BT Laboratory Results Message

Laboratory Result Message for Bioterrorism Response

V1.6

Centers for Disease Control and Prevention

June 18, 2003

Revision History

Revision	Date	By	Description
Version 1.0	3/13/2003	BT Messaging Team	Message Specification Implemented in LRN Results Messenger application Version 1.0
Version 1.1	3/19/2003	Ted Klein	Straighten out vocabulary information
Version 1.2	3/25/2003	Mead Walker	Introduce additional material for implementation guide. This includes discussion of data types, assignment of laboratory domains to fields, and messaging scenarios.
Version 1.3	3/31/2003	Mead Walker	Provide corrections, and updates to correspond to the current implementation.
Version 1.4	4/5/2003	Mead Walker	Provide various corrections, include example message,
Version 1.5	4/20/2003	Mead Walker	Add sections covering the message vocabulary items, and the use of OIDs.
Version 1.6	6/18/2003	David Groves, Mead Walker	Edits and Corrections. Added value set for suspect agent.

Table of Contents

1. Introduction

This implementation guide documents the use of the Health Level 7 (HL7) Version 2.4 ORU (Unsolicited Observation Message) to support reporting laboratory results in the context of Bio-terrorism response messaging. The document contains the following key sections:

- **Messaging Scenarios**: 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 and Value Sets**: includes the list of valid values for coded fields within the message, and describes how vocabulary items are managed.

- **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.

The implementation guide is based on the HL7 V2.4 specification; however it has been significantly customized to meet BT reporting needs. Version 2.4 of the HL7 specification has been chosen since that is the most current version approved by the American National Standards Institute (ANSI). Furthermore, the message makes use of the SAC segment, introduced in Version 2.4, to carry needed information about specimen containers.

1.1.   Scope

The specifications in this guide 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, HL7, and the reporting of laboratory test results. This implementation guide is based on and conforms to the HL7 Standard, Version 2.4.. Electronic copies of this document are available at www.cdc.gov/phin/messaging.

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1.2.   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.

Segment: A segment is a logical grouping of data fields. Segments within a defined message may be required or optional, may occur only once, or may be allowed to repeat. Each segment is named and is identified by a segment identifier, a unique 3-character code.

Field: A field is a string of characters. Each field is identified by the segment it is in and by its position within the segment; 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 table. The designations are: R=Required, O=Optional, C=Conditional (conditions may vary depending on the trigger event or on other fields). The field definition should define any conditionality for the field: X=Not used with this trigger event, B=Left in for backward compatibility with previous versions of HL7. 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.

Item number: Each field is assigned a unique item number. Fields 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. Appendix B provides a complete listing of data types used in this document and their definitions.

Delimiters: The delimiter values are given in MSH-2 and are used throughout

the message. Applications must use agreed upon delimiters to parse the message. The recommended delimiters for laboratory result messages are <CR> = Segment Terminator; | = Field Separator; ^ = Component Separator; & = Sub-Component Separator; ~ = Repetition Separator; and \ = Escape Character.

Message syntax: Each HL7 message is defined in special notation that lists the segment 3-letter 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 HL7 Standard is written from the assumption that an event in the real world of public health or healthcare creates the need for data to flow among systems or among organizations. The real-world event is called the trigger event. For example, in a healthcare organization the trigger event, a patient is admitted, may cause the need for data about that patient to be sent to a number of other systems. The trigger event, an observation (e.g., a CBC result) for a patient is available, may cause the need for that observation to be sent to a number of other systems. When the transfer of information is initiated by the application system that deals with the triggering event, the transaction is termed an unsolicited update.

Z segments: All message types, trigger event codes, and segment ID codes beginning with Z are reserved for locally defined messages. No such codes will be defined within the HL7 Standard.

1.3. Basic Message Construction Rules

Encoding Rules for Sending

- Encode each segment in the order specified in the abstract message syntax.

- 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.

- Components, subcomponents, or repetitions that are not valued at the end of a field need not be represented by component separators. 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 that is expected is not included, treat it as if all data fields within were not present.

- 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.

2. Messaging Scenarios

Laboratory science is an essential public health tool in the identification of biological agents and in the management of the public health response to any bioterrorism threat or event.   Because most agents rarely cause naturally occurring disease, CDC, in collaboration with the Association of Public Health Laboratories and the Federal Bureau of Investigation (FBI), established the Laboratory Response Network (LRN) to develop federal, state, and local public health laboratory capacity to respond to bioterrorism threats or events. This multi-level network of public health laboratories provides essential diagnostic capabilities in all state, territorial, and large metropolitan areas. CDC continues to provide training and technical assistance to state and local public health laboratories to ensure they will be better prepared to respond in the event of a terrorist attack.

BT Laboratory Results Messaging supports the transmission of laboratory results from LRN laboratories to public health departments and to CDC. Conceptually speaking, this messaging will support the full range of laboratory testing for BT agents.   This Implementation Guide also specifically addresses the BT Laboratory Results Messaging necessary to support the BioWatch program of air sampling in many US metropolitan areas. The following scenarios have been identified within the BioWatch context:

1. Report on BioWatch PCR Screening Panel: BioWatch air-filter samples will each be tested by a PCR screening test to determine the possible presence of a BT agent. The report contains the result of PCR testing on such samples with a separate result component for each *marker* or *primer set*.

2. Organism/Toxin specific PCR Panel: Confirmatory PCR tests may be done on air-filter samples showing a positive result in the initial PCR screen. Additionally, other types of samples may be received in which the presence of a particular organism is suspected. This report contains the result of PCR testing of such samples.

3. Organism Susceptibility Report: Once an organism has been cultured from a sample, the organism that has been cultured can be tested for susceptibility to a range of antibiotics. This report contains the results of the susceptibility testing.

4. Bacterial Genomic Report: Once an organism has been identified, it is often useful to carry out further testing to identify particular bacterial strains. This report contains the results of such testing.

The reader should note that it is possible – given the repetition supported by the ORU – to include multiple types of testing within a single message. However, the initial implementation of BT Laboratory Results Messaging conveys each of the

scenarios above within a single message in order to reduce the complexity of application processing in formatting and receiving messages.

The secure communication of messages will be accomplished by a CDC developed messaging component called the Public Health Information Network Messaging System (PHINMS). This component will accept a message from a BT Laboratory Results Message source, encrypt it, place an ebXML envelope around it and send it to a designated PHINMS receiver at the CDC or at a State Health Department.

3. Abstract Message

The ORU message is used for transmitting BT related laboratory results to State Health Departments, CDC, and other data receivers. The message description below shows how the ORU is constrained for use in the BR response context.

Item	Description
MSH	Message Header
PID	Patient Identification
[NK1] (NS first release)	Next of Kin
ORC	Common Orders
{	
OBR	Observation Request
{ NTE }	Notes and Comments regarding test order (s)
[	
ZPM	Specimen
[SAC]	Specimen Container
{ [NTE] }	Notes and Comments regarding specimen(s)
]	
{	
[	
OBX	Observation/Result
{ [NTE] }	Notes and Comments regarding observation result(s)
]	
}	
}	

The reader should take note of the following points, which discuss specifics of how the ORU is being used and constrained in this context:

1. Unlike the standard HL7 specification for the ORU message, the PID is a required field. The PID is being used to capture information about the subject of the testing activity, that is to say the entity from which the specimen was taken. The source of the specimen may be a person, and it may be a location or structure. For this reason, the XAD datatype is being used in a special way within PID.11-Patient Address. Please refer to the PID section for more detail.

2. The NK1 is intended to capture a person, such as the owner, related with animal specimen sources. This segment will not be supported for the initial release.

3. The ORC is included in order to maintain consistency with the Electronic Lab Reporting (ELR) specification used for communicable disease result reporting. Within the ELR context, the segment contains ordering provider information that may be valuable for BT Response.

4. The ZPM is so named because the specimen information it carries is defined for HL7 V2.5 as the SPM segment. The ZPM is a z-segment that makes this information available within a V2.4 message.

5. The SAC will carry information pertaining to specimen containers.

6. The NTE segment following the SAC captures additional information for a specimen that is not described by the standard message format.

7. In order to support complex clinical reporting such as microbiology susceptibility reports, the HL7 standard supports a) messages that contain multiple OBRs, and b) messages in which a tree structure is maintained by providing linkages between an OBR and its parent test (OBR) and result (OBX). While the message structure will support this multiplicity and this linkage, the initial implementation of BT Laboratory Results Messaging will not support either multiple tests, or nested tests. It will provide support for a single test (OBR) along with its associated set of results (multiple OBX segment instances)

8. In some cases, a lab will report on testing that is carried out on specimens which have been previously tested, or which have been split off (aliquot) from a parent specimen at the same Lab or at another Lab. When this happens, and it is important to track information linking the tested specimen back to the original specimen source, information about the parent specimen and any previous testing or processing is captured in an OBR, ZPM, and OBX group of segments which is linked to the current test information.

3.1.   Example Message

The following example messages are provided as concrete examples of message instances that follow this guide.

This is an example of a BioWatch message. That is to say, the report of results generated by testing a BioWatch air filter:

```
MSH|^~\&|^2.16.840.1.114222.4.3.2.1..^ISO|^2.16.840.1.114222.4.1.^ISO|^
2.16.840.1.114222.4.3.2.3^ISO|^2.16.840.1.114222.4.1.1^ISO|200305271131
||ORU^R01^ORU_R01|200305271131|P^T|2.4|||||||||||1.4

PID|1|PSU435^^^|||^BioWatch||||||^<location
facility_description="BioWatch" floor="" store="" section="" aisle=""
shelf="" object="" facility="" room=""
city_code="2.16.840.1.114222.4.1.213" grouping_information=""
location_information=""
correspondence_to_other_sensors=""/>^^^^^^^^^5||||||||||||||||||||||||||||||
|

ORC|NW||03-
30001^^2.16.840.1.114222.4.3.2.1...3.5^ISO|||||||||||^^^^^^^^^^^^||||||||||
||^^^^|^^^^^^^^|^^^^

OBR|1||03-
30001^^2.16.840.1.114222.4.3.2.1...3.5^ISO|BTAS021^Antimicrobial
Susceptibility Testing (E-
Test)^2.16.840.1.114222.4.5.7||200304280619|200304261115|200304271115||
|||||||^^^^^^^^^^^^||||||||||||||2.16.840.1.114222.4.1.213~2.16.840.1.1142
22.4.1.174|^||RFS-BWT^Bio-Watch^2.16.840.1.114222.4.5.8^^Confirmatory
testing|||||||||^

NTE|||

ZPM||100-45678^^2.16.840.1.114222.4.3.2.1...3.9^ISO||AIRS^Air
Sample^2.16.840.1.113883.12.487||^^|^^|||^|^^|||BioWatch collector
sample|^^|BHZ
^Biohazard^2.16.840.1.113883.12.489|200304271115|200304271330||||E^Exce
llent^2.16.840.1.113883.12.491||^^||0|

SAC|P128327|||

OBX||CE|177-6^CHLORTETRACYCLINE (MIC)^2.16.840.1.113883.6.1||AR-AMS-
1^Resistant^2.16.840.1.114222.4.5.10|||null|||F|||200304271121||||^^^

OBX||CE|185-9^CIPROFLOXACIN (MIC)^2.16.840.1.113883.6.1||AR-AMS-
2^Intermediate^2.16.840.1.114222.4.5.10|||MS|||F|||200304271121||||^^^

OBX||CE|460-6^STREPTOMYCIN (MIC)^2.16.840.1.113883.6.1||AR-AMS-
3^Susceptible^2.16.840.1.114222.4.5.10|||N|||F|||200304271121||||^^^

OBX||CE|496-0^TETRACYCLINE (MIC)^2.16.840.1.113883.6.1||AR-AMS-
1^Resistant^2.16.840.1.114222.4.5.10|||R|||F|||200304271121||||^^^
```

The second example shows the result of testing a patient supplied specimen:

```
MSH|^~\&|^2.16.840.1.114222.4.3.2.1.100.1^ISO|^2.16.840.1.114222.4.1.10
0.1^ISO|^2.16.840.1.114222.4.3.2.3^ISO|^2.16.840.1.114222.4.1.1^ISO|200
30411075052||ORU^R01^ORU_R01|20030411075052|T^T|2.4|||||||||||1.4

PID|1|100-33003^^^^FI||67-09-
2345^^^^SS|Paxton^Amy^P||195407200700|F||2131-
1^Other^2.16.840.1.114222.4.5.3|654 Indianola Ave^^Columbus
^OH^43210^^^^^^0||^^^^^^^614-555-7865|||||||||||N^Not Hispanic or
Latino^2.16.840.1.113883.12.189||||US^UNITED
STATES^2.16.840.1.114222.4.6.1|||||||AL||||Human||Columbus mail center

ORC|NW|WEC-8765435^^2.16.840.1.114222.4.3.2.1.100.1.3.5^ISO|04-2003-
3524^^2.16.840.1.114222.4.3.2.1.100.1.3.5^ISO|||||||||||^^^^^^^^^^^^||||||
|||||^^^^|^^^^^^^^|^^^^

OBR|1|WEC-8765435^^2.16.840.1.114222.4.3.2.1.100.1.3.5^ISO|04-2003-
3524^^2.16.840.1.114222.4.3.2.1.100.1.3.5^ISO|BTAS035^Time-resolved
Fluorescence^2.16.840.1.114222.4.5.7||200304020453|||||||||||^^^^^^^^^^^
^|||||||||||||||^04-2003-3510||RFS-
EMG^Emergency^2.16.840.1.114222.4.5.8^^Ricin Toxin rule out|||||||||^

NTE|||Phone Dr. Thomas with results

ZPM||100-10040^^2.16.840.1.114222.4.3.2.1.100.1.3.9^ISO||ASERU^Serum,
Acute^2.16.840.1.113883.12.487||HCL6^6N
HCL^2.16.840.1.113883.12.371|PNA^Aterial
puncture^2.16.840.1.113883.12.488|||^left lung|P^Patient (default if
blank component value)^2.16.840.1.113883.12.369|||serum
sample|CATM^Critical do not expose to atmosphere - Do not
uncap^2.16.840.1.113883.12.376|BHZ^Biohazard^2.16.840.1.113883.12.489|2
00304010416|200304010416||||F^Fair^2.16.840.1.113883.12.491||COOL^Cool^
2.16.840.1.113883.12.493||1|vacutaner purple top

SAC|444-091234||WEC-0800^^2.16.840.1.114222.4.3.2.1.100.1.3.7^ISO|WEC-
08a^^2.16.840.1.114222.4.3.2.1.100.1.3.7^ISO

NTE|||no shipping information provided

OBX||CE|BTAS035^Time-resolved Fluorescence^2.16.840.1.114222.4.5.7||R-
40759^Negative^2.16.840.1.113883.6.51|||N|||F|||200304030452|||||RSR-
5400^^^ISO
OBX||NM|BTAS035^Time-resolved
Fluorescence^2.16.840.1.114222.4.5.7||550^|||N|||F|||200304030452||||RS
R-5400^^^ISO
```

4. Message Segments

This section provides a discussion of the HL7 segments that compose a message. The columns in the Segment table describe salient characteristics of the fields that make up a message, and are drawn directly from the HL7 Specification.

Those fields listed as required are critical for message use and parsing. These fields should be valued if the application has them available. Those fields listed as not required (optional) supply additional value, and should be valued if available. Those fields listed as "Not Supported" should not be supplied by message senders, and, therefore, do not need to be evaluated by message receivers. The reader should also note that information about Validation Tables (coding systems and value sets) has been removed for fields that are not being supported. The reason for doing this is to highlight the fact that sending and receiving systems do not need to support those coding systems and value sets.

4.1. Message Header (MSH)

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

	Name	DataType	Required	Length		Repeats		Default Value	Coding System/Value Set
1	FieldSeparator	ST	Yes	0.	.1	.	.		
2	EncodingCharacters	ST	Yes	0.	.4	.	.		
3	SendingApplication	HD	No	0.	.180	.	.		
4	SendingFacility	HD	No	0.	.180	.	.		PH_ PRTNERS
5	ReceivingApplication	HD	No	0.	.180	.	.		
6	ReceivingFacility	HD	No	0.	.180	.	.		PH_ PRTNERS
7	DateTimeOfMessage	TS	Yes	0.	.26	.	.		
8	Security	ST	NS	0.	.40	.	.		
9	MessageType	CM_MSG	Yes	0.	.13	.	.		HL70076, HL7003, HL70354
10	MessageControlID	ST	Yes	0.	.20	.	.		
11	ProcessingID	PT	Yes	0.	.3	.	.		HL70103, HL70207
12	VersionID	VID	Yes	0.	.60	.	.		HL70104
13	SequenceNumber	NM	NS	0.	.15	.	.		
14	ContinuationPointer	ST	NS	0.	.180	.	.		
15	AcceptAcknowledgementType	ID	No	0.	.2	.	.		
16	ApplicationAcknowledgementType	ID	No	0.	.2	.	.		
17	CountryCode	ID	No	0.	.3	.	.		
18	CharacterSet	ID	NS	0.	.16	0.	.Infinite		
19	PrincipalLanguageOfMessage	CE	NS	0.	.250	.	.		
20	AlternateCharacterSetHandlingScheme	ID	NS	0.	.20	.	.		
21	ConformanceStatementId	ID	NS	0.	.10	0.	.Infinite		

Supported field definitions - MSH

MSH.1   Field separator

Definition/Usage: The character to be used as the field separator for the rest of the message. The field separator always appears in the 4th character position of MSH segment and is used to separate adjacent data fields within a segment. The recommended value is |, ASCII (124).

MSH.2   Encoding characters

Definition/Usage: Four characters in the following order:

Component separator	^	ASCII (94)
Repetition Separator	~	ASCII (126)
Escape character	\	ASCII (92)
Subcomponent separator	&	ASCII (38)

The recommended values are ^~\&.

MSH.3   Sending application

Definition/Usage: This field uniquely identifies the sending application among all other applications within the network enterprise. For the first release of BT Laboratory Results Messaging, this field will be valued with an identifier provided by the BT Response application.

MSH.4   Sending facility

Definition/Usage: This field identifies the sending facility. Valid values are drawn from the table PH_PRTNERS.

MSH.5   Receiving application

Definition/Usage: Uniquely identifies the receiving application among all other applications within the network enterprise. For the first release of BT Laboratory Results Messaging, this field will be valued with an identifier provided by the BT Response application.

MSH.6   Receiving facility

Definition/Usage: This field identifies the receiving facility. Valid values are drawn from the table PH_PRTNERS.

MSH.7   Date/time of message

Definition/Usage: Date/time the sending system created the message.

…

MSH.9   Message type

Definition/Usage: The receiving system uses this field to know the data segments to recognize and, possibly, the application to which to route this message. The discussion of the CM_MSG data type reviews the required coding system/value set information.

MSH.10 Message control ID

Definition/Usage: Number or other identifier that uniquely identifies the message. The receiving system echoes this ID back to the sending system in the message acknowledgment.

MSH.11 Processing ID

Definition/Usage: Used to decide how to process the message as defined in HL7 processing rules. The discussion of the PT data type reviews the required coding system/value set information.

MSH.12 Version ID

Definition/Usage: Matched by the receiving system to its own HL7 version to be sure the message will be interpreted correctly. The discussion of the VID data type reviews the required coding system/value set information.

…

MSH.15 Accept acknowledgment type

This field will not be supported by the first release of BT Laboratory Results Messaging. It will be considered for support in subsequent releases.

Definition/Usage: Identifies the conditions under which accept acknowledgments are required to be returned in response to this message. *HL7 Table 0155 - Accept/Application acknowledgment conditions* gives valid values.

MSH.16 Application acknowledgment type

This field will not be supported by the first release of BT Laboratory Results Messaging. It will be considered for support in subsequent releases.

Definition/Usage: Identifies   the   conditions   under   which   application acknowledgments are required to be returned in response to this message. This field is required for enhanced acknowledgment mode. See *HL7 Table 0155 - Accept/Application acknowledgment conditions* for values.

….

MSH.21 Conformance Statement ID

Definition/Usage: Sites may use this field to assert adherence to a Conformance Statement published by HL7 or by a site. Conformance Statements contain detailed explanations of grammar, syntax, and usage for a particular message or set of messages. BT Laboratory Results Messaging will use this field to capture the particular Implementation Guide and system implementation that the message is conformant to. The version ID for this Implementation Guide is shown on the title page.

4.2.   Patient Information (PID)

This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently. The segment is typically used as the primary means of communicating patient identification information. For BT Laboratory Results Messaging, the concept of "patient" has been replaced by that of test "subject". It is important to note that the test subject is not necessarily a person. It could also be a building, or a place within a building, from which a sample is taken.

	Name	Data Type	Required	Length	Repeats	Default Value	Coding System/Value Set
1	SetID	SI	No	0..4	..		
2	PatientID	CX	NS	0..20	..		
3	PatientIdentifierList	CX	Yes	0..250	1..Infinite		PHVS_EI_TYPE
4	AlternatePatientID	CX	NS	0..20	0..Infinite		
5	PatientName	XPN	Yes	0..250	1..Infinite		
6	MothersMaidenName	XPN	NS	0..250	0..Infinite		
7	DateTimeOfBirth	TS	No	0..26	..		
8	Sex	IS	No	0..1	..		PHVS_SEX
9	PatientAlias	XPN	NS	0..250	0..Infinite		
10	Race	CE	No	0..250	0..Infinite		P_RACE_CAT
11	PatientAddress	XAD	No	0..250	0..Infinite		PH_ADDR_CLASS
12	CountyCode	IS	NS	0..4	..		
13	HomePhoneNumber	XTN	No	0..250	0..Infinite		
14	BusinessPhoneNumber	XTN	NS	0..250	0..Infinite		
15	PrimaryLanguage	CE	NS	0..250	..		
16	MaritalStatus	CE	NS	0..250	..		
17	Religion	CE	NS	0..250	..		
18	PatientAccountNumber	CX	NS	0..250	..		
19	SSNNumber	ST	NS	0..16	..		
20	DriversLicenseNumber	DLN	NS	0..25	..		
21	MothersIdentifier	CX	NS	0..250	0..Infinite		
22	EthnicGroup	CE	No	0..250	0..Infinite		PHVS_P_ETHN_GRP
23	BirthPlace	ST	NS	0..250	..		
24	MultipleBirthIndicator	ID	NS	0..1	..		
25	BirthOrder	NM	NS	0..2	..		
26	Citizenship	CE	No	0..250	0..Infinite		PH_COUNTRY_NM
27	VeteransMilitaryStatus	CE	NS	0..250	..		
28	Nationality	CE	NS	0..250	..		
29	PatientDeathDateAndTime	TS	NS	0..26	..		
30	PatientDeathIndicator	ID	NS	0..1	..		
31	IdentityUnknownIndicator	ID	NS	0..1	..		
32	IdentityReliabilityCode	IS	No	0..20	0..Infinite		HL70445
33	LastUpdateDateTime	TS	NS	0..26	..		
34	LastUpdateFacility	HD	NS	0..40	..		
35	SpeciesCode	CE	No	0..250	..		PH_SPECIES
36	BreedCode	CE	NS	0..250	..		
37	Strain	ST	No	0..80	..		
38	ProductionClassCode	CE	NS	0..250	0..2		

Supported field definitions - PID

PID.1   Set ID - PID

Definition/Usage: The Set ID field numbers the repetitions of the PID segment for messages containing information on more than one patient.

PID.2   Patient ID

Not Supported. Note, all identifiers referring to the test subject ("patient") will be captured within PID.3.

PID.3   Patient identifier list

Definition/Usage: This field contains the list of identifiers (one or more) used by the facility to uniquely identify a patient (e.g., provider medical record number, billing number, birth registry, local registry number, etc.)

The fourth subcomponent of each patient identifier entry is drawn from HL7 Table 0300 Namespace ID, which will contain a list of the OID namespace identifiers used for messages conformant to this implementation guide. These will all be OIDs. It is likely that OIDs will not be assigned for identifiers, e.g, SSN, driver's license that are assigned externally to the institution responsible for creating the message.

The fifth subcomponent of each patient identifier entry is an Identifier Type List drawn from the Table PHVS_EI_TYPE.

PID.4   Alternate Patient ID

Not Supported. Note, all identifiers referring to the test subject ("patient") will be captured within PID.3.

PID.5   Patient Name

Definition/Usage: The current, assumed legal name of the patient should be sent in this field.

The reader should note that BioWatch results – generated from plates removed from automated BioWatch devices – will not include test subject demographic information.

…

PID.7   Date/time of birth

Definition/Usage: This field contains the patient's date and time of birth.

The reader should note that BioWatch results – generated from plates removed from automated BioWatch devices – will not include test subject demographic information.

PID.8   Sex

Definition/Usage: This field contains the patient's sex. The supported coding system/value set being supported is PHVS_SEX. This includes the NEDSS sex codes, which are a subset of HL7 Table 0001.

The reader should note that BioWatch results – generated from plates removed from automated BioWatch devices – will not include test subject demographic information.

…

PID.10   Race

Definition/Usage: This field refers to the patient's race This will be drawn from the PHIN value set for Race, PH_P_RACE_CAT, which is based on HL7 Table 0005 - Race.

The reader should note that BioWatch results – generated from plates removed from automated BioWatch devices – will not include test subject demographic information.

PID.11   Person Address

Definition/Usage: This field lists the mailing address of the patient. For BT Laboratory Results Messaging, the address, along with other PID attributes, carries information about the subject of testing, which may or may not be a "patient". In some cases the test subject may be a structure at a particular location. This could be a location within a private residence or a place of business. In this case, special measures have been taken to allow the address field to carry the information needed. The reader should refer to the discussion of the XAD data type for more information on this point.

…

PID.13   Phone number - home

Definition/Usage: The patient's personal phone numbers. A single phone number will be collected for the test subject.

The reader should note that BioWatch results – generated from plates removed from automated BioWatch devices – will not include test subject demographic information.

…

PID.18   Patient account number

Not Supported. Note, all identifiers referring to the test subject ("patient") will be captured within PID.3.

PID.19   SSN number - patient

Not Supported. Note, all identifiers referring to the test subject ("patient") will be captured within PID.3.

PID.20   Driver's license number

Not Supported. Note, all identifiers referring to the test subject ("patient") will be captured within PID.3.

…

PID.22   Ethnic group

Definition/Usage: This field further defines the patient's ancestry. The list of valid ethnic groups is captured as PHVS_P_ETHNIC_GRP.

The reader should note that BioWatch results – generated from plates removed from automated BioWatch devices – will not include test subject demographic information.

…

PID.26   Citizenship

Definition/Usage: This field contains the patient's country of citizenship. The list of valid countries for citizenship is captured as PH_COUNTRY_NM.

The reader should note that BioWatch results – generated from plates removed from automated BioWatch devices – will not include test subject demographic information.

…

PID.32   Identity Reliability Code

Definition/Usage: This field contains a coded value used to communicate information regarding the reliability of patient/person identifying data transmitted via a transaction. HL7 Table 0445 (HL70445) is being used as the list of valid values.

The reader should note that BioWatch results – generated from air filters removed from automated BioWatch collectors – will not include test subject demographic information.

…

PID.35   Species Code

Definition/Usage: The species of living organism. This may include the common or scientific name, based on the coding system(s) used. The current release of BT Laboratory Results Messaging uses the coding system/value set PH_SPECIES to capture the list of species that is supported. Note, currently, the only values included are "human" and "other".

The reader should note that BioWatch results – generated from plates removed from automated BioWatch devices – will not include test subject demographic information.

PID.37   Strain

Definition/Usage: This little used field is intended to support cases in which the patient referred to in the message is an animal. It is defined within the HL7 specifications as follows: "This field contains the specific strain of animal. It can also be expanded to include strain of any living organism and is not restricted to animals."

The current BT Laboratory Results Messaging uses PID.37 – Strain – to carry information about the Bioterrorist event that testing is related to. The 80 character string field supports passage of either a name for the event, or a short description or comment.

…

4.3. Next of Kin/Associated Party (NK1)

The NK1 segment contains information about the patient's next of kin and other associated or related parties. In the context of BT Laboratory Results Messaging, this segment will contain information for a person directly related – the owner – to an animal test subject. As previously stated, this segment will not be supported in the first release of the BT Laboratory Results Message .

4.4. Note (NTE)

The NTE segment captures notes or comments related to an item in the message. For BT Laboratory Results Messaging, depending on its position in the message, the NTE segment can have information about either a test, a specimen, or a result (observation) associated with performance of a test.

	Name	Data Type	Required	Length	Repeats	Default Value	Coding System/Value Set
1	SetID	SI	NS	0..4	..		
2	SourceOfComment	ID	NS	0..8	..		
3	Comment	FT	No	0..65536	0..Infinite		
4	CommentType	CE	NS	0..250	..		

Supported field definitions - NTE

NTE.1   Set ID

Not Supported. By implication, only a single NTE instance is supported at each place within the message that contains NTEs.   That is to say, there can be a single NTE related to a test, to a specimen, and/or to a result.

….

NTE.3   Comment

Definition/Usage: This field contains the comment contained in the segment. The message supports three kinds of comment, all captured within an NTE segment: a) order comments – associated with a particular test (OBR instance) b) shipping label information – associated with a specimen and specimen container pair (ZPM, SAC instances), and c) result comments – associated with a particular observation (OBX).

…

4.5.   Common Order Segment (ORC)

The ORC segment is used to transmit fields that are common to all orders (all types of services that are requested). For BT Laboratory Results Messaging only the original order id, and the identity of ordering provider and ordering facility are captured. Note, the "ordering facility" could be a BT Response team.

	Name	Data Type	Required	Length		Repeats	Default Value	Coding System/Value Set
1	OrderControl	ID	Yes	0.	.2	. .		HL70119
2	PlacerOrderNumber	EI	No	0.	.22	. .		
3	FillerOrderNumber	EI	No	0.	.22	. .		
4	PlacerGroupNumber	EI	NS	0.	.22	. .		
5	OrderStatus	ID	NS	0.	.2	. .		
6	ResponseFlag	ID	NS	0.	.1	. .		
7	QuantityTiming	TQ	NS	0.	.200	0. .Infinite		
8	Parent	CM_EIP	NS	0.	.200	. .		
9	DateTimeOfTransaction	TS	NS	0.	.26	. .		
10	EnteredBy	XCN	NS	0.	.250	0. .Infinite		
11	VerifiedBy	XCN	NS	0.	.250	0. .Infinite		
12	OrderingProvider	XCN	No	0.	.250	0. .Infinite		
13	EnterersLocation	PL	NS	0.	.80	. .		
14	CallBackPhoneNumber	XTN	NS	0.	.250	0. .2		
15	OrderEffectiveDateTime	TS	NS	0.	.26	. .		
16	OrderControlCodeReason	CE	NS	0.	.250	. .		
17	EnteringOrganization	CE	NS	0.	.250	. .		
18	EnteringDevice	CE	NS	0.	.250	. .		
19	ActionBy	XCN	NS	0.	.250	0. .Infinite		
20	AdvancedBeneficiaryNoticeCode	CE	NS	0.	.250	. .		
21	OrderingFacilityName	XON	No	0.	.250	0. .Infinite		
22	OrderingFacilityAddress	XAD	No	0.	.250	0. .Infinite		
23	OrderingFacilityPhoneNumber	XTN	No	0.	.250	0. .Infinite		
24	OrderingProviderAddress	XAD	No	0.	.250	0. .Infinite		
25	OrderingStatusModifier	CWE	NS	0.	.250	. .		

Supported field definitions - ORC

ORC.1   Order Control

The value "NW" will be defaulted. The reader should note that the current release of messaging will only support initial broadcast of a test result. Future releases may support revisions, deletions, etc.

ORC.2   Placer Order Number

Definition/Usage: This field is the placer application's order number. That is to say, it is the number assigned to the test request or order by the system that initiated the request for performance of the test. That could be a BT Response field team, a provider, or some other organization. Given that the identifying number for the order has been assigned externally to the lab, the application will only populate the ID component of the EI datatype. It is not expected that the

OID identifying the ID namespace will be valued.

Note, the same value is populated in ORC.2 and OBR.2.

ORC.3   Filler Order Number

Definition/Usage: This field is the order number associated with the filling application.   This is the number assigned to the test by the organization performing the test.   In the case of BT Laboratory Results Messaging, that means it is the laboratory performing the test.

Note, the same value is populated in ORC.3 and OBR.3.

…

ORC.12 Ordering Provider

Definition/Usage: This field contains the identity of the person who is responsible for creating the request (i.e., ordering physician.

…

ORC.21 Ordering Facility Name

Definition/Usage: This field contains the name of the facility placing the order. The field entry should identify the organizational context for the person ordering (requesting) the test.

ORC.22 Ordering Facility Address

Definition/Usage: This field contains the address of the facility placing the order.

ORC.23 Ordering Facility Phone Number

Definition/Usage: This field contains the telephone number of the facility placing the order.

ORC.24 Ordering Provider Address

Definition/Usage: This field contains the address of the care provider requesting the order.

…

4.6. Observation Request Segment (OBR)

The OBR serves as the report header in the reporting of clinical data,. It identifies the observation set represented by the following atomic observations. It includes the relevant ordering information when that applies. It contains many of the attributes that usually apply to all of the included observations.

	Name	Data Type	Req uired	Length	Repeats	Default Value	Coding System/Value Set
1	SetID	SI	No	0..4	..		
2	PlacerOrderNumber	EI	No	0..22	..		
3	FillerOrderNumber	EI	No	0..22	..		
4	UniversalServiceID	CE	Yes	0..250	..		PHVS_BT_ LABTESTS
5	Priority	ID	NS	0..2	..		
6	RequestedDateTime	TS	No	0..26	..		
7	ObservationDateTime	TS	No	0..26	..		
8	ObservationEndDateTime	TS	No	0..26	..		
9	CollectionVolume	CQ	NS	0..20	..		
10	CollectorIdentifier	XCN	NS	0..250	0..Infinite		
11	SpecimenActionCode	ID	NS	0..1	..		
12	DangerCode	CE	NS	0..250	..		
13	RelevantClinicalInfo	ST	NS	0..300	..		
14	SpecimenReceivedDateTime	TS	NS	0..26	..		
15	SpecimenSource	CM_SPS	NS	0..300	..		
16	OrderingProvider	XCN	No	0..250	0..Infinite		
17	OrderCallbackPhoneNumber	XTN	NS	0..250	0..2		
18	PlacerField1	ST	NS	0..60	..		
19	PlacerField2	ST	NS	0..60	..		
20	FillerField1	ST	NS	0..60	..		
21	FillerField2	ST	NS	0..60	..		
22	ResultsRptStatusChngDateTime	TS	NS	0..26	..		
23	ChargeToPractice	CM_MOC	NS	0..40	..		
24	DiagnosticServSectID	ID	NS	0..10	..		
25	ResultStatus	ID	NS	0..1	..		
26	ParentResult	CM_PRL	NS	0..400	..		
27	QuantityTiming	TQ	NS	0..200	0..Infinite		
28	ResultCopiesTo	XCN	No	0..250	0..5		
29	ParentNumber	CM_EIP	No	0..200	..		
30	TransportationMode	ID	NS	0..20	..		
31	ReasonForStudy	CE	No	0..250	0..Infinite		PH_Study Reason, PHVS_BT_ agents
32	PrincipalResultInterpreter	CM_NDL	NS	0..200	..		
33	AssistantResultInterpreter	CM_NDL	NS	0..200	0..Infinite		
34	Technician	CM_NDL	NS	0..200	0..Infinite		
35	Transcriptionist	CM_NDL	NS	0..200	0..Infinite		
36	ScheduledDateTime	TS	NS	0..26	..		
37	NumberOfSampleContainers	NM	NS	0..4	..		
38	TransportLogisticsOfCollectedSample	CE	NS	0..250	0..Infinite		
39	CollectorsComment	CE	No	0..250	0..Infinite		
40	TransportArrangementResponsibility	CE	NS	0..250	..		

	Name	Data Type	Req uired	Length		Repeats		Default Value	Coding System/Value Set
41	TransportArranged	ID	NS	0.	.30	.	.		
42	EscortRequired	ID	NS	0.	.1	.	.		
43	PlannedPatientTransportComment	CE	NS	0.	.250	0.	.Infinite		
44	ProcedureCode	CE	NS	0.	.250	.	.		
45	ProcedureCodeModifier	CE	NS	0.	.250	0.	.Infinite		
46	PlacerSupplementalServiceInformation	CE	NS	0.	.250	0.	.Infinite		
47	FillerSupplementalServiceInformation	CE	NS	0.	.250	0.	.Infinite		

Supported field definitions - OBR

OBR.1   Set ID

Definition/Usage: For the first order transmitted, the sequence number shall be 1; for the second order, it shall be 2; and so on. The reader should note that, for BT response purposes, "order" here refers to "test". In the initial implementation of BT Laboratory Results Messaging, only a single test will be passed in a message instance. Therefore, the only value passed for OBR.1 will be "1".

OBR.2   Placer Order Number

Definition/Usage: This field is the placer application's order number. It is the number assigned to the test request or order by the system that initiated the request for performance of the test. That could be a BT Response field team, a provider, or some other organization. Given that the identifying number for the order has been assigned externally to the lab, the application will only populate the ID component of the EI datatype. It is not expected that the OID identifying the ID namespace will be valued.

Note, the same value is populated in ORC.2 and OBR.2.

OBR.3   Filler Order Number

Definition/Usage: This field is the order number associated with the filling application.   This is the number assigned to the test by the organization performing the test.   In the case of BT Laboratory Results Messaging, that means it is the laboratory performing the test.

Note, the same value is populated in ORC.3 and OBR.3.

OBR.4   Universal Service ID

Definition/Usage: This field is the identifier code for the requested observation/test/battery. This can be based on local and/or "universal" codes. BT Laboratory Results Messaging is providing a code system/value set that lists the test codes that are supported. This value set – PHVS_BT_LABTESTS – is drawn from the LOINC coding system. It only includes those tests considered relevant, and contains additional tests that are under consideration for inclusion

in LOINC.

…

OBR.6   Requested Date Time

Definition/Usage: The date/time on which the test was requested to be performed by the filler organization, i.e., the performing laboratory.

Note, HL7 has marked this field as included only for backwards compatibility, and suggested that component #4 of OBR.27 – Quantity/Timing be used instead. BT Laboratory Results Messaging is making use of OBR.6 because the sophisticated frequency representation of the Quantity/Timing field is not needed.

OBR.7   Observation Date Time

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

In the case of BioWatch specimens, OBR.7 will capture the date/time at which the BioWatch device was activated, and the collection plate was exposed.

OBR.8   Observation End Date Time

Definition/Usage: This field is the end date and time of a study or timed specimen collection. If an observation takes place over a substantial period of time, it will indicate when the observation period ended. For observations made at a point in time, it will be null.

In the case of BioWatch specimens, OBR.8 will capture the date/time at which the collection plate within the BioWatch device was covered and the period of collecting exposure information stopped.

OBR.9   Collection Volume

Not Supported. Note, specimen related information is supported on the ZPM segment, as a result it would be redundant to include it on the OBR.

…

OBR.16 Ordering Provider

Definition/Usage: This field identifies the provider who ordered the test. The value passed here currently duplicates the value passed in ORC.16 – Ordering Provider.

…

OBR.26 Parent Result

Not Supported. Note, OBR.26 – Parent Result is used to organize and link component observations; that is to say, observations that need to be related in order to make up a larger whole. The HL7 standard states: "This field is defined to make it available for other types of linkages (e.g., toxicology). This important information, together with the information in *OBR-29-parent,* uniquely identifies the parent result's OBX segment related to this order." The current release of BT Laboratory Results Messaging only supports transmission of a single test that does not have a complex structure. Later releases will support a wider range of test structures, which will require that this element be supported.

…

OBR.28 Result Copies To

Definition/Usage: This field is the people who are to receive copies of the results.   BT Laboratory Results Messaging will use the field to identify organizations who should receive test results. For BioWatch results this field will contain object identifiers (OIDs) for state and local health departments by whom the BioWatch results are to be seen in a Web-based application known as the LRN Results Viewer.

OBR.29 Parent Number

Definition/Usage: The placer and filler order numbers for a test whose result generated the need to perform this test. Note, OBR.29 – Parent Number is used to organize and link component observations. The HL7 standard states: "This field relates a child to its parent when a parent/child relationship exists." For the current release of BT Laboratory Results Messaging, which only supports transmission of a single test that does not have a complex structure, the parent number will be the identifier of a related test for which information was passed in an earlier message.

…

OBR.31 Reason For Study

Definition/Usage: This repeating field indicates the reason for requesting that the test be performed. Two instances of the field are supported within BT Laboratory Results Messaging. The first instance will indicate at a high level the reason for testing. The second instance provides more detailed information – it will indicate the suspect agent whose potential presence has initiated the testing process.

The valid values for the first repetition of the field are carried in the PH_StudyReason coding system/value set.   In the context of BT Laboratory Results Messaging, messages will contain the appropriate reason for study code within the CE data type.   The message may also contain descriptive text that further qualifies the chosen reason for study code. This text will be included in the Component #5 – alternate text – of the CE.

The valid values for the second repetition of the field are carried in the

PHVS_BT_Agents coding system/value set.

…

OBR.39 Collectors Comment

Definition/Usage: This field is for reporting additional comments related to the sample.   BT Laboratory Results Messaging will use this field to capture critical information for BioWatch testing.   That is to say, the field will be valued as "Duration for collection."   It is noted that this duration may exceed start/end period.   The value will be passed in the second component (text description) within the CE datatype.

…

4.7.   Specimen Segment (ZPM)

****

Please Note" This segment is included within HL7 Version 2.5 which is has not completed its balloting process. Therefore, the segment is subject to change; in fact there might be several changes before it is officially approved. As a result, this ZPM segment, which is designed to replicate the V2.5 SPM, may end up being a variant of the segment that is finally approved.

****

The intent of this segment is to describe the characteristics of a specimen. It differs from the intent of the OBR in that the OBR addresses order-specific information.   It differs from the SAC segment in that the SAC addresses specimen container attributes. An advantage afforded by a separate specimen segment is that it generalizes the multiple relationships among order(s), results, specimen(s) and specimen container(s).

	Name	Data Type	Required	Length	Repeats	Default Value	Coding System/Value Set
1	Set ID	SI	NS	0..4	..		
2	Specimen ID	EI	No	0..80	..		
3	Specimen Parent IDs	EI	No	0..80	0..Infinite		
4	Specimen Type	CWE	Yes	0..250	..		PHVS_BTSpecimen_type
5	Specimen Type Modifier	CWE	NS	0..250	0..Infinite		
6	Specimen Additives	CWE	No	0..250	0..Infinite		HL70371
7	Specimen Collection Method	CWE	No	0..250	..		HL70488
8	Specimen Source Site	CWE	NS	0..250	..		
9	Specimen Source Site Modifier	CWE	NS	0..250	0..Infinite		
10	Specimen Collection Site	CWE	No	0..250	..		(none)
11	Specimen Role	CWE	Yes	0..250	1..Infinite		HL70369
12	Specimen Collection Amount	CQ	No	0..20	..		
13	Grouped Specimen Count	NM	NS	0..6	..		
14	Specimen Description	ST	No	0..250	0..Infinite		
15	Specimen Handling Code	CWE	No	0..250	0..Infinite		HL70376
16	Specimen Risk Code	CWE	No	0..10	0..Infinite		PHVS_BT_RISK CODES
17	Specimen Collection Date/time	TS	No	0..26	..		
18	Specimen Received Date/time	TS	No	0..26	..		
19	Specimen Expiration Date/time	TS	NS	0..26	..		
20	Specimen Availability	ID	NS	0..1	..		
21	Specimen Reject Reason	CWE	NS	0..250	0..Infinite		
22	Specimen Quality	CWE	No	0..250	..		HL70491
23	Specimen Appropriateness	CWE	NS	0..250	..		
24	Specimen Condition	CWE	No	0..250	0..Infinite		PHVS_BT_SPECCOND
25	Specimen Current Quantity	CQ	NS	0..20	..		
26	Number of Specimen Containers	NM	No	0..4	..		
27	Container Type	CWE	No	0..250	..		(none)
28	Container Condition	CWE	NS	0..250	..		
29	Specimen Child Role	CWE	NS	0..250	..		

Supported field definitions - ZPM

ZPM.1   Set ID

Not supported. Only a single specimen can be captured for a test.

ZPM.2   Specimen ID

Definition/Usage: A unique identifier for the specimen as referenced by the Placer application, the Filler application, or both.

ZPM.3   Specimen Parent IDs

Definition/Usage: The identifiers for the specimen or specimens that contributed to the specimen that is described by the segment instance. This field will only be valued if a parent specimen exists and is considered significant.

ZPM.4   Specimen Type

Definition/Usage: The type that describes the precise nature of the entity that will be the source material for the observation. Any physical entity that may have observations made about it may qualify as a specimen. The code system/value set PHVS_ BTSpecimen_type is being used to define the allowed specimen types.

…

ZPM.6   Specimen Additives

Definition/Usage: Any additives introduced to the specimen before or at the time of collection. These additives may be introduced in order to preserve, maintain or enhance the particular nature or component of the specimen. The code system/value set HL70371 is being used to define the allowed additive types.

ZPM.7   Specimen Collection Method

Definition/Usage: The procedure or process by which the specimen was collected. In principle, any nationally recognized coding system might be used for this field including SNOMED. For BT Laboratory Results Messaging, the code system/value set HL70488 is being used to define the allowed specimen collection method types.

ZPM.8   Specimen Source Site

Not currently supported. Specimen source information is carried in ZPM.10

…

ZPM.10 Specimen Collection Site

Definition/Usage: Conventionally, for HL7, this field captures "the entry point or

location, typically a body site, from which the specimen source was entered for the purposes of specimen collection.

Within the context of BT Laboratory Results Messaging, this field is used to capture the site from which a specimen was collected. This could be a variety of location types ranging from anatomic sites to physical locations. Therefore, although HL7 designates this as a coded field, BT Laboratory Results Messaging does not currently support a coding system/value set for this field. As a result of this decision, the field value is passed as a text entry in the second component (within the CE datatype) of the field.

ZPM.11   Specimen Role

Definition/Usage: The role that is played by the sample. The code system/value set HL70369 is being used to define the supported specimen role types.

ZPM.12   Specimen Collection Amount

Definition/Usage: The volume or mass of the collected specimen. For laboratory tests, the collection volume is the volume of a specimen.

The reader should note that the datatype assigned to the field is CQ. This field is not currently supported by the LRN Results Messenger, however the application is expected to be enhanced to provide this support. For applications that do support this field, it is required that the message include both the collection amount and the applicable unit of measure.

...

ZPM.14   Specimen Description

Definition/Usage: A text field that allows additional information specifically about the specimen to be sent in the message.

ZPM.15   Specimen Handling Code

Definition/Usage: A coded description of how the specimen needs to be stored during collection, in transit, and upon receipt. The code system/value set HL70376 is being used to define the supported specimen handling codes.

ZPM.16   Specimen Risk Code

Definition/Usage: A coded indication of any known or suspected specimen hazards, e.g., exceptionally infectious agent or blood from a hepatitis patient. The code system/value set PHVS_BT_RISKCODES is being used to define the supported risk types.

ZPM.17   Specimen Collection Date/time

Definition/Usage: The date and time when the specimen was acquired from the source.

ZPM.18   Specimen Received Date/time

Definition/Usage: The date/time that the specimen was received at the diagnostic service. The actual time that is recorded is based on how specimen receipt is managed and may correspond to the time the sample is logged in. This is fundamentally different from ZPM-17 Specimen Collection date/time.

…

ZPM.22   Specimen Quality

Definition/Usage: The degree or grade of excellence of the specimen at receipt. The code system/value set HL70491 is being used to define the supported specimen quality types.

…

ZPM.24   Specimen Condition

Definition/Usage: A mode or state of being that describes the nature of the specimen. The code system/value set PHVS_BT_SPECCOND is being used to define the supported specimen condition types.

...

ZPM.26   Number of Specimen Containers

Definition/Usage: The number of containers for a given sample.

ZPM.27   (Container Type)

Definition/Usage: The container in or on which a specimen is transported.

HL7 designates this as a coded field, however BT Laboratory Results Messaging does not currently support a coding system/value set for this field. Therefore, the field value is passed as a text entry in the second component (within the CE datatype) of the field.

...

4.8. Specimen Container Segment (SAC)

The container detail segment is the data necessary to maintain the containers that are being used throughout the Laboratory Automation System. For BT response, this segment is used to capture information regarding containers in which specimens are located.

	Name	Data Type	Required	Length	Repeats		Default Value	Coding System/Value Set
1	ExternalAccessionIdentifier	EI	No	0..80	..			
2	AccessionIdentifier	EI	NS	0..80	..			
3	ContainerIdentifier	EI	No	0..80	..			
4	PrimaryParentContainerIdentifier	EI	No	0..80	..			
5	EquipmentContainerIdentifier	EI	NS	0..80	..			
6	SpecimenSource	CM_SPS	NS	0..300	..			
7	RegistrationDateTime	TS	NS	0..26	..			
8	ContainerStatus	CE	NS	0..250	..			
9	CarrierType	CE	NS	0..250	..			
10	CarrierIdentifier	EI	NS	0..80	..			
11	PositionInCarrier	NA	NS	0..80	0..Infinite			
12	TrayTypeSAC	CE	NS	0..250	..			
13	TrayIdentifier	EI	NS	0..80	..			
14	PositionInTray	NA	NS	0..80	0..Infinite			
15	Location	CE	NS	0..250	0..Infinite			
16	ContainerHeight	NM	NS	0..20	..			
17	ContainerDiameter	NM	NS	0..20	..			
18	BarrierDelta	NM	NS	0..20	..			
19	BottemDelta	NM	NS	0..20	..			
20	ContainerHeightDiameterDeltaUnits	CE	NS	0..250	..			
21	ContainerVolume	NM	NS	0..20	..			
22	AvailableVolume	NM	NS	0..20	..			
23	InitialSpecimenVolume	NM	NS	0..20	..			
24	VolumeUnits	CE	NS	0..250	..			
25	SeparatorType	CE	NS	0..250	..			
26	CapType	CE	NS	0..250	..			
27	Additive	CE	NS	0..250	0..Infinite			
28	SpecimenComponent	CE	NS	0..250	..			
29	DilutionFactor	SN	NS	0..20	..			
30	Treatment	CE	NS	0..250	..			
31	Temperature	SN	NS	0..20	..			
32	HemolysisIndex	NM	NS	0..20	..			
33	HemolysisIndexUnits	CE	NS	0..250	..			
34	LipemiaIndex	NM	NS	0..20	..			
35	LipemiaIndexUnits	CE	NS	0..250	..			
36	IcterusIndex	NM	NS	0..20	..			
37	IcterusIndexUnits	CE	NS	0..250	..			
38	FibrinIndex	NM	NS	0..20	..			
39	FibrinIndexUnits	CE	NS	0..250	..			
40	SystemInducedContaminants	CE	NS	0..251	0..Infinite			
41	DrugInterference	CE	NS	0..252	0..Infinite			
42	ArtificialBlood	CE	NS	0..253	..			
43	SpecialHandlingConsiderations	CE	NS	0..254	0..Infinite			

	Name	Data Type	Required	Length	Repeats	Default Value	Coding System/Value Set
44	OtherEnvironmentalFactors	CE	NS	0..255	0..Infinite		

Supported field definitions - SAC

SAC.1   External Accession Identifier

Definition/Usage: This field identifies the accession assigned to the specimen by the party collecting the specimen and/or transmitting the specimen to the laboratory for processing Given that the identifying (accession) number for the specimen has been assigned externally to the lab, the OID identifying the ID namespace will not be valued.

....

SAC.3   Container Identifier

This field identifies the container. This field is the container's unique identifier assigned by the corresponding equipment. Given that the identifying number for the container has been assigned externally to the lab, the OID identifying the ID namespace will not be valued.

SAC.4   Primary Parent Container Identifier

If this field is filled in, it identifies the primary container from which this specimen came. For primary samples this field is empty; for aliquot samples this field should contain the identifier of primary container. Given that the identifying number for the container has been assigned externally to the lab, the OID identifying the ID namespace will not be valued.

…

4.9. Observation Result Segment (OBX)

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.

	Name	Data Type	Required	Length	Repeats	Default Value	Coding System/Value Set
1	SetID	SI	NS	0..4	..		
2	ValueType	ID	No	0..3	..		HL70125
3	ObservationIdentifier	CE	Yes	0..250	..		PHVS_BT_ LABTESTS
4	ObservationSubID	ST	NS	0..20	..		
5	ObservationValue	Varies	No	0..65536	0..Infinite		
6	Units	CE	NS	0..250	..		
7	ReferencesRange	ST	NS	0..60	..		
8	AbnormalFlags	IS	No	0..5	0..5		PHVS_OBS_ INTRP
9	Probability	NM	NS	0..5	..		
10	NatureOfAbnormalTest	ID	NS	0..2	0..Infinite		
11	ObservationResultStatus	ID	Yes	0..1	..		PHVS_BT_ OBSRESCODES
12	DateLastObsNormalValues	TS	NS	0..26	..		
13	UserDefinedAccessChecks	ST	NS	0..20	..		
14	DateTimeOfTheObservation	TS	No	0..26	..		
15	ProducersID	CE	NS	0..250	..		
16	ResponsibleObserver	XCN	NS	0..250	0..Infinite		
17	ObservationMethod	CE	NS	0..250	0..Infinite		
18	EquipmentInstanceIdentifier	EI	No	0..22	0..Infinite		
19	DateTimeOfTheAnalysis	TS	NS	0..26	..		

Supported field definitions - OBX

…

OBX.2   Value Type

Definition/Usage: This field contains the format of the observation value in OBX. It must be valued if *OBX-11-Observ result status* is not valued with an 'X'. The only values for OBX.2 that supported within the first release of BT Laboratory Results Messaging are NM, ST, and CE.

OBX.3   Observation Identifier

Definition/Usage: This field contains a unique identifier for the observation. In most systems the identifier will point to a master observation table that will provide other attributes of the observation that may be used by the receiving system to process the observations it receives. BT Laboratory Results Messaging is using the code system/value set PHVS_BT_LABTESTS to indicate the observation (result) types that are supported.

OBX.4   Observation Sub ID

This field is not currently supported, because the first release of BT Laboratory Results Messaging will focus on results that do not have a composite structure. Future releases of the messaging may provide support for this field.

OBX.5   Observation Value

Definition/Usage: 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.

OBX.8   Abnormal Flags

Definition/Usage: This field contains a table lookup indicating the normalcy status of the result. The NEDSS Base System code set – PHVS_OBS_INTRP – will be used. This code set is based on HL7 Table 0078.

….

OBX.11   Observation Result Status

Definition/Usage: This field contains the observation result status. The code system/value set PHVS_BT_OBSRESCODES will be used to define the valid result statuses.

The status of final should only be used when a final conclusion is reached. On the other hand, as long as the testing party thinks that further tests are needed, the test result should be given a status of "Preliminary". Once the professional responsible for the testing is satisfied, the result should be given the status "Final".

…

OBX.14   Date Time of the Observation

Definition/Usage: The date/time on which the test was performed. The value supplied is the same as that included within OBR.7.

….

OBX.18   Equipment Instance Identifier

Definition/Usage: This field identifies the Equipment Instance, e.g., Analyzer, Analyzer module, group of Analyzers, responsible for the production of the observation. The data type for the field is EI; however BT Laboratory Results Messaging currently passes the data as text within the first component of the EI datatype.

….

5. HL7 Datatypes

An HL7 field is characterized by its data type. The datatype defines the structure of the field, and provides information about how the field or its components may be valued. This section reviews those HL7 data types that are supported by BT Laboratory Results Messaging.   The reader should refer to the HL7 V2.4 specification for more details.

5.1.   Atomic Data Types

The table below lists those data types which do not have a composite structure, that is to say, for which only a single component is valued.

Name	Description	Base Type	Validation	Reg Exp	Separators
FT - Formatted Text	This data type is derived from the string data type by allowing the addition of embedded formatting instructions. These instructions are limited to those that are intrinsic and independent of the circumstances under which the field is being used.	String	Normal		Allow separator: User1
ID - Identifier	The value of such a field follows the formatting rules for an ST field except that it is drawn from a table of legal values. There shall be an HL7 table number associated with ID data types.	String	Normal		No separators allowed
IS – Locally Defined Identifier	The value of such a field follows the formatting rules for a ST field except that it is drawn from a site-defined (or user-defined) table of legal values. There shall be an HL7 table number associated with IS data types.	String	Normal		No separators allowed
NM - Numeric	A number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point the number is assumed to be an integer.	8 Byte Double	Normal		No separators allowed
SI - Sequence ID	A non-negative integer in the form of a NM field.	8 Byte Double	Use Reg Exp	[0-9]+	No separators allowed
ST - String	String data is left justified with trailing blanks optional. Any displayable (printable) ACSII characters (hexadecimal values between 20 and 7E, inclusive, or ASCII decimal values between 32 and 126), except the defined escape characters and defined delimiter characters.	String	Normal		No separators allowed
TX - Text	String data meant for user display (on a terminal or printer).	String	Normal		Allow separator: Repeat

The section below lists and describes the composite data types used by BT Laboratory Results Messaging.

5.2.   Coded Element (CE)

The datatype is used for coded elements within the message segments.

Seq.	Component	Data Type	Comment
1	identifier (code value)	ID	The relevant code value as drawn from the coding system or value set identified in Component #3
2	text	ST	Descriptive text associated with the code value (component #1). The sending application will determine whether or not to include text
3	name of coding system	IS	The Object Identifier (OID) for the coding system or value set from which the code value is drawn. The applicable OID will be displayed in the applicable segment table.
4	alternate identifier	ST	Only a single code value, drawn from the recommended coding system for a field will be supported.
5	alternate text	ST	Text associated with the local code for a coded item. In the case of OBR.31 – Reason for Study – this component is used to carry text that further describes the reason for study. This is the only situation in which the component is currently valued.
6	name of alternate coding system	IS	

5.3.   Parent Number (CM_EIP)

The datatype is used to capture the message structure indicated in OBR.29.

Seq.	Component	Data Type	Comment
1	parent placer order number	EI	Not currently supported
2	parent filler order number	EI	The filler number assigned to the parent order.

5.4. Message Structure (CM_MSG)

The datatype is used to capture the message structure indicated in MSH.9.

Seq.	Component	Data Type	Comment
1	message type	ID	The first component is the message type code defined by *HL7 Table 0076 - Message type*. ORU is the only value currently supported.
2	trigger event	ID	The second component is the trigger event code defined by *HL7 Table 0003 - Event type*. R01 is the only value currently supported.
3	message structure	ID	The third component is the abstract message structure code defined by *HL7 Table 0354 - Message structure*. ORUR01 is only value currently supported.

5.5. Composite Quantity with Units (CQ)

The datatype supports amounts in which the unit of measure must be supplied.

Seq.	Component	Data Type	Comment
1	quantity	NM	The numeric value.
2	units	CE	The unit of measure associated with the value. The OID for the applicable unit of measure coding system or value set is displayed in the applicable segment table.

5.6. Coded With Exceptions (CWE)

The datatype is similar to and based on the CE datatype. The distinction is that it has three added components – the first of these captures the version associated with coding systems or value sets that are used, and the last allows entry of the original text associated with a concept that has been coded. In some cases, when no code is available, only component #9 – original text – is provided.

Seq.	Component	Data Type	Comment
1	identifier (code value)	ST	The relevant code value as drawn from the coding system or value set identified in Component #3
2	text	ST	Descriptive text associated with the code value (component #1). The sending application will determine whether or not to include text
3	name of coding system	IS	The Object Identifier (OID) for the coding system or value set from which the code value is drawn. The applicable OID will be displayed in the applicable segment table.
4	alternate identifier	ST	Only a single code value, drawn from the recommended coding system for a field will be

			supported.
5	alternate text	ST	
6	name of alternate coding system	IS	
7	coding system version ID	ST	The version ID applicable to the coding system or value set referred to in component #3.
8	alternate coding system version ID	ST	
9	original text	ST	The original text that was available to an automated process or a human before a specific code was assigned. This component is not currently supported by BT Laboratory Results Messaging.

5.7. Extended Composite ID with Check Digit (CX)

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

Seq.	Component	Data Type	Comment
1	ID	ST	The identifier value that has been assigned.
2	check digit	NM	Not currently supported.
3	code identifying the check digit scheme employed	ID	Not currently supported.
4	assigning authority	HD	The OID that has been assigned to the name space within which the ID values are unique is provided within the HD datatype. It is likely that OIDs will not be assigned for identifiers, e.g, SSN, driver's license that are assigned externally to the institution responsible for creating the message.
5	identifier type code (ID)	ID	The value will be drawn from the table PHVS_EI_Type. (Note, this is a nested value set that concatenates EI_Type_CDC and EI_Type_HL7 in order to support the range of identifier types that are relevant to BT Laboratory Results Messaging.)
6	assigning facility	HD	The OID that has been assigned to the assigning facility is provided within the HD datatype.
7	effective date (DT)	DT	Current timestamp for when the ID was assigned to the object in the database in the effective data component.
8	expiration date	DT	The date at which an identifier is no longer valid.

5.8. Date/Time Range (DR)

Seq.	Component	Data Type	Comment
1	Range Start Date/time	TS	
2	Range End Date/time	TS	

5.9. Entity Identifier (EI)

The entity identifier defines a given entity within a specified series of identifiers. The EI is appropriate for, but not limited to, machine or software generated identifiers. The generated identifier goes in the first component. The remaining components, 2 through 4, are known as the *assigning authority*; they identify the machine/system responsible for generating the identifier in component 1.

Seq.	Component	Data Type	Comment
1	entity identifier	ST	The unique code – with the context defined by Component #3.
2	namespace ID	IS	Not supported.
3	universal ID	ST	The OID that identifies the namespace within which component #1 is unique. The OID to be used will be referenced in the segment table. NOTE: OID information will only provided for IDs assigned by the sending organization. It is expected that, for externally assigned identifiers, the proper OID to use will not be known.
4	universal ID type	ID	This will always be valued as "ISO" for BT Laboratory Results Messaging. This is based on the use of OIDs in component #3.

5.10. Family Name (FN)

This data type allows full specification of the surname of a person. Where appropriate, it differentiates the person's own surname from that of the person's partner or spouse, in cases where the person's name may contain elements from either name. It also permits messages to distinguish the surname prefix (such as "van" or "de") from the surname root.

Seq.	Component	Data Type	Comment
1	Surname	ST	The last name of the person.
2	Own Surname Prefix	ST	Not currently supported
3	Own Surname	ST	Not currently supported

| 4 | Surname Prefix from Partner/Spouse | ST | Not currently supported |
| 5 | Surname from Partner/Spouse | ST | Not currently supported |

5.11.   Hierarchic Designator (HD)

The HD is designed to be more powerful and more general replacement for the application identifier of HL7 versions 2.1 and 2.2.   It adds two additional components, the <universal ID> and the <universal ID type> to the former *application ID* (which is renamed more generically to be the *namespace ID*)

The basic definition of the HD is that it identifies an (administrative or 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.). This entity could be a particular health care application such as a registration system that assigns patient identifiers, a governmental entity such as a licensing authority that assigns professional identifiers or drivers' license numbers, or a facility where such identifiers are assigned.

Seq.	Component	Data Type	Comment
1	namespace ID	IS	Not Currently Supported
2	universal ID	ST	The OID that identifies the namespace within which component #1 is unique. The OID to be used will be referenced in the segment table.
3	universal ID type	ID	This will always be valued as "ISO" for BT Laboratory Results Messaging. This is based on the use of OIDs in component #3.

5.12.   Processing Type (PT)

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

Seq.	Component	Data Type	Comment
1	processing ID	ID	A value that defines whether the message is part of a production, training, or debugging system The value used will be drawn from the table - HL70103.
2	processing mode	ID	A value that defines whether the message is part of an archival process or an initial load. The value used will be drawn from the table – HL70207.

=

5.13. Street Address (SAD)

This data type, which is only used within the XAD – Extended Address data type, makes it possible to record the traditional street address feature of a postal address, while also splitting the street name and dwelling number into separate components.

Seq.	Component	Data Type	Comment
1	Street or Mailing Address	ST	The street designation within a postal address.
2	Street Name	ST	Not currently supported.
3	Dwelling Number	ST	Not currently supported.

5.14. Time Stamp (TS)

Contains the exact time of an event, including the date and time. The date portion of a time stamp follows the rules of a date field and the time portion follows the rules of a time field. The specific data representations used in the HL7 encoding rules are compatible with ISO 8824-1987(E).

Seq.	Component	Data Type	Comment
1	Date/time	ST	This is a formatted string, that uses the following pattern: "YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]". The time zone (+/-ZZZZ) is represented as +/-HHMM offset from UTC (formerly Greenwich Mean Time (GMT)), where +0000 or -0000 both represent UTC (without offset).
2	Degree of Precision	ST	Not currently supported.

5.15. Version Identifier (VID)

The data type provides components to identify the HL7 Version upon which the message is based.

Seq.	Component	Data Type	Comment
1	version ID	ID	Used to identify the HL7 version. Currently V2.4 is supported. Note, the value for the component is drawn from Table HL70104.
2	internationalization code	CE	Not currently supported.
3	international version ID	CE	Not currently supported.

5.16.   Extended Address (XAD)

The datatype captures information for the postal address of a person or structure. For purposes of BT Laboratory Results Messaging, the definition of the data type has been extended to also support the designation of particular locations within a structure. E.g., a floor, aisle or shelf within a mall.

Seq.	Index	Data Type	Data Structure
1	street address (SAD)	SAD	The street address. See the discussion of the SAD data type.
2	other designation	ST	This component is used to pass an XML encoded string that contains information about the sample source in the context of the structure type information passed in Component #11. See the discussion below for information on the internal structure of the encoded string. Note, The specialized use of Component #2 and Component #3 only applies to the use of XAD in the PID segment.
3	city	ST	The city that is designated within a postal address is included within this component.
4	state or province	ST	The state or province that is designated within a postal address is included within this component.
5	zip or postal code	ST	The zip code that is designated within a postal address is included within this component.
6	country	ID	Not currently Supported.
7	address type	ID	Not currently Supported.
8	other geographic designation	ST	Not currently Supported.
9	county/parish code	IS	Not currently Supported.
10	census tract	IS	Not currently Supported.
11	address representation code	ID	This component is used to provide the "message type code" that indicates whether the specimen source is a BioWatch site, or whether it is some other kind of structure, i.e, General Building, Mall, Warehouse, Private Residence. (value set = PH_ADDR_CLASS) This value is used to interpret the XML string passed in Component #2. Note, The specialized use of Component #2 and Component #11 only applies to the use of XAD in the PID segment.
12	address validity range	DR	Not currently Supported.

The encoded string that may be embedded within Component #2 of the XAD data type (i.e., in the context of PID.11) has the following format:

```
<location facility_description=" " floor="" store=""
section="" aisle="" shelf="" object="" facility=""
room="" city_code=" " grouping_information=""
```

```
location_information=" "
correspondence_to_other_sensors=" "/>
```

In other words, the data structure known as "location" has the following constituents:

Seq.	Constituent	Comment
1	facility_description	Provide the description that corresponds to the coded value provided in component #11.
2	floor	Provide appropriate information as free text.
3	store	Provide appropriate information as free text.
4	section	Provide appropriate information as free text.
5	aisle	Provide appropriate information as free text.
6	shelf	Provide appropriate information as free text.
7	object	Provide appropriate information as free text.
8	facility	Provide appropriate information as free text.
9	room	Provide appropriate information as free text.
10	city_code	The value is drawn from a list of valid BioWatch City Codes.
11	grouping_information	Provide appropriate information as free text.
12	location_information	Provide appropriate information as free text.
13	correspondence_to_other_sensors	Provide appropriate information as free text.

The set of valid constituents depends on the value passed in Component #11 – "message type". The following table indicates which constituents are valid for a particular test subject type:

Test Subject Type	Valid Constituents
Patient Address	Do not evaluate contents of Component #2
General Building	Floor, Room Object
Mall	Floor, Store, Section, Aisle, Shelf, Object
Warehouse	Floor, Section, Aisle, Shelf, Object
Private Resident	Floor, Room Object
BioWatch	City Code

5.17. Extended Composite ID Number and Name for Persons (XCN)

This data type is used extensively, where there is a need to specify the ID number and name of a person.

Seq.	Component	Data Type	Comment
1	ID number	ST	The identifier assigned to the person.
2	family name	FN	The family name, or surname of the person.
3	given name	ST	The first given name – first name – of the person.
4	second and further given names or initials thereof	ST	Not currently supported.
5	suffix (e.g., JR or III)	ST	Not currently supported.
6	prefix (e.g., DR)	ST	Not currently supported.
7	degree (e.g., MD)	IS	Not currently supported.
8	source table	IS	Not currently supported.
9	assigning authority	HD	Not currently supported.
10	name type code	ID	Not currently supported.
11	identifier check digit	ST	Not currently supported.
12	code identifying the check digit scheme employed	ID	Not currently supported.
13	identifier type code (IS)	IS	This component indicates the ID type for the identifier in component #1. If an ID number is provided for a person, the ID type must be valued as well.
14	assigning facility	HD	Not currently supported.
15	Name Representation code	ID	Not currently supported.
16	name context	CE	Not currently supported.
17	name validity range	DR	Not currently supported.
18	name assembly order	ID	Not currently supported.

5.18.   Extended Composite ID Number and Name for Organizations (XON)

This data type is used to specify the name and ID number of an organization.

Seq.	Component	Data Type	Comment
1	organization name	ST	The name that has been assigned to the organization.
2	organization name type code	IS	Not currently supported.
3	ID number (NM)	NM	Not currently supported.
4	check digit	NM	Not currently supported.
5	code identifying the check digit scheme employed	ID	Not currently supported.
6	assigning authority	HD	Not currently supported.
7	identifier type code (IS)	IS	Not currently supported.
8	assigning facility ID	HD	Not currently supported.
9	Name Representation code	ID	Not currently supported.

5.19.   Extended Person Name (XPN)

The XPN datatype provides a comprehensive way to capture person name information. It replaces the PN (person name) datatype formerly used.

Seq.	Component	Data Type	Comment
1	family name	FN	The family name or surname of the test subject.
2	given name	ST	The first or initial given name of the test subject. Also, if test subject is not a person, but is a location or structure, component #2 will hold name information.
3	second and further given names or initials thereof	ST	The second given name, or middle name for the test subject.
4	suffix (e.g., JR or III)	ST	Not currently supported.
5	prefix (e.g., DR)	ST	Not currently supported.
6	degree (e.g., MD)	IS	Not currently supported.
7	name type code	ID	Not currently supported.
8	Name Representation code	ID	Not currently supported.
9	name context	CE	Not currently supported.
10	name validity range	DR	Not currently supported.
11	name assembly order	ID	Not currently supported.

5.20.   Extended Telecommunications Number (XTN)

The data type provides support for phone numbers and other telecommunications addresses.

Seq.	Component	Data Type	Comment
1	Telephone number	ST	The standard HL7 entry will be a formatted string with the following layout: [**N**NN] [(999)]999-9999 [X99999] [B99999] [C any text]. This component is not currently supported, in order to allow more freedom in data entry.
2	telecommunication use code	ID	Not currently supported.
3	telecommunication equipment type (ID)	ID	Not currently supported.
4	Email address	ST	Not currently supported.
5	Country Code	NM	Not currently supported.
6	Area/city code	NM	Not currently supported.
7	Phone number	NM	Not currently supported.
8	Extension	NM	Not currently supported.
9	any text	ST	The telephone number is provided as a free text entry.

6. Code System/Value Set Tables

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. It is important, for message implementation, both to make sure that transmitted messages (message instances) contain valid values. 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; these tables are listed in this section below, and enumerate all of the code values that may be used for the specified field in this message.

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[1], (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)

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[1] This contrasts with the ID datatype in which only the code value is passed. The distinction is based on the fact that ID data types are used only for fields in which only a single coding system can be used, and in which this coding system is always supplied by HL7. In such cases, it is superfluous to include the coding system OID in the message.

- 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 Guide will be able to update their vocabulary. This new distribution will represent a wholesale replacement of the vocabulary listed in this document.

6.1.   PH_AddrClass

Table Content Definition: Code System (CDC)

Code System Name: PH_ AddrClass

Code System OID: 2.16.840.1.114222.4.5.14

Functional Description

These codes identify the type of specially formatted address information carried in the PID segment as 'Patient Address' in an XAD datatype, and are used to define the XML format for complex address representations used in environmental sampling. This is used in component 11 of the datatype. For more information, see the discussion in the section on the XAD datatype.

PH_AddrClass Table Codes

Public Health Sampling Location Address Classification Codes

Code	Term
0	Human based location
1	General Building
2	Mall setting
3	Warehouse setting
4	Private residence
5	Bio-Watch location

6.2.   PH_P_RACE_CAT

Table Content Definition: Code System (CDC)

Code System Name: PH_P_RACE_CAT

Code System OID: 2.16.840.1.114222.4.5.3

Functional Description

These codes identify the Race of a Person using the codes for the categories defined by OMB and HL7 Version 2. These codes have been integrated, and imported by the CDC to form this internal Public Health Race Category code system.

PH_P_RACE_CAT Table Codes

Public Health Race Codes

Code	Term
1002-5	American Indian or Native Alaskan
2028-9	Asian
2054-5	Black
2076-8	Hawaiian or Pacific Islander
2106-3	White
2131-1	Other
U	Unknown

6.3.   PH_PRTNERS

Table Content Definition: Code System (CDC)

Code System Name: PH_PRTNERS

Code System OID: 2.16.840.1.114222.4.5.11

Functional Description

This code system contains the coded values of messaging partners in the Public Health Information Network (PHIN). All of these code values are themselves OIDs, and consist of codes identifying State and Local Departments of Health, LRN Laboratories, and other entities. For national security reasons, the values of all the participants in the BioTerror Response network, enumerated in this table, are not published here, but are available to partners upon request.

PH_ PRTNERS Table Codes

Public Health Messaging Partners Identifiers

This value set will be distributed separately.

6.4.   PH_SPECIES

Table Content Definition: Code System (CDC)

Code System Name: PH_SPECIES

Code System OID: 2.16.840.1.114222.4.5.13

Functional Description

This code system contains codes for the different species of organisms that are referred to in messages. At the current time, only two values are defined, but additional codes for species will be added to this table as BT surveillance and response expands to cover more non-human organisms as sources for specimen samples.

PH_SPECIES Table Codes

Public Health Species Codes

Code	Term
Human	Human
Other	Other

6.5.   PH_StudyReason

Table Content Definition: Code System (CDC)

Code System Name: PH_ StudyReason

Code System OID: 2.16.840.1.114222.4.5.8

Functional Description

This CDC code system contains codes used to describe the reason for a lab test or assay in the context of Public Health.

PH_ StudyReason Table Codes

Public Health Reason For Study Codes

Code	Term
RFS-BWT	Bio-Watch
RFS-EMG	Emergency
RFS-OTH	Other
RFS-PT	Proficiency Testing

6.6.   PHVS_BT_Agents

Table Content Definition: Compound Value Set

Value Set Definition:

- Value Set Name: PHVS_ BT_Agents
- Value Set OID: 2.16.840.1.114222.4.11.238
- Component #1:
    - o Value Set PHVS_BTAgents_exts
    - o Value Set OID: 2.16.840.1.114222.4.11.239
    - o Based on Code System: PHVS_BTAgents_exts
    - o Code System OID: 2.16.840.1.11422.4.5.6
- Component #2:
    - o Value Set PHVS_BTAgents_SL
    - o Value Set OID: 2.16.840.1.114222.4.11.242
    - o Based on Code System: SNM3
    - o Code System OID: 2.16.840.1.113883.6.51

Functional Description:

This Value Set comprises all legal values for the suspect agents used for BT results messaging. It is built upon a specific small subset of SNOMED International codes enumerated for value set PHVS_BTAgents_SL plus a set of extensions defined in coding system PHVS_BTAgents_exts. These extensions represent organisms or other agents that do not have an appropriate representation within SNOMET International. As these codes are added to SNOMED they will be removed from the custom extensions value set, and added to the SNOMED based value set to provide an incremental update mechanism for the newly defined codes. (The old code values, although their use will be deprecated, must not be removed from the CDC code system since that would make searches through historical records intractable.)

PHVS_BT_Agents Table Codes

Public Health Bioterrorism Suspect Agent Code Values

CodeSystem	Code	Term
2.16.840.1.114222.4.5.6	C-900ZZ	Chemical Agents/blood
2.16.840.1.114222.4.5.6	C-901ZZ	Chemical Agents/incapacitating
2.16.840.1.114222.4.5.6	C-902ZZ	Chemical Agents/vomiting
2.16.840.1.114222.4.5.6	C-903ZZ	staphylococcus enterotoxin B
2.16.840.1.114222.4.5.6	DE-904ZZ	multidrug resistant TB
2.16.840.1.113883.6.51	C-270F8	Chemical Agents/other
2.16.840.1.113883.6.51	C-27111	Chemical Agents/nerve
2.16.840.1.113883.6.51	C-272F9	Chemical Agents/Blister-vesicants
2.16.840.1.113883.6.51	C-273F9	Chemical Agents/choking-lung
2.16.840.1.113883.6.51	C-276F9	Chemical Agents/riot control - tear
2.16.840.1.113883.6.51	C-30202	ricin toxin
2.16.840.1.113883.6.51	C-36304	clostridium botulinum toxin

CodeSystem	Code	Term
2.16.840.1.113883.6.51	C-36320	staphylococcus toxin
2.16.840.1.113883.6.51	C-36384	epsilon toxin of clostridium perfringens
2.16.840.1.113883.6.51	F-61989	emetic
2.16.840.1.113883.6.51	L-12202	bacillus anthracis
2.16.840.1.113883.6.51	L-1320A	brucella species
2.16.840.1.113883.6.51	L-14118	clostridium botulinum
2.16.840.1.113883.6.51	L-14210	clostridium perfringens
2.16.840.1.113883.6.51	L-16F08	burkholderia mallei
2.16.840.1.113883.6.51	L-1E401	yersinia pestis
2.16.840.1.113883.6.51	L-1F201	francisella tularensis (organism)
2.16.840.1.113883.6.51	L-2A301	coxiella burnetii
2.16.840.1.113883.6.51	L-30023	arbovirus
2.16.840.1.113883.6.51	L-32300	flavivirus
2.16.840.1.113883.6.51	L-32301	yellow fever virus
2.16.840.1.113883.6.51	L-32921	nipah virus
2.16.840.1.113883.6.51	L-34400	hanta viruses
2.16.840.1.113883.6.51	L-3750C	variola virus
2.16.840.1.113883.6.51	Z-999X	BioWatch

6.7.   PHVS_BT_LABTESTS

Table Content Definition: Compound Value Set

Value Set Definition:

- Value Set Name: PHVS_ BT_LABTESTS
- Value Set OID: 2.16.840.1.114222.4.11.244
- Component #1:
  - Value Set PHVS_BT_LABTESTS_SL
  - Value Set OID: 2.16.840.1.114222.4.11.237
  - Based on Code System: LOINC
  - Code System OID: 2.16.840.1.113883.6.1
- Component #2:
  - Value Set PHVS_BT_LABTESTS_CDC
  - Value Set OID: 2.16.840.1.114222.4.11.243
  - Based on Code System: PH_BT_LABTESTS_CDC
  - Code System OID: 2.16.840.1.114222.4.5.7

Functional Description:

This Value Set comprises all legal values for lab assays, tests, and panels used for BT results messaging. It is built upon a specific small subset of LOINC lab assay codes enumerated for value set PBVS_BT_LABTESTS_SL plus a set of extensions defined in coding system PH_BT_LABTESTS_CDC. These extensions represent assays newly developed by the CDC and not yet incorporated into the LOINC vocabulary. This code system is subsetted by the value set PHVS_BT_LABTESTS_CDC since as these tests are

added to LOINC, they will be removed from the value set and added to the LOINC based value set to provide an incremental update mechanism for the newly defined standard assay codes (the old code values, although their use will be deprecated, must not be removed from the CDC code system since that would make searches through historical records intractable.)

PHVS_ BT_LABTESTS Table Codes

Public Health Bioterrorism Laboratory Test Code Values

CodeSystem	Code	Term
2.16.840.1.113883.6.1	10739-1	Virus Electron Microscopy
2.16.840.1.113883.6.1	11467-8	BACILLUS ANTHRACIS Antibody:Immunoblot
2.16.840.1.113883.6.1	11468-6	Time-resolved Fluorescence
2.16.840.1.113883.6.1	11469-4	Colony morphology
2.16.840.1.113883.6.1	14209-1	FRANCISELLA TULARENSIS AB.IGA
2.16.840.1.113883.6.1	16875-7	FRANCISELLA TULARENSIS Antibody Titer
2.16.840.1.113883.6.1	16876-5	FRANCISELLA TULARENSIS AB.IGA:Latex
2.16.840.1.113883.6.1	16877-3	FRANCISELLA TULARENSIS AB.IGG:Latex
2.16.840.1.113883.6.1	16878-1	FRANCISELLA TULARENSIS AB.IGM
2.16.840.1.113883.6.1	20691-2	BACILLUS ANTHRACIS:ORGANISM SPECIFIC CULTURE
2.16.840.1.113883.6.1	20706-8	Toxicity
2.16.840.1.113883.6.1	21598-8	Real-time PCR (VZV)
2.16.840.1.113883.6.1	22109-3	BACILLUS ANTHRACIS Antibody
2.16.840.1.113883.6.1	22859-3	BACILLUS ANTHRACIS Antibody Titer
2.16.840.1.113883.6.1	22860-1	BACILLUS ANTHRACIS Antibody
2.16.840.1.113883.6.1	22861-9	BACILLUS ANTHRACIS Antibody:Immunodiffusion
2.16.840.1.113883.6.1	22862-7	BACILLUS ANTHRACIS Antibody:Aggl
2.16.840.1.113883.6.1	22863-5	BACILLUS ANTHRACIS Antibody:EIA
2.16.840.1.113883.6.1	22864-3	BACILLUS ANTHRACIS Antibody:CF
2.16.840.1.113883.6.1	22865-0	BACILLUS ANTHRACIS Antibody Immunodiffusin (Titer)
2.16.840.1.113883.6.1	22867-6	DFA (Capsule Antigen)
2.16.840.1.113883.6.1	23122-5	FRANCISELLA TULARENSIS A DNA:PCR (Amplified)
2.16.840.1.113883.6.1	23123-3	FRANCISELLA TULARENSIS A RRNA:DNA
2.16.840.1.113883.6.1	23124-1	FRANCISELLA TULARENSIS Antibody:EIA
2.16.840.1.113883.6.1	23125-8	FRANCISELLA TULARENSIS Antibody Titer;Aggl
2.16.840.1.113883.6.1	23126-6	FRANCISELLA TULARENSIS Antigen:IMMUNE STAIN
2.16.840.1.113883.6.1	23128-2	FRANCISELLA TULARENSIS B DNA:PCR (Amplifed)
2.16.840.1.113883.6.1	23129-0	FRANCISELLA TULARENSIS B RRNA:PCR
2.16.840.1.113883.6.1	23130-8	FRANCISELLA TULARENSIS DNA:PCR (Amplified)
2.16.840.1.113883.6.1	23131-6	FRANCISELLA TULARENSIS RRNA:PCR
2.16.840.1.113883.6.1	23741-2	FRANCISELLA TULARENSIS Antibody Titer:CF
2.16.840.1.113883.6.1	33676-8	Colony morphology (culture)
2.16.840.1.113883.6.1	33679-2	Real-time PCR
2.16.840.1.113883.6.1	33681-8	Cellular Fatty Acid Analysis
2.16.840.1.113883.6.1	33683-4	Serology (Micro-Agglutination)
2.16.840.1.113883.6.1	33684-2	FRANCISELLA TULARENSIS Antibocy (Tube Aggl)
2.16.840.1.113883.6.1	33685-9	Culture
2.16.840.1.113883.6.1	33687-5	DFA (cellular F1 antigen)
2.16.840.1.113883.6.1	33689-1	Serology (Passive Hemagglutination/Inhibition)
2.16.840.1.113883.6.1	33690-9	YERSINIA PESTIS Antibody (EIA)
2.16.840.1.113883.6.1	33691-7	Real-time PCR

CodeSystem	Code	Term
2.16.840.1.113883.6.1	33693-3	Specific Bacteriophage lysis
2.16.840.1.113883.6.1	33694-1	CLOSTRIDIUM BOTULINUM:ORGANISM SPECIFIC CULTURE
2.16.840.1.113883.6.1	33696-6	Mouse Bioassay
2.16.840.1.113883.6.1	33697-4	BACILLUS ANTHRACIS Antigen:IF (DFA)
2.16.840.1.113883.6.1	33698-2	Gamma phage lysis
2.16.840.1.113883.6.1	33699-0	MALACHITE GREEN STAIN
2.16.840.1.113883.6.1	33700-6	SPORE IDENTIFICATION:MALACHITE GREEN STAIN
2.16.840.1.113883.6.1	33701-4	Neutralization - antitoxin A
2.16.840.1.113883.6.1	33702-2	Neutralization - antitoxin E
2.16.840.1.113883.6.1	33703-0	Neutralization - antitoxin F
2.16.840.1.113883.6.1	33704-8	Neutralization - antitoxin trivalent (A,B,E)
2.16.840.1.113883.6.1	33705-5	Neutralization - antitoxin B
2.16.840.1.113883.6.1	33714-7	Slide Agglutination
2.16.840.1.113883.6.1	5055-9	BACILLUS ANTHRACIS AB:Antibody:Hem Aggl
2.16.840.1.113883.6.1	5166-4	FRANCISELLA TULARENSIS Antibody:Latex
2.16.840.1.113883.6.1	5167-2	FRANCISELLA TULARENSIS Antigen Titer:Latex
2.16.840.1.113883.6.1	6407-1	FRANCISELLA TULARENSIS AB.IGM:Latex
2.16.840.1.113883.6.1	6408-9	DFA (surface antigen)
2.16.840.1.113883.6.1	664-3	Gram Stain
2.16.840.1.113883.6.1	666-8	Capsule (India Ink Stain)
2.16.840.1.113883.6.1	668-4	Capsule (M'Fadyean Stain)
2.16.840.1.113883.6.1	680-9	Motility (wet mount)
2.16.840.1.113883.6.1	682-5	Differential Stain (Wright-Giemsa)
2.16.840.1.113883.6.1	7888-1	FRANCISELLA TULARENSIS Antibody
2.16.840.1.113883.6.1	7889-9	FRANCISELLA TULARENSIS AB.IGG
2.16.840.1.113883.6.1	7890-7	FRANCISELLA TULARENSIS AB.IGM
2.16.840.1.114222.4.5.7	BTAS001	Hemolysis
2.16.840.1.114222.4.5.7	BTAS002	Motility medium
2.16.840.1.114222.4.5.7	BTAS003	DFA (Cell Wall Antigen)
2.16.840.1.114222.4.5.7	BTAS004	Antimicrobial Susceptibility Testing
2.16.840.1.114222.4.5.7	BTAS005	Real-time PCR
2.16.840.1.114222.4.5.7	BTAS006	Lipase Reaction
2.16.840.1.114222.4.5.7	BTAS007	Anaerobic Requirement
2.16.840.1.114222.4.5.7	BTAS008	Time-resolved Fluorescence
2.16.840.1.114222.4.5.7	BTAS009	Coxiella burnetii Real-time PCR
2.16.840.1.114222.4.5.7	BTAS010	Microagglutination
2.16.840.1.114222.4.5.7	BTAS011	Real-time PCR
2.16.840.1.114222.4.5.7	BTAS012	CO2 Requirement
2.16.840.1.114222.4.5.7	BTAS013	Dye Tolerance Test
2.16.840.1.114222.4.5.7	BTAS014	Slide Agglutination
2.16.840.1.114222.4.5.7	BTAS015	Gel Formation
2.16.840.1.114222.4.5.7	BTAS016	Hydrogen Sulfide Test
2.16.840.1.114222.4.5.7	BTAS017	Tbilisi Phage lysis
2.16.840.1.114222.4.5.7	BTAS018	Real-time PCR
2.16.840.1.114222.4.5.7	BTAS019	Differential Stain (Wayson)
2.16.840.1.114222.4.5.7	BTAS020	Biochemical Screening
2.16.840.1.114222.4.5.7	BTAS021	Antimicrobial Susceptibility Testing (E-Test)
2.16.840.1.114222.4.5.7	BTAS022	Biochemical Identification/Characterization
2.16.840.1.114222.4.5.7	BTAS023	Mouse Inoculation
2.16.840.1.114222.4.5.7	BTAS024	Pulsed-Field Gel Electrophoresis
2.16.840.1.114222.4.5.7	BTAS025	Time-resolved Fluorescence

CodeSystem	Code	Term
2.16.840.1.114222.4.5.7	BTAS026	Real-time PCR (Vaccinnia)
2.16.840.1.114222.4.5.7	BTAS027	Real-time PCR (Orthopoxvirus)
2.16.840.1.114222.4.5.7	BTAS028	Real-time PCR (Variola)
2.16.840.1.114222.4.5.7	BTAS029	Biochemical Screening
2.16.840.1.114222.4.5.7	BTAS030	Antimicrobial Susceptibility Testing (E-Test)
2.16.840.1.114222.4.5.7	BTAS031	Biochemical Identification/Characterization
2.16.840.1.114222.4.5.7	BTAS032	Time-resolved Fluorescence
2.16.840.1.114222.4.5.7	BTAS033	Mouse Inoculation
2.16.840.1.114222.4.5.7	BTAS034	Pulsed-Field Gel Electrophoresis
2.16.840.1.114222.4.5.7	BTAS035	Time-resolved Fluorescence
2.16.840.1.114222.4.5.7	BTAS036	Bru. spp. Mouse bioassay
2.16.840.1.114222.4.5.7	BTAS037	B. Anthracis culture
2.16.840.1.114222.4.5.7	BTAS038	Sporulation (wet mount)
2.16.840.1.114222.4.5.7	BTAS039	Biochemical screening
2.16.840.1.114222.4.5.7	BTAS040	Colony morphology
2.16.840.1.114222.4.5.7	BTAS041	Antimicrobial Susceptibility Testing
2.16.840.1.114222.4.5.7	BTAS042	Time-resolved Fluorescence
2.16.840.1.114222.4.5.7	BTAS043	Separation of cellular proteins (SDS-PAGE)
2.16.840.1.114222.4.5.7	BTAS044	Western Blot
2.16.840.1.114222.4.5.7	BTAS045	Plasmid Profiling
2.16.840.1.114222.4.5.7	LRN-BCS08	Oxidase Test
2.16.840.1.114222.4.5.7	LRN-BCS09	Urease Test
2.16.840.1.114222.4.5.7	LRN-BCS10	Triple Sugar Iron
2.16.840.1.114222.4.5.7	LRN-BCS11	Growth at 42C
2.16.840.1.114222.4.5.7	LRN-BCS12	Gas from nitrate
2.16.840.1.114222.4.5.7	LRN-BCS13	Arginine dihydrolase
2.16.840.1.114222.4.5.7	LRN-BCS14	Maltose utilization
2.16.840.1.114222.4.5.7	LRN-BCS15	Sucrose utilization

6.8.   PHVS_BT_OBSRESCODES

Table Content Definition: Simple Value Set

Value Set Definition:

- Name: PHVS_BT_OBSRESCODES
- OID: 2.16.840.1.114222.4.11.246
- Based on Code System: Specimen type (HL7 Version 2 table 85)
- Code System OID: 2.16.840.1.113883.12.85

Functional Description

This value set enumerates the Observation Result Status Codes that are used in this type of message. It is a subset of the HL7 suggested code values from published table 85.

PHVS_BT_OBSRESCODES Table Codes

Public Health Bio-Terror Result Status Values

Code	Term
C	Correction record; replace final result

Code	Term
F	Final results
I	In lab; results pending
O	Order only (no result)
P	Preliminary results
R	Results not verified
S	Partial results
X	Cannot obtain results

6.9.   PHVS_BT_RISKCODES

Table Content Definition: Simple Value Set

Value Set Definition:

- Value Set Name: PHVS_BT_ RISKCODES
- OID: 2.16.840.1.114222.4.11.245
- Based on Code System: Specimen type (HL7 Version 2 table 489)
- Code System OID: 2.16.840.1.113883.12.489

Functional Description

This value set enumerates the subset of the HL7 version 2 Risk code values that are used in this type of message. It is a subset of the HL7 suggested code values from published table 0489.

PHVS_BT_ RISKCODES Table Codes

Public Health Bio-Terror Specimen Biohazard Risk Values

Code	Term
BHZ	Biohazard
BIO	Biological
INF	Infectious Material
INJ	Injury Hazard
POI	Poison

6.10.   PHVS_BT_SPECCOND

Table Content Definition: Simple Value Set

Value Set Definition:

- Value Set Name: PHVS_BT_ SPECCOND
- OID: 2.16.840.1.114222.4.11.247
- Based on Code System: Specimen condition (HL7 Version 2.5 table 0493)
- Code System OID: 2.16.840.1.113883.12.493

Functional Description

This value set enumerates the subset of the HL7 version 2.5 Risk code values that are

used in this type of message. It is a subset of the HL7 suggested code values from published table 0493. Note that these codes are introduced for HL7 v2.5 and this represents an extension for this implementation.

PHVS_BT_ SPECCOND Table Codes

Public Health Specimen Condition Values

Code	Term
AUT	Autolyzed
CLOT	Clotted
CON	Contaminated
COOL	Cool
FROZ	Frozen
HEM	Hemolyzed
ROOM	Room temperature
SNR	Sample not received

6.11. PHVS_BTSpecimen_type

Table Content Definition: Simple Value Set

Value Set Definition:

- Name: PHVS_ BTSpecimen_type
- OID: 2.16.840.1.114222.4.11.241
- Based on Code System: Specimen type (HL7 Version 2 table 487)
- Code System OID: 2.16.840.1.113883.12.487

Functional Description

This value set enumerates only those specimen types that are valid for the BT messages that this implementation guide defines. These codes describe both the inherent type of the specimen as well as the type of sampling site it was taken from.

PHVS_ BTSpecimen_type Table Codes

Public Health Specimen Type Code Values

Code	Term
ABS	Abscess
AIRS	Air Sample
ASERU	Serum, Acute
ASP	Aspirate
BBL	Blood bag
BLIST	Blister
BPU	Blood product unit
BX	Biopsy
CSERU	Serum, Convalescent
CSITE	Catheter Insertion Site
EEYE	Environmental, Eye Wash
EFF	Environmental, Effluent

Code	Term
EFOD	Environmental, Food
EISO	Environmental, Isolette
ENVIR	Environmental, Unidentified Substance
EOTH	Environmental, Other Substance
ESOI	Environmental, Soil
ESOS	Environmental, Solution (Sterile)
ETA	Aspirate, Endotrach
FAW	Environmental, Water (Well)
FGA	Fluid, Abdomen
GASA	Aspirate, Gastric
ILLEG	Source of Specimen Is Illegible
LAVG	Lavage, Bronhial
ORH	Other
PUS	Pus
PUSFR	Pustule
SAL	Saliva
SER	Serum
SPS	Environmental, Spore Strip
SPT	Sputum
SPTC	Sputum - coughed
SPTT	Sputum - tracheal aspirate
TASP	Aspirate, Tracheal
VOM	Vomitus
WB	Blood, Whole
WND	Wound
WNDA	Wound abscess
WNDD	Wound drainage
WNDE	Wound exudate
WWA	Environmental, Water

6.12.   PHVS_COUNTRY_NM

Table Content Definition: Simple Value Set

Value Set Definition:

- Name: PHVS_COUNTRY_NM
- OID: 2.16.840.1.114222.4.11.231
- Based on Code System: PH_COUNTRY_NM
- Code System OID: 2.16.840.1.114222.4.6.1

Functional Description

This Code System is a subset of ISO 3166 codes that is defined for, and maintained by, CDC for use in the Public Health Information Network. These are the two-digit ISO Country Codes, and this is the list of Countries in the world to be used in messages containing addresses that include Country as part of the postal address. It has been modified from ISO 3166 for use of the PHIN in the US.

PHVS_COUNTRY_NM Table Codes

Public Health Country Code Values

Code	Term
AD	ANDORRA
AE	UNITED ARAB EMIRATES
AF	AFGHANISTAN
AG	ANTIGUA AND BARBUDA
AI	ANGUILLA
AL	ALBANIA
AM	ARMENIA
AN	NETHERLANDS ANTILLES
AO	ANGOLA
AQ	ANTARCTICA
AR	ARGENTINA
AS	AMERICAN SAMOA
AT	AUSTRIA
AU	AUSTRALIA
AW	ARUBA
AZ	AZERBAIJAN
BA	BOSNIA AND HERZEGOVI
BB	BARBADOS
BD	BANGLADESH
BE	BELGIUM
BF	BURKINA FASO
BG	BULGARIA
BH	BAHRAIN
BI	BURUNDI
BJ	BENIN
BM	BERMUDA
BN	BRUNEI DARUSSALAM
BO	BOLIVIA
BR	BRAZIL
BS	BAHAMAS
BT	BHUTAN
BV	BOUVET ISLAND
BW	BOTSWANA
BY	BELARUS
BZ	BELIZE
CA	CANADA
CC	COCOS (KEELING) ISLA
CD	CONGO THE DEMOCRATIC REPUBLIC OF THE
CF	CENTRAL AFRICAN REPU
CG	CONGO
CH	SWITZERLAND
CI	CÔTE D'IVOIRE
CK	COOK ISLANDS
CL	CHILE
CM	CAMEROON
CN	CHINA
CO	COLOMBIA
CR	COSTA RICA
CU	CUBA
CV	CAPE VERDE
CX	CHRISTMAS ISLAND
CY	CYPRUS
CZ	CZECH REPUBLIC
DE	GERMANY

Code	Term
DJ	DJIBOUTI
DK	DENMARK
DM	DOMINICA
DO	DOMINICAN REPUBLIC
DZ	ALGERIA
EC	ECUADOR
EE	ESTONIA
EG	EGYPT
EH	WESTERN SAHARA
ER	ERITREA
ES	SPAIN
ET	ETHIOPIA
FI	FINLAND
FJ	FIJI
FK	FALKLAND ISLANDS (MA
FM	MICRONESIA FEDERATED STATES OF
FO	FAROE ISLANDS
FR	FRANCE
GA	GABON
GB	UNITED KINGDOM
GD	GRENADA
GE	GEORGIA
GF	FRENCH GUIANA
GH	GHANA
GI	GIBRALTAR
GL	GREENLAND
GM	GAMBIA
GN	GUINEA
GP	GUADELOUPE
GQ	EQUATORIAL GUINEA
GR	GREECE
GS	SOUTH GEORGIA AND TH
GT	GUATEMALA
GU	GUAM
GW	GUINEA-BISSAU
GY	GUYANA
HK	HONG KONG
HM	HEARD ISLAND AND MCD
HN	HONDURAS
HR	CROATIA
HT	HAITI
HU	HUNGARY
ID	INDONESIA
IE	IRELAND
IL	ISRAEL
IN	INDIA
IO	BRITISH INDIAN OCEAN
IQ	IRAQ
IR	IRAN ISLAMIC REPUBLIC OF
IS	ICELAND
IT	ITALY
JM	JAMAICA
JO	JORDAN
JP	JAPAN
KE	KENYA
KG	KYRGYZSTAN
KH	CAMBODIA

Code	Term
KI	KIRIBATI
KM	COMOROS
KN	SAINT KITTS AND NEVI
KP	KOREA DEMOCRATIC PEOPLE'S REPUBLIC OF
KR	KOREA REPUBLIC OF
KW	KUWAIT
KY	CAYMAN ISLANDS
KZ	KAZAKSTAN
LA	LAO PEOPLE'S DEMOCRATIC REPUBLIC
LB	LEBANON
LC	SAINT LUCIA
LI	LIECHTENSTEIN
LK	SRI LANKA
LR	LIBERIA
LS	LESOTHO
LT	LITHUANIA
LU	LUXEMBOURG
LV	LATVIA
LY	LIBYAN ARAB JAMAHIRI
MA	MOROCCO
MC	MONACO
MD	MOLDOVA REPUBLIC OF
MG	MADAGASCAR
MH	MARSHALL ISLANDS
MK	MACEDONIA THE FORMER YUGOSLAV REPUBLIC OF
ML	MALI
MM	MYANMAR
MN	MONGOLIA
MO	MACAU
MP	NORTHERN MARIANA ISL
MQ	MARTINIQUE
MR	MAURITANIA
MS	MONTSERRAT
MT	MALTA
MU	MAURITIUS
MV	MALDIVE
MW	MALAWI
MX	MEXICO
MY	MALAYSIA
MZ	MOZAMBIQUE
NA	NAMIBIA
NC	NEW CALEDONIA
NE	NIGER
NF	NORFOLK ISLAND
NG	NIGERIA
NI	NICARAGUA
NL	NETHERLANDS
NO	NORWAY
NP	NEPAL
NR	NAURU
NU	NIUE
NZ	NEW ZEALAND
OM	OMAN
PA	PANAMA
PE	PERU
PF	FRENCH POLYNESIA
PG	PAPUA NEW GUINEA

Code	Term
PH	PHILIPPINES
PK	PAKISTAN
PL	POLAND
PM	SAINT PIERRE AND MIQ
PN	PITCAIRN
PR	PUERTO RICO
PS	PALESTINIAN TERRITOR OCCUPIED
PT	PORTUGAL
PW	PALAU
PY	PARAGUAY
QA	QATAR
RE	RÉUNION
RO	ROMANIA
RU	RUSSIAN FEDERATION
RW	RWANDA
SA	SAUDI ARABIA
SB	SOLOMON ISLANDS
SC	SEYCHELLES
SD	SUDAN
SE	SWEDEN
SG	SINGAPORE
SH	SAINT HELENA
SI	SLOVENIA
SJ	SVALBARD AND JAN MAY
SK	SLOVAKIA
SL	SIERRA LEONE
SM	SAN MARINO
SN	SENEGAL
SO	SOMALIA
SR	SURINAME
ST	SAO TOME AND PRINCIP
SV	EL SALVADOR
SY	SYRIAN ARAB REPUBLIC
SZ	SWAZILAND
TC	TURKS AND CAICOS ISL
TD	CHAD
TF	FRENCH SOUTHERN TERR
TG	TOGO
TH	THAILAND
TJ	TAJIKISTAN
TK	TOKELAU
TM	TURKMENISTAN
TN	TUNISIA
TO	TONGA
TP	EAST TIMOR
TR	TURKEY
TT	TRINIDAD AND TOBAGO
TV	TUVALU
TW	TAIWAN PROVINCE OF CHINA
TZ	TANZANIA UNITED REPUBLIC OF
UA	UKRAINE
UG	UGANDA
UM	UNITED STATES MINOR
US	UNITED STATES
UY	URUGUAY
UZ	UZBEKISTAN
VA	HOLY SEE (VATICAN CI

Code	Term
VC	SAINT VINCENT AND TH
VE	VENEZUELA
VG	VIRGIN ISLANDS BRITISH
VI	VIRGIN ISLANDS U.S.
VN	VIET NAM
VU	VANUATU
WF	WALLIS AND FUTUNA
WS	SAMOA
YE	YEMEN
YT	MAYOTTE
YU	YUGOSLAVIA
ZA	SOUTH AFRICA
ZM	ZAMBIA
ZW	ZIMBABWE

6.13.   PHVS_ EI_Type

Table Content Definition: Compound Value Set

Value Set Definition:

- Value Set Name: PHVS_EI_Type
- Value Set OID: 2.16.840.1.114222.4.11.228
- Component #1:
  - Value Set PHVS_EI_TYPE_HL7
  - Value Set OID: 2.16.840.1.114222.4.11.62
  - Based on Code System: EntityIDType (HL7 v2 table 148)
  - Code System OID: 2.16.840.1.113883.5.148
- Component #2:
  - Value Set PHVS_EI_TYPE_CDC
  - Value Set OID: 2.16.840.1.114222.4.11.61
  - Based on Code System: PH_EI_TYPE_CDC
  - Code System OID: 2.16.840.1.114222.4.5.1

Functional Description:

This Value Set comprises all legal values for Entity Id Type codes; it is drawn from two coding system, a CDC coding system and an HL7 coding system. These values describe the semantic type of an identifier, such as Social Security Number or Account Number. Note that the codes in this table are drawn from two different coding systems, an internal CDC coding system and an HL7 Version 3 coding system, therefore the OID for the appropriate coding system is shown in the table.

PHVS_EI_Type Table Codes

Public Health Entity Identifier Type Values

CodeSystem	Code	Term
2.16.840.1.113883.5.148	AN	Account number
2.16.840.1.113883.5.148	AS	Alias social security number
2.16.840.1.113883.5.148	BR	Birth registry number

CodeSystem	Code	Term
2.16.840.1.113883.5.148	CI	CHIP Identification number
2.16.840.1.113883.5.148	DL	Driver's license number
2.16.840.1.113883.5.148	DN	Doctor number
2.16.840.1.113883.5.148	EI	Employee number
2.16.840.1.113883.5.148	EN	Employer number
2.16.840.1.113883.5.148	FI	Facility ID
2.16.840.1.113883.5.148	GI	Guarantor internal identifier
2.16.840.1.113883.5.148	GN	Guarantor external identifier
2.16.840.1.114222.4.5.1	LID	Local/ NEDSS Identifier
2.16.840.1.113883.5.148	LN	License number
2.16.840.1.113883.5.148	LR	Local registry ID
2.16.840.1.113883.5.148	MA	Medicaid number
2.16.840.1.113883.5.148	MC	Medicare number
2.16.840.1.114222.4.5.1	MID	Manufacturer Identifier
2.16.840.1.114222.4.5.1	MLN	Manufacturer Lot Number
2.16.840.1.113883.5.148	MR	Medical record number
2.16.840.1.113883.5.148	MSSN	Mother's social security number
2.16.840.1.113883.5.148	NE	National employer identifier
2.16.840.1.113883.5.148	NH	National health plan identifier
2.16.840.1.113883.5.148	NI	National unique individual identifier
2.16.840.1.113883.5.148	NN	National person identifier xxx is ISO country code
2.16.840.1.113883.5.148	NPI	National provider identifier
2.16.840.1.114222.4.5.1	OTH	Other
2.16.840.1.113883.5.148	PI	Patient internal identifier
2.16.840.1.113883.5.148	PIN	Prison identification number
2.16.840.1.113883.5.148	PN	Person number
2.16.840.1.113883.5.148	PRN	Provider number
2.16.840.1.113883.5.148	PT	Patient external identifier
2.16.840.1.113883.5.148	RR	Railroad retirement number
2.16.840.1.113883.5.148	RRI	Regional registry ID
2.16.840.1.113883.5.148	RW	Ryan White identifier
2.16.840.1.113883.5.148	SL	State license
2.16.840.1.113883.5.148	SR	State registry ID
2.16.840.1.113883.5.148	SS	Social security number
2.16.840.1.113883.5.148	U	Unspecified
2.16.840.1.113883.5.148	UPIN	Medicare/HCFA's universal physician identifer No.
2.16.840.1.113883.5.148	VN	Visit number
2.16.840.1.113883.5.148	VS	VISA
2.16.840.1.113883.5.148	WC	WIC identifier
2.16.840.1.113883.5.148	XX	Organization identifier

6.14. PHVS_OBS_INTRP

Table Content Definition: Compound Value Set

Value Set Definition:

- Value Set Name: PHVS_OBS_INTRP
- Value Set OID: 2.16.840.1.114222.4.11.234
- Component #1:

- o Value Set PHVS_OBS_INTRP_HL7
  - o Value Set OID: 2.16.840.1.114222.4.11.236
  - o Based on Code System: HL7 v2 Table 0078
  - o Code System OID: 2.16.840.1.113883.12.78
- Component #2:
  - o Value Set PHVS_OBS_INTRP_CDC
  - o Value Set OID: 2.16.840.1.114222.4.11.235
  - o Based on Code System: PH_OBS_INTRP_CDC
  - o Code System OID: 2.16.840.1.114222.4.5.12

Functional Description:

This table contains all the codes defined for abnormal flags and observation interpretations for version 2 table 78 plus NEDSS/CDC extension codes defined in coding system PH_OBS_INTRP_CDC.

PHVS_ OBS_INTRP Table Codes

Public Health Observation Interpretation Values

CodeSystem	Code	Term
2.16.840.1.113883.12.78	<	Below absolute low-off instrument scale
2.16.840.1.113883.12.78	>	Above absolute high-off instrument scale
2.16.840.1.113883.12.78	A	Abnormal; non-numeric results
2.16.840.1.113883.12.78	AA	Very abnormal; non-numeric units, panic
2.16.840.1.113883.12.78	B	Better--use when direction not relevant
2.16.840.1.113883.12.78	D	Significant change down
2.16.840.1.113883.12.78	H	Above high normal
2.16.840.1.113883.12.78	HH	Above upper panic limits
2.16.840.1.113883.12.78	I	Intermediate
2.16.840.1.113883.12.78	L	Below low normal
2.16.840.1.113883.12.78	LL	Below lower panic limits
2.16.840.1.113883.12.78	MS	Moderately susceptible
2.16.840.1.113883.12.78	N	Normal (applies to non-numeric results)
2.16.840.1.113883.12.78	null	No range defined, or normal ranges don't apply
2.16.840.1.114222.4.5.12	OTH	Other abnormal
2.16.840.1.113883.12.78	R	Resistant
2.16.840.1.113883.12.78	S	Susceptible
2.16.840.1.113883.12.78	U	Significant change up
2.16.840.1.113883.12.78	VS	Very susceptible*
2.16.840.1.113883.12.78	W	Worse--direction not relevant

6.15.   PHVS_P_ETHN_GRP

Table Content Definition: Simple Value Set

Value Set Definition:

- Name: PHVS_P_ETHN_GRP
- OID: 2.16.840.1.114222.4.11.233
- Based on Code System: Ethnic group (HL7 Version 2 User Defined Table 189)

- Code System OID: 2.16.840.1.113883.12.189

Functional Description

This is a value set the currently encompasses all of the recommended codes in the published HL7 version 2 Ethnic group table. The codes used may change for public health and surveillance purposes, but the code system will remain the same since this is a User Defined table (but the codes included in the Value Set may change).

PHVS_ P_ETHN_GRP Table Codes

Public Health Ethnic Group Values

Code	Term
H	Hispanic or Latino
N	Not Hispanic or Latino
U	Unknown

6.16.   PHVS_SEX

Table Content Definition: Simple Value Set

Value Set Definition:
- Name: PHVS_Sex
- OID: 2.16.840.1.114222.4.11.206
- Based on Code System: Administrative sex (HL7 v2 table 1)
- Code System OID: 2.16.840.1.113883.12.1

Functional Description

This is a Public Health Value set for NEDSS built on the set of codes defined by HL7 Version 2 Administrative Sex; note that these are not the same codes as are used in the HL7 Version 3 Administrative Gender code system. These codes are to indicate the apparent gender of a person from an administrative standpoint; any reason for ambiguity between Male and Female should be assigned the 'Unknown' code.

PHVS_SEX Table Codes

Public Health Gender Values

Code	Term
F	Female
M	Male
U	Unknown

6.17.   HL70003 (Event Type)

Table Content Definition: Code System (HL7)

Code System Name: Event type

Code System OID: 2.16.840.1.113883.12.3

Functional Description

This table contains values defined by HL7; these are all of the legal codes for this field. Note that this is a table that is not user-modifiable, so it has all the entries that are legal.

Only the value 'R01' is used in the messages covered by this implementation guide.

The list of table values has been omitted.

6.18.   HL70076 (Message Type)

Table Content Definition: Code System (HL7)

Code System Name: Message type

Code System OID: 2.16.840.1.113883.12.76

Functional Description

This table contains values defined by HL7; these are all of the legal codes for this field. Note that this is a table that is not user-modifiable, so it has all entries that are legal.

Only the value 'ORU' is used in the messages covered by this implementation guide.

The list of table values has been omitted.

6.19.   HL70103 (Processing ID)

Table Content Definition: Code System (HL7)

Code System Name: Processing ID

Code System OID: 2.16.840.1.113883.12.103

Functional Description

This table contains values defined by HL7; these are all of the legal codes for this field. These codes permit the interface to be easily deployed and debugged without having to keep track of test messages in the back end.

HL70103 Table Codes - Processing ID

Code	Term
D	Debugging
P	Production
T	Training

6.20. HL70104 (Version ID)

Table Content Definition: Code System (HL7)

Code System Name: Version ID

Code System OID: 2.16.840.1.113883.12.104

Functional Description

This table contains values defined by HL7; these are all of the legal codes for this field. Note that this is a table that is not user-modifiable, so it has all entries that are legal for HL7. However, only messages that are V2.4 (HL7 Release 2.4) will be generated and processed.

HL70104 Table Codes - Version ID

Code	Term	Release Date
2.0	Release 2.0	September 1988
2.0D	Demo 2.0	October 1988
2.1	Release 2. 1	March 1990
2.2	Release 2.2	December 1994
2.3	Release 2.3	March 1997
2.3.1	Release 2.3.1	May 1999
2.4	Release 2.4	November 2000

6.21. HL70119 (Order Control Code)

Table Content Definition: Code System (HL7)

Code System Name: Order control codes

Code System OID: 2.16.840.1.113883.12.119

Functional Description

This table contains values defined by HL7, and are all of the legal codes for this field. Note that this is a table that is not user-modifiable, so it has all entries that are legal for HL7.

"NW" is the only code value that is currently supported.

The list of table values has been omitted.

6.22.   HL70125 (Value Type)

Table Content Definition: Code System (HL7)

Code System Name: Value type

Code System OID: 2.16.840.1.113883.12.125

Functional Description

This table contains values defined by HL7, and are all of the legal codes for this field. Note that this is a table that is not user-modifiable, so it has all entries that are legal for HL7; only code values 'CE' (coded entry), 'TX' (text), 'NM' (numeric) are supported for this application.

HL70125 Table Codes - Value type

Code	Term
AD	Address
CE	Coded Entry
CF	Coded Element With Formatted Values
CK	Composite ID With Check Digit
CN	Composite ID And Name
CP	Composite Price
CX	Extended Composite ID With Check Digit
DT	Date
ED	Encapsulated Data
FT	Formatted Text (Display)
MO	Money
NM	Numeric
PN	Person Name
RP	Reference Pointer
SN	Structured Numeric
ST	String Data.
TM	Time
TN	Telephone Number
TS	Time Stamp (Date & Time)
TX	Text Data (Display)
XAD	Extended Address
XCN	Extended Composite Name And Number For Persons
XON	Extended Composite Name And Number For Organizations
XPN	Extended Person Name
XTN	Extended Telecommunications Number

6.23.   HL70155 (Application Acknowledgement)

Table Content Definition: Code System (HL7)

Code System Name: Application acknowledgment

Code System OID: 2.16.840.1.113883.12.155

Functional Description

This table contains values defined by HL7, and are all of the legal codes for this field.

Note that this is a table that is not user-modifiable, so it has all entries that are legal for HL7. Note also that this table is not used in the initial release of the messaging software, and the field is not valued.

HL70155 Table Codes - Application acknowledgment

Code	Term
AL	Always
ER	Error/reject conditions only
NE	Never
SU	Successful completion only

6.24.   HL70207 (Processing Mode)

Table Content Definition: Code System (HL7)

Code System Name: Processing mode

Code System OID: 2.16.840.1.113883.12.207

Functional Description

This table contains values defined by HL7, and are all of the legal codes for this field. These codes permit the interface to be easily deployed and debugged without having to keep track of test messages in the back end. Note that this code is not placed in the field (the 'not present' value below) for normal production processing (the default).

HL70207 Table Codes - Processing mode

Code	Term
A	Archive
I	Initial load
Not present	Not present (the default, meaning current processing)
R	Restore from archive
T	Current processing, transmitted at intervals (scheduled or on demand)

6.25.   HL70354 (Message Structure)

Table Content Definition: Code System (HL7)

Code System Name: Message structure

Code System OID: 2.16.840.1.113883.12.354

Functional Description

This table contains values defined by HL7, and are all of the legal codes for this field. Note that this is a table that is not user-modifiable, so it has all entries that are legal, although only the value 'ORU_R01' is used in the messages covered by this implementation guide.

The list of table values has been omitted.

6.26.   HL70369 (Specimen Role)

Table Content Definition: Code System (HL7 V2 User-Defined Table)

Code System Name: Specimen Role

Code System OID: 2.16.840.1.113883.12.369

Functional Description

This table contains values drawn from HL7 version 2 which identify what type of role the specimen plays in the test or assay. [Note: This HL7 table does not currently provide a code for Environmental samples.]

HL70369 Table Codes - Specimen Role

Code	Term
B	Blind Sample
C	Calibrator
P	Patient
Q	Control specimen
R	Replicate (of patient sample as a control)

6.27.   HL70371 (Additive)

Table Content Definition: Code System (HL7 V2 User-Defined Table)

Code System Name: Additive

Code System OID: 2.16.840.1.113883.12.371

Functional Description

This table contains values drawn from HL7 version 2 which identify the additives in a specimen.

HL70371 Table Codes - Additive

Code	Term
BOR	Borate
C32	3.2% Citrate
C38	3.8% Citrate
EDTK	Potassium/K EDTA
EDTN	Sodium/Na EDTA
HCL6	6N HCL
HEPL	Lithium/Li Heparin
HEPN	Sodium/Na Heparin

6.28. HL70376 (Special Handling Considerations)

Table Content Definition: Code System (HL7 V2 User-Defined Table)

Code System Name: Special handling considerations

Code System OID: 2.16.840.1.113883.12.376

Functional Description

This table contains values drawn from HL7 version 2 which capture instructions for the handling of specimens.

HL70376 Table Codes - Special handling considerations

Code	Term
AMB	Ambient Temperature
C37	Body temperature
CAMB	Critical ambient temperature
CATM	Critical do not expose to atmosphere - Do not uncap
CFRZ	Critical Frozen
CREF	Critical refrigerated
DFRZ	Deep frozen
DRY	Dry
FRZ	Frozen temperature
MTLF	Metal Free
NTR	Liquid nitrogen
PRTL	Protect from light
PSA	Do not shake
PSO	No shock
REF	Refrigerated temperature
UFRZ	Ultra frozen
UPR	Upright

6.29. HL70445 (Identity Reliability)

Table Content Definition: Code System (HL7 V2 User-Defined Table)

Code System Name: Identity Reliability Code

Code System OID: 2.16.840.1.113883.12.445

Functional Description

This table contains values from HL7 version 2 which define the credibility of the Patient identity.

HL70445 Table Codes - Identity Reliability Code

Code	Term
AL	Patient/Person Name is an Alias
UA	Unknown/Default Address

Code	Term
UD	Unknown/Default Date of Birth
US	Unknown/Default Social Security Number

6.30.   HL70488 (Specimen Collection Method)

Table Content Definition: Code System (HL7 version 2.5)

Code System Name: Specimen Collection Method

Code System OID: 2.16.840.1.113883.12.488

Functional Description

This table contains values used for the Specimen Collection Method. Note that this was added for version 2.5 for the SPM segment; this is the table used in the ZPM segment in the message defined in this Implementation Guide, although this message is a v2.4 message with 2.5 extensions; this table is one of those extensions.

HL70488 Table Codes - Specimen Collection Method

Code	Term
ANP	Plates, Anaerobic
BAP	Plates, Blood Agar
BCAE	Blood Culture, Aerobic Bottle
BCAN	Blood Culture, Anaerobic Bottle
BCPD	Blood Culture, Pediatric Bottle
BIO	Biopsy
CAP	Capillary Specimen
CATH	Catheterized
CVP	Line, CVP
EPLA	Environmental, Plate
ESWA	Environmental, Swab
FNA	Aspiration, Fine Needle
KOFFP	Plate, Cough
LNA	Line, Arterial
LNV	Line, Venous
MARTL	Martin-Lewis Agar
ML11	Mod. Martin-Lewis Agar
MLP	Plate, Martin-Lewis
NYP	Plate, New York City
PACE	Pace, Gen-Probe
PIN	Pinworm Prep
PNA	Aterial puncture
PRIME	Pump Prime
PUMP	Pump Specimen
QC5	Quality Control For Micro
SCLP	Scalp, Fetal Vein
SCRAPS	Scrapings
SHA	Shaving
SWA	Swab
SWD	Swab, Dacron tipped
TMAN	Transport Media, Anaerobic

Code	Term
TMCH	Transport Media, Chalamydia
TMM4	Transport Media, M4
TMMY	Transport Media, Mycoplasma
TMOT	Transport Media,
TMP	Plate, Thayer-Martin
TMPV	Transport Media, PVA
TMSC	Transport Media, Stool Culture
TMUP	Transport Media, Ureaplasma
TMVI	Transport Media, Viral
VENIP	Venipuncture
WOOD	Swab, Wooden Shaft

6.31.   HL70491 (Specimen Quality)

Table Content Definition: Code System (HL7 V2 User-Defined Table)

Code System Name: Specimen quality

Code System OID: 2.16.840.1.113883.12.491

Functional Description

This table contains values drawn from HL7 version 2 which identify the quality of a specimen.

HL70491 Table Codes - Specimen quality

Code	Term
E	Excellent
F	Fair
G	Good
P	Poor

7. Use of Object Identifiers (OIDs)

In order for computers to manipulate records about objects, the objects, and often the records about the objects, need to be uniquely identified in some way. There are many mechanisms for doing this, and two currently popular ones are UUIDs and OIDs. Health Level Seven has identified OIDs as the preferred mechanisms for the unambiguous global identity of coding systems. This document describes how OIDs are used by CDC to support the requirements of the PHIN (Public Health Information Network).

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.

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 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 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.

7.1. Structure and Use at CDC

BT Laboratory Results Messaging will use 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, e.g., ORC.3 and CX data types, e.g., PID.3.

- 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. (Refer to Section 6 above for more discussion). This usage is shown within the CE, e.g., PID.22, CWE, e.g., ZPN.4, and CQ data types, e.g., ZPN.12.

All of the OIDs that are assigned by CDC to support BT Laboratory Results 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 BT Laboratory Results Messaging will start with the PHIN root.

7.2. OIDs for Well Known Objects

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

1. Start with the PHIN root.

2. Add a suffix that indicates this OID represents a partner ID.

3. 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].

Given that the current implementation includes cities participating in the BioWatch program as senders, there would be potential adverse consequences from including this set of OIDs in a widely distributed document. Therefore, implementers of BT Laboratory Results Messaging will be provided with a list of the OIDs they need to identify message senders and message receivers. This list will be provided using a different delivery vehicle than this document.

7.3.   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, which for BT Laboratory Results Messaging ,will be a LRN lab. The namespace OIDs are built under the assumption that identifier uniqueness is guaranteed by 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 BT Response 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. As noted above, these partner ids will be issued separately.

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
Order (Placer/Filler) ID	3.5
Container ID	3.7
Accession (Specimen) ID	3.9

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.

7.4. OIDs for Vocabulary Items

Vocabulary items used in BT Laboratory Results Messaging 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.

8. Miscellaneous

The section contains additional material for use be implementers.

8.1. Separators

The table below shows the separators that will be supported by BT Laboratory Results Messaging.

Separator Type	Value	Field Path	Replacement
Segment	\x0D		
Field Repeat	~	MSH.EncodingCharacters	\R\
Null Value	""		
Field Level 1	|	MSH.FieldSeparator	\F\
Field Level 2	^	MSH.EncodingCharacters	\S\
Field Level 3	&	MSH.EncodingCharacters	\T\
User Defined String 1	\	MSH.EncodingCharacters	\E\

8.2. References:

Health Level Seven, Version 2.4 2000 Chapter 13

Health Level Seven, Version 2.5 2002 Chapter 7