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Figure 1PHIN LOGO

PHIN MESSAGING SPECIFICATION for CASE NOTIFICATION

*ORU^R01 Message Structure Specification/Profile*

HL7 Version 2.5.1

Version 3.1.1

August 5, 2021

Centers for Disease Control and Prevention



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# INTRODUCTION

## Background

The National Notifiable Diseases Surveillance System (NNDSS) is a nationwide collaboration that enables all levels of public health—local, state, territorial, federal, and international—to share notifiable disease-related health information. Public health uses this information to monitor, control, and prevent the occurrence and spread of state-reportable and national notifiable infectious and noninfectious diseases and conditions and outbreaks.

NNDSS is a multifaceted program that includes the surveillance system for collection, analysis, and sharing of health data. It also includes policies, laws, electronic messaging standards, people, partners, information systems, processes, and resources at the local, state, territorial, and national levels.

With the evolution of technology and data and exchange standards, CDC now is strengthening and modernizing the infrastructure supporting NNDSS. As part of the CDC Surveillance Strategy, the NNDSS Modernization Initiative (NMI) will enhance the system’s ability to provide more comprehensive, timely, and higher quality data than ever before for public health decision making. Through this multi-year initiative, CDC seeks to increase the robustness of the NNDSS technological infrastructure so that it is based on interoperable, standardized data and exchange mechanisms.

NMI has three key components:

1. Development of prioritized Message Mapping Guides (MMGs) for Health Level 7 (HL7) case notifications.
2. Development of the Message Validation, Processing, and Provisioning System (MVPS), software that will validate and process national notifiable disease case notification messages sent by jurisdictions and provision the data to CDC programs.
3. Technical assistance for implementation of HL7 case notification messages in jurisdictions submitting case notifications to NNDSS.

Notifiable disease surveillance begins at the level of local, state, and territorial public health departments (also known as jurisdictions). Jurisdictional laws and regulations mandate reporting of cases of specified infectious and noninfectious conditions to health departments. The health departments work with healthcare providers, laboratories, hospitals, and other partners to obtain the information needed to monitor, control, and prevent the occurrence and spread of these health conditions. In addition, health departments notify CDC about the occurrence of certain conditions.

A reporting jurisdiction uses its public health surveillance system to send national notifiable disease case notifications to CDC. The surveillance system allows the jurisdiction to enter notification data that are requested for national notification and then transmits a case notification message to CDC. MPVS will parse the case notification message received by CDC by using HL7 receiver rules and also apply additional business rules. If basic structural rules are followed and minimal required data are present, MVPS will accept the message and process it for provisioning.

This document specifies the static structure and the dynamic processing requirements for the use of the *HL7 Version 2.5.1 Unsolicited Observation Message* (ORU^R01) to support electronic interchange of any National Notifiable Condition limited data set from public health entities to CDC. HL7 Version 2 is the most widely used standard for computer communication of patient information in the U.S. healthcare industry today. This specification is based on the HL7 version 2.5.1 messaging standard.

## Acronyms

APHL Association of Public Health Laboratories

CDC Centers for Disease Control and Prevention

EHR Electronic Health Record

ELR Electronic Laboratory Reporting

HL7 Health Level Seven

LIS Laboratory Information System

MMG Message Mapping Guide

MVPS Message Validation, Processing, and Provisioning System

MMWR Morbidity and Mortality Weekly Report

NBS NEDSS Base System

NEDSS National Electronic Disease Surveillance System

NND National Notifiable Disease

NNDSS National Notifiable Diseases Surveillance System

OID Object Identifier

## Purpose and Scope

This document specifies the static structure and the dynamic processing requirements for the use of the *Health Level 7 (HL7) Version 2.5.1 Unsolicited Observation Message* (ORU^R01) to support electronic interchange of any National Notifiable Condition limited data set from public health entities to CDC. The data set is limited to the Office of Management and Budget (OMB) approved list of variables for each condition, which includes a set of generic variables that are used for any individual condition reporting.

The ORU^R01 Unsolicited Observation Message structure is the same for all individual case notifications, regardless of the condition for which it is being used. The structure is the same for all Summary notifications, with the exception that the PATIENT segment group is not required.

This document specifies the structure of the message and describes only the content that is required to create the message and convey the minimum necessary observations used for publication of NNDSS data available through links on the NNDSS Data and Statistics page at <https://www.cdc.gov/nndss/data-statistics/index.html>. NNDSS data were previously published in the *Morbidity and Mortality Weekly Report* (*MMWR*).

## Summary of Changes Version 2.0 to Version 3.0

This HL7 specification has been updated in the following ways:

1. Opened fields that were previously restricted, to make the message more flexible:
2. Previously not supported fields in the Patient Identification (PID), Observation Request (OBR), and Observation/Result (OBX) segments were made *O-Optional* or *RE-Required but may be empty* for fields that are expected to be used in a Message Mapping Guide (MMG).
3. Any field that could contain personally identifiable information (PII) was left *X-not supported*. If the field is required by HL7, as is the PID-5 Patient Name field, accommodations are made for the literal value to use to meet the requirement to populate the field.
4. Any field that is no longer supported by HL7 was left *X-not supported*, including components of datatypes used.
5. Note that there may be fields that are currently optional that will eventually be needed for mapping in a future MMG, so the *O-optional* usage designation does not mean that the field will never be used.
6. Constrained OBX segment fields were made optional to support transmission of laboratory data elements. Differences in the Electronic Laboratory Reporting (ELR) implementation and the Case Notification message are noted in the segments.
7. Allowed HL7 segments in the message that were previously constrained out:
8. The Next of Kin (NK1) segment has been added to support the transmission of non-subject-related demographic information such as mother’s information in Congenital Syphilis, Congenital Rubella Syndrome, etc.
9. The Notes and Comments (NTE) segment has been added to allow for comments following the OBX segment, to be used primarily for ELR content.
10. The Specimen (SPM) segment has been added to collect specimen information.
11. Established templates to define consistent message structure (for data transport and processing) for laboratory and vaccine category:
12. An optional Laboratory section that aligns with the ELR Implementation Guide but does not change the datatype specified for 2.5.1.
13. An optional Vaccine section uses existing question and answer structure (the Vaccine Record Update [VXU] profile is not supported in the case notification profile)

This specification provides:

1. An HL7 messaging and content reference standard for using the HL7 2.5.1 ORU^R01 Unsolicited Observation Message to convey Case Notifications that are notifiable at the national level.
2. The dynamic processing requirements for the transmission of a National Notifiable CaseNotification Message.
3. The messaging infrastructure to produce a message that is compliant to the HL7 2.5.1 standard.

This specification primarily supports the case notification and does not attempt to repurpose the electronic laboratory reporting (ELR) message, nor does it impose any of the additional requirements and constraints that are in the ELR Implementation Guide. It simply provides a place to pass the associated laboratory report data that may be useful for CDC programs. Please refer to the ELR Implementation Guide for more details regarding OBR/OBX/SPM interaction (specimen-oriented OBRs), susceptibilities, OBRs for multiple specimens, parent-child lab tests/reflex tests, susceptibilities, and other complex laboratory messages.

## Audience

This specification has two audiences. The first is managers of public health information systems who must understand this process at a high level. The second is technical personnel who develop or work with the state information systems to extract, transport, load and transform data available for use with national notifications.

# ACTORS, GOALS, AND MESSAGING TRANSACTIONS

## National Notifiable Case Notification Use Case

This section describes the actors (entities) that are involved in sending and receiving messages containing data for National Notifiable Case Notifications. The use case is further described through assumptions, narratives, and diagrams within this section.

In the National Notifiable Case Notification use case, a reporting jurisdiction uses their public health surveillance system to send National Notifiable Case Notifications to CDC.



**Figure 2‑1 Use Case (UC) Diagram**

### Use Case Actors

There are two actors that have responsibilities related to the use case for National Notifiable Case Notification:

* *Case Notification Sender* – A sender of National Notifiable Case Notifications that conform to the profile defined in this specification.
* *Case Notification Receiver* – A receiver of National Notifiable Case Notifications that conform to the profile defined in this specification.

### User Story

A state or national jurisdiction receives a report of a state-reportable laboratory result or morbidity report from a provider and begins an investigation in its surveillance system. Depending on the urgency of the condition, the case should be reported to CDC to comply with national condition notification procedures. The surveillance system allows the state or jurisdiction to enter notification data that are requested for national notification, and then transmits a case notification message to CDC. The CDC’s Message Validation, Processing, and Provisioning System will parse the case notification message by using HL7 receiver rules and apply additional business rules for processing a case notification message that are not defined in this specification. If basic structural rules are followed and minimal required data are present, the message is accepted and goes on to be processed for provisioning purposes.

If a previously sent case notification is updated in the sending surveillance system, an update notification is triggered to CDC. This update contains the information that allows the update to be processed as an update to an existing notification (refer to the document titled “Generic Data Elements that Define a Unique Case” at <https://ndc.services.cdc.gov/supporting-documents-for-implementation/> and General section of the Q&A for Implementation page at <https://www.cdc.gov/nndss/trc/mmg/implementation-faq.html> in the HL7 Message Mapping Guides & Standards section).

If a previously sent case notification needs to be rescinded for any reason, the preferred method is to send a “Not a case” value in the INV163 / 77990-0 (Case Classification Status) field and a ‘C’ correction value in the NOT118 / OBR-25 (Notification Result Status) field. Alternatively send a “Not a case” value in the INV163 / 77990-0 (Case Classification Status) field and a ‘X’ deletion value in the NOT118 / OBR-25 (Notification Result Status) field. Alternatively for jurisdictions unable to send a Case Classification Status of “Not a Case”, resend the case with NOT118 / OBR-25 (Notification Result Status) field with a value of ‘X’ deletion, regardless of the value transmitted in the INV163 / 77990-0 (Case Classification Status) field. This “Not a case”, “correction” or “deletion” message contains the same case ID and other information that allows the notification to be processed as a deletion/removal/deactivation of an existing notification (refer to the document titled “Generic Data Elements that Define a Unique Case” at <https://ndc.services.cdc.gov/supporting-documents-for-implementation/> and Data Submission and Updates section of the Q&A for Implementation page at <https://www.cdc.gov/nndss/trc/mmg/implementation-faq.html> in the HL7 Message Mapping Guides & Standards section).

### Functional Requirements

Functional requirements surround the successful receipt of the National Notifiable Case Notification. The message must be structurally correct as well as have a minimum set of required observations answered to be accepted and processed.

| **Table 2.1: Information Interchange Requirements** |
| --- |
| Initiating System  | Action | Requirement  | Action | Receiving System |
| Public Health Surveillance System | Sends | National Notifiable Case Notification containing data elements related to a national notifiable disease.Required data for all National Notifiable Case Notification:* Sending system’s Internal case investigation identifier
* Case Class Status
* MMWR Week
* MMWR Year
* Reporting State AND National Reporting Jurisdiction

Each notification is in “snapshot mode,” meaning it is a complete record of the notification data at the time it was sent. | Receives | Message Validation, Processing, and Provisioning System |
| CDC Receiver | Sends | Acknowledgement confirming receipt of National Notifiable Case Notification. *This is a transport acknowledgment (e.g., via PHIN MS) and not an HL7 acknowledgement message.* | Receives | Public Health Surveillance System |

System requirements concern what the Sending and the Receiving systems must do in relation to the National Notifiable Case Notification.

|  |
| --- |
| **Table 2.2: System Requirements** |
| System | System Requirement |
| Public Health Surveillance System | Form a National Notifiable Case Notification with standardized structured data that conforms to the messaging profile described in this specification. |
| Message Validation, Processing, and Provisioning System (MVPS) | Incorporate National Notifiable Disease data from the National Notifiable Case Notification as standardized structured data. |

### Use Case Pre-Conditions

* A Public Health Surveillance System contains the National Notifiable Disease data elements.
* A user or other actor (*National Notifiable Case Notification Sender*) requests that the sending system send a National Notifiable Case Notification.

### Use Case Post-Condition

* National Notifiable Disease data are accurately reported and successfully transmitted electronically from the Public Health Surveillance System to the CDC’s Message Validation, Processing, and Provisioning System.

### Use Case Assumptions

In this use case, it is assumed that the receiving system can receive National Notifiable Disease data, even if it is not aware of the request. There is no assumption that the receiving system provided the request for National Notifiable Disease data. The following points are assumed for this use case:

* Local business rules have been agreed to by all relevant participants and implemented at the appropriate level. These rules include:
	+ Appropriate security and transport protocols
	+ Patient identification methodology
	+ Data access authorization, ownership and use
	+ Patient consent or determination of exemption from consent
	+ Privacy and security procedures
	+ Coding, vocabulary and normalization standards
* Infrastructure is in place to allow accurate and secure information exchange between information systems. Trading partners have selected a methodology and specified how it is used.
* Both sending and receiving systems are in compliance with applicable federal, state, and local policies.
* Reporting jurisdictions securely access National Notifiable Disease data through a Public Health Surveillance System.
* The sending system contains sufficient National Notifiable Disease data to properly construct the National Notifiable Case Notification.
* External business rules are documented locally.
* Methods for exception handling have been established.

### Use Case Interactions

The sequence diagram that follows illustrates the interactions between actors, and the order the interactions occur. Horizontal lines identify specific activity between systems. Solid lines represent National Notifiable Disease data transmitted using an ORU message and dotted lines represent return acknowledgements. Internal system functions (e.g., process incoming message) are shown as closed loops.

This figure is an overview of the interactions between the *Case Notification Sender* and the *Case Notification Receiver* for National Notifiable Case Notification.



**Figure 2‑2 Simple Sequence Diagram**

# MESSAGING INFRASTRUCTURE

HL7 (Health Level Seven) Version 2 is the most widely used standard for computer communication of patient information in the U.S. healthcare industry today. This specification is based on the HL7 version 2.5.1 messaging standard, published by Health Level Seven International, Inc., and approved as an American National Standards Institute (ANSI) standard on February 21, 2007, as an update to the version 2.5 standard released in 2003. This section describes the message used for Case Notification to CDC, and includes a very brief introduction to HL7 terms and concepts. The reader is referred to the full HL7 version 2.5.1 Standard for complete information and details of this background.

## Basic HL7 Terms

| Table 3.1: BASIC HL7 TERMS |
| --- |
| Term | Definition |
| Message | A message is the entire unit of data transferred between systems in a single transmission. It is a series of segments in a defined sequence, with a message type and a trigger event.  |
| Segment | A segment is a logical grouping of data fields. Segments within a defined message may be required or optional and may occur only once or may be allowed to repeat. Each segment is named and is identified by a segment ID, a unique three-character code.  |
| Field | A field is a string of characters. Each field has an element name. The segment it is in and its sequence within the segment identify each field. Usage and cardinality requirements are defined in the Segment Definitions.  |
| Component | A component is one of a logical grouping of items that comprise the contents of a coded or composite field. Within a field having several components, not all components are necessarily required to be populated.  |
| Data type | A data type restricts the contents and format of the data field. Data types are given a two- or three-letter code. Some data types are coded or composite types with several components. The applicable HL7 data type is listed in each field definition.  |
| Delimiters | The delimiter values are defined in MSH-1 and MSH-2 and are used throughout the message. The default delimiters are:  | - Field Separator ^ - Component Separator & - Sub-Component Separator ~ - Repetition Separator  \ - Escape Character  |

## Message Element Attributes

The following table describes the various attributes used by this specification to document data type attribute tables, message structure attribute tables and segment attribute tables. Not all attributes apply to all attribute tables.

| Table 3.2: Message Element Attributes |
| --- |
| Attribute | Definition |
| SEQ | Sequence of the elements as numbered in the HL7 message element. The SEQ attribute applies to the data type attribute table and the segment attribute table.  |
| Component Name  | Short name for the component.  |
| Segment | Three-character code for the segment and the abstract syntax (e.g., the square brackets and curly braces). If a segment is not documented in this specification, it should not be sent.[ XXX ] Optional and singular{ XXX } Required and may repeatXXX Required and singular[{ XXX }] Optional and may repeatNote that for segment groups there is no segment code present, but the square brackets and curly braces will still be present. The Segment attribute only applies to the Message attribute table.  |
| LEN | Data field length, indicates the length to be used for a given data type or the calculated length to be used for a message element in this profile. Following conventions have been applied regarding maximum lengths: 1. The maximum length of the data field shall be expressed as a number.
2. If the maximum length needs to convey the notion of a Very Large Number, the number 65536 should be displayed.

If the maximum length cannot be definitively expressed because the data type for the field is variable, the symbolic number 99999 should be displayed.  |
| DT | Data type used by this profile for HL7 element.The data type attribute applies to data type attribute tables and segment attribute tables. |
| Usage | Usage of the message element for this profile. Indicates whether the message element (segment, segment group, field, component, or subcomponent) is R, RE, O, X or C in the corresponding message element. Usage applies to the message attribute table, data type attribute table and the segment attribute table; see Section 3.6 Usage Conformance Testing Recommendations.Indicates if the segment is required, optional, or conditional in a messageLegal values are:R – Required, Must always be populatedRE – Required, but may be empty (segment is not sent). If the Sender has data, it must be sent. The Receiver must be capable of processing data if sent, and must not raise an error or warning if the data is not sent.O – Optional, there are no specified conformance rules for either Sender or Receiver for this segment in this specification. As an implemented interface must follow known rules for populating segments, a specific interface for a particular Sender or Receiver must constrain this usage to either R, RE, C, CE, or X. This has been deliberately left unconstrained in this specification to support differing and sometimes mutually exclusive statutory requirements in different jurisdictions; this must be determined locally. |
| Cardinality | Minimum and maximum number of times the segment may appear. [0..1] Segment may be omitted and can have, at most, one occurrence. [1..1] Segment must have exactly one occurrence. [0..\*] Segment may be omitted or repeat an unlimited number of times. [1..\*] Segment must appear at least once, and may repeat unlimited number of times. |
| Value Set | The set of coded values to be used with the field. The value set attribute applies only to the data type attribute tables and the segment attribute tables. The value set may equate with an entire code system, part of a code system, or codes drawn from multiple code systems.  |
| Name | HL7 descriptor of the message element. Name applies to the message attribute table, data type attribute table and the segment attribute table.  |
| Description/Comments | Context and usage for the element. Description/Comments applies to the message attribute table, data type attribute table and the segment attribute table. |

## Encoding Rules

The following list details the encoding rules.

* Encode each segment in the order specified in the Message Structure.
* Begin each segment with the three-letter segment ID (e.g., PID).
* End each segment with the carriage return terminator (hex 0D). Note that in the examples in this specification, this character does not appear, but can be seen in a text editor.
* Encode the data fields in the sequence given in the corresponding segment definition tables.
* Encode each data field according to the data type format listed in this specification.
* Components, subcomponents, or repetitions that are not valued at the end of a field need not be represented by component separators. Likewise, field separators are not required for empty fields at the end of a segment.

For example, the data fields and segments below are equivalent:

|^XXX&YYY&&^| is equal to |^XXX&YYY|

|ABC^DEF^^| is equal to |ABC^DEF|

MSH|^~\&||Facility\_NPI^1234567890^NPI|||201009221330||ORU^R01^ORU\_R01|1|P|2.5.1||||||||

is equal to

MSH|^~\&||Facility\_NPI^1234567890^NPI|||201009221330||ORU^R01^ORU\_R01|1|P|2.5.1

* The Receiver will ignore undocumented segments, fields, and components that are sent, if they conform to the HL7 ORU^R01 message structure.

## Conventions

This specification adheres to the following conventions:

* The specification is constructed assuming the implementer has access to the 2.5.1 version of the HL7 Standard. Although some information from the standard is included in this specification, much information from the standard has not been repeated here.
* Data types have been described separately from the fields that use the data types.
	+ No conformance information is provided for unsupported (“X”) message elements, including cardinality, value sets and descriptive information.
	+ This specification uses “X” as a conformance usage indicator very sparingly. Where the underlying standard indicates the segments/field/component is present for backwards compatibility (“B”) or withdrawn ("W"), an “X” will be used. A small number of other message elements that are clearly out of scope for the use case have been given the "X" usage. All other message elements have either been further constrained to R/RE/C or have been left as "O" to enable trading partners to explore additional capabilities. Note that without a clearly agreed to complementary profile between trading partners, a Case Notification sender does not have to send any elements marked as an "O", nor does the receiver of a Case Notification have to process any elements marked as an "O".

## Keywords

The key words "**MUST,**" "**MUST NOT,**" "**REQUIRED,**" "**SHALL,**" "**SHALL NOT,**" "**SHOULD,**" "**SHOULD NOT,**" "**RECOMMENDED,**" "**MAY,**" and "**OPTIONAL**" in this document are to be interpreted as described in RFC 2119.[[1]](#footnote-2) The following definitions are excerpted from the RFC:

**MUST** or the terms "**REQUIRED**" or "**SHALL**" mean that the definition is an absolute requirement of the specification.

**MUST NOT** or the phrase "**SHALL NOT**" means that the definition is an absolute prohibition of the specification.

**SHOULD** or the adjective "**RECOMMENDED**" means that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course.

**SHOULD NOT** or the phrase "**NOT RECOMMENDED**" means that there may exist valid reasons in particular circumstances when the particular behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.

**MAY** or the adjective "**OPTIONAL**" means that an item is truly optional. One software supplier may choose to include the item to enable certain capabilities while another software supplier may omit the same item. In either case, the communication partner cannot be expected to either provide it (sender) or process it (receiver) without clear and voluntary agreement between the partners.

An implementation that does not include a particular segment/field/component marked as optional **MUST** be prepared to interoperate with another implementation that does include the optional segment/field/component, though perhaps with reduced functionality. In the same vein an implementation that includes a particular segment/field/component marked as optional **MUST** be prepared to interoperate with another implementation that does not include the optional segment/field/component.

## Standard

The word *standard* is used throughout the PHIN Messaging Specification to signify that the expected value for a segment or field is a value outlined in the MMG. This is used primarily for coded data elements (MMG Data Type and HL7 Data Type) in the MMG to detail when a sender is expected to provide a code or coding system.

## Alternate identifer

The phrase *alternate identifier* is used throughout the PHIN Messaging Specification to signify locally defined codes for purpose of the sender. Alternate identifiers are those other than the standard adopted value for a segment or field outlined in the MMG. This is used primarily for coded data elements (MMG Data Type and HL7 Data Type) in the MMG to detail when a sender is expected to provide a code or coding system. Text **SHOULD** be sent to describe the alternate information.

## Literal Values

The term *literal value* is used throughout this specification to indicate a value within the specification or MMG that is a fixed value and is to be used exactly as it is given. Literal values maintain a consistent value regardless of the content of the rest of the message. This is used primarily for data elements that identify a specific value needed for identifying the profile structure or specific data elements needed to properly process Case Notification messages. Literal values can further be used by MMGs to identify other specific fixed values needed.

## Unknown values

### Conveying Unknowns for Date Data Types

For date data types outlined in the PHIN Messaging Specification for Case Notification Version 3.0, the literal string of ‘99999999’ (eight nines) **MAY** be sent in place of a valid date value to signify a date is unknown. A sender **MAY** send the literal string of ‘99999999’ for any date data elements of interest outlined in the Message Mapping Guides or supported segments in the PHIN Messaging Specification, except for those that are considered required (CDC Priority of ‘R’ or HL7 Usage ‘R’). Required date data elements must be populated with a valid date value in the format outlined for the PHIN Messaging Specification. For additional information please review the *Methods for Conveying Unknown Values in a Case Notification* document on the NNDSS website in the Supporting Documents for Implementation section (<https://ndc.services.cdc.gov/supporting-documents-for-implementation/>).

### Conveying Unknowns for Numeric or Structured Numeric Data Types

For numeric and structured numeric data types outlined in the PHIN Messaging Specification Version 3.0, the guidance for conveying unknowns is to send a string of nines outside the normal range for the particular data element of interest outlined in the MMG. The MMG details a number of suggestions for potential values that **MAY** besent for data elements with a data type of NM or SN. For additional information on conveying unknown information for NM or SN data types, please review the *Methods for Conveying Unknown Values in a Case Notification* document on the NNDSS website in the Supporting Documents for Implementation section

(<https://ndc.services.cdc.gov/supporting-documents-for-implementation/>).

## Message Mapping Guide Constraints

For guidance regarding further constraints of the PHIN Messaging Specification for Case Notification Version 3.0. This specification constrains the HL7 version 2.5.1 for developing the Case Notification Profile. The Message Mapping Guides (MMG) **SHALL** further constrain the Case Notification Profile to meet specific CDC Public Health program’s desired use of provided data elements within the specification. The MMG(s) can only further constrain these requirements and not relax requirements. This specification is the overarching guiding document for the development of MMG(s) for Case Notification.

## Usage Conformance Testing Recommendations

The following text is pre-adopted from the HL7 V2.7.1 Conformance (Chapter 2B, 2.B.7.5). Please refer to the base standard documentation for a full explanation of conformance concepts. Usage is described here as it introduces the revised approach to conditional element handling; upon successful ballot and publication this material will be replaced with a reference to the normative documentation.

*---------- start citation---------*

2.B.7.5 Usage

Message content is governed by the cardinality specification associated (explicitly or implicitly) with each element of an HL7 message. Usage rules govern the expected behavior of the sending application and receiving application with respect to the element. The usage codes expand/clarify the optionality codes defined in the HL7 standard. Usage codes are employed in a message profile to constrain the use of elements defined in the standard. The usage code definitions are given from a sender and receiver perspective and specify implementation and operational requirements.

The standard allows broad flexibility for the message structures that HL7 applications must be able to receive without failing. But while the standard allows that messages may be missing data elements or may contain extra data elements, it should not be inferred from this requirement that such messages are conformant. In fact, the usage codes specified in a message profile place strict conformance requirements on the behavior of the application.

*Definition of Conditional Usage*

The conditional usage is defined as follows:

C(a/b) - “a” and “b” in the expression are placeholders for usage codes representing the true (“a”) predicate outcome and the false (“b”) predicate outcome of the condition. The condition is expressed by a conditional predicate associated with the element (“See section 2.b.7.9, "Condition predicate"). “a” and “b” shall be one of “R”, “RE”, “O” and/or “X”. The values of “a” and “b” can be the same.

The example C(R/RE) is interpreted as follows. If the condition predicate associated with the element is true then the usage for the element is R-Required. If the condition predicate associated with the element is false then the usage for the element is RE-Required but may be empty.

There are cases where it is appropriate to value “a” and “b” the same. For example, the base standard defines the usage of an element as “C” and the condition predicate is dependent on the presence or non-presence of another element. The profile may constrain the element that the condition is dependent on to X; in such a case the condition should always evaluate to false. Therefore, the condition is profiled to C(X/X) since the desired effect is for the element to be not supported. Note it is not appropriate to profile the element to X since this breaks the rules of allowable usage profiling (see table HL7 Optionality and Conformance Usage).

**Usage Rules for a Sending Application**

|  |  |  |  |
| --- | --- | --- | --- |
| Optionality/Usage Indicator | Description | Implementation Requirement | Operational Requirement |
| R | Required | The application shall implement “R” elements.  | The application shall populate “R” elements with a non-empty value. |
| RE | Required but may be empty | The application shall implement “RE” elements. | The application shall populate “RE” elements with a non-empty value if there is relevant data. The term “relevant” has a confounding interpretation in this definition.[[2]](#footnote-3)  |
| C(a/b) | Conditional | An element with a conditional usage code has an associated condition predicate (See section 2.B.7.9, “Condition predicate” that determines the operational requirements (usage code) of the element.**If the condition predicate associated with the element is true, follow the rules for *a* which shall be one of “R”, “RE”, “O” or X”:****If the condition predicate associated with the element is false, follow the rules for *b* which shall be one of “R”, “RE”, “O” or X”**.***a*** and ***b*** can be valued the same. |
| X | Not supported | The application (or as configured) shall not implement “X” elements. | The application shall not populate “X” elements. |
| O | Optional | None. The usage indicator for this element has not yet been defined. For an implementation profile all optional elements must be profiled to R, RE, C(a/b), or X. | Not Applicable.  |

**Usage Rules for a Receiving Application**

| Optionality/Usage Indicator | Description | Implementation Requirement | Operational Requirement |
| --- | --- | --- | --- |
| R | Required | The application shall implement “R” elements.  | The receiving application shall process (save/print/archive/etc.) the information conveyed by a required element.A receiving application shall raise an exception due to the absence of a required element. A receiving application shall not raise an error due to the presence of a required element. |
| RE | Required but may be empty | The application shall implement “RE” elements. | The receiving application shall process (save/print/archive/etc.) the information conveyed by a required but may be empty element. The receiving application shall process the message if the element is omitted (that is, an exception shall not be raised because the element is missing). |
| C(a/b) | Conditional | The usage code has an associated condition predicate true (See section 2.B.7.9, “Condition predicate").**If the condition predicate associated with the element is true, follow the rules for *a* which shall be one of “R”, “RE”, “O” or X”:****If the condition predicate associated with the element is false, follow the rules for *b* which shall be one of “R”, “RE”, “O” or X”**.***a*** and ***b*** can be the same. |
| X | Not supported | The application (or configured) shall not implement “X” elements. | None, if the element is not sent.If the element is sent, the receiving application may process the message, shall ignore the element, and may raise an exception. The receiving application shall not process (save/print/archive/etc.) the information conveyed by a not-supported element. |
| O | Optional | None. The usage indicator for this element has not yet been defined. For an implementation profile all optional elements must be profiled to R, RE, C(a/b), or X. | None.  |

*--------- end citation ---------*

## HL7 Batch Protocol

**Note**: Transmission of Case Notification messages using the HL7 batch protocol is optional and not a requirement of this specification. Details such as the frequencies of batch transmissions are left to specific implementations. For further guidance regarding the Batch Protocol, refer to Section 2.10.3 HL7 batch protocol in Chapter 2 of the HL7 v2.5.1 Standard.

| Table 3.11: Batch PROTOCOL File STRUCTURE |
| --- |
| Segment | Name | Usage | Cardinality | Description |
| FHS  | File Header Segment | R  | [1..1]  | Information explaining how to parse and process the file. This information includes identification of file delimiters, sender, receiver, timestamp, etc.  |
| BHS  | Batch Header Segment | R  | [1..1]  | Trigger event information for receiving application. One batch per file is supported.  |
| { HL7 messages } |  | R | [1..\*]  | Contains one or more HL7 messages of the same message type: ORU^R01 only. |
| BTS | Batch Trailer Segment | R | [1..1] | Defines the end of a batch of messages. |
| FTS  | File Trailer Segment | R  | [1..1]  | Defines the end of a file that contains only one batch. |

### File Header (FHS) Segment

This segment is used as the lead-in to a file (group of batches).

| **Table 3.11.1: File Header Segment (FHS)** |
| --- |
| **Field Name** | **Seq** | **DT** | **Len** | **Usage** | **Cardinality** | **Description/Comments** |
| File Field Separator  | 1 | ST | 1 | R | [1..1] | Default Value “|” (ASCII 124).  |
| File Encoding Characters  | 2 | ST | 4 | R | [1..1] | Default Values “^~\&” (ASCII 94, 126, 92, and 38).  |
| File Sending Application  | 3 | HD | 227 | O | [0..1] |  |
| File Sending Facility  | 4 | HD | 227 | O | [0..1] |  |
| File Receiving Application  | 5 | HD | 227 | O | [0..1] |  |
| File Receiving Facility  | 6 | HD | 227 | O | [0..1] |  |
| File Creation Date/Time | 7 | TS | 26 | O | [0..1] |   |
| File Security  | 8 | ST | 40 | X | [0..1] |   |
| File Name/ID  | 9 | ST | 20 | O | [0..1] |   |
| File Header Comment  | 10 | ST | 80 | O | [0..1] |  |
| File Control ID | 11 | ST | 199 | O | [0..1] |   |
| Reference File Control ID | 12 | ST | 20 | O | [0..1] |   |

Example: FHS|^~\&

### File Trailer (FTS) Segment

The FTS segment defines the end of a file (group of batches).

| **Table 3.11.2: File Trailer Segment (FTS)** |
| --- |
| **Field Name** | **Seq** | **DT** | **Len** | **Usage** | **Cardinality** | **Description/Comments** |
| File Batch Count | 1 | NM | 10 | R | [1..1] | The number of batches contained in this file. Since this interface is constrained to one batch per file, this number should always be ‘1’. |
| File Trailer Comment  | 2 | ST | 80 | O | [0..1] |  |

Example: FTS|1

### Batch Header (BHS) Segment

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

| **Table 3.11.3: Batch Header Segment (BHS)** |
| --- |
| **Field Name** | **Seq** | **DT** | **Len** | **Usage** | **Cardinality** | **Description/Comments** |
| Batch Field Separator  | 1 | ST | 1 | R | [1..1] | Default Value “|” (ASCII 124).  |
| Batch Encoding Characters  | 2 | ST | 4 | R | [1..1] | Default Values “^~\&” (ASCII 94,126,92, and 38).  |
| Batch Sending Application  | 3 | HD | 227 | R | [1..1] |  |
| Batch Sending Facility  | 4 | HD | 227 | R | [1..1] |  |
| Batch Receiving Application  | 5 | HD | 227 | R | [1..1] |  |
| Batch Receiving Facility  | 6 | HD | 227 | R | [1..1] |  |
| Batch Creation Date/Time | 7 | TS | 26 | R | [1..1] |  |
| Batch Security  | 8 | ST | 40 | X | [0..1] |   |
| Batch Name/ID  | 9 | ST | 20 | O | [0..1] |   |
| Batch Header Comment  | 10 | ST | 80 | O | [0..1] |  |
| Batch Control ID | 11 | ST | 20 | O | [0..1] |   |
| Reference Batch Control ID | 12 | ST | 20 | O | [0..1] |   |

Example: BHS|^~\&|ER1^2.16.840.1.113883.19.3.1.1^ISO |CITY\_GENERAL^2.16.840.1.113883.19.3.1^ISO|SS\_APP^2.16.840.1.113883.19.3.2.1^ISO|SPH^2.16.840.1.113883.19.3.2^ISO|20080723123558-0400

### Batch Trailer (BTS) Segment

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

| **Table 3.11.4: Batch Trailer Segment (BTS)** |
| --- |
| **Field Name** | **Seq** | **DT** | **Len** | **Usage** | **Cardinality** | **Description/Comments** |
| Batch Message Count | 1 | NM | 10 | R | [1..1] | The number of messages contained in the preceding batch.  |
| Batch Comment  | 2 | ST | 80 | O | [0..1] |  |
| Batch Totals | 3 | NM | 100 | X | [0..\*] |  |

Example: BTS|100|Facility reporting for 2-1-2011

# DATA TYPES

The HL7 Standards define many data types for use in HL7 messaging. All of these data types are not required for the message defined in this specification. Those data types that are used in this specification are defined and specified further in the table below.

There may be some Optional fields in the segments used that are not further specified. If the field is used, the standard datatype definition from the 2.5.1 HL7 Standard, Chapter 2A, applies. This specification does not further constrain those datatypes.

| Table 4.0: Data TypeS Utilized in Case Notification |
| --- |
| Data Type | Data Type Name |
| CE  | Coded Element for all but OBX-3 Usage |
| CE-PH | Coded Element for Public Health Use (OBX-3) |
| CQ | Composite Quantity with Units |
| CWE | Coded with Exceptions |
| CX  | Extended Composite ID with check Digit  |
| DR | Date/Time Range |
| DT | Date |
| DTM | Date/Time (component of Timestamp) |
| ED | Encapsulated Data |
| EI | Entity Identifier  |
| EIP | Entity Identifier Pair |
| FT | Formatted Text Data |
| HD  | Hierarchic Designator  |
| ID  | Coded Value for HL7-defined tables  |
| IS  | Coded Value for user-defined tables  |
| MSG | Message Type |
| NM | Numeric |
| PRL | Parent Result Link |
| PT  | Processing Type  |
| SI  | Sequence Identifier  |
| SN | Structured Numeric |
| ST  | String Data  |
| TS  | Timestamp  |
| TX | Text Data |
| VID  | Version Identifier  |
| XAD  | Extended Address |
| XCN | Extended Composite ID Number and Name for Persons |
| XON | Extended Composite Name and ID Number for Organizations |
| XPN | Extended Person Name |

## CE - Coded Element For all but OBX-3 Usage

| TABLE 4.1: CODED ELEMENT (CE) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Identifier | 20 | ST | RE |  | Standard code identifier is expected. |
| 2 | Text | 199 | ST | C(R/RE) |  | **Condition Predicate:** If component 1 (Identifier) is not valued. It is strongly recommended that text **SHOULD** be sent to accompany any identifier. When a coded value is not known, text **SHALL** be sent, in which case no coding system should be identified |
| 3 | Name of Coding System | 199 | ID | C(R/X) | HL70396 | **Condition Predicate:** If component 1 (Identifier) is valued. Standard coding system identifiers or OIDs **MAY** be sent for Coding Systems. Both are supported. |
| 4 | Alternate Identifier | 20 | ST | RE |  | The alternate identifier, if included, should be the closest match for the identifier found in component 1. This component **SHOULD** be valued as the local version of the standard identifier in component 1 |
| 5 | Alternate Text | 199 | ST | RE |  | It is strongly recommended that alternate text **SHOULD** be sent to accompany any alternate identifier.  |
| 6 | Name of Alternate Coding System | 199 | ID | C(R/X) | HL70396 | **Condition Predicate:** If component 4 (Alternate Identifier) is valued. Alternate coding system identifiers or OIDs **MAY** be sent for Coding Systems. Both are supported. |

Usage Notes:

Triplet population order:

The sender shall always populate the first triplet before populating the other triplet.

Examples: PID-10 Race

|2054-5^Black or African American^2.16.840.1.113883.6.238|

or

|2054-5^Black or African American^CDCREC|

## CE - PH Coded Element for OBX-3 Usage

| TABLE 4.2: CODED ELEMENT – PUBLIC HEALTH (CE-PH) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Identifier | 20 | ST | R |  | Standard code system identifier **MUST** be used. |
| 2 | Text | 199 | ST | RE |  | It is strongly recommended that text **SHOULD** be sent to accompany any identifier.  |
| 3 | Name of Coding System | 199 | ID | R | HL70396 | Standard coding system identifiers or OIDs **MAY** be sent for Coding Systems. Both are supported. |
| 4 | Alternate Identifier | 20 | ST | RE |  | The alternate identifier (from the alternate coding system) **SHOULD** be the closest match for the identifier found in component 1.  |
| 5 | Alternate Text | 199 | ST | RE |  | It is strongly recommended that alternate text **SHOULD** be sent to accompany any alternate identifier.  |
| 6 | Name of Alternate Coding System | 199 | ID | C(R/X) | HL70396 | **Condition Predicate:** If component 4 (Alternate Identifier) is valued. Standard coding system identifiers or OIDs **MAY** be sent for Coding Systems. Both are supported. |

Usage Notes:

Triplet population order:

The sender shall always populate the first triplet before populating the other triplet.

## CQ - Composite Quantity with Units

| TABLE 4.3: COMPOSITE QUANTITY WITH UNITS (CQ)  |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Quantity | 16 | NM | O |  |  |
| 2 | Units | 841 | CE | O |  |  |

 Usage Notes:

 Example:

|123.7^kg| kilograms is an ISO unit

## CWE - Coded With Exceptions

| TABLE 4.4: CODED WITH EXCEPTIONS (CWE) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Identifier | 20 | ST | RE |  | Standard code identifier is expected. |
| 2 | Text | 199 | ST | RE |  | It is strongly recommended that text **SHOULD** be sent to accompany any identifier.  |
| 3 | Name of Coding System | 199 | ID | C(R/X) | HL70396 | **Condition Predicate:** If component 1 (Identifier) is valued. Standard coding system identifiers or OIDs **MAY** be sent for Coding Systems. Both are supported. |
| 4 | Alternate Identifier | 20 | ST | RE |  | The alternate identifier, if included, **SHOULD** be the closest match for the identifier found in component 1.  |
| 5 | Alternate Text | 199 | ST | RE |  | It is strongly recommended that alternate text **SHOULD** be sent to accompany any alternate identifier.  |
| 6 | Name of Alternate Coding System | 199 | ID | C(R/X) | HL70396 | **Condition Predicate:** If component 4 (Alternate Identifier) is valued. OIDs or Value Codes **MAY** be sent for Coding Systems. Both are supported. |
| 7 | Coding System Version ID | 10 | ST | O |  | The version ID for the coding system identified by components 1-3 |
| 8 | Alternate Coding System Version ID | 10 | ST | O |  | The version ID for the coding system identified by components 4-6. |
| 9 | Original Text | 199 | ST | RE  |  | The 9th component of the CWE data type is used for conveying information when a reporting jurisdiction stores free text in their surveillance information system related to a CWE data element.  When the coded data element has an “other” or “other, please specify” valid value, the 9th component of the CWE would also be used to capture the text used for the “specify” information. |

Usage Notes:

Triplet population order:

The sender shall always populate the first triplet before populating the other triplets.

## CX - Extended Composite ID with Check Digit

| TABLE 4.5: EXTENDED COMPOSITE ID WITH CHECK DIGIT (CX) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | ID Number  | 199 | ST | R |  | Identifier may be alphanumeric. |
| 2 | Check Digit | 1 | ST | O |  |  |
| 3 | Check Digit Scheme  | 20 | ID | O | HL70061 |  |
| 4 | Assigning Authority | 227 | HD | R | HL70363 | The Assigning Authority component is used to identify the system, application, organization, etc. that assigned the ID Number in component 1. |
| 5 | Identifier Type Code | 5 | ID | O | HL70203 |  |
| 6 | Assigning Facility | 227 | HD | O | HL70396 |  |
| 7 | Effective Date | 8 | DT | O |  |  |
| 8 | Expiration Date | 8 | DT | O |  |  |
| 9 | Assigning Jurisdiction | 1063 | CWE | O |  |  |
| 10 | Assigning Agency or Department | 1063 | CWE | O |  |  |

Usage Notes: This data type is used for specifying an identifier with its associated administrative detail.

Note: The check digit and check digit scheme are null if ID is alphanumeric.

Example: PID-3 Patient ID: |PSN101059711^^^TX01&OID&ISO|

## DR - Date/Time Range

| TABLE 4.6: DATE/TIME RANGE (DR) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Range Start Date/Time | 26 | TS | O |  |  |
| 2 | Range End Date/Time | 26 | TS | O |  |  |

Usage Notes: See “TS- Timestamp" for the full description of this component.

## DT - Date

| TABLE 4.7: DATE (DT) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Date | 8 | DT | RE |  |  |

Definition: Specifies the century and year with optional precision to month and day.

Maximum Length: 8

As of v 2.3, the number of digits populated specifies the precision using the format specification YYYY[MM[DD]]. Thus:

1. only the first four digits are used to specify a precision of "year"
2. the first six are used to specify a precision of "month"
3. the first eight are used to specify a precision of "day"

Examples:

|2003| specifies 2003 (as used for *MMWR* year).

|199503| specifies March 1995.

|19880704| specifies July 4, 1988.

## DTM - Date/Time

| TABLE 4.8: DATE/TIME (DTM) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Date/time | 24 | DTM | RE |  |  |

Usage Notes: Specifies a point in time using a 24-hour clock notation.

The number of characters populated (excluding the time zone specification) specifies the precision.

Example: |199904| specifies April 1999.

Format: YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ].

Thus:

1. only the first four are used to specify a precision of "year"
2. the first six are used to specify a precision of "month"
3. the first eight are used to specify a precision of "day"
4. the first ten are used to specify a precision of "hour”
5. the first twelve are used to specify a precision of "minute”
6. the first fourteen are used to specify a precision of "second”
7. the first sixteen are used to specify a precision of "one tenth of a second”
8. the first nineteen are used to specify a precision of "one ten thousandths of a second”

The time zone (+/-ZZZZ) is represented as +/-HHMM offset from Co-ordinated Universal Time (UTC) (formerly Greenwich Mean Time (GMT)), where +0000 or -0000 both represent UTC (without offset). The specific data representations used in the HL7 encoding rules are compatible with ISO 8824-1987(E). Note that if the time zone is not included, the time zone defaults to that of the local time zone of the sender. Also note that a DTM or TS valued field with the HHMM part set to "0000" represents midnight of the night extending from the previous day to the day given by the YYYYMMDD part.

The HL7 Standard strongly recommends that all systems routinely send the time zone offset but does not require it. All HL7 systems are required to accept the time zone offset, but its implementation is application specific. For many applications the time of interest is the local time of the sender.

## ED - Encapsulated Data

| TABLE 4.9: ENCAPSULATED DATA (ED) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Source Application | 227 | HD | O |  |  |
| 2 | Type of Data | 9 | ID | R | HL70191 |  |
| 3 | Data Subtype | 18 | ID | O | HL70291 |  |
| 4 | Encoding | 6 | ID | R | HL70299 |  |
| 5 | Data | 65536 | TX | R |  |  |

Definition:This data type transmits encapsulated data from a source system to a destination system. It contains the identity of the source system, the type of data, the encoding method of the data, and the data itself.

Usage Notes: Supported to allow sending of encapsulated data such as images or PDF files associated with a case or lab report, commonly Base64 encoded.

## EI - Entity Identifier

| TABLE 4.10: ENTITY IDENTIFIER (EI) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Entity Identifier | 199 | ST | R |  |  |
| 2 | Namespace ID | 20 | IS | RE | HL70300 |  |
| 3 | Universal ID | 199 | ST | R |  |  |
| 4 | Universal ID Type | 6 | ID | R | HL70301 |  |

Usage Notes: The entity identifier defines a given entity within a specified series of identifiers.

## EIP - Entity Identifier Pair

| TABLE 4.11: ENTITY IDENTIFIER PAIR (EIP) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Placer Assigned Identifier | 427 | EI | RE |  |  |
| 2 | Filler Assigned Identifier | 427 | EI | RE |  |  |

Usage Notes: Specifies an identifier assigned to an entity by either the placer or the filler system. If both components are populated the identifiers must refer to the same entity.

## FT - Formatted Text Data

| TABLE 4.12: FORMATTED TEXT DATA (FT) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Formatted Text Data | 65536 |  | RE |  |  |

Usage Notes: This data type is derived from the string data type by allowing the addition of embedded formatting instructions. The instructions are limited to those that are intrinsic and independent of the circumstances under which the field is being used. ***The FT field is of arbitrary length (up to 64k)*** and may contain formatting commands enclosed in escape characters.

In this message specification, the only allowed escape sequences are those allowed in HL7 Version 2.5.1, Chapter 2, and Section 2.7.4 - Special Characters. These are the escape sequences for the message delimiters (i.e., “|" = \F\, “^” = \S\, “~” = \R\, “&” = \T\, and “\” = \E\).

Example:

|\.sp\(skip one vertical line)|

## HD - Hierarchic Designator

| TABLE 4.13: HIERARCHIC DESIGNATOR (HD) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Namespace ID | 20 | IS | RE | HL70300 | Namespace ID is a local code that identifies the object |
| 2 | Universal ID | 199 | ST | R |  | **CONFORMANCE STATEMENT CN-001:** HD.2 (Universal ID) **SHALL** be a valid ISO OID format. |
| 3 | Universal ID Type | 6 | ID | R | HL70301 | Fixed to 'ISO'. **CONFORMANCE STATEMENT CN-002:** HD.3 (Universal ID Type) **SHALL** be valued “ISO”. |

Usage Notes: 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. Where this capability is used in this specification, the usage is described separately. Note that the HD data type has been constrained to carry an Object Identifier (OID) identifying an application, a facility, or an assigning authority

## ID - Coded Value for HL7 Defined Tables

| TABLE 4.14: CODED VALUE FOR HL7 DEFINED TABLES (ID) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Coded Value for HL7-Defined Tables | 99999 | -- | R |  |  |

Usage Notes: The value of such a field follows the formatting rules for a ST field, except that it is drawn from a table of legal values defined by HL7.

## IS - Coded Value for User-Defined Tables

| TABLE 4.15: CODED VALUE FOR USER- DEFINED TABLES (IS) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Coded Value for User-Defined Tables | 20 | -- | R |  |  |

Usage Notes: The value of such a field follows the formatting rules for a ST field, except that it is drawn from a site-defined (or user-defined) table of legal values.

## MSG - Message Type

| TABLE 4.16: MESSAGE TYPE (MSG) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Message Code | 3 | ID | R | HL70076 | Specifies the message type code |
| 2 | Trigger Event | 3 | ID | R | HL70003 | Specifies the trigger event code |
| 3 | Message Structure | 7 | ID | R | HL70354 | Specifies the abstract message structure code |

Usage Notes: This field contains the message type, trigger event, and the message structure ID for the message.

Example: MSH-9 Message Type: |ORU^R01^ORU\_R01| is the only value allowed for the Case Notification Message.

## NM - Numeric

| TABLE 4.17: NUMERIC (NM) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Numeric | 16 | ST | RE |  |  |

Usage Notes: A number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point the number is assumed to be an integer.

Examples:

|999|

|-123.792|

Leading zeros, or trailing zeros after a decimal point, are not significant. For example, the following two values with different representations, “01.20” and “1.2," are identical. Except for the optional leading sign (+ or -) and the optional decimal point (.), no non-numeric ASCII characters are allowed. Thus, the value <12 should be encoded as a structured numeric (SN) (preferred) or as a string (ST) (allowed, but not preferred) data type.

## PRL - Parent Result Link

| TABLE 4.18: PARENT RESULT LINK (PRL) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Parent Observation Identifier  | 841 | CE | R |  | Defined in the OBX-3 of the parent result. |
| 2 | Parent Observation Sub-identifier | 20 | ST | O |  | Defined in the OBX-4 of the parent result. |
| 3 | Parent Observation Value Descriptor | 250 | TX | O |  | Taken from the OBX-5 of the parent result.  |

Definition: Uniquely identifies the parent result’s OBX segment related to the current order, together with the information in OBR-29-parent.

Usage Notes:This data type is applied only to OBR-26 - Parent Result where it serves to make information available for other types of linkages (e.g., toxicology).

OBR-26 identifies the result that spawned the order this OBR describes. For example if the current order identifies susceptibility testing, the value in OBR-26 PRL datatype identifies the organism the testing is being performed on by referencing the performed test (which isolated the organism) and the respective sub-ID (which identify the correct result value). Optionally the text portion of the result value can also be communicated for ease of human readability, however that might change prior to the culture result being finalized. This information should be combined with the identification of the order the organism was isolated with, identified in OBR-29.

This field is present only when the parent result is identified by OBR-29-parent and the parent spawns child orders for each of many results.

## PT - Processing Type

| TABLE 4.19: PROCESSING TYPE (PT) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Processing ID | 1 | ID | R | 0103 | A value that defines whether the message is part of a production, training, or debugging system |
| 2 | Processing Mode | 1 | ID | O | 0207 | Not present is the default, meaning current processing |

Usage Notes: This data type indicates whether to process a message as defined in HL7 Application (level 7) Processing rules.

Example: MSH-11 Processing ID: |D| or |P| or |T|.

## SI - Sequence ID

| TABLE 4.20: SEQUENCE ID (SI) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Sequence ID | 4 | NM | R |  |  |

Usage Notes: A non-negative integer in the form of a NM field.

## SN - Structured Numeric

| TABLE 4.21: STRUCTURED NUMERIC (SN) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Comparator | 2 | ST | RE |  | Defined as greater than, less than, greater than or equal, less than or equal, equal, and not equal, respectively (= ">" or "<" or ">=" or "<=" or "=" or "<>". If this component is not valued, it defaults to equal ("="). |
| 2 | Numeric Value 1 | 15 | NM | RE |  | A number |
| 3 | Separator/Suffix | 1 | ST | C(RE/X) |  | "-" or "+" or "/" or "." or ":"**Condition Predicate:** If component 2 (Numeric Value 1) is valued. |
| 4 | Numeric Value 2 | 15 | NM | C(RE/X) |  | A number or null depending on the measurement**Condition Predicate:** If component 2 (Numeric Value 1) is valued. |

Usage Notes: The structured numeric data type is used to unambiguously express numeric clinical results along with qualifications. This enables receiving systems to store the components separately, and facilitates the use of numeric database queries. The corresponding sets of values indicated with the <comparator> and <separator/suffix> components are intended to be the authoritative and complete set of values.

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^+).

**CONFORMANCE STATEMENT CN-003** If <num1> and <num2> are both non-null, then the separator/suffix **MUST** be non-null.

If the separator is “-”, the data range is inclusive; e.g., <num1> - <num2> defines a range of numbers x, such that: <num1> <=x<= <num2>.

Examples:

|>^100| (greater than 100)

|^100^-^200| (equal to range of 100 through 200)

|^1^:^228| (ratio of 1 to 228, e.g., the results of a serological test)

## ST - String Data

| TABLE 4.22: STRING DATA (ST) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | String Data | 199 |  | R |  |  |

Usage Notes: String data is left justified with trailing blanks optional.

The ST data type is intended for short strings (e.g., less than 200 characters). For longer

strings the TX or FT data types should be used (see 2.5.1 Standard Sections 2.A.78, “TX - text data” or 2.A.31, “FT -formatted text data”).

## TS - Time Stamp

| TABLE 4.23: TIME STAMP (TS) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Time | 24 | DTM | R |  | The point in time |
| 2 | Degree of Precision |  |  | X |  | A component of the Timestamp that is no longer used. |

Usage Notes: Specifies a point in time.

Format: YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ]

See “DTM - Date/Time" for the full description of this component.

## TX - Text Data

| TABLE 4.24: TEXT DATA (TX) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Text Data | 65536 | -- | R |  |  |

Usage Notes: String data meant for user display (on a terminal or printer). Such data would not necessarily be left justified since leading spaces may contribute greatly to the clarity of the presentation to the user. Because this type of data is intended for display, it may contain certain escape character sequences designed to control the display.

Leading spaces should be included. Trailing spaces should be removed.

In this message specification, the only allowed escape sequences are those allowed in HL7 Version 2.5.1, Chapter 2, and Section 2.7.4 - Special Characters. These are the escape sequences for the message delimiters (i.e., “|" = \F\, “^” = \S\, “~” = \R\, “&” = \T\, and “\” = \E\).

## VID - Version Identifier

| TABLE 4.25: VERSION IDENTIFIER (VID) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Version ID | 5 | ID | R | HL70104 |  |
| 2 | Internationalization Code | 841 | CE | O |  |  |
| 3 | International Version ID | 841 | CE | O |  |  |

Usage Notes: Version ID is used to identify the HL7 version.

Example: MSH-12 Version ID: |2.5.1|

## XAD - Extended Address

| TABLE 4.26: EXTENDED ADDRESS (XAD) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Street Address |  |  | X |  | Not supported for privacy purposes |
| 2 | Other Designation |  |  | X |  | Not supported for privacy purposes |
| 3 | City | 50 | ST | RE |  |  |
| 4 | State or Province | 50 | ST | RE |  |  |
| 5 | Zip or Postal Code | 12 | ST | RE |  |  |
| 6 | Country | 3 | ID | RE | HL70399 |  |
| 7 | Address Type | 3 | ID | O | HL70190 |  |
| 8 | Other Geographic Designation | 50 | ST | O |  |  |
| 9 | County/Parish Code | 20 | IS | RE | HL70289 |  |
| 10 | Census Tract | 20 | IS | RE | HL70288 |  |
| 11 | Address Representation Code | 1 | ID | O | HL70465 |  |
| 12 | Address Validity Range  |  |  | X |  | Deprecated as of HL7 v2.5 |
| 13 | Effective Date | 26 | TS | O |  |  |
| 14 | Expiration Date | 26 | TS | O |  |  |

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

| TABLE 4.27: EXTENDED COMPOSITE NUMBER AND NAME FOR PERSONS (XCN) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | ID Number | 15 | ST | RE |  |  |
| 2 | Family Name |  |  | X |  | Not supported for privacy purposes |
| 3 | Given Name |  |  | X |  | Not supported for privacy purposes |
| 4 | Second and Further Given Names or Initials Thereof |  |  | X |  | Not supported for privacy purposes |
| 5 | Suffix (e.g., JR or III) |  |  | X |  | Not supported for privacy purposes |
| 6 | Prefix (e.g., DR) |  |  | X |  | Not supported for privacy purposes |
| 7 | Degree (e.g., MD) |  |  | X |  | Deprecated as of HL7 v2.5 |
| 8 | Source Table | 4 | IS | O | HL70297 |  |
| 9 | Assigning Authority | 227 | HD | RE | HL70363 |  |
| 10 | Name Type Code | 1 | ID | O | HL70200 |  |
| 11 | Identifier Check Digit | 1 | ST | O |  |  |
| 12 | Check Digit Scheme | 3 | ID | O | HL70061 |  |
| 13 | Identifier Type Code | 5 | ID | O | HL70203 |  |
| 14 | Assigning Facility | 227 | HD | O |  |  |
| 15 | Name Representation Code | 1 | ST | O | HL70465 |  |
| 16 | Name Context | 841 | CE | O | HL70448 |  |
| 17 | Name Validity Range |  |  | X |  |  |
| 18 | Name Assembly Order | 1 | ID | O | HL70444 |  |
| 19 | Effective Date | 26 | TS | O |  |  |
| 20 | Expiration Date | 26 | TS | O |  |  |
| 21 | Professional Suffix | 199 | ST | O |  |  |
| 22 | Assigning Jurisdiction | 1063 | CWE | O |  |  |
| 23 | Assigning Agency or Department | 1063 | CWE | O |  |  |

## XON - Extended Composite Name and IDentification Number for Organizations

| TABLE 4.28: EXTENDED COMPOSITE NAME AND IDENTIFICATION NUMBER FOR ORGANIZATIONS (XON) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Organization Name | 50 | ST | RE |  |  |
| 2 | Organization Name Type Code | 20 | IS | O | HL70204 |  |
| 3 | ID Number |  |  | X |  | Deprecated as of HL7 v2.5 |
| 4 | Check Digit | 1 | ST | O |  |  |
| 5 | Check Digit Scheme | 3 | ID | O | HL70061 |  |
| 6 | Assigning Authority | 227 | HD | O | HL70363 |  |
| 7 | Identifier Type Code | 5 | ID | O | HL70203 |  |
| 8 | Assigning Facility | 227 | HD | O |  |  |
| 9 | Name Representation Code | 1 | ID | O | HL70465 |  |
| 10 | Organization Identifier | 20 | ST | O |  |  |

## XPN - Extended Person Name

| TABLE 4.29: EXTENDED PERSON NAME (XPN) |
| --- |
| SEQ | Component Name | LEN | DT | Usage | TBL# | Comments |
| 1 | Family Name |  |  | X |  | Not supported for privacy purposes |
| 2 | Given Name |  |  | X |  | Not supported for privacy purposes |
| 3 | Second and Further Given Names or Initials Thereof |  |  | X |  | Not supported for privacy purposes |
| 4 | Suffix (e.g., JR or III) |  |  | X |  | Not supported for privacy purposes |
| 5 | Prefix (e.g., DR) |  |  | X |  | Not supported for privacy purposes |
| 6 | Degree (e.g., MD) |  |  | X |  | Deprecated as of HL7 v2.5 |
| 7 | Name Type Code | 1 | ID | O | HL70200 |  |
| 8 | Name Representation Code | 1 | ST | O | HL70465 |  |
| 9 | Name Context | 841 | CE | O | HL70448 |  |
| 10 | Name Validity Range |  |  | X |  |  |
| 11 | Name Assembly Order | 1 | ID | O | HL70444 |  |
| 12 | Effective Date | 26 | TS | O |  |  |
| 13 | Expiration Date | 26 | TS | O |  |  |
| 14 | Professional Suffix | 199 | ST | O |  |  |

# MESSAGE STRUCTURE

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

Note that the first column (Segment) is listing the cardinality and optionality according to the HL7 2.5.1 Messaging Standard, the second column (Name) provides the segment or group name from the base standard, while the remaining columns (Usage, Cardinality, Description) define the constraints for this specification. It is therefore possible that the base standard defines a segment as optional with a cardinality of up to 1, while this specification defines the segment in the Usage column as R thus a cardinality of [1..1].

## ORU^R01^ORU\_R01 Message Syntax

The ORU^R01 is constrained for transmitting the National Case Notification message from public health agencies to CDC as defined in the use case. Any other message type for Case Notification is considered NOT SUPPORTED.

There may be some Optional segments in the message syntax that are not further specified. If the segment is used, the standard segment definition from the 2.5.1 HL7 Standard applies. This specification does not further constrain those segments.

| TABLE 5.1: ORU^R01^ORU\_R01 ABSTRACT MESSAGE SYNTAX |
| --- |
| Segment | Name | Usage | Cardinality | Description |
| MSH  | Message Header  | R  | [1..1]  | The message header (MSH) segment contains information describing how to parse and process the message. This includes identification of message delimiters, sender, receiver, message type, timestamp, etc.  |
| [{SFT}]  | Software Segment  | O | [0..\*]  |  |
| {  | ***PATIENT\_RESULT Begin***  | R  | [1..1]  |  |
|  [ | ***PATIENT Begin***  | RE | [0..1]  | The PID group is not required for some case notification types. |
|  PID | Patient Identification | C(R/RE) | [1..1]  | Condition Predicate: If MSH-21 contains the profile ID “NOTF”. |
|  [PD1] | Additional Demographics | O |  |  |
|  [{NTE}]  | Notes and Comments for PID  | X |  |  |
|  [{NK1}] | Next of Kin/Associated Parties  | RE  | [0..\*]  | Optional segment that allows for passing demographics information for associated parties. |
|  [ | ***VISIT Begin*** | O |  |  |
|  PV1 | Patient Visit | R | [1..1] | *HL7 requires that the patient visit (PV1) segment be present if the VISIT group is present.* |
|  [PV2] | Patient Visit – Additional Information | O |  |  |
|  ] | ***VISIT End*** |  |  |  |
|  ] | ***PATIENT End*** |  |  |  |
|  { | ***ORDER\_OBSERVATION Begin***  | R | [1..\*] | The ORDER\_OBSERVATION group is required and can repeat. |
|  [ORC] | Order Common | O |  |  |
|  OBR | Observation Request  | R | [1..1] | The OBR is used as the “section header” to convey categories of data.  |
|  [{NTE}] | Notes and Comments for OBR | X |  |  |
|  [{ | ***TIMING\_QTY Begin***  | O |  |  |
|  TQ1 | Timing/Quantity | O |  |  |
|  [{TQ2}] | Timing/Quantity Order Sequence  | O |  |  |
|  }] | ***TIMING\_QTY End***  |  |  |  |
|  [CTD] | ***Contact Data*** | O |  |  |
|  [{ | ***OBSERVATION Begin***  | R | [1..\*] |  |
|  OBX | Observation related to OBR  | R | [1..1] |  |
|  [{NTE}] | Notes and Comments | RE | [0..\*] |  |
|  }] | ***OBSERVATION End*** |  |  |  |
|  [{FT1}] | Financial Transaction  | O |  |  |
|  [{CT1}] | Clinical Trial Identification  | O |  |  |
|  [{ | ***SPECIMEN Begin***  | RE | [0..\*] |  |
|  SPM | Specimen Information related to OBR  | R | [1..1] |  |
|  [{OBX}] | Observation related to Specimen  | O | [0..\*] |  |
|  }] | ***SPECIMEN End***  |  |  |  |
|  }  | ***ORDER\_OBSERVATION End***  |  |  |  |
| }  | ***PATIENT\_RESULT End*** |  |  |  |
| [DSC] | ***Continuation Pointer*** | X |  |  |

## Segment and Field Descriptions

This messaging specification provides notes for required (non-optional) fields for each of the non-optional segments. For each segment the segment table defines the applicable constraints on usage for its fields for this specification (see Section 3.2 Message Element Attributes for a description of the columns in the Segment Attribute Tables.) All the relevant conformance statements and general usage notes are located at the end of each table.

### MSH - Message Header Segment

The MSH Segment is used to define the intent, source, destination, and some specifics of the syntax of the message. This segment includes identification of message delimiters, sender, receiver, message type, timestamp, etc.

| **Table 5.2.1: Message Header Segment (MSH)** |
| --- |
| **Field Name** | **Seq** | **DT** | **Len** | **Usage** | **Cardinality** | **Value Set** | **Description/Comments** |
| Field Separator  | 1 | ST | 1 | R | [1..1] |  | **Conformance Statement: CN-004**: MSH.1 (Field Separator) **SHALL** contain the constant value '|'. |
| Encoding Characters  | 2 | ST | 4 | R | [1..1] |  | **Conformance Statement: CN-005:** MSH.2 (Encoding Characters) **SHALL** contain the constant value '^~\&'. |
| Sending Application  | 3 | HD | 227 | R | [1..1] | HL70361 | This field uniquely identifies the sending application among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise.A public health agency (PHA) with the authority to send HL7 case notifications to CDC should use a unique Object Identifier (OID) in this field to indicate the specific PHA system from which the case notification data is being sent. Each PHA sending system should have its own unique OID.  |
| Sending Facility  | 4 | HD | 227 | R | [1..1] | HL70362 | This field further describes the sending application, MSH-3-sending application. This field uniquely identifies the facility associated with the application that sends the message. A public health agency with the authority to send HL7 case notifications to CDC should use a consistent Object Identifier (OID) in this field to identify the PHA. |
| Receiving Application  | 5 | HD | 227 | R | [1..1] | HL70361 | This field uniquely identifies the receiving application among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise. |
| Receiving Facility  | 6 | HD | 227 | R | [1..1] | HL70362 | This field identifies the receiving application among multiple identical instances of the application running on behalf of different organizations. |
| Date/Time Of Message  | 7 | TS | 26 | R | [1..1] |  | This field contains the date/time that the sending system created the message. The time zone (+/-ZZZZ) is represented as +/-HHMM offset from Coordinated Universal Time (UTC) (formerly Greenwich Mean Time [GMT]), where +0000 or -0000 both represent UTC (without offset). If the time zone is not included, the time zone is understood to be the local time zone of the sender; minimum precision to second.**CONFORMANCE STATEMENT** **CN-006**: MSH-7 (Date/Time of Message) **SHALL** follow the format: YYYYMMDDHHMMSS[.S[S[S[S]]]][+/-ZZZZ] |
| Security  | 8 | ST | 40 | O | [0..1] |  |   |
| Message Type  | 9 | MSG | 15 | R | [1..1] |  | This field contains the message type, trigger event, and the message structure ID for the message.**CONFORMANCE STATEMENT** **CN-007:** MSH-9 (Message Type) **SHALL** be the literal value: ‘ORU^R01^ORU\_R01’. |
| Message Control ID  | 10 | ST | 199 | R | [1..1] |  | This field contains a string that uniquely identifies the message instance from the sending application.The unique record identifier for the notification as created by the sending surveillance system is a good candidate for this string. If the local record identifier is not unique (if the record is updated), a timestamp may be appended to ensure a unique identifier. |
| Processing ID  | 11 | PT | 3 | R | [1..1] |  | This field is used to decide whether to process the message as defined in HL7 Application (level 7) Processing rules.  |
| Version ID  | 12 | VID | 1689 | R | [1..1] |  | HL7 version number used to interpret format and content of the message. This field is matched by the receiving system to its own version to be sure the message will be interpreted correctly.**CONFORMANCE STATEMENT** **CN-008:** MSH-12 (Version ID) **SHALL** have the literal value ‘2.5.1’. |
| Sequence Number  | 13 | NM | 15 | O | [0..1] |  |  |
| Continuation Pointer  | 14 | ST | 180 | O | [0..1] |  |  |
| Accept Acknowledgement Type  | 15 | ID | 2 | O | [0..1] | HL70155 (constrained)  | Fixed to ‘AL’ if used |
| Application Acknowledgement Type  | 16 | ID | 2 | O | [0..1] | HL70155 (constrained)  | Fixed to ‘NE’ if used |
| Country Code  | 17 | ID | 3 | O | [0..1] |  |  |
| Character Set  | 18 | ID | 16 | O | [0..1] |  |  |
| Principal Language Of Message  | 19 | CE | 841 | O | [0..1] |  |  |
| Alternate Character Set Handling Scheme  | 20 | ID | 20 | O | [0..1] |  |  |
| Message Profile Identifier  | 21 | EI | 427 | R | [2..3] | PHVS\_CaseNotificationSpecificationVersion\_NNDandPHVS\_CaseNotificationMMGVersion\_NND | The sender asserts that the message conforms to a given profile and/or valid combination of components using value sets that provide literals to use for valid combinations of components. A valid combination for this use case refers to a Message Profile Identifier from the Profile Namespace value set, and at least one Message Mapping Guide (MMG) from the Case Map Namespace value set.Refer to the specific MMG for additional NOT115/MSH-21 conformance statements.**CONFORMANCE STATEMENT** **CN-009:** One instance of the Message Profile Identifier **SHALL** contain either the literal value: ‘NOTF\_ORU\_v3.0^PHINProfileID^2.16.840.1.114222.4.10.3^ISO’ or ‘SUMM\_ORU\_v3.0^PHINProfileID^2.16.840.1.114222.4.10.3^ISO’or ENVNTF\_ORU\_v3.0^PHINProfileID^2.16.840.1.114222.4.10.3^ISO’Specific to the Individual Case Notification.**CONFORMANCE STATEMENT** **CN-010:** If the NOTF PHIN Profile ID is used, there **SHALL** be a reference to the Generic Message Mapping Guide as there may also be a third reference for a condition-specific Message Mapping Guide, both defined in the Case Map Namespace.  |

### PID - Patient Identification Segment

The PID Segment is used as the primary means of communicating patient identification information. This segment contains pertinent patient identifying and demographic information.

| **Table 5.2.2: Patient Identification Segment (PID)** |
| --- |
| **Field Name** | **Seq** | **DT** | **Len** | **Usage** | **Cardinality** | **Value Set** | **Description/Comments** |
| Set ID - PID  | 1 | SI | 4 | R | [1..1] |  | This field contains the number that identifies this transaction. The sequence number shall be one.**CONFORMANCE STATEMENT** **CN-011:** PID-1 (Set ID) **SHALL** have the Literal Value of ‘1’. |
| Patient ID  | 2 |  |  | X |  |  |  |
| Patient Identifier List  | 3 | CX | 2821 | R | [1..1] |  | PID.3 is a required field that can accommodate multiple patient identifiers. For the case notification, only an internal person identifier known by the sending application should be sent here. In this way, patients who might have more than one condition notification across time from the same sender could conceivably be grouped together for analysis. |
| Alternate Patient ID - PID  | 4 |  |  | X |  |  |  |
| Patient Name  | 5 | XPN | 1108 | R | [1..2] |  | Case Notification does not include the patient name. However, HL7 requires the patient name field to be populated, even when data patient name shall not be sent. In such an instance, patient name shall be presented in a pseudonymized manner.**CONFORMANCE STATEMENT** **CN-012:** The first occurrence of the name field in PID-5 shall be blank and the second occurrence of PID-5 **SHALL** be valued only in PID-5.7 (Name Type Code) with the constant value ’S’. (i.e., PID-5 shall be valued as |~^^^^^^S|). |
| Mother’s Maiden Name  | 6 |  |  | X |  |  |  |
| Date/Time of Birth  | 7 | TS | 26 | RE | [0..1] |  | The patient’s date and time of birth. |
| Administrative Sex  | 8 | IS | 1 | RE | [0..1] | HL70001 | The patient’s sex. |
| Patient Alias  | 9 |  |  | X |  |  |  |
| Race  | 10 | CE | 841 | RE | [0..\*] | HL70005 | General race category reported by the patient; subject may have more than one race category. |
| Patient Address  | 11 | XAD | 274 | RE | [0..\*] |  | This field contains the mailing address of the patient. Street Address and Other Designation are not included due to privacy concerns.  |
| County Code  | 12 |  |  | X |  |  |  |
| Phone Number - Home  | 13 |  |  | X |  |  |   |
| Phone Number - Business  | 14 |  |  | X |  |  |   |
| Primary Language  | 15 | CE | 841 | O |  |  |  |
| Marital Status  | 16 | CE | 841 | RE |  | HL70002 |  |
| Religion  | 17 | CE | 841 | O |  |  |  |
| Patient Account Number | 18 |  |  | X |  |  |  |
| SSN Number - Patient  | 19 |  |  | X |  |  |   |
| Driver's License Number - Patient  | 20 |  |  | X |  |  |   |
| Mother's Identifier  | 21 |  |  | X |  |  |   |
| Ethnic Group  | 22 | CE | 841 | RE | [0..\*] | HL70189 | This field further defines the patient’s ancestry. HL7 allows this field to repeat. While the current value sets contain mutually exclusive values, the field is not being constrained to allow only one instance. |
| Birth Place  | 23 | ST | 199 | RE | [0..1] |  |   |
| Multiple Birth Indicator  | 24 | ID | 1 | O | [0..1] |  |  |
| Birth Order  | 25 | NM | 2 | O | [0..1] |  |  |
| Citizenship  | 26 | CE | 841 | O | [0..\*] |  |  |
| Veterans Military Status  | 27 | CE | 841 | O | [0..1] |  |  |
| Nationality  | 28 |  |  | X |  |  |  |
| Patient Death Date and Time  | 29 | TS | 26 | RE | [0..1] |  |  |
| Patient Death Indicator  | 30 | ID | 1 | O | [0..1] | HL70136 |  |
| Identity Unknown Indicator  | 31 | ID | 1 | O | [0..1] | HL70136 |  |
| Identity Reliability Code  | 32 | IS | 20 | O | [0..\*] | HL70445 |  |
| Last Update Date/Time  | 33 | TS | 26 | O | [0..1] |  |  |
| Last Update Facility  | 34 | HD | 241 | O | [0..1] |  |  |
| Species Code  | 35 | CE | 841 | RE | [0..1] | HL70446 | Population of this field supports animal rabies testing by public health laboratories.  |
| Breed Code  | 36 | CE | 841 | O | [0..1] | HL70447 |  |
| Strain  | 37 | ST | 80 | O | [0..1] |  |  |
| Production Class Code  | 38 | CE | 841 | O | [0..2] | HL70429 |  |
| Tribal Citizenship  | 39 | CWE | 1063 | O | [0..1] | HL70171 |  |

### NK1 - Next of Kin / Associated Parties Segment

The NK1 segment contains information about the patient’s other related parties. Any associated parties may be identified. Utilizing *NK1-1 - set ID*, multiple NK1 segments can be sent.

| **Table 5.2.3: Next of Kin / Associated Parties Segment (NK1)** |
| --- |
| **Field Name** | **Seq** | **DT** | **Len** | **Usage** | **Cardinality** | **Value Set** | **Description/Comments** |
| Set ID – NK1  | 1 | SI | 4 | R | [1..1] |  | This field contains the number that identifies this transaction. The sequence number shall start with ‘1’. |
| Name | 2 |  |  | X |  |  |  |
| Relationship | 3 | CE | 841 | RE | [0..1] | HL70063 | Description of the relationship between the next of kin/related party and the patient. It is of particular importance when documenting the parent or guardian of a child patient or the owner of an animal patient.  |
| Address | 4 | XAD | 274 | RE | [0..1] |  |  |
| Phone Number | 5 |  |  | X |  |  |  |
| Business Phone Number | 6 |  |  | X |  |  |  |
| Contact Role | 7 | CE | 841 | O | [0..1] |  |  |
| Start Date | 8 | DT | 8 | O | [0..1] |  |  |
| End Date | 9 | DT | 8 | O | [0..1] |  |  |
| NOK/Assoc Parties Job Title | 10 | ST | 60 | O | [0..1] |  |  |
| NOK/Assoc Parties Job Code/Class | 11 | JCC | 250 | O | [0..1] | HL70327 /HL70328 |  |
| NOK/Assoc Parties Employee Number | 12 | CX | 2821 | O | [0..1] |  |  |
| Organization Name - NK1 | 13 | XON | 563 | O | [0..1] |  |  |
| Marital Status  | 14 | CE | 841 | RE | [0..1] | HL70002 |  |
| Administrative Sex | 15 | IS | 1 | RE | [0..1] | HL70001 |  |
| Date/Time of Birth | 16 | TS | 26 | RE | [0..1] |  |  |
| Living Dependency | 17 | IS | 2 | O | [0..1] | HL70223 |  |
| Ambulatory Status | 18 | IS | 2 | O | [0..1] | HL70009 |  |
| Citizenship | 19 | CE | 841 |  | [0..1] | HL70171 |  |
| Primary Language  | 20 | CE | 841 | O | [0..1] | HL70296 |  |
| Living Arrangement  | 21 | IS | 2 | O | [0..1] | HL70220 |  |
| Publicity Code | 22 | CE | 841 | O | [0..1] | HL70215 |  |
| Protection Indicator | 23 | ID | 1 | O | [0..1] | HL70136 |  |
| Student Indicator | 24 | IS | 2 | O | [0..1] | HL70231 |  |
| Religion  | 25 | CE | 841 | O | [0..1] | HL70006 |  |
| Mother’s Maiden Name | 26 |  |  | X |  |  |  |
| Nationality | 27 | CE | 841 | O | [0..1] | HL70212 |  |
| Ethnic Group  | 28 | CE | 841 | O | [0..1] | HL70189 |  |
| Contact Reason | 29 | CE | 841 | O | [0..1] | HL70222 |  |
| Contact Person’s Name | 30 |  |  | X |  |  |  |
| Contact Person’s Telephone Number | 31 |  |  | X |  |  |  |
| Contact Person’s Address | 32 | XAD | 274 | O | [0..1] |  |  |
| Next of Kin/Associated Party’s Identifiers | 33 |  |  | X |  |  |  |
| Job Status | 34 | IS | 2 | O | [0..1] | HL70311 |  |
| Race | 35 | CE | 841 | RE | [0..\*] | HL70005 |  |
| Handicap | 36 | IS | 2 | O | [0..1] | HL70295 |  |
| Contact Person SSN | 37 |  |  | X |  |  |  |
| Next of Kin Birth Place | 38 | ST | 199 | O | [0..1] |  |  |
| VIP Indicator | 39 |  |  | X |  |  |  |

### OBR - Observation Request Segment

The OBR segment is used to carry information relative to various types of procedures performed.

| **Table 5.2.4: Observation Request Segment (OBR)** |
| --- |
| **Field Name** | **Seq** | **DT** | **Len** | **Usage** | **Cardinality** | **Value Set** | **Description/Comments** |
| Set ID – OBR | 1 | SI | 4 | R | [1..1] |  | This field contains the number that identifies this repeat of the ORDER\_OBSERVATION group... **CONFORMANCE STATEMENT** **CN-013:** OBR-1 (Set ID - OBR) **SHALL** be valued sequentially starting with the value '1'. |
| Placer Order Number | 2 | EI | 427 | RE | [0..1] |  | This field identifies an order uniquely among all orders from a particular ordering application. When results are transmitted in an ORU message, an ORC is not required, and the identifying placer order number must be present in the OBR segments. **Note: The Case Notification does not have a placer order number to populate this field, so the Usage is set to RE.** |
| Filler Order Number | 3 | EI | 427 | R | [1..1] |  | **Definition**: This field is the unique identifier associated with the filling application. This is a permanent identifier for an order and its associated observations. **Note:** The Case Notification uses the Filler Order Number field to communicate the Local Record ID as known by the sending system. Local Record ID is made unique by including the Sending Application identifier information as the assigning authority.Example: |CAS10000909091NE01^NE01^2.16.840.1.114222.nnnn^ISO||INV10502^TXNBS01^2.16.840.1.114222.nnnn^ISO| |
| Universal Service Identifier | 4 | CE | 841 | R | [1..1] |  | Code that indicates the type of data carried in this Notification segment. The OBR is used as the “section header” to convey categories of data. The “Epidemiologic Information” section is the only OBR required for the case notification, and is the source of truth for variables that are tied to the notification as a report. **CONFORMANCE STATEMENT** **CN-014:** There **SHALL** be one and only one occurrence of OBR-4 (Universal Identifier) valued ‘68991-9^Epidemiologic Information^LN‘ in all types of Case Notification Messages.**CONFORMANCE STATEMENT** **CN-015:** There **MAY** be zero to manyadditional and optional instances of Notification Sections from the PHVS\_NotificationSectionHeader\_CDC value set (<https://phinvads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.1107>) as indicated by an MMG where the OBR-4 Universal Service ID **SHOULD** contain the literal value as specified in the MMG. **CONFORMANCE STATEMENT** **CN-016:** There **SHALL** be zero to manyoptional instances of associated laboratory report data sources that may be useful for CDC programs, the OBR-4 Universal Service ID **SHOULD** contain an value from the source laboratory report whose OBR-4 value is ’30954-2^Laboratory Information^LN’ or another value not in the PHVS\_NotificationSectionHeader\_CDC value set (<https://phinvads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.1107>) to identify the laboratory information. For any other value used in OBR-4 refer to the condition specific MMG. |
| Priority - OBR | 5 |  |  | X |  |  |  |
| Requested Date/Time | 6 |  |  | X |  |  |  |
| Observation Date/Time | 7 | TS | 26 | R | [1..1] |  | For the Epidemiology segment, this field is used to convey the original send date and time of the notification. The remaining segments must have a timestamp in this required field but will not be used as the “source of truth” for the original send date/time of the notification. The minimum precision is to second.**CONFORMANCE STATEMENT** **CN-017:** OBR-7 Observation Date/Time **SHALL** follow the format YYYYMMDDHHMMSS[.S[S[S[S]]]] [+/-ZZZZ] when OBR-4 is valued ‘68991-9^Epidemiologic Information^LN’. |
| Observation End Date/Time | 8 |  |  | X |  |  |  |
| Collection Volume | 9 |  |  | X |  |  |  |
| Collector Identifier | 10 |  |  | X |  |  |  |
| Specimen Action Code | 11 | ID | 1 | O | [0..1] | HL70065 | If OBR-11 Specimen Action Code is valued ‘G’ then OBR-26 (Parent Result) and OBR-29 (Parent) **SHOULD** be populated. The value of ‘G’ indicates “Generated order, reflex order”.Supported to allow for the sending of optional laboratory data elements of interest under the Laboratory Information Header. Optionally supported to allow mapping similar to ELR. |
| Danger Code | 12 |  |  | X |  |  |  |
| Relevant Clinical Information | 13 | ST | 199 | O | [0..1] |  |  |
| Specimen Received Date/Time | 14 |  |  | X |  |  |  |
| Specimen Source | 15 |  |  | X |  |  |  |
| Ordering Provider | 16 | XCN | 3725 | RE | [0..1] |  | Supported to allow for the sending of optional laboratory data elements of interest under the Laboratory Information Header. Optionally supported to allow mapping similar to ELR. |
| Order Callback Phone Number | 17 |  |  | X |  |  |  |
| Placer Field 1 | 18 |  |  | X |  |  |  |
| Placer Field 2 | 19 |  |  | X |  |  |  |
| Filler Field 1 | 20 |  |  | X |  |  |  |
| Filler Field 2 | 21 |  |  | X |  |  |  |
| Results Report/Status Change Date/Time | 22 | TS | 26 | C(R/RE) | [0..1] |  | This field is used to convey the date and time this instance of the notification is sent. The first time the notification is sent, this field will equal the value in OBR-7 Observation Date/time. The minimum precision is to second. **CONFORMANCE STATEMENT** **CN-018:** OBR-22 Results Report/Status Change Date/Time **SHALL** follow the format YYYYMMDDHHMMSS[.S[S[S[S]]]] [+/-ZZZZ] when OBR-4 is valued ‘68991-9^Epidemiologic Information^LN’. |
| Charge to Practice  | 23 |  |  | X |  |  |  |
| Diagnostic Serv Sect ID | 24 | ID | 10 | O | [0..1] | HL70074 |  |
| Result Status | 25 | ID | 1 | R | [1..1] | Result Status (HL7)HL70123 | Required field in this segment. The remaining segments must be populated with a value from the value set, but the values are constrained in the Epidemiology segment to act as the “source of truth” for the status of the notification**CONFORMANCE STATEMENT** **CN-019:** OBR-25 Result Status **SHALL** be limited to the following values when OBR-4 is valued ‘68991-9^Epidemiologic Information^LN’: ‘F’ for *Final*, when the notification is first sent.‘C’ for *Correction*, when an update/revision is sent.‘X’ to indicate that the previously received notification has been deleted or rescinded.To update information on a previously submitted case, update the information in your surveillance system and re-send the case.  Set the Notification Result Status (in OBR-25) to “C” to indicate a correction and, if needed, update the case classification status (e.g., confirmed, probable, suspected, not a case.) The updated record will supersede the previous notification.  Be careful not to change data elements used to define a unique case (see Generic Data Elements that Define a Unique Case on the Supporting Documents for Implementation section of the NNDSS website <https://ndc.services.cdc.gov/supporting-documents-for-implementation/>) or you will cause a new case to be added to the CDC data base instead of updating a previously reported case.  If you determine that a previously sent case should not be counted as a case, send an updated case notification using one of the following methods:* Preferred Method: Re-send the case with case classification status data element ‘77990-0’ =“Not a Case” and Notification Result Status (OBR-25) = “C” to indicate this is a correction.
* Alternate Method:  Re-send the case with case classification status data element ‘77990-0’ = “Not a Case” and Notification Result Status (OBR-25) = “X” to indicate this case is “rescinded”.
* Alternate Method for jurisdictions unable to send case classification status of “Not a Case”:  Regardless of the value transmitted in the case classification status, re-send the case with Notification Result Status (in OBR-25) = “X” to indicate this case is rescinded.
 |
| Parent Result | 26 | PRL | 1113 | RE | [0..1] |  | Field that, together with OBR-29 Parent, allows this result to be linked to a specific OBX segment associated with another OBR segment. OBR-26 **SHOULD** be populated when linking child sensitivities or susceptibilities to the parent test.  |
| Quantity/Timing | 27 |  |  | X |  |  |  |
| Result Copies To | 28 |  |  | X |  |  |  |
| Parent | 29 | EIP | 855 | RE | [0..1] |  | Used to link this OBR with a parent OBR. Commonly used with microbiology messages to link a susceptibility result with the parent culture that identified the organism. For this linkage to work properly, the Placer Order Number and the Filler Order Number must uniquely identify the specific parent OBR.This means that the same Filler Number cannot be used to identify multiple OBRs. OBR-29 **SHOULD** be populated when linking child sensitivities or susceptibilities to the parent test.  |
| Transportation Mode | 30 | ID | 20 | O | [0..1] | HL70124 |  |
| Reason for Study | 31 | CE | 841 | C(R/RE) | [0..\*] |  | **The event/condition code is passed in this field.****Condition Predicate:** If OBR-4 is valued ‘68991-9^EpidemiologicInformation^LN’. |
| Principal Result Interpreter | 32 |  |  | X |  |  |  |
| Assistant Result Interpreter | 33 |  |  | X |  |  |  |
| Technician | 34 |  |  | X |  |  |  |
| Transcriptionist | 35 |  |  | X |  |  |  |
| Scheduled Date/Time | 36 | TS | 26 | O | [0..1] |  |  |
| Number of Sample Containers  | 37 | NM | 4 | O | [0..1] |  |  |
| Transport Logistics of Collected Sample | 38 | CE | 841 | O | [0..\*] |  |  |
| Collector's Comment  | 39 | CE | 841 | O | [0..\*] |  |  |
| Transport Arrangement Responsibility | 40 | CE | 841 | O | [0..1] |  |  |
| Transport Arranged | 41 | ID | 30 | O | [0..1] | HL70224 |  |
| Escort Required | 42 | ID | 1 | O | [0..1] | HL70225 |  |
| Planned Patient Transport Comment | 43 | CE | 841 | O | [0..\*] |  |  |
| Procedure Code | 44 | CE | 841 | O | [0..1] | HL70088 |  |
| Procedure Code Modifier | 45 | CE | 841 | O | [0..1] | HL70340 |  |
| Placer Supplemental Service Information | 46 | CE | 841 | O | [0..1] | HL70088 |  |
| Filler Supplemental Service Information | 47 | CE | 841 | O | [0..1] | HL70411 |  |
| Medically Necessary Duplicate Procedure Reason | 48 | CE | 841 | O | [0..1] | HL70411 |  |
| Result Handling | 49 | IS | 2 | O | [0..1] | HL70507 |  |
| Parent Universal Service Identifier | 50 | CWE | 1063 | O | [0..1] |  | This field has been retained as optional for situations where a unique placer or filler order number is not available. It will allow use of the requisition number in conjunction with the Universal Service ID as a unique identifier for the order. For parent/child result linking to work in these situations, the sending application will need to populate not only OBR-29, but this field also. The receiving application will need to use both OBR-29 and this field to properly link these results. Note that such implementations will not be conformant with this specification, but optional support for this field has been retained to allow for this use.OBR-50 **SHOULD** be populated along with OBR-29 when unique placer or filler order numbers are not provided, when linking child sensitivities or susceptibilities to the parent test. |

### OBX - Observation/Result Segment

The OBX Segment in the message is used to transmit observations related to the category identified in the preceding OBR segment.

The OBX segment has been relaxed from the previously constrained version to allow for the sending of optional laboratory data elements of interest under a Laboratory information header (OBR segment). Please refer to the ELR specification for more details.

| **Table 5.2.5: ObseRvation / Result Segment (OBX)** |
| --- |
|  |
| **Field Name** | **Seq** | **Data type** | **Len** | **Usage** | **Cardinality** | **Value Set** | **Description/Comments** |
| Set ID - OBX  | 1 | SI | 4 | R | [1..1] |  | For the first repeat of the OBX segment, the sequence number shall be one (1), for the second repeat, the sequence number shall be two (2), etc. **CONFORMANCE STATEMENT** **CN-020:** OBX-1 (Set ID - OBX) **SHALL** be valued sequentially under each OBR, starting with the value '1'. |
| Value Type  | 2 | ID | 3 | C(R/X) | [0..1] | HL70125 | This field identifies the format of the observation value (OBX.5).**Condition Predicate:** If OBX-11 is not valued ‘X’. |
| Observation Identifier  | 3 | CE | 841 | R | [1..1] |  | This field contains a unique identifier for the observation. These are observation identifiers associated with case notification and described in the Message Mapping Guide for the condition being messaged. |
| Observation Sub-ID  | 4 | ST | 20 | C(R/RE) | [0..1] |  | Field that must contain a sequence number when used to group observations that repeat as a block. The use of a repeating group for certain observations is described in the specific Message Mapping Guide. Repeating groups are based on the notion of a “primary observation” that gives context to the remainder of the observations with the same observation sub-id.**Condition Predicate:** If the OBX segment is allowed to repeat more than once within the same OBR segment and contains the same OBX-3 values. **CONFORMANCE STATEMENT CN-021:** Each OBX within a repeating group **SHALL** have the same numeric value in OBX-4 AND the combination of OBX-3 and OBX-4 **SHALL** be unique among different repeating groups in the same Order\_Observation group. |
| Observation Value  | 5 | varies | 99999 | RE | [0..\*] |  | This field contains the value observed by the observation producer. OBX-2-value type contains the data type for this field according to which observation value is formatted.**Note**: Values received in observation value are defined by the value type (OBX.2) and observation identifier (OBX.3). The length of the observation field is variable, depending upon the value type. See OBX-2 value type.Observations that are expected to repeat are described in the Message Mapping Guide for the condition being messaged. The message will not fail if unexpected repeats are received (that is, a tilde (~) between the repeating values), but the repeat will not be processed if the “May Repeat” field is not marked “y.” |
| Units  | 6 | CE | 841 | RE | [0..1] |  | **Definition**: Units of measure that put the numeric observation value expressed in OBX-5 into context. Included are weight, height, age, and temperature units. |
| References Range  | 7 | ST | 60 | RE | [0..1] |  | Supported to allow for the sending of optional laboratory data elements of interest under the Laboratory Information Header. Optionally supported to allow mapping similar to ELR. |
| Abnormal Flags  | 8 | IS | 5 | RE | [0..\*] | HL70078 | HL7 table 0078: User defined: Abnormal Flags.Supported to allow for the sending of optional laboratory data elements of interest under the Laboratory Information Header. Optionally supported to allow mapping similar to ELR. |
| Probability  | 9 | NM | 5 | O | [0..1] |  |   |
| Nature of Abnormal Test  | 10 | ID | 2 | O | [0..\*] |  |  |
| Observation Result Status  | 11 | ID | 1 | R | [1..1] | (HL70085) | This is a required field that is not used for processing the Case Notification. It is conformant with any value from the value set. |
| Effective Date of Reference Range  | 12 | TS | 26 | O | [0..1] |  |   |
| User Defined Access Checks  | 13 | ST | 20 | O | [0..1] |  |   |
| Date/Time of the Observation  | 14 | TS | 26 | RE | [0..1] |  | This field is the physiologically relevant date-time or the closest approximation to that date-time. |
| Producer's Reference  | 15 | CE | 841 | O | [0..1] |  |   |
| Responsible Observer  | 16 | XCN | 3725 | O | [0..1] |  | Supported to allow for the sending of optional laboratory data elements of interest under the Laboratory Information Header. Optionally supported to allow mapping similar to ELR. |
| Observation Method  | 17 | CE | 841 | O | [0..\*] |  | Supported to allow for the sending of optional laboratory data elements of interest under the Laboratory Information Header. Optionally supported to allow mapping similar to ELR. |
| Equipment Instance Identifier  | 18 | EI | 427 | O | [0..\*] |  |   |
| Date/Time of the Analysis  | 19 | TS | 26 | O | [0..1] |  | Supported to allow for the sending of optional laboratory data elements of interest under the Laboratory Information Header. Optionally supported to allow mapping similar to ELR. |
| Reserved for harmonization with V2.6 | 20 |  |  |  |  |  |  |
| Reserved for harmonization with V2.6  | 21 |  |  |  |  |  |  |
| Reserved for harmonization with V2.6 | 22 |  |  |  |  |  |  |
| Performing Organization Name | 23 | XON | 563 | RE | [0..1] |  |  |
| Performing Organization Address | 24 | XAD | 631 | O | [0..1] |  |  |
| Performing Organization Medical Director | 25 | XCN | 3725 | O | [0..1] |  |  |

### SPM - Specimen Segment

The intent of this segment is to describe the characteristics of a specimen. It differs from the intent of the OBR, in that the OBR addresses order-specific information. Supported to allow for the sending of laboratory data elements of interest under the Laboratory Information Section Header (Lab OBR), optionally supported to allow mapping similar to ELR.

| **Table 5.2.6: SPECIMEN Segment (SPM)** |
| --- |
| **Field Name** | **Seq** | **Data type** | **Len** | **Usage** | **Cardinality** | **Value Set** | **Description/Comments** |
| Set ID - SPM  | 1 | SI | 4 | R | [1..1] |  |  |
| Specimen ID  | 2 | EIP | 855 | O | [0..1] |  |  |
| Specimen Parent IDs  | 3 | EIP | 855 | RE | [0..\*] |  |  |
| Specimen Type | 4 | CWE | 1063 | R | [1..1] |  |  |
| Specimen Type Modifier | 5 | CWE | 1063 | O | [0..\*] |  |  |
| Specimen Additives | 6 | CWE | 1063 | O | [0..\*] |  |  |
| Specimen Collection Method  | 7 | CWE | 1063 | O | [0..1] |  |  |
| Specimen Source Site | 8 | CWE | 1063 | O | [0..1] |  | Source from which the specimen was obtained. For biological samples, it represents the anatomical site from which the specimen was collected.  |
| Specimen Source Site Modifier | 9 | CWE | 1063 | O | [0..1] |  |   |
| Specimen Collection Site | 10 | CWE | 1063 | O | [0..1] | 3 |  |
| Specimen Role | 11 | CWE | 1063 | O | [0..1] | HL70369 |  |
| Specimen Collection Amount | 12 | CQ | 858 | O | [0..1] |  |  |
| Grouped Specimen Count | 13 | NM | 16 | C (R/X) | [0..1] |  | **Condition Predicate:** If SPM-11 Specimen Role is ‘G’. |
| Specimen Description | 14 | ST | 250 | O | [0..1] |  |  |
| Specimen Handling Code | 15 | CWE | 1063 | O | [0..1] | HL70376 |  |
| Specimen Risk Code | 16 | CWE | 1063 | O | [0..1] | HL70489 |  |
| Specimen Collection Date/Time | 17 | DR | 53 | RE | [0..1] |  | For OBXs reporting observations based on this specimen, OBX-14 should contain the same value as component 1 of one of the SPM-17 values under the OBR.  |
| Specimen Received Date/time | 18 | TS | 26 | O | [0..1] |  |  |
| Specimen Expiration Date/time | 19 | TS | 26 | O | [0..1] |  |  |
| Specimen Availability | 20 | ID | 1 | O | [0..1] | HL70136 |  |
| Specimen Reject Reason | 21 | CWE | 1063 | O | [0..\*] | HL70490 |  |
| Specimen Quality | 22 | CWE | 1063 | O | [0..1] | HL70491 |  |
| Specimen Appropriateness | 23 | CWE | 1063 | O | [0..1] | HL70492 |  |
| Specimen Condition | 24 | CWE | 1063 | O | [0..\*] | HL70493 |  |
| Specimen Current Quantity | 25 | CQ | 858 | O | [0..1] |  |  |
| Number of Specimen Containers | 26 | NM | 4 | O | [0..1] |  |  |
| Container Type | 27 | CWE | 1063 | O | [0..1] |  |  |
| Container Condition | 28 | CWE | 1063 | O | [0..1] |  |  |
| Specimen Child Role | 29 | CWE | 1063 | O | [0..1] | HL70494 |  |

### NTE - Notes and Comments Segment

The NTE segment is defined here to allow for inclusion in the Case Notification message, for Notes and Comments following an OBX Observation segment. NTE is supported to allow for the sending of optional laboratory data elements of interest under the Laboratory Information Section Header (Lab OBR.) Optionally supported to allow mapping similar to ELR.

| **Table 5.2.7: NOTES AND COMMENTS (NTE)** |
| --- |
| **Field Name** | **Seq** | **Data type** | **Length** | **Usage** | **Cardinality** | **Value Set** | **Description/Comments** |
| Set ID - NTE | 1 | SI | 4 | R | [1..1] |  | Multiple NTE segments following the OBX may be used to convey result notes. NTE-1 Set ID is used to keep them in order.  |
| Source of Comment | 2 | ID | 8 | O | [0..1] | HL70105 |  |
| Comment  | 3 | FT | 65536 | R | [1..\*] |  | **Formatting Considerations** With the FT datatype, formatting may be included based on a monospaced font. The sender may not assume that such formatting is preserved without specific agreement with the receiver. The receiver is not obligated to preserve that type of formatting. |
| Comment Type | 4 | CE | 841 | O | [0..1] | HL70364 |  |

# APPENDIX A - TECHNICAL CONSIDERATIONS

## Repeating Variables

Some variables are listed as Yes for “May Repeat” in the Message Mapping Guide. Repeating variables are in the same field with the tilde (~) between instances. The Standard allows some HL7 structural variables to repeat, such as MSH-21 Message Profile ID and PID-10 Race. The remainder of the “repeating” variables are used in OBX segments when the name/value pair allows value repeats, as in a multi-select or “select all that apply.” These multiple answer results appear in OBX-5, also with the tilde between the values.

OBR|1|""|CAS1001001^SendAppName^2.16.840.1.114222.nnnn^ISO|68991-9^Epidemiologic Information^LN|||20140520170100|||||||||||||||20140520170100|||F||||||10100^Hepatitis B, acute^NND

….

OBX|12|CWE|67098-4^Reason for Testing^LN||**PHC307^Symptoms of Acute Hepatitis^CDCPHINVS~PHC309^Evaluation of elevated liver enzymes^CDCPHINVS**||||||F

…

## Repeating Group Processing

Certain variables may be listed as being part of a repeating group of observations in the Message Mapping Guide. The primary observation for each repeating group serves as the anchor for processing rules around these repeating groups. Repeating groups are notated in the message using the same numeric value in *OBX-4 Observation Sub-ID* for each variable in the group. For instance, Vaccine Information is passed using a set of variables that repeats for each vaccine instance, using the vaccine type as the primary or parent observation, as in the three repeating groups below:

OBR|1|""|CAS1001001^SendAppName^2.16.840.1.114222.nnnn^ISO|68991-9^Epidemiologic Information^LN|||20140520170100|||||||||||||||20140520170100|||F||||||10190^Pertussis^NND

OBX|1|CWE|VAC101^Vaccine Name^PHINQUESTION|1|20^DTaP^CVX||||||F

OBX|2|TS|VAC103^Vaccine Date^PHINQUESTION|1|20130112||||||F

OBX|3|CWE|VAC107^Vaccine Manufacturer^PHINQUESTION|1|AB^Abbott Laboratories^MVX||||||F

OBX|4|CWE|VAC101^Vaccine Name^PHINQUESTION|2|106^DTaP, 5 pertussis antigens^CVX||||||F

OBX|5|TS|VAC103^Vaccine Date^PHINQUESTION|2|20130616||||||F

OBX|6|CWE|VAC107^Vaccine Manufacturer^PHINQUESTION|2|BAY^Bayer Corporation^MVX||||||F

OBX|7|CWE|VAC101^Vaccine Name^PHINQUESTION|3|107^DTaP, unspecified formulation^CVX||||||F

OBX|8|TS|VAC103^Vaccine Date^PHINQUESTION|3|21040118||||||F

OBX|9|CWE|VAC107^Vaccine Manufacturer^PHINQUESTION|3|AVI^Aviron^MVX||||||F

# APPENDIX B – CASE NOTIFICATION MESSAGING EXAMPLES

**Original/First Time Send:**

The first time the notification message for this case of Plague is sent, the OBR-7 and OBR-22 dates match and OBR-25= ‘F’. The 77990-0 Case Class Status value is “Confirmed Present”. Only the observations required to accept a message have been sent.

MSH|^~\&|SendAppName^2.16.840.1.114222.TBD^ISO|Sending-Facility^2.16.840.1.114222.TBD^ISO|PHINCDS^2.16.840.1.114222.4.3.2.10^ISO|PHIN^2.16.840.1.114222^ISO|20141225120030.1234-0500||ORU^R01^ORU\_R01|TM\_CN\_TC\_GENV2\_0056|T|2.5.1|||||||||NOTF\_ORU\_v3.0^PHINProfileID^2.16.840.1.114222.4.10.3^ISO~Generic\_MMG\_V2.0^PHINMsgMapID^2.16.840.1.114222.4.10.4^ISO

PID|1||LocalPatID2DEM197^^^SendAppName&2.16.840.1.114222.GENv2&ISO||~^^^^^^S||19740215|F||2076-8^Native Hawaiian or Other Pacific Islander^CDCREC~2028-9^Asian^CDCREC|^^^06^91101^^^^06037|||||||||||2186-5^Not Hispanic or Latino^CDCREC|||||||20140501

OBR|1|""|INV168^SendAppName^2.16.840.1.114222.TBD^ISO|68991-9^Epidemiologic Information^LN|||20150513120030|||||||||||||||20150513120030|||F||||||10440^Plague^NND

OBX|1|CWE|78746-5^Country of Birth^LN||ARM^Armenia^ISO3166\_1||||||F

OBX|2|CWE|77983-5^Country of Usual Residence^LN||USA^United States^ISO3166\_1||||||F

OBX|3|TS|11368-8^Date of Illness Onset^LN||20140131||||||F

OBX|4|TS|77976-9^Illness End Date^LN||20140210||||||F

OBX|5|SN|77977-7^Illness Duration^LN||^10|d^day^UCUM|||||F

OBX|6|CWE|77996-7^Pregnancy Status^LN||UNK^Unknown^NULLFL||||||F

OBX|7|TS|77975-1^Diagnosis Date^LN||20140202||||||F

OBX|8|CWE|77974-4^Hospitalized^LN||N^No^HL70136||||||F

OBX|9|TS|8656-1^Admission Date^LN||||||||F

OBX|10|TS|8649-6^Discharge Date^LN||||||||F

OBX|11|SN|78033-8^Duration of Stay in days^LN||||||||F

OBX|12|CWE|77978-5^Subject Died^LN||Y^Yes^HL70136||||||F

OBX|13|ST|77993-4^State Case Id^LN||2014IN46000942||||||F

OBX|14|ST|77997-5^Legacy Case ID^LN||615333331002006||||||F

OBX|15|SN|77998-3^Patient Age^LN||^39|a^year^UCUM|||||F

OBX|16|CWE|77982-7^Case Disease Imported Code^LN||PHC244^Indigenous, within jurisdiction^CDCPHINVS||||||F

OBX|17|CWE|INV153^Imported Country^PHINQUESTION||||||||F

OBX|18|CWE|INV154^Imported State^PHINQUESTION||||||||F

OBX|19|CWE|INV155^Imported City^PHINQUESTION||||||||F

OBX|20|CWE|INV156^Imported County^PHINQUESTION||||||||F

OBX|21|CWE|77984-3^Country of Exposure or Country Where Disease was Acquired^LN|1|USA^United States^ISO3166\_1||||||F

OBX|22|CWE|77985-0^State or Province of Exposure^LN|1|06^California^FIPS5\_2||||||F

OBX|23|ST|77986-8^City of Exposure^LN|1|Pasadena||||||F

OBX|24|ST|77987-6^County of Exposure^LN|1|Los Angeles||||||F

OBX|25|CWE|77989-2^Transmission Mode^LN||418427004^Vector-borne transmission^SCT^^^^^^||||||F

OBX|26|CWE|77990-0^Case Class Status Code^LN||410605003^Confirmed Present^SCT^^^^^^||||||F

OBX|27|CWE|77965-2^Immediate National Notifiable Condition^LN||N^No^HL70136||||||F

OBX|28|CWE|77980-1^Case Outbreak Indicator^LN||N^NO^HL70136||||||F

OBX|29|ST|77981-9^Case Outbreak Name^LN||||||||F

OBX|30|ST|77969-4^Jurisdiction Code^LN||S01||||||F

OBX|31|CWE|48766-0^Reporting Source Type Code^LN||PHC247^Laboratory^CDCPHINVS||||||F

OBX|32|ST|52831-5^Reporting Source Zip Code^LN||91101||||||F

OBX|33|CWE|77988-4^Binational Reporting Criteria^LN||PHC1139^Has case contacts from Mexico or Canada^CDCPHINVS~PHC1140^Exposure to a suspected product from Mexico or Canada^CDCPHINVS||||||F

OBX|34|ST|74549-7^Person Reporting to CDC - Name^LN||Dunn, Tom ||||||F

OBX|35|ST|74548-9^Person Reporting to CDC - Phone Number^LN||(722)277-4477||||||F

OBX|36|ST|74547-1^Person Reporting to CDC - Email^LN||||||||F

OBX|37|DT|77979-3^Investigation Start Date^LN||20140202||||||F

OBX|38|DT|77995-9^Date Reported^LN||20140202||||||F

OBX|39|TS|77972-8^Earliest Date reported to county^LN||20140202||||||F

OBX|40|TS|77973-6^Earliest Date reported to State^LN||20140202||||||F

OBX|41|SN|77991-8^MMWR Week^LN||^6||||||F

OBX|42|DT|77992-6^MMWR Year^LN||2014||||||F

OBX|43|DT|77994-2^Date First Reported to CDC^LN||20140202||||||F

OBX|44|DT|77970-2^Date First Reported to PHD^LN||20140202||||||F

OBX|45|CWE|77966-0^Reporting State^LN||06^California^FIPS5\_2||||||F

OBX|46|CWE|77967-8^Reporting County^LN||06037^Los Angeles^FIPS6\_4||||||F

OBX|47|CWE|77968-6^National Reporting Jurisdiction^LN||06^California^FIPS5\_2||||||F

OBX|48|TX|77999-1^Comment Field^LN||||||||F

## SCENARIO 1 – Generic Case NOTIFICATION that is updated

**Updated Message:**

The notification information is updated with this message. The OBR-7 value is the original notification date/time and OBR-22 is the updated date/time. OBR-25= ‘C’ to indicate that the message status is ‘corrected.’ The 77990-0 Case Class Status value is “Confirmed” and more information has been sent.

MSH|^~\&|SendAppName^2.16.840.1.114222.TBD^ISO|Sending-Facility^2.16.840.1.114222.TBD^ISO|PHINCDS^2.16.840.1.114222.4.3.2.10^ISO|PHIN^2.16.840.1.114222^ISO|20141225120030.1234-0500||ORU^R01^ORU\_R01|TM\_CN\_TC\_GENV2\_0052|T|2.5.1|||||||||NOTF\_ORU\_v3.0^PHINProfileID^2.16.840.1.114222.4.10.3^ISO~Generic\_MMG\_V2.0^PHINMsgMapID^2.16.840.1.114222.4.10.4^ISO

PID|1||LocalPatID2DEM197^^^SendAppName&2.16.840.1.114222.GENv2&ISO||~^^^^^^S||19740215|F||2076-8^Native Hawaiian or Other Pacific Islander^CDCREC~2028-9^Asian^CDCREC|^^^06^91101^^^^06037|||||||||||2186-5^Not Hispanic or Latino^CDCREC|||||||20140501

OBR|1|""|INV168^SendAppName^2.16.840.1.114222.TBD^ISO|68991-9^Epidemiologic Information^LN|||20150513120030|||||||||||||||20150513120035|||C||||||10440^Plague^NND

OBX|1|CWE|78746-5^Country of Birth^LN||ARM^Armenia^ISO3166\_1||||||F

OBX|2|CWE|77983-5^Country of Usual Residence^LN||USA^United States^ISO3166\_1||||||F

OBX|3|TS|11368-8^Date of Illness Onset^LN||20140131||||||F

OBX|4|TS|77976-9^Illness End Date^LN||20140210||||||F

OBX|5|SN|77977-7^Illness Duration^LN||^10|d^day^UCUM|||||F

OBX|6|CWE|77996-7^Pregnancy Status^LN||UNK^Unknown^NULLFL||||||F

OBX|7|TS|77975-1^Diagnosis Date^LN||20140202||||||F

OBX|8|CWE|77974-4^Hospitalized^LN||N^No^HL70136||||||F

OBX|9|TS|8656-1^Admission Date^LN||||||||F

OBX|10|TS|8649-6^Discharge Date^LN||||||||F

OBX|11|SN|78033-8^Duration of Stay in days^LN||||||||F

OBX|12|CWE|77978-5^Subject Died^LN||Y^Yes^HL70136||||||F

OBX|13|ST|77993-4^State Case Id^LN||2014IN46000942||||||F

OBX|14|ST|77997-5^Legacy Case ID^LN||615333331002006||||||F

OBX|15|SN|77998-3^Patient Age^LN||^39|a^year^UCUM|||||F

OBX|16|CWE|77982-7^Case Disease Imported Code^LN||PHC244^Indigenous, within jurisdiction^CDCPHINVS||||||F

OBX|17|CWE|INV153^Imported Country^PHINQUESTION||||||||F

OBX|18|CWE|INV154^Imported State^PHINQUESTION||||||||F

OBX|19|CWE|INV155^Imported City^PHINQUESTION||||||||F

OBX|20|CWE|INV156^Imported County^PHINQUESTION||||||||F

OBX|21|CWE|77984-3^Country of Exposure or Country Where Disease was Acquired^LN|1|USA^United States^ISO3166\_1||||||F

OBX|22|CWE|77985-0^State or Province of Exposure^LN|1|06^California^FIPS5\_2||||||F

OBX|23|ST|77986-8^City of Exposure^LN|1|Pasadena||||||F

OBX|24|ST|77987-6^County of Exposure^LN|1|Los Angeles||||||F

OBX|25|CWE|77989-2^Transmission Mode^LN||418427004^Vector-borne transmission^SCT^^^^^^||||||F

OBX|26|CWE|77990-0^Case Class Status Code^LN||410605003^Confirmed Present^SCT^^^^^^||||||F

OBX|27|CWE|77965-2^Immediate National Notifiable Condition^LN||N^No^HL70136||||||F

OBX|28|CWE|77980-1^Case Outbreak Indicator^LN||N^NO^HL70136||||||F

OBX|29|ST|77981-9^Case Outbreak Name^LN||||||||F

OBX|30|ST|77969-4^Jurisdiction Code^LN||S01||||||F

OBX|31|CWE|48766-0^Reporting Source Type Code^LN||PHC247^Laboratory^CDCPHINVS||||||F

OBX|32|ST|52831-5^Reporting Source Zip Code^LN||91101||||||F

OBX|33|CWE|77988-4^Binational Reporting Criteria^LN||PHC1139^Has case contacts from Mexico or Canada^CDCPHINVS~PHC1140^Exposure to a suspected product from Mexico or Canada^CDCPHINVS||||||F

OBX|34|ST|74549-7^Person Reporting to CDC - Name^LN||Dunn, Tom ||||||F

OBX|35|ST|74548-9^Person Reporting to CDC - Phone Number^LN||(722)277-4477||||||F

OBX|36|ST|74547-1^Person Reporting to CDC - Email^LN||||||||F

OBX|37|DT|77979-3^Investigation Start Date^LN||20140202||||||F

OBX|38|DT|77995-9^Date Reported^LN||20140202||||||F

OBX|39|TS|77972-8^Earliest Date reported to county^LN||20140202||||||F

OBX|40|TS|77973-6^Earliest Date reported to State^LN||20140202||||||F

OBX|41|SN|77991-8^MMWR Week^LN||^6||||||F

OBX|42|DT|77992-6^MMWR Year^LN||2014||||||F

OBX|43|DT|77994-2^Date First Reported to CDC^LN||20140202||||||F

OBX|44|DT|77970-2^Date First Reported to PHD^LN||20140202||||||F

OBX|45|CWE|77966-0^Reporting State^LN||06^California^FIPS5\_2||||||F

OBX|46|CWE|77967-8^Reporting County^LN||06037^Los Angeles^FIPS6\_4||||||F

OBX|47|CWE|77968-6^National Reporting Jurisdiction^LN||06^California^FIPS5\_2||||||F

OBX|48|TX|77999-1^Comment Field^LN||||||||F

## SCENARIO 2 – Generic Case Notification That is subsequently Rescinded

**Rescinded Notification Message:**

It turns out that this Plague notification was sent in error. The OBR-7 remains the original send date time and OBR-22 becomes the most recent send date/time. OBR-25= ‘X’. Only the observations required to accept a case notification are sent.

MSH|^~\&|SendAppName^2.16.840.1.114222.TBD^ISO|Sending-Facility^2.16.840.1.114222.TBD^ISO|PHINCDS^2.16.840.1.114222.4.3.2.10^ISO|PHIN^2.16.840.1.114222^ISO|20141225120030.1234-0500||ORU^R01^ORU\_R01|TM\_CN\_TC\_GENV2\_0054|T|2.5.1|||||||||NOTF\_ORU\_v3.0^PHINProfileID^2.16.840.1.114222.4.10.3^ISO~Generic\_MMG\_V2.0^PHINMsgMapID^2.16.840.1.114222.4.10.4^ISO

PID|1||LocalPatID2DEM197^^^SendAppName&2.16.840.1.114222.GENv2&ISO||~^^^^^^S||19740215|F||2076-8^Native Hawaiian or Other Pacific Islander^CDCREC~2028-9^Asian^CDCREC|^^^06^91101^^^^06037|||||||||||2186-5^Not Hispanic or Latino^CDCREC|||||||20140501

OBR|1|""|INV168^SendAppName^2.16.840.1.114222.TBD^ISO|68991-9^Epidemiologic Information^LN|||20150513120030|||||||||||||||20150513120035|||X||||||10440^Plague^NND

OBX|1|CWE|78746-5^Country of Birth^LN||ARM^Armenia^ISO3166\_1||||||F

OBX|2|CWE|77983-5^Country of Usual Residence^LN||USA^United States^ISO3166\_1||||||F

OBX|3|TS|11368-8^Date of Illness Onset^LN||20140131||||||F

OBX|4|TS|77976-9^Illness End Date^LN||20140210||||||F

OBX|5|SN|77977-7^Illness Duration^LN||^10|d^day^UCUM|||||F

OBX|6|CWE|77996-7^Pregnancy Status^LN||UNK^Unknown^NULLFL||||||F

OBX|7|TS|77975-1^Diagnosis Date^LN||20140202||||||F

OBX|8|CWE|77974-4^Hospitalized^LN||N^No^HL70136||||||F

OBX|9|TS|8656-1^Admission Date^LN||||||||F

OBX|10|TS|8649-6^Discharge Date^LN||||||||F

OBX|11|SN|78033-8^Duration of Stay in days^LN||||||||F

OBX|12|CWE|77978-5^Subject Died^LN||Y^Yes^HL70136||||||F

OBX|13|ST|77993-4^State Case Id^LN||2014IN46000942||||||F

OBX|14|ST|77997-5^Legacy Case ID^LN||615333331002006||||||F

OBX|15|SN|77998-3^Patient Age^LN||^39|a^year^UCUM|||||F

OBX|16|CWE|77982-7^Case Disease Imported Code^LN||PHC244^Indigenous, within jurisdiction^CDCPHINVS||||||F

OBX|17|CWE|INV153^Imported Country^PHINQUESTION||||||||F

OBX|18|CWE|INV154^Imported State^PHINQUESTION||||||||F

OBX|19|CWE|INV155^Imported City^PHINQUESTION||||||||F

OBX|20|CWE|INV156^Imported County^PHINQUESTION||||||||F

OBX|21|CWE|77984-3^Country of Exposure or Country Where Disease was Acquired^LN|1|USA^United States^ISO3166\_1||||||F

OBX|22|CWE|77985-0^State or Province of Exposure^LN|1|06^California^FIPS5\_2||||||F

OBX|23|ST|77986-8^City of Exposure^LN|1|Pasadena||||||F

OBX|24|ST|77987-6^County of Exposure^LN|1|Los Angeles||||||F

OBX|25|CWE|77989-2^Transmission Mode^LN||418427004^Vector-borne transmission^SCT^^^^^^||||||F

OBX|26|CWE|77990-0^Case Class Status Code^LN||410605003^Confirmed Present^SCT^^^^^^||||||F

OBX|27|CWE|77965-2^Immediate National Notifiable Condition^LN||N^No^HL70136||||||F

OBX|28|CWE|77980-1^Case Outbreak Indicator^LN||N^NO^HL70136||||||F

OBX|29|ST|77981-9^Case Outbreak Name^LN||||||||F

OBX|30|ST|77969-4^Jurisdiction Code^LN||S01||||||F

OBX|31|CWE|48766-0^Reporting Source Type Code^LN||PHC247^Laboratory^CDCPHINVS||||||F

OBX|32|ST|52831-5^Reporting Source Zip Code^LN||91101||||||F

OBX|33|CWE|77988-4^Binational Reporting Criteria^LN||PHC1139^Has case contacts from Mexico or Canada^CDCPHINVS~PHC1140^Exposure to a suspected product from Mexico or Canada^CDCPHINVS||||||F

OBX|34|ST|74549-7^Person Reporting to CDC - Name^LN||Dunn, Tom ||||||F

OBX|35|ST|74548-9^Person Reporting to CDC - Phone Number^LN||(722)277-4477||||||F

OBX|36|ST|74547-1^Person Reporting to CDC - Email^LN||||||||F

OBX|37|DT|77979-3^Investigation Start Date^LN||20140202||||||F

OBX|38|DT|77995-9^Date Reported^LN||20140202||||||F

OBX|39|TS|77972-8^Earliest Date reported to county^LN||20140202||||||F

OBX|40|TS|77973-6^Earliest Date reported to State^LN||20140202||||||F

OBX|41|SN|77991-8^MMWR Week^LN||^6||||||F

OBX|42|DT|77992-6^MMWR Year^LN||2014||||||F

OBX|43|DT|77994-2^Date First Reported to CDC^LN||20140202||||||F

OBX|44|DT|77970-2^Date First Reported to PHD^LN||20140202||||||F

OBX|45|CWE|77966-0^Reporting State^LN||06^California^FIPS5\_2||||||F

OBX|46|CWE|77967-8^Reporting County^LN||06037^Los Angeles^FIPS6\_4||||||F

OBX|47|CWE|77968-6^National Reporting Jurisdiction^LN||06^California^FIPS5\_2||||||F

OBX|48|TX|77999-1^Comment Field^LN||||||||F

# APPENDIX C – CONFORMANCE STATEMENTS

The following table summarizes the conformance statements that are in context throughout the document.

Table 3Conformance Statements

| ID | CONFORMANCE STATEMENT LIST |
| --- | --- |
| CN-001 | HD.2 (Universal ID) **SHALL** be a valid ISO OID format. |
| CN-002 | HD.3 (Universal ID Type) **SHALL** be valued “ISO”. |
| CN-003 | If <num1> and <num2> are both non-null, then the separator/suffix **MUST** be non-null.  |
| CN-004 | MSH.1 (Field Separator) **SHALL** contain the constant value '|'. |
| CN-005 | MSH.2 (Encoding Characters) **SHALL** contain the constant value '^~\&'. |
| CN-006 | MSH-7 (Date/Time of Message) **SHALL** follow the format: YYYYMMDDHHMMSS[.S[S[S[S]]]][+/-ZZZZ] |
| CN-007 | MSH-9 (Message Type) **SHALL** be the literal value: ‘ORU^R01^ORU\_R01’. |
| CN-008 | MSH-12 (Version ID) **SHALL** have the literal value ‘2.5.1’. |
| CN-009 | One instance of the Message Profile Identifier **SHALL** contain either the literal value: ‘NOTF\_ORU\_v3.0^PHINProfileID^2.16.840.1.114222.4.10.3^ISO’ or ‘SUMM\_ORU\_v3.0^PHINProfileID^2.16.840.1.114222.4.10.3^ISO’or ENVNTF\_ORU\_v3.0^PHINProfileID^2.16.840.1.114222.4.10.3^ISO’Specific to the Individual Case Notification. |
| CN-010 | If the NOTF PHIN Profile ID is used, there **SHALL** be a reference to the Generic Message Mapping Guide as there may also be a third reference for a condition-specific Message Mapping Guide, both defined in the Case Map Namespace.  |
| CN-011 | PID-1 (Set ID) **SHALL** have the Literal Value of ‘1’. |
| CN-012 | The first occurrence of the name field in PID-5 shall be blank and the second occurrence of PID-5 **SHALL** be valued only in PID-5.7 (Name Type Code) with the constant value ’S’. (i.e., PID-5 shall be valued as |~^^^^^^S|). |
| CN-013 | OBR-1 (Set ID - OBR) **SHALL** be valued sequentially starting with the value '1'. |
| CN-014 | There **SHALL** be one and only one occurrence of OBR-4 (Universal Identifier) valued ‘68991-9^Epidemiologic Information^LN’ in all types of Case Notification Messages. |
| CN-015 | There **MAY** be zero to manyadditional and optional instances of Notification Sections from the PHVS\_NotificationSectionHeader\_CDC value set (<https://phinvads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.1107>) as indicated by an MMG where the OBR-4 Universal Service ID **SHOULD** contain the literal value as specified in the MMG.  |
| CN-016 | There **SHALL** be zero to manyoptional instances of associated laboratory report data sources that may be useful for CDC programs, the OBR-4 Universal Service ID **SHOULD** contain an value from the source laboratory report whose OBR-4 value is ’30954-2^Laboratory Information^LN’ or another value not in the PHVS\_NotificationSectionHeader\_CDC value set (<https://phinvads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.1107>) to identify the laboratory information.  |
| CN-017 | OBR-7 Observation Date/Time **SHALL** follow the format YYYYMMDDHHMMSS[.S[S[S[S]]]] [+/-ZZZZ] when OBR-4 is valued ‘68991-9^Epidemiologic Information^LN’. |
| CN-018 | OBR-22 Results Report/Status Change Date/Time **SHALL** follow the format YYYYMMDDHHMMSS[.S[S[S[S]]]] [+/-ZZZZ] when OBR-4 is valued ‘68991-9^Epidemiologic Information^LN’. |
| CN-019 | OBR-25 Result Status **SHALL** be limited to the following values when OBR-4 is valued ‘68991-9^Epidemiologic Information^LN’: ‘F’ for *Final*, when the notification is first sent.‘C’ for *Correction*, when an update/revision is sent.‘X’ to indicate that the previously received notification has been deleted or rescinded. |
| CN-020 | OBX-1 (Set ID - OBX) **SHALL** be valued sequentially under each OBR, starting with the value '1'. |
| CN-021 | Each OBX within a repeating group **SHALL** have the same numeric value in OBX-4 AND the combination of OBX-3 and OBX-4 **SHALL** be unique among different repeating groups in the same Order\_Observation group. |

Figure 2Conformance Statement List

# APPENDIX D – REVISIONS from V2.0

|  | Location | Field Name | Change Indentified in v2.0 | Revision in v3.0 |
| --- | --- | --- | --- | --- |
| 1 | HL7 Message structure attributes |  | ORDER\_OBSERVATION groups were hard-coded to expect one OBR where OBR-4 defined the subject type and one OBR where OBR-4 defined the notification type. | The message no longer specifies subject type or notification type in this manner. Subject type is derived from looking at the PID segment (i.e., whether the person or the non-person/animal fields are populated) and notification type is specified in MSH-21 Profile ID. |
| 2 | HL7 Message structure attributes |  | ORDER\_OBSERVATION groups were hard-coded to expect one OBR where OBR-4 defined the subject type and one OBR where OBR-4 defined the notification type. | The new message specifies that one OBR – the one that conveys “epidemiologic information” - is required and is the source of truth for notification variables that are tied to the OBR segment (OBR-3, OBR-7, OBR-22, OBR-25, OBR-31.) Other OBRs are used for clinical, demographic, laboratory, treatment, or vaccine category information as needed. |
| 3 | HL7 Message structure attributes |  | The Next of Kin/ Associated Parties (NK1) segment was not supported. | The Next of Kin/ Associated Parties (NK1) segment has been included to allow additional subjects or parent or owner information. |
| 4 | HL7 Message structure attributes |  | The Specimen (SPM) segment was not supported | The Specimen (SPM) segment has been added, as the message supports it and it may be included in the ORDER\_OBSERVATION group specific to laboratory reporting. The definition follows the ELR Implementation Guide but is not as constrained. The HL7 required SPM-4 remains required but the other fields are sent only if available. |
| 5 | Segment Profile Attributes | OBX Segment | The OBX segment is tightly constrained to only allow “question and answer” pattern and does not allow for some of the fields that ELR messages use. | The Observation (OBX) segment’s constraints have been relaxed to allow the more ELR-like usage of the OBX. |
| 6 | HL7 Message structure attributes |  | All of the Notes and Comments (NTE) segments were constrained out/not supported.  | The Notes and Comments (NTE) segment has been included under the OBX segment to allow comments associated with Laboratory Observations to be in the message.  |
| 7 | Segment Profile Attributes | Throughout | The message was very constrained to set many fields to “not supported.” In theory, this will kick out a lot of messages if the receiver profile is not relaxed. | Many fields in used segments have been set to “optional” with the comment that if the field is optional, it is not defined in this document and not expected to be processed by the receiver. Fields that remained constrained as “not supported” are those that are no longer used for this HL7 version or ones that potentially contain PII data that should not be sent for this use case. |
| 8 | Message Structure | ORU^R01 Message Syntax | ORU^R01^ORU\_R01 Message definition was a very simplified structure that only showed the required fields and segment groups. | ORU^R01^ORU\_R01 Message Syntax has been updated to align with the ELR version of the message syntax. |
| 9 | 1.4 Summary of Changes |  | Formerly described the use of the 6 categories of data. | Reworked to clarify and correct the HL7 content change descriptions |
| 10 | 6 Appendix A | Technical Considerations | Only contained a discussion about repeating groups | Added a section to discuss repeating variables (that is, the use of the tilde in the field for a multi-select answer). |
| 11 | 7 Appendix  | Messaging Examples | Messages were conformant to specifications. | Revised the messages |
| 12 | 5.2 Segment and Field Descriptions | All CE fields | Maximum length CE fields were not consistence. | Maximum length increased to 841. This increase affected other datatypes that contain a CE datatype as a component, such as VID and XPN. |
| 13 | 5.2 Segment and Field Descriptions | All CWE fields | Maximum length CE fields were not consistence. | Maximum length increased to 1063. This increase affected other datatypes that contain a CWE datatype as a component, such as XCN. |
| 14 | 5.2.4 OBR Segment Detail | OBR-22 Status Chg/Update Date/time | The cardinality of OBR-22 was [1..1]. | Technical correction to the cardinality of OBR-22 from [1..1] to [0..1]. This is not an HL7 required field so it is only required per Condition Predicate: If OBR-4 is populated with ‘68991-9^Epidemiology Information^LN’ |

# APPENDIX E – REVISION LIST

|  | Location | Field Name | Change Identified in v3.0 | Revision in v3.0, Release 1 |
| --- | --- | --- | --- | --- |
| 1 | Pages 1-4 |  | Release 3.0Publication HistoryCopyright text | Version 3.0 Release 1October 18, 2016Updated with correct LOINC information |
| 2 | Throughout |  | A number of conformance statements have been added and detailed in the appendix to clarify any ambiguities in the use of the message fields. | APPENDIX C – CONFORMANCE STATEMENTS has been added. |
| 3 |  | Actors, Goals and Messaging Transactions | The Case Notification Use Case was not included in the document, it was previously described in a separate document posted on the PHIN web site. | The Use Case for National Notifiable Condition Reporting has been incorporated into the document. |
| 4 | HL7 Batch Protocol |  | HL7 Batch Protocol was previously described in a separate document posted on the PHIN web site. | HL7 Batch Protocol has been incorporated into this document under the Messaging Infrastructure section. |
| 5 | Reviewers Comments | Throughout | Incorporated feedback and comments. | Incorporated many suggestions for edits and improvements to wording, typo corrections, etc. |
| 6 | Table 2.1. Information Interchange Requirements | State case investigation identifierThroughout | Message needs to be structurally correct as well as have a minimum set of required observations answered to be accepted and processed. Added requirement for the state case investigation identifier.Case Report to Case Notification | National Notifiable Case Notification containing data elements related to a national notifiable disease.Required patient data for all National Notifiable Case Notification:* Sending system’s Internal case investigation identifier
* Case Class Status
* MMWR Week
* MMWR Year
* Reporting State National OR Reporting Jurisdiction
 |
| 7 | 4 Data Types |  | Added datatype specifications for CQ EIP, NM, XCN and XON. Added a new comment in the Data Types introduction. | Added a new comment in the Data Types introduction: “There may be some Optional fields in the segments used that are not further specified. If the field is used, the standard datatype definition from the 2.5.1 HL7 Standard, Chapter 2A, applies. This specification does not further constrain those datatypes.” |
| 8 | 4.1 CE Datatype Definition |  | Needed further clarifications to the CE datatype | Key words were added to each component to clarify what is expected.Additionally indicating that the use of standard coding systems or OIDs **MAY** be sent for the coding systems. As they are both supported.  |
| 9 | 4.3 CWE Datatype Definition |  | Needed further clarifications to the CWE datatype | Key words were added to each component to clarify what is expected, particularly for usage of CWE.9.Additionally indicating that the use of standard coding systems or OIDs **MAY** be sent for the coding systems. As they are both supported.  |
| 10 | 4.5 DR Datatype Definition |  | DR Datatype previously not supported. | Added the DR Date/time Range datatype specification as section 4.5 and moved the rest of the numbers down one spot. |
| 11 | 2.1.3 Functional Requirements | Sender Requirements | Sender requirements needed additional clarification. | Added this verbiage: Each notification is in “snapshot mode”, meaning it is a complete record of the notification data at the time it was sent. |
| 12 | 5.2.7 NTE –Notes and Comments Segment | NTE-1 / Set ID – NTE | Previously not supported | Changed usage to R, updated cardinality to [1..1]. |
| 13 | 5.2.7 NTE – Notes and Comments Segment | NTE-3 / Comment | The NTE segment cardinality is incorrect. | Updated Cardinality to [1..\*].  |
| 14 | 5.2.6 SPM – Specimen Segment | SPM-1 / Set ID – SPM | The SPM segment usage and cardinality is incorrect with optional if sent with a related OBR, the SPM should indicate that it is required if sent. | Changed usage to R, updated cardinality to [1..1]. |
| 15 | 5.2.4 OBR – Observation Request Segment | OBR-16 / Ordering Provider | Previously not supported | Updated to be supported, changed usage from X to RE and removed the highlighting for OBR-16 in the OBR table to indicate it is available for use.  |
| 16 | Contact Information |  | Contact information added for assistance with the artifact. | Added with the following text:This artifact is considered to be a technical document. Please contact edx@cdc.gov for assistance with this artifact. |
| 17 | Section 1.2 | ACRONYMS | Removal of unused acronyms and addition of used acronyms.  | Removed CSTE, IIS, NETSS, PHLIP, STD, STLT. Added ELR, MMG, OID. |
| 18 | Table 2.1 |  | Corrected the required patient data list for “Reporting State OR National Reporting Jurisdiction,” replaced “OR” with “AND”.  | Reporting State AND National Reporting Jurisdiction |
| 19 | Tables 2.1, 2.2, 3.1 / Sections 3.10, 3.11, 4 |  | Updated table numbering and section numbering due to table changes or for newly added tables and sections. Some tables used the ‘-’ notation and used the ‘.’ Notation. Example Table 2-1 or Table 2.1, replaced with the ‘.’ Notation.  | Table 2.1, Table 2.2, Table 3.1Updated Usage Conformance Testing Recommendations section to 3.10.Various tables under 3.11 HL7 Batch Protocol.Various tables under section 4 Data Types.  |
| 20 | Section 3.6-3.9 |  | Added sections for information on the use of standard codes, literal values, unknown values and MMG constraints. | Sections 3.6 – 3.9 |
| 21 | Section 4.3 & 4.11 |  | Addition of CQ and FT data types, mentioned or used but not listed in the data type list.  | CQ (Composite Quantity with Units)FT (Formatted Text Data) |
| 22 | Section 4.1, 4.2, 4.4 |  | Update CWE, CE-PH, and CE data types to include reference to using standard codes for component 1. Also added the reference to OIDs MAY be used for component 3. | Component 1: “Standard coding system identifier must be used.”Component 3: “Standard coding system identifiers or OIDs **MAY** be sent for Coding Systems, both are supported.” |
| 23 | Section 4.2, 4.4 |  | Added wording for CWE and CE-PH text component 2 to indicate recommendations to send text and bolded key words, to be consistent with intended usage across CE and CWE data types.  | It is strongly recommended that text **SHOULD** be sent to accompany any identifier.  |
| 24 | Section 4.1, 4.2, 4.4 |  | Update wording for CWE, CE-PH, and CE data types to use “component” and removed CE or CWE. For consistency and clarification.  | Component 1, Component 4 |
| 25 | Section 4.7 |  | Correction to example for incorrect date for DT (date) data type. Removed “April 1999”.  | |199503| specifies March 1995. |
| 26 | Section 4.8 |  | Corrected example date time format. “Example: |199904| specifies April 1999.Format: YYYYMMDD[HH[MM[SS[.S[S[S[S]]]]]]][+/-ZZZZ]”The format does not show the optionality of MMDD.  | YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ] |
| 27 | Section 4.17 |  | Example is incorrect, updated from MSH-10 to MSH-11. “Example: MSH-10 Processing ID: |D| or |P| or |T|.” | Example: MSH-11 Processing ID: |D| or |P| or |T|. |
| 28 | Section 4.19 | SN-3 and SN-4 | Added Condition Predicate for the SN data type to identify the required order of components to be used. New condition predicate to require the 2nd component to be present if the before the 3rd and 4th components. | **Usage: C(RE/X)****Condition Predicate:** If component 2 (Numeric Value 1) is valued. |
| 29 | Section 4.19 |  | Added conformance statement for SN data type to require the separator/suffix if both <num1> and <num2> are non-null values.  | **CONFORMANCE STATEMENT CN-003:** If <num1> and <num2> are both non-null, then the separator/suffix **MUST** be non-null.  |
| 30 |  Table 5.2.1 | MSH-7 | For consistent use of date/time sent in specific date/time fields the date format was updated to align with a specific level of precision to seconds.  | **Conformance statement added for MSH-7:****CONFORMANCE STATEMENT** **CN-006**: MSH-7 (Date/Time of Message) **SHALL** follow the format: YYYYMMDDHHMMSS[.S[S[S[S]]]][+/-ZZZZ]  |
| 31 | Table 5.2.1 | MSH-7 | The requirement for sending time zone was relaxed to optional based on the use of the sender local time being used to indicate the time zone of the message.Format: YYYYMMDDHHMM[SS[.S[S[S[S]]]]] +/-ZZZZ | This field contains the date/time that the sending system created the message. The time zone (+/-ZZZZ) is represented as +/-HHMM offset from Coordinated Universal Time (UTC) (formerly Greenwich Mean Time [GMT]), where +0000 or -0000 both represent UTC (without offset). If the time zone is not included, the time zone is understood to be the local time zone of the sender.; minimum precision to second.Format updated to:YYYYMMDDHHMMSS[.S[S[S[S]]]][+/-ZZZZ] |
| 32 | Table 5.2.4 | OBR-7 | For consistent use of date/time sent in specific date/time fields the date format was updated to align with a specific level of precision to seconds.  | Conformance statement CN-016 added to require TS format: YYYYMMDDHHMMSS[.S[S[S[S]]]][+/-ZZZZ] |
| 33 | Table 5.2.4 | OBR-22 | For consistent use of date/time sent in specific date/time fields the date format was updated to align with a specific level of precision to seconds. Added new conformance statement to indicate the format requirement replacing the condition predicate.  | **CONFORMANCE STATEMENT** **CN-018:** OBR-22 Results Report/Status Change Date/Time **SHALL** follow the format YYYYMMDDHHMMSS[.S[S[S[S]]]] [+/-ZZZZ] when OBR-4 is valued ‘68991-9^Epidemiologic Information^LN’. |
| 34 | Table 5.2.1 | MSH-10 | Additional wording was added to clarify the use of the Message Control ID to uniquely identify the message and updates to indicate appending a timestamp is an example to ensure uniqueness but not required.  | This field contains a string that uniquely identifies the message instance from the sending application.The unique record identifier for the notification as created by the sending surveillance system is a good candidate for this string. If the local record identifier is not unique (if the record is updated), as an example a timestamp can be appended to ensure a unique identifier. |
| 35 | Various  |  | Removal of the reference to “From V251\_IG\_LB\_LABRPTPH\_R2\_DSTU\_R1,1\_2014MAY.pdf.” Reference to a specific ELR guide may be misleading to requirements to how to provide the laboratory information.  | Various. |
| 36 | Table 5.2.1 | MSH-21 | Removal of the specific literals for indicating the profile and MMG to be used for a given message. The conformance statement was removed and added to each MMG instead of in this messaging specification, because each conformance is unique to each MMG.  | Conformance statement replaced with: “The conformance statements for NOT115 **SHALL** be obtained from the program specific MMG.”  |
| 37 | Table 5.2.4 | OBR-4 | Updated the conformance statement to clearly state “one and only one” occurrence of the ‘68991-9^Epidemiologic Information^LN‘ will be allowed, instead of “an occurrence”.  | **CONFORMANCE STATEMENT** **CN-014:** There **SHALL** be one and only one occurrence of OBR-4 (Universal Identifier) valued ‘68991-9^Epidemiologic Information^LN’ in all types of Case Notification Messages. |
| 38 | Table 5.2.4 | OBR-4 | Removal of the Treatment Information conformance statement because it is currently not used, replaced the reference to any other specific section header for OBR-4 to a more generic conformance statement to capture anything not listed in this messaging specification. This allows the MMG(s) to specify other headers sections without requiring additional changes to the messaging specification.  | **CONFORMANCE STATEMENT** **CN-015:**  There **MAY** be zero to manyadditional and optional instances of Notification Sections from the PHVS\_NotificationSectionHeader\_CDC value set (<https://phinvads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.1107>) as indicated by an MMG where the OBR-4 Universal Service ID **SHOULD** contain the literal value as specified in the MMG.  |
| 39 | Table 5.2.4 | OBR-4 | Clarification for the “’30954-2^Laboratory Information^LN” conformance statement, corrected the wording of “one or more additional” to “zero to many” and added specific instructions for values not listed in PHVS\_NotificationSectionHeader\_CDC value set and added a link to the value set.  | **CONFORMANCE STATEMENT** **CN-016:** There **SHALL** be zero to manyoptional instances of associated laboratory report data sources that may be useful for CDC programs, the OBR-4 Universal Service ID **SHOULD** contain an value from the source laboratory report whose OBR-4 value is ’30954-2^Laboratory Information^LN’ or another value not in the PHVS\_NotificationSectionHeader\_CDC value set (<https://phinvads.cdc.gov/vads/ViewValueSet.action?oid=2.16.840.1.114222.4.11.1107>) to identify the laboratory information.  |
| 40 | Table 5.2.4 | OBR-4 | Added information regarding reference to condition specific MMG(s) for the use of other values used in OBR-4.  | For any other value used in OBR-4 refer to the condition specific MMG. |
| 41 | Various  |  | Updated wording “to allow ELR-like” to state “similar to ELR” to help with references to laboratory data elements. | “similar to ELR” added where references are made for supporting the Laboratory Information Header. “Optionally supported to allow mapping similar to ELR.” |
| 42 | Various  |  | Added wording for intended data elements supported under the Laboratory Information Header. | Supported to allow for the sending of optional laboratory data elements of interest under the Laboratory Information Header. |
| 43 | Table 5.2.4 | OBR-25 | Updated conformance statement for OBR-25 to include key words, added “SHALL be” to indicate the requirement for the listed OBR-25 values, added additional wording changes to clarify the usage of ‘X’.  | **CONFORMANCE STATEMENT** **CN-019:** OBR-25 Result Status **SHALL** be limited to the following values when OBR-4 is valued ‘68991-9^Epidemiologic Information^LN’: ‘F’ for *Final*, when the notification is first sent.‘C’ for *Correction*, when an update/revision is sent.‘X’ to indicate that the previously received notification has been deleted or rescinded.To update information on a previously submitted case, update the information in your surveillance system and re-send the case.  Set the Notification Result Status (in OBR-25) to “C” to indicate a correction and, if needed, update the case classification status (e.g., confirmed, probable, suspected, not a case.) The updated record will supersede the previous notification.  Be careful not to change data elements used to define a unique case (see <http://wwwn.cdc.gov/nndss/document/Generic_Data_Elements_that_Define_a_Unique_Case.docx>) or you will cause a new case to be added to the CDC data base instead of updating a previously reported case.  If you determine that a previously sent case should not be counted as a case, send an updated case notification using one of the following methods:* Preferred Method: Re-send the case with case classification status data element ‘77990-0’ =“Not a Case” and Notification Result Status (OBR-25) = “C” to indicate this is a correction.
* Alternate Method:  Re-send the case with case classification status data element ‘77990-0’ = “Not a Case” and Notification Result Status (OBR-25) = “X” to indicate this case is “rescinded”.
* Alternate Method for jurisdictions unable to send case classification status of “Not a Case”:  Regardless of the value transmitted in the case classification status, re-send the case with Notification Result Status (in OBR-25) = “X” to indicate this case is rescinded.
 |
| 44 | Table 5.2.5 | OBX-4 | Updated the wording in the condition predicate to help clarify the usage when repeating segments.  | **Condition Predicate:** If the OBX segment is allowed to repeat more than once within the same OBR segment and contain the same OBX-3 values.  |
| 45 | Table 5.2.5 | OBX-4 | Added conformance statement to indicate the requirement for OBX-4 to have the same unique numeric value in each repeating group.  | **CONFORMANCE STATEMENT CN-021:** OBX-4 **SHALL** have the same unique numeric value in each repeating group. |
| 46 | Section 5.2.6 | SPM | Removed the reference to the ’30954-2^Laboratory Information^LN’ section header and added “Supported to allow for the sending of laboratory data elements of interest under the Laboratory Information Section Header (Lab OBR).” Original wording was determined to be unclear and unnecessary.  | The intent of this segment is to describe the characteristics of a specimen. It differs from the intent of the OBR, in that the OBR addresses order-specific information. Supported to allow for the sending of laboratory data elements of interest under the Laboratory Information Section Header (Lab OBR), Optionally supported to allow mapping similar to ELR. |
| 47 | Section 5.2.7 | NTE | Removed the reference to the ’30954-2^Laboratory Information^LN’ section header and added “Supported to allow for the sending of laboratory data elements of interest under the Laboratory Information Section Header (Lab OBR).” Original wording was determined to be unclear and unnecessary. | The NTE segment is defined here to allow for inclusion in the Case Notification message, for Notes and Comments following an OBX Observation segment. Supported to allow for the sending of optional laboratory data elements of interest under the Laboratory Information Section Header (Lab OBR.), Optionally supported to allow mapping similar to ELR.  |
| 48 | Various |  | Updated conformance statement numbering and alignment due to the addition of several conformance statements and corrections to miss numbered conformance numbers.  | Numbering from CN-001 through CN-021. |
| 49 | Section 8 Appendix C |  | Updated conformance statement list and alignment with conformance statements listed throughout the PHIN Messaging Specification.  | Various. |
| 50 | Section 9 Appendix D |  | Appendix D was updated to contain the Modifications from the PHIN Messaging Specification V2.0 and V3.0. To clarify between the differences in the two specifications and the changes made only to Version 3.0, the changes only related to Version 3.0 were removed and placed in a new appendix, Appendix E.  | Updated Appendix D. |
| 51 | Section 10 Appendix E  |  | Added new revision list, Appendix E to capture changes to only PHIN Messaging Specification Version 3. | Added Appendix E. |
| 52 | 5.2.6 SPM | Various | Relaxed or removed reference to value sets that could create confusion for implementers. The MMG(s) further specify value sets to be used.  | Various. |
|  | **Location** | **Field Name** | **Change Identified in v3.0** | **Revision in v3.0, Release 2** |
| 53 | Title Page and Revision History | Pages 1-3 |  | Version 3.0 Release 2Publication HistoryAugust 15, 2017 |
| 54 | Section 4 Data Types | Various | Added Encapsulated Data (ED) data type to support encapsulated data such as images or pdf documents. | Needed for future support to allow sending of encapsulated data such as images or PDF files associated with a case or lab report, commonly Base64 encoded. |
| 55 | Section 4 Data Types | OBR-26 | Added Parent Result Link (PRL) data type to support parent / child test result linkage.  | Only used by OBR-26. |
| 56 | Section 5.2.4 | OBR-11 | Opened OBR-11 (Specimen Action Code) to support using value ‘G’ indicating “Generated order, reflex order” to be used for parent / child test result linkage.  | Based on ELR 2014, OBR-11 is optionally supported. If OBR-11 Specimen Action Code is valued ‘G’ then OBR-26 (Parent Result) and OBR-29 (Parent) **SHOULD** be populated. |
| 57 | Section 5.2.4 | OBR-26 | Updated Usage to RE and provided guidance for linking child sensitivities / susceptibilities to the parent result test. | Field that, together with OBR-29 Parent, allows this result to be linked to a specific OBX segment associated with another OBR segment. OBR-26 **SHOULD** be populated when linking child sensitivities or susceptibilities to the parent test.  |
| 58 | Section 5.2.4 | OBR-29 | Updated Usage to RE and provided guidance for linking child sensitivities / susceptibilities parent OBR.  | Used to link this OBR with a parent OBR. Commonly used with microbiology messages to link a susceptibility result with the parent culture that identified the organism. For this linkage to work properly, the Placer Order Number and the Filler Order Number must uniquely identify the specific parent OBR.This means that the same Filler Number cannot be used to identify multiple OBRs. OBR-29 **SHOULD** be populated when linking child sensitivities or susceptibilities to the parent OBR.  |
| 59 | Section 5.2.4 | OBR-50 | Updated description to indicate using OBR-50 when linking parent/child results from labs that do not support unique placer or filler order numbers.  | This field has been retained as optional for situations where a unique placer or filler order number is not available. It will allow use of the requisition number in conjunction with the Universal Service ID as a unique identifier for the order. For parent/child result linking to work in these situations, the sending application will need to populate not only OBR-29, but this field also. The receiving application will need to use both OBR-29 and this field to properly link these results. Note that such implementations will not be conformant with this specification, but optional support for this field has been retained to allow for this use.  |
| 60  | Section 5.2.5 | OBX-4 | Updated Conformance Statement CN-021 to clearly explain the requirements for OBX-3 and OBX-4 to be unique among different repeating groups.  | **CONFORMANCE STATEMENT CN-021:** Each OBX within a repeating group **SHALL** have the same numeric value in OBX-4 AND the combination of OBX-3 and OBX-4 **SHALL** be unique among different repeating groups in the same Order\_Observation group. |
| 61 | Section 4.4 | CWE | The Condition Predicate to require CWE component 9 was not implementable as written resulting in false errors expecting a value in the 9th component based on component 1 or component 4 being populated. Removed the Condition Predicate and updated the usage from C(R/RE) to RE, conformance statements or further requirements for the CWE 9th component will be provided in the MMG to resolve the issue.Removed: **Condition Predicate:** If components 1 (Identifier) OR components 4 (alternate identifier) are valued. | Usage: RE |
| 62 | Various | Document Name | Document name updated to be more consistent with previous versions of the document to correct confusion. Corrected various locations that reference the name directly. | PHIN MESSAGING SPECIFICATION for CASE NOTIFICATION*ORU^R01 Message Structure Specification/Profile* |
| 63 | Various |  | Replaced “guide” throughout to align with new document name.  | Replaced “guide” with “specification”.  |
| 64 | Section 4.18 | PRL | Updated sentence to help clarify it, added parentheses.  | For example, if the current order identifies susceptibility testing, the value in OBR-26 PRL datatype identifies the organism the testing is being performed on by referencing the performed test (which isolated the organism) and the respective sub-ID (which identify the correct result value). |
| 65 | Section 5.2.1 | MSH-3 | Added wording to help clarify the use of unique OID(s).  | A public health agency (PHA) with the authority to send HL7 case notifications to CDC should use a unique Object Identifier (OID) in this field to indicate the specific PHA system from which the case notification data is being sent. Each PHA sending system should have its own unique OID. (Refer to TA and Training Resource Center at <https://www.cdc.gov/nmi/ta-trc/index.html> for further resources). |
| 66 | Section 5.2.1 | MSH-4 | Added wording to help clarify the use of unique OID(s). | A public health agency with the authority to send HL7 case notifications to CDC should use a consistent Object Identifier (OID) in this field to identify the PHA.(Refer to TA and Training Resource Center at <https://www.cdc.gov/nmi/ta-trc/index.html> for further resources). |
| 67 | Section 4.19 | PT -Processing Type  | Corrected data type definition, components length was incorrect.  | Update PT components Processing ID and Processing Mode length from 3 to 1.  |
|  | **Location** | **Field Name** | **Change Identified in v3.0, Release 2** | **Revision in v3.0, Release 2.1** |
| 68 | Title Page and Revision History | Pages 1-3 |  | Version 3.0 Release 2.1Publication HistoryJanuary 19, 2018 |
| 69 | Various | Various | Updated calculated lengths for various data type definitions and fields, data type lengths needed to be updated based on previous length changes. Calculated lengths for this profile were not recalculated after updates, the 2.5.1 base standard lengths were given or were incorrectly referenced.  | CQ.2, Updated CE from 483 to 841.PRL.1, Updated CE from 483 to 841.OBR-16, Updated from 3242 to 3725.OBR-26, Updated from 755 to 1113.OBR-50, Updated from 841 to 1063.OBX-6, Updated from 62 to 841.OBX-15, Updated from 250 to 841.OBX-16, Updated from 3242 to 3725.OBX-17, Updated from 250 to 841.OBX-18, Updated from 424 to 427.OBX-23, Updated from 567 to 563.OBX-25, Updated from 3242 to 3725.SPM-13, Updated from 20 to 16.SPM-25, Updated from 20 to 858. |
| 70 | Section 1.2 | Page 9 | Updated Acronyms to include MMWR.  | Added: “MMWR - Morbidity and Mortality Weekly Report” |
| 71 | Section 1.3 | Page 9 | Updated wording and reference to the location of NNDSS data, previously published in the MMWR.  | Added wording: “publication of NNDSS data available through links on the NNDSS Data and Statistics page at <https://wwwn.cdc.gov/nndss/data-and-statistics.html>. NNDSS data were previously published in the *Morbidity and Mortality Weekly Report* (*MMWR*).” |
|  | **Location** | **Field Name** | **Change Identified in v3.0, Release 2.1** | **Revision in v3.0, Release 2.2** |
| 72 | Title Page and Revision History | Pages 1-3 |  | Version 3.0 Release 2.2Publication HistoryApril 1, 2018 |
| 73 | Table 3.2 | Various | Added message element attribute description for length (LEN), updated details on how the LEN attributes are to be used.  | Data field length, indicates the length to be used for a given data type or the calculated length to be used for a message element in this profile. Following conventions have been applied regarding maximum lengths: 1. The maximum length of the data field shall be expressed as a number.
2. If the maximum length needs to convey the notion of a Very Large Number, the number 65536 should be displayed.

If the maximum length cannot be definitively expressed because the data type for the field is variable, the symbolic number 99999 should be displayed.  |
| 74 | Section 4.14 | Page 35 | Updated ID Data Type reference to varies.  | Removed wording 'Varies' Updated length to '99999' to use HL7 2.5.1 standard representation of varies. (Based on length references and updates) |
| 75 | Section 4.24 | Page 39 | Updated TX Data Type reference to max length. | Updated length to 65536 to indicate arbitrary length of 65536, based on HL7 2.5.1 length reference.  |
| 76 | Various | Various | Updated various typos and corrections.  | Section 4.21, Corrected typo in examples for ratio, updated 128 to 228 to match example. PID.32, Updated length from 1 to 20.NK1.10, Updated length to 60.OBR-13, Updated length from 200 to 199.SPM.6, Updated Data Type to CWE and corresponding length to 1063.  |
| Implementation of Versioning: |
|  | **Location** | **Field Name** | **Chang Identified in v3.0, Release 2.2** | **Revision in v3.1** |
| 77 | Title Page and Revision History | Pages 1-3 |  | Version 3.1Publication HistoryOct 1, 2018 |
| 78 | Section 4.5 | Page 32 | Updated CX.1 (ID Number) to max length.  | Updated length to 199 to allow for maximum patient identifier lengths.  |
| 79 | Table 5.2.2 | Page 51 | Updated PID.3 ( Patient Identifier List) Calculated Length.  | Updated calculated length to 2821 due to the increased length of CX.1. |
| 80 | Table 5.2.3 | Page 55 | Updated NK1.12 (NOK/Assoc Parties Employee Number) Calculated Length.  | Updated calculated length to 2821 due to the increased length of CX.1. |
| 81 | Table 5.2.5 | Page 69 | Updated Cardinality for OBX-17 (Observation Method).  | Updated cardinality from [0..1] to [0..\*] to align with ELR and expected values from laboratory data. |
|  | **Location** | **Field Name** | **Change Identified in v3.1** | **Revision in v3.1.1** |
| 82 | Title Page and Revision History | Pages 1-3 |  | Version 3.1.1Publication HistoryAugust 5, 2021 |
| 83 | Various | Pages 9 | Updated URL links. | Updated link <https://wwwn.cdc.gov/nndss/data-and-statistics.html>to<https://www.cdc.gov/nndss/data-statistics/index.html>. |
| 84 | Various | Pages 13, 22 | Updated URL links. | Updated link <https://wwwn.cdc.gov/nndss/case-notification/related-documentation.html>to <https://ndc.services.cdc.gov/supporting-documents-for-implementation/>. |
| 85 | 2.1.2 User Story | Page 13 | Added URL link. | Added link to replace old reference to the “FAQs for MMG Implementation” document and updated wording to point to the relevant section of the Q&A for implementation page <https://www.cdc.gov/nndss/trc/mmg/implementation-faq.html>. |
| 86 | Various | Pages 47, 48 | Removed OID reference and URL link. | Removed reference and link to the “Technical Resource Center” since the link did not provide useful information regarding OIDs for sending facilities. |
| 87 | Various | Pages 63 | Updated URL links. | Updated links <http://wwwn.cdc.gov/nndss/document/Generic_Data_Elements_that_Define_a_Unique_Case.docx>to (see Generic Data Elements that Define a Unique Case on the Supporting Documents for Implementation section of the NNDSS website <https://ndc.services.cdc.gov/supporting-documents-for-implementation/>). |

1. http://www.ietf.org/rfc/rfc2119.txt [↑](#footnote-ref-2)
2. There are multiple interpretations of “RE” when a value is known. One is “the capability must always be supported and a value is sent if known”; the other is “the capability must always be supported and a value may or may not be sent even when known based on a condition external to the profile specification. The condition may be noted in the profile but cannot be processed automatically.” This is what can be interpreted from the “relevant” part of the definition. Regardless of the interpretation the “RE” usage code, a set of test circumstances can be developed to sufficiently test the “RE” element. See the “Conformity Assessment of Conformance Constructs” section for more details. [↑](#footnote-ref-3)