

# **Pennsylvania Department of Health**

## **Electronic Laboratory Reporting (PA-ELR)**

### **Health Level Seven (HL7) Version 2.3.1 Guidelines**

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## 1. Introduction

This document is the Pennsylvania Department of Health's (PADOH) supplement to the Health Level Seven (HL7) implementation guide published by the Centers for Disease Control and Prevention (CDC):

- [Implementation Guide for Transmission of Laboratory-Based Reporting of Public Health Information using Version 2.3.1 of the Health Level Seven \(HL7\) Standard Protocol](#) – dated May 21, 2004.

This document is a specific implementation guide published by the CDC to define how reportable diseases should be communicated via electronic methods from laboratories to public health agencies through the use of HL7. As in the guide, this document follows the HL7 specification for version 2.3.1 and focuses on one type of HL7 message, the Observational Report – Unsolicited (ORU).

Complete information on the Health Level Seven standard can be found below:

- [HL7 Standard Version 2.3.1](#) – Approved as ANSI Standard on April 14, 1999

While the HL7 specifications do not stipulate which coding system or dictionary of terms to use, the CDC implementation guides provide recommendations as to which coding systems to utilize. This document further refines those recommendations into specific PADOH requirements for the utility and requirement of each data field and associated coding systems of ORU messages that are provided to the Pennsylvania Department of Health.

A prospective Trading Partner must assess the vocabulary of PA-ELR standard codes as described in the PA-ELR HL7 2.3.1 Guidelines, and determine whether they will translate local codes to standard codes prior to issuing messages to the PA-ELR system, or work with the PA-ELR project team during the On-Boarding Process to produce code mappings that the PA-ELR system will use to translate their messages upon receipt. Trading Partner code mappings only can be established for certain standard code tables. For all other fields that utilize code tables, only a code belonging to the standard code set for that field can be accepted. See the section entitled Code Mapping for more information.

This document also includes, where applicable, any restrictions or deviations from the standard PADOH and CDC HL7 guidelines that may be required for certain test types and/or PADOH program areas. These variations as well as related sample HL7 messages are organized by program area in the Program Area Specific Guidelines section. As these additional guidelines supersede those published as standard guidelines, it is recommended that this section be read in full before starting implementation.

### 1.1. Definitions

**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, 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. The Segment Terminator at the end of each segment can be denoted in 2 ways: (1) The hex characters "0D0A" (equivalent to a Carriage Return and Line Feed – "<CRLF>"), or (2) the hex characters "0D" (equivalent to a Carriage Return – "<CR>").



**Field:** A field is a string of characters. Each field is identified by the segment it is in and the position within the segment (e.g., PID-5 if the fifth field of the PID segment). Optional data fields need not be valued.

**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 required to be valued, and some components may be ignored. A component may, in turn, be logically grouped into subcomponents.

**Message Syntax:** The abstract message is defined in special notation that lists the three-letter segment identifiers in the order they will appear in the message. Braces (“{” and “}”) indicate that one or more of the enclosed group of segments may repeat. Brackets (“[” and “]”) indicate that the enclosed group of segments is optional.

**Delimiters:** The delimiters to be used for PADOH-based laboratory messages are as follows: (1) the hex characters “0D0A” (equivalent to a Carriage Return and Line Feed – “<CRLF>”), or (2) the hex characters “0D” (equivalent to a Carriage Return – “<CR>”) – Segment Terminator; “|” – Field Separator; “^” – Component Separator; “&” – Sub-Component Separator; “~” – Repetition Separator; and “\” – Escape Character (see section 1.5 Use of Escape Sequences in Text Fields). Any trailing delimiters found after the last field in a segment, while not accepted, will not cause any errors in the receiving application.

## 1.2. Message Construction Rules

Components, subcomponents, or repetitions that are not valued at the end of a field do not need to be represented by separators.

If a data segment that is expected is not included, it will be treated as if all data fields within the segment were not present.

If a data segment is included that was not expected, it will be ignored and will not generate an error.

If unexpected data fields are found at the end of a data segment, they will be ignored and will not generate an error.

## 1.3. Unsolicited Observation Message

Laboratory information is reported through the Observation Report – Unsolicited (ORU) event R01 message to public health agencies. The supported segments in ORU message structure as outlined below:

ORU Segment	ORU Segment Name	HL7 Standard	CDC Guide
MSH	Message Header	Chapter 2	Section 3.1.1
PID	Patient Identification	Chapter 3	Section 3.2.1
NK1	Next of Kin/Associated Parties	Chapter 3	Section 3.2.2
ORC	Order Common	Chapter 4	Section 3.3.1
{			
OBR	Observation Request	Chapter 7	Section 3.3.2
OBX	Observation/Result	Chapter 7	Section 3.3.3

{ [NTE] }                      Notes and Comments                      Chapter 2                      Section 3.3.4  
}

The following deviations from the HL7 Standard Version 2.3.1 message syntax should be noted:

ORU Segment	HL7 Standard Version 2.3.1	Laboratory-Based Reporting
MSH	Required	Single Instance Required, Not Repeatable
PID	Repeating Optional within MSH	Single Instance Required within MSH
NK1	Repeating Optional within PID	Repeating Optional within PID
ORC	Repeating Optional within MSH	Single Instance Required within MSH
OBR	Repeating Required within ORC	Repeating Required within ORC
OBX	Repeating Optional within OBR	Repeating Required within OBR
NTE	Repeating Optional within PID, OBR, OBX	Repeating Optional within OBX

The HL7 Standard Version 2.3.1 allows for the following segments in the standard ORU message, but these segments are not defined or used in laboratory-based reporting. While these segments will be ignored, messages that contain these segments will not be rejected:

- PD1 – Patient Additional Demographics
- PV1 – Patient Visit
- PV2 – Patient Visit – Additional Info
- CT1 – Clinical Trial Identifier
- DSC – Continuation Pointer

For the purposes of determining whether to issue an HL7 message to PA-ELR, the ORU event should be considered to have occurred when an instance of a report for a reportable condition for an eligible subject becomes available. If one or more required data elements are not present, the report is considered incomplete and cannot be fully processed in its original state, but it should still be transmitted.

#### 1.4. Segment Attributes

**SEQ:** The sequence of the field as it is numbered in the segment.

**LEN:** The length of the field within the segment. Exceeding the length listed will not be considered an error.

**DT:** The data type of the element. The data types employed are as followed:

DT	Description	Explanation/Format
CE	Coded element	This data type transmits codes and the text associated with the code. <i>&lt;identifier (ST)&gt; ^ &lt;text (ST)&gt; ^ &lt;name of coding system (ST)&gt; ^ &lt;alternate identifier (ST)&gt; ^ &lt;alternate text (ST)&gt; ^ &lt;name of alternate coding system (ST)&gt;</i>
CM	Composite	A field that is a combination of other meaningful data fields. The specific components of CM fields are defined within the field description, not by the data type itself.
CQ	Composite quantity with units	Used to express a quantity, and the units in which the quantity is expressed. <i>&lt;quantity (NM)&gt; ^ &lt;units (CE)&gt;</i>
CX	Extended composite ID with check digit	Used to express an alphanumeric identifier, a check digit and scheme, and the source of the identifier, check digit, and scheme. <i>&lt;ID (ST)&gt; ^ &lt;check digit (ST)&gt; ^ &lt;code identifying the check digit scheme employed (ID)&gt; ^ &lt; assigning authority (HD)&gt; ^ &lt;identifier type code (IS)&gt; ^ &lt; assigning facility (HD)&gt;</i>
DLN	Driver's license number	<i>&lt;license number (ST)&gt; ^ &lt;issuing state, province, country (IS)&gt; ^ &lt;expiration date (DT)&gt;</i>
DT	Date	YYYYMMDD
EI	Entity identifier	The entity identifier permits the identification of a given entity within an application or system. <i>&lt;entity identifier (ST)&gt; ^ &lt;namespace ID (IS)&gt; ^ &lt;universal ID (ST)&gt; ^ &lt;universal ID type (ID)&gt;</i>
FT	Formatted text	This data type is derived from the string data type by allowing the addition of embedded formatting instructions.
HD	Hierarchic designator	A unique name that identifies the system which was the source of the data. The HD is designed to be used by either as a local version of a site-defined application identifier or a publicly-assigned UID. <i>&lt;namespace ID (IS)&gt; ^ &lt;universal ID (ST)&gt; ^ &lt;universal ID type (ID)&gt;</i>
ID	Coded value for HL7-defined tables	The value of such a field follows the formatting rules for an ST field except that it is drawn from an HL7-defined table. A specific HL7 table number is inherently associated with the field, rather than explicitly stated, when this data type is used.
IS	Coded value for user-defined tables	The value of such a field follows the formatting rules for an ST field except that it is drawn from a user-defined table. A specific HL7 table number is inherently associated with the field, rather than explicitly stated, when this data type is used.
NM	Numeric	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. Leading zeros, or trailing zeros after a decimal point, are not significant.
PT	Processing type	<i>&lt;processing ID (ID)&gt; ^ &lt;processing mode (ID)&gt;</i>
SI	Sequence ID	A non-negative integer in the form of an NM field.

DT	Description	Explanation/Format
SN	Structured numeric	The structured numeric data type is used to unambiguously express numeric clinical results along with qualifications. <i>&lt;comparator (ST)&gt; ^ &lt;num1 (NM)&gt; ^ &lt;separator/suffix&gt; ^ &lt;num2 (NM)&gt;</i>
ST	String data	Any printable ASCII characters except the defined delimiter characters. To include any HL7 delimiter character (except the segment terminator) within a string data field, the appropriate HL7 escape sequence must be used. String data is left justified with trailing blanks optional.
TM	Time	<i>HH[MM[SS[.S[S[S[S]]]]]][/-ZZZZ]</i>
TS	Timestamp	<i>YYYYMMDD[HH[MM[SS[.S[S[S[S]]]]]][/-ZZZZ]</i>
TX	Text data	String data meant for user display (on a terminal or printer). Not necessarily left justified. Leading spaces may contribute to clarity of the presentation to the user.
VID	Version identifier	Used to identify the HL7 version. <i>&lt;version ID (ID)&gt; ^ &lt;internationalization code (CE)&gt; ^ &lt;international version ID (CE)&gt;</i>
XAD	Extended address	Used to express address data associated with a person or institution. <i>&lt;street address (ST)&gt; ^ &lt;other designation (ST)&gt; ^ &lt;city (ST)&gt; ^ &lt;state or province (ST)&gt; ^ &lt;zip or postal code (ST)&gt; ^ &lt;country (ID)&gt; ^ &lt;address type (ID)&gt; ^ &lt;other geographic designation (ST)&gt; ^ &lt;county/parish code (IS)&gt; ^ &lt;census tract (IS)&gt; ^ &lt;address representation code (ID)&gt;</i>
XCN	Extended composite ID number and name for persons	Used to express person name information in conjunction with a composite ID and check digit. <i>&lt;ID number (ST)&gt; ^ &lt;family name (ST)&gt; &amp; &lt;last_name_prefix (ST)&gt; ^ &lt;given name (ST)&gt; ^ &lt;middle initial or name (ST)&gt; ^ &lt;suffix (e.g., JR or III) (ST)&gt; ^ &lt;prefix (e.g., DR) (ST)&gt; ^ &lt;degree (e.g., MD) (ST)&gt; ^ &lt;source table (IS)&gt; ^ &lt;assigning authority (HD)&gt; ^ &lt;name type code (ID)&gt; ^ &lt;identifier check digit (ST)&gt; ^ &lt;code identifying the check digit scheme employed (ID)&gt; ^ &lt;identifier type code (IS)&gt; ^ &lt;assigning facility (HD)&gt; ^ &lt;name representation code (ID)&gt;</i>
XON	Extended composite name and identification number for organizations	Used to express organization name information in conjunction with a composite ID and check digit. <i>&lt;organization name (ST)&gt; ^ &lt;organization name type code (IS)&gt; ^ &lt;ID number (NM)&gt; ^ &lt;check digit (NM)&gt; ^ &lt;code identifying the check digit scheme employed (ID)&gt; ^ &lt;assigning authority (HD)&gt; ^ &lt;identifier type code (IS)&gt; ^ &lt;assigning facility ID (HD)&gt; ^ &lt;name representation code (ID)&gt;</i>
XPN	Extended person name	Used to express person name information. <i>&lt;family name (ST)&gt; &amp; &lt;last_name_prefix (ST)&gt; ^ &lt;given name (ST)&gt; ^ &lt;middle initial or name (ST)&gt; ^ &lt;suffix (e.g., JR or III) (ST)&gt; ^ &lt;prefix (e.g., DR) (ST)&gt; ^ &lt;degree (e.g., MD) (IST)&gt; ^ &lt;name type code (ID)&gt; ^ &lt;name representation code (ID)&gt;</i>
XTN	Extended telecommunications number	Used to express telecommunications information. <i>[NNN] [(999)]999-9999 [X99999] [B99999] [C any text] ^ &lt;telecommunication use code (ID)&gt; ^ &lt;telecommunication equipment type (ID)&gt; ^ &lt;email address (ST)&gt; ^ &lt;country code (NM)&gt; ^ &lt;area/city code (NM)&gt; ^ &lt;phone number (NM)&gt; ^ &lt;extension (NM)&gt; ^ &lt;any text (ST)&gt;</i>

**R/O:** Whether the field is required ("R"), optional ("O"), or conditional ("C") in the segment.

**RP#:** Indicates whether or not the field repeats in the segment. If the number of repetitions is limited, the number of allowed repetitions is provided.

**TBL#:** Identifies whether the field utilizes one or more tables with standard values to code the field in the segment. The specific table(s) used are detailed in the field definitions within the document itself.

**ITEM#:** The unique HL7 item number for the field.

**ELEMENT NAME:** The descriptive name of the field in the segment.

## 1.5. Use of Escape Sequences in Text Fields

If a character that is reserved as a delimiter is encountered in the contents of a field, component, or subcomponent, it is necessary to represent that character using an "escape sequence". Failure to do so results in the contents of that field, component, or subcomponent being lost during parsing. In this implementation, the use of an escape sequence is possible when the data type is ST or FT.

The escape character is specified in the Escape Character component of MSH-2 Encoding Characters. In this section, the character \ will be used to represent the escape character. An escape sequence consists of the escape character followed by an escape code ID of one character, zero (0) or more data characters, and another occurrence of the escape character. No escape sequence may contain a nested escape sequence.

The escape sequences that available for use in this implementation are defined below.

Escape Sequence	Character(s)
\F\	field separator
\S\	component separator
\R\	repetition separator
\E\	escape character
\T\	subcomponent separator

## 2. Message Header (MSH)

This segment is used to define the intent, source, destination, and some specifics about the syntax of the message. It is a required segment in laboratory-based reports.

MSH fields 1-7 and 9-12 will be used for PADOH electronic laboratory reporting purposes. The remaining fields in the MSH segment will be ignored and thus, are not included in the definition below.

SEQ	LEN	DT	R/O	RP#	TBL#	ITEM#	ELEMENT NAME
1	1	ST	R			00001	Field Separator
2	4	ST	R			00002	Encoding Characters
3	60	HD	O			00003	Sending Application

4	180	HD	R		Y	00004	Sending Facility
5	180	HD	R		Y	00005	Receiving Application
6	180	HD	R		Y	00006	Receiving Facility
7	26	TS	R			00007	Date/Time of Message
9	7	CM	R		Y	00009	Message Type
10	20	ST	R			00010	Message Control ID
11	3	PT	R		Y	00011	Processing ID
12	60	VID	R		Y	00012	Version ID

The following is an example of the Message Header (MSH) segment in HL7 format, including all fields either required or optional in the PADOH supplemental standard:

```
MSH|^~\&|AppName|LabName^12D1234567^CLIA|PA-
ELR|PADOH|20040628||ORU^R01|200406280001|P|2.3.1
```

## 2.1. Field Separator

This field is the character to be used as the field separator for the rest of the message.

<b>Sequence:</b>	MSH-1
<b>Data Type:</b>	String (ST)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

The value to be used as the field separator is "|", ASCII (124).

## 2.2. Encoding Characters

This field contains the characters used as the component separator, repetition separator, escape character, and subcomponent character utilized throughout the message.

<b>Sequence:</b>	MSH-2
<b>Data Type:</b>	String (ST)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

The component separator is the first of the four characters. The value to be used is "^", ASCII(94).

The repetition separator is the second of the four characters. The value to be used is "~", ASCII(126).

The escape character is the third of the four characters. The value to be used is "\", ASCII(92).

The subcomponent character is the fourth of the four characters. The value to be used is "&", ASCII(38).

### 2.3. Sending Application

This field uniquely identifies the sending application among all other applications within the network enterprise.

<b>Sequence:</b>	MSH-3
<b>Data Type:</b>	Hierarchic Designator (HD)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Namespace ID (IS) – Required</li> <li>2. Universal ID (ST) – Ignored</li> <li>3. Universal ID Type (ID) – Ignored</li> </ol>

The namespace ID must be the name of the sending application.

#### 2.3.1. Table HL70361 – Sending/Receiving Application

Value	Description
PA-ELR	Pennsylvania Department of Health
<i>Others To Be Defined</i>	<i>To Be Defined</i>

### 2.4. Sending Facility

This originator of the HL7 message will place the text name of the sending laboratory or site, followed by the unique Clinical Laboratory Improvement Act (CLIA) identifier of the originating institution.

<b>Sequence:</b>	MSH-4
<b>Data Type:</b>	Hierarchic Designator (HD)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70300 – Namespace ID</a> <a href="#">HL70301 – Universal ID Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Namespace ID (IS) – Required</li> <li>2. Universal ID (ST) – Required</li> <li>3. Universal ID Type (ID) – Required</li> </ol>

The namespace ID must be the text name of the sending laboratory.

The universal ID must be the CLIA number of the sending laboratory.

The universal ID type must be "CLIA", indicating that the universal ID is a nationally assigned unique identifier.

2.4.1. *Table HL70300 – Namespace ID*

Value	Description
PADOH	Commonwealth of Pennsylvania
<i>Others To Be Defined</i>	<i>To Be Defined</i>

2.4.2. *Table HL70301 – Universal ID Type*

Value	Description
CLIA	Clinical Laboratory Improvement Amendments identifier.
L	Reserved for locally defined coding schemes.

## 2.5. Receiving Application

This field uniquely identifies the receiving application among all other applications within the network enterprise.

<b>Sequence:</b>	MSH-5
<b>Data Type:</b>	Hierarchic Designator (HD)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70361 – Sending/Receiving Application</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Namespace ID (IS) – Required</li> <li>2. Universal ID (ST) – Ignored</li> <li>3. Universal ID Type (ID) – Ignored</li> </ol>

The namespace ID must be “PA-ELR”, to denote the name of the receiving application.

## 2.6. Receiving Facility

This field identifies the receiving application among multiple identical applications running on behalf of different organizations.

<b>Sequence:</b>	MSH-6
<b>Data Type:</b>	Hierarchic Designator (HD)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70300 – Namespace ID</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Namespace ID (IS) – Required</li> <li>2. Universal ID (ST) – Ignored</li> <li>3. Universal ID Type (ID) – Ignored</li> </ol>

The namespace ID must be “PADOH”, to denote the name of the receiving facility.



## 2.7. Date/Time of Message

This field contains the date/time that the sending system created the message.

<b>Sequence:</b>	MSH-7
<b>Data Type:</b>	Timestamp (TS) <sup>1</sup>
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

The time zone is assumed to be that of the sender.

<sup>1</sup>Use the abbreviated Timestamp format YYYYMMDD.

## 2.8. Message Type

This field is used by the receiving system to know the data segments to recognize and the application to which to route this message.

<b>Sequence:</b>	MSH-9
<b>Data Type:</b>	Composite (CM)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70076 – Message Type</a> <a href="#">HL70003 – Event Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Message Type (IS) – Required</li> <li>2. Trigger Event (IS) – Required</li> <li>3. Message Structure (IS) – Ignored</li> </ol>

The message type must be equal to "ORU", to denote an unsolicited transmission of an observation message.

The event type must be "R01", to denote an unsolicited transmission of an observation message.

### 2.8.1. Table HL70076 – Message Type

Value	Description
ORU	Unsolicited Observation Results

### 2.8.2. Table HL70003 – Event Type

Value	Description
R01	ORU – Unsolicited Observation Results

## 2.9. Message Control ID

This field contains a number or other identifier that uniquely identifies the message.

<b>Sequence:</b>	MSH-10
<b>Data Type:</b>	String (ST)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

The identifier should be built using a combination of a date and counter in the following format: YYYYMMDDNNNN, where YYYY is the four-digit year, MM is the two-digit month, DD is the two-digit day, and NNNN is the four-digit sequence.

## 2.10. Processing ID

This field is used to decide how to process the message as defined in HL7 processing rules.

<b>Sequence:</b>	MSH-11
<b>Data Type:</b>	Processing Type (PT)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70103 – Processing ID</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Processing ID (ID) – Required</li> <li>2. Processing Mode (ID) – Ignored</li> </ol>

The processing ID must be "P", to denote the production application.

### 2.10.1. Table HL70103 – Processing ID

Value	Description
P	Production

## 2.11. Version ID

This field is matched by the receiving system to its own HL7 version to be sure the message will be interpreted correctly.

<b>Sequence:</b>	MSH-12
<b>Data Type:</b>	Version Identifier (VID)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70104 – Version ID</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Version ID (ID) – Required</li> <li>2. Internationalization Code (CE) – Ignored</li> </ol>

	3. International Version ID (CE) – Ignored
--	--

## 2.11.1. Table HL70104 – Version ID

Value	Description
2.3.1	Release 2.3.1 May 1999

### 3. Patient Identification (PID)

This segment is used as the primary means of communicating patient identification information. It contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

PID fields 3, 5-11, 13-14, 16, 20-22, 24-25, and 29-30 will be used for PADOH electronic laboratory reporting purposes. The remaining fields in the PID segment will be ignored- and thus, are not included in the definition below.

For laboratory-based reporting, it is strongly recommended that information for only one patient be sent per message. In other words, only one PID should be reported per MSH.

SEQ	LEN	DT	R/O	RP#	TBL#	ITEM#	ELEMENT NAME
3	20	CX	O	Y	Y	00106	Patient Identifier List
5	48	XPN	R		Y	00108	Patient Name
6	48	XPN	O		Y	00109	Mother's Maiden Name
7	26	TS	C			00110	Date/Time of Birth
8	1	IS	R		Y	00111	Sex
9	48	XPN	O	Y	Y	00112	Patient Alias
10	80	CE	O	Y	Y	00113	Race
11	106	XAD	O	Y	Y	00114	Patient Address
13	40	XTN	O		Y	00116	Phone Number – Home
14	40	XTN	O		Y	00117	Phone Number – Business
16	80	CE	O		Y	00119	Marital Status
20	25	DLN	O		Y	00123	Driver's License Number – Patient
21	20	CX	O		Y	00124	Mother's Identifier
22	80	CE	O	Y	Y	00125	Ethnic Group
24	1	ID	O		Y	00127	Multiple Birth Indicator
25	2	NM	O			00128	Birth Order
29	26	TS	O			00740	Patient Death Date and Time
30	1	ID	O		Y	00741	Patient Death Indicator

For the PID segment, fields 2, 4, 12, and 19 are supported for backward compatibility only. Data that was previous provided through those fields, should now be provided through the following:

- PID-2 (Patient ID (External)) should be now provided through PID-3 (Patient Identifier List).

- PID-4 (Alternate Patient ID – PID) should now be provided through PID-3 (Patient Identifier List).
- PID-12 (County Code) should now be provided through PID-11 (Patient Address).
- PID-19 (SSN Number – Patient) should now be provided through PID-3 (Patient Identifier List).

The following is an example of the Patient Identification (PID) segment in HL7 format, including all fields either required or optional in the PADOH supplemental standard:

```
PID|||1234567890^^^PI~987654321^^^SS~456123789^^^MEDASSIST^LabName&12D1234
567&CLIA||Donald&Mac^John^M^Jr^Mr^PHD^L|Donald&Mac^Jane^M^III^Mrs^DDS^M|19780
809000000|F|Donald&Mc^John^M^Jr^Mr^PHD^A|A^Asian^HL70005^A^Asian^L|100MainSt^
AptB^Harrisburg^PA^12345^USA^P^^42043||^PRN^PH^jdoe@isp.com^1^222^5551212^123
^Callbefore6pm|^WPN^CP^jdoe@isp.com^1^222^5551212^123^Callbefore6pm||M^Marrie
d^HL70002^M^Married^L|||12345678^PA^20101231|555555555^^^PT^HospitalName&2
1A7654321&CLIA|U^Unknown^HL70189||Y|2|||20040315064500|Y
```

### 3.1. Patient Identifier List

This field contains the list of identifiers (one or more) used to identify a patient. Examples of important values that may be reported in this field include SSN, medical assistance number, etc.

<b>Sequence:</b>	PID-3
<b>Data Type:</b>	Extended Composite ID with Check Digit (CX)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	Yes
<b>Table Number:</b>	<a href="#">HL70203 – Identifier Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. ID (ST) – Required</li> <li>2. Check Digit (ST) – Ignored</li> <li>3. Check Digit Scheme (ID) – Ignored</li> <li>4. Assigning Authority (HD) – Ignored</li> <li>5. Identifier Type Code (IS) – Required</li> <li>6. Assigning Facility (HD) – Optional</li> </ol>

For laboratory-based reporting, the components of assigning facility should be provided as follows:

- Namespace ID: The name of the originating laboratory
- Universal ID: The unique CLIA number of the originating laboratory
- Universal ID Type: "CLIA"

Anonymous identifiers can be used in PID-3 by replacing the medical record number or other non-anonymous identifier. The type code for an anonymous identifier will be "ANON." It is important that the receiver of the data (PADOH) be able to determine that the identifier is in fact created through some anonymizing scheme. This is done by placing the creator of the scheme in the subcomponent for the Assigning Facility.

3.1.1. Table HL70203 – Identifier Type Code

Value	Description
AN	Account Number
ANON	Anonymous Identifier
BR	Birth Registry Number
DL	Driver's License Number
DN	Doctor Number
EI	Employee Number
EN	Employer Number
FI	Facility Identifier
GI	Guarantor Internal Identifier
GN	Guarantor External Identifier
ITIN	Individual Tax Identification Number
LN	License Number
LR	Local Registry ID
MA	Medicaid Number
MEDASSIST	Medical Assistance
MR	Medical Record Number
NE	National Employer Identifier
NH	National Health Plan Identifier
NI	National Unique Individual Identifier
NPI	National Provider Identifier
OEI	Orderer Employee Number
PI	Patient Internal Identifier
PN	Person Number
PRN	Provider Number
PT	Patient External Identifier
REI	Recorder Employee Number
RR	Railroad Retirement Number
RRI	Regional Registry ID
SL	State License
SR	State Registry ID
SS	Social Security Number
U	Unspecified
UPIN	Medicare/HCFAs Universal Physician ID Numbers
VEI	Vaccinator Employee Number

VN	Visit Number
XX	Organization Identifier

### 3.2. Patient Name

This field contains the current, assumed legal name, of the patient.

<b>Sequence:</b>	PID-5
<b>Data Type:</b>	Extended Person Name (XPN)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No <sup>1</sup>
<b>Table Number:</b>	<a href="#">HL70360 – Degree</a> <a href="#">HL70200 – Name Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Family Name (ST) – Required<sup>2</sup></li> <li>2. Given Name (ST) – Required</li> <li>3. Middle Initial or Name (ST) – Optional</li> <li>4. Suffix (ST) – Optional</li> <li>5. Prefix (ST) – Optional</li> <li>6. Degree (IS) – Optional</li> <li>7. Name Type Code (ID) – Required<sup>3</sup></li> <li>8. Name Representation Code (ID) – Ignored</li> </ol>

<sup>1</sup>Repetition of this field is allowed only for representing the same name in different character sets – a situation that will rarely arise. Therefore, for practical purposes, this field should be considered not repeating.

<sup>2</sup>The Last Name Prefix subcomponent, within the Family Name component, is Optional.

<sup>3</sup>The name type code in this field should always be “L”, indicating a Legal name.

#### 3.2.1. Table HL70360 – Degree

Value	Description
PN	Advanced Practice Nurse
AAS	Associate of Applied Science
AA	Associate of Arts
AS	Associate of Science
BA	Bachelor of Arts
BN	Bachelor of Nursing
BS	Bachelor of Science
BSN	Bachelor of Science in Nursing
CER	Certificate

CANP	Certified Adult Nurse Practitioner
CMA	Certified Medical Assistant
CNM	Certified Nurse Midwife
CNP	Certified Nurse Practitioner
CNS	Certified Nurse Specialist
CAN	Certified Nurse's Assistant
CPNP	Certified Pediatric Nurse Practitioner
CRN	Certified Registered Nurse
DIP	Diploma
MD	Doctor of Medicine
DO	Doctor of Osteopathy
PharmD	Doctor of Pharmacy
PHD	Doctor of Philosophy
EMT	Emergency Medical Technician
EMT-P	Emergency Medical Technician – Paramedic
FPNP	Family Practice Nurse Practitioner
HS	High School Graduate
JD	Juris Doctor
LPN	Licensed Practical Nurse
MA	Master of Arts
MBA	Master of Business Administration
MPH	Master of Public Health
MS	Master of Science
MSN	Master of Science – Nursing
MDA	Medical Assistant
MT	Medical Technician
NG	Non-Graduate
NP	Nurse Practitioner
PA	Physician Assistant
PHN	Public Health Nurse
RMA	Registered Medical Assistant
RN	Registered Nurse
RPH	Registered Pharmacist
SEC	Secretarial Certificate
TS	Trade School Graduate

3.2.2. *Table HL70200 – Name Type*

Value	Description
C	Adopted Name
A	Alias Name
D	Display Name
L	Legal Name
M	Maiden Name
B	Name at Birth
P	Name of Partner/Spouse
U	Unspecified

3.3. **Mother's Maiden Name**

This field contains the family name under which the mother was born (i.e., before marriage). It is used to distinguish between patients with the same last name.

<b>Sequence:</b>	PID-6
<b>Data Type:</b>	Extended Person Name (XPN)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70360 – Degree</a> <a href="#">HL70200 – Name Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Family Name (ST) – Required<sup>1</sup></li> <li>2. Given Name (ST) – Optional</li> <li>3. Middle Initial or Name (ST) – Optional</li> <li>4. Suffix (ST) – Optional</li> <li>5. Prefix (ST) – Optional</li> <li>6. Degree (IS) – Optional</li> <li>7. Name Type Code (ID) – Required<sup>2</sup></li> <li>8. Name Representation Code (ID) – Ignored</li> </ol>

<sup>1</sup>The Last Name Prefix subcomponent, within the Family Name component, is Optional.

<sup>2</sup>The name type code must be valued "M – Maiden Name".

If additional information about the mother is to be provided, the NK1 segment should be used.

3.4. **Date/Time of Birth**

This field contains the patient's date and time of birth.

<b>Sequence:</b>	PID-7
------------------	-------



<b>Data Type:</b>	Timestamp (TS) <sup>1</sup>
<b>Required/Optional:</b>	Conditional <sup>2</sup>
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

<sup>1</sup>Use the abbreviated Timestamp format YYYYMMDD.

<sup>2</sup>If the patient's date of birth is not available, the patient's age must be reported using the OBX-2, OBX-3 and OBX-5 fields. More details on reporting age are available in the Section for Observation Identifier (OBX-3).

### 3.5. Sex

This field contains the patient's sex.

<b>Sequence:</b>	PID-8
<b>Data Type:</b>	Coded Value for User-Defined Table (IS)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70001 – Sex</a>

If the patient's Sex is not available, use Sex code U – Unknown.

#### 3.5.1. Table HL70001 – Sex

Value	Description
F	Female
H	Hermaphrodite, Undetermined
M	Male
O	Other
T	Transsexual

### 3.6. Patient Alias

This field contains names by which the patient has been known at some time.

<b>Sequence:</b>	PID-9
<b>Data Type:</b>	Extended Person Name (XPN)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	Yes
<b>Table Number:</b>	<a href="#">HL70360 – Degree</a> <a href="#">HL70200 – Name Type</a>
<b>Components:</b>	1. Family Name (ST) – Optional

	<ol style="list-style-type: none"> <li>2. Given Name (ST) – Optional</li> <li>3. Middle Initial or Name (ST) – Optional</li> <li>4. Suffix (ST) – Optional</li> <li>5. Prefix (ST) – Optional</li> <li>6. Degree (IS) – Optional</li> <li>7. Name Type Code (ID) – Required<sup>1</sup></li> <li>8. Name Representation Code (ID) – Ignored</li> </ol>
--	--

<sup>1</sup>The name type code must be valued "A", indicating an alias.

### 3.7. Race

This field identifies the patient's race.

<b>Sequence:</b>	PID-10
<b>Data Type:</b>	Coded Element (CE)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	Yes
<b>Table Number:</b>	<a href="#">HL70005 – Race</a> <a href="#">HL70396 – Coding System</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Identifier (ST) - Required</li> <li>2. Text (ST) - Required</li> <li>3. Code System (ST) - Required</li> <li>4. Alternate Identifier (ST) - Optional</li> <li>5. Alternate Text (ST) - Optional</li> <li>6. Alternate Code System (ST) – Optional</li> </ol>

When one of the alternate components is provided, all are required.

#### 3.7.1. Table HL70005 – Race

Value	Description
I	American Indian or Alaska Native
A	Asian
B	Black or African-American
H	Hispanic or Latino
P	Native Hawaiian or Other Pacific Islander
O	Other
U	Unknown
W	White

## 3.7.2. Table HL70396 – Coding System

Value	Description
CDCM	CDC Methods/Instruments Codes
HL7nnnn	HL7 Defined Codes (where nnnn is the table number)
I9C	International Classification of Diseases, Ninth Revision
ISO+	ISO Customary Units
L	Local Code
LN	Logical Observation Identifier Names and Codes
SNM	Systematized Nomenclature of Human and Veterinary Medicine

## 3.8. Patient Address

This field lists the mailing address of the patient. The first sequence is considered the primary address of the patient.

<b>Sequence:</b>	PID-11
<b>Data Type:</b>	Extended Address (XAD)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	Yes
<b>Table Number:</b>	<a href="#">HL70212 – Nationality</a> <a href="#">HL70190 – Address Type</a> <a href="#">HL70289 – County/Parish</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Street Address (ST) – Optional</li> <li>2. Other Designation (ST) – Optional</li> <li>3. City (ST) – Optional</li> <li>4. State or Province (ST) – Optional</li> <li>5. Zip or Postal Code (ST) – Required</li> <li>6. Country (ID) – Optional</li> <li>7. Address Type (ID) – Required</li> <li>8. Other Geographic Designation (ST) – Optional</li> <li>9. County/Parish Code (IS) – Optional</li> <li>10. Census Tract (IS) – Ignored</li> <li>11. Address Representation Code (ID) – Ignored</li> </ol>

## 3.8.1. Table HL70212 – Nationality

Value	Description
CAN	Canada

MEX	Mexico
USA	United States
UMI	United States Minor Outlying Islands

Note that this is only a partial list. See [section 12](#) for a complete listing of these codes.

### 3.8.2. Table HL70190 – Address Type

Value	Description
C	Current or Temporary
B	Firm/Business
H	Home
M	Mailing
O	Office
P	Permanent
BR	Residence at Birth [use for residence at birth]

### 3.8.3. Table HL70289 – County/Parish

Value	Description
42001	Adams
42003	Allegheny
42005	Armstrong
42007	Beaver
42009	Bedford
42011	Berks
42013	Blair
42015	Bradford
42017	Bucks
42019	Butler
42021	Cambria
42023	Cameron
42025	Carbon
42027	Centre
42029	Chester
42031	Clarion
42033	Clearfield
42035	Clinton
42037	Columbia
42039	Crawford

42041	Cumberland
42043	Dauphin
42045	Delaware
42047	Elk
42049	Erie
42051	Fayette
42053	Forest
42055	Franklin
42057	Fulton
42059	Greene
42061	Huntingdon
42063	Indiana
42065	Jefferson
42067	Juniata
42069	Lackawanna
42071	Lancaster
42073	Lawrence
42075	Lebanon
42077	Lehigh
42079	Luzerne
42081	Lycoming
42083	McKean
42085	Mercer
42087	Mifflin
42089	Monroe
42091	Montgomery
42093	Montour
42095	Northampton
42097	Northumberland
42099	Perry
42101	Philadelphia
42103	Pike
42105	Potter
42107	Schuylkill
42109	Snyder
42111	Somerset
42113	Sullivan

42115	Susquehanna
42117	Tioga
42119	Union
42121	Venango
42123	Warren
42125	Washington
42127	Wayne
42129	Westmoreland
42131	Wyoming
42133	York

### 3.9. Phone Number – Home

This field contains the patient's personal phone numbers. The first sequence is considered the primary personal number of the patient.

<b>Sequence:</b>	PID-13
<b>Data Type:</b>	Extended Telecommunications Number (XTN)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70201 – Telecommunication Use Code</a> <a href="#">HL70202 – Telecommunication Equipment Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Phone Number (ST/TN) – Ignored</li> <li>2. Telecommunications Use Code (ID) - Optional</li> <li>3. Telecommunications Equipment Type (ID) – Required</li> <li>4. Email Address (ST) – Optional</li> <li>5. Country Code (NM) – Optional</li> <li>6. Area/City Code (NM) – Conditional<sup>1</sup></li> <li>7. Phone Number (NM) – Optional</li> <li>8. Phone Extension (NM) – Optional</li> <li>9. Any Text (ST) – Optional</li> </ol>

While the HL7 Standard Version 2.3.1 permits repetitions, laboratory-based reporting only expects one home telephone number.

<sup>1</sup>If the seventh component (Phone Number - NM) is not null, the Area/City Code component is required.

#### 3.9.1. Table HL70201 – Telecommunication Use Code

Value	Description
-------	-------------

ASN	Answering Service Number
BPN	Beeper Number
EMR	Emergency Number
NET	Network (email) Address
ORN	Other Residence Number
PRN	Primary Residence Number
VHN	Vacation Home Number
WPN	Work Number

3.9.2. *Table HL70202 – Telecommunication Equipment Type*

Value	Description
BP	Beeper
CP	Cellular Phone
FX	Fax
Internet	Internet Address – Use only if Telecommunications Use Code is NET
MD	Modem
PH	Telephone
X.400	X.400 Email Address – Use only if Telecommunications Use Code is NET

### 3.10. Phone Number – Business

This field contains the patient's business phone number. The first sequence is considered the primary business number of the patient.

<b>Sequence:</b>	PID-14
<b>Data Type:</b>	Extended Telecommunications Number (XTN)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70201 – Telecommunication Use Code</a> <a href="#">HL70202 – Telecommunication Equipment Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Phone Number (ST/TN) – Ignored</li> <li>2. Telecommunications Use Code (ID) - Optional</li> <li>3. Telecommunications Equipment Type (ID) – Required</li> <li>4. Email Address (ST) – Optional</li> <li>5. Country Code (NM) – Optional</li> <li>6. Area/City Code (NM) – Conditional<sup>1</sup></li> <li>7. Phone Number (NM) – Optional</li> <li>8. Phone Extension (NM) – Optional</li> </ol>

	9. Any Text (ST) – Optional
--	-----------------------------

While the HL7 Standard Version 2.3.1 permits repetitions, laboratory-based reporting only expects one home telephone number.

<sup>1</sup>If the seventh component (Phone Number - NM) is not null, the Area/City Code component is required.

### 3.11. Marital Status

This field contains the patient's marital status.

<b>Sequence:</b>	PID-16
<b>Data Type:</b>	Coded Element (CE)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70002 – Marital Status</a> <a href="#">HL70396 – Coding System</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Identifier (ST) - Required</li> <li>2. Text (ST) - Required</li> <li>3. Code System (ST) - Required</li> <li>4. Alternate Identifier (ST) - Optional</li> <li>5. Alternate Text (ST) - Optional</li> <li>6. Alternate Code System (ST) – Optional</li> </ol>

When one of the alternate components is provided, all are required.

#### 3.11.1. Table HL70002 – Marital Status

Value	Description
D	Divorced
M	Married
A	Separated
S	Single
W	Widowed

### 3.12. Driver's License Number – Patient

This field contains the patient's license number.

<b>Sequence:</b>	PID-20
<b>Data Type:</b>	Driver's License Number (DLN)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No



<b>Table Number:</b>	<a href="#">HL70333 – Driver’s License Issuing Authority</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. License Number (ST) – Required</li> <li>2. Issuing State, Province, Country (IS) – Required</li> <li>3. Expiration Date (DT) – Optional</li> </ol>

3.12.1. *Table HL70333 – Driver’s License Issuing Authority*

Value	Description
AK	Alaska
AL	Alabama
AR	Arkansas
AZ	Arizona
CA	California
CO	Colorado
CT	Connecticut
DC	District of Columbia
DE	Delaware
FL	Florida
GA	Georgia
HI	Hawaii
IA	Iowa
ID	Idaho
IL	Illinois
IN	Indiana
KS	Kansas
KY	Kentucky
LA	Louisiana
MA	Massachusetts
MD	Maryland
ME	Maine
MI	Michigan
MN	Minnesota
MO	Missouri
MS	Mississippi
MT	Montana
NC	North Carolina
ND	North Dakota

NE	Nebraska
NH	New Hampshire
NJ	New Jersey
NM	New Mexico
NV	Nevada
NY	New York
OH	Ohio
OK	Oklahoma
OR	Oregon
PA	Pennsylvania
RI	Rhode Island
SC	South Carolina
SD	South Dakota
TN	Tennessee
TX	Texas
UT	Utah
VA	Virginia
VT	Vermont
WA	Washington
WI	Wisconsin
WV	West Virginia
WY	Wyoming

### 3.13. Mother's Identifier

This field is used as a link field for newborns, for example. Typically a patient ID or account number may be used. This field can contain multiple identifiers for the same mother.

<b>Sequence:</b>	PID-21
<b>Data Type:</b>	Extended Composite ID with Check Digit (CX)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70203 – Identifier Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. ID (ST) – Required</li> <li>2. Check Digit (ST) – Ignored</li> <li>3. Check Digit Scheme (ID) – Ignored</li> <li>4. Assigning Authority (HD) – Ignored</li> <li>5. Identifier Type Code (IS) – Required</li> </ol>

## 6. Assigning Facility (HD) – Optional

**3.14. Ethnic Group**

This field further defines the patient's ancestry.

<b>Sequence:</b>	PID-22
<b>Data Type:</b>	Coded Element (CE)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	Yes
<b>Table Number:</b>	<a href="#">HL70189 – Ethnic Group</a> <a href="#">HL70396 – Coding System</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Identifier (ST) - Required</li> <li>2. Text (ST) - Required</li> <li>3. Code System (ST) - Required</li> <li>4. Alternate Identifier (ST) - Optional</li> <li>5. Alternate Text (ST) - Optional</li> <li>6. Alternate Code System (ST) – Optional</li> </ol>

When one of the alternate components is provided, all are required.

3.14.1. *Table HL70189 – Ethnic Group*

Value	Description
H	Hispanic or Latino
NH	Not Hispanic or Latino
U	Unknown

**3.15. Multiple Birth Indicator**

This field indicates whether the patient was part of a multiple birth.

<b>Sequence:</b>	PID-24
<b>Data Type:</b>	Coded Values for HL7 Tables (ID)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70136 – Yes/No Indicator</a>

3.15.1. *Table HL70136 – Yes/No Indicator*

Value	Description
N	No

Y	Yes
---	-----

### 3.16. Birth Order

When a patient was part of a multiple birth, a value (number) indicating the patient's birth order is entered in this field.

<b>Sequence:</b>	PID-25
<b>Data Type:</b>	Number (NM)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

### 3.17. Patient Death Date and Time

This field contains the date and time at which the patient death occurred.

<b>Sequence:</b>	PID-29
<b>Data Type:</b>	Timestamp (TS)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

This field should only be valued if PID-30 is valued "yes."

The time zone is assumed to be that of the sender.

### 3.18. Patient Death Indicator

This field indicates whether or not the patient is deceased.

<b>Sequence:</b>	PID-30
<b>Data Type:</b>	Coded Values for HL7 Tables (ID)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70136 – Yes/No Indicator</a>

## 4. Next of Kin/Associated Parties (NK1)

This segment contains information about the patient's next of kin and other associated or related parties. Repeating NK1 segments will be accepted. NK1 fields 2-6 will be used for PADOH electronic laboratory reporting purposes. The remaining fields in the NK1 segment will be ignored and thus, are not included in the definition below.

SEQ	LEN	DT	R/O	RP#	TBL#	ITEM#	ELEMENT NAME
2	48	XPN	O		Y	00191	Name
3	60	CE	O		Y	00192	Relationship
4	106	XAD	O		Y	00193	Address
5	40	XTN	O		Y	00194	Phone Number
6	40	XTN	O		Y	00195	Business Phone Number

The following is an example of the Next of Kin/Associated Parties (NK1) segment in HL7 format, including all fields either required or optional in the PADOH supplemental standard:

```
NK1||Donald&Mac^Suzie^A^^Mrs^^L|SPO^Spouse^HL70063^W^Wife^L|100MainSt^AptB^Harrisburg^PA^12345^USA^P^^42043|^PRN^PH^jadoe@isp.com^1^222^5551212^123^Callbefore6pm|^WPN^PH^^1^222^5551212
```

#### 4.1. Name

This field gives the name of the next of kin or associated party.

<b>Sequence:</b>	NK1-2
<b>Data Type:</b>	Extended Person Name (XPN)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No <sup>1</sup>
<b>Table Number:</b>	<a href="#">HL70360 – Degree</a> <a href="#">HL70200 – Name Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Family Name (ST) – Required<sup>2</sup></li> <li>2. Given Name (ST) – Conditional<sup>3</sup></li> <li>3. Middle Initial or Name (ST) – Optional</li> <li>4. Suffix (ST) – Optional</li> <li>5. Prefix (ST) – Optional</li> <li>6. Degree (IS) – Optional</li> <li>7. Name Type Code (ID) – Required<sup>4</sup></li> <li>8. Name Representation Code (ID) – Ignored</li> </ol>

<sup>1</sup>While the HL7 Standard Version 2.3.1 permits repetitions, laboratory-based reporting only expects name for the next of kin/associated party.

<sup>2</sup>The Last Name Prefix subcomponent, within the Family Name component, is Optional.

<sup>3</sup>The Given Name component is required except when a value of “EMR” is used in the NK1-3 Relationship field to denote that the current instance of the NK1 segment contains information regarding the patient’s employer.

<sup>4</sup>The name type code in this field should always be “L – Legal”.

## 4.2. Relationship

This field defines the personal relationship of the next of kin.

<b>Sequence:</b>	NK1-3
<b>Data Type:</b>	Coded Element (CE)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70063 – Relationship</a> <a href="#">HL70396 – Coding System</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Identifier (ST) - Required</li> <li>2. Text (ST) - Required</li> <li>3. Code System (ST) - Required</li> <li>4. Alternate Identifier (ST) - Optional</li> <li>5. Alternate Text (ST) - Optional</li> <li>6. Alternate Code System (ST) – Optional</li> </ol>

When one of the alternate components is provided, all are required.

If no relationship is available, the generic relationship "NOK" should be used.

### 4.2.1. Table HL70063 – Relationship

Value	Description
EMR	Employer
GRD	Guardian

## 4.3. Address

This field lists the mailing addresses of the next of kin/associated party identified above. The first sequence is considered the primary mailing address.

<b>Sequence:</b>	NK1-4
<b>Data Type:</b>	Extended Address (XAD)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70212 – Nationality</a> <a href="#">HL70190 – Address Type</a> <a href="#">HL70289 – County/Parish</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Street Address (ST) – Optional</li> <li>2. Other Designation (ST) – Optional</li> <li>3. City (ST) – Optional</li> </ol>

	<ol style="list-style-type: none"> <li>4. State or Province (ST) – Optional</li> <li>5. Zip or Postal Code (ST) – Required</li> <li>6. Country (ID) – Optional</li> <li>7. Address Type (ID) – Required</li> <li>8. Other Geographic Designation (ST) – Optional</li> <li>9. County/Parish Code (IS) – Optional</li> <li>10. Census Tract (IS) – Ignored</li> <li>11. Address Representation Code (ID) – Ignored</li> </ol>
--	---

While the HL7 Standard Version 2.3.1 permits repetitions, laboratory-based reporting only expects one next of kin/associated party address.

#### 4.4. Phone Number

This field contains the next of kin/associated party's personal phone numbers. The first sequence is considered the primary number.

<b>Sequence:</b>	NK1-5
<b>Data Type:</b>	Extended Telecommunications Number (XTN)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70201 – Telecommunication Use Code</a> <a href="#">HL70202 – Telecommunication Equipment Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Phone Number (ST) – Ignored</li> <li>2. Telecommunications Use Code (ID) – Optional</li> <li>3. Telecommunications Equipment Type (ID) – Required</li> <li>4. Email Address (ST) – Optional</li> <li>5. Country Code (NM) – Optional</li> <li>6. Area/City Code (NM) – Conditional<sup>1</sup></li> <li>7. Phone Number (NM) – Optional</li> <li>8. Phone Extension (NM) – Optional</li> <li>9. Any Text (ST) – Optional</li> </ol>

While the HL7 Standard Version 2.3.1 permits repetitions, laboratory-based reporting only expects one next of kin/associated party phone number.

<sup>1</sup>If the seventh component (Phone Number - NM) is not null, the Area/City Code component is required.

#### 4.5. Business Phone Number

This field contains the next of kin/associated party's business phone numbers. The first sequence is considered the primary number.

<b>Sequence:</b>	NK1-6
<b>Data Type:</b>	Extended Telecommunications Number (XTN)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70201 – Telecommunication Use Code</a> <a href="#">HL70202 – Telecommunication Equipment Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Phone Number (ST) – Ignored</li> <li>2. Telecommunications Use Code (ID) - Optional</li> <li>3. Telecommunications Equipment Type (ID) – Required</li> <li>4. Email Address (ST) – Optional</li> <li>5. Country Code (NM) – Optional</li> <li>6. Area/City Code (NM) – Conditional<sup>1</sup></li> <li>7. Phone Number (NM) – Optional</li> <li>8. Phone Extension (NM) – Optional</li> <li>9. Any Text (ST) – Optional</li> </ol>

While the HL7 Standard Version 2.3.1 permits repetitions, laboratory-based reporting only expects one next of kin/associated party business telephone number.

<sup>1</sup>If the seventh component (Phone Number - NM) is not null, the Area/City Code component is required.

## 5. Common Order (ORC)

This segment contains information used to transmit fields that are common to all orders (all types of services that are requested). While the HL7 Standard Version 2.3.1 permits repetitions, laboratory-based reporting expects only one ORC segment will be provided per message.

ORC fields 21-24 will be used for PADOH electronic laboratory reporting purposes. The remaining fields in the ORC segment will be ignored and thus, are not included in the definition below.

SEQ	LEN	DT	R/O	RP#	TBL#	ITEM#	ELEMENT NAME
21	60	XON	O		Y	01311	Ordering Facility Name
22	106	XAD	O		Y	01312	Ordering Facility Address
23	48	XTN	O		Y	01313	Ordering Facility Phone Number
24	106	XAD	O		Y	01314	Ordering Provider Address

The following is an example of the Common Order (ORC) segment in HL7 format, including all fields either required or optional in the PADOH supplemental standard:

```
ORC|||||HospitalName^L^2015874695^^^NPI|200BroadSt^Floor7^Harrisburg^PA^12345^USA^B^^42043|^WPN^PH^jdoe@isp.com^1^222^5553333^999^FrontDesk|200BroadSt^Rm701^Harrisburg^PA^12345^USA^B^^42043
```



## 5.1. Ordering Facility Name

This field contains the name of the facility that ordered the tests. It is expected to contain the name of the hospital or other medical facility from which the order originated.

<b>Sequence:</b>	ORC-21
<b>Data Type:</b>	Extended Composite Name and ID for Organizations (XON)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70204 – Organizational Name Type</a> <a href="#">HL70203 – Identifier Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Organization Name (ST) – Required</li> <li>2. Organization Name Type Code (IS) – Optional</li> <li>3. ID Number (NM) – Optional</li> <li>4. Check Digit (NM) – Ignored</li> <li>5. Check Digit Scheme (ID) – Ignored</li> <li>6. Assigning Authority (HD) – Optional</li> <li>7. Identifier Type Code (IS) – Optional<sup>1</sup></li> <li>8. Assigning Facility ID (HD) – Ignored</li> <li>9. Name Representation Code (ID) – Ignored</li> </ol>

<sup>1</sup>The Identifier Type Code in this field should always be either “NPI - National Provider Identifier” or “ITIN - Individual Tax Identification Number”. It is strongly recommended that NPI or ITIN be provided for the Ordering Facility so that they can be uniquely identified in the system.

### 5.1.1. Table HL70204 – Organization Name Type

Value	Description
A	Alias Name
D	Display Name
L	Legal Name
SL	Stock Exchange Listing Name

## 5.2. Ordering Facility Address

This field contains the address of the facility placing the order. It is expected to contain the address of the hospital or other medical facility from which the order originated.

<b>Sequence:</b>	ORC-22
<b>Data Type:</b>	Extended Address (XAD)
<b>Required/Optional:</b>	Optional

<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70212 – Nationality</a> <a href="#">HL70190 – Address Type</a> <a href="#">HL70289 – County/Parish</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Street Address (ST) – Optional</li> <li>2. Other Designation (ST) – Optional</li> <li>3. City (ST) – Optional</li> <li>4. State or Province (ST) – Optional</li> <li>5. Zip or Postal Code (ST) – Required</li> <li>6. Country (ID) – Optional</li> <li>7. Address Type (ID) – Required</li> <li>8. Other Geographic Designation (ST) – Optional</li> <li>9. County/Parish Code (IS) – Optional</li> <li>10. Census Tract (IS) – Ignored</li> <li>11. Address Representation Code (ID) – Ignored</li> </ol>

### 5.3. Ordering Facility Phone Number

This field contains the telephone number of the facility placing the order. It is expected to contain the phone number of the hospital or other medical facility from which the order originated.

<b>Sequence:</b>	ORC-23
<b>Data Type:</b>	Extended Telecommunications Number (XTN)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70201 – Telecommunication Use Code</a> <a href="#">HL70202 – Telecommunication Equipment Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Phone Number (ST) – Ignored</li> <li>2. Telecommunications Use Code (ID) - Optional</li> <li>3. Telecommunications Equipment Type (ID) – Required</li> <li>4. Email Address (ST) – Optional</li> <li>5. Country Code (NM) – Optional</li> <li>6. Area/City Code (NM) – Conditional<sup>1</sup></li> <li>7. Phone Number (NM) – Optional</li> <li>8. Phone Extension (NM) – Optional</li> <li>9. Any Text (ST) – Optional</li> </ol>

<sup>1</sup>If the seventh component (Phone Number - NM) is not null, the Area/City Code component is required.

#### 5.4. Ordering Provider Address

This field contains the address of the care provider requesting the order. It is expected to contain the address of a medical practitioner (i.e., physician) associated with the order.

<b>Sequence:</b>	ORC-24
<b>Data Type:</b>	Extended Address (XAD)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70212 – Nationality</a> <a href="#">HL70190 – Address Type</a> <a href="#">HL70289 – County/Parish</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Street Address (ST) – Optional</li> <li>2. Other Designation (ST) – Optional</li> <li>3. City (ST) – Optional</li> <li>4. State or Province (ST) – Optional</li> <li>5. Zip or Postal Code (ST) – Required</li> <li>6. Country (ID) – Optional</li> <li>7. Address Type (ID) – Required</li> <li>8. Other Geographic Designation (ST) – Optional</li> <li>9. County/Parish Code (IS) – Optional</li> <li>10. Census Tract (IS) – Ignored</li> <li>11. Address Representation Code (ID) – Ignored</li> </ol>

## 6. Observation Request (OBR)

This segment is used to transmit information specific to an order for a diagnostic study or observation, physical exam, or assessment. For laboratory-based reporting, the OBR defines the attributes of the original request for laboratory testing. Essentially, the OBR describes a battery or panel of tests that is being requested or reported.

OBR fields 2-4, 7-10, 13-17, 22, 25-26, 28-29, and 31 will be used for PADOH electronic laboratory reporting purposes. The remaining fields in the OBR segment will be ignored and thus, are not included in the definition below.

SEQ	LEN	DT	R/O	RP#	TBL#	ITEM#	ELEMENT NAME
2	22	EI	O		Y	00216	Placer Order Number
3	22	EI	R		Y	00217	Filler Order Number

4	200	CE	R		Y	00238	Universal Service ID
7	26	TS	O			00241	Observation Date/Time
8	26	TS	O			00242	Observation End Date/Time
9	20	CQ	O		Y	00243	Collection Volume
10	60	XCN	O		Y	00244	Collector Identifier
13	300	ST	O			00247	Relevant Clinical Info
14	26	TS	C			00248	Specimen Received Date/Time
15	300	CM	O		Y	00249	Specimen Source
16	80	XCN	O		Y	0226	Ordering Provider
17	40	XTN	O		Y	0250	Order Callback Phone Number
22	26	TS	O			0255	Results/Status Change Date/Time
25	1	ID	R		Y	00258	Result Status
26	400	CM	O		Y	00256	Parent Result
28	150	XCN	O	Y/5	Y	00260	Result Copies To
29	200	CM	O		Y	00261	Parent
31	300	CE	O	Y	Y	00263	Reason for Study

The following is an example of the Observation Request (OBR) segment in HL7 format, including all fields either required or optional in the PADOH supplemental standard:

```
OBR||P0001001^PlacerApp|F0002001^FillerApp|625-4^MICROORGANISM
IDENTIFIED^LN^55555^ORGANISM^L|||20040901150000|20040901150500|100^ML&Millili
ters&ISO+|1A234^Arthur&Mac^Arthur^A^Jr^Mr^PHD^TableX^^L^^^DN^HospitalName&21A
7654321&CLIA|||Additionalclinicalinformation|20040901083000|BLDV&Blood
venous&HL70070^AdditivesText^FreetextText^LUA&Left Upper
Arm&HL70163|1234567890^Arthur&Mac^Arthur^A^Jr^Mr^PHD^TableX^^L^^^NPI^Hospital
Name&21A7654321&CLIA|^WPN^PH^^1^222^5559999^88|||20040902120000|||F|600-
7&Microorganism Identified&LN^^L-25116&Streptococcus
pneumoniae&SNM||1A234^Arthur&Mac^Arthur^A^Jr^Mr^PHD^TableX^^L^^^DN^HospitalNa
me&21A7654321&CLIA|P0001000&PlacerApp^F0002000&FillerApp||003.9^Salmonella
infection, unspecified^I9C
```

### 6.1. Placer Order Number

This field identifies an order number uniquely among all orders from a particular ordering application.

<b>Sequence:</b>	OBR-2
<b>Data Type:</b>	Entity Identifier (EI)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70301 – Universal ID Type</a>
<b>Components (2.3.1):</b>	<ol style="list-style-type: none"> <li>1. Entity Identifier (ST) – Required</li> <li>2. Namespace ID (IS) – Optional</li> </ol>

	<ol style="list-style-type: none"> <li>3. Universal ID (ST) – Optional</li> <li>4. Universal ID Type (ID) – Optional</li> </ol>
--	---

If the Universal ID Type is reported, it must be "L", indicating that the universal ID is a locally assigned unique identifier.

## 6.2. Filler Order Number

This field identifies the order number associated with the filing application.

<b>Sequence:</b>	OBR-3
<b>Data Type:</b>	Entity Identifier (EI)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70301 – Universal ID Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Entity Identifier (ST) – Required</li> <li>2. Namespace ID (IS) – Optional</li> <li>3. Universal ID (ST) – Optional</li> <li>4. Universal ID Type (ID) – Optional</li> </ol>

For laboratory based reporting, this field will be used to report the laboratory specimen accession number. This is the unique identifier that the laboratory uses to track specimens.

If the Universal ID Type is reported, it must be "L", indicating that the universal ID is a locally assigned unique identifier.

## 6.3. Universal Service ID

This field represents the battery or collection of tests that make up a routine laboratory panel.

<b>Sequence:</b>	OBR-4
<b>Data Type:</b>	Coded Element (CE)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">LOINC – Logical Observation Identifier Names and Codes</a> <a href="#">HL70396 – Coding System</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Identifier (ST) – Required (LOINC)</li> <li>2. Text (ST) – Required (LOINC)</li> <li>3. Code System (ST) – Required (LOINC)</li> <li>4. Alternate Identifier (ST) – Optional (Local)</li> <li>5. Alternate Text (ST) – Optional (Local)</li> <li>6. Alternate Code System (ST) – Optional (Local)</li> </ol>

When one of the alternate components is provided, all are required.

The "informative field" for laboratory-based reporting is OBX-3. OBX-3 should be used to provide an unambiguous, specific test name and OBX-5 should provide the result to the test.

#### 6.4. Observation Date/Time

This field is the clinically relevant date/time of the observation. In the case of observations taken directly from a subject, it is the actual date and time the observation was obtained. In the case of a specimen-associated study, this field shall represent the date and time the specimen was collected or obtained.

<b>Sequence:</b>	OBR-7
<b>Data Type:</b>	Timestamp (TS)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

The time zone is assumed to be that of the sender.

#### 6.5. Observation End Date/Time

This field is the end date and time of a study or timed specimen collection. If an observation takes place over a substantial period of time, it will indicate when the observation period ended.

<b>Sequence:</b>	OBR-8
<b>Data Type:</b>	Timestamp (TS)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

#### 6.6. Collection Volume

This field specifies the volume of a specimen for laboratory tests.

<b>Sequence:</b>	OBR-9
<b>Data Type:</b>	Composite Quantity (CQ)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">ISO+ - ISO Customary Units</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Quantity (NM) – Required</li> <li>2. Units (CE) – Required</li> </ol>

6.6.1. *Table ISO+ – ISO Customary Units***Base Units**

Value	Description
a	Ampere
cd	Candela
g	Gram
k	Kelvin
m	Meter
mol	Mole
s	Second

**Derived Units**

Value	Description
c	Coulomb
d	Day
cel	Degree Celsius
f	Farad
hz	Hertz
hr	Hour
j	Joule
min	Minute (time)
n	Newton
ohm	Ohm
pal	Pascal
v	Volt
w	Watt
wb	Weber
ann	Year

**Multiplier Prefixes**

Value	Description
ya	Yotta ( $10^{24}$ )
za	Zetta ( $10^{21}$ )
ex	Exa ( $10^{18}$ )
pe	Peta ( $10^{15}$ )
t	Tera ( $10^{12}$ )
g	Giga ( $10^9$ )

ma	Mega ( $10^6$ )
k	Kilo ( $10^3$ )
h	Hecto ( $10^2$ )
da	Deca ( $10^1$ )
y	Yocto ( $10^{-24}$ )
z	Zepto ( $10^{-21}$ )
a	Atto ( $10^{-18}$ )
f	Femto ( $10^{-15}$ )
p	Pico ( $10^{-12}$ )
n	Nano ( $10^{-9}$ )
u	Micro ( $10^{-6}$ )
m	Milli ( $10^{-3}$ )
c	Centi ( $10^{-2}$ )
d	Deci ( $10^{-1}$ )

ISO builds its units from seven base dimensions as shown above. Other units can be derived from these by adding a prefix to change the scale (shown above) and/or by creating an algebraic combination of two or more base or derived units (shown above).

A unit can be raised to an exponential power. Positive exponents are represented by a number immediately following a unit's abbreviation (e.g.,  $m^2$  would be represented as m2). Negative exponents are signified by a negative number following the base unit (e.g.,  $1/m^2$  would be represented as m-2). Fractional exponents are expressed by a numeric fraction in parenthesis (e.g., the square root of a meter would be expressed as  $m(1/2)$ ).

The multiplication of units is signified by a period (.) between the units (e.g., meters \* seconds would be denoted m.s). Spaces are not permitted.

Division is signified by a slash (/) between two units (e.g., meters per second would be denoted as m/s).

Algebraic combinations of ISO unit abbreviations are constructed by dividing, multiplying, or exponentiating base ISO units, are also valid IOS abbreviation units. Exponentiation has precedence over multiplication or division. If more than one division operator is included in the expression the associations should be parenthesized to avoid ambiguity.

All unit abbreviations are case insensitive.

## 6.7. Collector Identifier

When a specimen is required for the study, this field identifies the person, department, or facility that collected the specimen.

<b>Sequence:</b>	OBR-10
<b>Data Type:</b>	Extended Composite ID Number and Name (XCN)
<b>Required/Optional:</b>	Optional



<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70360 – Degree</a> <a href="#">HL70200 – Name Type</a> <a href="#">HL70203 – Identifier Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. ID Number (ST) – Optional</li> <li>2. Family Name (ST) – Optional<sup>2</sup></li> <li>3. Given Name (ST) – Optional</li> <li>4. Middle Name (ST) – Optional</li> <li>5. Suffix (ST) – Optional</li> <li>6. Prefix (ST) – Optional</li> <li>7. Degree (ID) – Optional</li> <li>8. Source Table (IS) – Ignored</li> <li>9. Assigning Authority (HD) – Ignored</li> <li>10. Name Type Code (ID) – Optional</li> <li>11. Identifier Check Digit (ST) – Ignored</li> <li>12. Check Digit Scheme (ID) – Ignored</li> <li>13. Identifier Type Code (IS) – Optional</li> <li>14. Assigning Facility (HD) – Optional</li> <li>15. Name Representation Code (ID) – Ignored</li> </ol>

Either the name or ID code or both may be provided.

<sup>2</sup>The Last Name Prefix subcomponent, within the Family Name component, is Optional.

## 6.8. Relevant Clinical Information

This field contains any additional clinical information about the patient or specimen. This field is used to report the suspected diagnosis and clinical findings on request for interpreted diagnostic studies.

<b>Sequence:</b>	OBR-13
<b>Data Type:</b>	String (ST)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

## 6.9. Specimen Received Date/Time

For observations requiring a specimen, this field contains the actual login time at the diagnostic service.

<b>Sequence:</b>	OBR-14
------------------	--------

<b>Data Type:</b>	Timestamp (TS)
<b>Required/Optional:</b>	Conditional
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

This field must contain a value when the order is accompanied by a specimen or when the observation required a specimen and the message is a report.

The time zone is assumed to be that of the sender.

## 6.10. Specimen Source

This field identifies the site where the specimen should be obtained or where the service should be performed.

<b>Sequence:</b>	OBR-15
<b>Data Type:</b>	Composite (CM)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70070 – Specimen Source</a> <a href="#">HL70163 – Administrative Site</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Specimen Source Name or Code (CE) – Required</li> <li>2. Additives (TX) – Optional</li> <li>3. Free Text (TX) – Optional</li> <li>4. Body Site (CE) – Optional</li> <li>5. Site Modifier (CE) – Ignored</li> <li>6. Collection Method Modifier Code (CE) – Ignored</li> </ol>

It is strongly recommended that actual specimen sources be provided in OBR-15 and not surrogate descriptions.

The Site Modifier component is ignored as the HL70163 Administrative Site codes contain built-in modifier values.

### 6.10.1. Table HL70070 – Specimen Source

Value	Description
ABS	Abscess
AMN	Amniotic fluid
ASP	Aspirate
BPH	Basophils
BIFL	Bile fluid
BLDA	Blood arterial

BLDC	Blood capillary
BLDV	Blood venous
FLU	Body fluid, unsp
BON	Bone
MILK	Breast milk
BRTH	Breath (use EXHLD)
BRO	Bronchial
BRN	Burn
CALC	Calculus (=Stone)
CNL	Cannula
CDM	Cardiac muscle
CTP	Catheter tip
CSF	Cerebral spinal fluid
CVM	Cervical mucus
CVX	Cervix
COL	Colostrum
CNJT	Conjunctiva
CBLD	Cord blood
CUR	Curettage
CYST	Cyst
DIAF	Dialysis fluid
DOSE	Dose med or substance
DRN	Drain
DUFL	Duodenal fluid
EAR	Ear
EARW	Ear wax (cerumen)
ELT	Electrode
ENDC	Endocardium
ENDM	Endometrium
EOS	Eosinophils
RBC	Erythrocytes
EYE	Eye
FIB	Fibroblasts
FLT	Filter
FIST	Fistula
GAS	Gas
GAST	Gastric fluid/contents

GEN	Genital
GENC	Genital cervix
GENL	Genital lochia
GENV	Genital vaginal
HAR	Hair
IHG	Inhaled Gas
ISLT	Isolate
LAM	Lamella
WBC	Leukocytes
LNA	Line arterial
LNV	Line venous
LIQ	Liquid NOS
LYM	Lymphocytes
MAC	Macrophages
MAR	Marrow
MEC	Meconium
MBLD	Menstrual blood
MLK	Milk
NAIL	Nail
NOS	Nose (nasal passage)
ORH	Other
PAFL	Pancreatic fluid
PAT	Patient
PRT	Peritoneal fluid /ascites
PLC	Placenta
PLAS	Plasma
PLB	Plasma bag
PPP	Platelet poor plasma
PRP	Platelet rich plasma
PLR	Pleural fluid (thoracentesis fld)
PMN	Polymorphonuclear neutrophils
PUS	Pus
SAL	Saliva
SEM	Seminal fluid
SER	Serum
SKM	Skeletal muscle
SKN	Skin

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

6.10.2. Table HL70163 – Administrative Site

Value	Description
BE	Bilateral Ears
OU	Bilateral Eyes
BN	Bilateral Nares
BU	Buttock
CT	Chest Tube
LA	Left Arm
LAC	Left Anterior Chest
LACF	Left Antecubital Fossa
LD	Left Deltoid
LE	Left Ear
LEJ	Left External Jugular
OS	Left Eye
LF	Left Foot
LG	Left Gluteus Medius
LH	Left Hand
LIJ	Left Internal Jugular
LLAQ	Left Lower Abd Quadrant
LLFA	Left Lower Forearm
LMFA	Left Mid Forearm
LN	Left Naris
LPC	Left Posterior Chest
LSC	Left Subclavian
LT	Left Thigh
LUA	Left Upper Arm
LUAQ	Left Upper Abd Quadrant
LUFA	Left Upper Forearm
LVG	Left Ventragluteal
LVL	Left Vastus Lateralis
NB	Nebulized
PA	Perianal
PERIN	Perineal
RA	Right Arm
RAC	Right Anterior Chest
RAC	Right Anterior Chest

RACF	Right Antecubital Fossa
RD	Right Deltoid
RE	Right Ear
REJ	Right External Jugular
OD	Right Eye
RF	Right Foot
RG	Right Gluteus Medius
RH	Right Hand
RIJ	Right Internal Jugular
RLAQ	Rt Lower Abd Quadrant
RLFA	Right Lower Forearm
RMFA	Right Mid Forearm
RN	Right Naris
RPC	Right Posterior Chest
RSC	Right Subclavian
RT	Right Thigh
RUA	Right Upper Arm
RUAQ	Right Upper Abd Quadrant
RUFA	Right Upper Forearm
RVL	Right Vastus Lateralis
RVG	Right Ventragluteal

### 6.11. Ordering Provider

This field identifies the provider who ordered the test. It is expected to contain the name of a medical practitioner (i.e., physician) associated with the order. Either the ID Code or the Name or both may be present.

<b>Sequence:</b>	OBR-16
<b>Data Type:</b>	Extended Composite ID Number and Name (XCN)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70360 – Degree</a> <a href="#">HL70200 – Name Type</a> <a href="#">HL70203 – Identifier Type</a>
<b>Components:</b>	1. ID Number (ST) – Optional 2. Family Name (ST) – Required <sup>2</sup> 3. Given Name (ST) – Optional

	<ol style="list-style-type: none"> <li>4. Middle Name (ST) – Optional</li> <li>5. Suffix (ST) – Optional</li> <li>6. Prefix (ST) – Optional</li> <li>7. Degree (ID) – Optional</li> <li>8. Source Table (IS) – Ignored</li> <li>9. Assigning Authority (HD) – Ignored</li> <li>10. Name Type Code (ID) – Optional</li> <li>11. Identifier Check Digit (ST) – Ignored</li> <li>12. Check Digit Scheme (ID) – Ignored</li> <li>13. Identifier Type Code (IS) – Optional<sup>1</sup></li> <li>14. Assigning Facility (HD) – Optional</li> <li>15. Name Representation Code (ID) – Ignored</li> </ol>
--	---

While the HL7 Standard Version 2.3.1 permits repetitions, laboratory-based reporting only expects one ordering provider.

<sup>1</sup>The Identifier Type Code in this field should always be either “NPI - National Provider Identifier” or “ITIN - Individual Tax Identification Number”. It is strongly recommended that NPI or ITIN be provided for the Ordering Provider so that they can be uniquely identified in the system.

<sup>2</sup>The Last Name Prefix subcomponent, within the Family Name component, is Optional.

## 6.12. Order Callback Phone Number

This field is the telephone number for reporting a status or a result using the standard format with an extension and/or beeper number, when applicable. It is expected to contain the phone number at which a medical practitioner (i.e., physician) associated with the order can be reached.

<b>Sequence:</b>	OBR-17
<b>Data Type:</b>	Extended Telecommunications Number (XTN)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70201 – Telecommunication Use Code</a> <a href="#">HL70202 – Telecommunication Equipment Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Phone Number (ST) – Ignored</li> <li>2. Telecommunications Use Code (ID) - Optional</li> <li>3. Telecommunications Equipment Type (ID) – Required</li> <li>4. Email Address (ST) – Optional</li> <li>5. Country Code (NM) – Optional</li> <li>6. Area/City Code (NM) – Conditional<sup>1</sup></li> </ol>



	<ul style="list-style-type: none"> <li>7. Phone Number (NM) – Optional</li> <li>8. Phone Extension (NM) – Optional</li> <li>9. Any Text (ST) – Optional</li> </ul>
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While the HL7 Standard Version 2.3.1 permits repetitions, laboratory-based reporting only expects one order callback telephone number.

<sup>1</sup>If the seventh component (Phone Number - NM) is not null, the Area/City Code component is required.

### 6.13. Results Reported/Status Change Date/Time

This field specifies the date and time results were reported or the status changed. This field is used to indicate the date and time that the results are composed into a report and released, or that a status is entered or changed.

<b>Sequence:</b>	OBR-22
<b>Data Type:</b>	Timestamp (TS)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

The time zone is assumed to be that of the sender.

For Electronic Laboratory Reporting, the actual report time is pulled from OBX-14 Date/time of the Observation.

### 6.14. Result Status

This field is the status of results for this order.

<b>Sequence:</b>	OBR-25
<b>Data Type:</b>	Coded Values for HL7 Tables (ID)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70123 – Result Status</a>

For PA-ELR, only final results should be transmitted. Therefore, this field should always contain the value "F".

#### 6.14.1. Table HL70123 – Result Status

Value	Description
A	Some, but not all, results available
C	Correction to results
F	Final results; results stored and verified. Can only be changed with a corrected result.

I	No results available; specimen received, procedure incomplete
O	Order received; specimen not yet received
P	Preliminary; A verified early result is available, final results not yet obtained
R	Results stored; not yet verified
S	No results available; procedure scheduled, but not done
X	No results available; order canceled.
Y	No order on record for this test. (Used only on queries)
Z	No record of this patient. (Used only on queries)

### 6.15. Parent Result

This field provides linkages to messages describing previously performed tests. This important information, together with the information in OBR-29 Parent, uniquely identifies the OBX segment from the previously performed test that is related to this order.

<b>Sequence:</b>	OBR-26
<b>Data Type:</b>	Composite (CM)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">LOINC – Logical Observation Identifier Names and Codes</a> <a href="#">HL70396 – Coding System</a> <a href="#">SNOMED - Systematized Nomenclature of Human and Veterinary Medicine</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Observation Identifier of Parent Result (CE) – Optional</li> <li>2. Sub ID of Parent Result (ST) – Optional</li> <li>3. Observation Result from Parent (TX) – Optional</li> </ol>

For laboratories that develop an HL7 message for laboratory-based reporting only and do not use HL7 within their institution, the parent result field should be used to report the name of the organism on which sensitivities were performed.

HL7 2.3.1 states that OBR-26 should only be present when the parent result is identified by OBR-29 Parent Number. However, the parent result may not always be present when a laboratory uses HL7 for transmission of public health information only. For this reason, OBR-26 should be populated with information in the absence of a parent number. This is a deviation from the HL7 2.3.1 specifications, but is necessary to interpret data required for laboratory-based reporting.

### 6.16. Result Copies To

This field contains the people who are to receive copies of the results.

<b>Sequence:</b>	OBR-28
<b>Data Type:</b>	Extended Composite ID Number and Name (XCN)

<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	Yes (5)
<b>Table Number:</b>	<a href="#">HL70360 – Degree</a> <a href="#">HL70200 – Name Type</a> <a href="#">HL70203 – Identifier Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. ID Number (ST) – Optional</li> <li>2. Family Name (ST) – Optional<sup>2</sup></li> <li>3. Given Name (ST) – Optional</li> <li>4. Middle Name (ST) – Optional</li> <li>5. Suffix (ST) – Optional</li> <li>6. Prefix (ST) – Optional</li> <li>7. Degree (ID) – Optional</li> <li>8. Source Table (IS) – Ignored</li> <li>9. Assigning Authority (HD) – Ignored</li> <li>10. Name Type Code (ID) – Optional</li> <li>11. Identifier Check Digit (ST) – Ignored</li> <li>12. Check Digit Scheme (ID) – Ignored</li> <li>13. Identifier Type Code (IS) – Optional</li> <li>14. Assigning Facility (HD) – Optional</li> <li>15. Name Representation Code (ID) – Ignored</li> </ol>

<sup>2</sup>The Last Name Prefix subcomponent, within the Family Name component, is Optional.

### 6.17. Parent

This field relates a child to its parent when a parent/child relationship exists. The field is optional, however it is recommended that the field be sent if available for laboratory-based reporting.

<b>Sequence:</b>	OBR-29
<b>Data Type:</b>	Composite (CM)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70301 – Universal ID Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Parents Placer Order Number (EI) – Optional</li> <li>2. Parent’s Filler Order Number (EI) – Optional</li> </ol>

Reporting of antimicrobial susceptibility data requires that the parent result be populated with the name of the organism for which testing was performed.

## 6.18. Reason for Study

This field contains the reason for study. It can repeat to accommodate multiple diagnoses.

<b>Sequence:</b>	OBR-31
<b>Data Type:</b>	Coded Element (CE)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	Yes
<b>Table Number:</b>	<a href="#">ICD-9-CM – International Classification of Diseases, Ninth Revision</a> <a href="#">HL70396 – Coding System</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Identifier (ST) – Required</li> <li>2. Text (ST) - Required</li> <li>3. Code System (ST) - Required</li> <li>4. Alternate Identifier (ST) - Optional</li> <li>5. Alternate Text (ST) - Optional</li> <li>6. Alternate Code System (ST) – Optional</li> </ol>

When one of the alternate components is provided, all are required.

## 7. Observation/Result (OBX)

This segment is used to transmit a single observation or observation fragment. It represents the smallest indivisible unit of a report. Its principle mission is to carry information about observations in report messages.

Laboratory-based reporting to public health agencies focuses on OBX-3 and OBX-5 as the most informative elements of the message. Thus, every effort should be made to make OBX-3 and OBX-5 as informative and unambiguous as possible.

OBX fields 2-8, 11, 14-15, and 17 will be used for PADOH electronic laboratory reporting purposes. The remaining fields in the OBX segment will be ignored and thus, are not included in the definition below.

SEQ	LEN	DT	R/O	RP#	TBL#	ITEM#	ELEMENT NAME
2	3	ID	R		Y	00570	Value Type
3	80	CE	R		Y	00571	Observation Identifier
4	20	ST	C			00572	Observation Sub-ID
5	65536	**	R	Y	Y	00573	Observation Value
6	60	CE	O		Y	00574	Units
7	60	ST	O			00575	Reference Ranges
8	5	ID	O		Y	00576	Abnormal Flags
11	1	ID	O		Y	00579	Observation Result Status
14	26	TS	R			00582	Date/Time of the Observation
15	60	CE	O		Y	00583	Producer's ID

17	60	CE	O	Y	Y	00936	Observation Method
----	----	----	---	---	---	-------	--------------------

The following is an example of the Observation/Result (OBX) segment in HL7 format, including all fields either required or optional in the PADOH supplemental standard:

```
OBX||SN|600-7^Microorganism Identified, Blood Culture^LN^77777^ORGANISM,
Blood^L|1|^10|ug/mL^Microgram/milliliter^ISO+|3.5-
4.5|AA|||F|||20040901150000|12D1234567^LabName^CLIA||6703^VANCOMYCIN^CDCM
```

## 7.1. Value Type

This field contains the data type that defines the format of the observation value in OBX-5.

<b>Sequence:</b>	OBX-2
<b>Data Type:</b>	Coded Values for HL7 Tables (ID)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70125 – Value Type</a>

For laboratory-based reporting, the CE and SN data types should be used whenever possible so that results can be interpreted easily.

### 7.1.1. Table HL70125 – Value Type

Value	Description
CE	Coded Element
SN	Structured Numeric

## 7.2. Observation Identifier

This field contains a unique identifier for the observation, or the thing being reported.

<b>Sequence:</b>	OBX-3
<b>Data Type:</b>	Coded Element (CE)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">LOINC – Logical Observation Identifier Names and Codes</a> <a href="#">HL70396 – Coding System</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Identifier (ST) – Conditional (LOINC)</li> <li>2. Text (ST) – Conditional (LOINC)</li> <li>3. Code System (ST) – Conditional (LOINC)</li> <li>4. Alternate Identifier (ST) – Conditional (Local)</li> <li>5. Alternate Text (ST) – Conditional (Local)</li> </ol>

	6. Alternate Code System (ST) – Conditional (Local)
--	---

It is strongly recommended that OBX-3 be populated with as specific a LOINC code as possible to prevent any misinterpretation of results.

It is expected that either a LOINC Code or a Local Code be provided. LOINC Code is used by the system, if both are provided.

If a LOINC Code is used, first three components (Identifier, Text, Code System) should be provided and the value for Code System should be "LN"

If a Local Code is used, last three components (Alternate Components) should be provided and the value for Alternate Code System should be "L".

If the patient's date of birth is not available, the patient's age must be reported in a separate set of OBR/OBX segments using a OBX-2 value of |SN|, a LOINC code for age |21612-7^Age Patient Qn Reported^LN| in OBX-3, and the actual age |^25| in Structured Numeric format in OBX-5.

While HL7 Standard Version 2.3.1 states that the NM data type may be used in OBX-5 to report age, PA-ELR expects the SN data type to be used in OBX-5 to interpret the age correctly.

The following is an example of the Observation Request (OBR) and Observation/Result (OBX) segments in HL7 format that includes Patient's age.

```
OBR|2||555555|21612-7^Age^LN
OBX|1|SN|21612-7^Age^LN||^26|||||F
```

It is expected that a series of OBR/OBX segments used to report age are in addition to any OBR/OBX segments used to report test information. Messages with only one OBR/OBX series reporting age are considered invalid.

### 7.3. Observation Sub-ID

This field is used to distinguish between multiple OBX segments with the same observation ID organized under one OBR.

<b>Sequence:</b>	OBX-4
<b>Data Type:</b>	String (ST)
<b>Required/Optional:</b>	Conditional <sup>1</sup>
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

<sup>1</sup>OBX-4 Sub-ID is conditionally required when multiple OBX segments are reported within a single OBR segment. If two instances of OBX relate to the same observation result, their OBX-4 values must be the same. If they relate to independent observation results, their OBX-4 values must be different.

For example, if there are three OBX segments, the first two relating to one result, and the third relating to another result, then the Observation Sub-ID for the first two should be "1", and for the third, should be "2".

## 7.4. Observation Value

This field contains the results of the test.

<b>Sequence:</b>	OBX-5
<b>Data Type:</b>	Varies based upon OBX-2
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	Yes <sup>1</sup>
<b>Table Number:</b>	<a href="#">SNOMED - Systematized Nomenclature of Human and Veterinary Medicine</a> <a href="#">HL70396 - Coding System</a>
<b>Components (CE):</b>	<ol style="list-style-type: none"> <li>1. Identifier (ST) – Conditional (SNOMED)</li> <li>2. Text (ST) – Conditional (SNOMED)</li> <li>3. Code System (ST) – Conditional (SNOMED)</li> <li>4. Alternate Identifier (ST) – Conditional (Local)</li> <li>5. Alternate Text (ST) – Conditional (Local)</li> <li>6. Alternate Code System (ST) – Conditional (Local)</li> </ol>
<b>Components (SN):</b>	<ol style="list-style-type: none"> <li>1. Comparator (ST) – Optional</li> <li>2. Number (NM) – Required</li> <li>3. Separator/Suffix (ST) – Optional</li> <li>4. Number (NM) – Optional</li> </ol>

<sup>1</sup>OBX-5 field can only be repeated twice.

PA-ELR supports only CE and SN data types in OBX-5 and OBX-2 should have a value of either CE or SN based on the value in OBX-5.

If CE appears in OBX-2, it is assumed that the result in OBX-5 is coded using either a SNOMED or a Local Code.

If a SNOMED Code is used, first three components (Identifier, Text, Code System) should be provided and the value for Code System should be "SNM"

If a Local Code is used, last three Components (Alternate Components) should be provided and the value for Alternate Code System should be "L".

For numeric results, the SN data type should be used in OBX-2 and thus, SNOMED is not required.

NM, ST and TX data types are not supported for OBX-5 and should not be used.

It is strongly recommended that comments not be reported in OBX-5 and be placed in an NTE segment directly following the OBX segment.

## 7.5. Units

This field contains the units for the observation value in OBX-5

<b>Sequence:</b>	OBX-6
<b>Data Type:</b>	Coded Element (CE)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">ISO+ - ISO Customary Units</a> <a href="#">HL70396 – Coding System</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Identifier (ST) - Conditional</li> <li>2. Text (ST) - Conditional</li> <li>3. Code System (ST) - Conditional</li> <li>4. Alternate Identifier (ST) - Conditional</li> <li>5. Alternate Text (ST) - Conditional</li> <li>6. Alternate Code System (ST) - Conditional</li> </ol>

It is expected that either an ISO+ Code or a Local Code be provided. ISO+ Code is used by the system, if both are provided.

If an ISO+ Code is used, first three components (Identifier, Text, Code System) should be provided and the value for Code System should be "ISO+"

If a Local Code is used, last three components (Alternate Components) should be provided and the value for Alternate Code System should be "L".

Units should be reported in all scenarios in which it is relevant to the interpretation of a numeric observation value.

## 7.6. References Range

This field contains the associated range of the observation. When the observation quantifies the amount of a toxic substance, then the upper limit of the range identifies the toxic limit. If the observation quantifies a drug, the lower limits identify the lower therapeutic bounds and the upper limits represent the upper therapeutic bounds above which toxic side effects are common.

<b>Sequence:</b>	OBX-7
<b>Data Type:</b>	String (ST)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

Reference Range should be reported in all scenarios in which it is relevant to the interpretation of a numeric observation value, including titer results.



Reference Ranges should be reported in one of three basic formats:

- Lower and upper limits are defined |0.0-9.9|
- Comparator & Lower limit (no upper limit) |>10| or |>=10|
- Comparator & Upper limit (no lower limit) |<1:250| or |<=1:250|

## 7.7. Abnormal Flags

This field contains the microbiology sensitivity interpretations.

<b>Sequence:</b>	OBX-8
<b>Data Type:</b>	Coded Values for HL7 Tables (ID)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70078 – Abnormal Flags</a>

Abnormal flags for antimicrobial sensitivity reporting should conform to the recommendations of the National Committee of Clinical Laboratory Standards. For most reported findings, the allowable values are "S", "I", or "R", and should be provided in addition to the numeric values in OBX-5.

For electronic laboratory reporting, when findings other than susceptibility results are sent, the abnormal flag should be valued (e.g., "H", "N", or "A") to distinguish between tests that are interpreted as normal and those that are interpreted as abnormal.

While the HL7 Standard Version 2.3.1 permits repetitions, laboratory-based reporting only expects one abnormal flag.

### 7.7.1. Table HL70078 – Abnormal Flags

Value	Description
<	Below absolute low-off instrument scale
<NULL>	No range defined, or normal ranges don't apply
>	Above absolute high-off instrument scale
A	Abnormal (applies to non-numeric results)
AA	Very abnormal (applies to non-numeric results; analogous to panic limits for numeric units)
B	Better – use when direction not relevant
D	Significant change down
H	Above high normal
HH	Above upper panic limits
I	Intermediate
L	Below low normal
LL	Below lower panic limits
MS	Moderately susceptible

N	Normal (applies to non-numeric results)
R	Resistant
S	Susceptible
U	Significant change up
VS	Very susceptible
W	Worse – use when direction not relevant

## 7.8. Observation Result Status

This field contains the observation result status.

<b>Sequence:</b>	OBX-11
<b>Data Type:</b>	Coded Values for HL7 Tables (ID)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70085 – Observation Result Status Codes Interpretation</a>

This field reflects the current completion status of the results for data contained in the OBX-5 Observation Value field.

For PA-ELR, only final results should be transmitted. Therefore, this field should always contain the value "F".

### 7.8.1. Table HL70085 – Observation Result Status Codes Interpretation

Value	Description
F	Final results; can only be changed with a corrected result

## 7.9. Date/Time of the Observation

This field records the date and time of the observation. It is the physiologically relevant date/time or the closest approximation to the date/time of the observation.

<b>Sequence:</b>	OBX-14
<b>Data Type:</b>	Timestamp (TS)
<b>Required/Optional:</b>	Required
<b>Repeating:</b>	No
<b>Table Number:</b>	N/A

In the case of tests performed on specimens, the relevant date-time is the specimen's collection date-time. In the case of observations taken directly on the patient (e.g., X-ray images, history and physical), the observation date-time is the date-time that the observation was performed.

The time zone is assumed to be that of the sender.

### 7.10. Producer's ID

This field contains a unique identifier of the responsible producing service.

<b>Sequence:</b>	OBX-15
<b>Data Type:</b>	Coded Element (CE)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70301 – Universal ID Type</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Identifier (ST) - Required</li> <li>2. Text (ST) - Required</li> <li>3. Code System (ST) - Required</li> <li>4. Alternate Identifier (ST) - Optional</li> <li>5. Alternate Text (ST) - Optional</li> <li>6. Alternate Code System (ST) - Optional</li> </ol>

When one of the alternate components is provided, all are required.

It should be reported explicitly when the test results are produced at outside laboratories, for example. When this field is null, the receiving system assumes that the observations were produced by the sending organization.

When the test results are produced at outside laboratories, the CLIA identifier for the laboratory that performed the test should appear here and will be different from the CLIA identifier listed as the assigning facility in PID-3.

### 7.11. Observation Method

This field is used to transmit the method or procedure by which an observation was obtained when the sending system wishes to distinguish among one measurement obtained by different methods and the distinction is not implicit in the test ID.

<b>Sequence:</b>	OBX-17
<b>Data Type:</b>	Coded Element (CE)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	Yes
<b>Table Number:</b>	<a href="#">CDCM – CDC Methods/Instruments Codes</a> <a href="#">HL70396 – Coding System</a>
<b>Components:</b>	<ol style="list-style-type: none"> <li>1. Identifier (ST) - Required</li> <li>2. Text (ST) - Required</li> <li>3. Code System (ST) - Required</li> <li>4. Alternate Identifier (ST) - Optional</li> <li>5. Alternate Text (ST) - Optional</li> <li>6. Alternate Code System (ST) - Optional</li> </ol>

When one of the alternate components is provided, all are required.

The Centers for Disease Control and Prevention (CDC) Method Code (CDCM) can be used in OBX-17 to further describe tests identified in OBX-3.

## 8. Notes and Comments (NTE)

This segment is a common format for sending notes and comment.

This optional, repeating segment may be inserted after any OBX segments in the ORU message. The NTE segment applies to the information in the segment that immediately precedes it.

NTE fields 2-3 will be used for PADOH electronic laboratory reporting purposes. The remaining fields in the NTE segment will be ignored and thus, are not included in the definition below.

SEQ	LEN	DT	R/O	RP#	TBL#	ITEM#	ELEMENT NAME
2	8	ID	O		Y	00097	Source of Comment
3	65536	FT	O	Y		00098	Comment

The following is an example of the Notes and Comments (NTE) segment in HL7 format, including all fields either required or optional in the PADOH supplemental standard:

```
NTE||L|firstcomment~secondcomment~thirdcomment
```

### 8.1. Source of Comment

This field is used when the source of comment must be identified.

<b>Sequence:</b>	NTE-2
<b>Data Type:</b>	Coded Values for HL7 Values (ID)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	No
<b>Table Number:</b>	<a href="#">HL70105 – Source of Comment</a>

#### 8.1.1. Table HL70105 – Source of Comment

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

### 8.2. Comment

This field contains the comment contained in the segment.

<b>Sequence:</b>	NTE-3
<b>Data Type:</b>	Formatted Text (FT)
<b>Required/Optional:</b>	Optional
<b>Repeating:</b>	Yes
<b>Table Number:</b>	N/A

## 9. Table Cross-Reference

Table ID	Table Name	Defined in Section
HL70001	Sex	<a href="#">3.5.1</a>
HL70002	Marital Status	<a href="#">3.11.1</a>
HL70003	Event Type	<a href="#">2.8.2</a>
HL70005	Race	<a href="#">3.7.1</a>
HL70063	Relationship	<a href="#">4.2.1</a>
HL70070	Specimen Source Code	<a href="#">6.10.1</a>
HL70076	Message Type	<a href="#">2.8.1</a>
HL70078	Abnormal Flags	<a href="#">7.7.1</a>
HL70085	Observation Result Status Codes Interpretation	<a href="#">7.8.1</a>
HL70103	Processing ID	<a href="#">2.10.1</a>
HL70104	Version ID	<a href="#">2.11.1</a>
HL70105	Source of Comment	<a href="#">8.1.1</a>
HL70123	Result Status	<a href="#">6.14.1</a>
HL70125	Value Type	<a href="#">7.1.1</a>
HL70136	Yes/No Indicator	<a href="#">3.15.1</a>
HL70163	Administrative Site	<a href="#">6.10.2</a>
HL70189	Ethnic Group	<a href="#">3.14.1</a>
HL70190	Address Type	<a href="#">3.8.2</a>
HL70200	Name Type	<a href="#">3.2.2</a>
HL70201	Telecommunications Use Code	<a href="#">3.9.1</a>
HL70202	Telecommunication Equipment Type	<a href="#">3.9.2</a>
HL70203	Identifier Type	<a href="#">3.1.1</a>
HL70204	Organizational Name Type	<a href="#">5.1.1</a>
HL70212	Nationality	<a href="#">3.8.1</a>
HL70289	County/Parish	<a href="#">3.8.3</a>
HL70300	Namespace ID	<a href="#">2.4.1</a>
HL70301	Universal ID Type	<a href="#">2.4.2</a>
HL70333	Driver's License Issuing Authority	<a href="#">3.12.1</a>

HL70360	Degree	<a href="#">3.2.1</a>
HL70361	Sending/Receiving Application	<a href="#">2.3.1</a>
HL70396	Coding System	<a href="#">3.7.2</a>
CDCM	CDC Methods/Instruments Codes	<a href="#">11.1.2</a>
ICD-9-CM	International Classification of Diseases, 9 <sup>th</sup> Revision, Clinical Modification	<a href="#">11.1.3</a>
ISO+	ISO Customary Units	<a href="#">6.6.1</a>
LOINC	Logical Observation Identifiers Names and Codes	<a href="#">11.1.4</a>
SNOMED	Systematized Nomenclature of Human and Veterinary Medicine	<a href="#">11.1.5</a>

## 10. Code Mapping

In a Local-to-Standard Code Mapping, a code belonging to a specific trading partner, and a pre-defined mapping from that code to a standard code, is used to translate ELR data from that trading partner's code vocabulary into the PA-ELR standard code vocabulary.

When a local code is encountered in its appropriate field in an ELR message, the PA-ELR system attempts to locate a Local-to-Standard mapping for that code. If such a mapping has been established, the mapping is used to translate the local code into the appropriate PA-ELR code. The goal of this Code Mapping process is to allow a Trading Partner to submit an ELR message that contains some locally defined codes, while enabling the PA-ELR system to translate its contents, resulting in an ELR message that contains only standard codes.

### 10.1. Code Tables

There is a series of specific PA-ELR standard code tables for which Local-to-Standard mappings are supported. The determination of which code tables to support in this manner was made primarily based on whether the degree of complexity in a given standard coding system (e.g., LOINC) might prevent a Trading Partner from being able to generate HL7 2.3.1 messages using that code. However, the HL7 message structure also contributed to this decision. For the most part, only those HL7 2.3.1 fields with a CE, ID, or IS data type can contain mapped local codes. Those standard code tables for which mappings from local codes can be used are listed below.

Table ID	Table Name
HL70001	Sex
HL70002	Marital Status
HL70005	Race
HL70063	Relationship
HL70070	Specimen Source Code
HL70078	Abnormal Flags
HL70189	Ethnic Group
CDCM	CDC Methods/Instruments Codes

ICD-9-CM	International Classification of Diseases, 9 <sup>th</sup> Revision, Clinical Modification
ISO+	ISO Customary Units
LOINC	Logical Observation Identifiers Names and Codes
SNOMED	Systematized Nomenclature of Human and Veterinary Medicine

## 10.2. Mapping Approach

For the supported code tables, laboratories may choose to issue HL7 messages to the PA-ELR system using all standard PA-ELR codes, or using a mix of a) standard codes and b) local codes for which code mappings have been established. However, those standard code tables for which mappings are not supported must be reported by the Trading Partner using standard codes only.

If the Trading Partner is unable to report using standard codes in fields for which mapping is not supported, it is recommended that they refrain from reporting data in that field until such time as they are capable of using standard codes, as the use of local codes in such a field will result in report errors. This recommendation pertains only to optional fields, as all required fields must be reported in order for a message to be acceptable by the PA-ELR system.

Trading Partners must provide mappings of their local codes to the PA-ELR standard codes during the PA-ELR On-Boarding process. If they make changes to their local code sets that affect these mappings, the changes should be communicated to the PA-ELR project team in advance so enhanced mappings can be migrated on the appropriate date.

## 11. Additional Tables and Values

This section provides a listing of codes and values for additional tables and values used within the PADOH laboratory-based reporting processes. The tables listed below have been previously introduced in the context of one or more data fields within an HL7 ORU message, however due to their length they are presented below.

### 11.1.1. Table HL70212 – Nationality

This table was introduced in section 3.9.1 and is included here in its entirety.

Value	Description
AFG	AFGHANISTAN
ALA	ALAND ISLANDS
ALB	ALBANIA
DZA	ALGERIA
ASM	AMERICAN SAMOA
AND	ANDORRA
AGO	ANGOLA
AIA	ANGUILLA

ATA	ANTARCTICA
ATG	ANTIGUA AND BARBUDA
ARG	ARGENTINA
ARM	ARMENIA
ABW	ARUBA
AUS	AUSTRALIA
AUT	AUSTRIA
AZE	AZERBAIJAN
BHS	BAHAMAS
BHR	BAHRAIN
BGD	BANGLADESH
BRB	BARBADOS
BLR	BELARUS
BEL	BELGIUM
BLZ	BELIZE
BEN	BENIN
BMU	BERMUDA
BTN	BHUTAN
BOL	BOLIVIA
BIH	BOSNIA AND HERZEGOVINA
BWA	BOTSWANA
BVT	BOUVET ISLAND
BRA	BRAZIL
IOT	BRITISH INDIAN OCEAN TERRITORY
BRN	BRUNEI DARUSSALAM
BGR	BULGARIA
BFA	BURKINA FASO
BDI	BURUNDI
KHM	CAMBODIA
CMR	CAMEROON
CAN	CANADA
CPV	CAPE VERDE
CYM	CAYMAN ISLANDS
CAF	CENTRAL AFRICAN REPUBLIC
TCD	CHAD
CHL	CHILE
CHN	CHINA



CXR	CHRISTMAS ISLAND
CCK	COCOS (KEELING) ISLANDS
COL	COLOMBIA
COM	COMOROS
COG	CONGO
COD	CONGO, THE DEMOCRATIC REPUBLIC OF THE
COK	COOK ISLANDS
CRI	COSTA RICA
CIV	COTE D'IVOIRE
HRV	CROATIA
CUB	CUBA
CYP	CYPRUS
CZE	CZECH REPUBLIC
DNK	DENMARK
DJI	DJIBOUTI
DMA	DOMINICA
DOM	DOMINICAN REPUBLIC
ECU	ECUADOR
EGY	EGYPT
SLV	EL SALVADOR
GNQ	EQUATORIAL GUINEA
ERI	ERITREA
EST	ESTONIA
ETH	ETHIOPIA
FLK	FALKLAND ISLANDS (MALVINAS)
FRO	FAROE ISLANDS
FJI	FIJI
FIN	FINLAND
FRA	FRANCE
GUF	FRENCH GUIANA
PYF	FRENCH POLYNESIA
ATF	FRENCH SOUTHERN TERRITORIES
GAB	GABON
GMB	GAMBIA
GEO	GEORGIA
DEU	GERMANY
GHA	GHANA

GIB	GIBRALTAR
GRC	GREECE
GRL	GREENLAND
GRD	GRENADA
GLP	GUADELOUPE
GUM	GUAM
GTM	GUATEMALA
GIN	GUINEA
GNB	GUINEA-BISSAU
GUY	GUYANA
HTI	HAITI
HMD	HEARD ISLAND AND MCDONALD ISLANDS
VAT	HOLY SEE (VATICAN CITY STATE)
HND	HONDURAS
HKG	HONG KONG
HUN	HUNGARY
ISL	ICELAND
IND	INDIA
IDN	INDONESIA
IRN	IRAN, ISLAMIC REPUBLIC OF
IRQ	IRAQ
IRL	IRELAND
ISR	ISRAEL
ITA	ITALY
JAM	JAMAICA
JPN	JAPAN
JOR	JORDAN
KAZ	KAZAKHSTAN
KEN	KENYA
KIR	KIRIBATI
PRK	KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF
KOR	KOREA, REPUBLIC OF
KWT	KUWAIT
KGZ	KYRGYZSTAN
LAO	LAO PEOPLE'S DEMOCRATIC REPUBLIC
LVA	LATVIA
LBN	LEBANON

LSO	LESOTHO
LBR	LIBERIA
LBY	LIBYAN ARAB JAMAHIRIYA
LIE	LIECHTENSTEIN
LTU	LITHUANIA
LUX	LUXEMBOURG
MAC	MACAO
MKD	MACEDONIA, THE FORMER YUGOSLAV REPUBLIC OF
MDG	MADAGASCAR
MWI	MALAWI
MYS	MALAYSIA
MDV	MALDIVES
MLI	MALI
MLT	MALTA
MHL	MARSHALL ISLANDS
MTQ	MARTINIQUE
MRT	MAURITANIA
MUS	MAURITIUS
MYT	MAYOTTE
MEX	MEXICO
FSM	MICRONESIA, FEDERATED STATES OF
MDA	MOLDOVA, REPUBLIC OF
MCO	MONACO
MNG	MONGOLIA
MSR	MONTSERRAT
MAR	MOROCCO
MOZ	MOZAMBIQUE
MMR	MYANMAR
NAM	NAMIBIA
NRU	NAURU
NPL	NEPAL
NLD	NETHERLANDS
ANT	NETHERLANDS ANTILLES
NCL	NEW CALEDONIA
NZL	NEW ZEALAND
NIC	NICARAGUA
NER	NIGER

NGA	NIGERIA
NIU	NIUE
NFK	NORFOLK ISLAND
MNP	NORTHERN MARIANA ISLANDS
NOR	NORWAY
OMN	OMAN
PAK	PAKISTAN
PLW	PALAU
PSE	PALESTINIAN TERRITORY, OCCUPIED
PAN	PANAMA
PNG	PAPUA NEW GUINEA
PRY	PARAGUAY
PER	PERU
PHL	PHILIPPINES
PCN	PITCAIRN
POL	POLAND
PRT	PORTUGAL
PRI	PUERTO RICO
QAT	QATAR
REU	REUNION
ROU	ROMANIA
RUS	RUSSIAN FEDERATION
RWA	RWANDA
SHN	SAINT HELENA
KNA	SAINT KITTS AND NEVIS
LCA	SAINT LUCIA
SPM	SAINT PIERRE AND MIQUELON
VCT	SAINT VINCENT AND THE GRENADINES
WSM	SAMOA
SMR	SAN MARINO
STP	SAO TOME AND PRINCIPE
SAU	SAUDI ARABIA
SEN	SENEGAL
SCG	SERBIA AND MONTENEGRO
SYC	SEYCHELLES
SLE	SIERRA LEONE
SGP	SINGAPORE

SVK	SLOVAKIA
SVN	SLOVENIA
SLB	SOLOMON ISLANDS
SOM	SOMALIA
ZAF	SOUTH AFRICA
SGS	SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS
ESP	SPAIN
LKA	SRI LANKA
SDN	SUDAN
SUR	SURINAME
SJM	SVALBARD AND JAN MAYEN
SWZ	SWAZILAND
SWE	SWEDEN
CHE	SWITZERLAND
SYR	SYRIAN ARAB REPUBLIC
TWN	TAIWAN, PROVINCE OF CHINA
TJK	TAJIKISTAN
TZA	TANZANIA, UNITED REPUBLIC OF
THA	THAILAND
TLS	TIMOR-LESTE
TGO	TOGO
TKL	TOKELAU
TON	TONGA
TTO	TRINIDAD AND TOBAGO
TUN	TUNISIA
TUR	TURKEY
TKM	TURKMENISTAN
TCA	TURKS AND CAICOS ISLANDS
TUV	TUVALU
UGA	UGANDA
UKR	UKRAINE
ARE	UNITED ARAB EMIRATES
GBR	UNITED KINGDOM
USA	UNITED STATES
UMI	UNITED STATES MINOR OUTLYING ISLANDS
URY	URUGUAY
UZB	UZBEKISTAN

VUT	VANUATU
VEN	VENEZUELA
VNM	VIET NAM
VGB	VIRGIN ISLANDS, BRITISH
VIR	VIRGIN ISLANDS, U.S.
WLF	WALLIS AND FUTUNA
ESH	WESTERN SAHARA
YEM	YEMEN
ZMB	ZAMBIA
ZWE	ZIMBABWE

11.1.2. *Table CDCM – CDC Methods/Instruments Codes*

The values for this coding system are not included in this document.

11.1.3. *Table ICD-9-CM International Classification of Diseases, Ninth Revision*

The values for this coding system are not included in this document.

11.1.4. *Table LOINC – Logical Observation Identifier Names and Codes*

The values for this coding system are not included in this document.

11.1.5. *Table SNOMED – Systematized Nomenclature of Human and Veterinary Medicine*

The values for this coding system are not included in this document.

## 12. Code Versions

All code tables used in the PA-ELR standard vocabulary, and the version or versions supported in PA-ELR, are listed below.

Table ID	Table Name	Supported Version(s)
CDCM	CDC Methods/Instruments Codes	(February 2, 2000)
ICD-9-CM	International Classification of Diseases, 9th Revision, Clinical Modification	9th Revision
ISO+	ISO Customary Units	ISO-2955 (1983)
LOINC	Logical Observation Identifiers Names and Codes	2.16
SNOMED	Systematized Nomenclature of Human and Veterinary Medicine	Intl '98 (I98) Clinical Terms (CT)
HL7nnnn	(all HL7 tables)	HL7 2.3.1

### 13. DOH Program Area Specific Guidelines

Due to specific program area or test type requirements, it may be necessary to implement restrictions to or deviations from the standard HL7 guidelines outlined within this document. Such variations as well as related sample HL7 messages are published in this section ordered by program area. The standard PA DOH HL7 guidelines should be followed for any message specifics that are not clarified within this section. It is recommended that this section be read prior to implementation.

#### 13.1. Lead

##### 13.1.1. Additional Required Fields

While Specimen Source is stated as Optional, it is considered as a required field for Lead reports.

In the case of Adult Lead reports, it is strongly recommended that Employer information be provided in NK1 segment with the relationship as "EMR".

Likewise for Childhood Lead reports, the NK1 segment should contain the name of the child's guardian as "GRD" whenever possible. This is vital information for investigators.

##### 13.1.2. Table HL70070 - Specimen Source (Lead)

The following table is a condensed set of values for the Specimen Source field of the OBR message segment recommended specifically for use in Lead messages.

Value	Description
BLDC	Blood capillary
BLDV	Blood venous

##### 13.1.3. Sample Lead Messages

The following lead sample messages illustrate each basic test type and result scenario for lead messages.

#### Significant Adult Lead

```
MSH|^~\&|TestApp|Test Laboratories^999999999^CLIA|PA-
ELR|PADOH|20051021||ORU^R01|200510210001|P|2.3.1
PID|||999999999^^^SS||Public^Jane^M^Sr^^^L||19700101|F||W^White^HL70005|6501
Main Street^Apt.
Z666^Sometown^PA^17109^USA^M||^PH^^^999^5551111|^PH^^^717^6669999|||NH
^xxx^HL70189
NK1||Employer^EFName^^^L|EMR^Employer^HL70063|666 JFK
Street^^Employersburg^PA^17110^USA^M|^PH^^^717^9119111
ORC|||||Lead Hospitals Incorporated^^1234567891^^^NPI|222
Hospital Dr.^Hospitalville^PA^17111^USA^B|^PH^^^800^8000008|777 Physician
Ave.^Doctorboro^PA^17112^USA^B
OBR|||A22341|5671-3^Quantitative Blood
Lead^LN|||20051019000101|||20051019000101|BLDV&Blood
```

```
venous&HL70070|1234567892^LeadDoctor^PFName^^^^^^^^^^ITIN|^PH^^717^1717171|
||||20051019000101|||F
OBX||SN|5671-3^Quantitative Blood
Lead^LN|1|^46|ug/dL^microgram/deciliter^ISO+|0-40||||||20051019000101
```

**Non-Significant Adult Lead**

```
MSH|^~\&|TestApp|Test Laboratories^999999999^CLIA|PA-
ELR|PADOH|20050925||ORU^R01|200509250001|P|2.3.1
PID|||999999999^^^SS||Public^John^M^Sr^^^L||19700101|M||B^Black^HL70005|6501
Main Street^Apt.
Z666^Somertown^PA^17109^USA^M|^PH^^999^5551111|^PH^^717^6669999||||||H^
xxx^HL70189
NK1||Employer^EFName^^^^L|EMR^Employer^HL70063|666 JFK
Street^^Employersburg^PA^17110^USA^M|^PH^^717^9119111
ORC|||||||||||||||||Lead Hospitals Incorporated^^1234567891^^^NPI|222
Hospital Dr.^Hospitalville^PA^17111^USA^B|^PH^^800^8000008|777 Physician
Ave.^Doctorboro^PA^17112^USA^B
OBR|||22222|5671-3^Quantitative Blood
Lead^LN|||20051019000101||||||20051019000101|BLDV&Blood
venous&HL70070|1234567892^LeadDoctor^PFName^^^^^^^^^^ITIN|^PH^^717^1717171|
||||20051019000101|||F
OBX||SN|5671-3^Quantitative Blood
Lead^LN|1|^2|ug/dL^microgram/deciliter^ISO+|0-40||||||20051019000101
```

**Significant Child Lead**

```
MSH|^~\&|TestApp|Test Laboratories^999999999^CLIA|PA-
ELR|PADOH|20050925||ORU^R01|200509250001|P|2.3.1
PID|||999999999^^^SS||Public^John^M^Jr^^^L||19950101|M||B^Black^HL70005|6501
Main Street^Apt.
Z666^Somertown^PA^17109^USA^M|^PH^^999^5551111|^PH^^717^6669999||||||H^
xxx^HL70189
NK1||Guardian^GFName^^^^L|GRD^Guardian^HL70063|666 JFK
Street^^Guardiansburg^PA^17110^USA^M|^PH^^717^9119111
ORC|||||||||||||||||Lead Hospitals Incorporated^^1234567891^^^NPI|222
Hospital Dr.^Hospitalville^PA^17111^USA^B|^PH^^800^8000008|777 Physician
Ave.^Doctorboro^PA^17112^USA^B
OBR|||333333|5671-3^Quantitative Blood
Lead^LN|||20051019000101||||||20051019000101|BLDV&Blood
venous&HL70070|1234567892^LeadDoctor^PFName^^^^^^^^^^ITIN|^PH^^717^1717171|
||||20051019000101|||F
OBX||SN|5671-3^Quantitative Blood
Lead^LN|1|^32|ug/dL^microgram/deciliter^ISO+|0-30||||||20051019000101
```



Non-Significant Child Lead

```
MSH|^~\&|TestApp|Test Laboratories^999999999^CLIA|PA-
ELR|PADOH|20050925||ORU^R01|200509250001|P|2.3.1

PID|||999999999^^^SS||Public^Jane^M^Jr^^^L||19950101|F||W^White^HL70005|6501
Main Street^Apt.
Z666^Somertown^PA^17109^USA^M||^PH^^^999^5551111|^PH^^^717^6669999|||||NH
^xxx^HL70189

NK1||Guardian^GFName^^^^L|GRD^Guardian^HL70063|666 JFK
Street^^Guardiansburg^PA^17110^USA^M|^PH^^^717^9119911

ORC|||||||||||||||||Lead Hospitals Incorporated^^1234567891^^^NPI|222
Hospital Dr.^Hospitalville^PA^17111^USA^B|^PH^^^800^8000008|777 Physician
Ave.^Doctorboro^PA^17112^USA^B

OBR|||44444|5671-3^Quantitative Blood
Lead^LN|||20051019000101|||||20051019000101|BLDV&Blood
venous&HL70070|1234567892^LeadDoctor^PFName^^^^^^^^^ITIN|^PH^^^717^1717171|
||||20051019000101|||F

OBX||SN|5671-3^Quantitative Blood
Lead^LN|1|^5|ug/dL^microgram/deciliter^ISO+|0-30|||||20051019000101
```

**13.2. HIV/AIDS**

13.2.1. *Table LOINC – Logical Observation Identifier Names and Codes (HIV/AIDS)*

The following table specifies the recommended LOINC code values to be used in the Identifier component of the Universal Service ID field of the Observation Request (OBR) segment and the Observation Identifier field of the Observation/Result (OBX) message segment.

Value	Description
20606-0	CD4 Results: CD4 Percent
20605-2	CD4 Results: Absolute CD4 Count (cells/uL or cells/mm3)
33866-5	HIV-1 EIA
14092-1	HIV-1 IFA
30245-5	HIV-1 Proviral DNA (QUAL)
9821-0	HIV-1 P24 Antigen
5018-7	HIV-1 RNA PCR (QUAL)
29539-4	HIV-1 RNA bDNA
29541-0	HIV-1 RNA NASBA
21009-6	HIV-1 Western Blot
31201-7	HIV-1/HIV-2 Combination EIA
30361-0	HIV-2 EIA
31073-0	HIV-2 Western Blot Test

6431-1	HIV-1 Culture
XLN0001	Rapid
XLN0002	Other HIV antibody test
XLN0003	HIV-1 RNA PT-PCR
XLN0004	HIV-2 Culture

13.2.2. Table HL70070 - Specimen Source (HIV/AIDS)

The following table is a condensed set of values for the Specimen Source field of the OBR message segment recommended specifically for use in HIV/AIDS messages.

Value	Description
BLDC	Blood capillary
BLDV	Blood venous
CSF	Cerebral spinal fluid
SAL	Saliva
SER	Serum

13.2.3. Sample HIV/AIDS Messages

The following HIV/AIDS sample messages illustrate each basic test type and result scenario for HIV/AIDS messages.

CD4 Count, cells/uL

```
MSH|^~\&|TestApp|Test Laboratories^999999999^CLIA|PA-
ELR|PADOH|20050925||ORU^R01|200509250001|P|2.3.1

PID|||999999999^^^SS||Public^Jane^M^Sr^^^L||19700101|F||W^White^HL70005|6501
Main Street^Apt.
Z666^Sometown^PA^17109^USA^M||^PH^^^999^5551111|^PH^^^717^6669999|||||NH
^xxx^HL70189

NK1||Guardian^GFName^^^^L|GRD^^HL70063|666 JFK
Street^^Guardiansburg^PA^17110^USA^M|^PH^^^717^9119911

ORC|||||Hospitals Incorporated|222 Hospital
Dr.^Hospitalville^PA^17111^USA^B|^PH^^^800^8000008|777 Physician
Ave.^Doctorboro^PA^17112^USA^B

OBR|||222244|20605-
2^cd4count^LN|||20050922000101|||||20050922000101|BLDC&Blood
capillary&HL70070|^HIVDoctor^PFName|^PH^^^717^1717171|||||20050922000101|||
F

OBX||SN|20605-
2^cd4count^LN|1|^150|cells/uL^cells/uL^ISO+||A|||||20050922000101

NTE|||Lab test note 1
```

CD4 Count, cells/mm3

```
MSH|^~\&|TestApp|Test Laboratories^999999999^CLIA|PA-
ELR|PADOH|20050925||ORU^R01|200509250001|P|2.3.1

PID|||999999999^^^^SS||Public^John^M^Sr^^^L||19700101|M||B^Black^HL70005|6501
Main Street^Apt.
Z666^Somertown^PA^17109^USA^M||^PH^^^999^5551111|^PH^^^717^6669999||||||H^
xxx^HL70189

NK1||Guardian^GFName^^^^L|GRD^^HL70063|666 JFK
Street^^Guardiansburg^PA^17110^USA^M|^PH^^^717^9119911

ORC|||||||||||||||||Hospitals Incorporated|222 Hospital
Dr.^Hospitalville^PA^17111^USA^B|^PH^^^800^8000008|777 Physician
Ave.^Doctorboro^PA^17112^USA^B

OBR|||333333|20605-
2^cd4count^LN|||20050922000101|||||20050922000101|BLDC&Blood
capillary&HL70070|^HIVDoctor^PFName^|^PH^^^717^1717171|||||20050922000101|||
F

OBX||SN|20605-
2^cd4count^LN|1|^180|cells/mm3^cells/mm3^ISO+||A|||||20050922000101

NTE|||
```

CD4 Percent

```
MSH|^~\&|TestApp|Test Laboratories^999999999^CLIA|PA-
ELR|PADOH|20050925||ORU^R01|200509250001|P|2.3.1

PID|||999999999^^^^SS||Public^Jane^M^Sr^^^L||19700101|F||W^White^HL70005|6501
Main Street^Apt.
Z666^Somertown^PA^17109^USA^M||^PH^^^999^5551111|^PH^^^717^6669999||||||NH
^xxx^HL70189

NK1||Guardian^GFName^^^^L|GRD^^HL70063|666 JFK
Street^^Guardiansburg^PA^17110^USA^M|^PH^^^717^9119911

ORC|||||||||||||||||Hospitals Incorporated|222 Hospital
Dr.^Hospitalville^PA^17111^USA^B|^PH^^^800^8000008|777 Physician
Ave.^Doctorboro^PA^17112^USA^B

OBR|||111111|20606-
0^cd4percent^LN|||20050922000101|||||20050922000101|BLDV&Blood
Venous&HL70070|^HIVDoctor^PFName^|^PH^^^717^1717171|||||20050922000101|||F

OBX||SN|20606-
0^cd4percent^LN|1|^13|percent^percent^ISO+||A|||||20050922000101

NTE|||
```

HIV Culture

```
MSH|^~\&|TestApp|Test Laboratories^999999999^CLIA|PA-
ELR|PADOH|20050925||ORU^R01|200509250001|P|2.3.1
```

```

PID|||999999999^^^SS||Public^John^M^Sr^^^L||19700101|M||W^White^HL70005|6501
Main Street^Apt.
Z666^Somertown^PA^17109^USA^M||^PH^^^999^5551111|^PH^^^717^6669999|||H^
xxx^HL70189

NK1||Guardian^GFName^^^^L|GRD^^HL70063|666 JFK
Street^^Guardiansburg^PA^17110^USA^M|^PH^^^717^9119911

ORC|||||Hospitals Incorporated|222 Hospital
Dr.^Hospitalville^PA^17111^USA^B|^PH^^^800^8000008|777 Physician
Ave.^Doctorboro^PA^17112^USA^B

OBR|||77777|6431-1^HIV
Culture^LN|||20050923000101|||20050923000101|BLDC&Blood
capillary&HL70070|^HIVDoctor^PName^|^PH^^^717^1717171|||20050923000101|||
F

OBX||CE|6431-1^HIV Culture^LN|1|10828004^Positive^SNM|||20050923000101
NTE|||
    
```

**HIV-1 Proviral DNA**

```

MSH|^~\&|TestApp|Test Laboratories^999999999^CLIA|PA-
ELR|PADOH|20050925||ORU^R01|200509250001|P|2.3.1

PID|||999999999^^^SS||Public^John^M^Sr^^^L||19700101|M||A^African^HL70005|65
01 Main Street^Apt.
Z666^Somertown^PA^17109^USA^M||^PH^^^999^5551111|^PH^^^717^6669999|||NH
^xxx^HL70189

NK1||Guardian^GFName^^^^L|GRD^^HL70063|666 JFK
Street^^Guardiansburg^PA^17110^USA^M|^PH^^^717^9119911

ORC|||||Hospitals Incorporated|222 Hospital
Dr.^Hospitalville^PA^17111^USA^B|^PH^^^800^8000008|777 Physician
Ave.^Doctorboro^PA^17112^USA^B

OBR|||88888|30245-5^HIV-
1ProviralDNA^LN|||20050923000101|||20050923000101|BLDC&Blood
capillary&HL70070|^HIVDoctor^PName^|^PH^^^717^1717171|||20050923000101|||
F

OBX||CE|30245-5^HIV-
1ProviralDNA^LN|1|10828004^Positive^SNM|||20050923000101
NTE|||Lab test note 2
    
```

**HIV-1 RNA bDNA**

```

MSH|^~\&|TestApp|Test Laboratories^999999999^CLIA|PA-
ELR|PADOH|20050925||ORU^R01|200509250001|P|2.3.1

PID|||999999999^^^SS||Public^Jane^M^Sr^^^L||19700101|F||W^White^HL70005|6501
Main Street^Apt.
Z666^Somertown^PA^17109^USA^M||^PH^^^999^5551111|^PH^^^717^6669999|||NH
^xxx^HL70189
    
```

```
NK1||Guardian^GFName^^^^^L|GRD^^HL70063|666 JFK
Street^^Guardiansburg^PA^17110^USA^M|^PH^^^717^9119911

ORC|||||||||||||||||Hospitals Incorporated|222 Hospital
Dr.^Hospitalville^PA^17111^USA^B|^PH^^^800^8000008|777 Physician
Ave.^Doctorboro^PA^17112^USA^B

OBR|||999999|20606-0^HIV-1 RNA
DNA^LN|||20050924000101|||||20050924000101|BLDC&Blood
capillar&HL70070|^HIVDoctor^PFName|^PH^^^717^171717|||||20050924000101|||F

OBX||SN|29539-4^HIV-1 RNA bDNA^LN|1|^1100|copies/mL^copies/mL^ISO+|100-
500|||||20050924000101

NTE|||
```

**HIV-1 RNA NASBA**

```
MSH|^~\&|TestApp|Test Laboratories^999999999^CLIA|PA-
ELR|PADOH|20050925||ORU^R01|200509250001|P|2.3.1

PID|||999999999^^^^SS||Public^Jane^M^Sr^^^L||19700101|F||W^White^HL70005|6501
Main Street^Apt.
Z666^Somertown^PA^17109^USA^M|^PH^^^999^5551111|^PH^^^717^6669999|||||NH
^xxx^HL70189

NK1||Guardian^GFName^^^^^L|GRD^^HL70063|666 JFK
Street^^Guardiansburg^PA^17110^USA^M|^PH^^^717^9119911

ORC|||||||||||||||||Hospitals Incorporated|222 Hospital
Dr.^Hospitalville^PA^17111^USA^B|^PH^^^800^8000008|777 Physician
Ave.^Doctorboro^PA^17112^USA^B

OBR|||55555|29539-4^HIV-1 RNA
NASBA^LN|||20050924000101|||||20050924000101|BLDC&Blood
capillar&HL70070|^HIVDoctor^PFName|^PH^^^717^171717|||||20050924000101|||F

OBX||CE|29539-4^HIV-1 RNA
NASBA^LN|1|10828004^Positive^SNM|||||20050924000101

NTE|||
```

**HIV-1 EIA**

```
MSH|^~\&|TestApp|Test Laboratories^999999999^CLIA|PA-
ELR|PADOH|20050925||ORU^R01|200509250001|P|2.3.1

PID|||999999999^^^^SS||Public^Jane^M^Sr^^^L||19700101|F||W^White^HL70005|6501
Main Street^Apt.
Z666^Somertown^PA^17109^USA^M|^PH^^^999^5551111|^PH^^^717^6669999|||||NH
^xxx^HL70189

NK1||Guardian^GFName^^^^^L|GRD^^HL70063|666 JFK
Street^^Guardiansburg^PA^17110^USA^M|^PH^^^717^9119911

ORC|||||||||||||||||Hospitals Incorporated|222 Hospital
Dr.^Hospitalville^PA^17111^USA^B|^PH^^^800^8000008|777 Physician
Ave.^Doctorboro^PA^17112^USA^B
```

```
OBR|||666666|33866-5^HIV-1
EIA^LN|||20050924000101|||||20050924000101|BLDC&Blood
capillar&HL70070|^HIVDoctor^PFName^|^PH^^^717^1717171|||||20050924000101|||F
OBX||CE|33866-5^HIV-1 EIA^LN|1|10828004^Positive^SNM|||||||20050924000101
NTE|||
```