PHIN Messaging Standard
Healthcare Encounter Chief Complaint
Using ORU^R01
HL7 Version 2.5

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Centers for Disease Control and Prevention

Revision History

Revision	Date	By	Description
V1.0	7/1/04	J.A. Magnuson and team	Create first version
V1.01	5/4/05	Margaret Marshburn	Updated to PHIN Implementation Guide standard format

TABLE OF CONTENTS

1. Introduction

This Implementation Guide documents the use of the Health Level 7 (HL7) Version 2.5 ORU^R01 to transmit emergency department diagnosis-based data to public health entities. The message is intended for use in transmitting data on conditions of public health importance. These conditions include but are not limited to reportable conditions - other conditions may be included on an as-needed basis, for example, bioterrorism concerns. The participating emergency departments are mainly hospital-based or hospital-associated urgent care centers, but may include any clinical setting that sees patients on an unscheduled basis.

The specifications in this supplement are not intended as a tutorial for either HL7 or interfacing in general. The reader is expected to have a basic understanding of interface concepts and HL7. This supplement is based on and conforms to the HL7 Standard, Version 2.5.

PHIN Messaging

The PHIN (Public Health Information Network) initiative is a comprehensive architecture of data and information systems standards intended to advance the development of efficient, integrated and interoperable public health information systems. PHIN development, along with the work of related initiatives such as eHI (e-Health Initiative) is based on the fundamental understanding that exchange of health-related information between healthcare providers, public health agencies, and the general public is an essential aspect of public health surveillance and response. As a consequence, messaging – the electronic exchange of data between computerized information systems – is a key element of the PHIN architecture.

The development and effective management of data interchange (messaging) requires the use of generally accepted standards. These standards become more widely used and more effective when they are developed by a widely based, consensus process, rather than by any single organization. Furthermore, use of industry standards is a basic tenet of the e-Government initiative which provides direction to CDC as to other government agents. Since it is generally accepted that Health Level Seven (HL7) standards are the prevailing industry standards for communicating clinical and laboratory data in the form of electronic messages, CDC has chosen to work with HL7 as the primary source for interface standards.

The breadth and general applicability of the HL7 standard are advantageous to a wide variety of users but also present challenges for specific implementations in public health and other contexts. Public health messaging partners need to define with particularity, the data to be passed, and the circumstances under which it is passed. In other words, it is necessary to develop message implementation guides based around specific scenarios or use cases. These guides are necessary because they introduce the level of specificity required in order to define verifiably compliant messages.

What is an Implementation Guide?

A public health messaging implementation guide is a document that describes:

a) The circumstances under which messaging takes place.

b) The data which is passed in a particular message.

c) Additional specifications and guidance to assist in message implementation.

A wide range of use cases and partners are involved in public health messaging. Despite a multiplicity of specific message contexts, many of the same partners are involved as message receivers and message senders. As a result, consistency in both the form and content of message implementation guides can help establish and maintain a common, standards-based approach to electronic messaging.

Audience

This guide is designed to be used by analysts who need a better understanding of the contents of PHIN messages, and by implementers working to develop PHIN compliant applications. In fact, understanding and using the relevant implementation guide or guides is a key requirement for establishing PHIN compliance. This flows from the fact that one key aspect of application level PHIN compliance is the ability to send and receive messages that conform to the requirements of the appropriate implementation guide.

Document Structure

This body of this document contains the following major sections.

- Application Requirements and Data Flows: describes the context and usage for the messaging.
- Abstract Message: indicates the segments that comprise the message, and describes their ordering and repetition.
- Segment & Field Descriptions: provides details about the segments that make up the message, and the fields that comprise the segments.
- Datatypes: defines the datatypes that establish the format and components of fields.
- Code Systems & Value Sets: includes the list of valid values for coded fields within the message, and describes how vocabulary items are managed.
- Use of Object Identifiers: defines the OIDs (object identifiers) that are used to identify a) specific parties involved in messaging, or in providing data relevant to messaging, and b) the coding systems and value sets that are used within the message.
- Miscellaneous: additional material, including sample messages, that will be useful to implementers.

Credits

A working group (members are listed in the Appendix) convened by the CDC and J.A. Magnuson from Oregon were responsible for the creation of the materials that formed the basis for this implementation guide.

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2. Abstract Message

The message description below shows how the HL7 Unsolicited Observation message is constrained for use in countermeasure response administration.

Segment	Unsolicited Observation Message ORU_R01	Chapter
MSH	Message Header	2.15.9
[SFT]	Software	2.15.17
PID	Patient Identification	3.4.2
[PV1]	Patient Visit	3.4.3
{	*Order Observation... begin*	
[ORC]	Common Order	4.5.1
OBR	Observation Request	4.5.3
[{	*Observation...begin*	
OBX	Observation/Result	7.4.2
{[NTE]}	Notes and comments	21.5
}]	*Observation...end*	
}	*Order Observation... end*	

Segment Processing Rules

This section provides specific discussion on how this implementation guide constrains the abstract message published by HL7.

1. MSH is required, and it does not repeat.
2. SFT is optional and does not repeat if utilized.
3. PID is required, and does not repeat.
4. The use of the PV1 Patient Visit segment is optional.
5. The ORC is optional in this message.
6. One OBR per message is required, and there may be repeats, as the ORU^R01 supports a) messages that contain multiple Orders, and b) messages in which a tree structure is maintained by providing linkages between an OBR and its parent test (OBR) and result (OBX).
7. The OBX segment is not required but it may repeat to convey multiple observation results per message.
8. NTE (Notes and Comments) segments after an OBX are the only NTE segments supported in this message. The NTE segment is not required, but it may repeat if used. NTE segments anywhere but following an OBX will be ignored.
9. While the standard HL7 ORU message construct allows for the use of PD1 (Additional Demographics), PV2 (Additional Patient Visit) , TQ1, TQ2 (Timing and Quantity), CTI (Clinical

Trials Identifier), and DSC (Continuation) segments, these segments are not expected in the message and are not included in this Standard. Messages containing these segments will not be rejected, but the unsupported segments will be ignored.

3. Segment and Field Descriptions

This section contains descriptions of the segments used. Within each segment, the supported fields are briefly described. For more information on segments and fields, refer to the HL7 Standard.

Segment Attribute Table Abbreviations

The abbreviated terms and their definitions used in the segment table headings are as follows:

ABBREVIATION	DEFINITION
SEQ	The sequence of the elements as they are numbered in the segment.
LEN	The length of the element.
DT	The data type of the element.
OPT	Whether the field is required, optional, or conditional in a segment. Required fields are defined by HL7 2.5 and do not refer to requirements for reporting laboratory findings to public health agencies. Refer to section 2.1 HL7 Definitions for the designations.
RP/#	Indicates if element repeats. IF the number of repetitions is limited, the number of allowed repetitions is given.
TBL#	Specific table reference. Tables used in public health messages are accessed via the Public Health Information Network Vocabulary Access and Distribution Services at http://www.cdc.gov/PhinVSBrowser/StrutsController.do
ITEM#	HL7 unique item number for each element.
Element Name	Descriptive name of element in the segment.

Note: Legend of Table

Gray = The PHIN Messaging Standard does not support the use of this field.

MSH - Message Header Segment

This segment is necessary to support the functionality described in the Control/Query chapter of the HL7 standard. MSH is used to define the intent, source, destination, and some specifics of the syntax of a message.

MSH Attributes

Seq.	Len.	DT	Opt	Rpt#	Tbl #	PHIN Code System / Value Set	Element Name	Comments
1	1	ST	R				Field Separator	‘’|’
2	4	ST	R				Encoding Characters	
3	227	HD	O		0361	OID Registry	Sending Application	
4	227	HD	R		0362	OID Registry	Sending Facility	
5	227	HD	O		0361	OID Registry	Receiving Application	
6	227	HD	R		0362	OID Registry	Receiving Facility	
7	26	TS	R				Date/Time Of Message	
8	40	ST	O				Security	
9	15	MSG	R				Message Type	ORU^R01^ORU_R01
10	20	ST	R				Message Control ID	
11	3	PT	R				Processing ID	
12	60	VID	R				Version ID	2.5
13	15	NM	O				Sequence Number	
14	180	ST	O				Continuation Pointer	
15	2	ID	O		0155		Accept Acknowledgment Type	
16	2	ID	O		0155		Application Acknowledgment Type	
17	3	ID	O		0399	PHINVS_PSL_COUNTRY	Country Code	
18	16	ID	O	Y	0211		Character Set	
19	250	CE	O				Principal Language Of Message	
20	20	ID	O		0356		Alternate Character Set Handling Scheme	

Seq.	Len.	DT	Opt	Rpt#	Tbl #	PHIN Code System / Value Set	Element Name	Comments
21	427	EI	O	Y			Message Profile Identifier	

MSH field definitions

MSH-1 Field separator (ST-1, Required) 00001

Definition: The character to be used as the field separator for the rest of the message. The supported value is |, ASCII (124), as shown in the example above.

MSH-2 Encoding characters (ST-4, Required) 00002

Definition: The four characters that always appear in the same order in this field are:
|^~\&|

These characters denote the following purposes when they appear in the message:

Description	Character	ASCII Representation	Usage
Component separator	^	94	separates adjacent components of a data field
Repetition Separator	~	126	used to identify when an entire field repeats
Escape character	\	92	used for formatted text functionality
Subcomponent separator	&	38	separates the adjacent subcomponents of a data field

MSH-3 Sending Application (HD-180, Optional) 00003

Definition: This field may be used to uniquely identify the sending application for messaging purposes. If populated, it will contain an OID that represents the sending application instance.

MSH-4 Sending Facility (HD-227, Required) 00004

Definition: This field uniquely identifies the facility that sends the message. The sending facility must be part of the PHIN OID registry.

MSH-5 Receiving Application (HD-227, Optional) 00005

Definition: This field may be used to uniquely identify the receiving application for messaging purposes. If populated, it will contain an OID that represents the receiving application instance.

MSH-6 Receiving Facility (HD-227, Required) 00006

Definition: This field uniquely identifies the facility that is to receive the message. This unique identifier must be part of the PHIN OID registry.

MSH-7 Date/time of Message (TS-26, Required) 00007

Definition: This field contains the date/time that the sending system created the message. The user values the field only as far as needed. When a system has only a partial date, e.g., month and year, but not day, the missing values may be interpreted as zeros. The time zone is assumed to be that of the sender.

MSH-8 Security (ST-40, Optional) 00008

Definition: This field may be used by the sender to convey whether information contained in the message is sharable or non-sharable, identified, non-identified, etc.

MSH-9 Message Type (MSG-15, Required) 00009

Definition: This field contains the message type, trigger event, and the message structure ID for the message. For the Follow-up message, the value in this field will always be ORU^R01.

MSH-10 Message Control ID (ST-20, Required) 00010

Definition: This field contains a string that uniquely identifies the message instance from the sending application. Typically, this field contains a timestamp and possibly a counter.

MSH-11 Processing ID (PT-3, Required) 00011

Definition: This field may be used to indicate the intent for processing of the message, such as "Testing", "Development" or "Production". For this message, the field will always contain |P|.

MSH-12 Version ID (VID-60, Required) 00012

Definition: This field contains the HL7 version number that is used to interpret format and content of the message.

MSH-13 Sequence number (NM-15, Optional) 00013

Not supported.

MSH-14 Continuation pointer (ST-180, Optional) 00014

Not supported.

MSH-15 Accept Acknowledgment Type (ID-2, Optional) 00015

Not supported.

MSH-16 Application acknowledgment type (ID-2, Optional) 00016

Not supported.

MSH-17 Country Code (ID - 3, Optional) 00017

This field may be used to indicate country of origin of the message. If used, the country code is derived from PHINVS_PSL_COUNTRY.

MSH-18 Character Set (ID - Optional) 00692

Not supported.

MSH-19 Principal Language of Message (CE - Optional) 00693

Not supported.

MSH-20 Alternate Character Set Handling Scheme (ID - Optional) 01317

Not supported.

MSH-21 Message Profile Identifier (EI - Optional) 01598

Not supported.

SFT – Software Segment

The software segment provides information about the software product being used as the Sending Application in this message instance. The information will be provided for diagnostic purposes by the receiving application.

SFT Attributes

Seq.	Len.	DT	Opt	Rpt#	Tbl #	PHIN Code System / Value Set	Element Name	Comments
1	567	XON	R				Software Vendor Organization	
2	15	ST	R				Software Certified Version or Release Number	
3	20	ST	R				Software Product Name	
4	20	ST	R				Software Binary ID	
5	1024	TX	O				Software Product Information	
6	26	TS	O				Software Install Date	

SFT field definitions

SFT-1 Software Vendor Organization (XON) Required 01834

Definition: Organization identification information for the software vendor that created this transaction. The Software Vendor Organization field allows for identification of the vendor who is responsible for maintaining the application.

SFT-2 Software Certified Version or Release Number (ST) Required 01835

Definition: Software version number assigned to the instance of the application being used to send the message.

SFT-3 Software Product Name (ST) Required 01836

Definition: The name of the software product that submitted the transaction. This field is synonymous with the application name.

SFT-4 Software Binary ID (ST) Required 01837

Definition: Contains the Software Binary ID issued by the vendor for each unique software version instance. Identical IDs in this field indicate that the software is identical at the binary level , although configuration settings may differ.

SFT-5 Software Product Information (TX) Optional 01838

Not supported.

SFT-6 Software Install Date (TS) Optional 01839

Definition: The date the submitting software was installed at the sending site.

PID - Patient Identification Segment

The PID segment is used as the primary means of conveying patient identification information that is not likely to change frequently.

PID Attributes

Seq.	Len.	DT	Opt	Rpt#	Tbl #	PHIN Code System / Value Set	Element Name	Comments
1	4	SI	C				Set ID - PID	
2	20	CX	B				Patient ID	
3	250	CX	R	Y		PHINVS_EI_TYPE PHINVS_EI_AUTH	Patient Identifier List	
4	20	CX	B	Y			Alternate Patient ID - PID	
5	250	XPN	R	Y		P_NM_USE	Patient Name	
6	250	XPN	O	Y			Mother's Maiden Name	
7	26	TS	O				Date/Time of Birth	
8	1	IS	O		0001	PHINVS_SEX	Administrative Sex	
9	250	XPN	B	Y			Patient Alias	
10	250	CE	O	Y	0005	PH_P_RACE_CAT	Race	
11	250	XAD	O	Y		EL_TYPE_PST EL_USE_PST	Patient Address	
12	4	IS	B		0289		County Code	
13	250	XTN	O	Y		EL_TYPE_TELE EL_USE_TELE	Phone Number - Home	
14	250	XTN	O	Y		EL_TYPE_TELE EL_USE_TELE	Phone Number - Business	
15	250	CE	O		0296	PHINVS_LANGUAGE	Primary Language	
16	250	CE	O		0002	PHINVS_MARITAL_STATUS	Marital Status	
17	250	CE	O		0006	PHINVS_RELIGION	Religion	
18	250	CX	O				Patient Account Number	
19	16	ST	B				SSN Number - Patient	(see PID-3 Patient Identifier list)
20	25	DLN	B				Driver's License Number - Patient	(see PID-3 Patient Identifier list)
21	250	CX	O	Y			Mother's Identifier	
22	250	CE	O	Y	0189	PHINVS_P_ETHN_GRP	Ethnic Group	
23	250	ST	O			PHINVS_PSL_COUNTRY	Birth Place	
24	1	ID	O		0136		Multiple Birth Indicator	

Seq.	Len.	DT	Opt	Rpt#	Tbl #	PHIN Code System / Value Set	Element Name	Comments
25	2	NM	O				Birth Order	
26	250	CE	O	Y	0171	PHINVS_PSL_COUNTRY	Citizenship	
27	250	CE	O		0172		Veterans Military Status	
28	250	CE	B		0212		Nationality	
29	26	TS	O				Patient Death Date and Time	
30	1	ID	O		0136		Patient Death Indicator	
31	1	ID	O		0136		Identity Unknown Indicator	
32	20	IS	O	Y	0445		Identity Reliability Code	
33	26	TS	O				Last Update Date/Time	
34	241	HD	O				Last Update Facility	
35	250	CE	C		0446		Species Code	
36	250	CE	C		0447		Breed Code	
37	80	ST	O				Strain	
38	250	CE	O	2	0429		Production Class Code	
39	250	CWE	O	Y	0171		Tribal Citizenship	

PID field definitions

PID-1 Set ID - PID (SI) Conditional 00104

Definition: This segment sequencer field does not need to be populated or could contain a '1', but only one patient/one PID segment per message is supported.

PID-2 Patient ID (CX) Optional 00105

Not supported.

PID-3 Patient Identifier List (CX) Required 00106

Definition: This field contains one or more identifiers used by the sending application to uniquely identify a patient. Social security, account number, and driver's license number are sent in this field as of version 2.3.1 of the HL7 standard.

PID-4 Alternate Patient ID - PID (CX) Optional 00107

Not supported.

PID-5 Patient Name (XPN) Required 00108

Definition: This field may contain one or more names of the person who is the object of the referral. The name in the first position is considered the primary or legal name. Therefore, the

name type code for the first instance is “L - Legal”. Refer to the PHIN-VADS table PHINVS_P_NM_USE for valid values. In the absence of sending a patient name, some other patient identifier must be placed in this field.

PID-6 Mother's Maiden Name (XPN) 00109

Not supported.

PID-7 Date/Time of Birth (TS) 00110

Definition: This field contains the patient’s date of birth.

PID-8 Administrative Sex (IS) Optional 00111

Definition: This field indicates the patient’s sex. Refer to PHINVS_SEX for valid values.

PID-9 Patient Alias (XPN) Deprecated 0112

Not supported – see PID-5 Patient Name.

PID-10 Race (CE) Optional 00113

Definition: This field contains one or more codes that broadly refer to the patient’s race(s). Refer to PHINVS_P_RACE_CAT for valid values.

PID-11 Patient Address (XAD) Optional 00114

Definition: This field contains the residence address of the patient. . Refer to PHINVS_EL_USE_PST for valid values for Address Type. Multiple addresses for the same person may be sent.

PID-12 County Code (IS) Deprecated 00115

Not supported – residence county is part of PID-11.

PID-13 Phone Number - Home (XTN) Optional 00116

Definition: This field contains a telephone number of a residence where the patient may be contacted. Refer to PHINVS_EL_USE_TELE for valid values for Telecommunication Use Code. Refer to PHINVS_EL_TYPE_TELE for valid values for Telecommunication Equipment Type.

PID-14 Phone Number - Business (XTN) Optional 00117

Definition: This field may contain the patient's business telephone number. Refer to PHINVS_EL_USE_TELE for valid values for Telecommunication Use Code. Refer to PHINVS_EL_TYPE_TELE for valid values for Telecommunication Equipment Type.

PID-15 Primary Language (CE) Optional 00118

Definition: Language spoken by the subject of the referral.

PID-16 Marital Status (CE) Optional 00119

Definition: Marital status of the subject of referral.

PID-17 Religion (CE) Optional 00120

Definition: Religion of the subject of message. Religion may have an impact on the administration of countermeasures or may be a contraindication.

PID-18 Patient Account Number (CX) Deprecated 00121

Not supported in this field. See patient identifiers list in PID-3.

PID-19 SSN - Patient (ST) Deprecated 00122

Not supported in this field. See patient identifiers list in PID-3.

PID-20 Driver's License Number - Patient (DLN) Deprecated 00123

Not supported in this field. See patient identifiers list in PID-3.

PID-21 Mother's Identifier (CX) Optional 00124

Not supported.

PID-22 Ethnic Group (CE) Optional 00125

Definition: This field defines the patient as either Hispanic or Non-hispanic. Refer to PHINVS_P_ETHN_GRP for valid values.

PID-23 Birth Place (ST) Optional 00126

Definition: Country of Birth of subject of the message. Uses the PHINVS_PSL_CNTRY_CD values.

PID-24 Multiple Birth Indicator (ID) Optional 00127

Not supported.

PID-25 Birth Order (NM) Optional 00128

Not supported.

PID-26 Citizenship (CE) Optional 00129

Definition: Country of Citizenship of subject of the message. Uses the PHINVS_PSL_CNTRY_CD values.

PID-27 Veterans Military Status (CE) Optional 00130

Not supported.

PID-28 Nationality (CE) Optional 00739

Not supported.

PID-29 Patient Death Date and Time (TS) Optional 00740

Definition: If the patient is known to be deceased at the time of the message, the patient death date/time should be sent in this field.

PID-30 Patient Death Indicator (ID) Optional 00741

Definition: If the patient is known to be deceased at the time of the message, the patient death indicator (Y) would be sent in this field along with the deceased date in PID-29.

PID-31 Identity Unknown Indicator (ID) Optional 01535

Definition: There are times when this field could be populated to indicate that the message subject's identity is unknown. It is a relatively new HL7 field that simply contains Y or N.

PID-32 Identity Reliability Code (IS) Optional 01536

Definition: There are times when this indicator could be used by the sending applications.

PID-33 Last Update Date/Time (TS) Optional 01537

Definition: This date/time is helpful for patient reconciliation purposes when populated by the sending application. It is the date/time of the last time the demographics record was updated.

PID-34 Last Update Facility (HD) 01538

Definition: This information is helpful for patient reconciliation when populated by the sending application. It is the application that last updated the demographics record. An OID may be passed to identify the facility.

PID-35 Species Code (CE) Optional 01539

Not supported.

PID-36 Breed Code (CE) Conditional 01540

Not supported.

PID-37 Strain (ST) Optional 01541

Not supported.

PID-38 Production Class Code (CE) Optional 01542

Not supported.

PID-39 Tribal Citizenship (CWE) Optional 01840

Not supported.

PV1 – Patient Visit Segment

The Patient Visit segment is used to transmit encounter-specific information.

PV1 Attributes

Seq.	Len.	DT	Opt	Rpt#	Tbl #	PHIN Code System / Value Set	Element Name	Comments
1	4	SI	O				Set ID - PV1	
2	1	IS	R		0004		Patient Class	
3	80	PL	O				Assigned Patient Location	
4	2	IS	O		0007		Admission Type	
5	250	CX	O				Preadmit Number	
6	80	PL	O				Prior Patient Location	
7	250	XCN	O	Y	0010		Attending Doctor	
8	250	XCN	O	Y	0010		Referring Doctor	
9	250	XCN	B	Y	0010		Consulting Doctor	
10	3	IS	O		0069		Hospital Service	
11	80	PL	O				Temporary Location	
12	2	IS	O		0087		Preadmit Test Indicator	
13	2	IS	O		0092		Re-admission Indicator	
14	6	IS	O		0023		Admit Source	
15	2	IS		Y	0009		Ambulatory Status	
16	2	IS	O		0099		VIP Indicator	
17	250	XCN	O	Y	0010		Admitting Doctor	
18	2	IS	O		0018		Patient Type	
19	250	CX	O				Visit Number	
20	50	FC	O	Y	0064		Financial Class	
21	2	IS	O		0032		Charge Price Indicator	
22	2	IS	O		0045		Courtesy Code	
23	2	IS	O		0046		Credit Rating	
24	2	IS	O	Y	0044		Contract Code	
25	8	DT	O	Y			Contract Effective Date	
26	12	NM	O	Y			Contract Amount	
27	3	NM	O	Y			Contract Period	
28	2	IS	O		0073		Interest Code	
29	4	IS	O		0110		Transfer to Bad Debt Code	
30	8	DT	O				Transfer to Bad Debt Date	
31	10	IS	O		0021		Bad Debt Agency Code	
32	12	NM	O				Bad Debt Transfer Amount	
33	12	NM	O				Bad Debt Recovery Amount	
34	1	IS	O		0111		Delete Account Indicator	
35	8	DT	O				Delete Account Date	

Seq.	Len.	DT	Opt	Rpt#	Tbl #	PHIN Code System / Value Set	Element Name	Comments
36	3	IS	O		0112		Discharge Disposition	
37	47	DLD	O		0113		Discharged to Location	
38	250	CE	O		0114		Diet Type	
39	2	IS	O		0115		Servicing Facility	
40	1	IS	B		0116		Bed Status	
41	2	IS	O		0117		Account Status	
42	80	PL	O				Pending Location	
43	80	PL	O				Prior Temporary Location	
44	26	TS	O				Admit Date/Time	
45	26	TS	O	Y			Discharge Date/Time	
46	12	NM	O				Current Patient Balance	
47	12	NM	O				Total Charges	
48	12	NM	O				Total Adjustments	
49	12	NM	O				Total Payments	
50	250	CX	O		0203		Alternate Visit ID	
51	1	IS	O		0326		Visit Indicator	
52	250	XCN	B	Y	0010		Other Healthcare Provider	

PV1 Field Definitions

PV1-1 Set ID - PV1 (SI) Optional 00131

Definition: Only one PV1 segment will occur per message. Even so, it is recommended this field contain the value "1".

PV1-2 Patient Class (IS) Required 00132

Definition: This field is required when the PV1 segment is used. It may be helpful in interpreting the general information source of the message. The Patient Class values are available as PHINVS_PATIENT_CLASS.

PV1-3 Assigned Patient Location (PL) Optional 00133

Not supported

PV1-4 Admission Type (IS) Optional 00134

Definition: This field may indicate the circumstances under which the patient was admitted to hospital service. The Patient Class values are available as PHINVS_ADMISSION_TYPE. This field makes use of UB92 FL 19 "Type of Admission" values such as "Accident", "Emergency", "Labor and Delivery", "Routine" or "Elective".

PV1-5 Preadmit Number (CX) Optional 00135

Not supported.

PV1-6 Prior Patient Location (PL) Optional 00136

Not supported.

PV1-7 Attending Doctor (XCN) Optional 00137

Not supported.

PV1-8 Referring Doctor (XCN) Optional 00138

Not supported.

PV1-9 Consulting Doctor (XCN) Deprecated 00139

Not supported.

PV1-10 Hospital Service (IS) Optional 00140

Not supported.

PV1-11 Temporary Location (PL) Optional 00141

Not supported.

PV1-12 Preadmit Test Indicator (IS) Optional 00142

Not supported.

PV1-13 Re-Admission Indicator (IS) Optional 00143

Not supported.

PV1-14 Admit Source (IS) Optional 00144

Not supported.

PV1-15 Ambulatory Status (IS) Optional 00145

Not supported.

PV1-16 VIP Indicator (IS) Optional 00146

Not supported.

PV1-17 Admitting Doctor (XCN) Optional 00147

Not supported.

PV1-18 Patient Type (IS) Optional 00148

Not supported.

PV1-19 Visit Number (CX) Optional 00149

Not supported.

PV1-20 Financial Class (FC) Optional 00150

Not supported.

PV1-21 Charge Price Indicator (IS) Optional 00151

Not supported.

PV1-22 Courtesy Code (IS) Optional 00152

Not supported.

PV1-23 Credit Rating (IS) Optional 00153

Not supported.

PV1-24 Contract Code (IS) Optional 00154

Not supported.

PV1-25 Contract Effective Date (DT) Optional 00155

Not supported.

PV1-26 Contract Amount (NM) Optional 00156

Not supported.

PV1-27 Contract Period (NM) Optional 00157

Not supported.

PV1-28 Interest Code (IS) Optional 00158

Not supported.

PV1-29 Transfer to Bad Debt Code (IS) Optional 00159

Not supported.

PV1-30 Transfer to Bad Debt Date (DT) Optional 00160

Not supported.

PV1-31 Bad Debt Agency Code (IS) Optional 00161

Not supported.

PV1-32 Bad Debt Transfer Amount (NM) Optional 00162

Not supported.

PV1-33 Bad Debt Recovery Amount (NM) Optional 00163

Not supported.

PV1-34 Delete Account Indicator (IS) Optional 00164

Not supported.

PV1-35 Delete Account Date (DT) Optional 00165

Not supported.

PV1-36 Discharge Disposition (IS) Optional 00166

Definition: This field may contain the disposition of the patient, or what ultimately happened, at end of the encounter (i.e., discharged to home, expired, etc.). The Discharge Disposition values are available as PHINVS_DISCHARGE DISPOSITION. These values are derived from the UB92 FL22.

PV1-37 Discharged to Location (DLD) Optional 00167

Not supported.

PV1-38 Diet Type (CE) Optional 00168

Not supported.

PV1-39 Servicing Facility (IS) Optional 00169

Not supported.

PV1-40 Bed Status (IS) Optional 00170

Not supported.

PV1-41 Account Status (IS) Optional 00171

Not supported.

PV1-42 Pending Location (PL) Optional 00172

Not supported.

PV1-43 Prior Temporary Location (PL) Optional 00173

Not supported.

PV1-44 Admit Date/Time (TS) Required for this message 00174

Definition: This field contains the date/time of the outpatient/emergency patient registration.

PV1-45 Discharge Date/Time (TS) Required for this message 00175

Definition: This field contains the date/time of the outpatient/emergency patient discharge or release.

PV1-46 Current Patient Balance (NM) Optional 00176

Not supported.

PV1-47 Total Charges (NM) Optional 00177

Not supported.

PV1-48 Total Adjustments (NM) Optional 00178

Not supported.

PV1-49 Total Payments (NM) Optional 00179

Not supported.

PV1-50 Alternate Visit ID (CX) Optional 00180

Not supported.

PV1-51 Visit Indicator (IS) Optional 01226

Not supported.

PV1-52 Other Healthcare Provider (XCN) Optional 01274

Not supported.

ORC - Common Order Segment

The Common Order segment (ORC) is optionally used to transmit information about the person or the organization that ordered the services or observations described in this message.

ORC Attributes

Seq.	Len.	DT	Opt	Rpt#	Tbl #	PHIN Code System / Value Set	Element Name	Comments
1	2	ID	R		0119	HL70119	Order Control	defaults to 'RE'
2	22	EI	C				Placer Order Number	
3	22	EI	C				Filler Order Number	
4	22	EI	O				Placer Group Number	
5	2	ID	O		0038		Order Status	
6	1	ID	O		0121		Response Flag	
7	200	TQ	B	Y			Quantity/Timing	
8	200	EIP	O				Parent	
9	26	TS	O				Date/Time of Transaction	
10	250	XCN	O	Y			Entered By	
11	250	XCN	O	Y			Verified By	
12	250	XCN	O	Y			Ordering Provider	
13	80	PL	O				Enterer's Location	
14	250	XTN	O	Y/2			Call Back Phone Number	
15	26	TS	O				Order Effective Date/Time	
16	250	CE	O				Order Control Code Reason	
17	250	CE	O				Entering Organization	
18	250	CE	O				Entering Device	
19	250	XCN	O	Y			Action By	
20	250	CE	O		0339		Advanced Beneficiary Notice Code	
21	250	XON	O	Y			Ordering Facility Name	
22	250	XAD	O	Y			Ordering Facility Address	
23	250	XTN	O	Y			Ordering Facility Phone Number	
24	250	XAD	O	Y			Ordering Provider Address	
25	250	CWE	O				Order Status Modifier	
26	60	CWE	C		0552		Advanced Beneficiary Notice Override Reason	
27	26	TS	O				Filler's Expected Availability Date/Time	
28	250	CWE	O		0177		Confidentiality Code	
29	250	CWE	O		0482		Order Type	
30	250	CNE	O		0483		Enterer Authorization Mode	

ORC Field Definitions

ORC-1 Order Control (ID) 00215 Required

Definition: The Order Control Code determines the function of the order segment. For purposes of this message, the default value will be 'RE' (Observations/Performed Service to Follow) since it is a required field.

ORC-2 Placer Order Number (EI) Conditional 00216

Not supported.

ORC-3 Filler Order Number (EI) Conditional 00217

Not supported.

ORC-4 Placer Group Number (EI) Optional 00218

Not supported.

ORC-5 Order Status (ID) Optional 00219

Not supported.

ORC-6 Response Flag (ID) Optional 00220

Not supported.

ORC-7 Quantity/Timing (TQ) Backwards Compatible 00221

Not supported.

ORC-8 Parent (EIP) Optional 00222

Not supported.

ORC-9 Date/Time of Transaction (TS) Optional 00223

Not supported.

ORC-10 Entered By (XCN) Optional 00224

Not supported.

ORC-11 Verified By (XCN) Optional 00225

Not supported.

ORC-12 Ordering Provider (XCN) Optional 00226

Not supported.

ORC-13 Enterer's Location (PL) Optional 00227

Not supported.

ORC-14 Call Back Phone Number (XTN) Optional 00228

Not supported.

ORC-15 Order Effective Date/Time (TS) Optional 00229

Not supported.

ORC-16 Order Control Code Reason (CE) Optional 00230

Not supported.

ORC-17 Entering Organization (CE) Optional 00231

Not supported.

ORC-18 Entering Device (CE) Optional 00232

Not supported.

ORC-19 Action By (XCN) Optional 00233

Not supported.

ORC-20 Advanced Beneficiary Notice Code (CE) Optional 01310

Not supported.

ORC-21 Ordering Facility Name (XON) Optional 01311

Definition: This field may contain the name of an organization that ordered the observations described in this message.

ORC-22 Ordering Facility Address (XAD) Optional 01312

Definition: This field may contain an ordering facility address.

ORC-23 Ordering Facility Phone Number (XTN) Optional 01313

Definition: This field may contain the phone number of the ordering facility.

ORC-24 Ordering Provider Address (XAD) Optional 01314

Definition: If an Ordering Provider is captured in OBR-16, this field may contain the office address of that provider.

ORC-25 Order Status Modifier (CWE) Optional 01473

Not supported.

ORC-26 Advanced Beneficiary Notice Override Reason (CWE) Conditional 01641

Not supported.

ORC-27 Filler's Expected Availability Date/Time (TS) Optional 01642

Not supported.

ORC –28 Confidentiality Code (CWE) Optional 00615

Not supported.

ORC –29 Order Type (CWE) Optional 01643

Not supported.

ORC-30 Enterer Authorization Mode (CNE) Optional 01644

Not supported.

OBR Segment - Observation Request

The OBR contains attributes related to the order for the observation that is being reported in this message.

OBR Attributes

Seq	Len	DT	Opt	Rpt#	Tbl#	PHIN Code System / Value Set	Element Name	Comments
1	4	SI	O				Set ID - OBR	
2	22	EI	C				Placer Order Number	
3	22	EI	R				Filler Order Number	
4	250	CE	R			LOINC recommended	Universal Service Identifier	
5	2	ID	B				Priority – OBR	
6	26	TS	B				Requested Date/Time	
7	26	TS	C				Observation Date/Time	
8	26	TS	O				Observation End Date/Time	
9	20	CQ	O				Collection Volume	
10	250	XCN	O	Y			Collector Identifier	
11	1	ID	O		0065		Specimen Action Code	
12	250	CE	O				Danger Code	
13	300	ST	O				Relevant Clinical Information	
14	26	TS	B				Specimen Received Date/Time	
15	300	SPS	B				Specimen Source	
16	250	XCN	O	Y			Ordering Provider	
17	250	XTN	O	Y/2			Order Callback Phone Number	
18	60	ST	O				Placer Field 1	
19	60	ST	O				Placer Field 2	
20	60	ST	O				Filler Field 1	
21	60	ST	O				Filler Field 2	
22	26	TS	C				Results Rpt/Status Change Date/Time	
23	40	MOC	O				Charge to Practice	
24	10	ID	O		0074		Diagnostic Serv Sect ID	
25	1	ID	R		0123	PHINVS_RESULT STATUS	Result Status	
26	400	PRL	O				Parent Result	
27	200	TQ	B	Y			Quantity/Timing	
28	250	XCN	O	Y			Result Copies To	
29	200	EIP	O				Parent	

Seq	Len	DT	Opt	Rpt#	Tbl#	PHIN Code System / Value Set	Element Name	Comments
30	20	ID	O		0124		Transportation Mode	
31	250	CE	O	Y			Reason for Study	
32	200	NDL	O				Principal Result Interpreter	
33	200	NDL	O	Y			Assistant Result Interpreter	
34	200	NDL	O	Y			Technician	
35	200	NDL	O	Y			Transcriptionist	
36	26	TS	O				Scheduled Date/Time	
37	4	NM	O				Number of Sample Containers *	
38	250	CE	O	Y			Transport Logistics of Collected Sample	
39	250	CE	O	Y			Collector's Comment *	
40	250	CE	O				Transport Arrangement Responsibility	
41	30	ID	O		0224		Transport Arranged	
42	1	ID	O		0225		Escort Required	
43	250	CE	O	Y			Planned Patient Transport Comment	
44	250	CE	O		0088		Procedure Code	
45	250	CE	O	Y	0340		Procedure Code Modifier	
46	250	CE	O	Y	0411		Placer Supplemental Service Information	
47	250	CE	O	Y	0411		Filler Supplemental Service Information	
48	250	CWE	C		0476		Medically Necessary Duplicate Procedure Reason.	
49	2	IS	O		0507		Result Handling	

OBR Field Definitions

OBR-1 Set ID - OBR (SI) Optional 00237

Definition: The field identifies the sequence number of one of multiple OBR's that could be in a message. For the first order transmitted, the set ID is |1|, for the second order, it is |2|, and so on. If more than one OBR per PID is transmitted, this field should be used.

OBR-2 Placer Order Number (EI) Conditional 00216

Not supported.

OBR-3 Filler Order Number (EI) Conditional 00217

Definition: The filler order number field contains a unique identifier that was created for this unsolicited observation message.

OBR-4 Universal Service ID (CE) Required 00238

Definition: This field contains the identifier code for the requested observation/test/battery. The code utilized should be LOINC. If local codes are used, then they should be submitted in the alternate components (4-6). Patient initial ED temperature, vital signs, patient history, all may be identified here.

The CE data type transmits codes and the text associated with the code. The components are listed as conditional in that either a national identifier will be passed in components 1 through 3, or a local identifier in components 4 through 6, or both may be present, using all six components.

OBR-5 Priority (ID) Deprecated 00239

Not supported.

OBR-6 Requested Date/Time (TS) Deprecated 00240

Not supported.

OBR-7 Observation Date/Time (TS) Required 00241

Definition: This field is the clinically relevant date/time the observation was obtained.

OBR-8 Observation End Date/Time (TS) Optional 00242

Definition: If an observation takes place over a substantial period of time, it will indicate when the observation period ended. For observations made at a point in time, it will be null.

OBR-9 Collection Volume (CQ) Optional 00243

Not supported.

OBR-10 Collector Identifier (XCN) Optional 00244

Not supported.

OBR-11 Specimen Action Code (ID) Optional 00245

Not supported.

OBR-12 Danger Code (CE) Optional 00246

Not supported.

OBR-13 Relevant Clinical Information (ST) Optional 00247

Not supported.

OBR-14 Specimen Received Date/Time (TS) Backward Compatible 00248

Not supported.

OBR-15 Specimen Source (SPS) Backward Compatible 00249

Definition: This field may identify the site where the specimen was obtained or where the service was performed. See PHINVS_SPCMN_SRC for valid values.

OBR-16 Ordering Provider (SPS) Backward Compatible 00249

Definition: This field identifies the provider who ordered the test. Either the ID code or the name, or both, may be present.

OBR-17 Order Callback Phone Number (XTN)

Definition: This field may contain the phone number for the provider who ordered the service. The provider is identified in OBR-16.

OBR-18 Placer Field #1 (ST) Optional 00251

Not supported.

OBR-19 Placer Field #2 (ST) Optional 00252

Not supported.

OBR-20 Filler Field #1 (ST) Optional 00253

Not supported.

OBR-21 Filler Field #2 (ST) Optional 00254

Not supported.

OBR-22 Results Report/Status Change - Date/Time (TS) Optional 00255

Not supported.

OBR-23 Charge to Practice (MOC, Not Supported) 00256

Not supported.

OBR-24 Diagnostic Service Section ID (ID, Optional) 00257

Not supported.

OBR-25 Result Status (ID) Conditional 00258

Definition: The Result Status field applies to the entire report and is required in this message. Refer to the PHIN-VADS table PHINVS_RESULT STATUS for valid values. Receipt of a subsequent message with the same filler number and a different status in this field implies processing may need to occur at the application level to update a previous report.

OBR-26 Parent Result (PRL) Optional 00259

Not supported.

OBR-27 Quantity/Timing (TQ) Backwards Compatible 00221

Not supported.

OBR-28 Result Copies To (XCN) Optional 00260

Not supported.

OBR-29 Parent (EIP) Optional 00261

Not supported.

OBR-30 Transportation Mode (ID) Optional 00262

Not supported.

OBR-31 Reason for Study (CE) Optional 00263

Not supported.

OBR-32 Principal Result Interpreter (NDL) Optional 00264

Not supported.

OBR-33 Assistant Result Interpreter (NDL) Optional 00265

Not supported.

OBR-34 Technician (NDL) Optional 00266

Not supported.

OBR-35 Transcriptionist (NDL) Optional 00267

Not supported.

OBR-36 Scheduled - Date/Time (TS) Optional 00268

Not supported.

OBR-37 Number of Sample Containers (NM) Optional 01028

Not supported.

OBR-38 Transport logistics of collected sample (CE) Optional 01029
Not supported.

OBR-39 Collector's comment (CE) Optional 01030
Not supported.

OBR-40 Transport arrangement responsibility (CE) Optional 01031
Not supported.

OBR-41 Transport arranged (ID) Optional 01032
Not supported.

OBR-42 Escort required (ID) Optional 01033
Not supported.

OBR-43 Planned Patient Transport Comment (CE) Optional 01034
Not supported.

OBR-44 Procedure Code (CE) Optional 00393
Not supported.

OBR-45 Procedure Code Modifier (CE) Optional 01316
Not supported.

OBR-46 Placer Supplemental Service Information (CE) Optional 01474
Not supported.

OBR-47 Filler Supplemental Service Information (CE) Optional 01475
Not supported.

OBR-48 Medically Necessary Duplicate Procedure Reason (CWE) Conditional 01646
Not supported.

OBR-49 Result Handling (IS) Optional 01647
Not supported.

OBX Observation/Result Segment

The OBX is used to convey the observation results. There may be multiple OBX segments reported under a single Observation Request segment, particularly if the service request implies a panel of discrete results, as in "Vital Signs", which would use a different OBX to report temperature, pulse, respirations, and blood pressure.

OBX Attributes

Seq.	Len.	DT	Opt	Rpt#	Tbl #	PHIN Code System / Value Set	Element Name	Comments
1	4	SI	O				Set ID – OBX	
2	2	ID	C		0125	HL70125	Value Type	SN, CE, TX supported
3	250	CE	R			LOINC recommended	Observation Identifier	
4	20	ST	C				Observation Sub-ID	
5	99999	varies	C				Observation Value	
6	250	CE	O			UNITS_OF_MEASURE_ISO	Units	
7	60	ST	O				References Range	
8	5	IS	O	Y	0078	PHINVS_OBS_INTRP	Abnormal Flags	
9	5	NM	O				Probability	
10	2	ID	O	Y	0080		Nature of Abnormal Test	
11	1	ID	R		0085	OBSERVATION_RESULT_STATUS	Observation Result Status	"F"
12	26	TS	O				Effective Date of Reference Range Values	
13	20	ST	O				User Defined Access Checks	
14	26	TS	O				Date/Time of the Observation	
15	250	CE	O				Producer's ID	
16	250	XCN	O	Y			Responsible Observer	
17	250	CE	O	Y			Observation Method	
18	22	EI	O	Y			Equipment Instance Identifier	
19	26	TS	O				Date/Time of the Analysis	

OBX Field Definitions

OBX-1 Set ID - OBX (SI) Optional 00569

Definition: This field contains the sequence number of the OBX, which increments up by one for each observation segment in the group.

OBX-2 Value Type (ID) Conditional 00570

Definition: This field contains the format of the observation value expressed in OBX-5. Value Type is required for this message, as the Standard specifies that the only time Value Type may be null is if the OBX-11 Status field is 'X' (results cannot be obtained for this observation). For this message, the value types are expected to be in SN, CE, TX or ST format.

OBX-3 Observation Identifier (CE) Required 00571

Definition: This field contains a code that identifies the type of report being passed. This field differentiates the various usages of the ORU^R01 message for Countermeasure Administration: or nature of the observation that is being reported. The format is that of the Coded Element (CE). Example: 21612-7^Reported Patient Age^LN.

Use of universal identifiers for observations is strongly encouraged. A local code may ideally be paired with a universal identifier and both sent in this field, with the universal ID in the first three components and the local ID as the Alternate identifier in the last three components of this field. In the absence of a universal identifier, the local ID code, description, and "L" for coding system would remain in components 4, 5, and 6 of this field.

OBX-4 Observation Sub-Identifier (ST) Optional 00572

Definition: A sequence number in this field may be used to tie together observations with the same value in OBX-3.

OBX-5 Observation Value (data type varies) Conditional 00573

Definition: This field contains the actual result value or observation. The data type in OBX-2 Value Type indicates the format of the observation. It is not a required field because some systems will report the result using only the Abnormal Flag values in (OBX-8), especially in product experience reporting. The length of the observation field is variable, depending upon the value type.

The Standard allows the observation value to repeat using a tilde (~) for multipart, single answer results with appropriate data types, e.g., CE, TX, ST and FT data types, but repeats are not recommended as it complicates parsing. The data is typically split across more than one OBX, tying the segments together with the Observation Sub-ID and the same value in OBX-3, Observation Identifier.

As in the observation identifier, if the value type is CE, the first 3 components would reflect the universal result identifier, description, and its encoding system, whereas fields 4-6 would be used to convey the local result code, description as alternate result values.

OBX- Units (CE) Conditional 00574

Definition: Units of measure put the observation value expressed in OBX-5 into context. Please refer UNITS_OF_MEASURE_ISO for valid Unit code values.

OBX-7 References Range (ST) Optional 00575

Definition: The observation being reported may have numeric or alphabetic values that indicate what would constitute a normal observation result. Reference ranges help give context to the result, e.g., numeric values may indicate a toxic or a therapeutic range of a substance. If the sending application has normal values to compare to the result passed in OBX-5, the normal value may be passed in this field.

OBX-8 Abnormal Flags (IS) Optional 00576

Definition: This field may contain a qualifier assigned by the person making the observation. The Abnormal Flag details the observer's assessment as to whether the results are normal or abnormal; or it could be a value that says a therapeutic substance level is high or low. Abnormal flag values are defined in PHINVS_OBS_INTRP.

OBX-9 Probability (NM) Optional 00577

Not supported.

OBX-10 Nature of abnormal test (ID) Optional 00578

Not supported.

OBX-11 Observation Result Status (ID) Required 00579

Definition: Observation Result Status is a required field and the default code of "F" will be used. Refer to the PHIN-VADS table OBSERVATION_STATUS for valid values. Receipt of a subsequent message with the same filler number and a different status in this field implies processing may need to occur to update previous results.

OBX-12 Effective Date of Reference Range (TS) Optional 00580

Not supported.

OBX-13 User Defined Access Checks (ST) Optional 00581

Not supported.

OBX-14 Date/Time of the Observation (TS) 00582

Definition: This field used to capture the date/time that the observation identified in OBX-3 was made.

OBX-15 Producer's ID (CE) 00583

Definition: This field may contain a unique identifier assigned or used by the sending system to identify the organization that performed the observation.

OBX-16 Responsible Observer (XCN) 00584

Definition: A unique identifier assigned or used by the sending system to identify the staff member who performed the observation.

OBX-17 Observation Method (CE) 00936

Not supported.

OBX-18 Equipment Instance Identifier (EI) 01479

Not supported.

OBX-19 Date/Time of the Analysis (TS) 01480

Not supported.

NTE - Notes and Comments Segment

The NTE segment is a common format for sending notes and comments. For this message, the NTE segment is used to transmit notes and comments entered with or pertinent to an observation result.

NTE Attributes

Seq.	Len.	DT	Opt	Rpt#	Tbl #	PHIN Code System / Value Set	Element Name	Comments
1	4	SI	O				Set ID - NTE	
2	8	ID	O		0105		Source of Comment	
3	65536	FT	O	Y			Comment	
4	60	CE	O				Comment Type	

NTE Field Definitions

NTE-1 Set ID - NTE (SI) Conditional 00096

Definition: This field is required where multiple NTE segments are included in a message. The numbering scheme is related to the OBX segment directly before it in that the Set ID begins again with '1' for each OBX that has one or more NTEs following it. The set ID is used to keep the text in proper order for storage and retrieval.

NTE-2 Source of Comment (ID) Optional 00097

Not supported. Context of the message implies that the filler is the source of comment.

NTE-3 Comment (FT) Required 00098

Definition: This field is contains the comment contained in the segment.

NTE-4 Comment Type (CE) Optional) 01318

Not supported.

4. Data Types

Only those data types which are used within this guide have been included.

Data Type	Data Type Description
CE	Coded Element
CNE	Coded With No Exceptions
CWE	Coded With Exceptions
CX	Extended Composite ID with Check Digit
DT	Date
DTM	Date Time
EI	Entity Identifier
FN	Family Name
HD	Hierarchic Designator
ID	Coded Value for HL7 defined tables
IS	Coded Value for User defined tables
MSG	Message Type
PT	Processing Type
SAD	Street Address
SI	Sequence ID
SPS	Specimen Source
ST	String Data
TS	Time Stamp
VID	Version Identifier
XAD	Extended Address
XON	Extended Organization Name and ID
XPN	Extended Person Name
XTN	Extended Telephone Number

CE - Coded Element

HL7 Component Table - CE – Coded Element

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	20	ST	O		Identifier	
2	199	ST	O		Text	
3	20	ID	O	0396	Name of Coding System	
4	20	ST	O		Alternate Identifier	
5	199	ST	O		Alternate Text	
6	20	ID	O	0396	Name of Alternate Coding System	

Definition: This data type transmits coded values and the text associated with the code. Codes that represent the PHIN standard coding systems should be placed in the first set of components. Local codes – if it desired to provide them – should go in the second set – alternate ID, text and coding system.

{It is important to note that, for PHIN messaging, components #3 and #6 will be filled with the OID for the relevant coding system, instead of with a text name for that coding system.}

Maximum length is 483 characters.

CNE - Coded with No Exceptions

HL7 Component Table - CE – Coded Element

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	20	ST	O		Identifier	
2	199	ST	O		Text	
3	20	ID	O	0396	Name of Coding System	
4	20	ST	O		Alternate Identifier	
5	199	ST	O		Alternate Text	
6	20	ID	O	0396	Name of Alternate Coding System	
7	10	ST	C		Coding System Version ID	
8	10	ST	O		Alternate Coding System Version ID	
9	199	ST	O		Original Text	

Definition: The CNE data type specifies a required or mandatory coded field with its associated detail. The specified HL7 or externally defined table must be used and may not be extended with local values. Text may not replace the code. Codes that represent the PHIN standard coding systems should be placed in the first set of components. Local codes – if it desired to provide them – should go in the second set – alternate ID, text and coding system.

{It is important to note that, for PHIN messaging, components #3 and #6 will be filled with the OID for the relevant coding system, instead of with a text name for that coding system.}

Maximum length is 705 characters.

CWE – Coded With Exceptions

HL7 Component Table - CWE – Coded with Exceptions

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	20	ST	O		Identifier	
2	199	ST	O		Text	
3	20	ID	O	0396	Name of Coding System	ACT_CD_SYS
4	20	ST	O		Alternate Identifier	
5	199	ST	O		Alternate Text	
6	20	ID	O	0396	Name of Alternate Coding System	ACT_CD_SYS
7	10	ST	C		Coding System Version ID	
8	10	ST	O		Alternate Coding System Version ID	
9	199	ST	O		Original Text	

Definition: This data type specifies a coded element with its associated detail. The CWE data type is used in when the specified table may be extended with local values or for situation where text is available without a code. Codes that represent the PHIN standard coding systems should be placed in the first set of components. Local codes – if it desired to provide them – should be passed in the second set – alternate ID, text and coding system.

{It is important to note that, for PHIN messaging, components #3 and #6 will be filled with the OID for the relevant coding system, instead of with a text name for that coding system.}

Maximum length is 705 characters.

CX - Extended Composite ID with Check Digit

HL7 Component Table - CX – Extended Composite ID with Check Digit

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	15	ST	R		ID Number	
2	1	ST	O		Check Digit	null if ID is alphanumeric
3	3	ID	O	0061	Check Digit Scheme	null if ID is alphanumeric
4	227	HD	O	0363	Assigning Authority	OID
5	5	ID	O	0203	Identifier Type Code	PHINVS_EI_TYPE
6	227	HD	O		Assigning Facility	OID
7	8	DT	O		Effective Date	
8	8	DT	O		Expiration Date	
9	705	CWE	O		Assigning Jurisdiction	
10	705	CWE	O		Assigning Agency or Department	

Definition: This data type specifies an identifier with its associated administrative detail. Maximum length is 1913 characters.

{It is important to note that, for PHIN messaging, component #4, assigning authority, will be filled with the OID that indicates the namespace for the identifier. This namespace, in effect, identifies both the assigning authority and the type of identifier. As a result, the identifier type code value, component #5, can be inferred from the chosen OID. The OIDs used to identify entities will be available for look-up in the PHIN-VADS OID Registry.}

DT - Date

HL7 Component Table - DT – Date

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
	8				Date	

Definition: This datatype specifies a date field. Maximum length is 8 digits. The number of digits specifies the precision, in that:

a) only the first four digits are used to specify a precision of "year"

b) the first six are used to specify a precision of "month"

c) the first eight are used to specify a precision of "day"

DTM - date/time

HL7 Component Table - DTM – Date/Time

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS	SEC.REF.
	24				Date/Time		

Definition: This data type specifies a point in time using a 24-hour clock notation. It is a component of the Timestamp datatype and does not appear on its own in these messages. Maximum length is 24. The number of digits specifies the precision, in that:

a) only the first four are used to specify a precision of "year"

b) the first six are used to specify a precision of "month"

c) the first eight are used to specify a precision of "day"

d) the first ten are used to specify a precision of "hour"

e) the first twelve are used to specify a precision of "minute"

f) the first fourteen are used to specify a precision of "second"

g) the first sixteen are used to specify a precision of "one tenth of a second"

h) the first nineteen are used to specify a precision of " one ten thousandths of a second"

EI - Entity Identifier

HL7 Component Table - EI – Entity Identifier

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	199	ST	O		Entity Identifier	
2	20	IS	O	0363	Namespace ID	
3	199	ST	C		Universal ID	
4	6	ID	C	0301	Universal ID Type	

Definition: This datatype indicates an identifier that defines a given entity within a specified series of identifiers. Maximum length is 427 characters.

{It is important to note that, for PHIN messaging, component #3, Universal ID, will be filled with the OID that indicates the namespace for the identifier. This namespace, in effect, identifies both the assigning authority and the type of identifier. As a result, the identifier type code value, component #4, can be inferred from the chosen OID. Also, component #2 Namespace ID, has no relevance for PHIN messaging and is not supported. The OIDs used to identify entities will be available for look-up in the PHIN-VADS OID Registry.}

FN - Family Name

HL7 Component Table - FN – Family Name

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	50	ST	R		Surname	surname will be the only component supported in the Family Name field of the Extended Person Name field
2	20	ST	O		Own Surname Prefix	
3	50	ST	O		Own Surname	
4	20	ST	O		Surname Prefix From Partner/Spouse	
5	50	ST	O		Surname From Partner/Spouse	

Definition: This data type allows full specification of the surname of a person. The FN data type is included here only because it is a component of the Extended Person Name (XPN) data type. In reality, the surname that is passed as the first component of this field is the only portion of the FN data type that will be supported. Maximum length is 194 characters.

HD - Hierarchic Designator

HL7 Component Table - HD – Hierarchic Designator

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	20	IS	O	0300	Namespace ID	
2	199	ST	C		Universal ID	
3	6	ID	C	0301	Universal ID Type	

Definition: The Hierarchic Designator data type identifies a system or application or other entity that has responsibility for managing or assigning a defined set of instance identifiers (such as placer or filler number, patient identifiers, provider identifiers, etc.).

{It is important to note that, for PHIN messaging, component #2, Universal ID, will be filled with the OID that indicates the namespace for the identifier. This namespace, in effect, identifies both the assigning authority and the type of identifier. As a result, the identifier type code value, component #3, can be inferred from the chosen OID. Also, component #1 Namespace ID, has no relevance for PHIN messaging and is not supported. The OIDs used to identify entities will be available for look-up in the PHIN-VADS OID Registry.}

ID - Coded Value for HL7 Defined Tables

HL7 Component Table - ID – String Data

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
					Coded Value for HL7-Defined Tables	

Definition: The ID data type indicates that the value is drawn from a HL7 table of legal values. This data type is used only for HL7 tables. Maximum length of data with this data type varies.

IS - Coded Value for User-Defined Tables

HL7 Component Table - IS – String Data

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
	20				Coded Value for User-Defined Tables	

Definition: The IS data type indicates that the value is drawn from a site-defined (or user-defined) table of legal values. There is an HL7 table number associated with IS data types. Maximum length is 20 characters.

MSG – Message Type

HL7 Component Table - MSG – Message Type

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	3	ID	R	0076	Message Code	
2	3	ID	R	0003	Trigger Event	
3	7	ID	R	0354	Message Structure	

Definition: This data type is used only in MSH-9 to indicate the type of format, content, and intent of the message. Maximum length is 15 characters.

PT - Processing Type

HL7 Component Table - PT – Processing Type

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	1	ID	O	0103	Processing ID	
2	1	ID	O	0207	Processing Mode	

Definition: This data type is used only in MSH-11 to indicate the type of processing that may be performed on the message (Debugging, Production, Training). Maximum length is 3 characters.

SAD – Street Address

HL7 Component Table - SAD – Street Address

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	120	ST	O		Street or Mailing Address	
2	50	ST	O		Street Name	
3	12	ST	O		Dwelling Number	

Definition: This data type is a component of the XAD Extended Address data type. For this message, only data in the first component will be parsed into the street address field. Maximum length is 184 characters.

SI - Sequence ID

HL7 Component Table - SI – Sequence ID

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
	4				Sequence ID	

Definition: The SI provides a numeric sequencing for segments that may repeat. Maximum length is 4 digits.

SPS – specimen source

HL7 Component Table - SPS – Specimen Source

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	705	CWE	O		Specimen Source Name or Code	
2	705	CWE	O	0371	Additives	
3	200	TX	O		Specimen Collection Method	
4	705	CWE	O	0163	Body Site	
5	705	CWE	O	0495	Site Modifier	
6	705	CWE	O		Collection Method Modifier Code	
7	705	CWE	O	0369	Specimen Role	

Definition: The SPS data type contains components that identify the specimen type, collection method, and the body site where the specimen is obtained. Maximum length is 4436 characters. The Specimen Source field as the first component is the specimen type code; valid values may be derived from PH_SPECMN_SRC. The valid values for Body Site are on PHINVS_ANATOMIC_SITE. Site modifiers are not supported, as the Anatomic Site already includes the modifiers.

TS - Time Stamp

HL7 Component Table - TS – Time Stamp

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	24	DTM	R		Time	
2	1	ID	B	0529	Degree of Precision	

Definition: The Timestamp data type indicates a point in time. Only the first component, which is of the previously described Date/Time data type, is supported. Maximum length is 4 digits.

VID – Version Identifier

HL7 Component Table - VID – Version Identifier

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	5	ID	O	0104	Version ID	
2	483	CE	O	0399	Internationalization Code	
3	483	CE	O		International Version ID	

Definition: The VID data type is used to identify the version of HL7. The data type appears in MSH-12 Version ID in this message. Maximum length is 973 characters, although in practical terms a maximum of 5 characters are expected.

XAD - Extended Address

HL7 Component Table - XAD – Extended Address

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	184	SAD	O		Street Address	
2	120	ST	O		Other Designation	
3	50	ST	O		City	
4	50	ST	O		State or Province	
5	12	ST	O		Zip or Postal Code	
6	3	ID	O	0399	Country	
7	3	ID	O	0190	Address Type	
8	50	ST	O		Other Geographic Designation	
9	20	IS	O	289	County/Parish Code	
10	20	IS	O	288	Census Tract	
11	1	ID	O	465	Address Representation Code	
12	53	DR	B		Address Validity Range	
13	26	TS	O		Effective Date	
14	26	TS	O		Expiration Date	

Definition: The XAD data type is used to convey complete address information for a person or organization. Maximum length is 631 characters.

XON - Extended Composite Name and Identification Number for Organizations

HL7 Component Table - XON – Extended Composite Name and Identification Number for Organizations

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	50	ST	O		Organization Name	
2	20	IS	O	0204	Organization Name Type Code	
3	4	NM	B		ID Number	
4	1	NM	O		Check Digit	
5	3	ID	O	0061	Check Digit Scheme	
6	227	HD	O	0363	Assigning Authority	
7	5	ID	O	0203	Identifier Type Code	
8	227	HD	O		Assigning Facility	
9	1	ID	O	0465	Name Representation Code	
10	20	ST	O		Organization Identifier	this field replaces the ID Number, check digit and scheme components as of v. 2.5

Definition: The XON data type is used to specify name and identification information for an organization. The maximum length is 567 characters.

XPN - Extended Person Name

HL7 Component Table - XPN– Extended Person Name

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	194	FN	O		Family Name	
2	30	ST	O		Given Name	
3	30	ST	O		Second and Further Given Names or Initials Thereof	
4	20	ST	O		Suffix (e.g., JR or III)	
5	20	ST	O		Prefix (e.g., DR)	
6	6	IS	B	0360	Degree (e.g., MD)	
7	1	ID	O	0200	Name Type Code	
8	1	ID	O	0465	Name Representation Code	
9	483	CE	O	0448	Name Context	
10	53	DR	B		Name Validity Range	
11	1	ID	O	0444	Name Assembly Order	
12	26	TS	O		Effective Date	
13	26	TS	O		Expiration Date	
14	199	ST	O		Professional Suffix	

Definition: The XPN data type is used to convey complete name information for a person. Family Name or surname in the first component was previously described. Maximum length is 1103 characters.

XTN - Extended Telecommunication Number

HL7 Component Table - XTN – Extended Telecommunication Number

SEQ	LEN	DT	OPT	TBL#	COMPONENT NAME	COMMENTS
1	199	ST	B		Telephone Number	
2	3	ID	O	0201	Telecommunication Use Code	
3	8	ID	O	0202	Telecommunication Equipment Type	
4	199	ST	O		Email Address	
5	3	NM	O		Country Code	
6	5	NM	O		Area/City Code	
7	9	NM	O		Local Number	
8	5	NM	O		Extension	
9	199	ST	O		Any Text	
10	4	ST	O		Extension Prefix	
11	6	ST	O		Speed Dial Code	
12	199	ST	C		Unformatted Telephone number	

Definition: The XTN data type is used to convey telephone or other telecommunications information for a person or organization. The formatted telephone number in the first field is not supported. Maximum length is 1103 characters.

5. Use of Object Identifiers (OIDs)

In order for computers to manipulate information about objects, those objects (and sometimes the records records about the objects) need to be uniquely identified in some way. Health Level Seven has identified OIDs[1] as the preferred mechanisms for the unambiguous global identity of coding systems. This section describes how OIDs are used within PHIN messaging.

An OID is a character string made up of clauses that are concatenated together. The complete string is hierarchical in structure, and architected as a well-formed tree. Each node of the tree represents a namespace, where all branches under that node are unique. There are several representations of OIDs, but the one accepted by everyone is completely numeric with no embedded spaces or special characters. The different representations are fully isomorphic, but the non-numeric ones tend to be harder for machines to process efficiently. In the numeric representation, each node in the tree is given a unique numeric id, which is a non-zero positive integer (except for the zero at one root of the tree). The OID is constructed by putting a dot (decimal point, period, etc.) after the current node, then assigning a unique integer next. This process is repeated to construct a tree of arbitrary depth. At the top of the tree, there are three roots currently:

0 - ITU-T (International Telecommunication Union Standardization Sector) assigned
1 - ISO assigned
2 - Joint ISO/ITU-T assignment

Each of these three organizations maintains a namespace of the OIDs that they assign. Due to the hierarchical structure of OIDs, responsibility for maintenance and further assignment of any branch may be delegated to any organization that agrees to manage that branch. Therefore, the 2 root and the branches immediately below that are maintained by a joint ISO/ITU-T committee, and branch 2.16.840.1 is for US companies. A couple of important OIDs are immediately below that are managed by their respective organizations:

2.16.840.1.113883 – Health Level Seven, Inc.
2.16.840.1.114222 – Centers for Disease Control and Prevention (CDC)

Since an ISO OID is merely the globally unique identifier of an object, and any OID that is not a leaf on the OID tree is a namespace of objects, OIDs are very well suited to namespace management. HL7 has recommended that all coding systems used in message fields carrying coded data for Version 3 use HL7-registered OIDs to uniquely identify the coding system. HL7 also suggests that OIDs may be used for the namespace identifiers (the identifier 'root') in the fields that are of Instance Identifier data types in V3 messages.

[1] The International Standards Organization (ISO) has developed the OID mechanism for the assignment of globally unique identifiers to any type of object in a decentralized way that retains some traceability of the object so identified. The Internet Engineering Task Force (IETF) realized the utility of this mechanism, and formalized it in RFC 1778. This was further refined after comments and a desire for increased usability on the World Wide Web and released again in RFC 2252. The W3C supports the use of OIDs, and they are also consistent with the implementation of DNS out on the Web.

Structure and Use at CDC

PHIN Messaging uses OIDs for three primary purposes:

- Identification of Well Known Objects: These are organizations and places that are significant for messaging. Currently, the only parties who are assigned OIDS of this type are the parties who act as senders and receivers of messages.
- Identification of Namespaces used in Public Health: These are the namespaces within which identifiers are unique. The namespace OID indicates the organization assigning the identifier as well as the type of identifier being assigned. This usage is shown within the EI and CX data types.
- Identification of Vocabulary items: These are the structures – coding system and value set - used to organize vocabulary concepts and the codes used to represent them. This usage is shown within the CE, CWE, and CQ data types.

All of the OIDs that are assigned by CDC to support PHIN Messaging are based on the CDC OID with a suffix to indicate that the OID is assigned for use by the PHIN. This initial part of the OID is known as the PHIN root, and it is constructed by adding ".4" to CDC's OID. The PHIN root, therefore, is "2.16.840.1.114222.4". Except for HL7 defined coding systems, all the OIDs used in PHIN Messaging will start with the PHIN root.

OIDs for Well Known Objects

These OIDs identify message senders and receivers. The OIDs that are assigned are created as follows.

Start with the PHIN root.
Add a suffix that indicates this OID represents a partner ID. (Note, this suffix indicates which type of "information artifact" the OID is assigned to.)
Add a suffix that identifies the messaging partner in question

The OID that emerges has the following structure: [PHIN_root] + [Info_artifact = Partner id] + [partner specific indicator].

OIDs for Public Health Namespaces

The OID for public health namespaces are used to guarantee identifier uniqueness. It is important to note that namespace identifiers will only be used for identifiers that are locally assigned – that is to say – by the message sending organization. This could include such items as referral ids, and ids for drug or vaccine administrations. The namespace OIDs are built under the assumption that identifier uniqueness is guaranteed by the application creating the message; they include a component which identifies the software instance involved. The OIDs that are assigned for identifier namespaces are created as follows:

1) Start with the PHIN root.
2) Add a suffix (4.3.2.1) that indicates this is an instance of the Results Reporting application. Actually the suffix breaks down into (4-info artifacts) + (3.2 application software) + (1 LRN application)
3) Add a suffix that identifies the organization or site that is creating the message.
4) Add a suffix that identifies the software instance that is creating or recording the identifier. These

suffixes will be sequential integers. I.e., 1, 2, 3, …

5) Add a suffix that indicates the type of identifier being issued.

The following list indicates the suffixes that are currently supported.

Identifier/Namespace Type	Suffix
Message Partner ID	3.1

The OID that emerges has the following structure: [PHIN_root] + [Info_artifact = identifier namespace] + [partner specific indicator] + [software instance] + [namespace type indicator].

The reader may wonder why suffixes are not provided for provider IDs, or for the variety of identifiers assigned to patients, e.g., SSN, driver's license number. The reason is that these identifiers are currently handled as "external" identifiers. That is, they are treated as identifiers for which the name space specification is not rigorously possible.

OIDs for Vocabulary Items

Vocabulary items used in these Guides are drawn from two sources: Health Level 7, and the CDC PHIN. Their OID assignment reflects this by using either the PHIN root, or the HL7 root as the starting point for OID construction. The OIDs that are assigned for identifier namespaces are created as follows:

1) Start with the appropriate root. This will either be the PHIN root or the HL7 one.
2) Add a suffix that indicates whether the vocabulary item is a coding system or a value set.
3) Add a suffix that identifies the particular vocabulary item.

The reader should note that it is the coding system OID, not the one for the value set that will appear in messages.

Refer to the section on vocabulary items to find the OIDs assigned to coding systems and values sets.

6. Code Systems & Value Sets

This section contains the vocabulary items to be used with the described message. Every field in a message that contains one or more coded values has its value constrained by the specific list of values that are permitted in that field. Over time, the "list of values" that is associated with a field will change. Successful message implementation requires that transmitted messages (message instances) contain valid values for coded fields. However, since the list of valid codes changes from time to time, it is also important to make sure that updates to the valid vocabularies are properly managed. The segment tables in the previous sections associate a Table to each of these coded fields, and these tables are listed in this section below. The entry for each table enumerates all of the code values that may be used for the specified field, as those code values are known at the time of publishing this guide.

PHIN messaging uses the HL7 defined code sets where these have been identified and published by HL7. For "user defined" tables, it uses those developed by PHIN messaging for use in public health. However, all tables are implemented using PHIN vocabulary principles. These principles mandate the assignment of object identifiers (OIDs) as the identifiers for code systems. These OIDs are identified, along with code values, within the PHIN Vocabulary Authoring and Distribution System (VADS). It is also important to be aware of the fact that code sets are relatively dynamic, and are subject to change between publications of these implementation guides. As a result, the VADS will be used to make updated code values available. This key PHIN application is discussed below.

Every code value that is passed in a message instance is drawn from a code system, which has an OID associated with it as a globally unique identifier of the code system. In the general case, a) the coded values allowed in a field may be drawn from more than one code system, and b) the coded values are a subset of the codes from a given coding system. Combining (a) and (b) makes it possible for the allowed code value to be a combination of multiple subsets drawn from multiple coding systems. In most cases, only some of the codes defined in a code system are legal for use in a particular message.

The subsets of the codes that are legal for a particular field are identified by an HL7 construct known as a Value Set. A value set is a collection of coded values drawn from code systems. Value Sets may be simple or compound. Simple Value Sets are an enumerated list of codes drawn from a single code system. Compound Value Sets are an enumerated list of simple value sets. Compound Value Sets may not contain other compound value sets, and may not directly reference coding systems. These value sets serve to identify the specific set of coded values for the message from the universe of coded values across all coding systems.

The segment tables in previous sections identify the vocabulary (identified with a Table) that is used for each field containing a coded value. For fields that use the datatype CE or CWE, (these datatypes require that messages include the name of the code system as well as the code value), the message contains the OID that uniquely defines the coding system as well as the coded value itself.

The Value Sets are identified by an OID, but this OID does not get transmitted in any of the messages. However, the value set OID is useful and important when vocabulary items are modified or replaced.

Each section below contains a header that describes the following items:

- table name,
- where the codes in the table come from, (i.e. the code system and its OID)

- the Value Sets and their OIDs (if any) that define the subsets of code from the code systems.,
- a description of how the codes in this table are to be used.

This header section is followed by a table in which lists each code value, and the Term associated with the code value. This Term is the text associated with the code, and is often used as the display text in user interfaces. For those tables where the code values are drawn from more than one code system, the OID for the code system is also listed in a column. The sections are in alphabetical order by table name.

Periodically, code values in code systems are updated to represent corrections or enhancements to the code system. A comprehensive table of code values, terms, and code system OIDs will be periodically made available so that implementers of messages using this Supplement will be able to update their vocabulary. This new distribution will represent a wholesale replacement of the vocabulary listed in this document.

PHIN Vocabulary Management

Standards-based vocabularies are required for PHIN compliant applications and messages. PHIN Vocabulary Services (PHIN VS) provides a coordinated system for registering, identifying, mapping, authoring, and editing standards-based vocabularies for PHIN stakeholders and applications. The PHIN Vocabulary Access and Distribution System (PHIN VADS) is a set of tools within the PHIN VS that provides a coordinated system for stakeholders to access, distribute, store, and manage vocabularies within and between applications. PHIN VADS components include an html browser for manual searching, viewing, and download of PHIN approved vocabularies, web services connections for automated functionalities, and a Java application programming interface (API) and data store which can facilitate the development and management of vocabularies within PHIN applications. For more information on PHIN VADS, the reader should refer to the PHIN VADS User Guide, Version 0.5. This document is available for download at the PHIN VADS website – https://phinvs.cdc.gov/PhinVSBrowser/StrutsController.do.

7. Miscellaneous

This section contains additional material for use by implementers.

HL7 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. Between text messages in a batch, two carriage returns/line feeds (hex characters 0D0A0D0A) represent the end of each message.

Segment: A segment is a logical grouping of data. 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 3-character code. The hex characters '0D0A' that act as a Segment Terminator (equivalent to a Carriage Return and Line Feed) denote the end of each segment.

Field: A field is a string of characters. Every field has a data type that dictates the structure of the data in that field. The segment the field is in and the position within the segment identify each field; e.g., PID-5 is the fifth field of the PID segment. Optional data fields need not be valued. Whether a field is required, optional, or conditional in a segment is specified in the segment attribute tables. The designations are:

R=Required; if the information is available it should be sent
O=Optional; the information might be collected and the information might be sent
C=Conditional; the information is required or mandatory based on the presence or absence of another value
D=Deprecated; the value is not longer valid. Do not use
B=Backward Compatibility; left in for compatibility with previous versions of HL7; the value is scheduled to be Deprecated within two HL7 versions; use is discouraged

A maximum length of the field is stated as normative information. Exceeding the listed length should not be considered an error.

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. Examples in this document demonstrate both fully valued and partially valued coded and composite fields.
Item number: Each field is assigned a unique item number. Fields that are used in more than one segment will retain their unique item number across segments.

Null and empty fields: The null value is transmitted as two double quote marks (""). A null-valued field differs from an empty field. An empty field should not overwrite previously entered data in the field. The null value means that any previous value in this field should be overwritten.

Data type: A data type restricts the contents and format of the data field. Data types are given a 2- or 3-letter code. Some data types are coded or composite types with several components. The applicable data type is listed and defined in each field definition. Chapter 2A of the HL7 v2.5 standard provides a complete listing of data types used in this document and their definitions.

Delimiters: The delimiter values are given in MSH-1 and MSH-2 and used throughout the message. Applications must use agreed upon delimiters to parse the message. The recommended delimiters for laboratory messages are:

<CR> (hex 0D0A) = The Carriage Return is the symbol for the Segment Terminator; *Note:* Designation cannot be changed
| = The vertical bar is the symbol for the Field Separator
^ = The circumflex accent mark or hat is the symbol for the Component Separator
& = The ampersand is the symbol for the Sub-Component Separator
~ = The tilde or squiggled line is the symbol for the Repetition Separator
\ = The back slash is the symbol for the Escape Character

Message syntax: Each abstract message is defined in special notation that lists the 3-letter segment identifiers in the order they will appear in the message. Braces, **{ }**, indicate that one or more of the enclosed group of segments may repeat, and brackets, **[ ]**, indicate that the enclosed group of segments is optional.

Trigger events: The trigger event is a real-world event that causes a need for data to flow among systems. For example, the availability of an result from the laboratory may trigger an unsolicited observation message to be sent to a number of other systems.

Z segments: All message types, trigger event codes, and segment ID codes beginning with Z are reserved for locally defined messages. No Z segments or trigger events are being used with this standard message type.

Basic Message Construction Rules

Encoding Rules for Sending

Encode each segment in the order specified in the abstract message format.
Place the Segment ID first in the segment.
Precede each data field with the field separator.
Encode the data fields in the order and data type specified in the segment definition table.
End each segment with the segment terminator.
Component separators need not be represented for components, subcomponents, or repetitions that come at the end of a field. The data fields below, for example, are equivalent:

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

Encoding Rules for Receiving

If a data segment is included that is not expected, ignore it; this is not an error.
If data fields are found at the end of a data segment that are not expected, ignore them; this is not an error.
If a segment contains fields that are not expected, ignore them; this is not an error.

Example Message

This message portrays the use of some generic OIDs as the Sending Application, Sending Facility, Receiving Application, and Receiving Facility, as well as where the application-assigned Patient Identifier is passed in PID-3.

MSH|^~\&|^2.16.840.1.114222.4.3.2^ISO|^2.16.840.1.114222.4.3.2^ISO|^2.16.840.1.114222.4.3.2^ISO|^2.16.840.1.114222.4.3.2^ISO
|200502171830||ORU^R01^ORU_R01|200504171830|P^T|2.5|||||||1.0<cr>
SFT||||<cr>
PID|||123456^^^^^&2.16.840.10114222.4.3.2&ISO||PATIENT^JOE^X||19290103|M||W|800 OREGON
ST^^PORTLAND^OR^97212^^^^051||^^^^^503^9999999|^^^^^503^8888888|||||||2186-5^Non-Hispanic or Latino^2.16.840.1.114222.4.3.2<cr>
PV1|1|E||A|||121212^DOE^JOHN^Y^^Dr.|||||||||||||||||||||||||||01|||||||200310010825|200310021345|||||||<cr>
ORC|||||||||||||||||||St. Mary's Hospital|1000 Medical Center
Blvd^^Portland^OR^97212|1000 Medical Center Blvd^Suite
214^Portland^OR^97212<cr>
OBR|1| | |11301-9^ED DIAGNOSIS^LN|||200310011030|200310011100|||||||
|121212^DOE^JOHN^Y^^DR.|^^^^^503^5555555|||||||F|||||||||||||||||||||||<cr>
OBX|1|CE|11301-9^ED DIAGNOSIS^LN|1|410.41^ACUTE INFERIOR WALL
MYOCARDIAL INFARCTION, INITIAL EPISODE OF
CARE^IC9||||||F|||200310011300||^SMITH^JOHN^F^^^RN|||<cr>

References

Health Level Seven, Version 2.5 2003 Chapter 2 -- Control
Health Level Seven, Version 2.5 2003 Chapter 2a – Data Types
Health Level Seven, Version 2.5 2003 Chapter 3 – Patient Administration
Health Level Seven, Version 2.5 2003 Chapter 4 – Order Entry
Health Level Seven, Version 2.5 2003 Chapter 5 – Observation Reporting
Existing implementation guides utilized for reference in writing this guide included:

- CDC's Implementation Guide for Transmission of Patient Chief Complaint as Public Health Information
- CDC's 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

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