



OCIE Message Specification - ORU

Optum Clinical Information Exchange
October 2014

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Introduction

Scope

This guide is to be used for the development of data interfaces transmitting Unsolicited Observation Messages (ORU) to Optum Clinical Information Exchange (OCIE). As the healthcare industry evolves toward standards-based communications for clinical data OCIE has recognized the need to move away from custom and proprietary methods and move toward common standards that eliminate or substantially reduce the custom interface programming and program maintenance that may otherwise be required.

The OCIE standard is based on the Health Level Seven (HL7) version 2.5.1 messaging standard for electronic data exchange in healthcare environments which was designed to conform to the requirements of the American National Standards Institute (ANSI). During the development of the OCIE standard a deliberate effort was made to support prior version implementations of HL7 for applications and systems that can generate HL7 release 2.2, 2.3, 2.3.1, and 2.4 extracts in addition to the 2.5.1 version that our standard is based on.

This document describes the elements of HL7 messages as they relate to the OCIE standard for transmission of ORU data and is not intended to be an introduction to HL7 messages and standards. Readers unfamiliar with HL7 should first review the information describing the HL7 2.5.1 standard, available at www.hl7.org.

Overview

This **OCIE HL7 Message Specifications – ORU** has been written to assist you in designing and implementing HL7 transactions to meet the OCIE processing standard. **OCIE Message Specifications – ORU** must be used in conjunction with the instructions set forth by the American National Standards Institute (ANSI) HL7 Working Group.

OCIE Message Specifications - ORU identifies key data elements from the transaction set that we, as Optum, request you provide to us. The recommendations made herein are to enable you to more effectively complete ORU transactions with OCIE.

Updates to this guide occur periodically and new documents are distributed to all Data Partners in writing in advance with not less than 30 days' notice.

References

See Version 2.5.1 of the Health Level 7 standard for a full description of all messages, segments, and fields. Information regarding HL7 is available at www.hl7.org.

Transaction Specific Information

HL7 Message Structure

HL7 messages include data fields of various lengths and are separated by delimiters. Fields are grouped by segments that may be required by HL7 rules, or may be optional to be used at the discretion of the submitter.

- Message
 - Segment (repeatable)
 - ◆ Fields (repeatable)
 - Components

See [Message Samples](#) herein for the structure of the ORU message.

Message Delimiters

Delimiter	Value	Encoding Character Position	Usage
Field Separator		-	Separates two adjacent data fields within a segment. It also separates the segment ID from the first data field in each segment.
Component Separator	^	1	Separates adjacent components of data fields where allowed.
Subcomponent Separator	&	4	Separates adjacent subcomponents of data fields where allowed. If there are no subcomponents, this character may be omitted.
Repetition Separator	~	2	Separates multiple occurrences of a field where allowed.
Escape Character	\	3	Escape character for use with any field represented by an ST, TX or FT data type, or for use with the data (fourth) component of the ED data type. If no escape characters are used in a message, this character may be omitted. However, it must be present if subcomponents are used in the message.

File Specifications

OCIE has outlined the **ORU Message Segments** herein to assist you in designing and programming the information we need in order to receive ORU data. For each message segment used by OCIE a table is provided that illustrates the fields for that segment. The table contains a row for each field in that segment.

Note: The provided tables illustrate segment and field use by OCIE and may not reflect the same information as the HL7 standard. A (*) denotation will indicate where the OCIE standard differs from the HL7 standard.

The columns in the message segment tables are used to describe the length, data type, optionality, repeatability, and HL7 table designation for each field within the segment. All segments, data elements, and codes supported in the HL7 guidelines are acceptable; however, all data may not be used in the processing of this transaction by OCIE.

ORU transactions sent with segments not supported in the HL7 guidelines will be rejected. This restriction applies also to custom segments.

Message Segment Table – Key

The following table defines the various column headers in the message segment tables.

Table Item	Definition
SEQ	Sequence of elements as numbered in the segment
ELEMENT	Element name as specified by HL7 (Reference only and does not appear in message)
LEN	Length of the element
DT	Data Type
OPT	R = Required by OCIE (does not indicate HL7 standard requirement) O = Optional C = Conditional B = Backward compatible See Appendix for more detailed information.
RP/#	Blank = No repetitions permitted Y = repeatable indefinitely Y/x (where x = repeatable times)
TBL#	HL7 Table number (Reference only and does not appear in the message)

Optionality Designation

The following table outlines the optionality designations that have been defined by HL7 and supported by OCIE.

Value	Definition	Description	OCIE Requirement
R	Required	A conforming sending application shall populate all R elements with a non-empty value. Conforming receiving application shall process (save/print/archive/etc.) or ignore the information conveyed by required elements. A conforming receiving application must not raise an error due to the presence of a required element, but may raise an error due to the absence of a required element. Any element designated as required in a standard HL7 message definition shall also be required in all HL7 message profiles of that standard message.	These elements must have a value that conforms to the element's data type specification. Lack of a value or invalid coding of this element generates an error and results in the message being rejected.
C	Conditional	The element may be missing from the message, but may be required based on some other field(s). The field definitions following the segment attribute table should specify the algorithm that defines the conditionality for this field. A conforming sending application must be capable of providing all C elements. If the conforming sending application knows the required values for the element, then it must send that element. If the conforming sending application does not know the required values that element is omitted.	These elements are expected to always be populated with a valid value that conforms to the element's data type specification. Incorrectly coded data values cause the message to be rejected.
O	Optional	The component/sub-component may be populated, but this is entirely at the discretion of the sending system. If the component/sub-component is populated (non-NULL), it must conform to the specifications of that component/sub-component in HL7 version 2.5.1. Otherwise, the receiving application may indicate an error. Any specification of content or formatting for these components or sub-components beyond what is specified in HL7 version 2.5.1 must be negotiated separately between trading partners.	These elements may be populated at the discretion of the sending application with a value that conforms to the element's data type specification. Lack of a data value does NOT cause an error or automatic rejection of the message.
B	Backward Compatible	The element has been left in for backward compatibility with previous versions of HL7. The field definitions following the segment attribute table should denote the optionality of the field for prior versions. Elements sent in backward compatible fields are ignored.	These elements can continue to be sent in the pre version 2.5.1 location. The receiving application is able to understand HL7 versions earlier than 2.5.1, and does not generate an error or reject a message for information received in an earlier version format.

ORU Message Segments

Message segments that are supported in ORU transactions and contain elements used in processing are detailed in the tables below.

Fields within each segment that are required by OCIE are defined beneath each table. Commonly sent optional and conditional fields may also be defined. Uncommon optional and conditional fields are generally not defined.

Message segments that are supported by OCIE, but do not contain elements processed by OCIE, are considered to be optional segments. These are noted herein for clarity, but generally not detailed.

Certain descriptions provided herein are taken directly from the HL7 messaging standards.

MSH – Message Header Segment

The MSH segment is used to define the intent, source, destination, and some specifics of the syntax of a message.

The MSH segment is required.

SEQ	ELEMENT NAME	LEN	DT	OPT	RP/#	TBL#
1	Field Separator	1	ST	R		
2	Encoding Characters	4	ST	R		
3	Sending Application	227	HD	R*		361
4	Sending Facility	227	HD	R*		362
5	Receiving Application	227	HD	R*		361
6	Receiving Facility	227	HD	R*		362
7	Date/Time Of Message	26	TS	R		
8	Security	40	ST	O		
9	Message Type	15	MSG	R		
10	Message Control ID	20	ST	R		
11	Processing ID	3	PT	R		
12	Version ID	60	VID	R		
13	Sequence Number	15	NM	O		
14	Continuation Pointer	180	ST	O		
15	Accept Acknowledgment Type	2	ID	O		155
16	Application Acknowledgment Type	2	ID	O		155
17	Country Code	3	ID	O		399
18	Character Set	16	ID	O	Y	

SEQ	ELEMENT NAME	LEN	DT	OPT	RP/#	TBL#
19	Principal Language Of Message	250	CE	O		
20	Alternate Character Set Handling Scheme	20	ID	O		356
21	Message Profile Identifier	427	EI	O	Y	

MSH-1 Field Separator [R] - This field contains the separator between the segment ID and the first real field, MSH-2-encoding characters. As such it serves as the separator and defines the character to be used as a separator for the rest of the message.

Value is |, (ASCII 124).

MSH-2 Encoding Characters [R] - This field contains the four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator.

Values are:

- Component delimiter = ^
- Repeating delimiter = ~
- Escape character = \
- Sub-component delimiter = &
- (ASCII 94, 126, 92, and 38, respectively)

MSH-3 Sending Application [R]* - This field uniquely identifies the sending application for purposes of differentiation between sources of data. The Universal ID, if specified, should be set to the OID (Object Identifier) of the application. The Universal ID Type, if specified, should be set to ISO for 'International Standards Organization Object Identifier'. Refer to HL7 Table 0301 - Name Type for valid values.

HL7 format for HD data type:

<Namespace ID (IS)> ^ <Universal ID (ST)> ^ <Universal ID Type (ID)>

Field: MSH-3 Sending Application (HD)

Component/Sub-Component	OPT
Namespace ID (IS)	R
Universal ID (ST)	O
Universal ID Type (ID)	O

Value Example
Transcription Application or Transcription Application^1.1.1.131.1^ISO

MSH-4 Sending Facility [R]* - This field further describes the MSH-3-sending application and is OCIE's assigned identifier for the organizational entity responsible for the sending application. The value in this

field should be set to the identifier that uniquely identifies this organization to OCIE. The Universal ID Type, if specified, should be set to ISO for ‘International Standards Organization Object Identifier’. Refer to HL7 Table 0301 - Name Type for valid values.

HL7 format for HD data type:

<Namespace ID (IS)> ^ <Universal ID (ST)> ^ <Universal ID Type (ID)>

Field: MSH-4 Sending Facility (HD)

Component/Sub-Component	OPT
Namespace ID (IS)	R
Universal ID (ST)	O
Universal ID Type (ID)	O

Value Example
GOODHEALTHHOSPITAL^1.1.1.131^ISO

MSH-5 Receiving Application [R]*– This field uniquely identifies the receiving application or Optum Service among all other applications within the network enterprise. The network enterprise consists of all those applications that participate in the exchange of HL7 messages within the enterprise. The Universal ID Type, if specified, should be set to ISO for ‘International Standards Organization Object Identifier’. Refer to HL7 Table 0301 - Name Type for valid values.

HL7 format for HD data type:

<Namespace ID (IS)> ^ <Universal ID (ST)> ^ <Universal ID Type (ID)>

Field: MSH-5 Receiving Application (HD)

Component/Sub-Component	OPT
Namespace ID (IS)	R
Universal ID (ST)	O
Universal ID Type (ID)	O

Value Example
OptumApplication^1.1.1.121.1^ISO

MSH-6 Receiving Facility [R]*- This field identifies the receiving facility among multiple identical instances of the application running on behalf of different organizations. The Universal ID Type, if specified, should be set to ISO for ‘International Standards Organization Object Identifier’. Refer to HL7 Table 0301 - Name Type for valid values.

HL7 format for HD data type:

<Namespace ID (IS)> ^ <Universal ID (ST)> ^ <Universal ID Type (ID)>

Field: MSH-6 Receiving Facility (HD)

Component/Sub-Component	OPT
Namespace ID (IS)	R
Universal ID (ST)	O
Universal ID Type (ID)	O

Value Example
GOODHEALTHHIE^1.1.1.121^ISO

MSH-7 Date/Time of Message [R] - This field contains the date/time that the sending system created the message. If the time zone is specified, it is used throughout the message as the default time zone. This field should be reported to at least a precision of minutes. Values with lesser precisions are considered non-conformant. The TS data type component degree of precision is a HL7 backward compatible value as of HL7 v2.3 and is ignored if sent.

HL7 format for TS data type:

YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ]^<degree of precision>

Field: MSH-7 Date/Time of Message (TS)

Component/Sub-Component	OPT
YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ]	R
degree of precision	O

Value Example
minimum precision YYYYMMDDHHMM: 200911241217 [12:17 pm on November 24, 2009]

MSH-9 Message Type [R] - This field contains the message type, trigger event, and the message structure ID for the message.

Refer to HL7 Table 0076 - Message type for valid values for the message code. The OCIE interface definition requires MDM to be sent for the <Message Code (ID)>.

Refer to HL7 Table 0003 - Event type for valid values for the trigger event. The OCIE interface definition requires this element to be sent for the <Trigger Event (ID)>.

Refer to HL7 Table 0354 - Message structure for valid values for the message structure. The OCIE interface definition requires MDM_Txx to be sent for the <Message Structure (ID)>.

HL7 format for MSG data type:

<Message Code (ID)> ^ <Trigger Event (ID)> ^ <Message Structure (ID)>

Field: MSH-9 Message Type (MSG)

Component/Sub-Component	OPT
Message Code (ID)	R
Trigger Event (ID)	R
Message Structure (ID)	R

Value Example
ORU^R01^ORU_R01

MSH-10 Message Control ID [R] - This field contains a number or other identifier that uniquely identifies the message. The receiving system echoes this ID back to the sending system in the Message acknowledgment segment (MSA). The sending system must assign an identifier for the message that remains globally unique for the lab service provider (MSH-3). This guarantees that the combination of the Message control ID and the Sending Application constitute a globally unique message identifier.

MSH-11 Processing ID [R] - This field is used to decide whether to process the message as defined in HL7 Application (level 7) Processing rules.

Recommended Values are P or T (Production order = P Testing = T) HL7 format for PT data type:

<Processing ID (ID)> ^ <Processing Mode (ID)>

Field: MSH-11 Processing ID (PT)

Component/Sub-Component	OPT
Processing ID (ID)	R
Processing Mode (ID)	O

MSH-12 Version ID [R] - This field is matched by the receiving system to its own version to be sure the message is interpreted correctly. The OCIE standard is based on HL7 version 2.5.1 but has attempted to accommodate backward compatibility to HL7 version 2.2. Valid values include 2.2, 2.3, 2.3.1, 2.4, 2.5.

HL7 format for VID data type:

<Version ID (ID)> ^ <Internationalization Code (CE)> ^ <International Version ID (CE)>

Field: MSH-12 Version ID (VID)

Component/Sub-Component	OPT
Version ID (ID)	R
Internationalization Code (CE)	O
Internationalization Version ID (CE)	O

Value Example
2.5.1

Additional MSH fields are optional values.

SFT Segment(s) are optional and no fields are required.

EVN – Event Segment

The EVN segment is used to communicate necessary trigger event information to receiving applications.

The EVN segment is required.

SEQ	ELEMENT NAME	LEN	DT	OPT	RP/#	TBL#
1	Event Type Code	3	ID	B		
2	Recorded Date/Time	26	TS	R		
3	Date/Time Planned Event	26	TS	O		
4	Event Reason Code	3	IS	O		62
5	Operator ID	250	XCN	O	Y	188
6	Event Occurred	26	TS	O		
7	Event Facility	241	HD	O		

EVN-1 Event Type Code [B] – This field has been retained for backward compatibility only. If sent, the value is ignored.

EVN-2 Recorded Date/Time [R] - Most systems default to the system date/time when the transaction was entered.

HL7 format for TS data type:

YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ]^<degree of precision>

Field: EVN-2 Date/Time of Message (TS)

Component/Sub-Component	OPT
YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ]	R
degree of precision	O

Value Example
minimum precision YYYYMMDDHHMM: 200911241217 [12:17 pm on November 24, 2009]

Additional EVN fields are optional values.

PID – Patient Identification Segment

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

The PID segment is required.

SEQ	ELEMENT NAME	LEN	DT	OPT	RP/#	TBL#
1	Set ID - PID	4	SI	O		
2	Patient ID	20	CX	B		
3	Patient Identifier List	250	CX	R	Y	
4	Alternate Patient ID - PID	20	CX	B	Y	
5	Patient Name	250	XPN	R	Y	200
6	Mother's Maiden Name	250	XPN	O	Y	
7	Date/Time of Birth	26	TS	O		
8	Administrative Sex	1	IS	O		0001
9	Patient Alias	250	XPN	B	Y	
10	Race	250	CE	O	Y	0005
11	Patient Address	250	XAD	O	Y	
12	County Code	4	IS	O		
13	Phone Number - Home	250	XTN	O	Y	
14	Phone Number - Business	250	XTN	O	Y	
15	Primary Language	250	CE	O		
16	Marital Status	250	CE	O		0002
17	Religion	250	CE	O		0006
18	Patient Account Number	250	CX	O		
19	SSN Number - Patient	16	ST	B		
20	Driver's License Number - Patient	25	DLN	B		
21	Mother's Identifier	250	CX	O	Y	
22	Ethnic Group	250	CE	O	Y	0189
23	Birth Place	250	ST	O		
24	Multiple Birth Indicator	1	ID	O		0136
25	Birth Order	2	NM	O		
26	Citizenship	250	CE	O	Y	
27	Veterans Military Status	250	CE	O		
28	Nationality	250	CE	B		
29	Patient Death Date and Time	26	TS	O		

SEQ	ELEMENT NAME	LEN	DT	OPT	RP/#	TBL#
30	Patient Death Indicator	1	ID	O		0136
31	Identity Unknown Indicator	1	ID	O		0136
32	Identity Reliability Code	20	IS	O	Y	0445
33	Last Update Date/Time	26	TS	O		
34	Last Update Facility	241	HD	O		
35	Species Code	250	CE	O		
36	Breed Code	250	CE	O		
37	Strain	80	ST	O		
38	Production Class Code	250	CE	O	2	0429
39	Tribal Citizenship	250	CWE	O	Y	

PID-1 Set ID - PID [O] - This field contains the number that identifies this transaction. The HL7 standard identifies that for the first occurrence of the segment within the parent MSH segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc. For the OCIE standard, since only a single PID segment is requested for a MSH segment, this value should always be set to 1.

PID-2 Patient ID [B] - This field contains the OCIE assigned Patient Identifier and has been retained for backward compatibility only. It is recommended to use PID-3 - Patient Identifier List for all patient identifiers. See description in PID-3 for additional information for population of this field.

When used for backward compatibility this field is valued when the patient is from another institution, outside office, etc., and the identifier used by that institution can be shown in this field. This may be a number that multiple disparate corporations or facilities share.

PID-3 Patient Identifier List [R] - This field contains the list of identifiers (one or more) used by the healthcare facility to uniquely identify a patient (e.g., medical record number, billing number, birth registry, national unique individual identifier). In Canada, the Canadian Provincial Healthcare Number should be sent in this field. The arbitrary term of 'internal ID' has been removed from the name of this field for clarity. The primary Patient Identifier must be the first value sent in this repeating value field before any other sets of identifiers.

If identifiers other than MRNs (e.g., SSN, Healthcard#, DL#) are sent they should be coded using the identifier type code associated with the ID number being submitted. The type of identifier for each identifier sent should be indicated in the <identifier type code (ID)> component. Refer to HL7 Table 0203 – Identifier type for the complete list. The patient identifier itself should be placed in the <ID (ST)> component.

HL7 format for CX data type:

```
<ID Number (ST)> ^ <Check Digit (ST)> ^ <Check Digit Scheme (ID)> ^ <Assigning Authority (HD)> ^
<Identifier Type Code (ID)> ^ <Assigning Facility (HD)> ^ <Effective Date (DT)> ^ <Expiration Date (DT)> ^
<Assigning Jurisdiction (CWE)> ^ <Assigning Agency or Department (CWE)>
```

Field: PID3 Patient Identifier List (CX)

Component/Sub-Component	OPT
ID Number (ST)	R
Check Digit (ST)	O
Check Digit Scheme (ID)	O
Assigning Authority (HD)	O
Identifier Type Code (ID)	O
Assigning Facility (HD)	O
Effective Date (DT)	O
Expiration Date (DT)	O
Assigning Jurisdiction (CWE)	O
Assigning Agency or Department (CWE)	O

Value Example
987123456^^^^MR

PID-4 Alternate Patient ID [B] - From V2.3.1, this field has been retained for backward compatibility only. It is recommended to use PID-3 - Patient Identifier List for all patient identifiers. When used for backward compatibility this field contains the alternate, temporary, or pending optional patient identifier to be used, if needed, or additional numbers that may be required to identify a patient. This field may be used to convey multiple patient IDs when more than one exist for a patient. Possible contents might include a visit number, a visit date, or a Social Security Number, but more likely will include a separate legacy chart number or repeat the local MRN.

PID-5 Patient Name [R] - This field contains the names of the patient.

HL7 format for XPN data type:

<Family Name (FN)> ^ <Given Name (ST)> ^ <Second and Further Given Names or Initials Thereof (ST)> ^ <Suffix (e.g., JR or III) (ST)> ^ <Prefix (e.g., DR) (ST)> ^ <Degree (e.g., MD) (IS)> ^ <Name Type Code (ID)> ^ <Name Representation Code (ID)> ^ <Name Context (CE)> ^ <Name Validity Range (DR)> ^ <Name Assembly Order (ID)> ^ <Effective Date (TS)> ^ <Expiration Date (TS)> ^ <Professional Suffix (ST)>

Field: PID-5 Patient Name (XPN)

Component/Sub-Component	OPT
Family Name (FN)	R
Given Name (ST)	R
Second and Further Given Names or Initials Thereof (ST)	O
Suffix (e.g. JR or III) (ST)	O
Prefix (e.g. DR) (ST)	O
Degree (e.g. MD) (IS)	B

Component/Sub-Component	OPT
Name Type Code (ID)	O
Name Representation Code (ID)	O
Name Context (CE)	O
Name Validity Range (DR)	B
Name Assembly Order (ID)	O
Effective Date (TS)	O
Expiration Date (TS)	O
Professional Suffix (ST)	O

Value Example
Smith^John^Q

PID-7 Date/Time of Birth [O] - This field contains the patient’s date and time of birth. The TS data type component degree of precision is a HL7 backward compatible value as of HL7 v2.3 and is ignored if sent. While not required by OCIE, it is highly recommended that this field is sent as some consuming systems do require this field.

HL7 format for TS data type:

YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ]^<degree of precision>

Field: PID-7 Date/Time of Birth (TS)

Component/Sub-Component	OPT
YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]][+/-ZZZZ]	R
degree of precision	O

Value Example
minimum precision YYYYMMDD: 20091124 [November 24, 2009]

PID-8 Administrative Sex [R] - This field contains the patient’s sex. Refer to User-defined Table 0001 - Administrative Sex for the HL7 defined values.

PID-9 Patient Alias [B] – From V2.4, this field has been retained for backward compatibility only. It is recommended to use *PID-5 - Patient Name* for all patient names. This field contained the name(s) by which the patient has been known at some time. Refer to *HL7 Table 0200 - Name Type* for valid values.

PID-11 Patient Address [O] - This field contains the mailing address of the patient.

HL7 format for XAD data type:

<Street Address (SAD)> ^ <Other Designation (ST)> ^ <City (ST)> ^ <State or Province (ST)> ^ <Zip or Postal Code (ST)> ^ <Country (ID)> ^ <Address Type (ID)> ^ <Other Geographic Designation (ST)> ^ <County/Parish Code (IS)> ^ <Census Tract (IS)> ^ <Address Representation Code (ID)> ^ <Address Validity Range (DR)> ^ <Effective Date (TS)> ^ <Expiration Date (TS)>

Field: PID-11 Patient Address (XAD)

Component/Sub-Component	OPT
street address (SAD)	O
> street address (ST)	O
> street name (ST)	O
> dwelling number (ST)	O
other designation (ST)	O
city (ST)	O
state or province (ST)	O
zip or postal code (ST)	O
country (ID)	O
address type (ID)	O
other geographic designation (ST)	O
county/parish code (IS)	O
census tract (IS)	O
address representation code (ID)	O
address validity range (DR)	B
Address Validity Range (DR)	O
Effective Date (TS)	O
Expiration Date (TS)	O

Value Example

123 Main Street^Apt. 3B^St. Louis^MO^63146-85242

PID-12 County Code [B] – From V2.3, this field has been retained for backward compatibility. This field contains the patient’s county code. The county can now be supported in the county/parish code component of the XAD data type (*PID-11 - Patient Address*). Refer to *User-defined Table 0289 - County/Parish* for suggested values

PID-13 Phone Number – Home [O] – This field contains the patient’s personal phone numbers. All personal phone numbers for the patient are sent in the following sequence. The first sequence is considered the primary number (for backward compatibility). If the primary number is not sent, then a repeat delimiter is sent in the first sequence. Refer to HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.

HL7 format for XTN data type:

<DEPRECATED-Telephone Number (ST)> ^ <Telecommunication Use Code (ID)> ^ <Telecommunication Equipment Type (ID)> ^ <Email Address (ST)> ^ <Country Code (NM)> ^ <Area/City Code (NM)> ^ <Local Number (NM)> ^ <Extension (NM)> ^ <Any Text (ST)> ^ <Extension Prefix (ST)> ^ <Speed Dial Code (ST)> ^ <Unformatted Telephone number (ST)>

Field: PID-13 Phone Number - Home (XTN)

Component/Sub-Component	OPT
DEPRECATED-Telephone Number (ST)	O
Telecommunication Use Code (ID)	O
Telecommunication Equipment Type (ID)	O
Email Address (ST)	O
Country Code (NM)	O
Area/City Code (NM)	R
Local Number (NM)	R
Extension (NM)	O
Extension Prefix (ST)	O
Any Text (ST)	O
Speed Dial Code (ST)	O
Unformatted Telephone number (ST)	O

Value Example
^^^^^987^5551212 OR ^WPN^PH^^^^987^5551212^^^call before 5:00 pm only^^ASN^PH^^^^789^5552121 [Example of two phone numbers sent]

PID-19 SSN – Patient [B] – From V2.3.1 onward, this field has been retained for backward compatibility only. It is recommended to use *PID-3 - Patient Identifier List* for all patient identifiers. However, in order to maintain backward compatibility this field should also be populated. When used for backward compatibility this field contains the patient’s social security number. This number may also be a RR retirement number.

PID-20 Driver’s License Number [B] – From V2.5 onward, this field has been retained for backward compatibility only. It is recommended to use *PID-3 - Patient Identifier List* for all patient identifiers. When used for backward compatibility this field contains the patient’s driver’s license number. The default of the second component is the state in which the patient’s license is registered.

PID-28 Nationality [B] – From V2.4 onward, this field has been retained for backward compatibility only. It is recommended to refer to *PID-10 - Race*, *PID-22 - Ethnic group* and *PID-26 - Citizenship*. This field contains a code that identifies the nation or national grouping to which the person belongs. This

information may be different from a person's citizenship in countries in which multiple nationalities are recognized (for example, Spain: Basque, Catalan, etc.).

Additional PID fields are optional values

The PD1 Segment is optional and no fields are required.

The NTE Segment(s) are optional and no fields are required.

The NK1 Segment(s) are optional and no fields are required.

PV1 – Patient Visit Segment

The PV1 segment is used by Registration/Patient Administration applications to communicate information on an account or visit-specific basis.

The PV1 segment is required.

SEQ	ELEMENT NAME	LEN	DT	OPT	RP/#	TBL#
1	Set ID - PV1		SI	O		
2	Patient Class		IS	R		4
3	Assigned Patient Location		PL	O		
4	Admission Type		CWE	O		7
5	Preadmit Number		CX	O		
6	Prior Patient Location		PL	O		
7	Attending Doctor		XCN	O	Y	10
8	Referring Doctor		XCN	O	Y	10
9	Consulting Doctor		XCN	B	Y	
10	Hospital Service		CWE	O		69
11	Temporary Location		PL	O		
12	Preadmit Test Indicator		CWE	O		87
13	Re-admission Indicator		CWE	O		92
14	Admit Source		CWE	O		23
15	Ambulatory Status		CWE	O	Y	9
16	VIP Indicator		CWE	O		99
17	Admitting Doctor		XCN	O	Y	10

SEQ	ELEMENT NAME	LEN	DT	OPT	RP/#	TBL#
18	Patient Type		CWE	O		18
19	Visit Number		CX	O		
20	Financial Class		FC	O	Y	64
21	Charge Price Indicator		CWE	O		32
22	Courtesy Code		CWE	O		45
23	Credit Rating		CWE	O		46
24	Contract Code		CWE	O	Y	44
25	Contract Effective Date		DT	O	Y	
26	Contract Amount		NM	O	Y	
27	Contract Period		NM	O	Y	
28	Interest Code		CWE	O		73
29	Transfer to Bad Debt Code		CWE	O		110
30	Transfer to Bad Debt Date		DT	O		
31	Bad Debt Agency Code		CWE	O		21
32	Bad Debt Transfer Amount		NM	O		
33	Bad Debt Recovery Amount		NM	O		
34	Delete Account Indicator		CWE	O		111
35	Delete Account Date		DT	O		
36	Discharge Disposition		CWE	O		112
37	Discharged to Location		DLD	O		113
38	Diet Type		CWE	O		114
39	Servicing Facility		CWE	O		115
40	Bed Status			B		
41	Account Status		CWE	O		117
42	Pending Location		PL	O		
43	Prior Temporary Location		PL	O		
44	Admit Date/Time		DTM	O		
45	Discharge Date/Time		DTM	O		
46	Current Patient Balance		NM	O		
47	Total Charges		NM	O		
48	Total Adjustments		NM	O		
49	Total Payments		NM	O		
50	Alternate Visit ID		CX	O		203
51	Visit Indicator		CWE	O		326

SEQ	ELEMENT NAME	LEN	DT	OPT	RP/#	TBL#
52	Other Healthcare Provider			B		
53	Service Episode Description		ST	n/a		
54	Service Episode Identifier		CX	n/a		

PV1-2 – Patient Class [R] - Definition: This field is used by systems to categorize patients by site. It does not have a consistent industry-wide definition. It is subject to site-specific variations. Refer to HL7 *User-defined Table 0004 – Patient Class* for suggested values.

Component/Sub-Component	OPT
Identifier (ST)	O

Value Example
O

Additional PV1 fields are optional values.

The PV2 Segment(s) are optional and no fields are required.

The ORC Segment is optional and no fields are required.

OBR – Observation Request Segment

The OBR segment contains information specific to the observation set. In the reporting of clinical data, the OBR serves as the report header.

For sites sending transcriptions results in ORU message types, please refer to the Connection Implementation Form for additional configuration information.

SEQ	ELEMENT NAME	LEN	DT	OPT	RP/#	TBL#
1	Set ID - OBR	4	SI	O		
2	Placer Order Number	22	EI	C		
3	Filler Order Number	22	EI	C		
4	Universal Service Identifier	250	CE	R		
5	Priority - OBR	2	ID	X		

SEQ	ELEMENT NAME	LEN	DT	OPT	RP/#	TBL#
6	Requested Date/Time	26	TS	X		
7	Observation Date/Time	26	TS	C		
8	Observation End Date/Time	26	TS	O		
9	Collection Volume	20	CQ	O		
10	Collector Identifier	250	XCN	O	Y	
11	Specimen Action Code	1	ID	O		0065
12	Danger Code	250	CE	O		
13	Relevant Clinical Information	300	ST	O		
14	Specimen Received Date/Time	26	ST	B		
15	Specimen Source	300	SPS	B		
16	Ordering Provider	250	XCN	O	Y	
17	Order Callback Phone Number	250	XTN	O	Y/2	
18	Placer Field 1	60	ST	O		
19	Placer Field 2	60	ST	O		
20	Filler Field 1	60	ST	O		
21	Filler Field 2	60	ST	O		
22	Results Rpt/Status Chng – Date/Time	26	TS	C		
23	Charge to Practice	40	MOC	O		
24	Diagnostic Service Section ID	10	ID	O		0074
25	Result Status	1	ID	C		0123
26	Parent Result	400	PRL	O		
27	Quantity/Timing	200	TQ	B	Y	
28	Result Copies To	250	XCN	O	Y	
29	Parent	200	EIP	O		
30	Transportation Mode	20	ID	O		0124
31	Reason for Study	250	CE	O	Y	
32	Principal Result Interpreter	200	NDL	O		
33	Assistant Result Interpreter	200	NDL	O	Y	
34	Technician	200	NDL	O	Y	
35	Transcriptionist	200	NDL	O	Y	
36	Scheduled Date/Time	26	TS	O		
37	Number of sample containers	4	NM	O		
38	Transport Logistics of Collected Sample	250	CE	O	Y	

SEQ	ELEMENT NAME	LEN	DT	OPT	RP/#	TBL#
39	Collector’s Comment	250	CE	O	Y	
40	Transport Arrangement Responsibility	250	CE	O		
41	Transport Arranged	30	ID	O		0224
42	Escort Required	1	ID	O		0225
43	Planned Patient Transport Comment	250	CE	O	Y	
44	Procedure Code	250	CE	O		0088
45	Procedure Code Modifier	250	CE	O	Y	0340
46	Placer Supplemental Svc Information	250	CE	O	Y	0411
47	Filler Supplemental Svc Information	250	CE	O	Y	0411
48	Medically Necessary Dup Procedure Reason	250	CWE	C		0476
49	Result Handling	2	IS	O		0507
50	Parent Universal Service Identifier	250	CWE	O		

OBR-4 Universal Service Identifier [R] - This field contains the identifier code for the requested observation/test/battery. This can be based on local and/or “universal” codes. We recommend the “universal” procedure identifier. This value should be populated with the identifier for the laboratory or clinical observation associated with the lab result observation request. The coding system should be “LN” LOINC (see HL7 table 0396 Coding system). LOINC® is an HL7 approved code system for the Observation identifier. It covers observations and measurements, such as laboratory tests, physical findings, radiology studies, and claims attachments and can be obtained from www.regenstrief.org/loinc/loinc.htm. One possible universal identifier is LOINC® codes for laboratory and clinical measurements. For lab proprietary coding system as an alternative identifier, use “L” (Local general code)

Field: OBR-4 Universal Service Identifier (CE)

Component/Sub-Component	OPT
Identifier	O
Text	O
Name of Coding System	O
Alternate Identifier	O
Alternate Text	O
Name of Alternate Coding System	O

Value Example
57021-8^CBC W Auto Differential Panel – Blood^LN OR CBCD^CBC W Auto Differential Panel – Blood^L

Additional OBR fields are optional values.

OBX – Observation Segment Usage

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

SEQ	ELEMENT NAME	LEN	DT	OPT	RP/#	TBL#
1	Set ID - OBX	4	SI	O		
2	Value Type	2	ID	C		0125
3	Observation Identifier	250	CE	R		
4	Observation Sub-ID	20	ST	C		
5	Observation Value	99999	varies	C	Y*	
6	Units	250	CE	O		
7	Reference Range	60	ST	O		
8	Abnormal Flags	5	IS	O	Y	0078
9	Probability	5	NM	O		
10	Nature of Abnormal Test	2	ID	O	Y	0080
11	Observation Result Status	1	ID	R		0085
12	Effective Date of Reference Range Values	26	TS	O		
13	User Defined Access Checks	20	ST	O		
14	Date/Time of the Observation	26	TS	O		
15	Producer's Reference	250	CE	O		
16	Responsible Observer	250	XCN	O	Y	
17	Observation Method	250	CE	O	Y	
18	Equipment Instance Identifier	22	EI	O	Y	
19	Date/Time of the Analysis	26	TS	O		
20	Reserved for harmonization with v2.6					
21	Reserved for harmonization with v2.6					
22	Reserved for harmonization with v2.6					
23	Performing Organization Name	567	XON	O		
24	Performing Organization Address	631	XAD	O		
25	Performing Organization Medical	3002	XCN	O		

SEQ	ELEMENT NAME	LEN	DT	OPT	RP/#	TBL#
	Director					

*May repeat for multipart, single answer results with appropriate data types, e.g., CE, TX, and FT data types.

OBX-3 Observation Identifier [R] - This field contains a unique identifier for the observation. The format is that of the Coded Element (CE). The expected coding systems for the OCIE lab result standard are "LN" for LOINC. If LOINC is unavailable we can accept "L" for Local general or proprietary codes.

When local codes are used as the first identifier in this field, HL7 encourages sending a universal identifier as well to permit receivers to equivalence results from different providers of the same service (e.g., a hospital lab and commercial lab that provides serum potassium to a nursing home).

Field: OBX-3 Observation Identifier (CE)

Component/Sub-Component	OPT
Identifier	O
Text	O
Name of Coding System	O
Alternate Identifier	O
Alternate Text	O
Name of Alternate Coding System	O

Value Example
57021-8^CBC W Auto Differential Panel – Blood^LN
OR
CBCD^CBC W Auto Differential Panel – Blood^L

OBX-4 Observation Sub-ID [C] - This field is used to distinguish between multiple OBX segments with the same observation ID organized under one OBR. For example, a chest X-ray report might include three separate diagnostic impressions. The standard requires three OBX segments, one for each impression. By putting a 1 in the Sub-ID of the first of these OBX segments, 2 in the second, and 3 in the third, we can uniquely identify each OBX segment for editing or replacement. The sub- identifier is also used to group related components in reports such as surgical pathology. It is traditional for surgical pathology reports to include all the tissues taken from one surgical procedure in one report

OBX-5 Observation Value [C] - This field contains the value observed by the observation producer. OBX-2-value type contains the data type for this field according to which observation value is formatted. HL7 defines this value as a conditionally required field because some systems will report only the normalcy/abnormalcy (OBX-8), especially in product experience reporting. For lab result reporting, this value is expected to be populated for each OBX segment. The length of the observation field is

variable, depending upon OBX-3-value type. This field may repeat for multipart, single answer results with appropriate data types, e.g., CE, TX, and FT data types.

When submitting large blocks of text based results such as pathology results, the "TX - text data" data type should be used.

Note: the OBX-5 observation value is the location requested for lab result interpretive text and not the NTE segment. The NTE segment should be used for ancillary notes and comments related to the processing of the sample such as "Automated testing could not be performed; results are based on manual analysis" or "Specific criteria for analysis were not included therefore only partial testing occurred" but NTE is not intended to be used for communicating the actual results or interpretation of results.

OBX-6 Units [O] – Optional Value

OBX-7 References Range [O] - Optional Value

OBX-8 Abnormal Flags [O] – Optional Value - This field contains a table lookup indicating the normalcy status of the result. We strongly recommend sending this value when applicable. (See ASTM 1238 - review for more details).

Refer to [User-defined Table 0078](#) - Abnormal flags for valid entries.

OBX-9 Probability - Optional Value

OBX-10 Nature of Abnormal Test - Optional Value

OBX-11 Observation Results Status [R] - This field contains the observation result status.

Refer to [HL7 Table 0085](#) - Observation result status codes interpretation for valid values.

Additional OBX fields are optional values.

Message Samples

ORU Transaction Layout Examples

The layout of a sample ORU message is listed below. Braces, { . . . }, indicate there can be one or more repetitions of the enclosed group of segments. Brackets, [. . .], indicate the enclosed group of segments is optional.

The following table describes the required segments and cardinality of segments and groups of segments in the sample ORU message below sent to OCIE. For a complete listing of possible segment and segment groups, refer to the HL7 v2.5.1 standard.

Example 1: Observation Result	
MSH	Message Header Segment
{{SFT}}	Software Segment
{--- PATIENT RESULT BEGIN	
[--- PATIENT BEGIN	
PID	Patient Identification
[PD1]	Additional Demographics
{{NTE}}	Notes and Comments
{{NK1}}	Next of Kin/Associated Parties
[
PV1	Patient Visit
[PV2]	Patient Visit – Additional Info
]	
]	
{	
[ORC]	Order Common
OBR	Observation Request
{{NTE}}	Notes and Comments
{	
TQ1	Timing Quantity
{{TQ2}}	Timing/Quantity Order Sequence
}}	
[CTD]	Contact Data

Example 1: Observation Result	
{	
OBX	Observation related to OBR
{[NTE]}	Notes and Comments
}	
[[FT1]]	Financial Transaction
[[CT1]]	Clinical Trial Identification
{	
SPM	Specimen
[[OBX]]	Observation Related to Specimen
}	
}	
}	
[DSC]	Continuation Pointer

```

MSH|^~\&|Laboratory|Test Hospital|OPTUM HIE|Test
Facility|20130809162611||ORU^R01^ORU_R01|964105|P|2.5.1|

PID|1||123ABC^^^MR~A63737373^^^DL||TEST^PATIENT1|Vole|19800604|M||2106-3|1234 MAIN
ST^^ANYTOWN^CA^99999^US||||S||H123456789^^^AN||||N|||||||||||||

PV1|1||ICU^ICU128^A^ASV|E||11^BROWN^BETTY|10^AZURE^ANNA|13^GREEN^GIORGIO|MED||
|ER||11^BROWN^BETTY|IN|BC|||||||||||||AS|AD||201308090044|

ORC|RE|12345678|1308090093||||20130809162611||11^BROWN^BETTY||20130807093737

OBR|1|12345678^LAB|1308090093^LAB|CHM14^COMPREHENSIVE (CHEM
14)^L||20130809160000|20130809162600|^|L||20130715092843||10^AZURE^ANNA||1069420|
84328||20130809162600|LAB|F|||||13&GREEN&GIORGIO

NTE|1||This is a comment about the order it self.\.br\

OBX|1|NM|198500^ALBUMIN^L||3.4|g/dl|3.4 - 5.0|||F||20130809162600

NTE|1||Here is a comment about the first observation (OBX).\.br\

OBX|2|NM|199500^AGPK^L||15|mmol/L|10 - 20|||F||20130809162600

NTE|||Here is a comment about the second observation (OBX).\.br\

OBX|3|NM|200500^ALK PHOS^L||220|U/L|50 - 136|H|||F||20130809162600

OBX|4|NM|201000^ALT^L||29|U/L|12 - 78|||F||20130809162600
    
```

OBX|5|NM|202000^AST^L||31|U/L|15 - 37|||F|||20130809162600
 OBX|6|NM|202500^BUN/CRE^L||14|Ratio|7 - 25|||F|||20130809162600
 OBX|7|NM|204000^BUN^L||19|mg/dl|7 - 18|H|||F|||20130809162600
 OBX|8|NM|204500^CALCIUM^L||8.0|mg/dl|8.2 - 10.2|L|||F|||20130809162600
 OBX|9|NM|207000^CL^L||106|mmol/L|98 - 107|||F|||20130809162600
 OBX|10|NM|208000^CO2^L||22|mmol/L|21 - 32|||F|||20130809162600
 OBX|11|NM|208500^CREATININE^L||1.4|mg/dl|0.6 - 1.3|H|||F|||20130809162600
 OBX|12|NM|210500^GLOBULIN^L||2.2|g/dl|2.3 - 3.5|L|||F|||20130809162600
 OBX|13|NM|211500^GLUCOSE^L||162|mg/dl|74 - 106|H|||F|||20130809162600
 OBX|14|NM|215600^K^L||4.1|mmol/L|3.5 - 5.1|||F|||20130809162600
 OBX|15|NM|218500^NA^L||138|mmol/L|136 - 145|||F|||20130809162600
 OBX|16|NM|219000^OSMO^L||281|mOsm/kg|275 - 299|||F|||20130809162600
 OBX|17|NM|221000^TOTAL BILI^L||0.2|mg/dl|0.2 - 1.0|||F|||20130809162600
 OBX|18|NM|221500^TOTAL PROTEIN^L||5.6|g/dl|6.4 - 8.2|L|||F|||20130809162600

Acknowledgement Messages

The layout of the message response is listed below. Braces, { . . . }, indicate one or more repetitions of the enclosed group of segments. Brackets, [. . .], show that the enclosed group of segments is optional. The following table describes the required segments and cardinality of segments and groups of segments in the OCIE HL7 response message.

Segment Identifier		Usage	Cardinality	Segment Name
	MSH	R	[1..*]	Message Header
	[[SFT]]			Software Segment
	MSA	R	[1..1]	Message Acknowledgment
	[[ERR]]	O	[0..1]	Error Segment

The response message conforms directly to the information submitted in the original message. If the acknowledgment indicates an error was found within the MSH a single ERR (Error Segment) is included following the MSA. If no errors were found in the MSH no ERR segment is included.

A standard ACK acknowledgement message consists of one of the following scenarios:

1. A successful processing of a message without errors results in a ACK message with a value of AA in the MSA-1 Acknowledgement Code

2. An error found within the MSH-9 Message Type, MSH-12 Version ID, or MSH-11 Processing ID results in an ACK message with a value of AR in the MSA-1 Acknowledgement Code and the message is excluded from processing
3. An error found within the functional segment fields results in an ACK message with a value of AE in the MSA-1 Acknowledgement Code and the message is excluded from processing.

MSA – Message Acknowledgment Segment

The MSA segment contains information sent while acknowledging another message.

SEQ	ELEMENT NAME	LEN	DT	OPT	RP/#	TBL#
1	Acknowledgment Code	2	ID	R		0008
2	Message Control ID	20	ST	R		
3	Text Message	80	ST	O		
4	Expected Sequence Number	15	N M	O		
5	Delayed Acknowledgment Type					
6	Error Condition	250	CE	O		0357

MSA-1 Acknowledgment Code [R] - Definition: This field contains an acknowledgment code, see message processing rules. Refer to HL7 Table 0008 - Acknowledgment code for valid values. Values included in the OCIE standard are AA and AE.

HL7 Table 0008 – Acknowledgment code

Value	Description	Comment
AA	Original mode: Application Accept - Enhanced mode: Application acknowledgment: Accept	
AE	Original mode: Application Error - Enhanced mode: Application acknowledgment: Error	
AR	Original mode: Application Reject - Enhanced mode: Application acknowledgment: Reject	Not Used
CA	Enhanced mode: Accept acknowledgment: Commit Accept	Not Used
CE	Enhanced mode: Accept acknowledgment: Commit Error	Not Used
CR	Enhanced mode: Accept acknowledgment: Commit Reject	Not Used

MSA-2 Message Control ID [R] - Definition: This field contains the message control ID of the message sent by the sending system. It allows the sending system to associate this response with the message for which it is intended. This value contains the MSH-10 Message Control ID value related to this acknowledgement.

MSA-3 Text Message - Optional Value

The MSA-3 was deprecated as of v 2.4. The reader is referred to the ERR segment. The ERR segment allows for richer descriptions of the erroneous conditions.

This field will NOT be included in the OCIE MSA segment.

MSA-4 Expected Sequence Number - Optional Value

This field will NOT be included in the OCIE MSA segment.

MSA-5 Delayed Acknowledgment Type- Attention: The MSA-5 was deprecated as of v2.2 and the detail was withdrawn and removed from the standard as of v 2.5. This field will NOT be included in the OCIE MSA segment.

MSA-6 Error Condition -Optional Value

This field will NOT be included in the OCIE MSA segment.

Positive Acknowledgment Sample:

```
MSH|^~\&|SENDING APPLICATION^1.2.3.4.1^ISO||RECEIVING APPLICATION^9.9.9.1^ISO||20140514093051||ACK|MSG-20140514-093051-0337|P|2.5.1  
MSA|AA|MDM32833385
```

Application Error Sample:

```
MSH|^~\&|SENDING APPLICATION^1.2.3.4.1^ISO||RECEIVING APPLICATION^9.9.9.1^ISO||20140514093051||ACK|MSG-20140514-093051-0337|P|2.5.1  
MSA|AE|MDM32833385
```