMod\_PHLIP](http://phinvads.cdc.gov/vads/ViewValueSet.action?id=815C6DD4-C5A6-DF11-9BDD-0015173D1785) | Specimen/OBX Segment | CWE | RE in ETOR phase 1 | [0..1] | Corresponds to SPM.9 Condition: Required if data available and the specimen type in SPM.4 is 119303007^Microbial Isolate Specimen, so marked as RE for phase 1. |
| OBX-2=CWE |
| OBX-3=PLT213^Original Specimen source site modifier^PLT |
| OBX-5= PHVS\_ModifierOrQualifier\_CDC  or more defined for specimen source site? SpecimenSourceSiteMod\_PHLIP Concept Code^Concept Name^SCT^Alternate Code^Alternate Name^Code System Version^Alt Code System Version^Original Text |
| PLT214 | Original Specimen collection method | method by which the original specimen was collected | Coded | send if you support | N | [PHVS\_SpecimenCollectionMethod\_PHLIP](http://phinvads.cdc.gov/vads/ViewValueSet.action?id=C1C03844-41A7-DF11-9BDD-0015173D1785) | Specimen/OBX Segment | CWE | RE in ETOR phase 1 | [0..1] | Corresponds to SPM.7 Condition: Required if data available and the specimen type in SPM.4 is 119303007^Microbial Isolate Specimen, so marked as RE for phase 1. |
| OBX-2=CWE |
| OBX-3=PLT214^Original Specimen collection method^PLT |
| OBX-5= PHVS\_SpecimenCollectionMethod\_PHLIP Concept Code^Concept Name^SCT^Alternate Code^Alternate Name^Code System Version^Alt Code System Version^Original Text |
| PLT219 | Suspected Agent | Lists the suspected organism submitted (same as Salmonella Species) | Coded | R | N | PHVS\_SuspectedAgent\_Sal\_PHLIP | Specimen/OBX Segment | CWE | R | [1..1] | The question being asked is what Salmonella species and/or subspecies the sending lab thinks they have isolated, but needs further testing for confirmation. The value set is drawn from Snomed Salmonella Organism Heirarchy. |
| OBX-2=CWE |
| OBX-3=PLT219^Suspected Agent^PLT |
| OBX-5= PHVS\_SuspectedAgent\_Sal\_PHLIP Concept Code^Concept Name^PLR^Alternate Code^Alternate Name^Code System Version^Alt Code System Version^Original Text |
| 35659-2 | Age at specimen collection | Need to have patient age - program can calculate that, when DOB is provided, but when no DOB is provided, need to get age at specimen collection | Numeric | C | N |  | Specimen/OBX Segment | NM | C | [0..1] | Condition: If PID-7 (Patient Date/Time of Birth) is empty and patient age is known. Use Age Unit value set, PHVS\_AgeUnit\_UCUM, in OBX.6. |
| OBX-2=NM |
| OBX-3=35659-2^Age at specimen collection^LN |
| OBX-5=Numeric result |
| OBX-6=PHVS\_AgeUnit\_UCUM value |
| PLT220 | Additional State Public Health Lab SpecimenID | The primary State Public Health Lab Specimen ID (SPHL-ID) is located in SPM.2 - if there are additional SPHL-IDs that need to be communicated, use this data element in the OBX following the SPM. If more than 1 additional SPHL-ID, use OBX.4 as a counter. NOT an outbreak ID, cluster ID, NARMS ID, PulseNet number etc). | Coded | RE | Y | Local | Specimen/OBX Segment | CX | RE | [0..3] | If there are State Public Health Lab SpecimenID's in addition to the primary Specimen ID entered in SPM.2 |
| OBX-2=CX |
| OBX-3=PLT220^Additional State Public Health Lab SpecimenID^PLT |
| OBX.4 = if needed for more than 1 instance |
| OBX-5= Additional State Public Health Lab SpecimenID^^^Assigning Authority Name&Assigning Authority OID&ISO^XX^Assigning Facility Name&Assigning Facility OID&ISO |
| PLT218 | Other organisms found in original sample | Name of other organism(s) isolated from the same clinical specimen and already identified. If none, so indicate. | Coded | RE | N | PHVS\_OtherOrgansimsFound | Specimen/OBX Segment | CWE | RE | [0..1] | Uses organism hierarchy in SNOMED or the SNOMED CT absence finding term, “None” (Concept ID 260413007) has to be used to affirmatively declare the absence of other organisms of interest from the original specimen. |
| OBX-2=CWE |
| OBX-3=PLT218^Other organisms found in original sample^PLT |
| OBX-5= PHVS\_OtherOrgansimsFound Concept Code^Concept Name^PLR^Alternate Code^Alternate Name^Code System Version^Alt Code System Version^Original Text |
| PLT221 | Original Submitter Lab Specimen ID | Specimen ID from the Submitter that originated the testing chain, i.e. the first lab assigned specimen ID. | Coded | RE | Y | Local | Specimen/OBX Segment | CX | RE | [0..3] | This is the specimenID from the original submitter, if known.  Original submitter represents the organization who initiated the service request and collected the original specimen (e.g. General Hospital, local PH clinic, provider, reference lab). CDC calls this the Original Submitter. |
| OBX-2=CX |
| OBX-3=PLT221^Original Submitter Lab Specimen ID ^PLT |
| OBX-5= Original Submitter Lab Specimen ID ^^^Assigning Authority Name&Assigning Authority OID&ISO^XX^Assigning Facility Name&Assigning Facility OID&ISO |
| PLT234 | Submitter to the Placer Lab Specimen ID | Specimen ID from the Submitter that requested testing at the Placer - in this use case the SPHL | Coded | RE | N | Local | Specimen/OBX Segment | CX | RE | [0..1] | This is the specimenID from the submitter to the placer, if applicable and known.  Submitter to the Placer represents the organization who requested services from the submitter /placer of this order (i.e. the organization who sent a specimen to the Submitter, as previously described, for services); in the use cases described herein this context will always be an organization once removed from the Submitter (Placer) (e.g. General Hospital, services from its state public health laboratory), when it is known, that they are not also the original submitter. CDC calls this concept the intermediary submitter. |
| OBX-2=CX |
| OBX-3=PLT234^Submitter to the Placer Lab Specimen ID^PLT |
| OBX-5= Submitter to the Placer Lab Specimen ID^^^Assigning Authority Name&Assigning Authority OID&ISO^XX^Assigning Facility Name&Assigning Facility OID&ISO |
| PLT223 | Shipment Status Date/time | describes the date and optionally time the shipment was sent - means Shipment Status = TRN | Date | send if you support | N | N/A | Specimen/OBX Segment | DTM | RE | [0..1] | This would be the time the package got picked up from the placer for PHLIP ETOR LSP.  For phase 1 will be carried in OBX following SPM, for phase 2 discuss adding shipment message from v2.7 as additionally supported messages - if that is the case = DTM datatype for SHP.4 |
| OBX-2=DTM |
| OBX-3=PLT223^Shipment Status Date/time^PLT |
| OBX-5=Date/time |
| PLT224 | Shipment Package ID and Courier name | courier ID, waybill number, tracking number on outside of package sent to CDC and the courier name | Coded | send if you support | Y | N/A | Specimen/OBX Segment | CX | RE | [0..1] | Corresponds to Courier tracking ID and courier name  For phase 1 will be carried in OBX following SPM, for phase 2 discuss adding shipment message from v2.7 as additionally supported messages - if that is the case = part of EI datatype for SHP.1 |
| OBX-2=CX |
| OBX-3=PLT224^Shipment Package ID and Courier name^PLT |
| OBX-5= Shipment Package ID and Courier name^^^Assigning Authority Name&Assigning Authority OID&ISO^XX^Assigning Facility Name&Assigning Facility OID&ISO |
| **OUL - OBX after SPM** | | | | | | | | | | | |
| PLT222 | Reject reason comment | Comment related to speicmen reject reason, when additional comments are needed. | free text | RE | Y | N/A | Specimen/OBX Segment | TX | RE | [0..2] | Use this code, when SPM.21 has one of the following codes and you want to provide more detail: 74964007^other^SCT 373880007^Specimen not tested^SCT |
| OBX-2=TX |
| OBX-3=PLT222^Reject reason comment^PLT |
| OBX-5=Free text |
| PLT230 | CDC Infectious Disease Lab - CUID | The secondary CDC Infectious Lab specimen ID assigned | Coded | R | N | N/A | Specimen/OBX Segment | CX | R | [1..1] | This will always be included with each result. |
| OBX-2 = CX |
| OBX-3 = PLT230^CDC Infectious Disease Lab CUID^PLT  OBX-5 = CUID^^^Assigning AuthorityName&Assiging Authority OID&ISO^SID^AssigningFacilityName&AssiningFacility OID&ISO |
|  | | | | | | | | | | | |
| **OML - ROL segment** | | | | | | | | | | | |
| CON\_SUB | Point of contact at submitting lab (PHL for this use case/Submitter to the CDC) | The Placer uses this construct to convey to the Filler the contact information (OBR.17) of the individual, at the *submitter* (ORC.21), to whom questions about the observation request and/or specimen may be directed. | Coded | RE | N | 99Rol and 99Org | ROL-3 Role Person (Originates with OML) | CWE | RE | [0..1] | This is only sent, it the individual person's name in ROL.4 is not the same as in OBR.16/ORC.12. |
| ROL-3=CON^Contact^ROLECLASS |
| ROL-10 Organization unit type (originates with OML) |
| Rol-10 = SUB^Submitting Laboratory^99Org |
| CON\_OS | Point of contact at original submitting organization (original submitter) | The Placer uses this construct to convey to the Filler the contact information of the individual, at the *original submitter*, to whom questions about the observation request and/or specimen may be directed. | Coded | Send if you have it | N | 99Rol and 99Org | ROL-3 Role Person (Originates with OML) | CWE | RE | [0..1] | This may or may not be known at the PHL  Original submitter represents the organization who initiated the service request and collected the original specimen (e.g. General Hospital, local PH clinic, provider, reference lab). CDC calls this the Original Submitter. |
| ROL-3=CON^Contact^ROLECLASS |
| ROL-10 Organization unit type (originates with OML) |
| Rol-10 = OS^Original Submitter Organization^99Org |
| CON\_OP | Point of contact at submitter to the Placer (intermediate submitter) | The Placer uses this construct to convey to the Filler the contact information of the individual, at the *submitter to the placer*, to whom questions about the observation request and/or specimen may be directed. | Coded | R | N | 99Rol and 99Org | ROL-3 Role Person (Originates with OML) | CWE | R | [1..1] | Submitter to the Placer represents the organization who requested services from the submitter /placer of this order (i.e. the organization who sent a specimen to the Submitter, as previously described, for services); in the use cases described herein this context will always be an organization once removed from the Submitter (Placer) (e.g. General Hospital, services from its state public health laboratory), when it is known, that they are not also the original submitter. CDC calls this concept the intermediary submitter. |
| ROL-3=CON^Contact^ROLECLASS |
| ROL-10 Organization unit type (originates with OML) |
| Rol-10 = OP^Submitting Laboratory to the Placer^99Org |
| **OUL only - ROL segment** | | | | | | | | | | | |
| CON\_TP | Point of Contact at the testing provider | The Filler uses this construct to designate the individual, at the Filling organization (OBX.23), that should be contacted for any qeustions on the results. | Coded |  |  | 99Rol and 99Org | ROL-3 Role Person (Originates with OUL) | CWE | R | [1..1] | Identifies the person identified in ROL-4 as Point of Contact to whom questions about the results may be directed.  The Testing Laboratory is defined as the organization from which the Submitter has requested services. In this use case CDC. |
| ROL-3=CON^Contact^ROLECLASS |
| ROL-10 Organization unit type (originates with OUL) |
| Rol-10 = TL^Testing Laboratory^99Org |
| REV\_TP | Reviewer | The Filler uses this construct to designate the individual (OBX.16), at the Filling organization (OBX.23), that is responsible for reviewing and approving the current observation results | Coded |  |  | 99Rol and 99Org | ROL-3 Role Person (Originates with OUL) | CWE | R | [1..1] | Identifies the person identified in ROL-4 as responsible for reviewing and approving the current observation results. In ETOR phase 1 this is the same individual as OBX-16. |
| ROL-3=REV^Reviewer^ROLECLASS |
|  |
| ROL-10=TL^Testing Laboratory^99Org |