Iowa Department of Public Health

Implementation Guide and ELR Constrained profile V1.04.03.7

for the ELR 2.5.1 HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1 (US Realm)

This publication was supported by collaboration between IDPH and the Laboratory Technical Implementation Assistance for Public Health (LTIAPH) under Cooperative Agreement Number 1U50HK000105 from the Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC.

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Revision History

Date	Document Version	Profile Version	Release Status	Description
03-06-2012	1.0	1	Production	Published version 1.01
06-5-2012	1.0	2	Production	Published version 1.02
08-07-2012	1.0	3	Production	Published version 1.03
02-28-2013	1.0	4	Production	Published version 1.04
03-06-2013	1.0	4.01	Production	Published version 1.04.01
05-06-2014	1.0	4.02	Production	Published version 1.04.02
02-11-2015	1.0	4.03	Production	Published version 1.04.03
10-19-2015	1.0	4.03.1	Production	Published version 1.04.03.1
10/03/2016	1.0	4.03.2	Production	Published version 1.04.03.2
11/15/2017	1.0	4.03.3	Production	Published version 1.04.03.3
7/31/2018	1.0	4.03.4	Production	Published version 1.04.03.4
4/10/2020	1.0	4.03.5	Production	Published version 1.04.03.5
6/14/2020	1.0	4.03.6	Production	Published version 1.04.03.6

Changes and Corrections		
Section	Original content/description of change	change
Page 27 Obtaining OIDS and OID Registry	Addition to original content	See information related to CDC OID registry
Table 13, OBR.4	Use the same LOINC as in OBX.3.	~~Use the same LOINC as in OBX.3.~~ (removed)
Table 13, OBR4.7; Table 14, OBX3.7	Recommended if a LN is identified in component 3. This can be Hardcoded LOINC is versioned every 6 Months.	Recommended if a LN is identified in component 3. This can be Hardcoded LOINC is versioned every 6 Months. Facilities should use the latest available version.
Table 14, OBX.23	CLIA&2.16.840.1.113883.19.4.6&ISO	CLIA&2.16.840.1.113883.4.7&ISO
Table 15. SPM.4	Only included SNOMED code set	Added HL70487 as concept code and in example.
Table 19: HL7 table cross mapping…	Page 119 Missing HL7 Table names	Page 119 added HL7 Table names
Table 19: HL7 table cross mapping…	Page 119 missing: HL70105 Source of Comment	Page 119 added: HL70105 Source of Comment
LOINC and SNOMED Encoding guidance	Addition to original content	Page 120 added paragraph and hyperlink
Table 20, 11368-8	HL7 Data Type=CWE	HL7 Data Type=DTM
Appendix-A: Sample Message with Storyboard	`NTE|1|GI|`	`NTE|1|L|`
Appendix – E: Ordinal Value Set	Not present	Newly added – see Appendix E.
Appendix – E: Credits	Appendix – E: Credits	Appendix – Z: Credits
Version 1.04 changes		
Section	Original content/description of change	change
Table of Contents	Rearranged sections for better organization in the guide.	
Acronyms and Definitions	New acronym and description	NIST
Statewide Implementation of Electronic Laboratory Reporting (ELR) & Meaningful Use for Public Health	Revised workflow	
The Iowa Health Information Network (IHIN) and Electronic Laboratory Reporting (ELR)	New section and subsections: Revised comments in message segment tables	>new subsection: Using the IDPH smartLab™ Provider Portal and the CWE Data Type Codes appearing in the second triplet of the CWE data type must be mapped to IDPH codes in the IDPH smartLab™ Provider Portal. **See comments** related to Race, Marital Status, Ethnicity, Relationship, Abnormal Flags, Universal Service Identifier, Observation Identifier, Observation Value, and Specimen Type in the various segment tables below.

		>new subsection: The IDPH Simplified ELR Message Format Specification >new subsection: Establishing the connection for ELR Reporting
Transport Methods	New comment about transport methods.	**IDPH supports only DIRECT™ messaging through the IHIN.**
Meaningful Use Message Testing Options	New Heading and introductory paragraph	
National Institutes of Standards and Technology (NIST) Message Testing Tool	New section describing the newly developed and preferred message testing tool.	
Table 5		Renamed Table 5.1
Table 5.1, heading above	"Message Structure"	"Basic message structure with the Undefined (O) and most Optional (RE) segments omitted for clarity:"
Section	Original content/description of change	change
Table 5.1, introductory paragraph	"Below is the basic message structure for an ELR 2.5.1 ORU^R01 message with undefined (O) and most optional (RE) fields and groups omitted for clarity. Refer the ELR 2.5.1 guide for the fully defined ORU^R01 abstract message."	"Below is the basic message structure for the IDPH ELR251 ORU^R01 message. The undefined (O) and most optional (RE) fields and groups found in the HL7 ELR251 IG have been omitted for clarity. Facilities sending ELR to Iowa should follow this implementation guide. Refer the ELR251PH-IG guide for the fully defined ORU^R01 abstract message. "
Table 5.1, Message Structure	Did not include NK1 or PV1 segments	Inserted NK1 and PV1 segments
Table 5.1, Message Structure	Changed SPM Cardinality from [0..*] Changed SPM Usage from C(R/RE)	To [1..*] To R
Table 5.2, Batch Abstract Message Syntax	New table	
Table 8, PID.7, Date of birth		See change in IDPH Comments.
Table 8, PID.22, Ethnicity	Changed value set from HL70396	To HL70189
Table 13, OBR.4	For IDPH, the standard code must populate the first triplet and the local code the second OBR-4 is for information about the ordered test.	For IDPH, assume the standard codes populate the first triplet and the local codes populate the second triplet. OBR.4 is for information about the ordered test. OBR.4 is often a panel, order or group code; other times, it may be the same as the OBX.3 or one of the OBX.3 underneath it."
Table 14, OBX.4, Sub ID	"Any test that requires multiple (2 or more) separate, but linked OBX segments that must be considered together for a machine to comprehend a single result, use the sub-ID to link the 2 OBX segments. Example: OBX|1|CWE|40440-0^XXX microorganism	OBX4 Sub-ID is conditionally required when multiple OBX segments are reported within a single OBR segment. If two instances of OBX relate to the same observation result, their OBX 4 values must be the same. If they relate to independent observation results, their OBX4 values must be different. Any test that requires multiple (2 or more) separate, but linked OBX segments that must be considered together for a machine to

	serotype|1|64636003^Salmonella Telelkebir^SCT… OBX|2|ST|56475-7^XXX microorganism antigenic formula|1 |13,23:d:e,n,z15... Harmonized condition predicate: Required if there is more than one OBX with the same OBX-3 Observation Identifier associated with the same OBR. Normally, this field is populated with a number, but text values may be used also."	comprehend a single result, use the sub-ID to link the 2 OBX segments. Example: OBX|1|CWE|^^^L40440-0^XXX microorganism serotype^L|1|^^^L64636003^Salmonella Telelkebir^L… OBX|2|DT|^^^L11368-8^illness or injury onset date and time^L|1 |20130206... Harmonized condition predicate: Conditionally required if there is more than one OBX within an OBR. This field should be populated with a sequential number (1, 2, 3, etc.) beginning with 1 for the first linked set of OBXs.
Section	Original content/description of change	change
Table 14, OBX.23, Example Data column	"2.16.840.1.113883.19.4.6"	"2.16.840.1.113883.4.7"
Table sequence changes	Table 16 (SN data type in OBX.5) Table 17 (CWE data type in OBX.5) Table 18 (ST data type in OBX.5)	Added Table 16.1 (File Header Segment) Added Table 16.2 (File Trailer Segment) Added Table 16.3 (Batch Header Segment) Added Table 16.4 (Batch Trailer Segment) Table 17.1 (SN data type in OBX.5) Table 17.2 (CWE data type in OBX.5) Table 17.3 (ST data type in OBX.5) Added Table 17.4 (DT data type in OBX.5) There is no Table 18
Table 16.3, Use of string data type in OBX.5	For text only results that are linked to a coded result – see example below. Text only results must be linked to a coded result because this is necessary to identify the reportable condition. In the absence of a coded result, the message must contain the reportable condition as a coded element.	**IDPH does not support the String data type for OBX2.** This section is included only for informational purposes as this is a data type referenced in the HL7 Implementation Guide. If a facility is using the IDPH Simplified ELR Message Format Specification, this message may contain ST data types, but the ST data type is not used in OBX2. This format allows a facility to submit a simple message that is then transformed into a standard HL7 2.5.1 message.
Table 20, Epidemiologically Important Information		Removed LOINC Code 68991-9, Epidemiologically Important Information Removed LOINC Code 21612-7, Reported Patient Age Removed LOINC Code 49541-6, Fasting Status [Presence] - Reported
How to implement additional epidemiologically important information		See changes to description and changes to example.

How to report coded data when no Standard term exists:	Modified description for subsection '**All fields except OBX.5:**'	See modified subsection
Section	Original content/description of change	change
How to report coded data when no Standard term exists:	Modified description for subsection '**For coded results in OBX.5:**'	See modified subsection
Version 1.04.01changes		
Section	Original content/description of change	change
National Institutes of Standards and Technology (NIST) ELR Validation Tool	New item C.	If you are NOT relying on the smartLab™ to produce the standard HL7 2.5.1 **test** message, the NIST tool does not support a batch message. However, when moving to submission to IDPH, the IDPH smartLab™ requires that all messages be wrapped as a batch.
MSH.2 Encoding Characters	^~\&	^~\&# Added '#' as an Encoding Character. This is a required character in the NIST ELR Validation Tool.
MSH.15	IDPH Comment removed: IDPH will be sending ACKs so you should expect ACKs and therefore use AL (Always). Changed example from 'AL' to 'NE'	~~IDPH will be sending ACKs so you should expect ACKs and therefore use AL (Always).~~ NE
MSH.21		When sending messages to the IDPH smartLab™, messages are required to be wrapped in a batch, so use PHLabReport-Batch
Version 1.04.01changes		
Section	Original content/description of change	change
Transport Methods	Included Direct Secure Messaging information	Removed Direct Secure Messaging as a supported transport method for Meaningful Use electronic laboratory reporting.

Version 1.04.02changes		
Section	Original content/description of change	change
Reportable conditions versus laboratory results	Table 1: **Reportable Communicable and Infectious Diseases** contained a table of communicable and infectious diseases.	The table was replaced with a hyperlink to the CADE web page listing the same information which is updated more frequently than this guide: http://idph.iowa.gov/CADE/reportable-diseases
Reportable conditions versus laboratory results	Table 2: **Environmental and Occupational Surveillance Reportable Poisonings, Injuries, Diseases, Conditions, and Exposures** contained a table of most of the laboratory result-based environmental health conditions, but blood lead testing was not included.	Added blood lead testing information to the list of items that should be included in electronic laboratory reporting.
Transport Methods opening paragraph	**IDPH supports only DIRECT™ messaging through the IHIN.**	**IDPH supports the transport methods in the table below.**
Transport Methods table	Originally listed a variety of potential transport methods	Reduced list to only those ELR transport methods supported by IDPH.
Transport Methods, Option: VPN, Notes		Added note: 1. Supported as of July 1, 2014.
Transport Methods		Added cross-reference to "IHIN" in the table of Acronyms and Definitions.
Table 14 (OBX segment), OBX.5, IDPH comments	The Data type Varies: see the section "[missing section title and page number cross reference]	The Data type Varies: see the section "CWE - Coded with Exceptions" on page 140.
How to implement additional epidemiologically important information	Added clarification for how to provide the additional epidemiologically important information when two (2) OBR segments are included in a single message associated with the same person.	If there are multiple OBR segments associated with the same person in a single message, additional epidemiologically important information should be provided as a separate OBX segment associated with each OBR.
Version 1.04.03.1 changes		
Section	Original content/description of change	change
Throughout	Hyperlinks to the IDPH web site with domain of idph.state.ia.us	Updated old hyperlinks to the IDPH web site with domain of idph.iowa.gov (new website as of 10/19/2015)
Version 1.04.03.2 changes		
Section	Original content/description of change	change
Obtaining OIDS and OIDS registry	Outdated hyperlink to CDC web page.	Updated old hyperlink to current CDC web page.
Version 1.04.03.3 changes		
Section	Original content/description of change	change
NEW section: smartLab Training Series	Not present	Added new section with links to on-line smartLab training video series

Version 1.04.03.4 changes		
Section	Original content/description of change	change
Statewide Implementation of Electronic Laboratory Reporting (ELR) & Meaningful Use for Public Health	Updated the image to reflect current practice	Updated Phase 2 and Phase 3 steps.
The Iowa Health Information Network (IHIN), Electronic Laboratory Reporting (ELR), and other public health projects	The Iowa Health Information Network (IHIN) and Electronic Laboratory Reporting (ELR)	The Iowa Health Information Network (IHIN), Electronic Laboratory Reporting (ELR), and other public health projects Added list of projects on which IDPH is collaborating with the IHIN
The Iowa Health Information Network (IHIN), Electronic Laboratory Reporting (ELR), and other public health projects	Updated out of date IHIN hyperlink.	https://www.ihin.org/become-participant/services
The Iowa Health Information Network (IHIN), Electronic Laboratory Reporting (ELR), and other public health projects	Replaced 2 images describing functionality of the smartLab and a high level overview of the ELR data flow with a single image describing the same.	New, updated image: ELR High Level Data Flow Overview
Basic message structure with the Undefined (O) and most Optional (RE) segments omitted for clarity:	Messages sent to IDPH using the Diagnosis One smartLab™ Provider Portal must be wrapped as a batch. This applies to individual messages as well as batched messages.	Messages sent to IDPH using the Diagnosis One smartLab™ Provider Portal can be wrapped as a batch (message groups or individual messages) or sent as individual messages.
Table 14: The components of the OBX segment of an ELR 251 ORU^01 Message	IDPH Comments included a description of all several data types (both supported and not supported by IDPH) – updated to only include IDPH supported data types for OBX2.	OBX2 IDPH Comments: This data type is for OBX5; IDPH Supported values are limited to: NM (Numeric), SN (Structured Numeric), DT (date), and CWE (Coded results -i.e. SNOMED.
Version 1.04.03.5 changes		
Section	Original content/description of change	change
General Questions about Electronic Laboratory Reporting: Reportable conditions versus laboratory results	Updated hyperlinks related to Table 2: Environmental and Occupational Surveillance Reportable Poisonings, Injuries, Diseases, Conditions, and Exposures	https://idph.iowa.gov/Environmental-Health-Services/Reportable-Conditions

Version 1.04.03.6 changes		
Section	Original content/description of change	change
Table 14.1 Ask On Order Entry Questions	New Section	
PID 11.9 Patient residential zip code	For IDPH use FIPS 6-4 codes.	For IDPH use FIPS 6-4 codes. IDPH validates the patient address against an online address validation service upon receipt of in-bound messages. If the address is able to validate, county is returned from the service.
PV 1 Patient Class, IDPH Comments		IDPH uses this value to determine if the status of the patient – specifically regarding whether the patient is hospitalized or not. Direct Admit D Emergency E Inpatient I Observation patient V Obstetrics B Outpatient O Preadmit P Recurring patient R
PV1 Hospital Service, IDPH Comments	IDPH will ignore this information if provided. Applies to all its subcomponents.	IDPH uses this to determine the type of care a hospitalized patient is receiving – especially if the patient is located in the intensive care unit Clinic CLI Intensive care unit ICU Nursing unit NUR Provider's office PRO Cardiac service CAR Medical service MED Pulmonary service PUL Surgical service SUR Urology service URO
Version 1.04.03.7 changes		
Table 14.1 Ask On Order Entry Questions		1. Added new concepts and corresponding details: • Hospitalized • ICU 2. Changed LOINC codes to standard provided for COVID-19 3. Changed result codes from SNOMED to HL7 codes 4. Provided more guidance on how to populate these Ask on Order Entry OBX segments

Introduction

Electronic Laboratory Reporting (ELR) is essentially the transfer of reportable laboratory results from a testing facility (laboratory or hospital) to the appropriate public health jurisdiction. In general, this means that an information system at the sending facility generates a standardized message that is transported by some electronic means that can be received and consumed by the receiving public health information system designed to handle this standardized message.

There are various transport methods by which the message can be sent, but in each case the message itself must be in the standardized structure and must include standardized content. The message structure provides a common or standard framework so a piece of information is in an agreed upon location within the message while the standardized content provides a common meaning for the content found within those pre-defined locations or message segments.

The purpose of this document is to specify a **constrained messaging profile** for the ELR 2.5.1 HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1 (US Realm) (ELR251). An HL7 Constrained messaging profile is a precise and unambiguous specification of an HL7 standard-defined message that has been analyzed for use within a particular set of requirements. It is a particular style or usage of a standard HL7 message, driven by use case analysis and interaction modeling. An HL7 message guide defines both the static structure and content of the message and the dynamic message definition, such as defining the communication of a message from the sending application to one or more receiving applications.

Since September 2010, the Iowa Department of Public Health has been participating with twelve other public health jurisdictions in the United States in a loose collaboration lead by the Laboratory Technical Implementation Assistance for Public Health (LTIAPH) team of the Association of Public Health Laboratories (APHL) to create a common 'sender profile' to facilitate electronic laboratory reporting across the nation. There is no governing body with authority to provide strict guidance in the public health sector to which facilities must comply toward establishing a nationwide standard. Therefore, this document is limited to addressing electronic laboratory reporting for all facilities reporting to the Iowa Department of Public health. In an effort to remain somewhat consistent with the concept of a national standard, this document is based on the proprietary HL7 document entitled "ELR 2.5.1 HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1 (US Realm)." This proprietary document provides general guidance, but allows for many optional methods of handling different situations. In fact, the various options in the base document requires too much flexibility from the public health jurisdiction; the party in the ELR exchange that remains outside of the scope of Meaningful Use incentives and has no means of raising revenue to cover associated costs for implementation or ongoing maintenance. For this reason, this document necessarily provides guidance that is more rigid in some situations where the original HL7 implementation guide provides options. Where IDPH has made departures from the HL7 guide, they are so noted.

This document is intended to provide guidance to laboratories and hospital facilities intending to establish ELR with the Iowa Department of Public Health.

IDPH has hosted a number of Meaningful Use for ELR workshops since the first version of this implementation guide was published. Presentations and materials from these workshops as well as other information related to the Meaningful Use initiative are posted at http://idph.iowa.gov/CADE/reportable-diseases.

Acronyms and Definitions

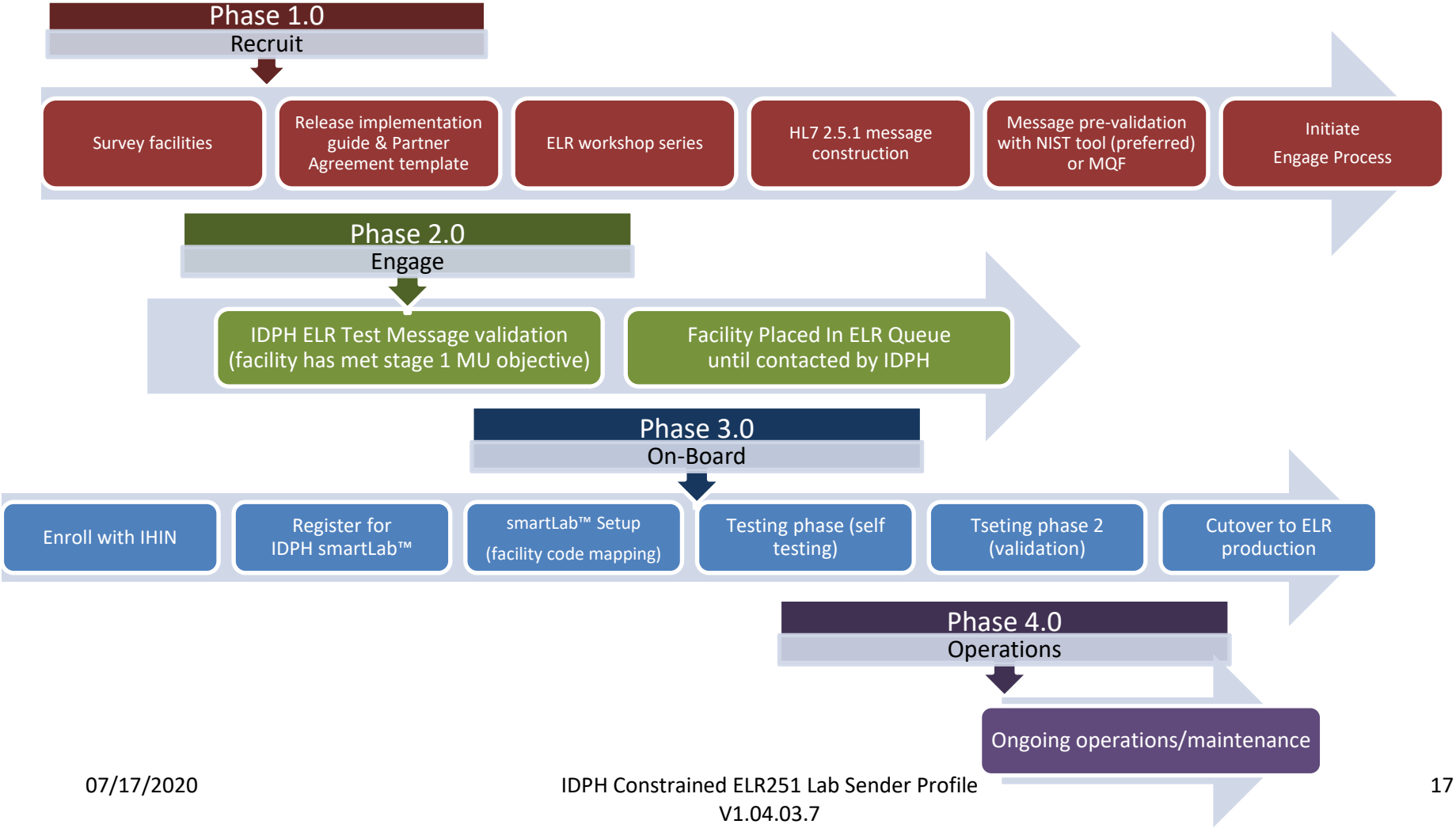
Acronym	Expanded name	Definition or Description
CDC	Centers for Disease Control and Prevention	An agency within the U.S. Department of Health and Human Services and is the public health agency at the federal level.
EHR	Electronic Health Record	A term used to describe both an individual's record and the software system used to present the information of the record. An individual patient's health history consisting of information such as demographic, billing, current medications, medical history, immunization status, allergies, x-rays, laboratory results, etc., originates from a wide variety of sources stored in different data formats. The EHR is designed to gather all of this information from the various sources and formats within a single interface easily accessible to clinicians at the point of care. The standardization required for this level of data sharing also makes it possible to automate manual tasks which have traditionally been tedious and labor intensive.
ELR	Electronic Laboratory Reporting	A sending information system generates a standardized (in structure & content) message which is transmitted by electronic means to a receiving system capable of receiving and consuming the standardized message.
ETOR	Electronic Test Orders and Results	Refers to an electronic data exchange project between the CDC and state public health laboratories. State public health laboratories submit electronic test orders to the CDC. The CDC performs tests and returns electronic results to the public health laboratories.
HL7	Health Level Seven	An all-volunteer, non-profit organization involved in development of international healthcare informatics interoperability standards **and** the standard for exchanging health information between medical applications.
IDPH	Iowa Department of Public Health	The Iowa Department of Public Health is the state level public health agency in the state of Iowa. IDPH also serves as a clearinghouse for reportable conditions within

		the state meaning that if a condition is reported to the state department, IDPH will refer the report on to the appropriate local public health agency through the Iowa Disease Surveillance System.
IHIN	Iowa Health Information Network	A statewide health information exchange in development. The IHIN will serve as the infrastructure for electronic messaging among members of the healthcare community by providing a secure hub through which facilities communicate for a variety of reasons requiring information sharing between hospitals, physician clinics, laboratories, public health, and Medicaid / Medicare. At a basic level, the network serves as the vehicle through which an EHR at a facility is populated with information from a variety of different sources (laboratories, other clinics or hospitals, etc.) to provide a more comprehensive health record for a particular patient. In addition to basic information sharing, the IHIN will offer services such as message translation and/or transformation, as well as services related to advanced analytics and reporting for enrolled facilities.
IDSS	Iowa Disease Surveillance System	The Iowa Disease Surveillance System is a centralized information system residing at IDPH to which enrolled hospital and laboratory staff have access to both manually report conditions and manually retrieve information. Local public health agency staff receive automated alerts from the IDSS and enter public health investigation information into the system. The IDSS is the ultimate repository of the largest number of reportable conditions (other systems serve this function for a handful of diseases).
LOINC	Logical Observation Identifiers Names and Codes	A universal code system for identifying laboratory and clinical observations. LOINC codes are used in ELR messages to convey information related to the laboratory tests that have been requested and performed. A useful LOINC browser is available at http://search.loinc.org/ .
MQF	Message Quality Framework	A web site maintained by the Centers for Disease Control and Prevention capable of providing detailed feedback on test messages to instruct senders on proper message construction. A feature of this website allows for a validation (either structural or vocabulary/content validation) to be sent from the web site directly to IDPH to indicate a certain threshold of structural and content pre-validation has been achieved.
NIST	National Institute of Standards and Technology	This national organization is involved with the national Meaningful Use initiative and in collaboration with other national organizations is providing and supporting a tool for testing the Meaningful Use message formats and certifying EHRs. For more

		information about the available tools see http://healthcare.nist.gov/use_testing/tools.html
NND code	National Notifiable Disease code	The 5-digit coding system used by the CDC to identify a nationally notifiable condition (disease). For example, the NND Code for Salmonellosis is 11000. The list is updated annually to reflect any changes. The entire list is posted under the heading "**Event (disease/condition) code list with print criteria**" at the following web location: http://www.cdc.gov/osels/ph_surveillance/nndss/phs/infdis.htm
OID	Object Identifier	A structured code used to identify an 'object' such as a hospital or a software application used at one of the facilities exchanging information with an HL7 message.
PHIN VADS	Public Health Information Network Vocabulary Access and Distribution System	PHIN VADS provides standard vocabularies to CDC and its Public Health Partners in one place. PHIN VADS is a web-based enterprise vocabulary system for accessing, searching, and distributing vocabularies used within the PHIN. It promotes the use of standards-based vocabulary within PHIN systems to support the exchange of consistent information among Public Health Partners. The PHIN VADS is available at the following web location: https://phinvads.cdc.gov/vads/SearchHome.action
RCMT	Reportable Condition Mapping Table	Provides mapping between a reportable condition and its associated LOINC lab tests and SNOMED lab results. The RCMT is available at the following web location: https://phinvads.cdc.gov/vads/SearchHome.action
SNOMED or SNOMED CT	Systematized Nomenclature of Medicine--Clinical Terms	A comprehensive clinical terminology, originally created by the College of American Pathologists (CAP) and, as of April 2007, owned, maintained, and distributed by the International Health Terminology Standards Development Organization (IHTSDO), a not-for-profit association in Denmark. SNOMED codes relevant for ELR are found in the RCMT available at the following web location: https://phinvads.cdc.gov/vads/SearchHome.action Another useful SNOMED CT browser can be found at: http://vtsl.vetmed.vt.edu/

Statewide Implementation of Electronic Laboratory Reporting (ELR) & Meaningful Use for Public Health

The Iowa Department of Public Health is preparing for statewide implementation of electronic laboratory reporting, which assists hospital facilities achieve one of the stage 1 Meaningful Use objectives for public health (the other two public health objectives of electronic exchange of a) immunization information and b) syndromic surveillance information are not covered by this guide). The overarching plan is outlined in the diagram below.



The Iowa Health Information Network (IHIN) and Electronic Laboratory Reporting (ELR)

There are several benefits of enrolling with the IHIN (https://www.ihin.org/become-participant/services).

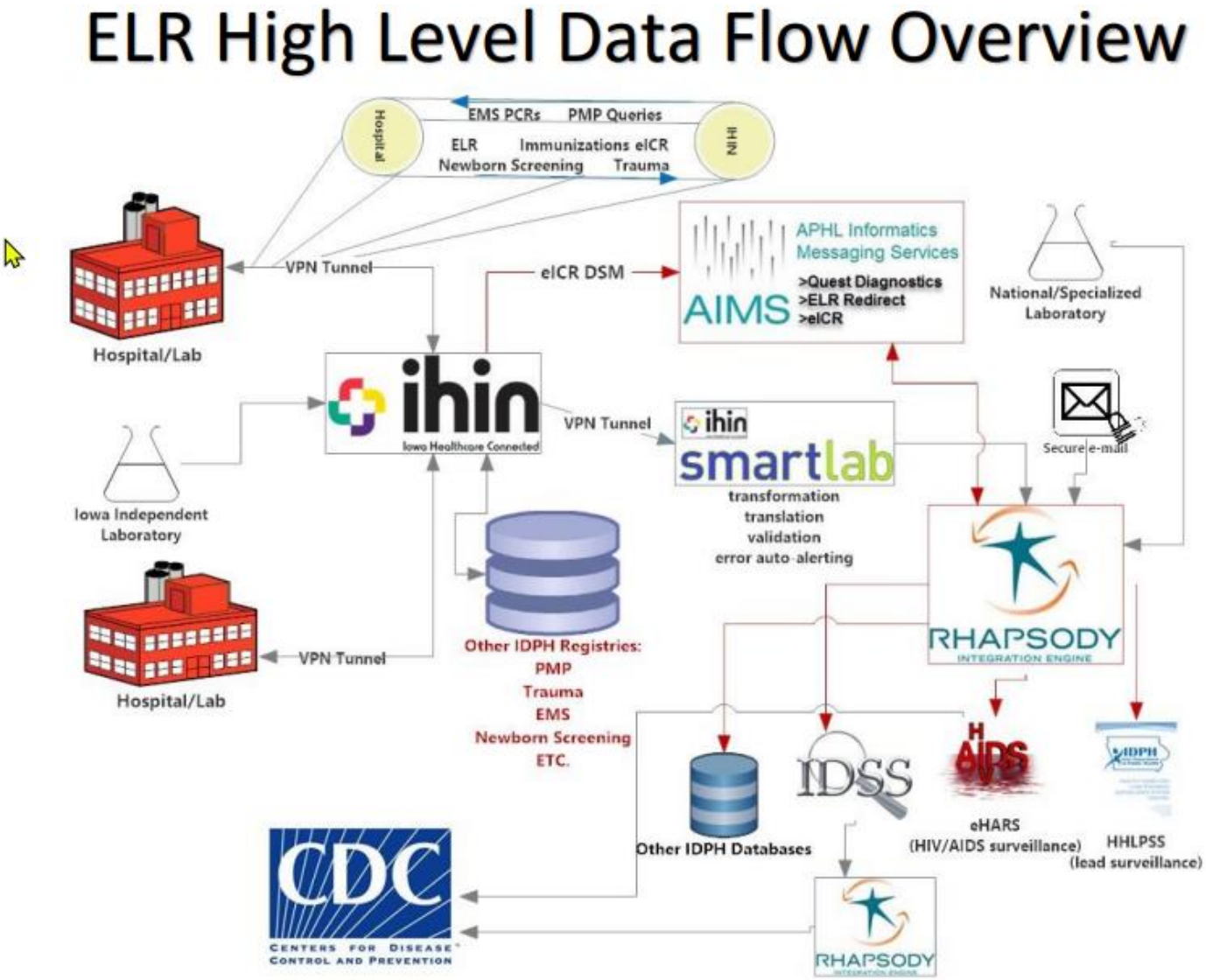
The Iowa Department of Public Health is collaborating with the IHIN on a number of new projects, including:

1. Integration of PMP with IHIN (and EHRs) for efficient - from within healthcare provider electronic health record (EHR) - search of Prescription Drug Monitoring Program (a.k.a. PMP or PDMP)
2. Disease Surveillance: Electronic Initial Case Reporting (eICR)
3. Electronic Laboratory Reporting (ELR) - sustain & maintain the smartLab
4. EMS Registry - sending Patient Care Reports from the EMS Registry to hospitals
5. Immunization - facilitating electronic connectivity between healthcare providers and the IRIS immunization registry
6. Trauma Registry - electronic reporting of Trauma reports from hospital to trauma registry
7. Iowa Office of the State Medical Examiner - facilitate more efficient record sharing from hospital system(s) with the State Medical Examiner
8. Iowa Cancer Registry - electronic cancer reporting from unreached facilities
9. Iowa Registry for Congenital & Inherited Disorders (birth defect registry) - more rapid identification of birth defects
10. Newborn Screening - electronic reporting of newborn screening results to IDPH registry
11. State Hygienic Laboratory - connectivity to IHIN for electronic test orders & results

An important component of the IHIN is the IDPH smartLab™ which is capable of receiving a variety of formats and transforming these into the single HL7 2.5.1 EDI format that IDPH is prepared to receive. This offers flexibility to reporting facilities. There is no additional cost associated with use of the IDPH smartLab™ Provider Portal; it is currently bundled into the IHIN service fee.

The smartLab™ is capable of receiving five message formats: HL7 2.3.1 (both EDI and XML), HL7 2.5.1 (both EDI and XML), and the IDPH Simplified ELR Message format (SMF). See section The IDPH Simplified ELR Message Format Specification on page 21 for more details about the SMF.

The image below provides a high level overview of the Production level data flow.



Using the IDPH smartLab™ Provider Portal and the CWE Data Type

All facilities must enroll with the IHIN to submit laboratory reports to IDPH by ELR. Enrollment with the IHIN includes access to the IDPH smartLab™ for ELR submitting facilities, but it requires separate registration (see Establishing the connection for ELR Reporting below on page 21). An IDPH smartLab™ Provider Portal user guide is available at: https://testsmartlab.iowaehealth.net/d1docs/BCDC/idph_provider_user_guide.pdf.

IDPH requires a facility to map its codes for test types, test results, and other vocabularies for things such as specimen source, race, ethnicity, etc. in the provided facility portal of the IDPH smartLab™. If a facility has converted to using standard codes (LOINC, SNOMED, and HL7), they should populate the second triplet of the CWE data type with the standard code. All the codes mapped in the IDPH smartLab™ Provider Portal by the sending facility are those that reside in the second triplet of the CWE data type. A facility that has not converted to using standard codes should populate the second triplet of the CWE data type with local codes (non-standard LOINC, SNOMED, or HL7). **All codes that appear in the second triplet of the CWE data type must be mapped to IDPH standard codes in the IDPH smartLab™ Provider Portal.**

It is acceptable to populate codes in the CWE data type fields in the following combinations:

First Triplet Value	Second Triplet Value
blank[1]	local code
local code	local code
standard	local code
standard	standard
blank[1]	standard

The second triplet value must be mapped to the IDPH-provided standard code in the smartLab™ Provider Portal regardless of the code set (LOINC, SNOMED, HL7, and Local). The smartLab™ transforms all incoming messages to the HL7 2.5.1 standard message structure defined by this IDPH Implementation Guide and ELR Constrained Profile. This transformed message is available to facilities so it can be used for Meaningful Use testing in other applications. See Meaningful Use Message Testing on page 28 for more details about the NIST and MQF automated testing tools.

[1] When populating OBX.5, the first triplet (OBX.5.1, 5.2, and 5.3) must be populated with values.

smartLab Training Series

The smartLab Just in Time Training series consists of 4 sessions.
1. smartLab Just in Time Training Session #1 (8:04 minutes): Electronic Laboratory Reporting On-Boarding Overview
https://youtu.be/4xSmbXJ05W8

2. smartLab Just in Time Training Session #2 (25:10 minutes): smartLab High Level Overview
https://youtu.be/wadeGELBnlQ

3. smartLab Just in Time Training Session #3 (22:18): smartLab Mapping Specifics https://youtu.be/3LObukVd7B8

4. smartLab Just in Time Training Session #4 (~3:00 short/~15:00 in-depth; total 18:49): Troubleshooting - https://youtu.be/kTbf_7dXzYU

The IDPH Simplified ELR Message Format Specification

The IDPH Simplified ELR Message Format (SMF) Specification is an option available to facilities that are interested in implementing electronic laboratory reporting (ELR), but do not have the resources to construct an HL7 message. The SMF is a pipe-delimited flat file message format that is available for reporting facilities incapable of producing an HL7 message. This format is customized for IDPH purposes and is transformed into the standard HL7 2.5.1 EDI format that qualifies under the Meaningful Use guidelines. If a facility is attesting for Meaningful Use using a format other than HL7 2.5.1, the IDPH smartLab™ must be considered a 'module' in the attestation process. For more information about the IDPH SMF format, see the IDPH Simplified ELR Message Format Specification at:
https://testsmartlab.iowaehealth.net/d1docs/BCDC/simplified_elr_format.pdf.

Establishing the connection for ELR Reporting

There are two steps to opening the necessary channels with IDPH to perform electronic laboratory reporting:

1. Enrolling with the Iowa Health Information Network (IHIN) by completing and submitting the Standard IHIN Partnership Agreement[2]:
    a. The 'IHIN Standard Participation Agreement' – provides Direct™ secure messaging account(s), which is required to submit ELR to IDPH AND access to other features of the IHIN including patient query and lookup.

    http://www.iowaehealth.org/documents/cms/docs/Enrollment_Documents/Standard_IHIN_Participation_Agreement.pdf

[2] There are 2 agreements: the IHIN Direct™ Secure Messaging Partnership Agreement is not intended for hospital organizations. These organizations should complete the IHIN Standard Participation Agreement. IHIN fee schedules are the same under both agreements.

b. For more information about the IHIN, see http://www.iowaehealth.org/provider/resources_stateresources.html.

2. Completing the IDPH smartLab™ Registration. This document is used to establish secure access to the smartLab™ Provider Portal for users at each reporting facility.
https://www.surveymonkey.com/s/SmartLab_Registration

General Questions about Electronic Laboratory Reporting

Reportable conditions versus laboratory results

A discussion between public health personnel and laboratorians does not get very far before one realizes a problem created by the concept of *disease*: the public health agency speaks in a broad understanding of disease or condition; the laboratory speaks in specific terms of laboratory results. Public health publishes a list of legally reportable conditions. It is a list purposely lacking the precision associated with specific laboratory test results as laboratory methods continuously evolve and change. These changes sometimes occur rapidly as new technologies are developed. The list of reportable conditions is much more fixed as it can only change through legislative action, which is a slow, deliberative process.

Embedded within this dilemma is another issue related to the concept of diagnosis. In order for a laboratory to report a specific laboratory result, there must be some connection made between the specific laboratory result and the condition or disease. Making such connection comes very close to diagnosing the patient with a condition or disease; diagnosis, however, is something a physician does, not something performed by a laboratorian.

For these reasons, there are a couple of concepts that must be made clear:

1. Specific laboratory results can be, and in the realm of public health reporting are always, associated with a ***suspected condition*** or disease. The laboratory result is not generally diagnostic by itself and must be considered with other clinical information related to the patient. An effective public health response does not necessarily depend on and in some situations cannot wait for a physician diagnosis. **Laboratory result reporting should not be deterred or delayed over the concept of diagnosis.** If a specific laboratory result is possibly associated with a reportable condition, it should be reported.
2. Since the performing laboratory is most equipped to interpret its own laboratory results, **the burden of making the link between a specific result and a *suspected condition* rests with the laboratory.** This decision has always rested on the laboratory side of the

information exchange and is not affected by the transition from paper-based or manual electronic reporting to system-to-system automated electronic laboratory reporting.

The following two tables provide the list of reportable conditions with the associate reporting requirements required by Iowa Administrative Code [641] Chapter 1.

Table 1: **Reportable Communicable and Infectious Diseases**

Changes to the list of Reportable Communicable and Infectious Diseases are possible and likely over time. For this reason, please refer to the following link to find the most up to date information about disease reporting: http://idph.iowa.gov/CADE/reportable-diseases.

Table 2: **Environmental and Occupational Surveillance Reportable Poisonings, Injuries, Diseases, Conditions, and Exposures**

The following table contains a partial list of the reportable environmental and occupational conditions. This partial list includes those conditions for which there is a reportable laboratory result component. For the complete list of reportable environmental and occupational conditions, see Iowa Administrative Code [641] Chapter 1 and the EH Reporting Poster available at the following web location: https://idph.iowa.gov/Environmental-Health-Services/Reportable-Conditions.

POISONING OR CONDITION	CASES TO REPORT	WHEN TO REPORT	HOW TO REPORT
Arsenic poisoning	Blood arsenic values equal to or greater than 70 µg/L Urine arsenic values equal to or greater than 100 µg/L of urinary creatinine	Weekly	Routine reporting See EH Div Web page https://idph.iowa.gov/Environmental-Health-Services/Reportable-Conditions
Cadmium poisoning	Blood cadmium values equal to or greater than 5 µg/L Urine cadmium values equal to or greater than 3 µg/g	Weekly	Routine reporting See EH Div Web page https://idph.iowa.gov/Environmental-Health-Services/Reportable-Conditions
Carbon monoxide (CO) poisoning	Blood carbon monoxide level equal to or greater than 10% carboxyhemoglobin or its equivalent with a breath analyzer test, or a clinical diagnosis of CO poisoning regardless of any test result	Daily	Phone: 800-972-2026 See EH Div Web page Or: Iowa Statewide Poison Control Center 800-222-1222 for 24 hour consultation followed by fax to IDPH EH.
Blood Lead Testing	All analytical results greater than or equal to 20 micrograms per deciliter (µg/dL) in a child under the age of 6 years or a pregnant woman ----------	Daily ----------	Phone: 800-972-2026 ----------

	All other analytical values for all blood lead analyses	Weekly	Electronic format specified by the department
Mercury poisoning	Blood mercury values equal to or greater than 2.8 µg/dL Urine mercury values equal to or greater than 20 µg/L	Weekly	Routine reporting See EH Div Web page https://idph.iowa.gov/Environmental-Health-Services/Reportable-Conditions
Methemoglobinemia	Blood analyses showing greater than 5% of total hemoglobin present as methemoglobin	Weekly (recommend immediate)	Routine reporting See EH Div Web page https://idph.iowa.gov/Environmental-Health-Services/Reportable-Conditions

'Required' by law versus 'required' in the message

'Required' is a term used in both the public health and information technology domains. In the public health domain, 'required' refers to the legal obligation of providing certain information such as a legally reportable laboratory result. It may also further refer to the actual data elements that must be included with a reportable laboratory result. For example, the fact that a laboratory culture test has identified the presence of the salmonella species in a specimen is significant, but simply reporting this result without including other information such as the patient's name, the type of specimen, and the ordering physician provides no value for a public health response; other information must be included for public health to perform its function.

In the information technology domain, 'required' typically means that a component must be present or the next step in the process cannot be performed. Absence of a required element stops the entire process. For example, an information system may require that a patient's name be present before the record can be saved in the system – without the name, this necessary step cannot be made and all subsequent processing is halted until the name is provided.

Iowa Administrative Code 641—1.4(135,139A) *Reporting of reportable communicable and infectious diseases* identifies the content for the initial report of a reportable condition as follows:

> 1.4(2) What to report. Each report shall contain all of the following information:
>
> a. The patient's name.
> b. The patient's address.
> c. The patient's date of birth.
> d. The sex of the patient.

e. The race and ethnicity of the patient.
f. The patient's marital status.
g. The patient's telephone number.
h. The name and address of the laboratory.
i. The date the test was found to be positive and the collection date.
j. The name and address of the health care provider who performed the test
k. If the patient is female, whether the patient is pregnant.
l. The name of the reportable disease.

When reporting is performed by a person, all of these data elements, which may be stored across different information systems, can be gathered from multiple information sources at the reporting facility and compiled into a single report that is delivered to IDPH by data entry into IDSS or by some other manual process (fax, telephone, mail). Transitioning from manual reporting to electronic system-to-system reporting injects additional complexity. There must be some mechanism to gather these elements into the message before it can be transmitted. The latest generation of electronic health record is likely capable of producing a complete report that contains all of these elements. Unfortunately, not every hospital facility has implemented such a system. Therefore, to establish statewide ELR, it is necessary to make some accommodation for facilities still in the process of upgrading to new information systems. For this reason during this transition period, when a facility is unable to provide all of these legally required data elements due to system limitations, IDPH is accepting electronic messages lacking some of these legally required elements provided the electronic message contains the necessary items that allow IDPH to identify the person, identify the organism or reportable condition, locate the residential address of the patient, and begin the public health investigation by contacting the healthcare provider. Facilities that have upgraded to electronic health record systems are expected to provide all legally required data elements.

Obtaining OIDS and OIDS registry

Upon making this document and based on feedback from the ELC grantees, it has become apparent there is little guidance regarding the generation of, identification of and distribution of OIDS. OIDs are required for all Universal identifier fields in the guide. Currently, the CDC maintains an OID registry called PHINDIR. PHINDIR contains organizations across public health. It does contain hospitals, clinics and labs, each of which has an OID in our OID Registry. It also maintains external OIDs such as the CLIA number for labs, VISN for VA facilities, etc. Information about PHINDIR can be found at:
http://www.cdc.gov/nhsn/PDFs/CDA/OID_Assignment_Procedure.pdf

To request an OID, E-mail phintech@cdc.gov and provide the information listed in the box to the right.

Name of Software, if requesting an application OID
Facility Name
Facility Physical Address
Facility Main phone Number

The APHL|PHLIP informatics group has extended this registry to include public health applications and can be found at the following link:

http://www.aphlweb.org/aphl_departments/Strategic_Initiatives_and_Research/Informatics_Program/Projects/IDPH/Shared%20Documents/ELRWorkgroup/Lab%20messaging%20OIDs-%20Facs,%20Apps,%20PHINMS.xlsx

Providers OIDs are often used by their EHR's since the EHR supports the CDA structure which requires the use of OIDs. Therefore, the provider labs may already have OIDs assigned or a local (provider) registry system is in place and they should be instructed to check with the EHR administrators for either an existing OID for their lab and LIMS whether a local registry exists where a new OID can be assigned. In addition OID's can be registered and issued through the HL7 registry at the following link:

http://www.hl7.org/oid/index.cfm

Transport Methods

A number of electronic messaging transport methods exist by which the standardized HL7 2.5.1 message can be transferred from a reporting facility to IDPH. Regardless of the message transport, the HL7 2.5.1 message should be the same in both structure and content. Some transport methods facilitate more automated handling of the content than other methods. **IDPH supports the transport methods in the table below.**

Option	Level of complexity	Implementation Cost	Switch-over complexity	Connection	Notes
Web Services through the IHIN	Medium	Medium	Medium	Point-to-point	1. Status: Available and supported 2. Sender side configuration/development necessary to consume web service 3. Long-term cost savings over VPN transport maintenance. 4. May require sender side development resources, but not network staff.
VPN (Virtual Private Network) through the IHIN	Medium	Medium	Low	Point-to-point	1. Supported as of July 1, 2014. 2. Requires additional infrastructure set up on both sides of exchange with network staff. 3. Any network changes on either side of exchange may require maintenance on both sides. 4. May result in higher resource requirements and longer lead times compared to web services option.

See **IHIN** for more information about the Iowa Health Information Network (IHIN).

Meaningful Use Message Testing

Meaningful Use implementation is organized in stages. The Meaningful Use Stage 1 and Stage 2 are defined and preparations are underway to define Stage 3. For public health laboratory reporting, Stage 1 requires at minimum that a test message be provided to the public health jurisdiction. Stage 2 requires establishment of production level electronic laboratory reporting to the public health agency. To make progress toward these goals, it is necessary that testing of the structure and content of the HL7 2.5.1 standard message be performed. IDPH is providing two automated testing alternatives that should be used prior to sending the Meaningful Use Stage 1 test message. The purpose of this step is to allow the hospital facility or vendor to receive immediate feedback as the message is prepared rather than wait for IDPH staff to review and respond. In addition, this ensures that the message is of high quality before IDPH resources are needed to review the message. IDPH recommends using the National Institutes of Standards and Technology (NIST) tool as it is newly developed, is much more sophisticated than the MQF testing tool previously promoted by IDPH, is aligned with requirements for Meaningful Use Stage 2, and is also intended for certifying 2014 Edition Meaningful Use EHR technology.

National Institutes of Standards and Technology (NIST) ELR Validation Tool

The NIST ELR validation tool is the recommended and preferred tool used by IDPH for message validation. Any Iowa reporting facility pursuing the Stage 1 or Stage 2 Meaningful Use for electronic laboratory reporting objective is directed to use the NIST ELR validation tool as the initial step before contacting IDPH for test message validation. The NIST tool is a web site maintained by the National Institute of Standards and Technology capable of providing detailed feedback on test messages to instruct senders on proper message construction. A feature of this website allows for a pre-validation (both structural and vocabulary/content validation) of standard HL7 2.5.1 messages. A report documenting the HL7 2.5.1 message can be downloaded in various formats and sent to IDPH to indicate the first steps in constructing the message have been achieved. Use of the NIST tool allows reporting facilities to achieve a high-level of compliance with the HL7 2.5.1 message standard as quickly as its resources allow, without requiring feedback from IDPH. Facilities using the NIST ELR Validation tool should take the following steps in their efforts to meet the Stage 1 or Stage 2:

A. Construct a message according to the specifications found in this IDPH Constrained ELR251 Lab Sender Profile for an **enteric culture** test identifying **Salmonella Species** as the organism. See example message in the section Appendix A on page 159.
B. If you are relying on the smartLab™ to produce the standard HL7 2.5.1, regardless of the format a facility submits to the smartLab™, the HL7 2.5.1 EDI message can be obtained on the [Report Processing] tab and the [HL7 2.5.1 EDI file for Meaningful Use] tab.
C. If you are NOT relying on the smartLab™ to produce the standard HL7 2.5.1 **test** message, the NIST tool does not support a batch message. However, when moving to submission to IDPH, the IDPH smartLab™ requires that all messages be wrapped as a batch.
D. Navigate to the NIST ELR validation tool web site at: http://hl7v2-elr-testing.nist.gov (You may see the message, 'Your session has expired'; if so, click the 'Click to return' link to open the main page).

a. See the ELR Tool Quick Reference Guide: NIST ELR Quick Guide.ppt for a quick overview of the tool.
b. See the ELR Tool Tutorial: NIST ELR_Tool_Tutorial.ppt for more detailed information about the tool.
c. Both of the documents referenced above reside on the **Documentation** tab of the NIST tool web site.

E. Select the **Context-free validation** tab
F. Paste the test message into the Message Content window.
G. Review and correct errors in the EHR generating the test message.
   a. As you are reviewing the errors, changes can be made directly to the message in the Message Content window to clarify the meaning of the error message, if necessary.
   b. The test message sent to IDPH should not be manually manipulated in the Message Content window; it should be generated directly from the EHR or other hospital information system.
H. Once the message passes, download a PDF formatted report (IDPH will only accept a PDF version of this report).
   a. The NIST tool is stricter on some points in its validation than the IDPH Implementation Guide requirements.
   b. Your message should be considered 'passing' for IDPH if the only errors that you see are those listed below:
      i. Order status: ORC[1].5[1] The value 'A' specified in the message is not in the length range [2 .. 2] specified in the profile.
      ii. Sub ID error for single set of linked OBX segments: OBX[1].4[1] is present whereas it is an unsupported element (X-Usage or W-Usage) [PREDICATE] : If there are multiple OBX segments associated with the same OBR segment that have the same OBX-3 values for (OBX-3.1 and OBX-3.3) or (OBX-3.4 and OBX-3.6).. EVALUATION : 'false' USAGE : C(R/X)
      iii. No standard SNOMED in first triplet: OBX[1].5[1].1 is missing
      iv. No standard SNOMED in first triplet: OBX[1].5[1].3 is missing
      v. Date/Time error text: [ELR-014] MSH.7 (Date/Time Of Message) SHALL follow the format YYYYMMDDHHMMSS[.S[S[S[S]]]]+/-ZZZZ
      vi. Universal Service ID / Original Text error text: OBR[1].4[1].9 is present whereas it is an unsupported element (X-Usage or W-Usage) [PREDICATE] : If CWE.1 (Identifier) AND CWE.4 (alternate identifier) are not valued.. EVALUATION : 'false' USAGE : C(R/X)
      vii. Date/Time error text: [ELR-047] OBR.22 (Results Rpt/Status Chng - Date/Time) SHALL follow the format YYYYMMDDHHMM[SS[.S[S[S[S]]]]]+/-ZZZZ
      viii. Universal Service ID / Original Text error text: OBX[1].3[1].9 is present whereas it is an unsupported element (X-Usage or W-Usage) [PREDICATE] : If CWE.1 (Identifier) AND CWE.4 (alternate identifier) are not valued.. EVALUATION : 'false' USAGE : C(R/X)

c. If your test message complies with the IDPH Implementation Guide and results in an error not listed here, please contact IDPH about this error by sending an e-mail to ELR@idph.iowa.gov .

I. Send the PDF report to ELR@idph.iowa.gov

In summary, the pre-validation consists of both structural and vocabulary validation performed against an enteric culture test message that identifies Salmonella Species as the result and **requires a single PDF summary report generated by the NIST ELR validation tool**.

Once the summary report, which contains the **unmodified system-generated** message, has been received, IDPH will evaluate the message and issue a document verifying that your facility has achieved the Stage 1 Meaningful Use for ELR objective to the provided point of contact (POC) that e-mailed the summary report. This places your facility in the ELR Queue. The ELR Queue concept provides a way for reporting facilities to achieve the Stage 1 objective while IDPH either completes internal infrastructure development or establishes connections with other facilities in the ELR Queue.

The Message Quality Framework (MQF) Message Testing Option

Any Iowa reporting facility pursuing the Stage 1 Meaningful Use for electronic laboratory reporting objective is directed to use the MQF as the initial step before contacting IDPH for test message validation. The MQF is a web site maintained by the Centers for Disease Control and Prevention capable of providing detailed feedback on test messages to instruct senders on proper message construction. A feature of this website allows for a pre-validation (both structural and vocabulary/content validation) of standard HL7 2.5.1 messages. The results can be sent from the MQF web site directly to IDPH to indicate the first steps in constructing the message (structural and content pre-validation) have been achieved. Use of the MQF allows reporting facilities to achieve a high-level of compliance with the HL7 2.5.1 message standard as quickly as its resources allow, without requiring feedback from IDPH.

The following specific steps should be followed when using the MQF to pre-validate the standard HL7 2.5.1 ELR message:

J. Construct a message according to the specifications found in this IDPH Constrained ELR251 Lab Sender Profile for an **enteric culture** test identifying **Salmonella Species** as the organism. See example message in the section Appendix A on page 159.
K. Navigate to the MQF web site at https://phinmqf.cdc.gov/default.aspx
L. Review the MQF release notes by clicking on the Release Notes hyperlink under References in the left margin of the web page
M. Select the preferred message domain
    1. The '**Iowa Enteric Culture Profile**' is the preferred message domain, if available at the time of the test
    2. The '**Meaningful Use-Electronic Laboratory Reporting Receiver Profile**' is an acceptable message domain
N. Select the appropriate "Load From" setting

1. Select 'File' if uploading the message
2. Select 'Cut and Paste Message' if pasting the test message

O. Load the message

P. Click the Submit button to perform the first of two levels of pre-validation: Structural validation
   1. Make modifications in the source system that generates the test message **until you achieve a result that contains only the known errors** found in the document referenced in 2 below.
   2. See the 'MQF Known Errors' document at http://idph.iowa.gov/Portals/1/userfiles/113/Documents/Limitations%20of%20MQF%20tool%20v2.pdf.
   3. At this stage, **do not modify** the test message itself to achieve this objective. The purpose of this pre-validation is to get the originating system to generate a compliant message

Q. Send the pre-validation report to IDPH
   1. Click on the Print or Save button to save a copy of the report
   2. Click on the Email button to open the e-mail function
   3. Insert information on the e-mail template
      I. Insert ELR@idph.iowa.gov in the To: field
      II. Insert the official name of your facility and point of contact (POC) in the message box
      III. Insert POC name, telephone #, and e-mail address
      IV. If testing identifies another error that should be on the MQF Known Errors list, indicate so in the comment box.
   4. Click on the Send Email button to send the report to IDPH

R. Perform the second of two levels of pre-validation: Vocabulary validation
   1. Carefully review the errors specified in the **structural validation** report
   2. **Modify the actual test message** as needed to pass the **structural validation** without errors
   3. Click on the Yes button next to 'Perform Vocabulary Validation?'
   4. There are known errors with vocabulary validation on the MQF site. These known errors are posted under Meaningful Use for Electronic Laboratory Reporting (ELR) at http://idph.iowa.gov/cade/idss
      I. Make appropriate changes to the source system until the content of the test message reaches the point where the validation identifies only the known vocabulary validation errors
      II. Repeat steps in H above to send the vocabulary pre-validation report to IDPH
   5. Send the final, **unmodified system-generated** message as an attachment in text format (accessible with Notepad) to the same e-mail address (ELR@idph.iowa.gov).

6. IDPH will test this message against the MQF as a first step in its validation and expects to experience only the known errors:
    I. The known structural validation errors
    II. The known vocabulary validation errors
7. If the message does not exhibit the expected results, the message will be returned to the facility point of contact, without further review by IDPH, so the sending facility can make further modifications.

In summary, the pre-validation consists of both structural and vocabulary validation performed against an enteric culture test message that identifies Salmonella Species as the result and **requires that two pre-validation reports be sent from the MQF web site to IDPH**.

Once both reports and the final, **unmodified system-generated** message have all been received, IDPH will evaluate the test message to confirm the MQF pre-validation, and issue a document verifying that your facility has achieved the Stage 1 Meaningful Use for ELR objective to the provided point of contact (POC). This places your facility in the ELR Queue. The ELR Queue concept provides a way for reporting facilities to achieve the Stage 1 objective while IDPH either completes internal infrastructure development or establishes connections with other facilities in the ELR Queue.

Where do I find HL7 tables referenced in the implementation guide?

See the Mapping Workbook section on page 143.

Unsolicited Results from PHL to Local Agency:

Much of the remainder of this document is the product of a 10+ state collaboration with the Laboratory Technical Implementation Assistance for Public Health (LTIAPH) group, a contracted team of the Association of Public Health Laboratories (APHL).

HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 1 (US Realm) Implementation Guide, (referred to as **ELR251PH-IG** in the rest of this document) defines both the static structure and content of the message and the dynamic message definition, such as defining the communication of a message from the sending application to one or more receiving applications. However, "It does not replace the need for documentation of the constraints of specific implementations" (from Section 1.1 Purpose of ELR251PH-IG). The LTIAPH baseline/common ELR 251 Implementable Profile (referred to as **LTIAPH-ELR 251 IP** in the rest of this document) is a model/instance of a fully constrained *implementation* and is a product of collaborative effort between 10+ jurisdictions at State and City level, consisting of Subject Matter Experts from Public Health Lab (ELR Sender) and Public Health Agency (ELR Receiver). Scope of LTIAPH-ELR251 IP is limited to **static definitions tables**, **vocabulary** and **messaging conventions** and should be considered a companion document to ELR251PH-IG. This document does not attempt to replace or repeat the discussion of scope and conventions, the messaging infrastructure, use of escape sequences, data types, use case analysis, interaction modeling, dynamic message definitions and other concepts that are detailed in ELR251PH-IG.

Assumptions

- The scope and emphasis in this document is the ORU^R01 (unsolicited results) message. This does not impact/affect the related concepts like ***Ack*** message and ***Batch*** message discussed in the ELR251PH-IG.

- The underlying HL7 conformance rules (usage) in ELR251PH-IG ("R", "CE", "C", "RE", "X") for the ***ELR Receiver*** will not be *loosened/diluted/relaxed* by changing to a less restrictive usage.

  For example, changing ***R***-Required to ***RE*** – Required, but can be empty is loosening/diluting/relaxing of the usage requirement. It will not be allowed in LTIAPH-ELR251 IP.

- Unless their usage has been explicitly redefined, all undefined elements (***O***) in ELR251PH-IG in the ***Lab Sender*** and ***ELR Receiver*** profiles will be defined as not used for this *implementable profile* (***X***).
  - Exceptions for ***ELR Receiver profile***:

Table 1: Exceptions for the ELR Receiver Profile

Segment/field name	Usage	Notes/reasoning
MSH.17 Country code	Usage from "O" to "RE"	Follows the implied usage from ELR251PH-IG comments in the MSH.17 " ELR Receiver – if empty the default is 'USA'"
PV1.3 Assigned Patient Location	Usage from "O" to "C(RE/X)"	1) To Harmonize with the ELR251PH-IG Lab Sender Profile. 2) Is C(RE/X) instead of C(R/X) because laboratory system may not have this information, thus the field may be empty.
OBR.24 Order Diagnostic Service	Usage from "O" to "RE"	To Harmonize with the ELR251PH-IG Lab Sender Profile.
ORC.5 Order Status	Usage from "O" to "RE"	To meet the needs of several LTIAPH ELR Core Workgroup members who currently support this data element for messaging.
Changed SPM.22 Specimen Quality	Usage from "O" to "RE"	Based upon CLIA requirements this field has been defined as a common core data element when sample is unsuitable for completion of analysis. Potential use case for ELR if the jurisdictional reporting requirement is for all results (vs. only positive results) for a given condition.
SPM.24 Specimen Condition	Usage from "O" to "RE"	See comments for SPM.22 Specimen Quality above
EIP data type element 1 Placer Assigned Identifier	Usage from "O" to "RE"	To Harmonize with the ELR251PH-IG Lab Sender Profile.
Non-OBX.5 CWE data type element 10 Second Alternate Identifier	Usage from "O" to "RE"	To Harmonize with the ELR251PH-IG Lab Sender Profile.
Non-OBX.5 CWE data type element 11 Second Alternate Text	Usage from "O" to "C(RE/X)"	To Harmonize with the ELR251PH-IG Lab Sender Profile.
Non-OBX.5 CWE data type element 12 Name of Second Alternate Coding System	Usage from "O" to "C(R/X)"	To Harmonize with the ELR251PH-IG Lab Sender Profile.
Non-OBX.5 CWE data type element 13 Second Alternate Coding System Version ID	Usage from "O" to "RE"	To Harmonize with the ELR251PH-IG Lab Sender Profile.
Non-OBX.5 CWE data type element 14 Second Alternate Identifier	Usage from "O" to "RE"	To Harmonize with the ELR251PH-IG Lab Sender Profile.

- Vocabulary Constraints are made where ELR251PH-IG is not specific.
  For example, specimen type value set is not clearly defined. LTIAPH-ELR251 IP recommends Specimen Type Value Set to be limited to SNOMED CT Specimen sub-tree.

  Note: A cross-mapping table is provided in Appendix C to simplify the translation of the HL70487 specimen terms to the SNOMED CT terminology.

- Identified a list of Common Core Data Elements from all the data elements to highlight the critical fields for Jurisdictional Reportable Lab Results and CLIA requirements for laboratory test results. See following section: Common Core Data Elements for Jurisdictional Reportable Lab Results and CLIA requirements.

- The focus of the ***LTIAPH-ELR251 IP*** is ELR Receiver profile, which is "Normative" in the ELR251PH-IG. However, in the interest of simplifying the ELR implementation, an attempt has been made to create one profile across Sender and ELR Receiver profiles. The assumption is this will not violate, the *information only* profiles**,** included in the ELR251PH-IG.

- The LTIAPH-ELR251 IP was developed in the context of Public Health Lab (Sender) and Public Health Agency (Receiver). The benefit of having a harmonized single profile, based on the **normative *ELR Receiver*** profile, is reduction of ambiguity for sender resulting in a simplified implementation for a jurisdiction. In the process of developing the LTIAPH-ELR251 IP, we observed that the rationale for separate Sender and Receiver profiles was not strong and the few variations between the two profiles are trivial / insignificant to ELR use case.

In this context, to simplify ELR implementation, following changes are recommended to the information only ***Lab Sender*** profile:

Table 2: Exceptions for the ELR Sender Profile

Segment/field name	Usage	Notes/reasoning
MSH.17 Country code	Usage from "R" to "RE"	Follows the implied usage from ELR251PH-IG comments in the MSH.17: "ELR Receiver – if empty the default is 'USA'" and decision to ignore the NSHN Receiver Usage in ELR251PH-IG.
PID.18 Patient Account Number	Usage from "C" to "X"	Follows the implied usage from ELR251PH-IG comments in the PID.18: "ELR: Use PID-3, with identifier type of AN"
PID.31 Identity Unknown Indicator	Usage from "C" to "X"	Comments in required field PID.5 describe how to value that field when identity is unknown.

OBR.28 Result Copies to	Usage from “RE” to “X”	Needed only for Lab to EHR Receiver Use case, not for ELR Receiver.
Segment/field name	**Usage**	**Notes/reasoning**
ORC.5 Order Status	Usage from “O” to “RE”	To meet the needs of several LTIAPH ELR Workgroup members who currently support this data element for messaging.
Changed SPM.22 Specimen Quality	Usage from “O” to “RE”	Based upon CLIA requirements this field has been defined as a common core data element when sample is unsuitable for completion of analysis. Potential use case for ELR if the jurisdictional reporting requirement is for all results (vs. only positive results) for a given condition.
SPM.24 Specimen Condition	Usage from “O” to “RE”	See comments for SPM.22 Specimen Quality above
CWE data type element 7 Coding System Version ID	Usage from “CE” to “RE”	Condition Predicate pertains only for NHSN Receiver Use case, and not for ELR Receiver.
CWE data type element 8 Alternate Coding System Version ID	Usage from “CE” to “RE”	Condition Predicate pertains only for NHSN Receiver Use case, and not for ELR Receiver.
XPN data type element 1 Family Name	Usage from “CE” to “RE”	Condition Predicate pertains only for NHSN Receiver Use case, and not for ELR Receiver.
XPN data type element 2 Given Name	Usage from “CE” to “RE”	Condition Predicate pertains only for NHSN Receiver Use case, and not for ELR Receiver.
DR data type element 1 Range Start Date/Time	Usage from “R” to “RE”	Required only for NSHN Receiver Use case but can be empty for ELR Receiver.
XCN data type element 12, Check Digit scheme	Usage from “RE” to “X”	Since the XCN data type element 11, Identifier Check Digit to which this data element refers to is “X” (not used) this element is not needed.

- Ordering information may or may not be included in the message
- Specimens are only from human clinical samples and animal rabies submissions
- All undefined truncation behavior for the ELR Receiver for length will be “truncation allowed”. – See length rules below for further discussion.

Common Core Data Elements for Jurisdictional Reportable Lab Results and CLIA requirements

The following list of common core data elements were assembled from the following sources. Data elements that are needed by local public health agencies were identified by reviewing the ELC grantee responses to the appropriate questionnaires and reviewing the local jurisdictional codes. In addition the CLIA requirements define what data elements must appear on a laboratory result report. This list was refined by also cross referenced to the S & I Framework Lab Results Initiative Final Use case table 13.*1 Message Content Requirements*. It was also compared to the CSTE Document, "Common Core Data Elements Recommendations for ELR and Case Reporting and part of the Case Reports Standardization Workgroup (CRSWg)".

This gives further guidance and clarification and helps differentiate between technically conforming to the guide versus meeting the functional needs of public health. Usage for these Core data elements can be made more restrictive (i.e. "R" vs. "RE"), if the jurisdiction desires. However, in some implementations these values may be unknown or not provided by the ordering party. Where the usage rule for the Common Core data elements is RE (Required Empty) the conformance rule is *if you have it, send it*, will provide the necessary support in this context.

Table 3: Common Core Data Elements

Common Core Data Elements						
Data Element	***ELR251PH-IG* Element**	***ELR251PH-IG* Element Name**	***ELR251PHIG* Lab Sender and ELR Receiver Usage**	**Jurisdictional Requirement**	**CLIA Requirement**	**Comments**
Patient Identifier List	PID.3	Patient Identifier List	R	Yes	Yes	
Patient's Name	PID.5	Patient Name	R	Yes	Yes	
Patient DOB	PID.7	Date/Time of Birth	RE	Yes		
Patient Sex	PID.8	Administrative Sex	RE	Yes		
Patient Race	PID.10	Race	RE	Yes		
Patient's Address	PID.11	Patient Address	RE	Yes		
Patient Tel Number	PID.13, PID.14	Phone Number – Home, Phone Number – Business	RE	Yes		
Patient Ethnicity	PID.22	Ethnic Group	RE	Yes		
Test Performed	OBX.3	Observation Identifier	R	Yes		
Results	OBX.5	Observation Value	C(R/X)	Yes	Yes	
Units	OBX.6	Units	C(R/RE)	Yes		Required if results are numeric (quantitative)

Common Core Data Elements						
Data Element	***ELR251PH-IG* Element**	***ELR251PH-IG* Element Name**	***ELR251PHIG* Lab Sender and ELR Receiver Usage**	**Jurisdictional Requirement**	**CLIA Requirement**	**Comments**
Reference Range	OBX.7	Reference Range	RE		Yes	Required if results are numeric (quantitative)
Report Status	OBX.11	Observation Result Status	R		Yes	
Date test performed	OBX.19	Date/Time of the Analysis	RE	Yes		Element Not present HL7 v231
Name (ID) of Laboratory	OBX.23	Performing Organization Name	R	Yes	Yes	Element Not present HL7 v231
Address of Laboratory	OBX.24	Performing Organization Address	R	Yes	Yes	Element Not present HL7 v231
Name and Address of Provider performing Test	OBX.25	Performing Organization Medical Director	RE	Yes	Yes	Element Not present HL7 v231
Specimen Collection Date	OBR.7, OBX.14, SPM17.1	Observation Date/Time, Date/Time of the Observation, Specimen Collection Date/Time	R	Yes		See Implementation guideline in Program Specific Vocabulary Section below
Pregnancy status	OBX segment	NA	NA	Yes		See Implementation guideline in Program Specific Vocabulary Section below
The name of the reportable disease.	OBX segment	NA	NA	Yes		See implementation guidelines in Program Specific Vocabulary Section below. This may also be provided in OBR.31 -Reason for Study
Specimen Source	SPM4	Specimen Type	R	Yes	Yes	Either Specimen type or Source site could describe Specimen source

Common Core Data Elements						
Data Element	***ELR251PH-IG* Element**	***ELR251PH-IG* Element Name**	***ELR251PHIG* Lab Sender and ELR Receiver Usage**	**Jurisdictional Requirement**	**CLIA Requirement**	**Comments**
Specimen Source	SPM.8	Specimen Source Site	RE	Yes	Yes	Either Specimen type or Source site
Patient Age	OBX segment	NA	NA	Yes		Needed if DOB not provided, See Implementation guideline in Program Specific Vocabulary Section below
Referring Clinician	ORC.12,OBR.16	Ordering Provider	RE	Yes		Based upon CLIA requirements. Potential use case for ELR if the jurisdictional reporting requirement is for all results (vs.only positive results) for a given condition.
Referring Clinician Phone	ORC.14,OBR.17	Call Back Phone Number, Order Callback Phone Number	RE	Yes		
Referring Clinician Address	ORC.24	Ordering Provider Address	RE	Yes		
Specimen Reject Reason	SPM.21	Specimen Reject Reason	RE		Yes	Based upon CLIA requirements. Potential use case for ELR if the jurisdictional reporting requirement is for all results (vs. only positive results) for a given condition.
Specimen Quality	SPM.22	Specimen Quality	RE		Yes	See comments for Specimen Reject Reason
Specimen Condition	SPM.24	Specimen Condition	RE		Yes	See comments for Specimen Reject Reason.

						Harmonized with S+I Framework LRI guide

Message Profile Identifiers

The following message profile identifiers are available based on the particular use case and messaging context:

Table 4: Message profile identifiers

Entity Identifier	Profile used	Universal ID	Description
PHLabReport-Ack	Lab Sender	2.16.840.1.113883.9.10	Individual message with acknowledgement using either the Lab Sender or ELR Receiver Profile to send ORU^R01 message from the LIMS/EHR to the local public health agency. Note for the IDPH constrained profile the Lab Sender and ELR Receiver Profiler are harmonized so either Profile identifier can be used.
	ELR Receiver	2.16.840.1.113883.9.11	
PHLabReport-NoAck	Lab Sender	2.16.840.1.113883.9.10	Individual message without acknowledgement using either the Lab Sender or ELR Receiver Profile to send ORU^R01 message from the LIMS/EHR to the local public health agency. Note for the IDPH constrained profile the Lab Sender and ELR Receiver Profiler are harmonized so either Profile identifier can be used.
	ELR Receiver	2.16.840.1.113883.9.11	
PHLabReport-Batch	Lab Sender	2.16.840.1.113883.9.10	Batched message using either the Lab Sender or ELR Receiver Profile to send ORU^R01 message(s) from the LIMS/EHR to the local public health agency. Note for the IDPH constrained profile the Lab Sender and ELR Receiver Profiler are harmonized so either Profile identifier can be used.
	ELR Receiver	2.16.840.1.113883.9.11	

Basic message structure with the Undefined (O) and most Optional (RE) segments omitted for clarity:

Below is the basic message structure for the IDPH ELR251 ORU^R01 message. The undefined (O) and most optional (RE) fields and groups found in the HL7 ELR251 IG have been omitted for clarity. Facilities sending ELR to Iowa should follow this implementation guide. Refer the ELR251PH-

IG guide for the fully defined ORU^R01 abstract message. Messages sent to IDPH using the Diagnosis One smartLab™ Provider Portal can be wrapped as a batch (message groups or individual messages). See Table 5.2: Batch Abstract Message Syntax below.

Table 5.1: Basic message structure for an ELR 251 ORU^01 Message

Segment in Standard	Name	Cardinality	Usage	IDPH notes
MSH	Message Header	[1..1]	R	
SFT	Software Segment	[1..*]	R	
PATIENT_RESULT Group Begin		[1..1]	R	FOR IDPH, limit Patient Result group Cardinality to [1...1] i.e. one Patient Group. This is a departure from HL7 IG which states [1...*]
PATIENT Group Begin		[1..1]	R	
PID	Patient Identification	[1..1]	R	
NTE	Notes and Comments for PID	[0..*]	RE	
NK1	Next of Kin/Associated Parties	[0..*]	RE	The next of kin (NK1) segment can be used to document the patient's next of kin, employer, guardian, etc. IDPH requires the NK1 segment to contain parent/guardian information when reporting lead testing results for children. When reporting results of animal testing (for example testing animals for rabies) the NK1 segment can be used to identify the owner of the animal.
VISIT Begin		[0..1]	RE	
PV1	Patient Visit	[1..1]	R	HL7 requires that the patient visit (PV1) segment be present if the VISIT group is present.
VISIT End				
PATIENT Group End				
ORDER_OBSERVATION Group Begin		[1..*]	R	
ORC	Order Common	[0..1]	C(R/RE)	ELR Condition predicate: The first ORDER_OBSERVATION group must contain an ORC segment (containing ordering facility information) if no ordering provider information is present in OBR-16 or OBR-17.
OBR	Observations Request	[1..1]	R	
NTE	Notes and Comments for OBR	[0..*]	RE	
OBSERVATION Group Begin		[0..*]	C(R/RE)	Harmonized condition predicate: May be empty for OBR-25 Result statuses of "O," "I," "S" and "X"; otherwise, it is required.
OBX	Observation related to OBR	[1..1]	R	
NTE	Notes and Comments	[0..*]	RE	
OBSERVATION Group End	OBSERVATION Group End			
SPECIMEN Group Begin	SPECIMEN Group Begin	[1..*]	R	Required for every Order Observation Group (OBR) in the message.

SPM	Specimen Information related to OBR	[1..1]	R	
OBX	Observation related to Specimen	[0..*]	RE	
SPECIMEN Group End				
ORDER_ OBSERVATION Group End				
PATIENT_RESULT Group End				

Table 5.2: Batch Abstract Message Syntax

Segment in Standard	Name	Cardinality	Usage	IDPH notes
FHS	File Header Segment	[1..1]	R	File header required.
	---BATCH begin	[1..*]	R	A File may contain multiple batches.
BHS	Batch Header Segment	[1..1]	R	
	---MESSAGE begin	[1..*]	R	One or more messages per batch supported.
MSH	(One or more HL7 messages)	[1..1]	R	
…				
…				
…				
	---MESSAGE end			
BTS	Batch Trailer Segment	[1..1]	R	
	---Batch end			
FTS	File Trailer Segment	[1..1]	R	

Static Definition Table for Segments, Fields, Components, and Subcomponents:

For Clarity all unsupported data elements ("X" usage) have been omitted from the following tables. However, in a pipe-delimited (ER7) message type, unsupported elements retain their field delimiters (|), but do not retain the sub-component or repeat delimiters (~, ^, &), and are not populated. The exception is if the "X" elements are at the end of a segment with no intervening elements designated as usage R, C, RE, CE, in which case the "X" elements may be deleted from the message.

In addition we are pre-adopting the notation for conditional statements [or C(a/b)]from v2.7.1, Section 2.B.7.9 (under HL7 ballot 10/2011) to ensure greater clarity about the usage when the condition is met and when the condition is not met: (see Chapter 2 page 15 in http://www.hl7.org/documentcenter/public/ballots/2011SEP/downloads/V271_N1_2011SEP.zip):

"An element with a conditional usage code has an associated condition predicate that determines the operational requirements (usage code) of the element.

If the condition predicate associated with the element is true, follow the rules for a which shall be one of "R", "RE", "O" or X":

If the condition predicate associated with the element is false, follow the rules for b which shall be one of "R", "RE", "O" or X".

(Rules) a and b shall be different and defined by the message profile."

The old 'C' and "CE" is defined as either C(R/X), C(RE/X, or C(R/RE) with the following rules:

1) C(R/X) is interpreted as follows.
If the condition predicate associated with the element is true then the usage for the element is R-Required. If the condition predicate associated with the element is false then the usage for the element is X – Not Supported.

2) C(RE/X) is interpreted as follows.
If the condition predicate associated with the element is true then the usage for the element is RE –Required but may be empty. If the condition predicate associated with the element is false then the usage for the element is element is X – Not Supported.

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

Column definitions for Static Message Definition Table:

Seq: Sequence of the elements as they are numbered in the HL7 segment.
Len : Length, ELR251PH-IG adopted the V2.7 Length standards
(Taken directly from ELR251PH-IG and see section 2.3.1 for further discussion of length conventions)

- Maximum length of the element. Lengths are provided only for primitive data types. The length attribute applies to data type attribute tables and segment attribute tables. Lengths should be considered recommendations, not absolutes. The receiver can truncate fields, components and sub-components that are longer than the recommended length. The receiver should continue to process a message even when a field, component, or sub-component length exceeds the maximum recommended length identified in this specification. See section C.3.3 for documentation on how lengths are handled in this guide. The length attribute may contain a character indicating how the data may be truncated by a receiver. The truncation characters are defined as follows:
    - = Truncation not allowed
    - # Truncation allowed
    - No character indicates the truncation behavior is not defined.

DT: Data type used by PHIN for HL7 element.
HL7 Cardinality: indicates whether the element can repeat
Usage: Indicates if the field is required, optional, or conditional in a segment. These Values have been defined for IDPH using following definitions. Note that these definitions are our interpretation from standard HL7:

- R Required: Must always be populated. Marks for a null value if no specific value is delineated in the Description column of the table.
- RE Required, but may be empty: (no values, no quotes**).** If the field is not populated, it will be assumed that the data is not provided to the lab or submitted as “unknown”. See comments under “Common Core Data Elements...” above.
- Optional: There are no optional (more correctly- undefined) elements in this constrained Lab Sender profile.
- C (a/b) Conditional: The usage code has an associated condition predicate true (See section 2.B.7.9, Condition Predicate in V2.7.1 Chapter 2B"). If the condition predicate associated with the element is true, follow the rules for a which may be one of R, RE, or X: If the condition predicate associated with the element is false, follow the rules for b which may be one of R, RE, or X. Rules a and b SHALL be different and defined by the message profile.
- X Not used: These elements have been omitted from the guide for clarity.

Note: A required field in an optional segment does not mean the segment must be present in the message. It means that if the segment is present, the required fields within that segment must be populated. The same applies to required components of optional fields. If the field is being populated, then the required components must be populated. The same applies to required sub-components

Value Set: The set of coded values to be used with the field. The value set attribute applies only to the data type attribute tables and the segment attribute tables. The value set may equate with an entire code system part of a code system, or codes drawn from multiple code systems.
HL7 Element Name: HL7 name for the element
IDPHDef: Contextual Definition for the element

HardCode: Whether can hard code the element- i.e. is it static or not
HardCodeValue: If “hard-codable” then what is the hardcoded value
Example data: Sample data in pipe-delimited (ER7) format
IDPHComments: Description, comments and notes about the element in the context of IDPH-ELR workgroup

Table 6: The components of the MSH segment of an ELR 251 ORU^01 message

MSH											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
1	1..1	ST	[1..1]	R		Field Separator	The HL7 field separator	Yes	|	|	
2	4..5	ST	[1..1]	R		Encoding Characters	The HL7 encoding characters	Yes	^~\&#	^~\&#	The MQF fails if the '#' is included. The NIST ELR Validation Tool reports an error if the '#' is not included. All 5 characters is the standard.
3		HD	[1..1]	R		Sending Application	The PHIN namespace ID and OID of your sending application	Yes	your lims^2.16.840.1.114222.xxxxx^ISO	IA PHIMS Stage^2.16.840.1.114222.4.3.3.5.1.2^ISO	The sending app is your LIMS or sending application
3.1	1..20=	IS		RE	Local	Namespace ID	Namespace ID of your sending application	Yes	your lab information system or other hospital information system	IA PHIMS Stage	
3.2	1..199=	ST		R		Universal ID	OID of your sending application	Yes	2.16.840.1.114222.xxxxx	2.16.840.1.114222.4.3.3.5.1.2	For staging use 2.16.840.1.114222.xxxxx. Every sending application must have an OID. See page 27 in this guide about obtaining OIDs.
3.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
4		HD	[1..1]	R		Sending Facility	The PHIN namespace ID and OID of your Lab	Yes	your lab>^2.16.840.1.114222.xxxxx^ISO	IA Public Health Lab^2.16.840.1.114222.4.1.10411^ISO	CLIA can also be used
4.1	1..20=	IS		RE	Local	Namespace ID	The PHIN namespace ID of your Lab	Yes	your lab	IA Public Health Lab	
4.2	1..199=	ST		R		Universal ID	OID of your Lab	Yes	2.16.840.1.114222.xxxxx	2.16.840.1.114222.4.1.10411	could also be CLIA number
4.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	could also be CLIA
5		HD	[1..1]	R		Receiving Application	The PHIN namespace ID and OID for the app that receives the message	Yes	IA.DOH.IDSS^2.16.840.1.114222.4.3.3.19^ISO	IA.DOH.IDSS^2.16.840.1.114222.4.3.3.19^ISO	Receiving app could be a Disease Surveillance and Outbreak Management system (OMS?) like MAVEN. Or state NEDDS??? Assumption: Only sending to single ELR receiver. May have non PHIN generated OID
5.1	1..20=	IS		RE	Local	Namespace ID	Namespace ID of the receiving app	Yes	IA.DOH.IDSS	IA.DOH.IDSS	length is 20= Lengths should be considered recommendations, not absolutes. The receiver can truncate fields, components and sub-

MSH											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											components that are longer than the recommended length.
5.2	1..199 =	ST		R		Universal ID	OID of the receiving app	Yes	2.16.840.1.114222.4.3.3.19	2.16.840.1.114222.4.3.3.19	The OID for the Iowa Disease Surveillance System (IDSS)
5.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
6		HD	[1..1]	R		Receiving Facility	The PHIN namespace ID and OID of the receiving facility	Yes	IA DOH ^2.16.840.1.114222.4.1.3650^ISO	IA DOH ^2.16.840.1.114222.4.1.3650^ISO	Assumption: Only sending to single ELR receiver. May have non-PHIN generated OID.
6.1	1..20=	IS		RE	Local	Namespace ID	Namespace ID of the receiving facility	Yes	IA DOH	IA DOH	
6.2	1..199 =	ST		R		Universal ID	OID of receiving facility	Yes	2.16.840.1.114222.4.1.3650	2.16.840.1.114222.4.1.3650	
6.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
7	4..26	DTM	[1..1]	R		Date/Time Of Message	Date and time the message was created by the sending system	No		20110208132554	Max length increased to 26 to be backward compatible with ELR 231 and 23z
9		MSG	[1..1]	R		Message Type	The type of HL7 message you are sending	Yes	ORU^R01^ORU_R01	ORU^R01^ORU_R01	vs ORU^R01 in v 2.3.1 or 2.3.z
9.1	3..3	ID		R	HL70076	Message Code		Yes	ORU	ORU	
9.2	3..3	ID		R	HL70003	Trigger Event		Yes	R01	R01	
9.3	3..7	ID		R	HL70354	Message Structure		Yes	ORU_R01	ORU_R01	
10	1..199 =	ST	[1..1]	R		Message Control ID	A unique ID for each message that is sent	No		2.16.840.1.114222.4.3.3.5.1.2-20110208132554.325	Construct the Message Control ID by using the sending application OID+'-'+ date/timestamp down to the milliseconds. See page 27 in this guide about obtaining OIDs.
11		PT	[1..1]	R		Processing ID		Yes	P	P	T for training/test and P for production

MSH											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
11.1	1..1	ID		R	HL70103	Processing ID		Yes	P	P	T for training/test and P for production
12		VID	[1..1]	R		Version ID	The version of HL7 that this IDPH ELR message spec is based upon	Yes	2.5.1	2.5.1	
12.1	3..5	ID		R		Version ID		Yes	2.5.1	2.5.1	
15	2..2	ID	[0..1]	C(R/RE)	HL70155	Accept Acknowledgment Type		Yes	NE	NE	See MSH.21. Harmonized condition predicate: Required when MSH-21 profile id is PHLabReport- Ack or USLabReport, otherwise it may be empty or “NE”.
16	2..2	ID	[0..1]	C(R/RE)	HL70155	Application Acknowledgement Type		Yes	NE	NE	IF not expecting ACKs use "NE" Never, IF expecting ACKs use AL, see MSH.21. Harmonized condition predicate: Required when MSH-21 profile id is PHLabReport-Ack or USLabReport, otherwise it may be empty or “NE”. AL=ALWAYS ER=ERROR/REJECT CONDITIONS ONLY NE=NEVER SU=SUCCESSFUL COMPLETION ONLY
17	3..3	ID	[0..1]	RE	Country Value Set	Country Code		Yes	USA	USA	
21		EI	[1..*]	R		Message Profile Identifier	Information about the ELR message profile	Yes	PHLabReport-NoAck^^2.16.840.1.113883.9.10^ISO	PHLabReport-NoAck^^2.16.840.1.113883.9.10^ISO	PHLabReport-Ack Lab Sender: PHLabReport-Ack^^2.16.840.1.113883.9.10^ISO ELR Receiver : PHLabReport-Ack^^2.16.840.1.113883.9.11^ISO PHLabReport-NoAck Lab Sender : PHLabReport-NoAck^^2.16.840.1.113883.9.10^ISO ELR Receiver : PHLabReport-NoAck^^2.16.840.1.113883.9.11^ISO PHLabReport-Batch Lab Sender : PHLabReport-Batch^^2.16.840.1.113883.9.10^ISO ELR Receiver : PHLabReport-Batch^^2.16.840.1.113883.9.11^ISO

MSH											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											When sending messages to the IDPH smartLab™, messages are required to be wrapped in a batch, so use PHLabReport-Batch.
21.1	1..199 =	ST		R		Entity Identifier	The name of the ELR message profile	Yes	PHLabReport-NoAck	PHLabReport-NoAck	* PHLabReport-Ack * PHLabReport-NoAck * PHLabReport-Batch
21.2	1..20=	IS		RE	Local	Namespace ID	Namespace ID for PHIN message profiles	No			Leave this empty for IDPH implementation.
21.3	1..199 =	ST		R		Universal ID	OID for ELR message profile	Yes	2.16.840.1.113883.9.10	2.16.840.1.113883.9.10	* Lab Sender = 2.16.840.1.113883.9.10 * ELR Receiver= 2.16.840.1.113883.9.11
21.4	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	

Example:

```
MSH|^~\&|IA PHIMS Stage^2.16.840.1.114222.4.3.3.5.1.2^ISO|IA Public Health
Lab^2.16.840.1.114222.4.1.10411^ISO|IA.DOH.IDSS ^2.16.840.1.114222.4.3.3.19^ISO|IA DOH
^2.16.840.1.114222.4.1.3650^ISO|20110208132554||ORU^R01^ORU_R01|2.16.840.1.114222.4.3.3.5.1.2-
20110208132554.325|P|2.5.1|||AL|ER|USA||||PHLabReport-Ack^^2.16.840.1.114222.4.10.3^ISO
```

Table 7: The components of the SFT segment of an ELR 251 ORU^01 message

SFT											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
1		XON	[1..1]	R		Software Vendor Organization	Name of your LIMS or Interface Engine vendor	Yes	your lims or interface engine vendor	Orion Health	Need to follow up and see if LIMS or interface engine preferred. See ERL251 Guide Introduction to segment
1.1	1..50#	ST		C(R/RE)		Organization Name	Name of your LIMS or Interface Engine vendor	Yes	your lims or interface engine vendor	Orion Health	Need to follow up and see if LIMS or interface engine preferred. See ERL251 Guide Introduction to segment. Length 50 can be truncated. ELR Condition predicate: Must be present if there is no Organization Identifier in component 10. Send it if you have it.
1.2	1..20=	IS		RE	HL70204	Organization Name Type Code		No			this can be empty
1.6		HD		C(R/X)		Assigning Authority		No			this can be empty ELR Condition predicate: Required if component 10 (Organization Identifier) is populated.
1.6.1	1..20=	IS		RE	Local	Namespace ID		No			this can be empty
1.6.2	1..199=	ST		R		Universal ID		No			this can be empty
1.6.3	1..6	ID		R	HL70301	Universal ID Type		No			this can be empty
1.7	2..5	ID		C(R/X)	HL70203	Identifier Type Code		No			this can be empty
1.10	1..20=	ST		RE		Organization Identifier		No			this can be empty
2	1..15#	ST	[1..1]	R		Software Certified Version or Release Number		Yes	your software's release or version number	2.4.3.52854	can be hardcoded since relatively static, but may need periodic updates
3	1..50#	ST	[1..1]	R		Software Product Name		Yes	your lims or interface engine product name	Orion Rhapsody	Length is too short for this field but truncation allowed in IG. For IDPH increase field length to 50. - discuss
4	1..20#	ST	[1..1]	R		Software Binary ID		Yes	Binary id if you have it or repeat software version number, SFT-2.	2.4.3.52854	Binary ID is 20 digit code supplied by vendor for each release of software. Having said that I've looked and

SFT											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											searched and never found one. If you don't know it, repeat the software version number, SFT-2.
6	4..26	DTM	[0..1]	RE		Software Install Date		Yes	your software install date	20110101	For IDPH implementation, it is OK if empty.

Example:

```
SFT|Orion Health|2.4.3.52854|Orion Rhapsody|2.4.3.52854||20110101
```

Table 8: The components of the PID segment of an ELR 251 ORU^01 message

PID											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
1	1..4	SI	[1..1]	R		Set ID – PID	The Set ID of this PID segment	Yes	1	1	Literal Value: '1'
3		CX	[1..*]	R		Patient Identifier List	The patient ID (or list of patient IDs if more than one is used)	No		987654321A^^^SHL_PHL_LIMS&2.16.840.1.114222.4.1.10412&ISO^PI~45AQ12345^^^Napa General Hosp&2.16.840.1.113883.19.3.2.1&ISO^MR	Field used to convey all types of patient/person identifiers. This includes social security numbers, driver's license numbers, medical record numbers, etc. The first instance must be the unique ID generated by the LIMS. This Field is repeatable
3.1	1..15=	ST		R		ID Number	Patient ID	No		987654321	The ID Number component combined with the Assigning Authority component must uniquely identify the associated object.
3.4		HD		R		Assigning Authority	The PHIN namespace ID and OID for the LIMS	No	your system/app/org name&2.16.840.1.114222.xxxxx&ISO	SHL_PHL_LIMS&2.16.840.1.114222.4.1.10412&ISO	The Assigning Authority component is used to identify the system, application, organization, etc. that assigned the ID Number in component 1. ie the LIMS. May be able to Hardcode this if your system always assigns the PID.
3.4.1	1..20=	IS		RE	Local	Namespace ID	Namespace ID for your LIMS	No	your system/app/org name	SHL_PHL_LIMS	May be able to Hardcode this if your system always assigns the PID.
3.4.2	1..199=	ST		R		Universal ID	OID for your LIMS	No	2.16.840.1.114222.xxxxx	2.16.840.1.114222.4.1.10412	May be able to Hardcode this if your system always assigns the PID.
3.4.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
3.5	2..5	ID		R	HL70203	Identifier Type Code	The HL7 identifier type for the Patient ID	No	PI	PI	PI = patient internal Identifier, May be able to Hardcode this if your system always assigns the PID
3.6		HD		RE		Assigning Facility	The facility that assigned the patient identifier. (Not needed in most states)	No			The Assigning Facility identifies the place or location that the ID Number was assigned for use. (Not needed in most states)
3.6.1	1..20=	IS		RE	Local	Namespace ID		No			
3.6.2	1..199=	ST		R		Universal ID		No			

PID											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
3.6.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO		ISO
5		XPN	[1..*]	R		Patient Name	Patient name (or anonymous PHLIP default string "~^^^^^^U")	Yes	patient name or "~^^^^^^U"	Everyman^Adam^A^^^^L	For IDPH implementation this element is a common core data element - Need to send it if you have it. When the name of the patient is not known, a value must still be placed in this field since the field is required. In that case, HL7 recommends the following: |~^^^^^^U|. Repeatable field.
5.1		FN		RE		Family Name	Last Name	No		Everyman	
5.1.1	1..50#	ST		R		Surname	Last Name	No		Everyman	HL7 231 last name maps to this field
5.2	1..30#	ST		RE		Given Name	First Name	No		Adam	
5.3	1..30#	ST		RE		Second and Further Given Names or Initials Thereof	Middle Initial/Middle Name	No		A	
5.4	1..20#	ST		RE		Suffix (e.g., JR or III)	Suffix	No			
5.5	1..20#	ST		RE		Prefix (e.g., DR)	Prefix	No			
5.7	1..5	ID		RE	HL70200	Name Type Code	The Name Type Code from HL7 Table 200	No		L	Defaults to l (legal name) if empty.
5.14	1..199#	ST		RE		Professional Suffix		No			Suggest using values from HL7 table 360.
6		XPN	[0..1]	RE		Mother's Maiden Name		No		Mum^Martha^M^^^^M	
6.1		FN		RE		Family Name		No		Mum^Martha^M^^^^M	
6.1.1	1..50#	ST		R		Surname		No		Mum	
6.2	1..30#	ST		RE		Given Name		No		Martha	
6.3	1..30#	ST		RE		Second and Further Given Names or Initials Thereof		No		M	
6.4	1..20#	ST		RE		Suffix (e.g., JR or III)		No			

PID											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
6.5	1..20#	ST		RE		Prefix (e.g., DR)		No			
6.7	1..5	ID		RE	HL70200	Name Type Code		No		M	Name type code is constrained to the value "M." (Maiden Name)
6.14	1..199 #	ST		RE		Professional Suffix		No			Not Needed for ELR
7	4..26	DTM	[0..1]	RE		Date/Time of Birth	Date/Time Of Birth	No		19640619	For IDPH implementation this element is a common core data element - Need to send it if you have it. For IDPH, in situations where the patient's birth date information is not available, provide an estimated date of birth consisting of month, day, and year. One instance is the case where only patient age is known. Under such circumstances, it is acceptable to send the four-digit year identifier produced by subtracting the patient's age from the current year and January 1 of that year as the estimated date of birth. Estimated date of birth: Patient age = 44; (2013 – 34 = 1979) 19790101 For IDPH the Maximum length has been increased to be compatible with ELR231 and 23Z
8	1..20=	IS	[0..1]	RE	HL70001	Administrative Sex	Sex code from HL7 table 0001	No		M	For IDPH implementation this element is a common core data element - Need to send it if you have it.
10		CWE	[0..*]	RE	HL70005	Race	Race	No		2106-3^White^ HL70005^W^White^L^04/24/2007^v unknown	For IDPH implementation this element is a common core data element - Need to send it if you have it. For IDPH, Submission through the IDPH smartLab™ requires that the facility map the code that is sent in the second triplet to the IDPH code in the smartLab™ portal – regardless of whether this is a standard (LOINC, SNOMED, or HL7) or local code.
10.1	1..20=	ST		RE		Identifier	Race code (from HL70005)	No		2106-3	
10.2	1..199 #	ST		C(RE/CX)		Text	Race name (from HL70005)	No		White	ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
10.3	1..12	ID		C(R/X)	HL70396	Name of Coding System	Race coding system	Yes		HL70005	If you put a standard race code in PID 10.1, you must put HL70005 in PID 10.3

PID											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
10.4	1..20=	ST		RE		Alternate Identifier	Local race code	No		W	
10.5	1..199 #	ST		C(RE/X)		Alternate Text	Local race name	No		White	ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
10.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System	Local race coding system	Yes	L	L	If you put a local race code in PID 10.4, you must put L in PID 10.6. You can leave PID 10.4-10.6 empty.
10.7	1..10=	ST		RE		Coding System Version ID	Standard coding system version	Yes	04/24/2007	04/24/2007	CWE.7 Recommended if a coding system is identified in component 3. This can be Hardcoded
10.8	1..10=	ST		RE		Alternate Coding System Version ID	Local coding system version	Yes	your local code version or "v unknown"	v unknown	Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value “v unknown”
10.9	1..199 #	ST		C(R/RE)		Original Text		No			ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required. If all you have is text put it here.
10.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
10.11	1..199 #	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
10.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
10.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
10.14	1..199 =	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
11		XAD	[0..*]	RE		Patient Address	Patient Address	No		2222 Home Street^^Napa^CA^94558^USA^H^^06055	For IDPH implementation this element is a common core data element - Need to send it if you have it.

PID											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
11.1		SAD		RE		Street Address	Street Address	No		2222 Home Street	
11.1.1	1..120#	ST		R		Street or Mailing Address		No		2222 Home Street	
11.2	1..120#	ST		RE		Other Designation	Other Designation	No			
11.3	1..50#	ST		RE		City	City	No		Napa	
11.4	1..50#	ST		RE	PHVS_State_FIPS_5-2	State or Province	State or Province FIPS 5-2	No		IA	Use the FIPS 5-2 two character codes here (e.g., IA for Iowa)
11.5	1..12=	ST		RE	Postal Code Value Set	Zip or Postal Code	Zip or Postal Code	No		94558	US Zip Codes, Zip+4 and Canadian Postal Codes are supported in ELR messages.
11.6	3..3	ID		RE	Country Value Set	Country	Country	No		USA	Usually this will be USA, but it might be another country code from ISO 3166-1.
11.7	1..3	ID		RE	HL70190	Address Type	Address Type code from HL7 Table 190	No		H	Typical values from HL7 Table 190 are H (Home), L (Legal Address), M (Mailing), C (Current Or Temporary) etc.
11.9	1..20=	IS		RE	PHVS_County_FIPS_6-4	County/Parish Code	County code from FIPS6_4	No		06055	For IDPH use FIPS 6-4 codes. IDPH validates the patient address against an online address validation service upon receipt of in-bound messages. If the address is able to validate, county is returned from the service.
13		XTN	[0..*]	RE		Phone Number – Home		No		^PRN^PH^^1^707^2272608	For IDPH implementation this element is a common core data element - Need to send it if you have it.
13.2	3..3	ID		RE	HL70201	Telecommunication Use Code		No		PRN	For example PRN = Primary Residence Number. Should use 'NET' if component 4 (Email Address) is present.
13.3	2..8	ID		RE	HL70202	Telecommunication Equipment Type		No		PH	For example PH = phone. Should use 'Internet' if component 4 (Email Address) is present.
13.4	1..199=	ST		C(R/X)		Email Address		No			ELR Condition predicate: Required if component 7 (local number) is not present. Component 4 (Email Address) must be empty if component 7 (Local Number) is present.

PID											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
13.5	1..3=	NM		C(RE/X)		Country Code		Yes	1	1	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
13.6	1..3=	NM		C(RE/X)		Area/City Code		No		707	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
13.7	1..9=	NM		C(R/X)		Local Number		No		2272608	ELR Condition predicate: Required if component 4 (Email Address) is not present. Component 7 (Local Number) must be empty if component 4 (Email Address) is present.
13.8	1..5=	NM		C(RE/X)		Extension		No			ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
13.9	1..199#	ST		RE		Any Text		No			For example: “Regular hours 8 am to 5 pm.”
14		XTN	[0..*]	RE		Phone Number – Business		No		^WPN^PH^^1^707^6374377	See comments for PID 13.
14.2	3..3	ID		RE	HL70201	Telecommunication Use Code		No		WPN	
14.3	2..8	ID		RE	HL70202	Telecommunication Equipment Type		No		PH	
14.4	1..199=	ST		C(R/X)		Email Address		No			ELR Condition predicate: Required if component 7 (local number) is not present. Component 4 (Email Address) must be empty if component 7 (Local Number) is present.
14.5	1..3=	NM		C(RE/X)		Country Code		No		1	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
14.6	1..3=	NM		C(RE/X)		Area/City Code		No		707	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
14.7	1..9=	NM		C(R/X)		Local Number		No		6374377	ELR Condition predicate: Required if component 4 (Email Address) is not present. Component 7 (Local Number) must be empty if component 4 (Email Address) is present.

PID											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
14.8	1..5=	NM		C(RE/X)		Extension		No			ELR Condition predicate:Thiscomponent is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
14.9	1..199#	ST		RE		Any Text		No			
16		CWE	[0..1]	RE	HL70002	Marital Status	Patient's Marital Status	No		M^Married^HL70002^M^Married^L^2.5.1^v unknown	For IDPH implementation this element is legally required in Iowa - Need to send it if you have it. For IDPH, Submission through the IDPH smartLab™ requires that the facility map the code that is sent in the second triplet to the IDPH code in the smartLab™ portal – regardless of whether this is a standard (LOINC, SNOMED, or HL7) or local code. This is a departure from the HL7 v 2.5.1 Implementation Guide: ELR to Public Health
16.1	1..20=	ST		RE	HL70002	Identifier	Marital Status Code	No		N	Choices are M – Married, S – Single, D-Divorced, etc.
16.2	1..199#	ST		C(RE/X)		Text	Marital Status name	Yes		Married	ELR Condition predicate: If the Identifier component is empty, then this component must be empty
16.3	1..12	ID		C(R/X)	HL70396	Name of Coding System	Marital Status code system	Yes	HL70002	HL70002	
16.4	1..20=	ST		RE		Alternate Identifier	Local marital status code	No		N	
16.5	1..199#	ST		C(RE/X)		Alternate Text	Local marital status name	No		Married	ELR Condition predicate: If the Identifier component is empty, then this component must be empty
16.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System	Local coding system	Yes	L	L	
16.7	1..10=	ST		RE		Coding System Version ID	Standard Coding System Version	Yes	2.5.1	2.5.1	Recommended if a coding system is identified in component 3. This can be Hardcoded
16.8	1..10=	ST		RE		Alternate Coding System Version ID	Local coding system version	Yes	your local code version or "v unknown"	v unknown	Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value "v unknown"
16.9	1..199#	ST		C(R/RE)		Original Text		No			ELR Condition predicate: If no identifier and alternate identifier is present, then this

PID											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											component is required. If all you have is text put it here.
16.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
16.11	1..199 #	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
16.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
16.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
16.14	1..199 =	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
22		CWE	[0..*]	RE	HL70189	Ethnic Group	Patient's ethnicity	No		N^Not Hispanic or Latino^HL70189^N^Not Hispanic^L^2.5.1^v unknown	For IDPH implementation this element is a common core data element - Need to send it if you have it. For IDPH, Submission through the IDPH smartLab™ requires that the facility map the code that is sent in the second triplet to the IDPH code in the smartLab™ portal – regardless of whether this is a standard (LOINC, SNOMED, or HL7) or local code. User defined table 0189- Ethnic group: H Hispanic or Latino,N Not Hispanic or Latino,U Unknown
22.1	1..20=	ST		RE	HL70189	Identifier	Ethnicity Code	No		N	Harmonized condition predicate: Required if an identifier is provided in component 1. The value and coding system is still undefined in MQF/PHINVADS. Choices are H – Hispanic or Latino, N – Not Hispanic or Latino, U Unknown.
22.2	1..199 #	ST		C(RE/X)		Text	Ethnicity name	Yes		Not Hispanic or Latino	ELR Condition predicate: If the Identifier component is empty, then this component must be empty

PID											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
22.3	1..12	ID		C(R/X)	HL70189	Name of Coding System	Ethnicity code system	Yes	HL70189	HL70189	The value and coding system is still undefined in MQF/PHINVADS.
22.4	1..20=	ST		RE		Alternate Identifier	Local ethnicity code	No		N	
22.5	1..199 #	ST		C(RE/X)		Alternate Text	Local ethnicity name	No		Not Hispanic or Latino	ELR Condition predicate: If the Identifier component is empty, then this component must be empty
22.6	1..12	ID		C(R/X)	HL70189	Name of Alternate Coding System	Local coding system	Yes	L	L	Harmonized condition predicate: Required if an alternate identifier is provided in component 4
22.7	1..10=	ST		RE		Coding System Version ID	Standard Coding System Version	Yes	2.5.1	2.5.1	Recommended if a coding system is identified in component 3. This can be Hardcoded
22.8	1..10=	ST		RE		Alternate Coding System Version ID	Local coding system version	Yes	your local code version or "v unknown"	v unknown	Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value “v unknown”
22.9	1..199 #	ST		C(R/RE)		Original Text		No			ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required. If all you have is text put it here.
22.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
22.11	1..199 #	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
22.12	1..12	ID		C(R/X)	HL70189	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
22.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
22.14	1..199 =	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.

PID											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
29	4..26	DTM	[0..1]	RE		Patient Death Date and Time	Date (or date and time) of patient's death	No			For IDPH the Max length has been increased to 26 for backwards compatibility with v231 and v23z
30	1..1	ID	[0..1]	RE	HL70136	Patient Death Indicator	Patient death indicator	No			
31	1..1	ID	[0..1]	RE	HL70136	Identity Unknown Indicator		No			For IDPH this element can be empty
33	4..24	TS	[0..1]	RE		Last Update Date/Time		No		201102081000-0700	For IDPH, When updating demographic information update this field to flag receiver of new information.
34		HD	[0..1]	C(R/RE)		Last Update Facility	The PHIN namespace ID and OID of your Lab	Yes		LastUpdater^2.16.840.1.113883.19.3.1^ISO	ELR: Condition predicate: If PID-33 is present this is required. Hardcoded unless multiple updating facilities besides lab.
34.1	1..20=	IS		RE	Local	Namespace ID	The PHIN namespace ID of your Lab	Yes		NapaCo_PHL	
34.2	1..199=	ST		R		Universal ID	OID of your Lab	Yes	2.16.840.1.114222.xxxxx	2.16.840.1.114222.4.1.104	
34.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	ISO
35		CWE	[0..1]	RE	PHVS_Animal_CDC	Species Code		No			The standard code should populate the first triplet and the local codes should populate the second triplet.
35.1	1..20=	ST		RE		Identifier		No			
35.2	1..199#	ST		C(RE/X)		Text		No			It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
35.3	1..12	ID		C(R/X)	HL70396	Name of Coding System		No			Harmonized condition predicate: Required if an identifier is provided in component 1.
35.4	1..20=	ST		RE		Alternate Identifier		No			
35.5	1..199#	ST		C(RE/X)		Alternate Text		No			It is strongly recommended that alternate text be sent to accompany any alternate identifier.

PID											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
35.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System		No			Harmonized condition predicate: Required if an alternate identifier is provided in component 4.
35.7	1..10=	ST		RE		Coding System Version ID	Standard Coding System Version	Yes			Recommended if a coding system is identified in component 3. This can be Hardcoded
35.8	1..10=	ST		RE		Alternate Coding System Version ID	Local coding system Version	Yes			Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value “v unknown”
35.9	1..199 #	ST		C(R/RE)		Original Text		No			ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required. If all you have is text put it here.
35.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
35.11	1..199 #	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
35.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
35.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
35.14	1..199 =	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.

Example:

```
PID|1||987654321A^^^NapaCo_PHL_LIMS&2.16.840.1.114222.4.1.10412&ISO^PI~45AQ12345^^^Napa General
Hosp&2.16.840.1.113883.19.3.2.1&ISO^MR||Everyman^Adam^A^^^^L|Mum^Martha^M^^^^M|19640619|M||^^^W^Wh
ite^L^^v unknown|2222 Home
Street^^Napa^CA^94558^USA^H^^06055||^PRN^PH^^1^707^2272608|^WPN^PH^^1^707^6374377||^^^M^Married^L^
^v unknown||||||^^^N^Not Hispanic^L^^v unknown||||||||N|||201102081000-
0700|LastUpdater^2.16.840.1.113883.19.3.1^ISO
```

Table 9: The components of the NTE segment of an ELR 251 ORU^01 message

NTE											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
1	1..4	SI	[1..1]	R		Set ID – NTE	The sequence number of the NTE segment	No		1	
2	1..1	ID	[0..1]	RE	HL70105	Source of Comment	Where the comment originated	No		L	This will be L (Filler) if the comment originated in your LIMS. Other possibilities are P (Placer), if the comment came from the submitter, or O (Other).
3	1..65536	FT	[1..*]	R		Comment	The comment	No		Comment goes here. It can be a very long comment.	This is a FT (formatted text) field. It can contain either plain text or plain text along with HL7 formatting codes such as \.br\ (Line break), \.in5\ (Indent 5 spaces), etc.
4		CWE	[0..1]	RE	HL70364	Comment Type		No		RE^Remark^HL70364^^^^2.5.1	for example RE remark
4.1	1..20=	ST		RE		Identifier		No		RE	
4.2	1..199#	ST		C(RE/X)		Text		No		Remark	It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
4.3	1..12	ID		C(R/X)	HL70396	Name of Coding System		No		HL70364	Harmonized condition predicate: Required if an identifier is provided in component 1.
4.4	1..20=	ST		RE		Alternate Identifier		No			
4.5	1..199#	ST		C(RE/X)		Alternate Text		No			It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.

NTE											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
4.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System		No			Harmonized condition predicate: Required if an alternate identifier is provided in component 4.
4.7	1..10=	ST		RE		Coding System Version ID		Yes	2.5.1	2.5.1	Assume Standard Code in first triplet for IDPH: Required if a coding system is identified in component 3. Can be Hardcoded
4.8	1..10=	ST		RE		Alternate Coding System Version ID		Yes	local coding system version or "v unknown"		Asssume Local Code in second tripelt for IDPH. Required if a coding system is identified in component 6. Can be Hardcoded. If no local code system version maintained use text string "v unknown"
4.9	1..199 #	ST		C(R/RE)		Original Text		No			Either original Text is used to convey the text that was the basis for coding, or when there is no code to be sent, only free text. ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required.
4.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
4.11	1..199 #	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
4.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
4.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
4.14	1..199 =	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.

Example:

NTE|1|L|Comment goes here. Keep comments to 3,000 characters or less.|RE^Remark^HL70364^^^^2.5.1

Table 10: The components of the NK1 segment of an ELR 251 ORU^01 Message

NK1											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	HardCode	HardCodeValue	Example data	IDPHComments
1	1..4	SI	[1..1]	R		Set ID – NK1		No		1	
2		XPN	[0..*]	C(R/X)		Name	Next of Kin Name of patient	No		Mum^Martha^M^^^^L	Name of the next of kin or associated party. Multiple names for the same entity are allowed, but the legal name must be sent in the first sequence. If the legal name is not sent, the repeat delimiter must be sent in the first sequence. ELR Condition predicate: If next of kin or associated party is a person use this field, otherwise, use field NK1-13 For minors this is the name of parent or guardian, for animals this is the "owner". Use this field for person(S) or NK1-13 for organizations. This field is repeatable.
2.1		FN		RE		Family Name	Next of Kin Last Name	No		Mum	
2.1.1	1..50#	ST		R		Surname	Next of Kin Last Name	No		Mum	231 last name maps to this field
2.2	1..30#	ST		RE		Given Name	Next of Kin First Name	No		Martha	
2.3	1..30#	ST		RE		Second and Further Given Names or Initials Thereof	Next of Kin Middle Initial/Middle Name	No		M	
2.4	1..20#	ST		RE		Suffix (e.g., JR or III)		No			
2.5	1..20#	ST		RE		Prefix (e.g., DR)		No			
2.7	1..5	ID		RE	HL70200	Name Type Code	The Name Type Code from HL7 Table 200	No			Defaults to L (legal name) if empty.
2.14	1..199 #	ST		RE		Professional Suffix		No			Suggest using values from HL7 table 360.
3		CWE	[0..1]	RE	HL70063	Relationship	Next of Kin relationship to patient	No		MTH^Mother^HL70063^^^^2.5.1	Relationship between the next of kin/related party and the patient. It is of particular importance when documenting the parent or guardian of a child patient or the owner of an animal patient. For IDPH, Submission through the IDPH smartLab™ requires that the facility map the code that is sent

NK1											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	HardCode	HardCodeValue	Example data	IDPHComments
											in the second triplet to the IDPH code in the smartLab™ portal – regardless of whether this is a standard (LOINC, SNOMED, or HL7) or local code.
3.1	1..20=	ST		RE		Identifier	Next of Kin relationship code HL7 table 0063	No		MTH	Examples include MTH- Mother, FTH-Father, GRD-Guardian, OWN- Owner, OTH- other, Unk-Unknown
3.2	1..199 #	ST		C(RE/X)		Text	Text name of relationship code HL7 table 0063	No		Mother	It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
3.3	1..12	ID		C(R/X)	HL70396	Name of Coding System	relationship coding system	Yes	HL70396	HL70396	Harmonized condition predicate: Required if an identifier is provided in component 1.
3.4	1..20=	ST		RE		Alternate Identifier	Local Next of Kin Relationship code	No			
3.5	1..199 #	ST		C(RE/X)		Alternate Text	Local Next of Kin Relationship text name	No			It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
3.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System	Local coding system	Yes	L		If you put a local relationship code in NK1 3.4, you must put L in NK1 3.6. You can leave NK1 3.4-3.6 empty.
3.7	1..10=	ST		RE		Coding System Version ID	Standard coding system version	Yes	2.5.1	2.5.1	CWE.7 Recommended if a coding system is identified in component 3. This can be Hardcoded
3.8	1..10=	ST		RE		Alternate Coding System Version ID	Local coding system version	Yes	2011		Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to "v unknown".
3.9	1..199 #	ST		C(R/RE)		Original Text		No			ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required. If all you have is text put it here
3.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
3.11	1..199 #	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier.

NK1											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	HardCode	HardCodeValue	Example data	IDPHComments
											ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
3.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
3.13	1..10=	ST		C(RE/X)		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
3.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
4		XAD	[0..*]	RE		Address	Next of Kin Address	No		1566 Ash Street^^Napa^CA^94558^USA^H^^06055	
4.1		SAD		RE		Street Address		No		1566 Ash Street	
4.1.1	1..120#	ST		R		Street or Mailing Address		No		1566 Ash Street	
4.2	1..120#	ST		RE		Other Designation		No			
4.3	1..50#	ST		RE		City		No		Napa	
4.4	1..50#	ST		RE	PHVS_State_FIPS_5-2	State or Province		No		IA	Use the FIPS 5-2 two character codes here (e.g., IA for Iowa)
4.5	1..12=	ST		RE	Postal Code Value Set	Zip or Postal Code		No		94558	US Zip Codes, Zip+4 and Canadian Postal Codes are supported in ELR messages.
4.6	3..3	ID		RE	Country Value Set	Country		No		USA	Usually this will be USA, but it might be another country code from ISO 3166-1.
4.7	1..3	ID		RE	HL70190	Address Type	Address Type code from HL7 Table 190	No		H	for example H Home Typical values from HL7 Table 190 are H (Home), L (Legal Address), M (Mailing), C (Current Or Temporary) etc.
4.9	1..20=	IS		RE	PHVS_County_FIPS_6-4	County/Parish Code	County code from FIPS6_4	No		06055	For IDPH use FIPS 6-4 codes

NK1											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	HardCode	HardCodeValue	Example data	IDPHComments
5		XTN	[0..*]	RE		Phone Number	Next of Kin Phone number	No		^PRN^PH^^1^707^2522610	
5.2	3..3	ID		RE	HL70201	Telecommunication Use Code		No		PRN	For example PRN = Primary Residence Number. Should use 'NET' if component 4 (Email Address) is present.
5.3	2..8	ID		RE	HL70202	Telecommunication Equipment Type		No		PH	For example PH = phone. Should use 'Internet' if component 4 (Email Address) is present.
5.4	1..199=	ST		C(R/X)		Email Address		No			ELR Condition predicate: Required if component 7 (local number) is not present. Component 4 (Email Address) must be empty if component 7 (Local Number) is present.
5.5	1..3=	NM		C(RE/X)		Country Code		No		1	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
5.6	1..3=	NM		C(RE/X)		Area/City Code		No		707	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
5.7	1..9=	NM		C(R/X)		Local Number		No		2522610	ELR Condition predicate: Required if component 4 (Email Address) is not present. Component 7 (Local Number) must be empty if component 4 (Email Address) is present.
5.8	1..5=	NM		C(RE/X)		Extension		No			ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
5.9	1..199#	ST		RE		Any Text		No			For example: "Regular hours 8 am to 5 pm."
13		XON	[0..1]	C(R/X)		Organization Name – NK1	Name of organization	No			If an organization is an associated party to the patient use this field, otherwise, use field NK1-2 for persons.
13.1	1..50#	ST		C(R/RE)		Organization Name	Name of the Organization	No			ELR Condition predicate: Must be present if there is no Organization Identifier in component 10. Send it if you have it.
13.2	1..20=	IS		RE	HL70204	Organization Name Type Code		Yes	D, A or L	D	Example L Legal Name, A Alias Name, D Display Name
13.6		HD		C(R/X)		Assigning Authority		No			The Assigning Authority component is used to identify the system, application, organization, etc. that assigned the ID in component 10. ELR & Lab

NK1											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	HardCode	HardCodeValue	Example data	IDPHComments
											to EHR Condition predicate: Required if component 10 (Organization Identifier) is populated
13.6.1	1..20=	IS		RE	Local	Namespace ID	The assigning authority for the Ordering Facility ID	No			You can leave this element empty if you don't know it
13.6.2	1..199=	ST		R		Universal ID	The assigning authority OID	No			
13.6.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
13.7	2..5	ID		C(R/X)	HL70203	Identifier Type Code		No			ELR Condition predicate: Required if component 10 (Organization Identifier) is populated Examples include: NPI National provider identifier, XX Organization identifier, U Unspecified identifier
13.10	1..20=	ST		RE		Organization Identifier	Organization Identifier (ID)	No			Can be numbers and letters and replaces the the third and fourth component of XON data type used in 2.3.1 and 2.3.z.
30		XPN	[0..*]	C(R/X)		Contact Person's Name	Contact person name for organization in NK1.13	No			ELR Condition predicate: Required if NK1-13 is populated.
30.1		FN		RE		Family Name	Contact Person Last Name	No			
30.1.1	1..50#	ST		R		Surname	Contact Person Last Name	No			231 last name maps to this field
30.2	1..30#	ST		RE		Given Name	Contact Person First Name	No			
30.3	1..30#	ST		RE		Second and Further Given Names or Initials Thereof	Contact Person Middle Name or Initial	No			
30.4	1..20#	ST		RE		Suffix (e.g., JR or III)		No			
30.5	1..20#	ST		RE		Prefix (e.g., DR)		No			
30.7	1..5	ID		RE	HL70200	Name Type Code	The Name Type Code from HL7 Table 200	No			Defaults to l (legal name) if empty.

NK1											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	HardCode	HardCodeValue	Example data	IDPHComments
30.14	1..199 #	ST		RE		Professional Suffix		No			Suggest using values from HL7 table 360.
31		XTN	[0..*]	RE		Contact Person's Telephone Number		No			
31.2	3..3	ID		RE	HL70201	Telecommunication Use Code		No			For example PRN = Primary Residence Number. Should use 'NET' if component 4 (Email Address) is present.
31.3	2..8	ID		RE	HL70202	Telecommunication Equipment Type		No			For example PH = phone. Should use 'Internet' if component 4 (Email Address) is present.
31.4	1..199 =	ST		C(R/X)		Email Address		No			ELR Condition predicate: Required if component 7 (local number) is not present. Component 4 (Email Address) must be empty if component 7 (Local Number) is present.
31.5	1..3=	NM		C(RE/X)		Country Code		No			ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
31.6	1..3=	NM		C(RE/X)		Area/City Code		No			ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
31.7	1..9=	NM		C(R/X)		Local Number		No			ELR Condition predicate: Required if component 4 (Email Address) is not present. Component 7 (Local Number) must be empty if component 4 (Email Address) is present.
31.8	1..5=	NM		C(RE/X)		Extension		No			ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
31.9	1..199 #	ST		RE		Any Text		No			For example: "Regular hours 8 am to 5 pm."
32		XAD	[0..*]	RE		Contact Person's Address		No			
32.1		SAD		RE		Street Address		No			
32.1.1	1..120 #	ST		R		Street or Mailing Address		No			

NK1											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	HardCode	HardCodeValue	Example data	IDPHComments
32.2	1..120 #	ST		RE		Other Designation		No			
32.3	1..50#	ST		RE		City		No			
32.4	1..50#	ST		RE	PHVS_State_FIPS_5-2	State or Province		No		IA	Use the FIPS 5-2 two character codes here (e.g., IA for Iowa)
32.5	1..12=	ST		RE	Postal Code Value Set	Zip or Postal Code		No			US Zip Codes, Zip+4 and Canadian Postal Codes are supported in ELR messages.
32.6	3..3	ID		RE	Country Value Set	Country		No			Usually this will be USA, but it might be another country code from ISO 3166-1.
32.7	1..3	ID		RE	HL70190	Address Type		No			Example values are B Firm/Business, M mailing, O Office.
32.9	1..20=	IS		RE	PHVS_County_FIPS_6-4	County/Parish Code		No			For IDPH use FIPS 6-4 codes

Example:
NK1|1|Mum^Martha^M^^^^L|MTH^Mother^HL70063^^^^2.5.1|444 Home Street^Apt B^AnnArbor^MI^99999^USA^H|^PRN^PH^^1^555^5552006

Table 11: The components of the PV1 segment of an ELR 251 ORU^01 Message

	PV1										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
1	1..4	SI	[1..1]	R		Set ID - PV1					
2	1..20=	IS	[1..1]	R	HL70004	Patient Class					IDPH uses this value to determine if the status of the patient – specifically regarding whether the patient is hospitalized or not. Direct Admit D Emergency E Inpatient I Observation patient V Obstetrics B Outpatient O Preadmit P Recurring patient R
3		PL	[0..1]	C(RE/X)		Assigned Patient Location					IDPH will ignore this information if provided. Applies to all its subcomponents.
3.1	1..20=	IS		RE	HL70302	Point of Care					
3.2	1..20=	IS		RE	HL70303	Room					
3.3	1..20=	IS		RE	HL70304	Bed					
3.6		CWE		RE	HL70305	Person Location Type					
3.6.1	1..20=	ST		RE		Identifier					
3.6.2	1..199#	ST		C(RE/X)		Text					
3.6.3	1..12	ID		C(R/X)	HL70396	Name of Coding System					
3.6.4	1..20=	ST		RE		Alternate Identifier					
3.6.5	1..199#	ST		C(RE/X)		Alternate Text					
3.6.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System					
3.6.7	1..10=	ST		RE		Coding System Version ID					
3.6.8	1..10=	ST		RE		Alternate Coding System Version ID					
3.6.9	1..199#	ST		C(R/RE)		Original Text					

	PV1										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
3.6.10	1..20=	ST		RE		Second Alternate Identifier					
3.6.11	1..199#	ST		C(RE/X)		Second Alternate Text					
3.6.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System					
3.6.13	1..10=	ST		RE		Second Alternate Coding System Version ID					
3.6.14	1..199=	ST		RE		Coding System OID					
4	1..20=	IS	[0..1]	C(RE/X)	Admission Type Value Set	Admission Type					IDPH will ignore this information if provided.
10	1..20=	IS	[0..1]	RE	Local	Hospital Service					IDPH uses this to determine the type of care a hospitalized patient is receiving – especially if the patient is located in the intensive care unit Clinic CLI Intensive care unit ICU Nursing unit NUR Provider's office PRO Cardiac service CAR Medical service MED Pulmonary service PUL Surgical service SUR Urology service URO
19		CX	[0..1]	RE		Visit Number					IDPH will ignore this information if provided. Applies to all its subcomponents.
19.1	1..15=	ST		R		ID Number					
19.4		HD		R		Assigning Authority					
19.4.1	1..20=	IS		RE	Local	Namespace ID					
19.4.2	1..199=	ST		R		Universal ID					
19.4.3	1..6	ID		R	HL70301	Universal ID Type					

PV1											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
19.5	2..5	ID		R	HL70203	Identifier Type Code					
19.6		HD		RE		Assigning Facility					
19.6.1	1..20=	IS		RE	Local	Namespace ID					
19.6.2	1..199=	ST		R		Universal ID					
19.6.3	1..6	ID		R	HL70301	Universal ID Type					
36	1..20=	IS	[0..1]	RE	HL70112	Discharge Disposition					IDPH will ignore this information if provided.
44	4...24	TS	[0..1]	RE		Admit Date/Time					
45	4...24	TS	[0..1]	RE		Discharge Date/Time					

Example: `PV1|1|O|4E^234^A^Good Health Hospital&2.16.840.1.113883.19.3.2.3&ISO^N^N^Building 1^4^Nursing unit 4 East^1234&&2.16.840.1.113883.19.3.2.3&ISO^&2.16.840.1.113883.19.3.2.3&ISO|R||||||

ORC											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
2.1	1..199=	ST		R		Entity Identifier	The submitter's order number string	No		23456	
2.2	1..20=	IS		RE	Local	Namespace ID	The namespace ID for the submitter's order number	No		NapaGen_EHR	
2.3	1..199=	ST		R		Universal ID	The namespace OID for the submitter's order number	No		oid here	For now MQF tool allows any string in this field.
2.4	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
3		EI	[1..1]	R		Filler Order Number	Filler Order Number and PHIN namespace info	No		56789PHL222^NapaCo_PHL_LIMS^2.16.840.1.114222.4.1.10412^ISO	This field is the same as OBR-3. It contains the Filler Order Number + the LIMS namespace ID and OID.
3.1	1..199=	ST		R		Entity Identifier	The order number in the LIMS	No		56789PHL222	This filler number should be a system-generated number from the LIMS. If someone asks for the result for order# 12345, the lab should be able to find the test result from the order number.
3.2	1..20=	IS		RE	Local	Namespace ID	The namespace ID of the LIMS	Yes	your lims	NapaCo_PHL_LIMS	
3.3	1..199=	ST		R		Universal ID	The OID of the LIMS	Yes	2.16.840.1.114222.xxxxx	2.16.840.1.114222.4.1.10412	
3.4	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
4		EI	[0..1]	RE		Placer Group Number		No			For IDPH this element can be empty. (May see this used with ELINCS Messages)
4.1	1..199=	ST		R		Entity Identifier		No			For IDPH this element can be empty. Applies to all its subcomponents.
4.2	1..20=	IS		RE	Local	Namespace ID		No			
4.3	1..199=	ST		R		Universal ID		No			
4.4	1..6	ID		R	HL70301	Universal ID Type		No			
5	1..2	ID	[0..1]	RE	HL70038	Order Status	The order status code from HL7 Table 0038	No			For IDPH the Lab Sender and ELR Receiver Usage has been changed from O- undefined to RE - required, empty. This will probably be CM

ORC											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											(Order is completed). Other values from HL7 Table 0038 include A (Some, but not all, results available), RP (Order has been replaced), etc. Reduce minimum length to 1 to accommodate all table values.
12		XCN	[0..*]	C(R/RE)		Ordering Provider	Physician or other provider who ordered the test	No		1412941681^Artze^Joanna^C^^DR^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI^^^^^^^^MD	For IDPH implementation this element is a common core data element - Need to send it if you have it. ELR Condition predicate: If OBR.16 Ordering Provider is populated, this field will contain the same value. If all you have is a single field text name then populate ORC 12.2.1 with this value This field may repeat, but IDPH is only considering the first instance of this value.
12.1	1..15=	ST		RE		ID Number	Provider ID	No		1497805436	String length is only 15 and with no truncation. If exceed length the expected ELR receiver behavior is to not truncate.
12.2		FN		RE		Family Name	Ordering provider's last name	No		Artze	
12.2.1	1..50#	ST		R		Surname	Ordering provider's last name	No		Artze	Maps to Last name in HL7 2.3.1 If all you have is a single text field put it here
12.3	1..30#	ST		RE		Given Name	Ordering provider's first name	No		Joanna	
12.4	1..30#	ST		RE		Second and Further Given Names or Initials Thereof	Ordering provider's middle Initial or middle name	No		C	
12.5	1..20#	ST		RE		Suffix (e.g., JR or III)	Ordering provider's name suffix	No			Example for Mr. John Smith Jr. The name suffix is Jr.
12.6	1..20#	ST		RE		Prefix (e.g., DR)	Ordering provider's name prefix	No		DR	for example DR
12.9		HD		C(R/X)		Assigning Authority	The assigning authority for the ordering provider's ID	No		NPI&2.16.840.1.113883.4.6&ISO	The Assigning Authority component is used to identify the system, application, organization, etc. that assigned the ID Number in component 1.

ORC											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											Harmonized condition predicate: Required if component 1 (ID Number) is populated.
12.9.1	1..20=	IS		RE	Local	Namespace ID	Namespace ID of the assigning authority	No		NPI	
12.9.2	1..199=	ST		R		Universal ID	OID of the assigning authority	No		2.16.840.1.113883.4.6	NPI OID root = 2.16.840.1.113883.4.6
12.9.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
12.10	1..5	ID		RE	HL70200	Name Type Code		Yes	L	L	L = Legal name
12.13	2..5	ID		C(R/X)	HL70203	Identifier Type Code		No		NPI	For example NPI National Provider Identifier or PRN Provider Number ELR Condition predicate. Required if component 1 (ID Number) is populated.
12.14		HD		RE		Assigning Facility	The facility that assigned the patient identifier. (Not needed in most states)	No			The Assigning Facility identifies the place or location that the ID Number was assigned for use. (Not needed in most states)
12.14.1	1..20=	IS		RE	Local	Namespace ID		No			
12.14.2	1..199=	ST		R		Universal ID		No			
12.14.3	1..6	ID		R	HL70301	Universal ID Type		No			
12.21	1..199#	ST		RE		Professional Suffix	Ordering provider's name suffix	No		MD	Examples: MD, DO, PA, NP
14		XTN	[0..2]	C(R/RE)		Call Back Phone Number	Submitter's contact info	No		^WPN^PH^^1^707^2643378	For IDPH implementation this element is a common core data element - Need to send it if you have it. ELR Condition predicate: If OBR-17 Callback Phone Number is populated, this field will contain the same value. This field may have up to 1 repeat, but IDPH will consider only the first instance of this value.

ORC											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
14.2	3..3	ID		RE	HL70201	Telecommunication Use Code		No		WPN	Examples: WPN (Work number), ASN (Answering service), BPN (Beeper number), NET (Email address) Should use 'NET' if component 4 (Email Address) is present
14.3	2..8	ID		RE	HL70202	Telecommunication Equipment Type		No		PH	Examples: BP (Beeper), CP (Cell phone), PH (Telephone), Internet (for email addresses)
14.4	1..199=	ST		C(R/X)		Email Address		No			ELR Condition predicate: Required if component 7 (local number) is not present. Component 4 (Email Address) must be empty if component 7 (Local Number) is present.
14.5	1..3=	NM		C(RE/X)		Country Code		Yes	1	1	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty. Within the US the code is 1. Example: 1-800-234-5678
14.6	1..3=	NM		C(RE/X)		Area/City Code		No		707	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
14.7	1..9=	NM		C(R/X)		Local Number		No		2643378	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
14.8	1..5=	NM		C(RE/X)		Extension		No			ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
14.9	1..199#	ST		RE		Any Text		No			
21		XON	[1..1]	R		Ordering Facility Name	Name of the facility that placed the order	No		Napa General Hospital Lab^D^^^^NPI&2.16.840.1.113883.4.6&ISO^NPI^^^1255402921	ELR Cardinality: ELR supports a single ordering facility name.
21.1	1..50#	ST		C(R/RE)		Organization Name	Name of the organization	No		Napa General Hospital Lab	ELR Condition predicate: Must be present if there is no Organization Identifier in component 10. Send it if you have it.

ORC											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
21.2	1..20=	IS		RE	HL70204	Organization Name Type Code		Yes	D	D	Example L Legal Name, A Alias Name, D Display Name
21.6		HD		C(R/X)		Assigning Authority		No		NPI&2.16.840.1.113883.4.6&ISO	The Assigning Authority component is used to identify the system, application, organization, etc. that assigned the ID in component 10. ELR & Lab to EHR Condition predicate: Required if component 10 (Organization Identifier) is populated
21.6.1	1..20=	IS		RE	Local	Namespace ID	The assigning authority for the Ordering Facility ID	No		NPI	You can leave this element empty if you don't know it
21.6.2	1..199=	ST		R		Universal ID	The assigning authority OID	No		2.16.840.1.113883.4.6	2.16.840.1.113883.4.6 is the NPI OID root.
21.6.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
21.7	2..5	ID		C(R/X)	HL70203	Identifier Type Code		No		NPI	ELR Condition predicate: Required if component 10 (Organization Identifier) is populated Examples include: NPI National provider identifier, XX Organization identifier
21.10	1..20=	ST		RE		Organization Identifier	Organization Identifier (ID)	No		1255402921	Can be numbers and letters and replaces the the third and fourth component of XON data type used in 2.3.1 and 2.3.z.
22		XAD	[1..1]	R		Ordering Facility Address	Address of the facility that placed the order	No		2217 Trancas^Suite 22^Napa^CA^94558^USA^M	ELR Cardinality: ELR supports a single ordering facility address
22.1		SAD		RE		Street Address	Street Address	No		2217 Trancas	
22.1.1	1..120#	ST		R		Street or Mailing Address		No		2217 Trancas	
22.2	1..120#	ST		RE		Other Designation	Other Designation	No		Suite 22	This isn't needed for most addresses. It could be a district name, building name, floor number, etc.
22.3	1..50#	ST		RE		City	City	No		Napa	
22.4	1..50#	ST		RE	PHVS_State_FIPS_5-2	State or Province	State or Province	No		IA	Use the FIPS 5-2 two character codes here (e.g., IA for Iowa)
22.5	1..12=	ST		RE	Postal Code Value Set	Zip or Postal Code	Zip or Postal Code	No		94558	US Zip Codes, Zip+4 and Canadian Postal Codes are supported in ELR

ORC											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
22.6	3..3	ID		RE	Country Value Set	Country	Country	Yes	USA	USA	Assume this will be USA, so can hardcode
22.7	1..3	ID		RE	HL70190	Address Type	Address Type code from HL7 Table 190	No		M	Typical values for a facility address are O (Office), B (Business), M (Mailing), L (Legal Address)
22.9	1..20=	IS		RE	PHVS_County_FIPS_6-4	County/Parish Code	County code from FIPS6_4	No			For IDPH this element can be empty.
23		XTN	[1..*]	R		Ordering Facility Phone Number	Ordering Facility Phone Number	No		^WPN^PH^^1^707^5549876	This is a repeating field so you can put in an office phone and a beeper number, or an answering service number and a work number, etc. IDPH will consider only the first instance of this value.
23.2	3..3	ID		RE	HL70201	Telecommunication Use Code	Ordering facility telecom use code from HL7 table 0201	No		WPN	Examples: WPN (Work number), ASN (Answering service), BPN (Beeper number), NET (Email address). Should use 'NET' if component 4 (Email Address) is present.
23.3	2..8	ID		RE	HL70202	Telecommunication Equipment Type	Ordering facility telecom equipment type from HL7 table 0202	No		PH	Examples: BP (Beeper), CP (Cell phone), PH (Telephone), Internet (for email addresses). Should use 'Internet' if component 4 (Email Address) is present.
23.4	1..199=	ST		C(R/X)		Email Address	Ordering facility email address	No			ELR Condition predicate: Required if component 7 (local number) is not present. Component 4 (Email Address) must be empty if component 7 (Local Number) is present.
23.5	1..3=	NM		C(RE/X)		Country Code	Ordering facility international dialing code	Yes	1	1	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty. Within the US the code is 1. Example: 1-800-234-5678
23.6	1..3=	NM		C(RE/X)		Area/City Code	Ordering facility area code	No		707	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
23.7	1..9=	NM		C(R/X)		Local Number	Ordering facility phone number	No		5549876	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty. IF not provided or unknown use "5555555" as default value.

ORC											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
23.8	1..5=	NM		C(RE/X)		Extension	Extension for phone number	No			ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
23.9	1..199#	ST		RE		Any Text	Any text	No			
24		XAD	[0..*]	RE		Ordering Provider Address	The address of the ordering provider.	No		115 Trancas^Suite 2100^Napa^CA^94558^USA^M	For IDPH implementation this element is a common core data element - Need to send it if you have it. This Element may repeat, but IDPH will consider only the first instance of this value.
24.1		SAD		RE		Street Address		No		115 Trancas	
24.1.1	1..120#	ST		R		Street or Mailing Address		No		115 Trancas	
24.2	1..120#	ST		RE		Other Designation		Yes		Suite 2100	This field isn't needed for most addresses. You could put a metropolitan or micropolitan area name here.
24.3	1..50#	ST		RE		City		No		Napa	
24.4	1..50#	ST		RE	PHVS_State_FIPS_5-2	State or Province		No		IA	Use the FIPS 5-2 two character codes here (e.g., IA for Iowa)
24.5	1..12=	ST		RE	Postal Code Value Set	Zip or Postal Code		No		94558	US Zip Codes, Zip+4 and Canadian?? (fact check) Postal Codes are supported in ELR
24.6	3..3	ID		RE	Country Value Set	Country		Yes	USA	USA	Assume this will be USA, so can hardcode
24.7	1..3	ID		RE	HL70190	Address Type		No		M	Typical values for a facility address are O (Office), B (Business), M (Mailing), L (Legal Address)
24.9	1..20=	IS		RE	PHVS_County_FIPS_6-4	County/Parish Code		No			For IDPH this element can be empty.

Example:

```
ORC|RE|23456^NapaGen_EHR^OID
here^ISO|56789PHL222^NapaCo_PHL_LIMS^2.16.840.1.114222.4.1.10412^ISO||||||||1412941681^Artze^Joan
na^C^^DR^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI^^^^^^^^MD||^WPN^PH^^1^707^2643378||||||Napa
General Hospital Lab^D^^^^NPI&2.16.840.1.113883.4.6&ISO^NPI^^^1255402921|2217 Trancas^Suite
22^Napa^CA^94558^USA^M|^WPN^PH^^1^707^5549876|115 Trancas^Suite 2100^Napa^CA^94558^USA^M
```

Table 13: The components of the OBR segment of an ELR 251 ORU^01 Message

	OBR										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
1	1..4	SI	[1..1]	R		Set ID - OBR	The sequence number of each OBR segment	No		1	The OBR Set ID will be a number like "1" or "2".There can only be one specimen per ELR Message. There can be more than one OBR segments, e.g., one for the test and one for Epi questions.
2		EI	[1..1]	RE		Placer Order Number	The submitter's order number information for the test	No		23456^NapaGen_EHR^OID here^ISO	This field is the same as ORC-2. OBR-2 is for information about the order number on the submitter form, if there is one, or the order number on the electronic order. If there is no Submitter Order Number, you can leave OBR-2 empty.
2.1	1..199=	ST		R		Entity Identifier	The submitter's order number string	No		23456	
2.2	1..20=	IS		RE	Local	Namespace ID	The namespace ID for the submitter's order number	No		NapaGen_EHR	
2.3	1..199=	ST		R		Universal ID	The namespace OID for the submitter's order number	No		oid here	For now MQF tool allows any string in this field.
2.4	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
3		EI	[1..1]	R		Filler Order Number	Filler Order Number and PHIN namespace info	No		56789PHL222^NapaCo_PHL_LIMS^2.16.840.1.114222.4.1.10412^ISO	This field is the same as ORC-3. It contains the Filler Order Number + the LIMS namespace ID and OID.
3.1	1..199=	ST		R		Entity Identifier	The order number in the LIMS	No		56789PHL222	This filler number should be a system-generated number from the LIMS. If someone asks for the result for order# 12345, the lab should be able to find the test result from the order number.
3.2	1..20=	IS		RE	Local	Namespace ID	The namespace ID of the LIMS	Yes	your lims	NapaCo_PHL_LIMS	
3.3	1..199=	ST		R		Universal ID	The OID of the LIMS	Yes	2.16.840.1.114222.xxxxx	2.16.840.1.114222.4.1.10412	
3.4	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	

	OBR										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
4		CWE	[1..1]	R	Strongly recommend using Laboratory Order Value Set from HITSP.	Universal Service Identifier		No		625-4^ Bacteria identified ^LN^1234^Enteric Culture^^2010	For IDPH, Submission through the IDPH smartLab™ requires that the facility map the code that is sent in the second triplet to the IDPH code in the smartLab™ portal – regardless of whether this is a standard (LOINC, SNOMED, or HL7) or local code. OBR.4 is for information about the ordered test. OBR.4 is often a panel, order or group code; other times, it may be the same as the OBX.3 or one of the OBX.3 underneath it." Refer to the RCMT table to obtain LOINC codes for test orders: http://phinvads.cdc.gov/vads/SearchHome.action
4.1	1..20=	ST		RE		Identifier	Ordered test code	No		625-4	This will be a LOINC code
4.2	1..199#	ST		C(RE/X)		Text	Ordered test name	No		Bacteria identified	This is the ordered test name. Either the LOINC Long Common Name or LOINC Short name can be used here. It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
4.3	1..12	ID		C(R/X)	HL70396	Name of Coding System	Ordered test code system	Yes	LN	LN	This will be LN (for LOINC) - can be hardcoded if always populate first triplet with LN codes Harmonized condition predicate: Required if an identifier is provided in component 1.
4.4	1..20=	ST		RE		Alternate Identifier	Local ordered test code	No		1234	If you have a local ordered test code put it in OBR4.4
4.5	1..199#	ST		C(RE/X)		Alternate Text	Local ordered test name	No		Enteric Culture	You should put the local ordered test name in ELR message It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.

	OBR										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
4.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System	Local ordered test code system	Yes	L	L	This will be L (for Local) - can be hardcoded if always populate first triplet with LOINC and second triplet with local codes If you put a local ordered test code in OBR4.4, you must put L in OBR4.6. If you leave OBR4.4 empty, you should also leave OBR4.6 empty
4.7	1..10=	ST		C(RE/X)		Coding System Version ID		Yes	2.34		Recommended if a LN is identified in component 3. This can be Hardcoded LOINC is versioned every 6 Months. Facilities should use the latest available version.
4.8	1..10=	ST		C(RE/X)		Alternate Coding System Version ID		Yes	your local code version or "v unknown"	v unknown	Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value ”v unknown”
4.9	1..199#	ST		C(R/RE)		Original Text		No			ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required. If all you have is text put it here.
4.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
4.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
4.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
4.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
4.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
7	4..26	DTM	[1..1]	R		Observation Date/Time	Date and time the specimen was collected	Yes		201102061830-0800	For IDPH implementation, this element is a required common core data element. This field must contain the same value as the

	OBR										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											first component of SPM-17 and OBX.14 If you know the date and time, you must include at least the year, month and day. Example: 20091124. If you don't know the collection date and time use "0000". For IDPH increased max field length to 26 for backward compatibility with ELR23Z and 231
8		DTM	[0..1]	C(R/RE)		Observation End Date/Time	End point Date and time the specimen was collected	No			Use when the specimen was collected over a period of time. IDPH will not use this information.
13	1..300=	ST	[0..1]	RE		Relevant Clinical Information		No		Bloody Diarrhea	use length of 1..300=
16		XCN	[0..*]	RE		Ordering Provider	The provider who ordered the test	No		1497805436^Artze^Joanna^C^^DR^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI^^^^^^^^MD	For IDPH implementation this element is a common core data element - Need to send it if you have it. This is the same as ORC.12 If all you have is a single field text name then populate ORC 12.2.1 with this value This element may repeat, but IDPH will consider only the first instance of this value.
16.1	1..15=	ST		RE		ID Number	Ordering provider's ID	No		1497805436	String length is only 15. If source field length is longer than 15, provide the last 15 characters.
16.2		FN		RE		Family Name	Ordering provider's last name	No		Artze	
16.2.1	1..50#	ST		R		Surname		No		Artze	Maps to Last name in HL7 2.3.1 If all you have is a single text field put it here
16.3	1..30#	ST		RE		Given Name	Ordering provider's first name	No		Joanna	
16.4	1..30#	ST		RE		Second and Further Given Names or Initials Thereof	Ordering provider's middle Initial or middle name	No		C	
16.5	1..20#	ST		RE		Suffix (e.g., JR or III)	Ordering provider's name suffix	No			Example for Mr. John Smith Jr. The name suffix is Jr.

	OBR										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
16.6	1..20#	ST		RE		Prefix (e.g., DR)	Ordering provider's name prefix	No		DR	for example DR
16.9		HD		C(R/X)		Assigning Authority	The assigning authority for the ordering provider's ID	No		NPI&2.16.840.1.113883.4.6&ISO	The Assigning Authority component is used to identify the system, application, organization, etc. that assigned the ID Number in component 1. Harmonized condition predicate: Required if component 1 (ID Number) is populated.
16.9.1	1..20=	IS		RE	Local	Namespace ID	Namespace ID of the assigning authority	No		NPI	
16.9.2	1..199=	ST		R		Universal ID	OID of the assigning authority	No		2.16.840.1.113883.4.6	NPI root OID =2.16.840.1.113883.4.6
16.9.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
16.10	1..5	ID		RE	HL70200	Name Type Code	Name type code from HL7 table 0200	Yes	L	L	Examples: L (Legal name), U (Unspecified)
16.13	2..5	ID		C(R/X)	HL70203	Identifier Type Code		No		NPI	NPI For example NPI National Provider Identifier ELR Condition predicate. Required if component 1 (ID Number) is populated.
16.14		HD		RE		Assigning Facility	Facility that assigned the patient identifier. (Not needed in most states)	No			The Assigning Facility identifies the place or location that the ID Number was assigned for use. (Not needed in most states)
16.14.1	1..20=	IS		RE	Local	Namespace ID		No			
16.14.2	1..199=	ST		R		Universal ID		No			
16.14.3	1..6	ID		R	HL70301	Universal ID Type		No			
16.21	1..199#	ST		RE		Professional Suffix		No		MD	Examples: MD, DO, PA, NP
17		XTN	[0..2]	RE		Order Callback Phone Number	Submitter's contact info	No		^WPN^PH^^1^707^2643378	For IDPH implementation this element is a common core data element - Need to send it

	OBR										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											if you have it. This field can have a single repeat so you can put in an office phone and a beeper number, or an answering service number and a work number, etc. You should put at least one contact number unless there is none available. This field will contains the same information as ORC.14 This field may repeat, but IDPH will consider only the first instance of the value.
17.2	3..3	ID		RE	HL70201	Telecommunication Use Code	Submitter's telecom use code from HL7 table 0201	No		WPN	Examples: WPN (Work number), ASN (Answering service), BPN (Beeper number), NET (Email address). Should use 'NET' if component 4 (Email Address) is present
17.3	2..8	ID		RE	HL70202	Telecommunication Equipment Type	Submitter's telecom equipment type from HL7 table 0202	No		PH	Examples: BP (Beeper), CP (Cell phone), PH (Telephone), Internet (for email addresses). Should use 'Internet' if component 4 (Email Address) is present.
17.4	1..199=	ST		C(R/X)		Email Address	Submitter's email address	No			ELR Condition predicate: Required if component 7 (local number) is not present. Component 4 (Email Address) must be empty if component 7 (Local Number) is present.
17.5	1..3=	NM		C(RE/X)		Country Code	Submitter's international dialing code	Yes	1	1	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty. Within the US the code is 1. Example: 1-800-234-5678
17.6	1..3=	NM		C(RE/X)		Area/City Code	Submitter's area code	No		707	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
17.7	1..9=	NM		C(R/X)		Local Number	Submitter's phone number	No		2643378	ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.
17.8	1..5=	NM		C(RE/X)		Extension	Extension for phone number	No			ELR Condition predicate: This component is required or empty (RE) if component 7 (Local Number) is present otherwise it must be empty.

	OBR										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
17.9	1..199#	ST		RE		Any Text	Free text for a comment or note	No			
22	4..26	DTM	[1..1]	R		Results Rpt/Status Chng - Date/Time	Date/time the results were reported or status changed.	No		20110208132554-0800	Max length increased to 26 to be backward compatible with ELR231,23Z
24	2..3	ID	[0..1]	RE	HL70074	Diagnostic Serv Sect ID		No			Optional for ELR Receiver so for IDPH this element can be empty
25	1..1	ID	[1..1]	R	HL70123	Result Status	Status of the test result or observation	No		F	See Table 3-6 I the ELR 2.5.1 IG for a summary of interactions. The value set is HL70123 by the way. For ELR Use F for Final Results, P for Preliminary Results, C for Correction to Results
26		PRL	[0..1]	C(R/RE)		Parent Result	The parent result	No		625-4&Bacteria identified in Stool by Culture&LN&100&enteric culture&L&2.34&v unknown	This field is only needed when a test must be linked to a "parent" test result. However, IDPH is considering each OBR as its own test and NOT using the parent-child relationship. Applies to all its subcomponents.
26.1		CWE		R		Parent Observation Identifier	OBX-3 field of the parent result	No		625-4&Bacteria identified in Stool by Culture&LN&100&enteric culture&L&2.34&v unknown^1^Salmonella enterica subsp. Enterica	
26.1.1	1..20=	ST		RE		Identifier	The OBX 3.1 of the parent result	No		625-4	
26.1.2	1..199#	ST		C(RE/X)		Text	The OBX 3.2 of the parent result	No		Bacteria identified in Stool by Culture	It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
26.1.3	1..12	ID		C(R/X)	HL70396	Name of Coding System	The OBX 3.3 of the parent result	Yes		SCT	Harmonized condition predicate: Required if an identifier is provided in component 1.
26.1.4	1..20=	ST		RE		Alternate Identifier	The OBX 3.4 of the parent result	No		100	
26.1.5	1..199#	ST		C(RE/X)		Alternate Text	The OBX 3.5 of the parent result	No		enteric culture	It is strongly recommended that alternate text be sent to accompany any alternate identifier.

	OBR										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
26.1.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System	The OBX 3.6 of the parent result	Yes		L	Harmonized condition predicate: Required if an alternate identifier is provided in component 4.
26.1.7	1..10=	ST		C(RE/X)		Coding System Version ID		Yes		2.34	Recommended if a coding system is identified in component 3. This can be Hardcoded
26.1.8	1..10=	ST		C(RE/X)		Alternate Coding System Version ID		Yes		v unknown	Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value "v unknown"
26.1.9	1..199#	ST		C(R/RE)		Original Text		No			Either original Text is used to convey the text that was the basis for coding, or when there is no code to be sent, only free text. ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required.
26.1.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
26.1.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
26.1.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
26.1.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
26.1.14	1..199=	ST		RE		Coding System OID		No			OID for the coding system named in CWE.3.
26.2	1..20=	ST		RE		Parent Observation Sub-Identifier	The OBX 4 of the parent result	No		1	

	OBR										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
26.3	1..250	TX		RE		Parent Observation Value Descriptor	The OBX 5.2 or OBX.5.9 of the parent result	No		Salmonella enterica subsp. Enterica	OBX 5.2 is the text part of the coded test result, Or Original Text field, OBX 5.9 for uncoded results. Recommend using Original text for most detailed level of knowledge.
28		XCN	[0..*]	RE		Result Copies To		No			For IDPH this element can be empty. Applies to all its subcomponents.
28.1	1..15=	ST		RE		ID Number		No			
28.2		FN		RE		Family Name		No			
28.2.1	1..50#	ST		R		Surname		No			
28.3	1..30#	ST		RE		Given Name		No			
28.4	1..30#	ST		RE		Second and Further Given Names or Initials Thereof		No			
28.5	1..20#	ST		RE		Suffix (e.g., JR or III)		No			
28.6	1..20#	ST		RE		Prefix (e.g., DR)		No			
28.9		HD		C(R/X)		Assigning Authority		No			The Assigning Authority component is used to identify the system, application, organization, etc. that assigned the ID Number in component 1. Harmonized condition predicate: Required if component 1 (ID Number) is populated.
28.9.1	1..20=	IS		RE	Local	Namespace ID		No			
28.9.2	1..199=	ST		R		Universal ID		No			
28.9.3	1..6	ID		R	HL70301	Universal ID Type		No			
28.10	1..5	ID		RE	HL70200	Name Type Code		No			
28.13	2..5	ID		C(R/X)	HL70203	Identifier Type Code		No			ELR Condition predicate. Required if component 1 (ID Number) is populated.
28.14		HD		RE		Assigning Facility		No			
28.14.1	1..20=	IS		RE	Local	Namespace ID		No			
28.14.2	1..199=	ST		R		Universal ID		No			
28.14.3	1..6	ID		R	HL70301	Universal ID Type		No			

	OBR										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
28.21	1..199#	ST		RE		Professional Suffix		No			
29		EIP	[0..1]	C(R/RE)		Parent	The parent order numbers	No		23456&NapaGen_EHR&oid here&ISO^56789PHL222&NapaCo_PHL_LIMS&2.16.840.1.114222.4.1.10412&ISO	OBR-29 is a complex field that contains both the Placer order number (OBR-2) and the Filler order number (OBR-3). OBR-29 is only needed if you need to reference a parent result. Harmonized condition predicate: This field is required if OBR-24 carries the value "MB" and OBR-4 indicates the ordered test is a culture and sensitivity. Parent/child linking should be used when the specimen type changes between the parent and child result (specimen and isolate/component specimen) or for reflex tests. IDPH is considering each OBR as its own test and NOT using the parent-child relationship. Applies to all its subcomponents.
29.1		EI		RE		Placer Assigned Identifier	The OBR-2 field of the parent result	No		23456&NapaGen_EHR&oid here&ISO	
29.1.1	1..199=	ST		R		Entity Identifier	The placer order number from the parent OBR-2	No		23456	
29.1.2	1..20=	IS		RE	Local	Namespace ID	The assigning authority ID for the placer order number	No		NapaGen_EHR	
29.1.3	1..199=	ST		R		Universal ID	The assigning authority OID for the placer order number	No		OID_here	
29.1.4	1..6	ID		R	HL70301	Universal ID Type	ISO	No		ISO	
29.2		EI		R		Filler Assigned Identifier	Parent order number info	No		56789PHL222&NapaCo_PHL_LIMS&2.16.840.1.114222.4.1.10412&ISO	
29.2.1	1..199=	ST		R		Entity Identifier	The parent order number in the LIMS	No		56789PHL222	

	OBR										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
29.2.2	1..20=	IS		RE	Local	Namespace ID	The PHIN namespace ID of the LIMS	Yes	xxxxx	NapaCo_PHL_LIMS	
29.2.3	1..199=	ST		R		Universal ID	OID for the LIMS	Yes	2.16.840.1.114222.xxxxx	2.16.840.1.114222.4.1.10412	
29.2.4	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	ISO
31		CWE	[0..*]	RE	Reason For Study Value Set	Reason for Study		No		788.1^Dysuria^I9CDX^^^^07/09/2008	The standard code should populate the first triplet and the local codes should populate the second triplet. This element can repeat.
31.1	1..20=	ST		RE		Identifier		No		788.1	ICD-9
31.2	1..199#	ST		C(RE/X)		Text		No		Dysuria	It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
31.3	1..12	ID		C(R/X)	HL70396	Name of Coding System		No		I9CDX	"I9CDX" for ICD-9 codes Harmonized condition predicate: Required if an identifier is provided in component 1.
31.4	1..20=	ST		RE		Alternate Identifier		No			
31.5	1..199#	ST		C(RE/X)		Alternate Text		No			It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
31.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System		No			Harmonized condition predicate: Required if an alternate identifier is provided in component 4.
31.7	1..10=	ST		RE		Coding System Version ID		No		07/09/2008	Recommended if a coding system is identified in component 3. This can be Hardcoded
31.8	1..10=	ST		RE		Alternate Coding System Version ID		No	Your local coding system version or “v unknown”		Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value ”v unknown”

	OBR										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
31.9	1..199#	ST		C(R/RE)		Original Text		No			ELR Condition predicate: If identifier and alternate identifier is present, then this component is required. If all you have is, text put it here. This is a 'Nice to have.' Populate this field in test message to pass MQF validation step.
31.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
31.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
31.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
31.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
31.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
32		NDL	[0..1]	RE		Principal Result Interpreter		No			Used for pathology results. For IDPH this element can be empty. Applies to all the subcomponents.
32.1		CNN		R		Name		No			
32.1.1	1..15=	ST		RE		ID Number		No			
32.1.2	1..50#	ST		RE		Family Name		No			
32.1.3	1..30#	ST		RE		Given Name		No			
32.1.4	1..30#	ST		RE		Second and Further Given Names or Initials Thereof		No			
32.1.5	1..20#	ST		RE		Suffix (e.g., JR or III)		No			
32.1.6	1..20#	ST		RE		Prefix (e.g., DR)		No			

	OBR										
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
32.1.7	1..5=	IS		RE	HL70360	Degree (e.g., MD)		No			
32.1.9	1..20=	IS		RE	Local	Assigning Authority – Namespace ID		No			
32.1.10	1..199=	ST		C(R/X)		Assigning Authority - Universal ID		No			Must be an OID. ELR Condition predicate: Required if component 1 (ID Number) is populated.
32.1.11	1..6	ID		C(R/X)	HL70301	Assigning Authority - Universal ID Type		No			ELR Condition predicate: This component is required if a value is present in component 10 (Assigning Authority – Universal ID.) Constrained to the value 'ISO'.

Example:

```
OBR|1|23456^NapaGen_EHR^OID
here^ISO|56789PHL222^NapaCo_PHL_LIMS^2.16.840.1.114222.4.1.10412^ISO|^^^1234^CT/GC
NAAT^L^^2010|||201102061830-
0800||||||Dysuria|||1412941681^Artze^Joanna^C^^DR^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI^^^^^^^^M
D|^WPN^PH^^1^707^2643378|||||20110208132554-0800|||F||||||788.1^Dysuria^I9CDX^^^^07/09/2008
```

Table 14: The components of the OBX segment of an ELR 251 ORU^01 Message

OBX											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
1	1..4	SI	[1..1]	R		Set ID – OBX	The number of each OBX segment	No		1	the sequence number shall be one (1), for the second repeat, the sequence number shall be two (2), etc.
2	2..3	ID	[0..1]	C(R/X)	HL70125	Value Type	The HL7 data type of the result in OBX-5	No		CWE	This data is for OBX5; IDPH Supported values are limited to: NM (Numeric), SN (Structured Numeric), DT (date), and CWE (Coded results -i.e. SNOMED. Refer to table 5-13 "Observation Identifiers" in the ELR251PH-IG guide for a summary of usage of data types in the OBX Segment. Conditional statement: If OBX-5 is populated, OBX-2 is Required
3		CWE	[1..1]	R	Laboratory Observation Identifier Value Set	Observation Identifier	LOINC for resultable test or question	No		43304-5^Chlamydia trachomatis rRNA [Presence] in Unspecified specimen by Probe & target amplification method^LN^400^CT GenProbe^L^2.34^v unknown	For IDPH, Submission through the IDPH smartLab™ requires that the facility map the code that is sent in the second triplet to the IDPH code in the smartLab™ portal – regardless of whether this is a standard (LOINC, SNOMED, or HL7) or local code.
3.1	1..20=	ST		RE		Identifier	The resulted test or question code	No		43304-5	
3.2	1..199#	ST		C(RE/X)		Text	The resulted test or question name	No		Chlamydia trachomatis rRNA [Presence] in Unspecified specimen by Probe & target amplification method	ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
3.3	1..12	ID		C(R/X)	HL70396	Name of Coding System	The resulted test code system	Yes	LN	LN	Harmonized condition predicate: Required if an identifier is provided in component 1.
3.4	1..20=	ST		RE		Alternate Identifier	Local resulted test or question code	No		400	If you have a local test code put it in OBR4.4
3.5	1..199#	ST		C(RE/X)		Alternate Text	Local resulted test or question name	No		CT Genprobe	You should put the local test name in OBR4.5 It is strongly recommended that alternate text be sent to accompany any alternate identifier.

OBX											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
3.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System	Local resulted test code system	Yes	L	L	This will be L (for Local) - can be hardcoded if always populating the first triplet with LOINC and second triplet with local codes If you put a local test code in OBR4.4, you must put L in OBR4.6. If you leave OBR4.4 empty, you should also leave OBR4.6 empty
3.7	1..10=	ST		RE		Coding System Version ID		Yes	2.34	2.34	Recommended if a LN is identified in component 3. This can be Hardcoded LOINC is versioned every 6 Months. Facilities should use the latest available version.
3.8	1..10=	ST		RE		Alternate Coding System Version ID		Yes	your local code version or "v unknown"	v unknown	If a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value ”v unknown”
3.9	1..199#	ST		C(R/RE)		Original Text		No			ELR Condition predicate: If no identifier and alternate identifier is present, then this component is Required. . If all you have is text, put it here.
3.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
3.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
3.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10
3.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.

OBX											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
3.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
4	1..20=	ST	[0..1]	C(R/RE)		Observation Sub-ID	Observation sub-ID	No		1	OBX4 Sub-ID is conditionally required when multiple OBX segments are reported within a single OBR segment. If two instances of OBX relate to the same observation result, their OBX 4 values must be the same. If they relate to independent observation results, their OBX4 values must be different. Any test that requires multiple (2 or more) separate, but linked OBX segments that must be considered together for a machine to comprehend a single result, use the sub-ID to link the 2 OBX segments. Example: OBX|1|CWE|^^^L40440-0^XXX microorganism serotype^L|1|^^^L64636003^Salmonella Telelkebir^L… OBX|2|DT|^^^L11368-8^illness or injury onset date and time^L|1 |20130206.... Harmonized condition predicate: Conditionally required if there is more than one OBX within an OBR. This field should be populated with a sequential number (1, 2, 3, etc.) beginning with 1 for the first linked set of OBXs.
5		Var	[0..1]	C(R/RE)	For coded observation values, use Coded Laboratory Observation Value Set.	Observation Value		No			The Data type Varies: see the section “CWE - Coded with Exceptions” on page 140. ” below for the different data types. There are varying sub-elements depending on the data type. For IDPH CWE data type, Submission through the IDPH smartLab™ requires that the facility map the code that is sent in the second triplet to the IDPH code in the smartLab™ portal – regardless of whether this is a standard (LOINC, SNOMED, or HL7) or local code.

OBX											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											For IDPH, this is a required element. See RCMT table for SNOMED CT codes to identify the result. http://phinvads.cdc.gov/vads/SearchHome.action If there is no SNOMED CT code available to appropriately populate OBX5, use the code that IDPH provides for the result to identify the reportable condition. This will be based on the CDC National Notifiable Disease (NND) code list and will always begin with a 5-digit number (example: 11000-1 for Salmonella monophasic). Harmonized Condition predicate: Either OBX-5 or OBX-8 (Abnormal flags) must be present in the message except if OBX- 11 is 'X", result cannot be obtained.
6		CWE	[0..1]	C(R/RE)	Unified Code for Units of Measure (UCUM)	Units	Units for numerical data in OBX-5	No			For IDPH implementation this element is a common core data element for quantitative results SN - Need to send it if you have it. For IDPH, assume the standard (UCUM) codes populates the first triplet and the local code the second. Use UCUM standard here. For Dimensionless units of measure the UCUM representation would be {string}, e.g. for titer this would be {titer}. Harmonized Conditional statement: If the data type in OBX 2 is "SN" and the OBX-11 observation result status is not 'X' then this field is Required.
6.1	1..20=	ST		RE		Identifier	The units code	No			Use UCUM standard here. The UCUM unit of measure for values without a unit of measure is "1" e.g. ratios, counts.
6.2	1..199#	ST		C(RE/X)		Text	The units name	No			It is strongly recommended that text be sent to accompany any identifier.

OBX											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
6.3	1..12	ID		C(R/X)	HL70396	Name of Coding System	The units code system	Yes	UCUM		This will be UCUM - can be hardcoded if always populating the first triplet with UCUM codes Harmonized condition predicate: Required if an identifier is provided in component 1.
6.4	1..20=	ST		RE		Alternate Identifier	The local unit code	No			IF you have local unit codes put here
6.5	1..199#	ST		C(RE/X)		Alternate Text	The local unit name	No			It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
6.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System	The local unit code system	Yes	L		This will be L (for Local) - can be hardcoded if always populate first triplet with UCUM and second triplet with local codes If you put a local unit code in OBX6.4, you must put L in OBX6.6. If you leave OBX6.4 empty, you should also leave OBX6.6 empty
6.7	1..10=	ST		RE		Coding System Version ID		Yes	1.8.2		If a UCUM is identified in component 3, this can be Hardcoded Current version is 1.8.2
6.8	1..10=	ST		RE		Alternate Coding System Version ID		Yes	your local code version or "V Unknown"		If a coding system is identified in component 6, this can be Hardcoded. If no local coding system version is known, default to the string value to ”v unknown”
6.9	1..199#	ST		C(R/RE)		Original Text		No			ELR Condition predicate: If no identifier and alternate identifier is present, then this component is Required. If all you have is text put it here
6.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
6.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier.

OBX											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
6.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
6.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
6.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
7	1..60=	ST	[0..1]	RE		References Range	Reference range for the result	No			For IDPH implementation this element is a common core data element for quantitative (SN) results - Need to send it if you have it.
8		CWE	[0..*]	C(R/RE)	Lab to EHR, NHSN- HL70078 (2.5.1) ELR- HL70078 (2.7)	Abnormal Flags	Interpretation code from HL7 table HL70078	No		DET^^HL70078^^^^2.7	For IDPH the use of this field is encouraged to provide both the quantitative (numeric) value in OBX.5 and the interpretation here. Although the HL7 name is Abnormal Flag, there are several interpretation codes in the table HL70078. Examples are: A Abnormal, DET Detected, IND Indeterminate, POS Positive, RR Reactive. This field can repeat; however, IDPH will only consider the first instance of this value. For IDPH, Submission through the IDPH smartLab™ requires that the facility map the code that is sent in the second triplet to the IDPH code in the smartLab™ portal – regardless of whether this is a standard (LOINC, SNOMED, or HL7) or local code. ELR Condition predicate: Required if OBX-5 is empty and the OBX-11 observation result status is not 'X', result cannot be obtained. **NOTE**: NO length value for this composite data type (there is an error in the official HL7

OBX											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											Implementation guide; corrected in this document)
8.1	1..20=	ST		RE		Identifier		No		A	This will be a Table HL70078 code
8.2	1..199#	ST		C(RE/X)		Text		No		Abnormal	The table HL70078 code name goes here It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
8.3	1..12	ID		C(R/X)	HL70396	Name of Coding System		Yes	HL70078	HL70078	This will be HL70078- can be hardcoded. Required if an identifier is provided in component 1
8.4	1..20=	ST		RE		Alternate Identifier		No			
8.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System		No			Harmonized condition predicate: Required if an alternate identifier is provided in component 4.
8.7	1..10=	ST		RE		Coding System Version ID		Yes	2.7	2.7	If an HL70078 code is identified in component 3, This can be Hardcoded
8.8	1..10=	ST		RE		Alternate Coding System Version ID		No			Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value ”v unknown”
8.9	1..199#	ST		C(R/RE)		Original Text		No			Either original Text is used to convey the text that was the basis for coding, or when there is no code to be sent, only free text. ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required.
8.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
8.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier.

OBX											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
8.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
8.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
8.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
11	1..1	ID	[1..1]	R	HL70085	Observation Result Status	Observation result status codes interpretation (from HL7 table 0085)	No		F	Possible values are: F (FINAL), X (Results cannot be obtained for this observation) P (Preliminary results) C (corrected results)
14	4..24	DTM	[0..1]	C(R/RE)		Date/Time of the Observation	specimen collection date and time	No		201102061830-0800	For IDPH implementation this element is a common core data element - Need to send it if you have it. Despite the Element name, the specimen collection date and time goes here. It is the same as OBR.7 and SPM.17. For unknown collection date/time use, "0000". Date and time of observation goes in OBX.19
17		CWE	[0..*]	RE	HL7 V3 Observation Method	Observation Method	Additional details about the test method	No			For IDPH, assume the standard codes populates the first triplet and the local code the second.
17.1	1..20=	ST		RE		Identifier		No		ID NOW COVID-19_Abbott Diagnostics Scarborough, Inc. _EUA	Use the following formula for this value: <Diagnostic (Letter of Authorization)>_<Manufacturer name>_<Type of Identifier> <u>Element – Type of ID = Abbreaviation</u> Emergency Use Authorization = EUA Test /Reagent - Model = MNT Test /Reagent - Device ID = DIT Instrument Platform – Model = MNI Instrument Platform-Device ID = DII

OBX											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											Manual kit – Model = MNM Manual kit – Device ID = DIM
17.2	1..199#	ST		C(RE/X)		Text		No			It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
17.3	1..12	ID		C(R/X)	HL70396	Name of Coding System		No		99ELR	Harmonized condition predicate: Required if an identifier is provided in component 1.
17.4	1..20=	ST		RE		Alternate Identifier	Local method detail code	No			
17.5	1..199#	ST		C(RE/X)		Alternate Text	Local method detail text	No			It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
17.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System	Local method detail code system	Yes			Harmonized condition predicate: Required if an alternate identifier is provided in component 4.
17.7	1..10=	ST		RE		Coding System Version ID	Standard Coding System Version	No			If a coding system is identified in component 3. This can be Hardcoded
17.8	1..10=	ST		RE		Alternate Coding System Version ID	Local coding system Version	Yes			If a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value to”v unknown”.
17.9	1..199#	ST		C(R/RE)		Original Text		No			ELR Condition predicate: If no identifier and alternate identifier is present, then this component is Required. If all you have is text put it here.
17.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
17.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier.

OBX											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
17.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
17.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
17.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
19	4..24	DTM	[0..1]	RE		Date/Time of the Analysis	Time at which the testing was performed	No		20110208132554-0800	For IDPH implementation this element is a jurisdictional (CLIA) requirement - Need to send it if you have it. Use this field instead of OBX.14 for date and time of testing. The concept captured here is the result date.
23		XON	[1..1]	R		Performing Organization Name		Yes		Napa County Public Health Laboratory^D^^^^CLIA&2.16.840.1.113883.4.7&ISO^XX^^^05D0897628	For IDPH implementation this element is a common core data element - Need to send it if you have it. For producing laboratories that are CLIA-certified, the CLIA identifier should be used for the organization identifier (component 10).
23.1	1..50#	ST		C(R/RE)		Organization Name	performing Lab name	Yes	your lab name	Napa County Public Health Laboratory	ELR Condition predicate: Must be present if there is no Organization Identifier in component 10. Send it if you have it
23.2	1..20=	IS		RE	HL70204	Organization Name Type Code		Yes	L or D	D	Example L Legal Name, A Alias Name, D Display Name
23.6		HD		C(R/X)		Assigning Authority	Organization that assigned LAB ID	Yes		CLIA&2.16.840.1.113883.4.7&ISO	This is CLIA for CLIA certified labs This is CLIA's OID The Assigning Authority component is used to identify the system, application, organization, etc. that assigned the ID in component 10. ELR & Lab to EHR Condition predicate: Required if component 10 (Organization Identifier) is populated.

OBX											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
23.6.1	1..20=	IS		RE	Local	Namespace ID		Yes	CLIA	CLIA	This is CLIA for CLIA certified labs
23.6.2	1..199=	ST		R		Universal ID		Yes	2.16.840.1.113883.4.7	2.16.840.1.113883.4.7	This is CLIA for CLIA certified labs
23.6.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	ISO
23.7	2..5	ID		C(R/X)	HL70203	Identifier Type Code		Yes	XX	XX	ELR Condition predicate: Required if component 10 (Organization Identifier) is populated XX Organization identifier
23.10	1..20=	ST		RE		Organization Identifier	your CLIA ID	Yes	your CLIA ID	05D0897628	can hard code your CLIA ID here (assumes only one per lab sender)
24		XAD	[1..1]	R		Performing Organization Address	your lab' s address	Yes		3434 Industrial Loop^^Richmond^CA^99999^USA^B	For IDPH implementation this element is a common core data element - Need to send it if you have it. **NOTE:** This Address of the laboratory that actually performed the test - whether or not is used as a reference laboratory. (error in guide)
24.1		SAD		RE		Street Address		Yes		3434 Industrial Loop^^Richmond^CA^99999^USA^B	
24.1.1	1..120#	ST		R		Street or Mailing Address	Lab street or mailing Address	Yes	your street or mailing address	3434 Industrial Loop	
24.2	1..120#	ST		RE		Other Designation		Yes	Example: Suite 555		This is not needed for most addresses. It could be a district name, building name, floor number, etc
24.3	1..50#	ST		RE		City		Yes	your city	Richmond	
24.4	1..50#	ST		RE	PHVS_State_FIPS_5-2	State or Province		Yes	your state	IA	Use the FIPS 5-2 two character codes here (e.g., IA for Iowa)
24.5	1..12=	ST		RE	Postal Code Value Set	Zip or Postal Code		Yes	your zip	95999	US Zip Codes, Zip+4 and Canadian Postal Codes are supported in ELR
24.6	3..3	ID		RE	Country Value Set	Country		Yes	USA	USA	USA
24.7	1..3	ID		RE	HL70190	Address Type		Yes	B	B	Typical values for a facility address are O (Office), B (Business), M (Mailing), L (Legal Address)
24.9	1..20=	IS		RE	PHVS_County_FIPS_6-4	County/Parish Code		Yes			For IDPH this element can be empty.

OBX											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
25		XCN	[0..1]	RE		Performing Organization Medical Director	Your Lab Director	Yes		9876543^House^Gregory^F^^Dr^^^NPI&2.16.840.1.113883.4.6&ISO^L^^^NPI	For IDPH implementation this element is a common core data element - Need to send it if you have it.
25.1	1..15=	ST		RE		ID Number	Lab Director ID	Yes	your lab director's ID	1790019875	Assuming single lab director can hard code.
25.2		FN		RE		Family Name		Yes		House	Assuming single lab director can hard code.
25.2.1	1..50#	ST		R		Surname	Lab Director Last Name	Yes	Lab Director Last Name	House	Assuming single lab director can hard code. Maps to Last name in 2.3.1
25.3	1..30#	ST		RE		Given Name	LD first name	Yes	LD first name	Gregory	Assuming single lab director can hard code.
25.4	1..30#	ST		RE		Second and Further Given Names or Initials Thereof	LD middle initial	Yes	LD middle initial	F	Assuming single lab director can hard code.
25.5	1..20#	ST		RE		Suffix (e.g., JR or III)	LD Suffix	Yes	LD Suffix		Example for Mr. John Smith Jr. The name suffix is Jr.
25.6	1..20#	ST		RE		Prefix (e.g., DR)	LD Prefix	Yes	LD Prefix	DR	
25.9		HD		C(R/X)		Assigning Authority	The assigning authority for LD's ID	Yes		NPI&2.16.840.1.113883.4.6&ISO	The Assigning Authority component is used to identify the system, application, organization, etc. that assigned the ID Number in component 1. Harmonized condition predicate: Required if component 1 (ID Number) is populated.
25.9.1	1..20=	IS		RE	Local	Namespace ID		Yes	name of assigning authority	NPI	
25.9.2	1..199=	ST		R		Universal ID	OID of the assigning authority	Yes	2.16.840.1.113883.4.6	2.16.840.1.113883.4.6	This is just an example OID. A facility should use its own relevant OID.
25.9.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	ISO
25.10	1..5	ID		RE	HL70200	Name Type Code		Yes	L	L	L= legal name
25.13	2..5	ID		C(R/X)	HL70203	Identifier Type Code		Yes	NPI or other identifier type	NPI	For example NPI National Provider Identifier ELR Condition predicate. Required if component 1 (ID Number) is populated.
25.14		HD		RE		Assigning Facility		No			The Assigning Facility identifies the place or location that the ID Number was assigned for use. (Not needed in most states)

OBX											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
25.14.1	1..20=	IS		RE	Local	Namespace ID		No			For IDPH this element can be empty
25.14.2	1..199=	ST		R		Universal ID		No			For IDPH this element can be empty
25.14.3	1..6	ID		R	HL70301	Universal ID Type		No			For IDPH this element can be empty

Example:

```
OBX|1|CWE|^^^L625-4^Bacteria identified in Stool by Culture^L|1|^^^L372342007^Salmonella
species^L^^^Salmonella species|||^^^AB^Abnormal^L|||F|||20110101|||^^^^^^^^Bacterial
Culture||201106231047||||State Hygienic Laboratory^L^^^^IA Public Health
Lab&2.16.840.1.114222.4.1.10411&ISO^FI^^^16D0648109|State Hygienic Laboratory^UI Research Park -
Coralville^Iowa City^IA^52242-5002^USA^B^^19103|^Atchison^Christopher^^^^^^^L
```

Table 14.1: COVID-19 Extra OBX Segments for COVID-19 Ask On Order Entry (AOE) Questions

The additional OBX segments necessary to ask and answer the following COVID-19 Ask On Order Entry questions, they must meet the same validation requirements as an OBX segment. If you have questions about the structure of the extra OBX segment, refer to the Table 14: The components of the OBX segment of an ELR 251 ORU^01 Message above. The table below provides guidance on the content to be used for the AOE questions specifically in OBX 3 (the question or test) and OBX 5 (the answer or result).

Ask On Order Entry Question	OBX 3 "Standard" Value	OBX 5 Standard Values	OBX 3 Example (2nd triplet for smartLab)	OBX 5 Example (2nd triplet for smartLab)	Comments
First Test	95417-2	Yes: Y No: N Unknown: UNK	|^^^95417-2^First test for condition of interest^L|	|^^^Y^Yes^L|	Populate: OBX-2 = CWE OBX-3 = 95417-2^First test for condition of interest^LN OBX 4 Sub ID OBX-5 can be one of: Y^Yes^HL70136 N^No^HL70136 UNK^Unknown^NULLFL OBX-11 = F

Ask On Order Entry Question	OBX 3 "Standard" Value	OBX 5 Standard Values	OBX 3 Example (2nd triplet for smartLab)	OBX 5 Example (2nd triplet for smartLab)	Comments
					OBX-14 = Date question was answered OBX-23.1 & 23.10 OBX 24 OBX-29 = QST
Employed in healthcare	95418-0	Yes: Y No: N Unknown: UNK	|^^^95418-0^Employed in a healthcare setting^L|	|^^^Y^Yes^L|	Populate: OBX-2 = CWE OBX-3 = 95418-0^Employed in a healthcare setting^LN OBX 4 Sub ID OBX-5 can be one of: Y^Yes^HL70136 N^No^HL70136 UNK^Unknown^NULLFL OBX-11 = F OBX-14 = Date question was answered OBX-23.1 & 23.10 OBX 24 OBX-29 = QST
Symptomatic as defined by CDC?	95419-8	Yes: Y No: N Unknown: UNK	|^^^95419-8^Has symptoms related to condition of interest^L |	|^^^Y^Yes^L|	Populate: OBX-2 = CWE OBX-3 = 95419-8^Has symptoms related to condition of interest^LN OBX 4 Sub ID OBX-5 can be one of: Y^Yes^HL70136 N^No^HL70136 UNK^Unknown^NULLFL OBX-11 = F OBX-14 = Date question was answered OBX-23.1 & 23.10 OBX 24

Ask On Order Entry Question	OBX 3 "Standard" Value	OBX 5 Standard Values	OBX 3 Example (2nd triplet for smartLab)	OBX 5 Example (2nd triplet for smartLab)	Comments
					OBX-29 = QST
Date of Symptom Onset (if symptomatic)	11368-8	The Date itself will be inserted here.	|^^^11368-8^Illness or injury onset date and time^L|	|20200717|	Populate: OBX-2 = DT OBX-3 = 11368-8^Illness or injury onset date and time^LN OBX 4 Sub ID OBX-5 = formatted as YYYYMMDD OBX-11 = F OBX-14 = Date question was answered OBX-23.1 & 23.10 OBX 24 OBX-29 = QST
Hospitalized (for this condition)?	77974-4	Yes: Y No: N Unknown: UNK	|^^^77974-4^Patient was hospitalized because of this condition^L|	|^^^Y^Yes^L|	Populate: OBX-2 = CWE OBX-3 = 77974-4^Patient was hospitalized because of this condition^LN OBX 4 Sub ID OBX-5 can be one of: Y^Yes^HL70136 N^No^HL70136 UNK^Unknown^NULLFL OBX-11 = F OBX-14 = Date question was answered OBX-23.1 & 23.10 OBX 24 OBX-29 = QST
ICU?	95420-6	Yes: Y No: N Unknown: UNK	|^^^95420-6^Admitted to intensive care unit for condition of interest^L|	|^^^Y^Yes^L|	Populate: OBX-2 = CWE OBX-3 = 95420-6^Admitted to

Ask On Order Entry Question	OBX 3 "Standard" Value	OBX 5 Standard Values	OBX 3 Example (2nd triplet for smartLab)	OBX 5 Example (2nd triplet for smartLab)	Comments
					intensive care unit for condition of interest^LN OBX 4 Sub ID OBX-5 can be one of: Y^Yes^HL70136 N^No^HL70136 UNK^Unknown^NULLFL OBX-11 = F OBX-14 = Date question was answered OBX-23.1 & 23.10 OBX 24 OBX-29 = QST
Resident in a congregate care setting	95421-4	Yes: Y No: N Unknown: UNK	|^^^95421-4^Resides in a congregate care setting^L|	|^^^Y^Yes^L|	Populate: OBX-2 = CWE OBX-3 = 95421-4^Resides in a congregate care setting^LN OBX 4 Sub ID OBX-5 can be one of: Y^Yes^HL70136 N^No^HL70136 UNK^Unknown^NULLFL OBX-11 = F OBX-14 = Date question was answered OBX-23.1 & 23.10 OBX 24 OBX-29 = QST
Pregnant?	82810-3	Pregnant: 77386006 Possibly pregnant: 102874004	|^^^82810-3^Pregnancy status^L|	|^^^77386006^Patient currently pregnant^L|	Populate: OBX-2 = CWE OBX-3 = 82810-3^Pregnancy status^LN OBX 4 Sub ID

Ask On Order Entry Question	OBX 3 "Standard" Value	OBX 5 Standard Values	OBX 3 Example (2nd triplet for smartLab)	OBX 5 Example (2nd triplet for smartLab)	Comments
		Not pregnant: 60001007 Unknown: UNK			OBX-5 = can be one of: 77386006^Patient currently pregnant^SCT 102874004^Possible pregnancy^SCT 60001007^Not pregnant^SCT UNK^Unknown^NULLFL OBX-11 = F OBX-14 = Date question was answered OBX-23.1 & 23.10 OBX 24 OBX-29 = QST

Table 15: The components of the SPM segment of an ELR 251 ORU^01 Message

SPM											
Seq	**Len**	**DT**	**Cardinality**	**Usage**	**Value Set**	**HL7 Element Name**	**IDPHDef**	**Hard Code**	**HardCodeValue**	**Example data**	**IDPHComments**
1	1..4	SI	[1..1]	R		Set ID – SPM	1	Yes	1	1	Only one specimen per ELR message so this is 1.
2		EIP	[1..1]	R		Specimen ID	Placer and Filler Specimen ID	No		23456&NapaGen_EHR&OID here&ISO^200110206122&NapaCo_PHL_LIMS&2.16.840.1.114222.4.1.10412&ISO	
2.1		EI		RE		Placer Assigned Identifier	The submitter's Specimen ID information for the test	No		23456&NapaGen_EHR&oid here&ISO	Submitter = Placer = Ordering facility/provider
2.1.1	1..199=	ST		R		Entity Identifier	The submitter's Specimen ID number string	No		23456	
2.1.2	1..20=	IS		RE	Local	Namespace ID	Namespace ID for the	No		NapaGen_EHR	

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
							submitter's Specimen ID				
2.1.3	1..199=	ST		R		Universal ID	Namespace OID for the submitter's Specimen ID	No		OID here	Need OIDs from Providers.
2.1.4	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	ISO
2.2		EI		R		Filler Assigned Identifier	Your Specimen ID and PHIN namespace info	No		200110206122&SHL_LIMS&2.16.840.1.114222.4.1.10412&ISO	
2.2.1	1..199=	ST		R		Entity Identifier	The Specimen number in the LIMS	No		200110206122	The unique Specimen number in the LIMS goes here. Like the Patient Identifier, The ID Number component combined with the Assigning Authority component must uniquely identify the associated object.
2.2.2	1..20=	IS		RE	Local	Namespace ID	The namespace ID of the LIMS	Yes	your lab	SHL	
2.2.3	1..199=	ST		R		Universal ID	The OID of the LIMS	Yes	2.16.840.1.114222.xxxxx	2.16.840.1.114222.4.1.10412	
2.2.4	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	ISO
4		CWE	[1..1]	R	Specimen Type Value Set	Specimen Type	Specimen type	No		122575003^ Urine specimen (specimen)^SCT^UR^ Urine^HL70487 ^01/31/2011^2.3.1^Urine	For IDPH implementation this element is a common core data element - need to send it if you have it. For IDPH, Submission through the IDPH smartLab™ requires that the facility map the code that is sent in the second triplet to the IDPH code in the smartLab™ portal – regardless of whether this is a standard (LOINC, SNOMED, or HL7) or local code. This field - Specimen Type +/- SPM.8 Specimen Source Site will be used to describe specimen
4.1	1..20=	ST		RE		Identifier	Snomed Code or HL7 code for Specimen Type	No		122575003 or UR	
4.2	1..199#	ST		C(RE/X)		Text	Snomed Concept Name or HL7 Description	No		Urine specimen (specimen) or Urine	ELR Condition predicate: If the Identifier component is empty, then this component must be empty.

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
4.3	1..12	ID		C(R/X)		Name of Coding System	SCT	Yes		SCT or HL70487	ELR Condition predicate: If you leave SPM4.1 empty, you should also leave SPM4.3 empty
4.4	1..20=	ST		RE		Alternate Identifier	Local Specimen Code	No		UR	Put your local code here. If no appropriate SNOMED exists just populate this triplet.
4.5	1..199#	ST		C(RE/X)		Alternate Text	Local Specimen Code name	No		Urine	It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
4.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System	L	Yes	L	L	This will be L (for Local). It can be hardcoded if always populating the first triplet with LOINC and second triplet with local codes. If you put a local test code in SPM4.4, you must put L in SPM4.6. If you leave SPM4.4 empty, you should also leave SPM4.6 empty
4.7	1..10=	ST		RE		Coding System Version ID	Snomed Version ID	Yes	01/31/2011	01/31/2011	If a coding system is identified in component 3. This can be Hardcoded. SNOMED Codes are versioned every six months.
4.8	1..10=	ST		RE		Alternate Coding System Version ID	Local Code System Version ID	Yes	v unknown	HL70487	If a coding system is identified in component 6, This can be Hardcoded. If no local coding system version is known, default to the string value"v unknown".
4.9	1..199#	ST		C(R/RE)		Original Text	Original text for Specimen type	No		Urine	ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required. IF all you have is free, text description of the Specimen put it here.
4.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
4.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
4.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
						Coding System					
4.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
4.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3
5		CWE	[0..*]	RE	PHVS_ModifierOrQualifier_CDC	Specimen Type Modifier		No			For IDPH this element can be empty. Applies to all the subcomponents.
5.1	1..20=	ST		RE		Identifier		No			
5.2	1..199#	ST		C(RE/X)		Text		No			It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
5.3	1..12	ID		C(R/X)	HL70396	Name of Coding System		No			Harmonized condition predicate: Required if an identifier is provided in component 1.
5.4	1..20=	ST		RE		Alternate Identifier		No			
5.5	1..199#	ST		C(RE/X)		Alternate Text		No			It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
5.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System		No			Harmonized condition predicate: Required if an alternate identifier is provided in component 4.
5.7	1..10=	ST		RE		Coding System Version ID		No			Recommended if a coding system is identified in component 3. This can be Hardcoded
5.8	1..10=	ST		RE		Alternate Coding System Version ID		No			Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value ”v unknown”

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
5.9	1..199#	ST		C(R/RE)		Original Text		No			Either original Text is used to convey the text that was the basis for coding, or when there is no code to be sent, only free text. ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required.
5.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
5.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
5.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
5.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
5.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
6		CWE	[0..*]	RE	HL70371	Specimen Additives		No			For IDPH this element can be empty. Applies to all its subcomponents.
6.1	1..20=	ST		RE		Identifier		No			
6.2	1..199#	ST		C(RE/X)		Text		No			It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
6.3	1..12	ID		C(R/X)	HL70396	Name of Coding System		No			Harmonized condition predicate: Required if an identifier is provided in component 1.
6.4	1..20=	ST		RE		Alternate Identifier		No			

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
6.5	1..199#	ST		C(RE/X)		Alternate Text		No			It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
6.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System		No			Harmonized condition predicate: Required if an alternate identifier is provided in component 4.
6.7	1..10=	ST		RE		Coding System Version ID		No			Recommended if a coding system is identified in component 3. This can be Hardcoded
6.8	1..10=	ST		RE		Alternate Coding System Version ID		No			Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value "v unknown"
6.9	1..199#	ST		C(R/RE)		Original Text		No			Either original Text is used to convey the text that was the basis for coding, or when there is no code to be sent, only free text. ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required.
6.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
6.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
6.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
6.13	1..10=	ST		RE		Second Alternate Coding		No			For IDPH this element can be empty Version for the coding system identified in components 12.

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
						System Version ID					
6.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
7		CWE	[0..1]	RE	Specimen Collection Method Value Set	Specimen Collection Method		No			For IDPH this element can be empty. Applies to all its subcomponents.
7.1	1..20=	ST		RE		Identifier		No			
7.2	1..199#	ST		C(RE/X)		Text		No			It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
7.3	1..12	ID		C(R/X)	HL70396	Name of Coding System		No			Harmonized condition predicate: Required if an identifier is provided in component 1.
7.4	1..20=	ST		RE		Alternate Identifier		No			
7.5	1..199#	ST		C(RE/X)		Alternate Text		No			It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
7.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System		No			Harmonized condition predicate: Required if an alternate identifier is provided in component 4.
7.7	1..10=	ST		RE		Coding System Version ID		No			Recommended if a coding system is identified in component 3. This can be Hardcoded
7.8	1..10=	ST		RE		Alternate Coding System Version ID		No			Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value ”v unknown”

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
7.9	1..199#	ST		C(R/RE)		Original Text		No			Either original Text is used to convey the text that was the basis for coding, or when there is no code to be sent, only free text. ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required.
7.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
7.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
7.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
7.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
7.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
8		CWE	[0..1]	RE	Body Site Value Set	Specimen Source Site	Specimen Source (body)Site	No		13648007^Urethral structure (body structure)^SCT^URTH^Uretha^HL70700^1/31/2011^2.3.1^Uretha	For IDPH implementation either this element or SPM.4 needs to identify the specimen and therefore is a common core data element - Need to send it if you have it. Assume the standard codes populates the first triplet and the local code the second. For IDPH this field - SPM.4 Specimen Type AND/OR SPM.8 Specimen Source Site will be used to describe specimen.
8.1	1..20=	ST		RE		Identifier	Snomed Code for Specimen Source	No		13648007	Use SNOMED Code (limited to Body site hierarchy in ELR) here. If no appropriate SNOMED code exists, use your local code in the second triplet.
8.2	1..199#	ST		C(RE/X)		Text	Snomed Concept Name	No		Urethral structure (body structure)	Use Preferred concept name: e.g. "Urethral structure"

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
8.3	1..12	ID		C(R/X)	HL70396	Name of Coding System	SCT	Yes	SCT	SCT	This will be SCT (for SNOMED) - can be hardcoded if always populate first triplet with SNOMED codes. If you put a SNOMED specimen code in SPM8.1, you must put SCT in SPM8.3. If you leave SPM8.1 empty, you should also leave SPM8.3 empty"
8.4	1..20=	ST		RE		Alternate Identifier	Local Specimen Soruce Site Code	No		URTH	Put your local code here. If no appropriate SNOMED exists just populate this triplet.
8.5	1..199#	ST		C(RE/X)		Alternate Text	Local Specimen Source Site Name	No		Uretha	It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
8.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System	L	Yes	L	L	This will be L (for Local) - can be hardcoded if always populate first triplet with SNOMED and second triplet with local codes If you put a local test code in SPM8.4, you must put L in SPM8.6. If you leave SPM8.4 empty, you should also leave SPM8.6 empty
8.7	1..10=	ST		RE		Coding System Version ID	Snomed Version ID	Yes	1/31/2011	1/31/2011	If a coding system is identified in component 3. This can be Hardcoded. SNOMED Codes are versioned every six months.
8.8	1..10=	ST		RE		Alternate Coding System Version ID		Yes	v unknown	2.3.1	If a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value to"v unknown".
8.9	1..199#	ST		C(R/RE)		Original Text	Original text for Specimen Source site	No		Uretha	ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required. IF all you have is submitter's free text description of the Specimen put it here. Nice to have it populated.

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
8.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
8.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
8.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
8.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
8.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3
9		CWE	[0..*]	RE	PHVS_ModifierOrQualifier_CDC	Specimen Source Site Modifier		No			For IDPH this element can be empty. Applies to all its subcomponents.
9.1	1..20=	ST		RE		Identifier		No			
9.2	1..199#	ST		C(RE/X)		Text		No			It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
9.3	1..12	ID		C(R/X)	HL70396	Name of Coding System		No			Harmonized condition predicate: Required if an identifier is provided in component 1.
9.4	1..20=	ST		RE		Alternate Identifier		No			
9.5	1..199#	ST		C(RE/X)		Alternate Text		No			It is strongly recommended that alternate text be sent to accompany any alternate identifier.

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
9.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System		No			Harmonized condition predicate: Required if an alternate identifier is provided in component 4.
9.7	1..10=	ST		RE		Coding System Version ID		No			Recommended if a coding system is identified in component 3. This can be Hardcoded
9.8	1..10=	ST		RE		Alternate Coding System Version ID		No			Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value "v unknown"
9.9	1..199#	ST		C(R/RE)		Original Text		No			Either original Text is used to convey the text that was the basis for coding, or when there is no code to be sent, only free text. ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required.
9.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
9.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
9.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10
9.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
9.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
11		CWE	[0..*]	RE	HL70369	Specimen Role		No			Defaults to P for Patient if empty For IDPH this element can be empty. Applies to all its subcomponents.
11.1	1..20=	ST		RE		Identifier		No			
11.2	1..199#	ST		C(RE/X)		Text		No			It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
11.3	1..12	ID		C(R/X)	HL70396	Name of Coding System		No			Harmonized condition predicate: Required if an identifier is provided in component 1.
11.4	1..20=	ST		RE		Alternate Identifier		No			
11.5	1..199#	ST		C(RE/X)		Alternate Text		No			It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
11.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System		No			Harmonized condition predicate: Required if an alternate identifier is provided in component 4.
11.7	1..10=	ST		RE		Coding System Version ID		No			Recommended if a coding system is identified in component 3. This can be Hardcoded
11.8	1..10=	ST		RE		Alternate Coding System Version ID		No			Recommended if a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value ”v unknown”
11.9	1..199#	ST		C(R/RE)		Original Text		No			Either original Text is used to convey the text that was the basis for coding, or when there is no code to be sent, only free text.

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required.
11.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
11.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
11.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
11.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
11.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
12		CQ	[0..1]	RE	Unified Code for Units of Measure (UCUM)	Specimen Collection Amount		No			**NOTE:** Official ERL251 guide error for length. Corrected in this document.
12.1	1..16	NM		R		Quantity		No			**NOTE:** Official ERL251 guide error for length. Corrected in this document.
12.2		CWE		RE	Unified Code for Units of Measure (UCUM)	Units		No			For IDPH, assume the standard codes populates the first triplet and the local code the second.
12.2.1	1..20=	ST		RE		Identifier	UCUM code	No			
12.2.2	1..199#	ST		C(RE/X)		Text	UCUM code name	No			It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
12.2.3	1..12	ID		C(R/X)	HL70396	Name of Coding System	UCUM	Yes	UCUM	UCUM	Required if an identifier is provided in component 1
12.2.4	1..20=	ST		RE		Alternate Identifier	local units code	No			
12.2.5	1..199#	ST		C(RE/X)		Alternate Text	local units name	No			It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
12.2.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System	L	Yes	L	L	L Required if an alternate identifier is provided in component 4
12.2.7	1..10=	ST		RE		Coding System Version ID		Yes			If a UCUM is identified in component 3, this can be Hardcoded Current version is 1.8.2
12.2.8	1..10=	ST		RE		Alternate Coding System Version ID		Yes			Required if a local coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value to “v unknown”.
12.2.9	1..199#	ST		C(R/RE)		Original Text		No			For IDPH this element can be empty Either original Text is used to convey the text that was the basis for coding, or when there is no code to be sent, only free text. ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required.
12.2.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
12.2.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
12.2.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate		No			For IDPH this element can be empty

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
						Coding System					Required if a second alternate identifier is provided in component 10.
12.2.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
12.2.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
17		DR	[1..1]	R		Specimen Collection Date/Time	Specimen Collection Date/Time	No		201102061830-0800	For IDPH implementation this element is a common core data element - Need to send it if you have it.
17.1	4..24	TS		R		Range Start Date/Time	Specimen Collection Date/Time	No		201102061830-0800	For IDPH implementation this element is a common core data element - Need to send it if you have it. Same as OBX.14 and OBR.7. since this is a R field for the Sender. Per ELR 2.5.1 guide For unknown collection date/time use "0000".
17.2	4..24	TS		RE		Range End Date/Time		No			For IDPH this element can be empty.
18	4..24	DTM	[1..1]	R		Specimen Received Date/Time	Specimen Received Date/Time	No		201102061830-0800	
21		CWE	[0..*]	RE	HL70490	Specimen Reject Reason		No		RB^Broken Container^HL70490^^^^ 2.5.1	For IDPH implementation this element is a common core data element - Need to send it if you have it. Nevertheless, not a use case for ELR reporting. For IDPH, assume the standard codes populates the first triplet and the local code the second.
21.1	1..20=	ST		RE		Identifier	HL70490 Specimen Reject Code	No		RB^Broken Container^HL70490^^^^ 2.5.1	
21.2	1..199#	ST		C(RE/X)		Text	Specimen Reject Code Name	No		Broken Container	It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
21.3	1..12	ID		C(R/X)	HL70396	Name of Coding System	HL70490	Yes	HL70490	HL70490	HL70490 is required if SPM23.1 contains a table 0490 code.
21.4	1..20=	ST		RE		Alternate Identifier	Local Specimen Reject Code	No			
21.5	1..199#	ST		C(RE/X)		Alternate Text	Local Specimen Reject Code name	No			It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
21.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System		Yes	L		L is required if SPM21.4 contain a local code for specimen reject.
21.7	1..10=	ST		RE		Coding System Version ID	2.5.1	Yes	2.5.1	2.5.1	If a coding system is identified in component 3. This can be Hardcoded
21.8	1..10=	ST		RE		Alternate Coding System Version ID	Local coding system Version	Yes	v unknown		IF a coding system is identified in componentSPM21.6. This can be Hardcoded. If no local coding system version is known, default to the string value to"v unknown".
21.9	1..199#	ST		C(R/RE)		Original Text		No		RB^Broken Container^HL70490^^^^ 2.5.1	ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required.
21.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
21.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
21.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
21.13	1..10=	ST		RE		Second Alternate		No			For IDPH this element can be empty

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
						Coding System Version ID					Version for the coding system identified in components 12.
21.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
22		CWE	[0..1]	RE	HL70491	Specimen Quality		No			This element is a common core data element (CLIA) requirement, but Not a use case for ELR and IDPH defined condition predicate: Use this field along with SPM.21 and SPM.24 if a test is cancelled for specimen related reason. Currently only 4 values: E - Excellent, F - Fair, G- Good, P- Poor.
22.1	1..20=	ST		RE		Identifier		No			Possible values are E - Excellent, F-Fair, G-Good, P- Poor
22.2	1..199#	ST		C(RE/X)		Text		No			It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
22.3	1..12	ID		C(R/X)	HL70396	Name of Coding System		No			Harmonized condition predicate: Required if an identifier is provided in component 1.
22.4	1..20=	ST		RE		Alternate Identifier		No			
22.5	1..199#	ST		C(RE/X)		Alternate Text		No			It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
22.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System		No			Harmonized condition predicate: Required if an alternate identifier is provided in component 4.
22.7	1..10=	ST		RE		Coding System Version ID		No			

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
22.8	1..10=	ST		RE		Alternate Coding System Version ID		No			
22.9	1..199#	ST		C(R/RE)		Original Text		No			Either original Text is used to convey the text that was the basis for coding, or when there is no code to be sent, only free text. ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required.
22.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty
22.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
22.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
22.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
22.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.
24		CWE	[0..*]	RE	HL70493	Specimen Condition		No		FROZ^Frozen^HL70493^^^^2.5.1	State of the Specimen. For IDPH is common core data element (CLIA) changed usage to C(RE/X) (conditional, empty) to harmonize with S + I Framework requirement. IDPH defined condition predicate: Use this field along with SPM.21 and SPM,24 if a test is cancelled for specimen. Sample Values: Hem=Hemolyzed, Live=Live, FROZ=Frozen, ROOM= Room Temperature. CWE For IDPH, assume the standard codes

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
											populates the first triplet and the local code the second.
24.1	1..20=	ST		RE		Identifier	Specimen Condition Code from HL70493	No		FROZ	Sample Values Hem=Hemolyzed, Live=Live, FROZ=Frozen, ROOM= Room Temperature.
24.2	1..199#	ST		C(RE/X)		Text	Specimen Condition text name from HL70493	No		FROZ^Frozen^HL70493^^^^2.5.1	It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
24.3	1..12	ID		C(R/X)	HL70396	Name of Coding System	HL70493	Yes	HL70493	HL70493	HL70493 Required if an identifier is provided in component 1.
24.4	1..20=	ST		RE		Alternate Identifier	Specimen Condition Local Code	No			
24.5	1..199#	ST		C(RE/X)		Alternate Text	Specimen Condition Local text name	No			It is strongly recommended that alternate text be sent to accompany any alternate identifier. ELR Condition predicate: If the alternate Identifier component is empty, then this component must be empty.
24.6	1..12	ID		C(R/X)	HL70396	Name of Alternate Coding System	L	Yes	L	L	L Required if an identifier is provided in component 4.
24.7	1..10=	ST		RE		Coding System Version ID	Standard Coding System Version	No			If a coding system is identified in component 3. This can be Hardcoded
24.8	1..10=	ST		RE		Alternate Coding System Version ID	Local coding system Version	No			If a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string value to “unknown".
24.9	1..199#	ST		C(R/RE)		Original Text		No			ELR Condition predicate: If no identifier and alternate identifier is present, then this component is required.
24.10	1..20=	ST		RE		Second Alternate Identifier		No			For IDPH this element can be empty

SPM											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
24.11	1..199#	ST		C(RE/X)		Second Alternate Text		No			For IDPH this element can be empty It is strongly recommended that text be sent to accompany any identifier. ELR Condition predicate: If the Identifier component is empty, then this component must be empty.
24.12	1..12	ID		C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty Required if a second alternate identifier is provided in component 10.
24.13	1..10=	ST		RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty Version for the coding system identified in components 12.
24.14	1..199=	ST		RE		Coding System OID		No			For IDPH this element can be empty OID for the coding system named in CWE.3.

Example:

```
SPM|1|^2011001011&IA PHIMS Stage&2.16.840.1.114222.4.3.3.5.1.2&ISO||119339001^Stool specimen (specimen)
^SCT^SL^Stool^L^20090731^v unknown||||^^^^^^^^colon
content|||P^Patient^HL70369^^^^2.5.1||||||20110101|201106230837
```

Table 16.1 File Header Segment

FHS											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
1	1..1	ST	[1..1]	R		File Field Separator	The HL7 file field separator	Yes	|	|	
2	4..5	ST	[1..1]	R		File Encoding Characters	The HL7 file encoding characters	Yes	^~\&	^~\&	
3		HD	[0..1]	O		File Sending Application	Use to identify the application that is sending the file	Yes	your lims^2.16.840.1.114222.xxxxx^ISO	Hospital System LIMS^2.16.840.1.114222.4.3.3.5.1.2^ISO	Use to identify the creator and sender of the file that originated from one facility and therefore occurs only once within a file.
3.1	1..20=	IS		RE	Local	Namespace ID	Namespace ID of your application that is sending the file	Yes	your lab information system or other hospital information system	Hospital System LIMS	If the sending information system serves as an aggregation point for a hospital or laboratory system, this should be information related to that aggregating system. This allows for distinction between sending systems in the FHS and BHS segments, if appropriate. If the sending facility is a single entity, the sending application should be the same in the FHS and BHS segments.
3.2	1..199=	ST		R		Universal ID	OID of your File Sending Application	Yes	2.16.840.1.114222.xxxxx	2.16.840.1.114222.4.3.3.5.1.2	Every file sending application must have an OID. See page 27 in this guide about obtaining OIDs.
3.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
4		HD	[1..1]	R		File Sending Facility	Facility that is sending the file	Yes	Hospital System Name>^2.16.840.1.114222.xxxxx^ISO	Hospital System Name^2.16.840.1.114222.4.1.10411^ISO	If there is a parent organization that creates a file containing batched information from multiple facilities, the parent organization identifying information goes here. Otherwise, this will be the same information in both the FHS and BHS.
4.1	1..20=	IS		RE	Local	Namespace ID	Namespace ID of the Facility that is sending the file	Yes	Hospital System Name	Hospital System Name	
4.2	1..199=	ST		R		Universal ID	OID of the File Sending Facility	Yes	2.16.840.1.114222.xxxxx	2.16.840.1.114222.4.1.10411	could also be CLIA number
4.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	could also be CLIA

FHS											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
5		HD	[0..1]	O		File Receiving Application	The application that receives the file	Yes	IA.DOH.IDSS^2.16.840.1.114222.4.3.3.19^ISO	IA.DOH.IDSS^2.16.840.1.114222.4.3.3.19^ISO	
5.1	1..20=	IS		RE	Local	Namespace ID	Namespace ID of the Application that is receiving the file	Yes	IA.DOH.IDSS	IA.DOH.IDSS	
5.2	1..199=	ST		R		Universal ID	OID of the File Receiving Application	Yes	2.16.840.1.114222.4.3.3.19	2.16.840.1.114222.4.3.3.19	The OID for the Iowa Disease Surveillance System (IDSS)
5.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
6		HD	[1..1]	R		File Receiving Facility	Facility that is receiving the file	Yes	IA DOH ^2.16.840.1.114222.4.1.3650^ISO	IA DOH ^2.16.840.1.114222.4.1.3650^ISO	
6.1	1..20=	IS		RE	Local	Namespace ID	Namespace ID of the Facility that is receiving the file	Yes	IA DOH	IA DOH	
6.2	1..199=	ST		R		Universal ID	OID of the File Receiving Facility	Yes	2.16.840.1.114222.4.1.3650	2.16.840.1.114222.4.1.3650	
6.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
7	4..26	TS	[1..1]	R		File Creation Date/Time	Date/time the file was created by the sending system	No		20110208132554	Max length increased to 26 to be backward compatible with ELR 231 and 23z
9	1..40=	ST	[0..1]	O		File Name/ID	Name/Identifier of the file				

Example:

```
FHS|^~\&|Hospital System LIMS^2.16.840.1.114222.4.3.3.5.1.2^ISO|Hospital System
Name^2.16.840.1.114222.4.1.10411^ISO |IA.DOH.IDSS^2.16.840.1.114222.4.3.3.19^ISO|IA
DOH^2.16.840.1.114222.4.1.3650^ISO|20110208132554
```

Table 16.2: File Trailer Segment

FTS											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
1	1..10=	NM	[1..1]	R		File Batch Count	The number of batches contained in this file.	No		1	

```
Example:

FTS|1
```

Table 16.3: Batch Header Segment

BHS											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
1	1..1	ST	[1..1]	R		Batch Field Separator	The HL7 batch field separator	Yes	|	|	
2	4..5	ST	[1..1]	R		Batch Encoding Characters	The HL7 batch encoding characters	Yes	^~\&	^~\&	
3		HD	[0..1]	O		Batch Sending Application	Use to identify the application that is sending the batch within the file	Yes	Hospital A Lims^2.16.840.1.114222.xxxxx^ISO	Hospital A LIMS^2.16.840.1.114222.4.3.3.5.1.3^ISO	Use to identify the sender of the batch. It is likely that this will be the same information as what appears in the FHS, but if there is a need to provide distinct information specific to a batch in a file, this distinction is made here.
3.1	1..20=	IS		RE	Local	Namespace ID	Namespace ID of your application that is sending the batch within the file	Yes	your lab information system or other hospital information system	Hospital A LIMS	
3.2	1..199=	ST		R		Universal ID	OID of your Batch Sending Application	Yes	2.16.840.1.114222.xxxxx	2.16.840.1.114222.4.3.3.5.1.3	Every batch sending application must have an OID. See page 27 in this guide about obtaining OIDs.
3.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	

BHS											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
4		HD	[1..1]	R		Batch Sending Facility	Facility that is sending the batch within the file	Yes	your lab>^2.16.840.1.114222.xxxxx^ISO	Hospital A^2.16.840.1.114222.4.1.10412^ISO	An entity within a parent organization sending the batch. Group of reporting facilities may send their information in the same file. The batch header serves the purpose of grouping the messages of each reporting facility represented in the file transmission.
4.1	1..20=	IS		RE	Local	Namespace ID	Namespace ID of the Facility that is sending the batch	Yes	your lab	Hospital A	
4.2	1..199=	ST		R		Universal ID	OID of the Batch Sending Facility	Yes	2.16.840.1.114222.xxxxx	2.16.840.1.114222.4.1.10412	could also be CLIA number
4.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	could also be CLIA
5		HD	[0..1]	O		Batch Receiving Application	The application that receives the batch	Yes	IA.DOH.IDSS^2.16.840.1.114222.4.3.3.19^ISO	IA.DOH.IDSS^2.16.840.1.114222.4.3.3.19^ISO	
5.1	1..20=	IS		RE	Local	Namespace ID	Namespace ID of the Application that is receiving the batch	Yes	IA.DOH.IDSS	IA.DOH.IDSS	
5.2	1..199=	ST		R		Universal ID	OID of the Batch Receiving Application	Yes	2.16.840.1.114222.4.3.3.19	2.16.840.1.114222.4.3.3.19	The OID for the Iowa Disease Surveillance System (IDSS)
5.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	
6		HD	[1..1]	R		Batch Receiving Facility	Facility that is receiving the batch in the file	Yes	IA DOH ^2.16.840.1.114222.4.1.3650^ISO	IA DOH ^2.16.840.1.114222.4.1.3650^ISO	
6.1	1..20=	IS		RE	Local	Namespace ID	Namespace ID of the Facility that is receiving the batch	Yes	IA DOH	IA DOH	
6.2	1..199=	ST		R		Universal ID	OID of the Batch Receiving Facility	Yes	2.16.840.1.114222.4.1.3650	2.16.840.1.114222.4.1.3650	
6.3	1..6	ID		R	HL70301	Universal ID Type	ISO	Yes	ISO	ISO	

BHS											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
7	4..26	TS	[1..1]	R		Batch Creation Date/Time	Date/time the file was created by the sending system	No		20110208132554	Max length increased to 26 to be backward compatible with ELR 231 and 23z
9	1..40=	ST	[0..1]	O		Batch Name/ID/Type	Name/Identifier /Type of the file				

Example:

```
BHS|^~\&|Hospital A LIMS^2.16.840.1.114222.4.3.3.5.1.3^ISO|Hospital
A^2.16.840.1.114222.4.1.10412^ISO|IA.DOH.IDSS^2.16.840.1.114222.4.3.3.19^ISO|IA DOH
^2.16.840.1.114222.4.1.3650^ISO|20110208132554
```

Table 16.4 Batch Trailer Segment

BTS											
Seq	Len	DT	Cardinality	Usage	Value Set	HL7 Element Name	IDPHDef	Hard Code	HardCodeValue	Example data	IDPHComments
1	10	NM	[1..1]	R		Batch Message Count	The total number of messages contained in the batch.	No		100	

Example:

```
BTS|100
```

OBX.5 Table: Observation Value data types

Quantitative results SN vs. NM and OBX.8 Usage

For quantitative results there is a choice of the NM-numeric data type or the SN- Structured Numeric results. The NM data type is limited to numbers with an optional leading “+” or “-“. The SN can express signed or unsigned numbers in addition to inequalities, ranges, ratios, and categorical responses. For this reason, SN is the preferred convention whenever expressing a quantitative results. In both

cases the UCUM Units are required in OBX.6 and reference range in OBX.7 is a CLIA requirement (ref.). A Laboratory may use the "Abnormal flag" (or more correctly "interpretation flag") field, OBX.8, as part of its interpretation guidance and its use is encouraged by IDPH, because it enables one to report both a quantitative result in OBX.5 and an interpretation in OBX.8 in a single segment.

Table 17.1: Structured Numeric use in the OBX segment (Preferred for numeric results for IDPH)

Structured Numeric (SN)										
SEQ	LEN	DT	Usage	Value Set	Component Name	IDPHDef	Hard Code	Hard Code Value	Example data	IDPH Comments
OBX.5		SN	R		Observation Value	Numeric Results	No		>^2000000	The SN data type is for numeric data and corresponds to a Quantitative LOINC scale property. For Example: numbers |^2.0|, intervals |^0^-^1|, ratios |^1^/^2| or |^1^:^2|, inequalities | categorical results |^2^+| For numeric data, units are required in OBX-6. This is an ELR and CLIA requirement. The reference range is OBX.7 - also a CLIA requirement. OBX.8 should be populated with the test interpretation.
OBX.5.1	1..2	ST	RE		Comparator	optional operator	No		>	Component that must be one of ">" or "<" or ">=" or "<=" or "=" or "<>". This component defaults to "=" if empty.
OBX.5.2	1..16	NM	RE		Num1	first number	No		2000000	The Number can consist 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.
OBX.5.3	1..1	ST	RE		Separator/Suffix	optional operator	No			Component that must be one of "-" or "+" or "/" or "." or ":".
OBX.5.4	1..16	NM	RE		Num2	second number	No			The Number can consist 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.

Examples of OBX using the SN datatype and OBX.8- Abnormal flag:

```
OBX|1|SN|11011-4^Hepatitis C virus RNA [Units/volume] (viral load) in Serum or Plasma by Probe &
target amplification method^LN^2080^HEP C RNA (IU/ML)2.34^v unknown||>^2000000| [iU]/mL^
InternationalUnitsPerLiter [Arbitrary Concentration Units]^UCUM^IU/ml^^L^1.8^v unknown^|<200
IU/ml|DET^Detected^HL70078^^^^2.7~A^Abnormal^HL70078^^^^2.7|…
```

CWE - Coded with Exceptions

This version of the CWE data type is for the OBX.5 field only. The usage rules are different from the other CWE fields in the message. Namely the first triplet code and code system, CWE.1 and CWE.3, are required elements and original text element, CWE.9 is an RE vs. CE element. For IDPH it is recommended that the original text always be included in the OBX.5 field for CWE. The CWE data type is used primarily for coded lab results like organism names for nominal scale LOINCs and presence/absence finding for ordinal scale LOINCs. In addition, it is used to convey epidemiologically important information that is not contained in the message. The Interpretation flag OBX.8 can also be used with coded results (see example below).

Table 17.2: Data Type CWE

CWE										
OBX5_SEQ	LEN	DT	Usage	Value Set	Component Name	IDPHDef	HardCode	HardCodeValue	Example data	IDPH Comments
OBX.5			R		Observation Value	Coded Results	No		5 83410001^Gram-negative diplococcus^SCT^12567^Gram neg. diplococci resembling the gonoccus observed^L^07/31/2010^2010^Gram neg. diplococci resembling the gonoccus observed	The OBX.5 CWE data type is used primarily to coded lab results like organism names for nominal scale LOINCs and presence/absence finding for ordinal scale LOINCs. It can also be used for specimen related observations when following the SPM segment.
OBX.5.1	1..20 =	ST	R		Identifier	SNOMED Results Code	No		5 8341000	Need a code here. This will be a SNOMED code. Use parent (or next level up in hierarchy) term if organism concept not in SNOMED. If there is no SNOMED CT code available to appropriately populate OBX5, use the code that IDPH provides for the result to identify the reportable condition. This will be based on the CDC National Notifiable Disease (NND) code list and will always begin with a 5-digit number (example: 11000-1 for Salmonella monophasic).
OBX.5.2	1..199#	ST	RE		Text	SNOMED result text	No		Gram-negative diplococcus	This will be a SNOMED concept name
OBX.5.3	1..12	ID	R	HL70396	Name of Coding System	SCT	Yes	SCT	SCT	SCT for SNOMED results unless need to use local term here
OBX.5.4	1..20 =	ST	RE		Alternate Identifier	Local result code	Yes		12567	Put local code here
OBX.5.5	1..199#	ST	RE		Alternate Text	Local result text	No		Gram neg. diplococci resembling the gonoccus observed	You should put the local result text in OBX 5.5

CWE										
OBX5_SEQ	LEN	DT	Usage	Value Set	Component Name	IDPHDef	HardCode	HardCodeValue	Example data	IDPH Comments
OBX.5.6	1..12	ID	C(R/X)	HL70396	Name of Alternate Coding System	L	Yes	L	L	If you put a local test code in OBX5.4, you must put L in OBX5.6. If you leave OBX5.4 empty, you should also leave OBX5.6 empty
OBX.5.7	1..10 =	ST	RE		Coding System Version ID	Standard Coding System Version	Yes	01/31/2011	01/31/2011	If a coding, system is identified in component 3. This can be Hardcoded if only SNOMED codes in OBX.1. SNOMED codes are updated every 6 months.
OBX.5.8	1..10 =	ST	RE		Alternate Coding System Version ID	Local coding system Version	Yes	your local coding system version or "V Unknown"	v unknown	If a coding system is identified in component 6. This can be Hardcoded. If no local coding system version is known, default to the string “v unknown”.
OBX.5.9	1..199#	ST	RE		Original Text	Original text for coded results here	No		Gram neg. diplococci resembling the gonoccus observed	For IDPH it is recommended that the original text always be included in the OBX.5 field for CWE.
OBX.5.10	1..20 =	ST	RE		Second Alternate Identifier		No			For IDPH this element can be empty
OBX.5.11	1..199#	ST	RE		Second Alternate Text		No			For IDPH this element can be empty
OBX.5.12	1..12	ID	C(R/X)	HL70396	Second Name of Alternate Coding System		No			For IDPH this element can be empty
OBX.5.13	1..10 =	ST	RE		Second Alternate Coding System Version ID		No			For IDPH this element can be empty
OBX.5.14	1..199=	ST	RE		Coding System OID		No			For IDPH this element can be empty

Example:

OBX|1|CWE|664-3^Gram Stn XXX^LN^30097^Gram Stain^L^2.34^v unknown|1|83410001^Gram-negative diplococcus^SCT^12567^Gram neg. diplococci resembling the gonoccus observed^L^07/31/2010^v unknown^Gram neg. diplococci resembling the gonoccus observed|||A^Abnormal^HL70078^^^^2.7|…

ST – String data type

IDPH does not support the String data type for OBX2. This section is included only for informational purposes as this is a data type referenced in the HL7 Implementation Guide. If a facility is using the IDPH Simplified ELR Message Format Specification, this message may contain ST data types, but the ST data type is not used in OBX2. This format allows a facility to submit a simple message that is then transformed into a standard HL7 2.5.1 message.

Table 17.3: Use of string data type in OBX.5

String Type (ST)									
Seq	Len	DT	Usage	HL7 Element Name	IDPHDef	Hard Code	Hard Code Value	Example data	IDPH Comments
OBX.5	1..999	ST	R		Text only Result	No		Salmonella subspecies I:Rough:i:1,2	The ST data type is intended for short strings (e.g., less than 1000 characters). For longer strings the TX or FT data types should be used

DT – Date data type

The DT data type is used to provide date results in OBX.5. At present, this data type will only be used to report the onset date. All other dates are found in other segments of the HL7 message.

Table 17.4: Use of DT data type in OBX.5

String Type (ST)									
Seq	Len	DT	Usage	HL7 Element Name	IDPHDef	Hard Code	Hard Code Value	Example data	IDPH Comments
OBX.5	4..8	DT	R		Date result	No		20130206	Format: YYYY[MM[DD]] Used to report onset date.

Mapping Workbook:

A Mapping Workbook contains all the values set for use within an implementation. This has been completed by the PHINVADS team for the ELR 2.5.1 guide and is available at http://phinvads.cdc.gov/vads/ViewView.action?id=7F008CA6-33A9-DF11-9BDD-0015173D1785

The relevant values sets are found in the table below. The PHIN VADS Search column provides search guidance by providing both the search category and the search term to find the listed value set as [search category/search term]:

Table 19: HL7 table cross mapping to PHIN VADS tables

HL7 Table Name	PHIN VADS Search	PHIN VADS Table Name	Description
HL70301	All Vocabulary/ HL70301	PHVS_UniversalIdType_HL7_2x_V1	Universal ID Type
HL70076	N/A – hardcoded	[NOTE: Hardcoded value provided in this document above]	Message Code
HL70003	N/A – hardcoded	[NOTE: Hardcoded value provided in this document above]	Trigger Event
HL70354	N/A – hardcoded	[NOTE: Hardcoded value provided in this document above]	Message Structure
HL70103	All Vocabulary/ HL70103	PHVS_ProcessingID_HL7_2x_V1	Processing ID
HL70155	All Vocabulary/ HL70155	PHVS_AcceptApplicationAcknowledgmentConditions_HL7_V1	Accept Acknowledgment Type
HL70008	All Vocabulary/ HL70008	PHVS_AcknowledgmentCode_HL7_2x_V1	Application Acknowledgement Type
HL70203	All Vocabulary/ HL70203	PHVS_IdentifierType_CDC_V1	Identifier Type Code
HL70200	All Vocabulary/ HL70200	PHVS_NameType_HL7_2x_V1	Name Type Code
HL70360	All Vocabulary/ HL70360	PHVS_DegreeLicenseCertificate_HL7_2x_V1	Professional Suffix
HL70001	All Vocabulary/ HL70001	PHVS_AdministrativeSex_HL7_2x_V1	Administrative Sex
HL70005	All Vocabulary/Race	PHVS_RaceCategory_CDC_V1	Race
HL70190	All Vocabulary/ HL70190	PHVS_AddressType_HL7_2x_V1	Address Type
HL70201	All Vocabulary/ HL70201	PHVS_TelecommunicationUseCode_HL7_2x_V1	Telecommunication Use Code
HL70202	All Vocabulary/ HL70202	PHVS_TelecommunicationEquipmentType_HL7_2x_V1	Telecommunication Equipment Type
HL70189	Value Sets/Ethnicity	PHVS_EthnicityGroup_CDC_V1	Ethnicity Group
HL70136	All Vocabulary/ HL70136	PHVS_YesNo_HL7_2x_V1	Patient Death Indicator
HL70136	All Vocabulary/ HL70136	PHVS_YesNo_HL7_2x_V1	Identity Unknown Indicator

HL7 Table Name	PHIN VADS Search	PHIN VADS Table Name	Description
HL70063	All Vocabulary/ HL70063	PHVS_Relationship_HL7_2x_V1	Relationship
HL70105	All Vocabulary/Comment	PHVS_SourceOfComment_HL7_2x	Source of comment
HL70204	All Vocabulary/ HL70204	PHVS_TypeOfOrganizationalNameType_HL7_2x_V1	Organization Name Type Code
HL70119	All Vocabulary/ HL70119	PHVS_OrderControlCodes_HL7_2x_V1	Order Control
HL70038	All Vocabulary/ HL70038	PHVS_OrderStatus_HL7_2x_V1	Order Status
HL70123	All Vocabulary/ HL70123	PH_ResultStatus_HL7_2x_V1	Result Status
HL70369	All Vocabulary/ HL70369	PH_SpecimenRole_CDC_V1	Specimen Role
HL70490	All Vocabulary/ HL70490	PH_SpecimenRejectReason_HL7_2x_V1	Specimen Reject Reason
HL70493	All Vocabulary/ HL70493	PH_SpecimenCondition_CDC_V1	Specimen Condition
N/A- FIPS table	All Vocabulary/FIPS	PHVS_State_FIPS_5-2_V1	State Value Set
N/A- ISO Table	All Vocabulary/Country	PHVS_Country_ISO_3166-1_V1	Country Value Set
N/A- USPS Table	N/A	[NOTE: Use appropriate zip code from www.usps.com]	Postal Code Value Set
N/A- FIPS table	All Vocabulary/County	PHVS_County_FIPS_6-4_V1	County Value Set
N/A- ICD-9 table	All Vocabulary/ Diagnosis	PHVS_AdministrativeDiagnosis_CDC_ICD-9CM_V2	Reason For Study Value Set
HL70078	All Vocabulary/Abnormal Flag	PHVS_AbnormalFlag_HL7_27_V1	Abnormal Flags Value Set
N/A- CDC Table	All Vocabulary/ Observation Method	PHVS_LabTestMethods_CDC_V1	Observation Method Value Set
SNOMED Table or HL70487	All Vocabulary/ Specimen Type	PHVS_Specimen_CDC_V6 PHVS_SpecimenType_HL7_2x	Specimen Type Value Set
N/A- CDC Table	All Vocabulary/ Modifier	PHVS_ModifierOrQualifier_CDC_V5	Specimen Type Modifier Value Set
N/A- CDC Table	All Vocabulary/ Collection	PHVS_SpecimenCollectionMethod_CDC_V2	Specimen Collection Method Value Set
N/A- SNOMED Table	All Vocabulary/ Body Site	PHVS_BodySite_HITSP_V3	Specimen Source Site Value Set

LOINC and SNOMED Codes

LOINC codes are strongly recommended in OBR.4, Laboratory Order Code. For the use case, electronic test orders and results (ETOR), order codes are important data elements and developing a value set of order codes for public laboratories is still a work in progress.

LOINC codes are required for the resulted test codes in OBX.3, which is what IDPH will be looking at to identify the performed test as well as retrieving the condition name. These standard codes are filtered by the public health agency using tools such as the Reportable Condition Mapping Table (RCMT) to identify the reportable condition. A useful LOINC browser is available at http://search.loinc.org/ .
These codes are also identified for each condition and organism in the RCMT.
Link: https://phinvads.cdc.gov/vads/SearchHome.action

SNOMED concept codes should be used for results. Coded results are divided between "Ordinal" results which are basically presence ("positive") and absence("negative") findings, and "Nominal" results which include organism names. In general, for a test with Ordinal results only positive reportable lab results are sent to the local public health agency for ELR. Standard SNOMED codes for results are required in order to use a tool like RCMT to filter reportable results when the test is a generic code that does not identify the condition.
A useful SNOMED CT browser is available at http://vtsl.vetmed.vt.edu/. These codes are also identified for each condition and organism in the RCMT.
Link: https://phinvads.cdc.gov/vads/SearchHome.action

LOINC and SNOMED Encoding Guidance

See the following link to access a draft version of a document designed to provide guidance on selecting appropriate LOINC and SNOMED codes for the majority of reportable conditions. This document is not yet comprehensive in scope, but can be a useful tool when building a code set for reporting to public health.
Link: http://idph.iowa.gov/Portals/1/userfiles/113/Documents/LOINC%20and%20SNOMED%20Encoding%20Guidance.pdf

Preferred Specimen Type and Source terms SNOMED codes

For IDPH, SNOMED codes are required for Specimen type (SPM-4) and Specimen Source (body) Site (SPM-8). For IDPH, Specimen Site modifier, Specimen Source modifier, Collection Method, and Specimen Additives are optional and will not be considered, if included. For this implementation, the specimen is limited to human clinical samples and body sites. The Specimen Type field SPM.4 is required and should default to SNOMED CT Code 119324002, "Specimen of unknown material (specimen)", if the value is unknown or only a Source site is provided in SPM.8.

HL70487 to SNOMED-CT Specimen type cross mapping*

Refer to Appendix C, "HL70487 to SNOMED-CT Specimen type cross mapping table" for assistance in converting existing HL7 specimen terms to

SNOMED terms.

Preferred Standard Specimen Terms *

Refer to Appendix D for the preferred SNOMED terms. Note many Specimen term are mapped to both a Specimen type and a Specimen source site term.

The Specimen Type field is SPM.4 required and should default to 123038009^Specimen (specimen) if unknown or only a Source site is provided in SPM.8.

Specimen Source Sites* (SPM8)

Refer to Appendix E for the preferred SNOMED terms for SPM.8 Specimen Source site.

IDPH ELR Special Vocabulary for Epidemiologically Important Information

The elements in the following table have been identified as common core data elements that do not have a supported field in the *ELR251PH-IG* message. These data elements are cross-referenced below to the HL7 context in which the element would be expressed in the message. Please note that all of the Data Elements of Interest are included, although each site may opt **not** to send a particular data element that is not required.

Column definitions for Special Vocabulary Definition Table:

IDPH/ELR Variable ID: Data element code

Label Short name: for the data element that is passed in the message.
IDPH ELR Req/Opt: Indicates if the element is required. These values have been defined as follows:

- "Optional"- Nice to have- send it if you have it.
- "Conditional" - When the condition is met, the element becomes R, otherwise the element must be empty.
- "Send if you have it" – this is common core data element and need to send it if you have it. If empty, it will be assumed the data is not supplied or unknown.

May Repeat: Indicates whether the element can repeat (values: Y, N)
Data Type: Coded or Numeric
Value Set Name: Name of the pre-coordinated value set from which the response is drawn. The value sets and coding systems are accessible via the Public Health Information Network Vocabulary Access and Distribution Services at http://phinvads.cdc.gov/vads/SearchVocab.action
Message Context: Specific HL7 segment and field mapping for the element.
HL7 Data Type: HL7 data type.

HL7 Optionality: Indicates if the field is required, optional, or conditional in a segment. These Values have been defined for IDPH using following definitions. Note that these definitions deviate from standard HL7:

R – Required
RE – Required, empty, - Either "nice to have" but optional or must be able to support the data element and send it if you have it, See **IDPH ELR Req/Opt** optionality for further guidance.
C (a/b) Conditional: The usage code has an associated condition predicate true (See section 2.B.7.9, Condition Predicate in V2.7.1 Chapter 2B"). If the condition predicate associated with the element is true, follow the rules for a which may be one of R, RE or X: If the condition predicate associated with the element is false, follow the rules for b which may be one of R, RE or X. a and b SHALL be different and defined by the message profile.

HL7 Cardinality: indicates whether the element can repeat
IDPH/ELR Implementation Notes: Description of the data element and if needed, condition for reporting.

Table 20: Epidemiologically important information

Epidemiologically Important Information										
IDPH/ELR Variable ID	Label/Short Name	Data Type	Program Req/Opt	May Repeat	Value Set Name	HL7 Message Context	HL7 Data Type	HL7 Optionality	Cardinality	IDPH Implementation Notes
11368-8	Illness or injury onset date and time	DTM	Optional	N	-	OBX-3 for Order_Observation group for Epidemiologically Important Information. OBX-2=DTM OBX-3=11368-8^Illness or injury onset date and time^LN^^^^2.34 OBX-5 = YYYYMMDD[HH[MM[SS[.S[S[S[S]]]]]]]]+/-ZZZZ]	DTM	RE	[0..1]	For IDPH implementation this is an optional epi question

Epidemiologically Important Information										
IDPH/ELR Variable ID	Label/Short Name	Data Type	Program Req/Opt	May Repeat	Value Set Name	HL7 Message Context	HL7 Data Type	HL7 Optionality	Cardinality	IDPH Implementation Notes
11449-6	Pregnancy status	Coded	Send if you have it	N	SNOMED value Set: 261665006^Unknown 77386006^ Patient currently pregnant 60001007^Not pregnant	OBX-3 for Order_Observation group for Epidemiologically Important Information. OBX-2=CWE OBX-3=11449-6^Pregnancy status^LN^^^^2.34 OBX-5=SNOMEDCode^SNOMEDName^^SCT^^^^01/31/2011	CWE	RE	[0..1]	For IDPH implementation this element is a common core data element- Need to send it if you have it. () SNOMED value Set: 261665006^Unknown 77386006^ Patient currently pregnant 60001007^Not pregnant

How to implement additional epidemiologically important information

Additional epidemiologically important information must be transmitted in a separate OBX segment linked to the OBX result segment using the Sub-ID. The separate OBX segment should use one of the LOINC codes provided in Table 20 above. If there are multiple OBR segments associated with the same person in a single message, additional epidemiologically important information should be provided as a separate OBX segment associated with each OBR.

Example:

….

```
OBR|1||1021^IA PHIMS Stage^2.16.840.1.114222.4.3.3.5.1.2^ISO|49521-8^FLUAV H1 RNA XXX Ql
PCR^LN^^^^2.33^^Influenza A subtype H1|||20120621||||||||^TAKACS
ELIZABETH^^^^^^^^L||||||201206291150|||C
OBX|1|CWE|49521-8^FLUAV H1 RNA XXX Ql
PCR^LN^^^^2.33^^result|1|42425007^Equivocal^SCT^^^^20090731^^Equivocal|||A^Abnormal^HL70078^^^^2.5
.1|||C|||20120621|||^^^^^^^^Polymerase chain reaction||201206291150||||State Hygienic
Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^FI^^^16D0648109|State Hygienic Laboratory^UI
Research Park - Coralville^Iowa City^IA^52242-5002^USA^B^^19103|^Atchison^Christopher^^^^^^^L
OBX|2|DT|11368-8^Illness or injury onset date and time^LN^^^^2.33^^Date of Symptom
Onset|1|20120612||||||C|||20120621|||^^^^^^^^Polymerase chain reaction||201206291150||||State
Hygienic Laboratory^L^^^^CLIA&2.16.840.1.113883.4.7&ISO^FI^^^16D0648109|State Hygienic
Laboratory^UI Research Park - Coralville^Iowa City^IA^52242-
5002^USA^B^^19103|^Atchison^Christopher^^^^^^^L
```

IDPH Implementation Conventions

For the CWE data type always assign the first triplet to the standard and the second triplet to the local code

Exception: when no standard code for results in OBX.5. - see section:" How to report coded data when no Standard term exists:" below.

When reporting quantitative (numeric) results, use the SN - Structured Numeric data type instead of the NM – Numeric data type.

See examples in OBX.5 section above 18 -> ^18

When no appropriate field exists for a data element, the information will be transmitted using an extra Observation Segment (OBR)

See examples of the in the program-specific vocabulary section.

NTE segments are for notes and comments only

Results are reported in OBX.5.Report one Patient Result Group per message.

(See comments for Patient Results Group in message structure section below)

Use the HL7 standard approach for escaping reserved characters in the message

Some standard LOINC and local text description may contain reserved characters. Use the following escape sequences when populating ST – string, TX – text, or FT – Formatted text field:

Escape character for special characters from HL7 standard:

Escape character that should be used	Do not use the following in populating ST, TX, or FT fields
\F\	field separator "|"
\S\	component separator "^"
\T\	subcomponent separator "&"
\R\	repetition separator "~"
\E\	escape character "\"

Example:

Original description:

```
OBX||53947-8^Escherichia coli SXT gene+H7 gene [Identifier] in Unspecified specimen by Probe
& target amplification method…
```

Corrected description:

```
OBX||53947-8^Escherichia coli SXT gene+H7 gene [Identifier] in Unspecified specimen by Probe
\T\ target amplification method…
```

Presence and Absence finding terms are interpreted the same way by the receiver (20110502)

Therefore, *Detected, Reactive and Positive* are all considered equivalent presence findings from the standpoint of the receiver (IDPH). Similarly *Not Detected, Negative and Not Reactive* are all considered equivalent absence findings from the standpoint of the receiver. Further, the usage of these terms is often dictated by FDA approved package inserts for laboratory tests. An independent effort is underway to harmonize this terminology among the laboratory community.

Where test package insert is not prescriptive, adopt of PHLIP Definitions for the following concepts: (20110502)

Equivocal:
The test result was equivocal, with the result falling between the positive and negative cut off values of this test. This result is considered borderline and should be interpreted with consideration to clinical and epidemiologic criteria.

Inconclusive or indeterminate:
These terms should be use for situations where you cannot draw a conclusion from the test.

Indeterminate:
Use when quality control is good, but the result cannot be obtained due to inhibition of the reagent, cross-reaction, or the result is atypical (where further testing cannot resolve the issue one way or another), and the test is of a quantitative nature.

Inconclusive:
Use when quality control is OK, but the result cannot be obtained due to inhibition of reagent by sample and the test is of a qualitative nature.

Use "Inconclusive" for FLU PCR and FLU DFA.

Intermediate:
In SNOMED CT this belongs under the parent of "ranked findings".

The term 'Unsatisfactory' is not truly a result and every effort should be made to communicate the related situations in the appropriate segment of the message.

Unsatisfactory:
QA event, not tested, lab accident, insufficient quantity, test not performed etc.

Other efforts use the term "Test not done" as the allowed result value (OBX.5), though this is not truly a result and therefore should not be communicated as a result.

The concept" Specimen unsatisfactory for evaluation" should not be used as a result (OBX.5), but rather communicated in SPM segment with a specimen rejection code.

SPM segment source of truth for Specimen not LOINC system component – Therefore whenever possible Use "XXX" (generic) for system when selecting LOINCs

Specimen source is a required data element and the primary location is SPM.4 with the other SPM fields providing additional detail and context to specimen. Therefore, IDPH will always obtain the specimen from SPM.4 regardless of whether or not the LOINC code used in OBX.3 provides specimen information. This supports the consistent use of "XXX" LOINC codes to make mapping local to standard easier. IDPH will not consider specimen information expressed in the LOINC code found in OBX.3.

Serum vs. Plasma (From the LOINC Manual p24):

"For many types of tests, the distinction between plasma and serum is irrelevant. When testing on serum or plasma is clinically equivalent, the system should be recorded as Ser/Plas. Sometimes the test can only be run on either plasma or serum; the component will then be associated with either Ser or Plas in one observation. If the test can be run on either but the results are different and standardized (a very rare circumstance), two separate tests will be defined in our file, one with a system Plas and one with a system Ser. **The current LOINC database includes some Ser tests and some Plas tests that should really be Ser/Plas**. As we determine that a Ser or Plas test really should have been designated Ser/Plas, we will change the designation."

Exception For clinical specimen (e.g. Stool) vs. isolates (reference culture)

If separate workflows exist for clinical specimens vs. reference cultures, then it is OK to use LOINC with system = "ISLT" and system ="XXX" for the clinical specimens. Even in this situation, the specimen can be fully described in the SPM Segment. The point is that the original clinical specimen is fully described in the SPM segment regardless of whether the actual tested specimen is a clinical specimen or an isolate.

Decision is to be able to support at least to Specimen Type (SPM.4) and Source site (SPM.8) as starting point.

Other fields may be required in future to fully describe specimens, collection method and additives. (Outside of ELR – environmental samples)

Culture = Isolation and Identification (20110315)

Background:

Traditionally, the original "culture" order sent by the ordering provider is used to request both the isolation and the identification of any or all agents in the specimen. That custom can be hard to change. Technically, a culture procedure alone will not identify the virus, bacteria or fungus. Therefore, a true result of a culture procedure would only be growth, no growth, description of the colonies or changes in the cell culture and may be a colony count. Sometimes, the growth characteristics and morphology observed could point to the most likely organism, but any identification from culture alone should be considered presumptive or very coarsely granular (e.g. beta-hemolytic staph).

All labs have confirmatory tests that are performed on the isolates from the culture to identify the organism, be they antigen detection, biochemical characteristics, motility, nucleic acid detection, etc. Often the labs do not report the results of these additional tests individually, but report the final identification as the result for the culture test, because that is what the customer expects. The term culture therefore is used in current lab lingo to describe a battery of tests that start with the Isolation and proceed to the Identification of the isolated organism. For IDPH we reflect that by equating culture with isolation and Identification.

For reporting culture results there is organism specific and generic LOINC approach.

"**Organism specific cultures" LOINC codes**:

Example: `6317-2^Bordetella sp identified in Unspecified specimen by Organism specific culture`

These codes exist for most of the reportable conditions. The method "Organism Specific Culture" does not mean the test must use a selective culture for the organism of interest; rather it is "LOINC speak" as a way to identify what you are looking for. (In other words it is used when the lab performs a culture and identification to rule out one particular organism in the specimen, even if other organisms could grow under the same conditions from this sample.) More importantly, for ELR these LOINC codes can be linked to a reportable condition via the RCMT tables. Organism specific cultures can be either "Ordinal" to report the presence or absence of a specific individual organism (positive/negative /indeterminate) , or "Nominal" to report the presence, and/or identification of a member of a genus (e.g. *Shigella dysenteriae or Shigella sonnei*) and the concept " Not Isolated" is used for absence of an organism. In no circumstance is it correct to report an organism not specifically named in the LOINC component as a result of an organism specific culture. If the reported result is "Positive", "Negative", "Indeterminate", etc., the LOINC must be condition-specific so that the reportable condition can be determined by IDPH.

Example:

```
OBX||10851-4^Escherichia coli O157:H7 [Presence] in Stool by Organism specific culture
||2603737001^Detected..
```

Or

```
OBX||6317-2^Bordetella sp identified in Unspecified specimen by Organism specific
culture…||5247005^Bordetella pertussis…
```

For negative findings

```
OBX||6317-2^Bordetella sp identified in Unspecified specimen by Organism specific
culture…||264887000^Not Isolated…
```

Generic culture LOINC codes:

Example: 11475-1^Microorganism identified in Unspecified specimen by Culture

These codes can be used for any agent. The results will always be a Nominal result (i.e. name of an organism). In SNOMED the result as organism implies a finding of organism. More importantly, the SNOMED code can be linked to a reportable condition via the RCMT table. There is currently no satisfactory way to express the concept of a negative finding for an organism using a generic culture LOINC, although several options have been proposed.
Example:

```
OBX||11475-1^Microorganism identified in Unspecified specimen by Culture
…||5247005^Bordetella pertussis…
```

Reporting negative findings:

This is not a use case for ELR, but for reporting to clinical partners using the ELR 2.5.1 message – i.e. ETOR.

Currently there are 4 negative finding concepts in SNOMED under the “Sample no bacteria isolated” hierarchy, but it is unlikely more concepts will be added. If there is no SNOMED CT code available to appropriately populate OBX5, use the code that IDPH provides for the result to identify the reportable condition. This will be based on the CDC National Notifiable Disease (NND) code list and will always begin with a 5-digit number (example: 11000-1 for Salmonella monophasic).

Reporting co-infections:

Use 2 separate OBX segments instead of a combining in a single result, incrementing the Sub-ID field OBX.4.

Example:

OBX|1|CWE|625-4^Culture^LN…|1|Salmonella species|
OBX|2|CWE|625-4^Culture^LN…|2|Shigella species|

How to report coded data when no Standard term exists:

All fields except OBX.5:

If you have a local but not standard code then populate only the second triplet and leave the first triplet empty, and map the local code populating the second triplet to the IDPH standard code using the IDPH smartLab™ Provider Portal.
Example:

```
OBR|1|||^^^1234^GC RNA NAAT^L^^v unknown|||…
```

For coded results in OBX.5:

OBX.5 CWE data type requires the first and third element be populated (CWE.1= R, CWE.3=R) and the original text is RE- Required empty. For IDPH, map the local code to the second triplet and use the IDPH smartLab™ Provider Portal to map the local code to the corresponding IDPH code. Note: this is a deviation from the HL7 Implementation Guide.

Example:

```
OBX|1|CWE|20951-0^Salmonella sp serotype [Identifier] in Isolate by
Agglutination^…||^^^11000-2^Salmonella Subspecies I^L
```

How to update demographic changes

For updates to all changes whether they are changes related to patient demographics, specimen information, orders or test results:

1) Change ORC.1 to RE (Results) and OBR.25 to C (corrected)
2) Update PID.33 last update time and PID.34 last update facility if this field is being supported.
3) Resend the entire message or only corrected results with updated information.

How to report that results were referred -Reporting the sending of a sample for reference testing:

The following SNOMED result codes should be used:

414976005^Organism unidentified, referred to CDC (finding)
414977001^Organism unidentified, referred to reference laboratory for identification (finding)

Example:

```
OBX|1|ST|20951-0^Salmonella sp serotype [Identifier] in Isolate by Agglutination^LN...||
41497600^Organism unidentified, referred to CDC (finding)^SCT^123^Referred to CDC^L||...
NTE|1|L|Sending to CDC for further Characterization…
```

In these cases a NTE segment should follow the OBX which comments on the referral and the results should be partial until the referred results came back.

How to report tests that were referred - Reporting reference testing:

The Preferred method is to leave the first triplet (the LOINC code location) empty, provide the local code in the second triplet in both the OBR and OBX segments and put the reference lab information (e.g. CDC) in OBX fields 23-25, Performing Organization Name, Address, and Medical Director. This will trigger exception handling at IDPH.

For Example:

```
MSH|||...
...
```

```
ORC|||...
OBR|1|||NNNN_N^my locally LOINC test^....
OBX|1|||NNNN-N^my locally LOINC test^...||414976005^Organism unidentified, referred to CDC
(finding)
...
OBR|2|||NNNN-N^Reference lab test panel^LN^....
OBX|1||||NNNN_-N^Reference lab test results^LN...||Referred test results here|....|CDC lab
division here in OBX23|CDC Lab address here|CDC Division Lab Director here
...
```

A note about Acknowledgements from IDPH

There is a known issue in Orion Rhapsody that deviates from the expected HL7 2.5.1 standard related to the Greenwich Mean Time (GMT) offset. This field defines the source time zone by the international offset from Greenwich Mean Time (GMT). For example, in the central standard time (CT) zone the offset is UTC -0600 indicating that the CT zone is 6 hours behind GMT at all times. From Orion Rhapsody, the value in this field is automatically generated as '20111219104427-0600000':

Year	=	2011
Month	=	12
Day	=	19
Hours	=	10
Minutes	=	44
Seconds	=	27
Millis	=	-06
GmtOffset	=	00000

There should be a Millis value and the GmtOffset should = a value of '(+/-)0600' rather than the value listed above, '-0600000'.

Granularity for date and time:

From HL7 ERL2PHL Errata under "Technical Guidance and Clarification" (link: http://www.hl7.org/documentcenter/public_temp_52BA4AA8-1C23-BA17-0CDF9A94C19424CC/standards/v2/ERRATA_V251_IG_LB_LABRPTPH_R1_2011OCT.pdf):

“Unless otherwise specified, it is recommended that the granularity for the representation of date and time using the date/time DTM) data type be minutes, with seconds and milliseconds optional. As mentioned in the Guide, “It is strongly recommended that the time zone offset always be included in the DTM particularly if the granularity includes hours, minutes, seconds, etc.":

YYYYMMDDHHMM[SS.SSS]+/-ZZZZ.

Specifically for MSH.7: The minimum granularity to the second is required as well as the time zone offset

Appendix A: Sample message with storyboard:

1) Salmonella Reference Culture

Storyboard: Provider Dr. Pepper at Iowa General examines a 32 year old, Asian female, Ms. Jessica Scarlett with a complaint of stomach cramps and diarrhea. Based on history and clinical signs, Dr. Pepper orders a Salmonella culture test. Iowa General Hospital's clinical lab sends a stool specimen to the State Hygienic Laboratory, Iowa's public health laboratory, which performs a Salmonella culture test. The specimen tests positive for Salmonella and Campylobacter, but negative for Shigella. This result triggers this Reportable Laboratory Result (RLR) message to the Iowa Department of Public Health.

```
MSH|^~\&|IA PHIMS Stage^2.16.840.1.114222.4.3.3.5.1.2^ISO|IA Public Health
Lab^2.16.840.1.114222.4.1.10411^ISO|IA.DOH.IDSS^2.16.840.1.114222.4.3.3.19^ISO|IA
DOH^2.16.840.1.114222.4.1.3650^ISO|201107092300||ORU^R01^ORU_R01|P518T1310270400|T|2.5.1|||AL|ER|U
SA||||PHLabReport-Ack^^2.16.840.1.114222.4.10.3^ISO

SFT|Orion Health^L|2.4.3.52854|Rhapsody|2.4.3.52854||20070725111624

PID|1||110^^^IA PHIMS Stage&2.16.840.1.114222.4.3.3.5.1.2&ISO^PI^IA Public Health
Lab&2.16.840.1.114222.4.1.10411&ISO||Scarlett^Jessica^^^^^L||19830101|M||2106-
3^White^CDCREC^^^^04/24/2007~2076-8^Native Hawaiian or Other Pacific
Islander^CDCREC^^^^04/24/2007||||||U^Unknown^HL70002^^^^2.5.1||||||H^Hispanic or
Latino^HL70189^^^^2.5.1

ORC|RE||872^IA PHIMS Stage^2.16.840.1.114222.4.3.3.5.1.2^ISO||CM|||||||^Dr.
Pepper^^^^^^^^L|||||||||IOWA GENERAL HOSPITAL^L|321 E 12TH^^DES MOINES^IA^50319-
1002^USA^B|^WPN^PH^^1^515^7252212

OBR|1||872^IA PHIMS Stage^2.16.840.1.114222.4.3.3.5.1.2^ISO|625-4^Bacteria identified in Stool by
Culture^LN^^^^2.33|||20110701|||||||||^DR. PEPPER^^^^^^^^L||||||201107081649|||P

NTE|1|L|Enteric culture includes testing for Salmonella, Shigella, Campylobacter, Yersinia, E.coli
O157:H7 \T\ other STECs, and Aeromonas|RE^Remark^HL70364^^^^2.5.1
```

```
OBX|1|CWE|625-4^Bacteria identified in Stool by Culture^LN^625-4-ENT-RSLT1^Result 1^L^2.33^v
unknown^Result 1|1|372342007^Salmonella species^SCT^^^^20090731^^Salmonella
species|||A^Abnormal^HL70078^^^^2.5.1|||P|||20110701|||^^^^^^^^Bacterial
Culture||201107081649||||State Hygienic Laboratory^L^^^^IA Public Health
Lab&2.16.840.1.114222.4.1.10411&ISO^FI^^^16D0648109|State Hygienic Laboratory^UI Research Park -
Coralville^Iowa City^IA^52242-5002^USA^B^^19103|^Atchison^Christopher^^^^^^^L

OBX|2|CWE|625-4^Bacteria identified in Stool by Culture^LN^625-4-ENT-RSLT2^Result 2^L^2.33^v
unknown^Result 2|2|116457002^Campylobacter species^SCT^^^^20090731^^Campylobacter
species|||A^Abnormal^HL70078^^^^2.5.1|||P|||20110701|||^^^^^^^^Bacterial
Culture||201107081649||||State Hygienic Laboratory^L^^^^IA Public Health
Lab&2.16.840.1.114222.4.1.10411&ISO^FI^^^16D0648109|State Hygienic Laboratory^UI Research Park -
Coralville^Iowa City^IA^52242-5002^USA^B^^19103|^Atchison^Christopher^^^^^^^L

OBX|3|CWE|625-4^Bacteria identified in Stool by Culture^LN^625-4-ENT-RSLT3^Result 3^L^2.33^v
unknown^Result 3|3| 394868004^ Shigella species not isolated (finding)^SCT^^^^20090731^^ Shigella
species not isolated (finding)|||A^Abnormal^HL70078^^^^2.5.1|||P|||20110701|||^^^^^^^^Bacterial
Culture||201107081649||||State Hygienic Laboratory^L^^^^IA Public Health
Lab&2.16.840.1.114222.4.1.10411&ISO^FI^^^16D0648109|State Hygienic Laboratory^UI Research Park -
Coralville^Iowa City^IA^52242-5002^USA^B^^19103|^Atchison^Christopher^^^^^^^L

SPM|1|^2011000404&IA PHIMS Stage&2.16.840.1.114222.4.3.3.5.1.2&ISO||119339001^Stool
specimen(specimen)^SCT^SL^Stool^L^20090731^v
unknown|||||||P^Patient^HL70369^^^^2.5.1||||||20110701|201107081540
```

Appendix B: HL70487 to SNOMED-CT Specimen type cross mapping table

The HL70487 to SNOMED-CT Specimen type cross mapping table below allows for a mechanism to translate the HL7 table 0487 specimen codes to one or more SNOMED codes used in the various SPM segment fields available in the HL7 message. This table is still being refined and several terms have been submitted to SNOMED. Row highlighted in Yellow have not been mapped, but they are mostly environmental specimens and out of scope for ELR reporting. Furthermore, many of the HL70487 terms are ambiguous and ill-suited as specimen type concepts. It is unlikely they would ever be used for ELR reporting. More information about the development of this table the harmonization of the Specimen terminology can be found at the following link: **http://tinyurl.com/SpecimenCrossMappingTable**.

Table 1: Specimen cross-mapping table

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
ABS	Abscess	119371008	Specimen from abscess (specimen)						
PELVA	Abscess, Pelvic	119371008	Specimen from abscess (specimen)					12921003	Pelvic structure (body structure)
PERIA	Abscess, Perianal	119371008	Specimen from abscess (specimen)					397158004	Perianal region structure (body structure)
RECTA	Abscess, Rectal	119371008	Specimen from abscess (specimen)					34402009	Rectum structure (body structure)
SCROA	Abscess, Scrotal	119371008	Specimen from abscess (specimen)					20233005	Scrotal structure (body structure)
SUBMA	Abscess, Submandibular	119371008	Specimen from abscess (specimen)					5713008	Submandibular triangle structure (body structure)
SUBMX	Abscess, Submaxillary	119371008	Specimen from abscess (specimen)					4335006	Upper jaw region structure (body structure)

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
TSTES	Abscess, Testicular	119371008	Specimen from abscess (specimen)					279572002	Testicular structure (body structure)
AIRS	Air Sample	446302006	Air sample (specimen)						
ALL	Allograft	119376003	Tissue specimen (specimen)					-	-
AMP	Amputation	408654003	Specimen obtained by amputation (specimen)						
GASAN	Antrum, Gastric	119379005	Specimen from stomach (specimen)					66051006	Pyloric antrum structure (body structure)
ASP	Aspirate	119295008	Specimen obtained by aspiration (specimen)						
ETA	Aspirate, Endotracheal	119307008	Specimen from endotracheal tube (specimen)						
GASA	Aspirate, Gastric	168137004	Gastric aspirate sample (specimen)					69695003	Stomach structure (body structure)
NGASP	Aspirate, Nasogastric	302794003	Nasogastric aspirate (specimen)					69695003	Stomach structure (body structure)
TASP	Aspirate, Tracheal	122877000	Upper respiratory fluid specimen obtained by tracheal aspiration (specimen					44567001	Tracheal structure (body structure)
TTRA	Aspirate, Transtracheal	258480001	Transtracheal aspirate sample (specimen)						
AUTP	Autopsy	119376003	Tissue specimen (specimen)	303113008	Postmortem period (qualifier value)				

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
BX	Biopsy	258415003	Biopsy sample (specimen)						
GSPEC	Biopsy, Gastric	309211008	Gastric biopsy sample (specimen)						
SKBP	Biopsy, Skin	309066003	Skin biopsy sample (specimen)						
CONE	Biopsy, Cone	399713008	Specimen from uterine cervix obtained by cone biopsy (specimen)						
BITE	Bite	119365002	Specimen from wound (specimen)	-	-				
CBITE	Bite, Cat	119365002	Specimen from wound (specimen)						
DBITE	Bite, Dog	119365002	Specimen from wound (specimen)	-	-				
HBITE	Bite, Human	119365002	Specimen from wound (specimen)	-	-				
IBITE	Bite, Insect	119365002	Specimen from wound (specimen)	-	-				
RBITE	Bite, Reptile	119365002	Specimen from wound (specimen)						
BLEB	Bleb	258482009	Vesicle fluid sample (specimen)	-	-				
BLIST	Blister	258482009	Vesicle fluid sample (specimen)	-	-				
BBL	Blood bag	119304001	Blood bag specimen (specimen)						
BPU	Blood product unit	119300005	Specimen from blood product (specimen)						
HBLUD	Blood, Autopsy	119297000	Blood specimen (specimen)	303113008	Postmortem period (qualifier value)	-	-		
CSVR	Blood, Cell Saver	TBD							

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
FBLOOD	Blood, Fetal	119297000	Blood specimen (specimen)	303112003	Fetal period (qualifier value)				
MBLD	Blood, Menstrual	119345009	Menstrual blood specimen (specimen)						
WB	Blood, Whole	258580003	Whole blood sample (specimen)						
BOIL	Boil	309068002	Skin lesion sample						
BON	Bone	430268003	Specimen from bone (specimen)						
BOWL	Bowel contents	61268003	Gastrointestinal content (specimen)						
BRTH	Breath (use EXHLD)	119336008	Exhaled air specimen (specimen)						
BRSH	Brush	258415003	Biopsy sample (specimen)			439336003	Brush biopsy (procedure)		
EBRUSH	Brush, Esophageal	309210009	Esophageal brushings sample (specimen)						
BRUS	Brushing	309176002	Bronchial brushings sample (specimen)						
GASBR	Brushing, Gastric	309213006	Gastric brushings sample (specimen)						
BUB	Bubo	302795002	Lymph node aspirate (specimen)	-	-				
BULLA	Bulla/Bullae	258482009	Vesicle fluid sample (specimen)	-	-				
BRN	Burn	119367005	Specimen from burn injury (specimen)						
CALC	Calculus (=Stone)	119350003	Calculus specimen (specimen)						
CARBU	Carbuncle	309068002	Skin lesion sample	-	-				

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
CAT	Catheter	119311002	Catheter specimen (specimen)						
CSITE	Catheter Insertion Site	258507003	Swab of line insertion site (specimen)						
CTP	Catheter tip	119312009	Catheter tip specimen (specimen)						
ANGI	Catheter Tip, Angio	119312009	Catheter tip specimen (specimen)						
ARTC	Catheter Tip, Arterial	119312009	Catheter tip specimen (specimen)	263954005	Arterial (qualifier value)				
CVPT	Catheter Tip, CVP	119312009	Catheter tip specimen (specimen)						
ETTP	Catheter Tip, Endotracheal	119312009	Catheter tip specimen (specimen)						
FOLEY	Catheter Tip, Foley	119312009	Catheter tip specimen (specimen)						
HEMA Q	Catheter Tip, Hemacrit	119312009	Catheter tip specimen (specimen)						
HEMO	Catheter Tip, Hemovac	119312009	Catheter tip specimen (specimen)						
IDC	Catheter Tip, Indwelling	119312009	Catheter tip specimen (specimen)						

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
INTRD	Catheter Tip, Introducer	119312009	Catheter tip specimen (specimen)						
IVCAT	Catheter Tip, IV	119312009	Catheter tip specimen (specimen)	255560000	Intravenous (qualifier value)				
MAHUR	Catheter Tip, Makurkour	119312009	Catheter tip specimen (specimen)						
SCLV	Catheter Tip, Subclavian	119312009	Catheter tip specimen (specimen)						
SPRP	Catheter Tip, Suprapubic	119312009	Catheter tip specimen (specimen)						
SWGZ	Catheter Tip, Swan Gantz	119312009	Catheter tip specimen (specimen)						
VASTIP	Catheter Tip, Vas	119312009	Catheter tip specimen (specimen)						
VENT	Catheter Tip, Ventricular	119312009	Catheter tip specimen (specimen)						
GROSH	Catheter, Groshong	119311002	Catheter specimen (specimen)						
HIC	Catheter, Hickman	119311002	Catheter specimen (specimen)						
PORTA	Catheter, Porta	119311002	Catheter specimen (specimen)						
SPRPB	Cathether Tip, Suprapubic	119312009	Catheter tip specimen (specimen)						

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
TLC	Cathether Tip, Triple Lumen	119312009	Catheter tip specimen (specimen)						
CLIPP	Clippings	119327009	Nail specimen (specimen)						
COL	Colostrum	119329007	Colostrum specimen (specimen)						
CNJT	Conjunctiva	119401005	Specimen from conjunctiva (specimen)						
CNJT	Conjunctiva	258498002	Conjunctival swab (specimen)						
CNJT	Conjunctiva	128160006	Tissue specimen from conjunctiva (specimen)						
LENS1	Contact Lens	440473005	Contact lens submitted as specimen (specimen)						
LENS2	Contact Lens Case	TBD							
CYST	Cyst	119368000	Specimen from cyst (specimen)						
BCYST	Cyst, Baker's	submitted for code						32361000	Popliteal fossa structure (body structure)
ICYST	Cyst, Inclusion	309075001	Skin cyst sample (specimen)						
PILOC	Cyst, Pilonidal	119368000	Specimen from cyst (specimen)	-	-				
RENAL C	Cyst, Renal	258420003	Cyst tissue (specimen)					64033007	Kidney structure (body structure)

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
DIA	Dialysate	119360007	Dialysis fluid specimen (specimen)						
DISCHG	Discharge	258439008	Discharge specimen (specimen)						
DIV	Diverticulum	119376003	Tissue specimen (specimen)	-	-				
DRN	Drain	119306004	Drain device specimen (specimen)						
HEV	Drain, Hemovac	119306004	Drain device specimen (specimen)						
GTUBE	Drainage Tube, Drainage (Gastrostomy)	258455001	Drainage fluid sample (specimen)	127490009	Gastrostomy route (qualifier value)				
GASD	Drainage, Gastric	258455001	Drainage fluid sample (specimen)					69695003	Stomach structure (body structure)
ILEO	Drainage, Ileostomy	258455001	Drainage fluid sample (specimen)	419954003	Ileostomy route (qualifier value)				
JP	Drainage, Jackson Pratt	258455001	Drainage fluid sample (specimen)						
JEJU	Drainage, Jejunal	258455001	Drainage fluid sample (specimen)			122462000	Drainage procedure (procedure)	21306003	Jejunal structure (body structure)
NASDR	Drainage, Nasal	258455001	Drainage fluid sample (specimen)			122462000	Drainage procedure (procedure)	2095001	Nasal sinus structure (body structure)
NGAST	Drainage, Nasogastric	302794003	Nasogastric aspirate (specimen)						
PND	Drainage, Penile	258455001	Drainage fluid sample (specimen)					18911002	Penile structure (body structure)
DRNGP	Drainage, Penrose	446211008	Drainage fluid specimen obtained after surgical						

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
			placement of drain (specimen)						
RECT	Drainage, Rectal	258455001	Drainage fluid sample (specimen)					34402009	Rectum structure (body structure)
SUMP	Drainage, Sump	446562005	Body fluid specimen obtained via sump drain (specimen)						
DRNG	Drainage, Tube	258455001	Drainage fluid sample (specimen)						
EARW	Ear wax (cerumen)	122580007	Cerumen specimen (specimen)						
EFFUS	Effusion	258440005	Effusion sample (specimen)						
ELT	Electrode	119314005	Electrode specimen (specimen)						
ATTE	Environmental, Autoclave Ampule	TBD							
AUTOC	Environmental, Autoclave Capsule	TBD							
EFF	Environmental, Effluent	TBD							
EEYE	Environmental, Eye Wash	TBD							
EFOD	Environmental, Food	119320006	Food specimen (specimen)						
EISO	Environmental, Isolette	258536003	Incubator swab (specimen)						
EOTH	Environmental, Other Substance	TBD							
ESOI	Environmental, Soil	TBD							
ESOS	Environmental, Solution (Sterile)	TBD							

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
SPS	Environmental, Spore Strip	TBD							
STER	Environmental, Sterrad	TBD							
ENVIR	Environmental, Unidentified Substance	119324002	Specimen of unknown material (specimen)						
WWA	Environmental, Water	119318008	Water specimen (specimen)						
DEION	Environmental, Water (Deionized)	TBD							
WWT	Environmental, Water (Tap)	TBD							
FAW	Environmental, Water (Well)	TBD							
WWO	Environmental, Water (Ocean)	TBD							
EWHI	Environmental, Whirlpool	TBD							
EXUDTE	Exudate	258441009	Exudate sample (specimen)						
FLT	Filter	TBD							
FIST	Fistula	119370009	Specimen from fistula (specimen)						
FLUID	Fluid	258442002	Fluid sample (specimen)						
FGA	Fluid, Abdomen	168139001	Peritoneal fluid sample (specimen)						
CSMY	Fluid, Cystostomy Tube	309051001	Body fluid sample (specimen)						
ACNFLD	Fluid, Acne	309051001	Body fluid sample (specimen)					-	-

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
FLU	Fluid, Body unsp	309051001	Body fluid sample (specimen)						
CST	Fluid, Cyst	258453008	Cyst fluid sample (specimen)						
HYDC	Fluid, Hydrocele	309051001	Body fluid sample (specimen)					-	-
IVFLD	Fluid, IV	258649003	Intravenous infusion fluid sample (specimen)						
JNTFLD	Fluid, Joint	119332005	Synovial fluid specimen (specimen)						
KIDFLD	Fluid, Kidney	309051001	Body fluid sample (specimen)					64033007	Kidney structure (body structure)
LSAC	Fluid, Lumbar Sac	309051001	Body fluid sample (specimen)					303949008	Lumbar spinal cerebrospinal fluid pathway (body structure)
FLD	Fluid, Other	309051001	Body fluid sample (specimen)						
PCFL	Fluid, Pericardial	122571007	Pericardial fluid specimen (specimen)						
RENC	Fluid, Renal Cyst	258453008	Cyst fluid sample (specimen)					64033007	Kidney structure (body structure)
FRS	Fluid, Respiratory	258442002	Fluid sample (specimen)					272626006	Respiratory organ (body structure)
SHUNF	Fluid, Shunt	446861007	Cerebrospinal fluid specimen obtained via ventriculoperitoneal shunt (specimen)						

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
SNV	Fluid, synovial (Joint fluid)	119332005	Synovial fluid specimen (specimen)						
GAST	Fluid/contents, Gastric	258459007	Gastric fluid sample (specimen)						
FUR	Furuncle	309068002	Skin lesion sample	-	-				
GAS	Gas	119317003	Gaseous material specimen (specimen)						
EXG	Gas, exhaled (=breath)	119336008	Exhaled air specimen (specimen)						
IHG	Gas, Inhaled	119337004	Inhaled gas specimen (specimen)						
GENV	Genital vaginal	119394009	Specimen from vagina (specimen)						
GRAFT	Graft Site	440493002	Graft specimen from patient (specimen)						
POPGS	Graft Site, Popliteal	440493002	Graft specimen from patient (specimen)					6902008	Popliteal region structure (body structure)
POPLG	Graft, Popliteal	440493002	Graft specimen from patient (specimen)					6902008	Popliteal region structure (body structure)
GRANU	Granuloma	119376003	Tissue specimen (specimen)	-	-				
IMP	Implant	439961009	Implant submitted as specimen (specimen)						
INFIL	Infiltrate	pending							
INS	Insect	258614005	Insect sample (specimen)						

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
IUD	Intrauterine Device	pending							
IT	Intubation tube	119307008	Specimen from endotracheal tube (specimen)						
KELOI	Lavage	440674008	Specimen obtained by lavage (specimen)						
LAVG	Lavage, Bronchial	258607008	Bronchoalveolar lavage fluid sample (specimen)						
LAVGG	Lavage, Gastric	168138009	Gastric lavage aspirate sample (specimen)						
LAVGP	Lavage, Peritoneal	440137008	Specimen obtained by peritoneal lavage (specimen)						
LAVPG	Lavage, Pre-Bronch	440674008	Specimen obtained by lavage (specimen)					44567001	Tracheal structure (body structure)
LESN	Lesion	309049000	Lesion sample (specimen)						
ORL	Lesion, Oral	309049000	Lesion sample (specimen)					74262004	Oral cavity structure (body structure)
PENIL	Lesion, Penile	309049000	Lesion sample (specimen)					18911002	Penile structure (body structure)
LIQO	Liquid, Other	TBD							
LIQ	Liquid, Unspecified	258442002	Fluid sample (specimen)						
MASS	Mass	420548004	Specimen from mass lesion (specimen)						
SMM	Mass, Sub-Mandibular	420548004	Specimen from mass lesion (specimen)					submitted for code	submandibular space

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
MUCOS	Mucosa	119376003	Tissue specimen (specimen)					414781009	Mucous membrane structure (body structure)
MUCUS	Mucus	258483004	Mucus sample (specimen)						
NEDL	Needle	TBD							
NODUL	Nodule(s)	pending	Nodule tissue sample (specimen)						
CYN	Nodule, Cystic	119368000	Specimen from cyst (specimen)	-	-				
ORH	Other	123038009	Specimen						
PACEM	Pacemaker	TBD							
PLAN	Plant Material	119301009	Plant specimen (specimen)						
PLAS	Plasma	119361006	Plasma specimen (specimen)						
PLB	Plasma bag	119305000	Plasma bag specimen (specimen)						
PPP	Plasma, Platelet poor	119362004	Platelet poor plasma specimen (specimen)						
PRP	Plasma, Platelet rich	119363009	Platelet rich plasma specimen (specimen)						
POL	Polyps	420548004	Specimen from mass lesion (specimen)	-	-				
PROST	Prosthetic Device	438660002	Specimen from prosthetic device (specimen)						
PSC	Pseudocyst	119368000	Specimen from cyst (specimen)						

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
PUST	Pus	119323008	Pus specimen (specimen)						
PUS	Pus	119323008	Pus specimen (specimen)						
PUSFR	Pustule	309068002	Skin lesion sample (specimen)						
QC3	Quality Control	TBD							
RES	Respiratory	258603007	Respiratory sample (specimen)						
SAL	Saliva	119342007	Saliva specimen (specimen)						
FSCLP	Scalp, Fetal	309502007	Fetus specimen (specimen)					41695006	Scalp structure (body structure)
CSCR	Scratch, Cat	119365002	Specimen from wound (specimen)						
SECRE	Secretion(s)	432825001	Body secretion specimen (specimen)						
NSECR	Secretion, Nasal	168141000	Nasal fluid sample (specimen)						
SER	Serum	119364003	Serum specimen (specimen)						
ASERU	Serum, Acute	pending	Acute Serum (specimen)						
CSERU	Serum, Convalescent	pending	Convalescent Serum (specimen)						
PLEVS	Serum, Peak Level	119364003	Serum specimen (specimen)	255587001	Peak (qualifier value)				
TSERU	Serum, Trough	119364003	Serum specimen (specimen)	255588006	Trough (qualifier value)				
SHUNT	Shunt	TBD							
EXS	Shunt, External	TBD							
SITE	Site	TBD							

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
CVPS	Site, CVP	258507003	Swab of line insertion site (specimen)						
INCI	Site, Incision/Surgical	438660002	Wound swab (specimen)						
NGS	Site, Naso/Gastric	438660002	Wound swab (specimen)						
NEPH	Site, Nephrostomy	438660002	Wound swab (specimen)						
PIS	Site, Pacemaker Insertion	258507003	Swab of line insertion site (specimen)						
PDSIT	Site, Peritoneal Dialysis	438660002	Wound swab (specimen)						
PDTS	Site, Peritoneal Dialysis Tunnel	submitted for code	body fluid from insertion site	submitted for code	peritoneal dialysis Tunnel				
PINS	Site, Pin	438660002	Wound swab (specimen)						
POPLV	Site, Popliteal Vein	TBD							
SHU	Site, Shunt	438660002	Wound swab (specimen)						
TRAC	Site, Tracheostomy	438660002	Wound swab (specimen)						
SKN	Skin	119325001	Skin (tissue) specimen (specimen)						
TZANC	Smear, Tzanck	258433009	Smear sample (specimen)						
GSOL	Solution, Gastrostomy	TBD							
ILLEG	Source of Specimen Is Illegible	TBD							

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
OTH	Source, Other	123038009	Specimen						
UDENT	Source, Unidentified	123038009	Specimen						
USPEC	Source, Unspecified	123038009	Specimen						
SPRM	Spermatozoa	119349003	Spermatozoa specimen (specimen)						
SPT	Sputum	119334006	Sputum specimen (specimen)						
SPTC	Sputum - coughed	119335007	Coughed sputum specimen (specimen)						
SPTT	Sputum - tracheal aspirate	258609006	Sputum specimen obtained by aspiration from trachea (specimen)						
DCS	Sputum, Deep Cough	119335007	Coughed sputum specimen (specimen)						
SPUTIN	Sputum, Inducted	258610001	Sputum specimen obtained by sputum induction (specimen)						
SPUT1	Sputum, Simulated	TBD							
SPUTSP	Sputum, Spontaneous	119335007	Coughed sputum specimen (specimen)						
STONE	Stone, Kidney	119350003	Calculus specimen (specimen)					64033007	Kidney structure (body structure)
STL	Stool = Fecal	119339001	Stool specimen (specimen)						

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
SUP	Suprapubic Tap	122575003	Urine specimen (specimen)			58088002	Urine specimen collection, suprapubic (procedure)		
SUTUR	Suture	TBD							
TISS	Tissue	119376003	Tissue specimen (specimen)						
TISU	Tissue ulcer	122593002	Tissue specimen obtained from ulcer (specimen)						
ACNE	Tissue, Acne	309068002	Skin lesion sample						
HERNI	Tissue, Herniated	119376003	Tissue specimen (specimen)	-	-				
SCAR	Tissue, Keloid (Scar)	119376003	Tissue specimen (specimen)	-	-				
TRANS	Transudate	258538002	Transudate sample (specimen)						
ETTUB	Tube, Endotracheal	119307008	Specimen from endotracheal tube (specimen)						
GT	Tube, Gastric	TBD							
TUBES	Tubes	119310001	Tube specimen (specimen)						
IVTIP	Tubing Tip, IV	119311002	Catheter specimen (specimen)						
TUMOR	Tumor	258435002	Tumor tissue sample (specimen)						
DEC	Ulcer, Decubitus	258505006	Skin ulcer swab (specimen)	-	-				
UR	Urine	122575003	Urine specimen (specimen)						

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
URT	Urine catheter	122565001	Urinary catheter specimen (specimen)						
URC	Urine clean catch	122880004	Urine specimen obtained by clean catch procedure (specimen)						
URINB	Urine, Bladder Washings	122575003	Urine specimen (specimen)			78533007	Irrigation of urinary bladder (procedure)		
URINC	Urine, Catheterized	446846006	Urine specimen obtained via indwelling urinary catheter (specimen)						
USCOP	Urine, Cystoscopy	122575003	Urine specimen (specimen)			24139008	Endoscopy of urinary bladder (procedure)		
URINM	Urine, Midstream	122575003	Urine specimen (specimen)			225271002	Collection of mid-stream specimen of urine (procedure)		
URINN	Urine, Nephrostomy	122575003	Urine specimen (specimen)			225109005	Collection of nephrostomy urine specimen (procedure)		
URINP	Urine, Pedibag	TBD							
RANDU	Urine, Random	278020009	Spot urine sample (specimen)						
VITF	Vitreous Fluid	258438000	Vitreous humor sample (specimen)						
VOM	Vomitus	122572000	Vomitus specimen (specimen)						
WRT	Wart	309068002	Skin lesion sample	-	-				
WASH	Wash	440674008	Specimen obtained by lavage (specimen)						

HL70487 to SNOMED-CT Specimen type cross mapping table									
HL7 table 0487 Code	Hl7 table 0487 Description	SPM4.1 - Specimen Type SNOMED Code	SPM4.2 - Specimen Type SNOMED Fully Specified Name	SPM5.1 - Specimen Type Modifier SNOMED Code	SPM5.2 - Specimen Type Modifier SNOMED Fully Specified Name	SPM7.1 - Specimen Collection Method SNOMED Code	SPM7.2 - Specimen Collection Method SNOMED Fully Specified Name	SPM8.1 - Specimen Source Site SNOMED Code	SPM8.2 - Specimen Source Site SNOMED Fully Specified Name
WASI	Washing, e.g. bronchial washing	122609004	Specimen from lung obtained by bronchial washing procedure (specimen)						
WAT	Water	119318008	Water specimen (specimen)						
WEN	Wen	309075001	Skin cyst sample (specimen)						
WICK	Wick	TBD							
WORM	Worm	258618008	Helminth sample (specimen)						
WND	Wound	119365002	Specimen from wound (specimen)						
WNDA	Wound abscess	119366001	Specimen from wound abscess (specimen)						
WNDD	Wound drainage	122566000	Fluid specimen from wound (specimen)			122462000	Drainage procedure (procedure)		
WNDE	Wound exudate	122568004	Exudate specimen from wound (specimen)						
PUNCT	Wound, Puncture	119365002	Specimen from wound (specimen)	129300006	Puncture - action (qualifier value)				

Appendix C: Preferred Standardized Specimen Terms

Table 2: Preferred Standardized Specimen Terms

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Abscess	119371008	Specimen from abscess (specimen)		
Abscess_Liver	119371008	Specimen from abscess (specimen)	10200004	Liver structure (body structure)
Abscess_Neck	119371008	Specimen from abscess (specimen)	45048000	Neck structure (body structure)
Abscess_Pelvis	119371008	Specimen from abscess (specimen)	12921003	Pelvic structure (body structure)
Abscess_perianal	119371008	Specimen from abscess (specimen)	397158004	Perianal region structure (body structure)
Abscess_Rectum	119371008	Specimen from abscess (specimen)	34402009	Rectum structure (body structure)
Amniotic fluid	119373006	Amniotic fluid specimen (specimen)		
Aspirate	119295008	Specimen obtained by aspiration (specimen)		
Endotracheal aspirate	119307008	Specimen from endotracheal tube (specimen)		
Gastric aspirate	168137004	Gastric aspirate sample (specimen)		
Aspirate_knee_left	309051001	Body fluid sample (specimen)	72696002	Knee region structure (body structure)
Lymph node aspirate	302795002	Lymph node aspirate (specimen)		
Aspirate_Nasal	119295008	Specimen obtained by aspiration (specimen)	279549004	Nasal cavity structure (body structure)

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Tracheal Aspirate Fluid	122877000	Upper respiratory fluid specimen obtained by tracheal aspiration (specimen	44567001	Tracheal structure (body structure)
Transtracheal aspirate	258480001	Transtracheal aspirate sample (specimen)		
Bile	119341000	Bile specimen (specimen)		
Biopsy sample	258415003	Biopsy sample (specimen)		
Blood	119297000	Blood specimen (specimen)		
Capillary blood	122554006	Capillary blood specimen (specimen)		
Blood_arterial line1	122552005	Arterial blood specimen (specimen)		
cord blood	122556008	Cord blood specimen (specimen)		
umbilical blood	122556008	Cord blood specimen (specimen)		
Arterial blood	122552005	Arterial blood specimen (specimen)		
Blood film sample	303248007	Blood film sample (specimen)		
Venous blood	122555007	Venous blood specimen (specimen)		
Whole Blood	258580003	Whole blood sample (specimen)		
Body fluid	309051001	Body fluid sample (specimen)		
Bone marrow	119359002	Bone marrow specimen (specimen)		
Brain tissue	128157004	Tissue specimen from brain (specimen)		
Breast milk_human	119328004	Mother's milk specimen (specimen)		
Bronchial brushings	309176002	Bronchial brushings sample (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
BRONCHIAL washings	122609004	Specimen from lung obtained by bronchial washing procedure (specimen)		
Bronchoalveolar Lavage	258607008	Bronchoalveolar lavage fluid sample (specimen)		
Bronchoalveolar Lavage_lingula	258607008	Bronchoalveolar lavage fluid sample (specimen)	50837003	Structure of lingula of left lung (body structure)
Bronchoalveolar Lavage_LowerLobe_left	258607008	Bronchoalveolar lavage fluid sample (specimen)	90572001	Structure of lower lobe of lung (body structure)
Bronchoalveolar Lavage_LowerLobe_right	258607008	Bronchoalveolar lavage fluid sample (specimen)	90572001	Structure of lower lobe of lung (body structure)
Bronchoalveolar Lavage_MiddleLobe_right	258607008	Bronchoalveolar lavage fluid sample (specimen)	40020002	Structure of middle lobe of lung (body structure)
Bronchoalveolar Lavage_UpperLobe_left	258607008	Bronchoalveolar lavage fluid sample (specimen)	45653009	Structure of upper lobe of lung (body structure)
Bronchoalveolar Lavage_UpperLobe_right	258607008	Bronchoalveolar lavage fluid sample (specimen)	45653009	Structure of upper lobe of lung (body structure)
Burn injury	119367005	Specimen from burn injury (specimen)		
Calculus (stone)	119350003	Calculus specimen (specimen)		
Cartilage	309101008	Cartilage sample (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Cerebrospinal fluid (CSF)	258450006	Cerebrospinal fluid sample (specimen)		
Cervical mucus	122577006	Cervical mucus specimen (specimen)		
Cervical Swab	258524009	Cervical swab (specimen)		
Cyst fluid	258453008	Cyst fluid sample (specimen)		
Cytologic material	48469005	Cytologic material (specimen)		
Cytologic material_upper lobe bronchus_right2	110914008	Right upper lobe bronchus cytologic material (specimen)	11339004	Structure of bronchus of right upper lobe (body structure)
Discharge_Urethral	258439008	Discharge specimen (specimen)	13648007	Urethral structure (body structure)
Drainage fluid	258455001	Drainage fluid sample (specimen)		
Drainage fluid_non-sterile site (Discharge)	258455001	Drainage fluid sample (specimen)		
Dried blood spot	440500007	Blood spot specimen (specimen)		
Duodenal fluid	122574004	Duodenal fluid specimen (specimen)		
Ear sample	309165001	Ear sample (specimen)		
Endocardial specimen	119378002	Endocardial specimen (specimen)		
Endocervical cytologic material	110951002	Endocervical cytologic material (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Exhaled breath	119336008	Exhaled air specimen (specimen)		
Exudate from wound	122568004	Exudate specimen from wound (specimen)		
Eye Fluid	309128003	Eye fluid sample (specimen)		
Fecal fluid	258457009	Fecal fluid sample (specimen)		
Fistula	119370009	Specimen from fistula (specimen)		
Fluid	258442002	Fluid sample (specimen)		
Gastric fluid	258459007	Gastric fluid sample (specimen)		
Genital lochia	122579009	Genital lochia specimen (specimen)		
Hair	119326000	Hair specimen (specimen)		
Human tissue for identification	371783005	Human tissue for identification (specimen)		
Isolate	119303007	Microbial isolate specimen (specimen)		
Isolate_culture	119303007	Microbial isolate specimen (specimen)		
Lesion	309049000	Lesion sample (specimen)		
Lesion_Back	309049000	Lesion sample (specimen)	77568009	Back structure, excluding neck (body structure)
Lymphe node	258589002	Lymph node sample (specimen)		
Meconium	119340004	Meconium specimen (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Menstrual blood	119345009	Menstrual blood specimen (specimen)		
Mucus	258483004	Mucus sample (specimen)		
Mucus_Lung	258483004	Mucus sample (specimen)	39607008	Lung structure (body structure)
Nail	119327009	Nail specimen (specimen)		
Nasal Swab	110903005	Nasal cytologic material (specimen)	279549004	Nasal cavity structure (body structure)
Swab_Nasal	168141000	Nasal fluid sample (specimen)		
Nasal wash	258442002	Fluid sample (specimen)	279549004	Nasal cavity structure (body structure)
Nasopharyngeal aspirate	258411007	Nasopharyngeal aspirate (specimen)		
Nasopharyngeal swab	258500001	Nasopharyngeal swab (specimen)		
Nasopharyngeal wash	258467004	Nasopharyngeal washings (specimen)		
Oral cavity sample	309185002	Oral cavity sample (specimen)		
Oral fluid	441620008	Oral fluid specimen (specimen)		
Oral Mucosal Transudate	409876003	Oral mucosal transudate sample (specimen)		
Oropharyngeal aspirate	258412000	Oropharyngeal aspirate (specimen)		
Pancreatic fluid	119343002	Pancreatic fluid specimen (specimen)		
Pericardial Fluid	122571007	Pericardial fluid specimen (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Paracentesis fluid	168139001	Peritoneal fluid sample (specimen)		
Peritoneal fluid	168139001	Peritoneal fluid sample (specimen)		
Plasma	119361006	Plasma specimen (specimen)		
Pleural fluid	418564007	Pleural fluid specimen (specimen)		
Pus	119323008	Pus specimen (specimen)		
Rectal scrape sample	258429002	Rectal scrape sample (specimen)		
Rectal swab	258528007	Rectal swab (specimen)		
Rectal tissue	309200000	Rectal tissue sample (specimen)		
Respiratory secretion	415293009	Respiratory secretion (specimen)		
Saliva	119342007	Saliva specimen (specimen)		
Scab	309068002	Skin lesion sample (specimen)		69640009
Scalp1	119325001	Skin (tissue) specimen (specimen)	41695006	Scalp structure (body structure)
Scraping	258431006	Scrapings (specimen)		
Seminal fluid	119347001	Seminal fluid specimen (specimen)		
Serum	119364003	Serum specimen (specimen)		
Serum_acute phase	119364003	Serum specimen (specimen)		
Serum_cadaver	119364003	Serum specimen (specimen)		261244009
Serum_convalescent phase	119364003	Serum specimen (specimen)		
Sinus fluid	258474009	Sinus fluid sample (specimen)		
Skin swab2	258503004	Skin swab (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Skin tissue	119325001	Skin (tissue) specimen (specimen)		
Skin tissue_Finger	119325001	Skin (tissue) specimen (specimen)	7569003	Finger structure (body structure)
Specimen from brain	119398007	Specimen from brain (specimen)		
Specimen from bronchus	119391001	Specimen from bronchus (specimen)		
Specimen from colon	119382000	Specimen from colon (specimen)		
Specimen from conjunctiva	119401005	Specimen from conjunctiva (specimen)		
Specimen from cornea	119400006	Specimen from cornea (specimen)		
Specimen from cyst	119368000	Specimen from cyst (specimen)		
Specimen from endometrium	119396006	Specimen from endometrium (specimen)		
Specimen from eye	119399004	Specimen from eye (specimen)		
Specimen from genital system	119344008	Specimen from genital system (specimen)		
Specimen from heart	127462005	Specimen from heart (specimen)		
Specimen from internal nose	119388001	Specimen from internal nose (specimen)		
Specimen from kidney	127473003	Specimen from kidney (specimen)		
LargeIntenstine Tissue	122643008	Tissue specimen from large intestine (specimen)		
Specimen from liver	119383005	Specimen from liver (specimen)		
Specimen from lung	127458004	Specimen from lung (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Specimen from mass	420548004	Specimen from mass lesion (specimen)		
Specimen from penis	119397002	Specimen from penis (specimen)		
Specimen from placenta	119403008	Specimen from placenta (specimen)		
Specimen from trachea	119390000	Specimen from trachea (specimen)		
Ulcer tissue	122593002	Tissue specimen obtained from ulcer (specimen)		
Specimen from urethra	119393003	Specimen from urethra (specimen)		
Specimen from uterine cervix	119395005	Specimen from uterine cervix (specimen)		
Specimen from vagina	119394009	Specimen from vagina (specimen)		
Specimen from vulva	397129002	Specimen from vulva (specimen)		
Specimen of unknown material	119324002	Specimen of unknown material (specimen)		
Spermatozoa	119349003	Spermatozoa specimen (specimen)		
Spleen resection	309077009	Spleen resection sample (specimen)		
Sputum	119334006	Sputum specimen (specimen)		
Coughed Sputum	119335007	Coughed sputum specimen (specimen)		
Induced Sputum	258610001	Sputum specimen obtained by sputum induction (specimen)		
Stool	119339001	Stool specimen (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Stool_Cary-Blair	119339001	Stool specimen (specimen)		
Stool_liquid	119339001	Stool specimen (specimen)		
Stool-preserved	119339001	Stool specimen (specimen)		
Anal swab	258527002	Anal swab (specimen)		
VulvalSwab_Bartholin's gland	258523003	Vulval swab (specimen)	87176006	Bartholin's gland structure (body structure)
Buccal swab	258564008	Buccal smear sample (specimen)	245771008	Buccal attached gingivae (body structure)
Conjunctival swab	258498002	Conjunctival swab (specimen)		
Ear swab	309166000	Ear swab sample (specimen)		
Female genital Swab	258519006	Female genital swab (specimen)		
Genital Swab	258508008	Genital swab (specimen)		
Swab_inanimate object	258532001	Swab of inanimate object (specimen)		
Swab_letter	258532001	Swab of inanimate object (specimen)		
Swab	257261003	Swab (specimen)		
Swab_Ocular	445160003	Swab of eye (specimen)	81745001	Structure of eye proper (body structure)
Penis Swab	258510005	Penis swab (specimen)		
Scrotal swab	258518003	Scrotal swab (specimen)		
Shaft of penis swab	258517008	Shaft of penis swab (specimen)		
Surface swab	258537007	Surface swab (specimen)		
Throat Swab	258529004	Throat swab (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Swab_Tracheal	257261003	Swab (specimen)	44567001	Tracheal structure (body structure)
Swab_Vesicle	257261003	Swab (specimen)		82515000
Sweat	122569007	Sweat specimen (specimen)		
Elbow joint synovial fluid	167869007	Elbow joint synovial fluid (specimen)		
Finger joint synovial fluid	167872000	Finger joint synovial fluid (specimen)		
Foot joint Synovial fluid	167876002	Foot joint synovial fluid (specimen)		
Hand joint Synovial fluid	167871007	Hand joint synovial fluid (specimen)		
Ankle joint synovial fluid_Heel_Left	167875003	Ankle joint synovial fluid (specimen)	76853006	Heel structure (body structure)
Hip joint Synovial fluid	167873005	Hip joint synovial fluid (specimen)		
Knee joint Synovial fluid	167874004	Knee joint synovial fluid (specimen)		
Toe joint synovial fluid	167877006	Toe joint synovial fluid (specimen)		
Tear fluid	122594008	Tears specimen (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Thoracentesis Fluid	418564007	Pleural fluid specimen (specimen)		
pharyngeal washings	258469001	Pharyngeal washings (specimen)		
Thrombocyte (platelet)	119358005	Platelet specimen (specimen)		
Tissue	119376003	Tissue specimen (specimen)		
Tissue_Abdomen	119376003	Tissue specimen (specimen)	113345001	Abdominal structure (body structure)
Bronchial tissue biopsy	309174004	Bronchial biopsy sample (specimen)		
Tissue from conjunctiva	128160006	Tissue specimen from conjunctiva (specimen)		
Eye tissue_Lamella	128164002	Tissue specimen from eye (specimen)	272433002	Lamella structure
Tissue from heart	128166000	Tissue specimen from heart (specimen)		
Tissue from lung	399492000	Tissue specimen from lung (specimen)		
Tissue_Nares	119376003	Tissue specimen (specimen)	1797002	Structure of anterior naris (body structure)
Tissue from internal nose	128167009	Tissue specimen from internal nose (specimen)		
Tissue_Perineum	119376003	Tissue specimen (specimen)	38864007	Perineal structure (body structure)
Tissue_Placenta	119376003	Tissue specimen (specimen)	108363007	Structure of placenta AND/OR membrane (body structure)

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Tissue from pleura_biopsy	127460002	Tissue specimen from pleura (specimen)		
Tissue_Spleen	119376003	Tissue specimen (specimen)	78961009	Splenic structure (body structure)
Urethral swab	258530009	Urethral swab (specimen)		
Urine	122575003	Urine specimen (specimen)		
Urine sediment	122567009	Urine sediment specimen (specimen)		
Clean catch urine	122880004	Urine specimen obtained by clean catch procedure (specimen)		
Vaginal swab	258520000	Vaginal swab (specimen)		
vesicle fluid	258482009	Vesicle fluid sample (specimen)		
Vitreous humor	258438000	Vitreous humor sample (specimen)		
Vomitus	122572000	Vomitus specimen (specimen)		
Vulval swab	258523003	Vulval swab (specimen)		
Wound	119365002	Specimen from wound (specimen)		
Wound_dog bite	119365002	Specimen from wound (specimen)		125198007
Wound_neck_right	119365002	Specimen from wound (specimen)	45048000	Neck structure (body structure)
Animal for Identification_Bat	TBD			
Animal for Identification_Bird	TBD			
Animal for Identification_insect	258614005	Insect sample (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Animal for Identification_parasite	258617003	Parasite sample (specimen)		
Blood product	119300005	Specimen from blood product (specimen)		
Buffy coat	258587000	Buffy coat (specimen)		
Device_Filter	TBD			116250002
Powder	440229008	Specimen from environment (specimen)		
Slide	258661006	Slide (specimen)		
Smear	258433009	Smear sample (specimen)		
Swab_environmental	419695002	Environmental swab (specimen)		
Water	119318008	Water specimen (specimen)		
ENV_Sample	440229008	Specimen from environment (specimen)		
Device_Blood bag	119304001	Blood bag specimen (specimen)		
Device_Implantable venous catheter	119313004	Implantable venous catheter specimen (specimen)		
Device_plasma bag	119305000	Plasma bag specimen (specimen)		
Device_cannula	119308003	Cannula specimen (specimen)		
Device_Catheter	119311002	Catheter specimen (specimen)		
Device_Catheter Tip	119312009	Catheter tip specimen (specimen)		
Device-catheter_Dialysis	119311002	Catheter specimen (specimen)		397849009

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Dialysate	258454002	Dialysate sample (specimen)		
Food	119320006	Food specimen (specimen)		
Food_cream	258651004	Cream sample (specimen)		
Food_goat milk	258660007	Goat's milk sample (specimen)		
Food_Milk_cow	258655008	Cow's milk sample (specimen)		
Abscess_submandibular	119371008	Specimen from abscess (specimen)	5713008	Submandibular triangle structure (body structure)
Fluid_Boil	309051001	Body fluid sample (specimen)		59843005
bone	430268003	Specimen from bone (specimen)		
Device_IVCatheterTip	119312009	Catheter tip specimen (specimen)		
Colostrum	119329007	Colostrum specimen (specimen)		
Device_Drain	119306004	Drain device specimen (specimen)		
drainage	258455001	Drainage fluid sample (specimen)		
Device_IVFluid	258649003	Intravenous infusion fluid sample (specimen)		
Graft tissue	440493002	Graft specimen from patient (specimen)		
Device_IUD	TBD			268460000

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
IntubationTube	119307008	Specimen from endotracheal tube (specimen)		
Lavage	440674008	Specimen obtained by lavage (specimen)		
Device_Electrode	119314005	Electrode specimen (specimen)		
LIquid_EnvironmentalEffluent	TBD			
ENV_OtherSubstance	119324002	Specimen of unknown material (specimen)		
Peritoneal fluid_abdominal	168139001	Peritoneal fluid sample (specimen)	52731004	Abdominal cavity structure (body structure)
Bodyfluid_Abdominal1	309051001	Body fluid sample (specimen)	113345001	Abdominal structure (body structure)
Specimen_Other	123038009	Specimen		
Pus_pustule	119323008	Pus specimen (specimen)		47002008
IncisionSite	TBD			
Source_other	123038009	Specimen		
Source_Unidentified	123038009	Specimen		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Source_Unspecified	123038009	Specimen		
Sputum_TrachealAspirate	258609006	Sputum specimen obtained by aspiration from trachea (specimen)		
Synovial fluid	119332005	Synovial fluid specimen (specimen)		
Endotracheal tube specimen	119307008	Specimen from endotracheal tube (specimen)		
Device_Tubes	119310001	Tube specimen (specimen)		
Fluid_Wash	TBD			
Device_Wick	TBD			116251003
WoundAbscess	119366001	Specimen from wound abscess (specimen)		
Wound_puncture	119365002	Specimen from wound (specimen)		
Basophils	119357000	Basophil specimen (specimen)		
Tissue_Cardiac Muscle	309507001	Muscle biopsy sample (specimen)	122448007	Cardiac muscle (tissue) (body structure)
CatheterTip device_Hemaquit	119312009	Catheter tip specimen (specimen)		
Curettings	258419009	Curettings (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Jejunal fluid_drainage	258463000	Jejunal fluid sample (specimen)		
Water	119318008	Water specimen (specimen)		
Eosinophils	119356009	Eosinophil specimen (specimen)		
Erythrocytes	119351004	Erythrocyte specimen (specimen)		
Fibroblasts	119333000	Fibroblast specimen (specimen)		
Specimen from genital cervix	119395005	Specimen from uterine cervix (specimen)		
Leukocyte	122584003	Leukocyte specimen from patient (specimen)		
Device_Line	119311002	Catheter specimen (specimen)		
Lymphocyte	119353001	Lymphocyte specimen (specimen)		
Macrophage	119352006	Macrophage specimen (specimen)		
Polymorphonuclear neutrophils	119355008	Polymorphonuclear neutrophil specimen (specimen)		
Tissue_Skeletal Muscle	119331003	Skeletal muscle specimen (specimen)		
GallBladder Tissue	122656001	Tissue specimen from gall bladder (specimen)		
SmallIntestine Tissue	122638001	Tissue specimen from small intestine (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
XXX	don't use			
ulcer	119369008	Specimen from ulcer (specimen)		
Unknown material	119324002	Specimen of unknown material (specimen)		
Whole_body	don't use			
Worm	258617003	Parasite sample (specimen)		
Wound fluid_Drainage	122566000	Fluid specimen from wound (specimen)		
Oral swab	418932006	Oral swab (specimen)		
Isolate_viral	119303007	Microbial isolate specimen (specimen)		
Tonsil	430222001	Specimen from tonsil (specimen)		
Whole Tooth	438805006	Whole tooth specimen (specimen)		
Tongue	430249001	Specimen from tongue (specimen)		
Uterus specimen	127479004	Specimen from uterus (specimen)		
Tissue from testicle	127475005	Tissue specimen from testis (specimen)		
Axilla tissue	406101006	Tissue specimen from axilla (specimen)		
Tendon	309107007	Tendon sample (specimen)		
Umbilical Swab	445367006	Swab of umbilicus (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Upper Respiratory Specimen	258604001	Upper respiratory sample (specimen)		
vein	309480004	Vein sample (specimen)		
Breast specimen	127456000	Specimen from breast (specimen)		
Appendix	309222007	Appendix sample (specimen)		
Bartholini gland fluid	446128003	Fluid specimen from Bartholin gland cyst		
Groin swab	445444005	Swab of groin (specimen)		
Prostate Specimen	119386002	Specimen from prostate (specimen)		
Suprapubic Aspirate	258576008	Suprapubic aspirate sample (specimen)		
Corneal Scraping	258485006	Corneal scraping sample (specimen)		
Tumor tissue_abdominal	258435002	Tumor tissue sample (specimen)	113345001	Abdominal structure (body structure)
Wound_abdominal	119365002	Specimen from wound (specimen)	113345001	Abdominal structure (body structure)
Swab_anorectal	257261003	Swab (specimen)	281088000	Anorectal structure (body structure)
Tissue_duodenum	119376003	Tissue specimen (specimen)	38848004	Duodenal structure (body structure)
Bile duct tissue	309493009	Bile duct biopsy sample (specimen)		
Tissue_ileal	430856003	Tissue section (specimen)	34516001	Ileal structure (body structure)
Fluid_ileal	258442002	Fluid sample (specimen)	34516001	Ileal structure (body structure)

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Fluid_colon	258442002	Fluid sample (specimen)	89484009	Colonic lumen structure (body structure)
Lymphnode_inguinal	258589002	Lymph node sample (specimen)	8928004	Inguinal lymph node structure (body structure)
Jejunal biopsy	309219005	Jejunal biopsy sample (specimen)		
gastrointestinal fluid_large intestine	309199003	Gastrointestinal fluid sample (specimen)	14742008	Large intestinal structure (body structure)
Lymph	168145009	Lymph sample (specimen)		
Meninges	430157009	Specimen from meninges (specimen)		
Swab_oropharyneal	257261003	Swab (specimen)	31389004	Oropharyngeal structure (body structure)
Wash_Oropharyngeal	440674008	Specimen obtained by lavage (specimen)	31389004	Oropharyngeal structure (body structure)
Ovary specimen	128155007	Specimen from ovary (specimen)		
Specimen from Pericardium	430244006	Specimen from pericardium (specimen)		
Gastrointestinal fluid_small intestine	309199003	Gastrointestinal fluid sample (specimen)	30315005	Small intestinal structure (body structure)
Ulcer_vaginal	119369008	Specimen from ulcer (specimen)	76784001	Vaginal structure (body structure)
Wound_surgical	119365002	Specimen from wound (specimen)		
Body fluid_lung	309051001	Body fluid sample (specimen)	39607008	Lung structure (body structure)
Fine needle aspirate_periorbital	122550002	Specimen obtained by fine needle aspiration procedure (specimen)	1711002	Periorbital region structure (body structure)

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Female genital fluid	122578001	Female genital fluid specimen (specimen)		
Upper Respiratory Fluid	410581002	Upper respiratory fluid sample (specimen)		
Soft tissue specimen	309072003	Soft tissue sample (specimen)		
Abscess_back	119371008	Specimen from abscess (specimen)	77568009	Back structure, excluding neck (body structure)
Fine needle lung aspirate	122614000	Specimen from lung obtained by fine needle aspiration procedure (specimen		
Skin scraping	446952006	Specimen from skin obtained by scraping		
Nail_toe	119327009	Nail specimen (specimen)	76578001	Structure of nail of toe (body structure)
Lavage_tracheal	440674008	Specimen obtained by lavage (specimen)	44567001	Tracheal structure (body structure)
Skin biopsy	309066003	Skin biopsy sample (specimen)	39937001	Skin structure (body structure)
Wound swab	258531008	Wound swab (specimen)		
Colon tissue	128159001	Tissue specimen from colon (specimen)		
Tracheal aspirate	445447003	Specimen from trachea obtained by aspiration (specimen)		
Specimen from pancreas	127469001	Specimen from pancreas (specimen)		

Preferred Standardized Specimen Terms				
PHLIPPrefName	Specimen Type (SPM.4) SNOMED Concept Code	Specimen Type (SPM.4) SNOMED Concept Name	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Eschar	309068002	Skin lesion sample (specimen)		87319000
Specimen from Arm	430246008	Specimen from upper limb (specimen)		
Fecal smear	258487003	Fecal smear (specimen)		
Perianal Swab	258526006	Perianal swab (specimen)		
Bronchial aspirate	441903006	Specimen obtained by bronchial aspiration (specimen)		

Appendix D: Preferred Specimen Source Site

Table 3: Preferred Specimen Source Site

Preferred Specimen Source Site		
PHLIPPrefName	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Bronchial(HL70070)	955009	Bronchial structure (body structure)
Toe	29707007	Toe structure (body structure)
Leg	182281004	Entire lower limb (body structure)
Face	89545001	Face structure (body structure)
Leg_Thigh	68367000	Thigh structure (body structure)
Gland	134358001	Gland (body structure)
Coccyx		
Buttock	46862004	Buttock structure (body structure)
arm	182245002	Entire upper limb (body structure)
Ankle	344001	Ankle region structure (body structure)
Hand	85562004	Hand structure (body structure)
Hip region	29836001	Hip region structure (body structure)
Foot	56459004	Foot structure (body structure)
Sacral	46452000	Sacral region back structure (body structure)
Shin	78234002	Shin structure (body structure)
Heel	76853006	Heel structure (body structure)
Shoulder region	16982005	Shoulder region structure (body structure)
Aorta	15825003	Aortic structure (body structure)
Chest	51185008	Thoracic structure (body structure)
Spinal column	421060004	Structure of vertebral column (body structure)
Thumb	76505004	Thumb structure (body structure)
Fetus	83418008	Entire fetus (body structure)
Cecum	32713005	Cecum structure (body structure)
Bone_Femur	421235005	Structure of femur (body structure)

Preferred Specimen Source Site		
PHLIPPrefName	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Jaw	661005	Jaw region structure (body structure)
Lung, Right Lobe	3341006	Right lung structure (body structure)
Lung, Left	44029006	Left lung structure (body structure)
Sinus_Maxillary	15924003	Maxillary sinus structure (body structure)
Tail	13951002	Tail structure (body structure)
Vaginal/Rectal	426556007	Female anogenital region (body structure)
Head	69536005	Head structure (body structure)
Intestine (Bowel)	113276009	Intestinal structure (body structure)
Gum	181224006	Entire gingiva (body structure)
Brain_Meninges	1231004	Meninges structure (body structure)
Nose_Anterior Nares	1797002	Structure of anterior naris (body structure)
Sinus_Nasal	2095001	Nasal sinus structure (body structure)
Endometrium	2739003	Endometrial structure (body structure)
Pleural membrane	3120008	Pleural membrane structure (body structure)
Larynx	4596009	Laryngeal structure (body structure)
Finger	7569003	Finger structure (body structure)
Wrist region	8205005	Wrist region structure (body structure)
Liver	10200004	Liver structure (body structure)
Finger_Little	12406000	Little finger structure (body structure)
Tibia	12611008	Bone structure of tibia (body structure)
Brain	12738006	Brain structure (body structure)
Perirectal region	13170006	Structure of perirectal region (body structure)
Bursa	13351007	Structure of bursa (body structure)
Urethra	13648007	Urethral structure (body structure)
Bone marrow	14016003	Bone marrow structure (body structure)
Intestine (Bowel)_Large	14742008	Large intestinal structure (body structure)

Preferred Specimen Source Site		
PHLIPPrefName	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Arm_Forearm	14975008	Forearm structure (body structure)
Peritoneum	15425007	Peritoneum (serous membrane) structure (body structure)
Pancreas	15776009	Pancreatic structure (body structure)
Brain_Parietal lobe	16630005	Parietal lobe structure (body structure)
Buccal mucosa	16811007	Buccal mucosa (body structure)
Cardiac valve	17401000	Cardiac valve structure (body structure)
Brain_Dura mater	18545000	Dura mater structure (body structure)
Penis	18911002	Penile structure (body structure)
Scrotum	20233005	Scrotal structure (body structure)
Tongue	21974007	Tongue structure (body structure)
Adrenal Gland	23451007	Adrenal structure (body structure)
Hip joint	24136001	Hip joint structure (body structure)
Sinus_Sphenoid	24999009	Sphenoid sinus structure (body structure)
Pericardial cavity	25489000	Pericardial cavity structure (body structure)
Groin	26893007	Inguinal region structure (body structure)
Omentum	27398004	Omentum structure (body structure)
Gallbladder	28231008	Gallbladder structure (body structure)
Cornea	28726007	Corneal structure (body structure)
Vein	29092000	Venous structure (body structure)
Conjunctiva	29445007	Conjunctival structure (body structure)
Umbilical cord	29870000	Umbilical cord structure (body structure)
Chin	30291003	Chin structure (body structure)
Intestine (Bowel)_Small	30315005	Small intestinal structure (body structure)
Oropharynx	31389004	Oropharyngeal structure (body structure)
Esophagus	32849002	Esophageal structure (body structure)
Aortic valve	34202007	Aortic valve structure (body structure)

Preferred Specimen Source Site		
PHLIPPrefName	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Rectum	34402009	Rectum structure (body structure)
Bone_Metacarpal	36455000	Bone structure of metacarpal (body structure)
Endocardium	37949006	Endocardium structure (body structure)
Duodenum	38848004	Duodenal structure (body structure)
Perineum	38864007	Perineal structure (body structure)
Pulmonary valve	39057004	Pulmonary valve structure (body structure)
Labia_Genital	39117004	Genital labium structure (body structure)
Joint	39352004	Joint structure (body structure)
Lung	39607008	Lung structure (body structure)
Toe_Fifth	39915008	Fifth toe structure (body structure)
Skin	39937001	Skin structure (body structure)
Lung_Middle lobe	40020002	Structure of middle lobe of lung (body structure)
Arm_Upper	40983000	Upper arm structure (body structure)
Prostate	41216001	Prostatic structure (body structure)
Scalp	41695006	Scalp structure (body structure)
Trachea	44567001	Tracheal structure (body structure)
Neck	45048000	Neck structure (body structure)
Nose	45206002	Nasal structure (body structure)
Parotid gland	45289007	Parotid gland structure (body structure)
Vulva	45292006	Vulval structure (body structure)
Lung_Upper lobe	45653009	Structure of upper lobe of lung (body structure)
Tricuspid valve	46030003	Tricuspid valve structure (body structure)
Vocal cord	46105003	Vocal cord structure (body structure)
Nose_Turbinate	46607005	Nasal turbinate structure (body structure)
Eye_Vitreous body	47538007	Vitreous body structure (body structure)
Lip	48477009	Lip structure (body structure)

Preferred Specimen Source Site		
PHLIPPrefName	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Knee joint	49076000	Knee joint structure (body structure)
Vertebra	51282000	Bone structure of spine (body structure)
Bone_Clavicle	51299004	Bone structure of clavicle (body structure)
Forehead	52795006	Forehead structure (body structure)
Arm	53120007	Upper limb structure (body structure)
Leg_Calf	53840002	Structure of calf of leg (body structure)
Bone_Metatarsal	53884002	Metatarsal bone structure (body structure)
Throat	54066008	Pharyngeal structure (body structure)
Subdural space	54214006	Subdural space structure (body structure)
Sinus_Ethmoid	54215007	Ethmoid sinus structure (body structure)
Bone_Sacrum	54735007	Bone structure of sacrum (body structure)
Sinus_Frontal	55060009	Frontal sinus structure (body structure)
Toe_Second	55078004	Second toe structure (body structure)
Adenoid	55940004	Adenoidal structure (body structure)
Bone_Sternum	56873002	Bone structure of sternum (body structure)
Flank	58602004	Flank structure (body structure)
Bone_Mastoid	59066005	Mastoid structure (body structure)
Lymph node	59441001	Structure of lymph node (body structure)
Rib cage	60413009	Thoracic cage structure (body structure)
Epiglottis	61563008	Epiglottis structure (body structure)
Leg	61685007	Lower limb structure (body structure)
Kidney	64033007	Kidney structure (body structure)
Bone_Coccyx	64688005	Bone structure of coccyx (body structure)
Finger_Middle	65531009	Middle finger structure (body structure)
Muscle_Iliopsoas	68455001	Structure of iliopsoas muscle (body structure)
Stomach	69695003	Stomach structure (body structure)

Preferred Specimen Source Site		
PHLIPPrefName	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Amniotic sac	70847004	Structure of amnion (body structure)
Cervix	71252005	Cervix uteri structure (body structure)
Nasopharynx	71836000	Nasopharyngeal structure (body structure)
Colon	71854001	Colon structure (body structure)
Nail	72651009	Nail structure (body structure)
Knee region	72696002	Knee region structure (body structure)
Palate	72914001	Palatal structure (body structure)
Bone_Sphenoid	73117003	Sphenoid bone structure (body structure)
Mouth	74262004	Oral cavity structure (body structure)
Tonsil	75573002	Tonsillar structure (palatine) (body structure)
Toenail	76578001	Structure of nail of toe (body structure)
Breast	76752008	Breast structure (body structure)
Vagina	76784001	Vaginal structure (body structure)
Pericardium	76848001	Pericardial structure (body structure)
Back	77568009	Back structure, excluding neck (body structure)
Placenta	78067005	Placental structure (body structure)
Toe_Third	78132007	Third toe structure (body structure)
Umbilicus	78220002	Umbilical structure (body structure)
Toe_Big	78883009	Great toe structure (body structure)
Spleen	78961009	Splenic structure (body structure)
Eyelid	80243003	Eyelid structure (body structure)
Toe_Fourth	80349001	Fourth toe structure (body structure)
Heart	80891009	Heart structure (body structure)
Eye	81745001	Structure of eye proper (body structure)
Anal region	81939000	Anal region structure (body structure)
Finger_Ring	82002001	Ring finger structure (body structure)

Preferred Specimen Source Site		
PHLIPPrefName	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Brain_frontal lobe	83251001	Frontal lobe structure (body structure)
Peritoneal cavity	83670000	Peritoneal cavity structure (body structure)
Finger_ Index	83738005	Index finger structure (body structure)
Ear canal	84301002	External auditory canal structure (body structure)
Subgaleal area	89361003	Subgaleal area (body structure)
Skull	89546000	Bone structure of cranium (body structure)
Bladder	89837001	Urinary bladder structure (body structure)
Hard Palate	90228003	Hard palate structure (body structure)
Lung_Lower lobe	90572001	Structure of lower lobe of lung (body structure)
Mitral valve	91134007	Mitral valve structure (body structure)
Pleural cavity	91381003	Pleural cavity structure (body structure)
Fingernail	91456000	Structure of nail of finger (body structure)
Bone_Mandible	91609006	Bone structure of mandible (body structure)
Brain_Cerebellum	113305005	Cerebellar structure (body structure)
Abdomen	113345001	Abdominal structure (body structure)
Ear	117590005	Ear structure (body structure)
Elbow region	127949000	Elbow region structure (body structure)
Bone	272673000	Bone structure (body structure)
Testicle	279572002	Testicular structure (body structure)
Spine	280717001	Spinal structure (body structure)
Cervix_os	314384000	Os of cervix (body structure)
Synovial joint	334886004	Synovial joint structure (body structure)
Intervertebral disc	360499006	Structure of intervertebral disc (body structure)
Lumbar Disc Space	360809005	Intervertebral disc space of lumbar vertebra (body structure)
Nose_Nares	363538002	Structure of naris (body structure)
Eye_Orbit	363654007	Structure of orbit proper (body structure)

Preferred Specimen Source Site		
PHLIPPrefName	Specimen Source Site (body site) (SPM.8) SNOMED Concept Code	Specimen Source Site (body site) (SPM.8) SNOMED Concept Name
Hair	386045008	Hair structure (body structure)
Central nervous system	389079005	Brain and spinal cord structure (body structure)
Perianal region	397158004	Perianal region structure (body structure)
Axilla	422543003	Structure of axillary fossa (body structure)

Appendix – E: Ordinal Value Set

The table below provides SNOMED CT codes associated with ordinal results. When a facility is sending the result of a test yielding an ordinal result, OBX2 should be "CWE" and OBX5 should contain one of the values from the table below in the first triplet.

Table 4: Ordinal Value Set

Ordinal Results Value Set	
Concept Code	**ConceptName**
260411009	Presence findings (qualifier value)
52101004	Present (qualifier value)
10828004	Positive (qualifier value)
46651001	Isolated (qualifier value)
260373001	Detected (qualifier value)
373066001	Yes (qualifier value)
11214006	Reactive (qualifier value)
131194007	Non-Reactive (qualifier value)
2667000	Absent (qualifier value)
272519000	Absence findings (qualifier value)
260385009	Negative (qualifier value)
373067005	No (qualifier value)
264868006	No growth (qualifier value)
260415000	Not detected (qualifier value)
264887000	Not isolated (qualifier value)
419984006	Inconclusive (qualifier value)
82334004	Indeterminate (qualifier value)
42425007	Equivocal (qualifier value)

Appendix – Z: Credits

Membership with the HL7 organization is strongly recommended for any facility using this document to construct a standardized HL7 2.5.1 message for electronic laboratory reporting. Membership can be acquired at www.HL7.org.

The LTIAPH team extends their thanks to the Laboratory and Epidemiology Subject Matter Experts whose help, ideas, and input were invaluable in the creation of this document.

Table Z: List of laboratory and epidemiology subject matter experts contributing to the development of this document

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