

NEBRASKA NEDSS
ELECTRONIC LABORATORY REPORTING
HL7 2.5.1 IMPLEMENTATION GUIDE

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Contents

Introduction	3
Legend.....	4
Basic Message Structure	5
MSH.....	5
SFT	6
PID.....	7
PV1.....	10
NK1.....	12
ORC.....	14
OBR.....	15
OBX.....	18
SPM	20
NTE.....	24
Data Types.....	24
Appendix A – HL7 2.5.1 Guide.....	32
Appendix B – 2019 Reportable Condition Checklist	33
Appendix C – COVID-19 Laboratory Data Reporting Guidance	34
Appendix D - COVID-19 Ask on Order (AOE) Entry Guidance.....	35
Version History.....	40

Introduction

This guide serves as a companion to the HL7 Version 2.5.1 Implementation Guide provided by HL7.org. The Nebraska guide contains information on required elements and formatting of HL7 messages for submission to the Nebraska Event Detection Surveillance System (NEDSS). All fields that are required in the national guidelines and by the State of Nebraska are discussed herein. Optional fields are also discussed.

Reporting of laboratory test results is governed by Title 173 Communicable Disease; Chapter 1 Reporting and Control of Communicable Disease (173 NAC1) which applies to the content, control, and reporting of communicable diseases, poisonings, and organisms pursuant to the provisions of Neb. Rev. Stat. §§ 71-501 to 71-514.05, 71-531 to 71-532, and 71-1626.

Legend

R: Required

RE: Required but can be empty if not available

O: Optional

C: Conditional

CE: Conditional, but may be empty if not available

Text in **GREEN** indicates the new data requirements established by HHS/CDC in June of 2020.

Segment	Sender Usage Profile	NDHHS Standard
SFT Segment	R	RE
SFT-4: Software Binary ID	R	RE
PID-8: Administrative Sex (Gender)	RE	R –
PID-18: Patient Account Number	C	X – use PID-3 exclusively
PID-31: Identify Unknown Indicator	RE	X –
PV1-3: Assigned Patient Location	O	RE – NDHHS Rules & Regulations
PV1-4: Admission Type	CE	RE – NDHHS Rules & Regulations
PV1-6: Prior Patient Location	O	RE – NDHHS Rules & Regulations
PV1-7: Attending Doctor	O	RE – NDHHS Rules & Regulations
PV1-14: Admit Source	O	RE – NDHHS Rules & Regulations
PV1-17: Admitting Doctor	O	RE – NDHHS Rules & Regulations
PV1-18: Patient Type	O	RE – NDHHS Rules & Regulations
PV1-36: Discharge Disposition	O	RE – NDHHS Rules & Regulations
PV1-37: Discharge to Location	O	RE – NDHHS Rules & Regulations
NK1-6: Business Phone Number	X	O –
NK1-7: Contact Role	X	RE –
NK1-30: Contact Person's Name	CE	CRE – RE if NK1-13 is populated
NK1-31: Contact Person's Telephone Number	RE	CRE – RE if NK1-13 is populated
NK1-32: Contact Person's Address	RE	CRE – RE if NK1-13 is populated
ORC-12: Ordering Provider	CE	RE
ORC-17: Order Callback Phone Number	CE	RE
OBR-28: Result Copies To	RE	X – not supported; O for Public Health and not necessary
OBX-2: Value Type (for OBX-5)	CE	R – should always have a value in OBX-5
OBX-5: Observation Value	CE	R –
OBX-6: Units	CE	CR – required when results are numeric
OBX-8: Abnormal Flags	CE	CR – required for certain tests
CX-4: Assigning Authority	R	RE –

Basic Message Structure

Basic Message Structure			
Segment	National	Nebraska	Description
MSH	R	R	Message header
SFT	R	RE	Software Information (getting Sun, Cerner, Healthland, McKesson)
PID	R	R	Patient information and demographics
NTE	RE	RE	Comments about the patient information
NK1	RE	RE	Next of kin/other individuals (getting Children's, LabCorp & Healthland)
PV1	R	R	Patient Visit Information
ORC	R- CE	R	Information about the test(s) ordered
OBR	R	R	Information about a single test (multiple tests possible for each ORC)
NTE	RE	O	Comments
OBX	CE- R	R	Results for the OBR (single test; each OBR will have own OBX results)
NTE	RE	RE	Comments about the results
SPM	R	R	Specimen information
OBX	RE	O	Observation about the specimen

MSH

This is the message header.

MSH: Message Header Segment				
#	Description	Usage	DT	Example/Default Value
1	Character Separator	R	ST	Literal value:
2	Encoding Characters	R	ST	
3	Sending application	R	HD	
4	Sending facility	R	HD	
5	Receiving application	R	HD	
6	Receiving facility	R	HD	
7	Date/Time of the message	R	TS	
9	Message Type	R	MSG	Literal value: ORU^R01^ORU_R01
10	Message Control ID	R	ST	
11	Processing ID	R	PT	Literal value: P^T or P
12	Version ID	R	VID	Literal value: 2.5.1
15	Accept Acknowledgment Type	RE	ID	Literal value: NE (click here to access HL70155 table)
16	Application Acknowledgment Type	RE	ID	Literal value: NE (click here to access HL70155 table)
17	Country Code	R	ID	Literal value: USA (click here to access PHVS Country ISO 3166-1 table)
21	Message Profile Identifier	R	EI	Literal value: PHLabReport-Ack^2.16.840.1.114222.4.10.3^ISO

- MSH|^~\&|Lab^2.16.840.1.113883.19.3.1.1^ISO|Lab^2.16.840.1.113883.19.3.1.1^ISO|NEDSS^2.16.840.1.113883.19.3.1.1^ISO|NEDOH^2.16.840.1.113883.19.3.1.1^ISO|20141016135400-0500||ORU^R01^ORU_R01|15463241987654654984|P^T|2.5.1|||NE|NE|USA|||PHLabReport-Ack^2.16.840.1.114222.4.10.3^ISO

MSH-2: Encoding Characters

Value shall be:

- |^~\&| or |^~\&#|

MSH-3: Sending Application

Identifies the sending application. We want to know what system is sending the data. Value shall be formatted as such, with the ID value in MSH-3.2 being either an OID or a CLIA, and the value identifying the identifier type being ISO or CLIA respectively.

- |Software^2.16.840.1.113883.19.3.1.1^ISO| or |Software^123456789^CLIA|

MSH-4: Sending Facility

Identifies the sending facility. Value shall be formatted as such, with the ID value in MSH-4.2 being either an OID or a CLIA, and the value identifying the identifier type being ISO or CLIA respectively.

- |Facility^2.16.840.1.113883.19.3.1.1^ISO| or |Facility^0987654321^CLIA|

MSH-5: Receiving Application

Identifies the receiving application at Nebraska DHHS. This is the NEDSS system. Value shall be:

- |NEDSS^2.16.840.1.114222.4.1.168^ISO|

MSH-6: Receiving Facility

Identifies the receiving facility, Nebraska DHHS. Value shall be:

- |NDHHS^2.16.840.1.114222.4.1.168^ISO|

MSH-7: Date/Time of Message

Identifies the date/time of the message. At a minimum, the value should be precise to the second.

- |20141016135427-0500|

MSH-10: Message Control ID

This identifier should be unique for every message sent from a facility for the purposes of identifying individual messages.

- |1234567890abcde|

SFT

This is the software segment.

SFT: Software Segment				
#	Description	Usage	DT	Example/Default Value
1	Software Vendor Organization	R	XON	See example.
2	Software Certified Version or Release Number	R	ST	See example.
3	Software Product Name	R	ST	See example.
4	Software Binary ID	RE	ST	See example.
5	Software Product Information	O	TX	See example.
6	Software Install Date	RE	TS	See example.

- SFT|Level Seven Healthcare Software, Inc.^L^^^&2.16.840.1.113883.19.4.6^ISO^XX^^1234|1.2|ACME EHR Software|56734||20150518

SFT-1: Software Vendor Organization

Identifies the vendor of the software. See XON – Extended Composite Name and Identification Number for Organizations.

- |Level Seven Healthcare Software, Inc.^L^^^&2.16.840.1.113883.19.4.6^ISO^XX^^1234|

SFT-2: Software Certified Version or Release Number

Identifies the software version.

- |1.2|

SFT-3: Software Product Name

Identifies the name of the software.

- |ACME EHR Software|

SFT-4: Software Binary ID

This id number is unique to the software. It may not be available.

- |56734|

SFT-5: Software Product Information

This is an optional field and can contain information relevant to the software. Be mindful of field length.

- |Update compliant with 2.5.1|

SFT-6: Software Install Date

Identifies the date the software was installed.

- |20150518|

PID

This is the patient identification segment.

PID: Patient Identification Segment				
#	Description	Usage	DT	Example
1	Set ID – PID	R	SI	Literal value: 1
3	Patient Identifier List	R	CX	See example.
5	Patient Name	R	XPN	See example.
6	Mother's Maiden Name	RE	XPN	See example.
7	Date/Time of Birth	R	TS	See example.
8	Administrative Sex (Gender)	R	IS	Sex - Gender
10	Race	R	CWE	Race
11	Patient Address	R	XAD	Zip Code, County
13	Phone Number – Home	R	XTN	See example.
14	Phone Number – Business	RE	XTN	See example.
15	Primary Language	O	CWE	See example.
16	Marital Status	O	CWE	See example.
17	Religion	O	CWE	See example.
22	Ethnic Group	R	CWE	Ethnicity
29	Patient Death Date/Time	RE	TS	See example.
30	Patient Death Indicator	RE	ID	See example.
33	Last Update Date/Time	RE	TS	See example.
34	Last Update Facility	RE	HD	See example.
35	Species Code	RE	CWE	See example.

PID-3: Patient Identifier List

Multiple identifiers may be sent in PID-3, each one as a CX data type separated by the ~. Examples of different identifiers include social security number and medical record number, both of which are shown below.

- |123456789^^^^SS^|
- |12345A^^^Acme Hospital&99990809&CLIA^MR^Acme Hospital&99990809&CLIA|

PID-5: Patient Name

Patient name is straightforward and follows the XPN data type (see Data Types Section). NBS requires name type code (XPN-7) to be set with the literal value L. See XPN – Extended Person Name.

- |Doe^John^Q^^Dr^PHD^L^^^^^^^|

PID-6: Mother's Maiden Name

This is just like patient name (PID-5) but the name type code (PID-6.7) shall be M. If the mother's maiden name is not available, the segment should be completely blank. See XPN – Extended Person Name.

- |Dunn^Anne^B^^^^M^^^^^^^|

PID-7: Date/Time of Birth

Minimum precision should be to the day. The time is optional, as is time zone.

- |19830527| or |198305272135-0007|

PID-8: Administrative Sex (Gender)

The field is simply the code per the (click here for table) [HL70001 table](#). See table for full set of available values.

- |F| or |M| or |O|

PID-10: Race

Two value sets exist for sending race. There is the [HL70005 race table](#) and the [CDC Race & Ethnicity \(CDCREC\) table](#). The values in the HL7005 table are a much smaller subset, but the codes are the same. Keep in mind the CDC Race & Ethnicity table contains both race and ethnicity. See CWE – Coded With Exception in the Data Type section.

- |2054-5^Black or African American^HL70005| or |2106-3^White^HL70005|
- |2054-5^Black or African American^CDCREC| or |2106-3^White^CDCREC|

PID-11: Patient Address

Patient address follows the XAD data type in the data type section. See XAD – Extended Address. It is required for the address type (XAD-7, PID-11.7) to be populated with an L. NEDSS will accept one address. This is specified in the PID-11.7 field.

In this example, 31109 is the FIPS code for Lancaster County, NE.

- |1234 Public Health Way^Suite 123^Lincoln^NE^68512^USA^L^^31109|

PID-13: Phone Number – Home

Phone numbers follow the XTN data type. See XTN – Extended Telecommunication Number in the Data Type section.

- |^PRN^PH^^1^402^4713727^^|

PID-14: Phone Number – Business

Phone numbers follow the XTN data type. See XTN – Extended Telecommunication Number.

- |^WPN^PH^^1^402^4713727^^|

PID-15: Primary Language

Optional field. If sent, it must follow the CWE format. See CWE – Coded With Exception. Values for language are in the [PHVS Language ISO 639-2 Alpha3 table](#). Click to see the table for full set of values. Examples are below.

- |eng^English^ISO6392| or |eng^English^ISO6392^^^3/30/2007|
- |spa^Spanish^ISO6392| or |spa^Spanish^ISO6392^^^3/30/2007|

PID-16: Marital Status

Optional field. If sent, it must follow the CWE format. See CWE – Coded With Exception. Values for marital status are in the [HL70002 table](#). Click to see the table for full set of values. Examples are below.

- |S^Single^HL70002| or |M^Married^HL70002|
- |S^Single^HL70002^^^HL7 v2.5| or |M^Married^HL70002^^^HL7 v2.5|

PID-17: Religion

Optional field. If sent, it must follow the CWE format. See CWE – Coded With Exception. Values for religion are in the [HL70006 table](#). Click to see the table for full set of values. Examples are below.

- |AGN^Agnostic^HL70006| or |MOS^Muslim^HL70006|
- |CHR^Christian^HL70006^^^HL7 v2.5| or |JEW^Jewish^HL70006^^^HL7 v2.5|

PID-22: Ethnic Group

Field is required if available and must follow the CWE format. See CWE – Coded With Exception. Values for ethnic group are in the [HL70189 table](#). Click to see the table. Permissible values are:

- |H^Hispanic or Latino^HL70189| or |H^Hispanic or Latino^HL70189^^^HL7 v.2.5.1|
- |N^Not Hispanic or Latino^HL70189| or |N^Not Hispanic or Latino^HL70189^^^HL7 v.2.5.1|
- |U^Unknown^HL70189| or |U^Unknown^HL70189^^^HL7 v.2.5.1|

PID-29: Patient Death Date and Time

If the patient is deceased as indicated by PID-30, the date and time of death should be sent in this field. See TS – Time Stamp.

- |20150401| or |201504011535-0005|

PID-30: Patient Death Indicator

If the patient is deceased, this field should indicate that. Values are Y or N as indicated by the [HL70136 table](#). Click to see table.

- |Y| or |N|

PID-33: Last Update Date/Time

Identifies when the patient demographic information was last updated in the EHR system. See TS – Time Stamp.

- |20140527|

PID-34: Last Update Facility

Identifies what organization updated the information as identified in PID-33. It is required if PID-33 is populated. See HD – Hierarchic Designator.

- |ACME Hospital^2.16.840.1.113883.19.3.1^ISO| or |ACME Hospital^123456789^CLIA|

PID-35: Species Code

The species of the patient is sent in PID-35. It's especially important when the "patient" is not a human. Since NDHHS receives ELR for other species for West Nile Virus testing (e.g., mosquitoes) and rabies testing (e.g., bats, skunks, etc.), this field isn't as arbitrary as it may seem. Field follows the CWE data type. See CWE – Coded With Exception. Values come from the [PHVS Aminoal CDC table](#). Click to see table. Examples are below.

- Human
 - |337915000^Homo sapiens (organism)^SCT^^^v5|
- Eastern Spotted Skunk
 - |406692009^Spilogale putorius (organism)^SCT^^^v5|
- Culex tarsalis mosquito
 - |79106009^Culex tarsalis (organism)^SCT^^^v5|

PV1

The following fields are requested per [NDHHS Rules and Regulations](#)

PV1: Patient Visit Information				
#	Description	Usage	DT	
1	Set ID – VPV1	R	SI	Literal value: 1
2	Patient Class	R	IS	See example.
3	Assigned Patient Location	RE	PL	See example.
4	Admission Type	RE	IS	See example.
6	Prior Patient Location	RE	PL	See example.
7	Attending Doctor [‡]	RE	XCN	See example.
8	Referring Doctor	O	XCN	See example.
9	Consulting Doctor	O	XCN	See example.
14	Admit Source	RE	IS	See example.
17	Admitting Doctor [‡]	RE	XCN	See example.
18	Patient Type	RE	IS	See example.
36	Discharge Disposition	RE	IS	See example.
37	Discharged to Location	RE	DLD	See example.
44	Admit Date/Time	RE	TS	See example.
45	Discharge Date/Time	RE	TS	See example.

PV1-2: Patient Class

This field is used to categorize patients. Permissible values from the [HL70004 table](#) are shown below. Click to see table.

Code	Concept Name	PV1-2 Value
C	Commercial Account	C
D	Direct admit	D
E	Emergency	E
I	Inpatient	I
N	Not Applicable	N
V	Observation patient	V
B	Obstetrics	B
O	Outpatient	O
P	Preadmit	P
R	Recurring patient	R
U	Unknown	U

PV1-3: Assigned Patient Location

Identifies the patient's initial assigned location or the location to which the patient is being moved. It's required if available when the patient class (PV1-2) is inpatient. It is the PL data type. Example is below.

- |North wing^127^1|

PV1-4: Admission Type

Identifies admission type in the [Admission Type Value Set](#). Click to see table. Field is required if patient class (PV1-2) is inpatient.

Code	Concept Name	PV1-4 Value
A	Accident	A
C	Elective	C
E	Emergency	E
L	Labor and Delivery	L
N	Newborn (Birth in healthcare facility)	N
R	Routine	R
U	Urgent	U

PV1-6: Prior Patient Location

Contains the patient's previous location if known. It's required if available when the patient class (PV1-2) is inpatient. It is the PL data type. Example is below.

- |North wing^127^1|

PV1-7: Attending Doctor

Some facilities have the same admitting and attending doctors. This field is required if available. It follows the XCN data type. See XCN – Extended Composite ID Number and Name for Persons in the Data Type section. The name type code (XCN-10) is required to be sent as the value L.

- |123^Admit^Alan^A^III^Dr^^&2.16.840.1.113883.19.4.6&ISO^L^^&2.16.840.1.113883.19.4.6&ISO^^^^^MD|

PV1-8: Referring Doctor

Optional field. It follows the XCN data type. See XCN – Extended Composite ID Number and Name for Persons in the Data Type section. The name type code (XCN-10) is required to be sent as the value L.

- |123^Admit^Alan^A^III^Dr^^&2.16.840.1.113883.19.4.6&ISO^L^^&2.16.840.1.113883.19.4.6&ISO^^^^^MD|

PV1-9: Consulting Doctor

Optional field. This field is required if available. It follows the XCN data type. See XCN – Extended Composite ID Number and Name for Persons in the Data Type section. The name type code (XCN-10) is required to be sent as the value L.

- |123^Admit^Alan^A^III^Dr^^&2.16.840.1.113883.19.4.6&ISO^L^^&2.16.840.1.113883.19.4.6&ISO^^^^^MD|

PV1-14: Admit Source

Indicates how the patient came to be admitted. Permissible values from the [HL70023 table](#) are below. Click to see table.

Code	Concept Name	PV1-14 Value
1	Physician referral	1
2	Clinic referral	2
3	HMO referral	3
4	Transfer from a hospital	4
5	Transfer from a skilled nursing facility	5
6	Transfer from another health care facility	6
7	Emergency room	7
8	Court/law enforcement	8
9	Information not available	9

PV1-17: Admitting Doctor

Some facilities have the same admitting and attending doctors. This field is required if available. See XCN – Extended Composite ID Number and Name for Persons in the Data Type section. The name type code (XCN-10) is required to be sent as the value L.

- |123^Admit^Alan^A^III^Dr^^&2.16.840.1.113883.19.4.6&ISO^L^^&2.16.840.1.113883.19.4.6&ISO^^^^^MD|

PV1-18: Patient Type

There is no national guidance on “patient type.” Values are to be locally defined. This is an IS data type. See IS – Coded Value for User-Defined Tables. See Data Types section. NDHHS has created the following values for this field, and they should be used where possible. If you have a different set of values you’re using for PV1-18, discuss with NDHHS staff.

Code	Meaning	PV1-18 Value
ER	Emergency Room	ER
IN	Inpatient	IN
IP	Inpatient	IP
MED	Medical	MED
NB	Newborn	NB
OB	Obstetrics/Gynecology	OB
OBV	Observation	OBV
OP	Outpatient	OP
OPD	Outpatient Diagnostics	OPD
OS	Outside	OS
PAT	Pre-Admit Testing	PAT
PSYCH	Psychiatric	PSYCH
REHAB	Rehabilitation	REHAB
ROP	Recurring Outpatient	ROP

ROS	Recurring Outside Patient	ROS
SDS	Same Day Surgery (Outpatient)	SDS
SURG	Surgery (Inpatient)	SURG

PV1-36: Discharge Disposition

Identifies the patient’s discharge disposition. There are over 100 permissible values. A sampling of those values is below. See [HL70112 table](#) for full value set. Click to see table.

Code	Concept Name	PV1-36 Value
1	Discharged to home care or self-care (routine discharge)	1
9	Admitted as an inpatient to this hospital	9
101	Discharged to Care of Family/Friend(s)	101
103	Discharged to Court/Law Enforcement/Jail	103

PV1-37: Discharged to Location

The value for this field will vary by facility. It is the DLD data type, and is the only field that uses the data type. See DLD – Discharged to Location and Date. As the explanation in the data type explains, there are two components to this: locally defined facility code for where the patient was discharged, and the date/time that happened. Example:

- |A4304505^201505050425-0005|

PV1-44: Admit Date and Time

This field is the date/time the patient was admitted, if applicable. It’s the TS data type. See TS – Time Stamp. Examples:

- |201504202130| or |201504202130-0005|

PV1-45: Discharge Date and Time

This field is the date/time the patient was discharged, if applicable. It’s the TS data type. See TS – Time Stamp. Examples:

- |201504210735| or |201504210735-0005|

NK1

NK1- Next of Kin				
#	Description	Usage	DT	Example
1	Set Id	R	SI	Literal value: 1
2	Name	RE	XP	See example.
3	Relationship	RE	CWE	See example.
4	Address	RE	XAD	See example.
5	Phone Number	RE	XTN	See example.
6	Business Phone Number	O	XTN	See example.
7	Contact Role	RE	CWE	See example.
13	Organization Name – NK1	RE	XON	Only use if the “person” is an organization.
20	Primary Language	O	CWE	See example.
30	Contact Person’s Name	RE	XP	See example.
31	Contact Person’s Telephone Number	RE	XTN	See example.
32	Contact Person’s Address	RE	XAD	See example.

NK1-2: Name

Next of kin’s name. Follows XP data type. See XP – Extended Person Name. NBS requires name type code be sent in NK1-2.7 as the value L.

- |Doe^John^Q^^Dr^PHD^L^^^^^^^|

NK1-3: Relationship

This field identifies the relationship between this NK1 person and the patient identified in the message’s PID segment. See CWE – Coded With Exception. Values are from the [HL70063 table](#). See the table for full values. Example:

- |BRO^Brother^HL70063^^^^HL7 v.2.5|

NK1-4: Address

This is the NK1's address. Straight forward. See XAD – Extended Address for more guidance in the Data Types section.

Example:

- |1234 Public Health Way^Suite 123^Lincoln^NE^68512^USA^L^^31109|

NK1-5: Home Phone Number

See XTN – Extended Telecommunication Number for more guidance in the Data Types section.

- |^PRN^PH^^1^402^4713727^^|

NK1-6: Business Phone Number

See XTN – Extended Telecommunication Number for more guidance in the Data Types section.

- |^WPN^PH^^1^402^4713727^^|

NK1-7: Contact Role

Identifies contacts types. Values are from the [HL70131 table](#) as shown below in the Data Types section.

Code	Concept Name	Value Set	Resulting NK1-7
C	Emergency Contact	HL70131	C^Emergency Contact^HL70131
E	Employer	HL70131	E^Employer^HL70131
F	Federal Agency	HL70131	F^Federal Agency^HL70131
I	Insurance Company	HL70131	I^Insurance Company^HL70131
N	Next-of-Kin	HL70131	N^Next-of-Kin^HL70131
O	Other	HL70131	O^Other^HL70131
S	State Agency	HL70131	S^State Agency^HL70131
U	Unknown	HL70131	U^Unknown^HL70131

NK1-13: Organization Name – NK1

If the NK1 “person” is actually an organization, then that information goes here. A contact person within the organization is then sent in NK1-30, NK1-31, and NK1-32. See XON – Extended Composite Name and Identification Number for Organizations in the Data Types section.

- |ACME Workplace^L^^^^^^^| or |ACME Workplace^L^^^^&2.16.840.1.113883.19.4.6&ISO^XX^^1234|

NK1-20: Primary Language

Optional field. If sent, it must follow the CWE format. See CWE – Coded With Exception in the Data Types section. Values for language are in the [PHVS Language ISO 639-2 Alpha3 table](#). Click to see the table for full set of values. Examples are below.

- |eng^English^ISO6392| or |eng^English^ISO6392^^^3/30/2007|
- |spa^Spanish^ISO6392| or |spa^Spanish^ISO6392^^^3/30/2007|

NK1-30: Contact Person's Name

See XPN – Extended Person Name in the Data Types section. Example:

- |Doe^John^Q^^Dr^PHD^L^^^^^^^|

NK1-31: Contact Person's Telephone Number

. See XTN – Extended Telecommunication Number in the Data Types section. Examples:

- Home (primary residence) phone example: |^PRN^PH^^1^402^4713727^^|
- Work phone example: |^WPN^PH^^1^402^4713727^^|

NK1-32: Contact Person's Address

See XAD – Extended Address in the Data Types section. Example:

- |1234 Public Health Way^Suite 123^Lincoln^NE^68512^USA^L^^31109|

ORC

ORC: Common Order Segment				
#	Description	Usage	DT	Example
1	Order Control	R	ID	Literal value: RE
2	Placer Order Number	RE	EI	See example.
3	Filler Order Number	R	EI	See example.
4	Placer Group Number	RE	EI	See example.
5	Order Status	O	ID	See example.
12	Ordering Provider	R	XCN	Ordering Provider and NPI (if applicable)
14	Call Back Phone Number	R	XTN	See example.
15	Order Effective Date/Time	R	TS	Date Test Ordered YYYYMMDD (time optional)
21	Ordering Facility Name	R	XON	See example.
22	Ordering Facility Address	R	XAD	See example.
23	Ordering Facility Phone Number	R	XTN	See example.
24	Ordering Provider Address	R	XAD	Ordering Provider Zip Code

ORC-2: Placer Order Number

This field is the same as OBR-2. It 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 ORC-2 empty. See EI data type in the Data Types section. This value must be the same as in OBR-2. Example:

- |23456&EHR&2.16.840.1.113883.19.3.2.3&ISO|

ORC-3: Filler Order Number

This value must be the same as in OBR-3. Additional guidance from the national guide is as follows: “In the circumstance where some of the lab results are generated by the lab, but others are performed by a reference lab, the sending lab can choose what filler order number to use, but whatever is used, the sending lab is expected to be able to trace all the observations in the lab result back to the appropriate source lab based on the filler order number provided in ORC-3.” Example:

- |789012&EHR&2.16.840.1.113883.19.3.2.3&ISO|

ORC-4: Placer Group Number

The placer group number is used to identify a group of orders. In the laboratory setting this is commonly referred to as a ‘requisition number’. EI data type. See EI – Entity Identifier in the Data Types section. Example:

- |1597538246&EHR&2.16.840.1.113883.19.3.2.3&ISO|

ORC-5: Order Status

Optional field. Valid values are from the [HL70038 table](#) are must be sent following the ID data type format. Click to see table. See ID – Coded Value for HL7-Defined Tables in the Data Types section. The example below uses the code “CM” indicating the “order is completed.”

- |CM|

ORC-12: Ordering Provider

This value must be the same value as OBR-16. It is the XCN data type. See XCN – Extended Composite ID Number and Name for Persons in the Data Types section. The type code in XCN-10 (ORC-12.10) is required to be L.

|123^Admit^Alan^A^III^Dr^^&2.16.840.1.113883.19.4.6&ISO^L^^&2.16.840.1.113883.19.4.6&ISO^^^^^MD|

ORC-14: Call Back Phone Number

This is a phone number associated with the ordering provider and will be the same value as OBR-17.

- |^WPN^PH^^1^402^4713727^^|

ORC-21: Ordering Facility Name

This identifies the facility that ordered the test. It’s the XON data type. See XON – Extended Composite Name and Identification Number for Organizations in the Data Types section. Example:

- |ACME Workplace^L^^^^^^^| or |ACME Workplace^L^^^^^&2.16.840.1.113883.19.4.6&ISO^XX^^^1234|

ORC-22: Ordering Facility Address

Identifies the address for the facility in ORC-21. XAD data type. See XAD – Extended Address in the Data Types section. Example:

- |1234 Public Health Way^Suite 123^Lincoln^NE^68512^USA^L^^31109|

ORC-23: Ordering Facility Phone Number

Identifies the phone number for the ordering facility in ORC-21. XTN data type in the Data Types section. See XTN – Extended Telecommunication Number. Example:

- |^WPN^PH^^1^402^4713727^^|

ORC-24: Ordering Provider Address

Identifies the address for the ordering provider in ORC-12. XAD data type in the Data Types section. See XAD – Extended Address. Example:

- |1234 Public Health Way^Suite 123^Lincoln^NE^68512^USA^L^^31109|

OBR

OBR: Observation Request Segment				
#	Description	Usage	DT	Example
1	Set ID – OBR	R	SI	Number in OBR sequence (1, 2, etc.)
2	Placer Order Number	RE	EI	See example.
3	Filler Order Number	R	EI	See example.
4	Universal Service Identifier	R	CWE	See example.
7	Observation Date/Time	R	TS	See example.
8	Observation End Date/Time	RE	TS	See example.
16	Ordering Provider	RE	XCN	See example.
17	Order Callback Phone Number	RE	XTN	See example.
22	Results Rpt/Status Chng – Date/Time	R	TS	See example.
24	Diagnostic Serv Sect Id	RE	ID	See example.
25	Result Status	R	ID	See example.
26	Parent Result	RE	PRL	See example.
29	Parent	RE	EIP	OBR-29 is a complex field that contains both the Placer order number (ORB.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.
31	Reason for Study	RE	CWE	See example.
32	Principal Result Interpreter	RE	NDL	See example.

OBR-2: Placer Order Number

This is the identifier used by the “placer” of the ordered test. See EI – Entity Identifier in the Data Types section. The Placer Order Number and the Filler Order Number are essentially foreign keys exchanged between applications for uniquely identifying orders and the associated results across applications.

- |23456^EHR^2.16.840.1.113883.19.3.2.3^ISO|

OBR-3: Filler Order Number

This is the identifier used by the “filler” of the test, the filler being the organization performing the test. See EI – Entity Identifier.

The Filler Order Number, along with the Placer Order Number, is essentially foreign keys exchanged between applications for uniquely identifying orders and the associated results across applications.

- |78901^EHR Lab^2.16.840.1.113883.19.4.5.6^ISO|

OBR-4: Universal Service Identifier

Identifies the observation/test battery. LOINC’s will be required unless no LOINC code exists. See CWE – Coded With Exception in the Data Types section.

- |50545-3^Bacterial susceptibility panel:-:Pt:Isolate:OrdQn:MIC^LN^^^^2.26|

OBR-7: Observation Date/Time

Identifies the date/time the specimen was collected. It should be the same value as SPM-17 and OBX-14 (for each OBX related to this OBR) and should be precise, at a minimum, to the day. See TS – Time Stamp in the Data Types section.

- |20150506143608.0031-0005|

OBR-8:

If a specimen was collected over time, this should be the date/time for when the collection stopped. Precision to the day. See TS – Time Stamp in the Data Types section.

- |20150506143608.0031-0005|

OBR-13: Relevant Clinical Information

This is a free text field that can contain anything relevant to the test. Up to the facility. Be mindful of length of the data, and try to limit it to under 100 characters.

- |The test was ordered.|

OBR-16: Ordering Provider

This is the person that ordered the test. It should be the same as ORC-12. National guide suggests NPI number as a possible identifier for the provider. See XCN – Extended Composite ID Number and Name for Persons in the Data Types section.

- |123^Admit^Alan^A^III^Dr^^&2.16.840.1.113883.19.4.6&ISO^L^^^^&2.16.840.1.113883.19.4.6&ISO^^^^^^MD|

OBR-17: Order Callback Phone Number

This field should contain a phone number for the “original order placer” that the laboratory can call with questions regarding the order. It should be the same as the number in OBR-14. XTN data type. See XTN – Extended Telecommunication Number in the Data Types section.

- |^WPN^PH^^1^402^4713727^^|

OBR-22: Results Rpt/Status Chng – Date/Time

See TS – Time Stamp. Example:

- |20150506143608.0031-0005|

OBR-24: Diagnostic Service Sect ID

This is RE for sender's (hospitals and labs), and optional for public health. It's being included here, but if it can't be sent using the proper values from the table, it should be blank. Values are from the [HL70074 table](#). The example is for the code for "Microbiology." Example:

- |MB|

OBR-25: Result Status

This value is required and indicates the status of the test result.

Code	Meaning	Resulting OBR-25 Value
C	Correction to results	C
F	Final results; results stored and verified. Can only be changed with a corrected result.	F
P	Preliminary: A verified early result is available, final results not yet obtained	P

OBR-26 – Parent Result

This field links back to a parent OBX segment, for example, when sending antibiotic susceptibilities.

OBR-26 is comprised of 3 components.

#	Description	Parent OBX Segment	Example
1	Parent Observation Identifier	OBX-3	625-4^Bacteria identified:Prid:Pt:Stool:Nom:Culture^LN^^^2.26
2	Parent Observation Sub-Identifier	OBX-4	2
3	Parent Observation Value Descriptor	OBX-5.2	302620005^Salmonella group B phase 1 a-e^SCT^^^January 2007

After combining OBX-3, OBX-4, and OBX-5.2, OBX-26 looks like this:

- |625-4&Bacteria identified:Prid:Pt:Stool:Nom:Culture&LN&&&2.26^2^Salmonella group B phase 1 a-e|

Note: the separator characters changed from ^ within the OBX-3 text to & because the components of OBX-3 become subcomponents in OBR-26, and OBX-3, OBX-4, and OBX-5.2 are collectively components and are thus separated by ^.

OBR-29: Parent

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.

- |23456&EHR&2.16.840.1.113883.19.3.2.3.&ISO^9700122&Lab&2.16.840.1.113883.19.3.1.6&ISO|

OBR-31: Reason for Study

National guidance suggest ICD9CM, ICD10CM, or CORE Problem List Subset of SNOMED CT. Data type is CWE. See CWE – Coded With Exception in the Data Types section. The same code (OBR-31.1) cannot be sent multiple times if more than one reason is set in this repeatable field (i.e., every item must be unique). Example:

- |787.91^DIARRHEA^I9CDX|

OBR-32: Principal Result Interpreter

This field, per national guidance, is used for "pathology results." It's a person that interpreted the results.

- |1234&Admit&Alan&A&III&Dr&MD&&DOC&2.16.840.1.113883.19.4.6&ISO|

OBX: Note: Ask on Order Entry Questions – Refer to Appendix D

OBX: Observation/Result Segment				
#	Description	Usage	DT	Example
1	Set ID	R	SI	See example.
2	Value Type to identify OBX-5	R	ID	See example.
3	Observation Identifier	R	CWE	All Ask on Order Entry Questions belong as separate OBX-3 values (Optional for a short period of time – but work to get these built out in your systems and sent as well by Sept/Oct 2020)
4	Observation Sub-ID	RE	ST	See example.
5	Observation Value	R		Test Result (required now) All Ask on Order Entry Answers belong as separate OBX-5 values (Optional for a short period of time – but work to get these built out in your systems and sent as well by Sept/Oct 2020)
6	Units	R	CWE	See example.
7	References Range	RE	ST	See example.
8	Abnormal Flags	R	CWE	See example.
11	Observation Result Status	R	ID	See example.
14	Date/Time of the Observation	R	TS	Date/Time Collected
17	Observation Method	R	CWE	Device identifier (describes the kind of device)
19	Date/Time of the Analysis	R	TS	Test Result Date
23	Performing Organization Name	R	XON	Performing Facility Name and/CLIA number if known
24	Performing Organization Address	R	XAD	Performing Facility Zip Code
25	Performing Organization Medical Director	RE	XCN	See example.

```
OBX|1|CWE|625-4^Bacteria identified:Prid:Pt:Stool:Nom:Culture^LN^^^2.26|1|66543000^Campylobacter
je juni^SCT^^^January 2007|||||P||||200906041458|||0086^Bacterial identification^OBSMETHOD^^^501-
20080815||200906051700|||GHH Lab^L^^^CLIA&2.16.840.1.113883.19.4.6&ISO^XX^^^1236|3434 Industrial Loop^^Ann
Arbor^MI^99999^USA^B|9876543^Slide^Stan^S^^^NPPES&2.16.840.1.113883.19.4.6&ISO^L^^^NPI
```

OBX-1: Set ID – OBX

This is a sequential identifier. The first OBX in a sequence shall be 1, followed by 2, then 3, etc.

- |1| or |2| or |3| etc.

OBX-2: Value Type

The value in OBX-2 defines the type of data in OBX-5. That is its sole purpose. NEDSS does not support all HL7 permissible data types. It must be CWE, CE, SN, TX, or ST. The list of permissible values may change over time.

Data Type	Comments
CWE	Should be used to send test results using LOINC's and local codes when no LOINC's exist.
SN	Should be used to send numeric data.
NM	
TX	
ST	These are permissible, but should only be used sparingly in OBX-2, if ever.

OBX-3: Observation Identifier

This segment identifies the resulted test (e.g., bacteria identified in urine by culture). It is based on the CWE data type in the Data Types section. See CWE – Coded With Exception. LOINC codes shall be used in all cases except for when a LOINC code does not exist, and only then can a local code be used only. Local codes can be sent in addition to the LOCAL code and NDHHS requires that LOINC's be sent in CWE-1-3, and local codes be sent in CWE-4-6.

- |630-4^Urine culture^LN^UC^Urine culture^L^Version 2.0^1.1|

OBX-4: Observation Sub-ID

If there is more than one OBX with the same OBX-3 value, then the OBX-4 value should be unique to identify the segments.

- |1| or |2| or |3| etc.

OBX-5: Observation Value

The value in OBX-2 determines this segments values. To see complete details for each of these, look at the individual data types (see **Error! Reference source not found.**). This table shows examples for the various types.

OBX-2 Value	OBX-5 Example Value
CWE	630-4^Urine culture^LN^UC^Urine culture^L^Version 2.0^1.1^^^^^^^^^^
SN	<=^2.0000

OBX-6: Units

Units of measure are required for those tests in which the result is numeric. Units of measure are defined in the [PHVS UnitsOfMeasure CDC table](#) (click to see table) and follow the Unified Code for Units of Measure (UCUM) specifications. See the table for full list of permissible values. Selected examples are below.

- |L^Liter [volume]^UCUM|
- |ug/dL^microgram per decileter^UCUM|

OBX-7: References Range

This is text, limited to 60 characters, that defines the reference range for the result in OBX-5 to help explain the interpretation in OBX-8. This example would indicate the expected range for the test was between 45.000 and 150.000.

- |45.000 - 150.000|

OBX-8: Abnormal Flags

This is used to send the interpretation of a result. It's used in susceptibility results. Values are from the [HL70078 table](#). Selected values are shown below. See the [HL70078 table](#) for all permissible values, click to see table.

Code	Meaning	Resulting OBX-8 Value
A	Abnormal	A
R	Resistant	R
S	Susceptible	S
I	Indeterminate	I

OBX-11: Observation Result Status

Values are from the [HL70085 table](#). NDHHS constrains the values to the following:

Code	Meaning	Resulting OBX-11 Value
C	Record coming over is a correction and thus replaces a final result.	C
F	Final results; Can only be changed with a corrected result.	F
P	Preliminary results.	P

OBX-14: Date/Time of the Observation

This is the date/time a specimen was collected if one was indeed collected. It will be the same value as OBR-7 and SPM-17.1. OBX-19 should contain the date/time the test was conducted. See TS – Time Stamp. Examples:

- |201505081530| or |201505081530-0500|

OBX-17: Observation Method

Contains the “method of testing by the laboratory” and national guidance requires this field be populated if the information in OBX-3 contains no method for the testing. Values are in the [PHVS labTestMethods CDC table](#), click to see table See CWE – Coded With Exception in the Data Types section. Example:

- |0101^Immunoassay^OBSMETHOD^^^^HL7 v3|

OBX-17: Device Identifier

OBX-17 specifications using the CWE datatype, will populate the original text component (**OBX-17.9**)

OBX-17 specifications using CE will populate the text component (**OBX-17.2**) based on the following formula to construct the string based identifier:

- <Model name or Device ID>_<Manufacturer name>_<Abbreviation for the type>

Use the model name of the device identifier that can be extracted from the LIVED document followed by the manufacturers name and an abbreviation for the kind of identifier being sent

- Review LOINC In Vitro Diagnostic ([LIVED](#)) Test Code Mapping for SARS-CoV-2 Tests and usage of document

Encouraged to put an NTE following the OBX for the result

- Adjust the nickname to follow what will be provided in the CDC published LIVED document
- Captured in **OBX-17.5** with a test kit nickname provided by TA
- Or in **NTE following the OBX for the result**

To address the differences:

- Adjust the nickname to follow what will be provided in the CDC published LIVED document

OBX-19: Date/Time of the Analysis

This segment should be different than OBX-14 as that should be the date/time the specimen was collected, unless the date/time happens to be the same. See TS – Time Stamp in the Data Types section. Examples:

- |201505081545| or |201505081545-0500|

OBX-23: Performing Organization Name

See XON – Extended Composite Name and Identification Number for Organizations in the Data Types section.

- |ACME Lab^L^^^^^^^| or |ACME Lab^L^^^^&2.16.840.1.113883.19.4.6&ISO^XX^^1234|

OBX-24: Performing Organization Address

Required. See XAD – Extended Address in the Data Types section.

- |1234 Public Health Way^Suite 123^Lincoln^NE^68512^USA^L^^31109|

OBX-25: Performing Organization Medical Director

If available, it should be sent. See XCN – Extended Composite ID Number and Name for Persons in the Data Types section.

- |123^Admit^Alan^A^III^Dr^^&2.16.840.1.113883.19.4.6&ISO^L^^&2.16.840.1.113883.19.4.6&ISO^^^^^^MD|

SPM

SPM: Specimen Segment				
#	Description	Usage	DT	Example
1	Set ID – SPM	R	SI	Literal value: 1

2	Specimen ID	R	EIP	Accession # Specimen ID
4	Specimen Type	R	CWE	Specimen Source
5	Specimen Type Modifier	RE	CWE	See example.
6	Specimen Additives	RE	CWE	See example.
7	Specimen Collection Method	RE [±]	CWE	See example.
8	Specimen Source Site	RE	CWE	See example.
9	Specimen Source Site Modifier	RE	CWE	See example.
11	Specimen Role	RE	CWE	See example.
12	Specimen Collection Amount	RE	CQ	See example.
14	Specimen Description	O	ST	See example.
17	Specimen Collection Date/Time	R	DR	Date Specimen Collected
18	Specimen Received Date/Time	R	TS	See example.
19	Specimen Expiration Date/Time	O	TS	See example.
20	Specimen Availability	O	ID	See example.
21	Specimen Reject Reason	RE	CWE	See example.
22	Specimen Quality	O	CWE	See example.
24	Specimen Condition	O	CWE	See example.
25	Specimen Current Quantity	O	CQ	See example.
26	Number of Specimen Containers	O	NM	See example.

SPM-2: Specimen ID

This is a unique id value for the specimen. The value should be the “identifier for the specimen as referenced by the Placer application, the Filler application, or both. Note that the specimen id is not the same thing as the placer/filler order number. Order numbers identify the specific test to be performed on a specimen. A particular specimen may be associated with multiple orders (and multiple placer/filler order numbers). The specimen id may be the same as an accession number, depending on how the particular lab assigns accession numbers.

Value is an EIP data type. See EIP – Entity Identifier Pair in the Data Types section. The first component is the placer’s specimen identifier. The second is the filler’s specimen identifier.

- |23456&EHR&2.16.840.1.113883.19.3.2.3&ISO^9700122&Lab&2.16.840.1.113883.19.3.1.6&ISO|

SPM-4: Specimen Type

The values for specimen type come from the [HL70487 table](#) and the [SNOMED CT Specimen hierarchy](#) (preferred) click to see tables. Both will be accepted but SNOMED CT codes are preferred. Must follow the CWE format. See CWE – Coded With Exception in the Data Types section. Examples are shown for both value sets:

- |258497007^Abscess swab (specimen)^SCT^^^^v6|
- |ABS^Abscess^HL70487^^^^HL7 v2.5|

SPM-5: Specimen Type Modifier

Only if SPM-2: Specimen ID

This is a unique id value for the specimen. The value should be the “identifier for the specimen as referenced by the Placer application, the Filler application, or both. Note that the specimen id is not the same thing as the placer/filler order number. Order numbers identify the specific test to be performed on a specimen. A particular specimen may be associated with multiple orders (and multiple placer/filler order numbers). The specimen id may be the same as an accession number, depending on how the particular lab assigns accession numbers.

Value is an EIP data type. See EIP – Entity Identifier Pair in the Data Types section. The first component is the placer’s specimen identifier. The second is the filler’s specimen identifier.

- |23456&EHR&2.16.840.1.113883.19.3.2.3&ISO^9700122&Lab&2.16.840.1.113883.19.3.1.6&ISO|

SPM-4: Specimen Type is sent as a SNOMED code (preferred method), should this be sent if known or available. It provides additional information about the specimen type. Values are in the [PHVS ModifierOrQualifier CDC table](#). Click to see table. See CWE – Coded With Exception in the Data Types section.

Example:

- |277112006^Abdominal (qualifier value)^SCT^^^v5|

SPM-6: Specimen Additives

The values for specimen additives come from the [HL70371 table](#). Click to see table. CWE format. See CWE – Coded With Exception in the Data Types section. Examples:

- |ACET^Acetic Acid^HL70371^^^v1|
- |NAF^Sodium Fluoride^HL70371^^^v1|

SPM-7: Specimen Collection Method

The values for specimen collection method come from the [HL70488 table](#) and the [SNOMED CT procedure hierarchy](#) (preferred). Click to see tables. Both will be accepted but SNOMED CT codes are preferred. Must follow CWE format. See CWE – Coded With Exception in the Data Types section. Examples are shown for both value sets:

- |1048003^Capillary specimen collection (procedure)^SCT^^^v2|
- |BIO^Biopsy^HL70488^^^v1|

SPM-8: Specimen Source Site

The values for specimen source site are in the [PHVS BodySite HITSP table](#). Click to see table. Must follow CWE format. See CWE – Coded With Exception in the Data Types section. Example:

- |1910005^Entire ear (body structure)^SCT^^^v4|

SPM-9: Specimen Source Site Modifier

If SPM-8: Specimen Source Site is sent as a SNOMED, the SPM-9 can be populated with a modifier value to provide additional information. Values are in the [PHVS ModifierOrQualifier CDC table](#). See CWE – Coded With Exception in the Data Types section. Example:

- |360236000^Abrasion – lesion (qualifier value)^SCT^^^v5|

SPM-11: Specimen Role

Values for this field are in the [HL70369 table](#) and provide additional information about the specimen. Click to see table. CWE data type. See CWE – Coded With Exception in the Data Types section. Example:

- |Q^Control Specimen^HL70369^^^9/26/2008|
- |P^Patient^HL70369^^^9/26/2008|

SPM-12: Specimen Collection Amount

For some specimens, a collection amount and units for the amount should be specified. The Unified Code for Units of Measure (UCUM) is what is used to convey the units of measurement. The [PH UnitsOfMeasure UCUM](#) table contains the available values. Click to see table. Segment is the CQ data type. See CQ – Composite Quantity with Units in the Data Types section.

- |2^L&liter [volume]&UCUM&&&v4|

SPM-14: Specimen Description

This is an optional text field that can be used to describe the specimen. Be mindful of field length.

- |This is text to describe the patient's specimen.|

SPM-17: Specimen Collection Date/Time

This field is the date range for which the specimen was collected. The Date Range data type is just two Time Stamp data types, one for start and one for end. If there is no “range” for the specimen collection, the first field for “start date/time” will be the only one populated. See DR – Date/Time Range. Also of note, the values for OBR-7: Observation Date/Time and OBX-14: Date/Time of the Observation should be the same as the value here.

Examples:

- Single collection date/time: |201505131435| or |201505131435-0005|
- Collection range: |201505131435^201505131445| or |201505131435-0005^201505131445-0005|

SPM-18: Specimen Received Date/Time

This is the date/time that a specimen was received by the lab performing the test (the national guide calls it the “diagnostic service”). See TS – Time Stamp in the Data Types section.

- |20150506143608.0031-0005|

SPM-19: Specimen Expiration Date/Time

This optional field is the date/time that a specimen expired, or will expire. See TS – Time Stamp in the Data Types section.

- |20150506143608-0005|

SPM-20: Specimen Availability

This is a simple indicator for whether the specimen is still available. Values are from the [HL70136 table](#) and are either Y or N. Click to see table.

- |Y| or |N|

SPM-21: Specimen Reject Reason

If the specimen was rejected, why? That reason is sent here. Values are in the [HL74090 table](#). Click to see table. CWE – Coded With Exception in the Data Types section. Examples:

- |RB^Broken container^HL74090^^^^9/26/2008|
- |EX^Expired^HL74090|
- |QS^Quantity not sufficient^HL74090^^^^HL7 2.5|

SPM-22: Specimen Quality

This is a coded value describing the quality of the specimen. Values are from the [HL70491 table](#). Click to see table.

Code	Value	Resulting SPM-22
E	Excellent	E
F	Fair	F
G	Good	G
P	Poor	P

SPM-24: Specimen Condition

This describes the condition of the specimen. Values are from the [HL70493 table](#). Click to see table. See CWE – Coded With Exception in the Data Types section. Examples:

- |FROZ^Frozen^HL70493^^^^v1|
- |LIVE^Live^HL70493^^^^v1|

SPM-25: Specimen Current Quantity

This field allows for the amount of specimen still available. The Unified Code for Units of Measure (UCUM) is what is used to convey the units of measurement. The [PH_UnitsOfMeasure_UCUM](#) table contains the available values. Click to see table. Segment is the CQ data type. See CQ – Composite Quantity with Units in the Data Types section.

- |2^L&liter [volume]&UCUM&&&&v4|

SPM-26: Number of Specimen Containers

Pretty simple. If the specimen was stored in a container, how many?

- |1|

NTE

NTE: Notes and Comments Segment				
#	Description	Usage	DT	Example
1	Set ID – NTE	R	SI	Literal values: 1 , 2 , etc.
2	Source of Comment	RE	ID	See example.
3	Comment	R	FT	See example.
4	Comment Type	RE	CWE	See example.

- NTE|1|O|This is the text of the comment.|GR^General Reason^HL70364^^^^2.51

NTE-2: Source of Comments

This field identifies where the comment originates. See ID – Coded Value for HL7-Defined Tables. Values are from the [HL7 0105 table](#). Click to see table. This should be sent if known.

Code	Description	Resulting NTE-4 Value
L	Ancillary (filler) department is source of comment	L
P	Orderer (placer) is source of comment	P
O	Other system is source of the comment	O

NTE-3: Comment

This is the actual comment text. See FT – Formatted Text Data. Be mindful of the size of the data field.

- |This is the text of the comment. |

NTE-4: Comment Type

This defines the comment type. CWE data type. CWE – Coded With Exception. Values are from the [HL70364 table](#) and are shown below. Click to see table.

Code	Meaning	Resulting NTE-4 Value
AI	Ancillary Instructions	AI^Ancillary Instructions^HL70364^^^^2.51
DR	Duplicate/Interaction Reason	DR^Duplicate/Interaction Reason^HL70364^^^^2.51
GI	General Instructions	GI^General Instructions^HL70364^^^^2.51
GR	General Reason	GR^General Reason^HL70364^^^^2.51
PI	Patient Instructions	PI^Patient Instructions^HL70364^^^^2.51
1R	Primary Reason	1R^Primary Reason^HL70364^^^^2.51
RE	Remark	RE^Remark^HL70364^^^^2.51
2R	Secondary Reason	2R^Secondary Reason^HL70364^^^^2.51

Data Types

These data types defines the structure to populate these fields.

CNN – Composite ID Number and Name Simplified

#	Description	DT	Usage	Information
---	-------------	----	-------	-------------

1	ID Number	ST	RE	
2	Family Name	ST	RE	
3	Given Name	ST	RE	
4	Second and Further Given Names or Initials Thereof	ST	RE	
5	Suffix	ST	RE	
6	Prefix	ST	RE	
7	Degree	IS	RE	
9	Assigning Authority – Namespace ID	IS	RE	
10	Assigning Authority – Universal ID	ST	CE	
11	Assigning Authority – Universal ID Type	ID	CE	

Example

- |1234^Admit^Alan^A^III^Dr^MD^^DOC^2.16.840.1.113883.19.4.6^ISO|

CQ – Composite Quantity with Units

#	Description	Required/ Optional	DT	Example
1	Quantity	R	NM	2
2	Units	RE	CWE	L&Liter&UCUM&&&&10/16/2008

Example

- |2^ L&Liter&UCUM&&&&10/16/2008|

CWE – Coded With Exception

The coded with exception (CWE) data type is as follows.

#	Description	Data Type	R/O	Example
1	Identifier (LOINC Code, HL7 table code, etc.)	ST	R	630-4
2	Description	ST	R	Urine culture
3	System used (LN = LOINC)	ID	R	LN
4	Alternate Identifier (Local code)	ST	O	UC
5	Alternate description	ST	O	Urine culture
6	Alternate system (L = Local)	ID	O	L
7	Coding System Version (for #3)	ST	O	Version2.0
8	Alternate coding system version (for field #6)	ST	O	1.1
9	Original Text	ST	O	Any text.

Example

630-4^Urine culture^LN^UC^Urine culture^L^Version^^^^^^^^^^

CX – Extended Composite ID with Check Digit

#	Description	Data Type	R/O	Information
1	ID Number	ST	R	
4	Assigning Authority	HD	RE	
5	Identifier Type Code	ID	R	See HL70203 list
6	Assigning Facility	HD	RE	

Example

- |123456A^^^55554444&ACME Hospital&CLIA^MR^55554444&ACME Hospital&CLIA^^^|

DLD – Discharged to Location and Date

This is comprised of two parts, an IS data type field and a TS field. It’s only used for PV1-37. The IS value should be a code to identify where the patient was discharged. It’s defined by the sending facility. The TS field is the date/time that the patient was discharged. Example:

IS Value	TS Value	Resulting DLD Value
A4304505	201505050425-0005	A4304505^201505050425-0005

DR – Date/Time Range

This is made from two DTM segments separated by the ^. The example produces a range from February 12, 2014 at 8:00 AM (-0500 time zone offset) to October 21, 2014 at 4:32 PM (-0500 time zone offset).

Example

201402120800.0000-0500^201410211631.0000-0500

DT – Date

This is the Date data type. Its format is YYYYMMDD with only the YYYY being required.

Example

20141021

DTM – Date/Time

This is the Date/Time data type. It is only used as part of the TS data type.

The format is YYYYMMDDHHMMSS with a + or – followed by the time zone offset, ZZZZ but the precision can be further refined (e.g., YYYYMMDDHHMMSS.SSSS-ZZZZ).

Example

- |20141021162905.0005-0500|

EI – Entity Identifier

This data type is used to identify “entities,” including software. The example shows an identifier, 23456, followed by the system that created that identifier, EHR, along with identifying information, OID, and type ISO.

ID	Description	DT	Usage	Information
1	Entity Identifier	ST	R	
2	Namespace ID	IS	RE	
3	Universal ID	ST	R	Must be an OID
4	Universal ID Type	ID	R	Constrained to ISO (see list)

Example

- |23456^EHR^2.16.840.1.113883.19.3.2.3^ISO|

EIP – Entity Identifier Pair

This data type is simply a combination of two EI data type values.

#	Description	DT	Usage	Information
1	Placer Assigned Identifier	EI	RE	
2	Filler Assigned Identifier	EI	RE	R if OBR-29.

Example

- |23456&EHR&2.16.840.1.113883.19.3.2.3&ISO^9700122&Lab&2.16.840.1.113883.19.3.1.6&ISO|

FT – Formatted Text Data

It’s just free text, but you can use formatting characters.

HD – Hierarchic Designator

This is the hierarchic designator. It identifies facilities and applications.

ID	Description	Example
1	Namespace ID	e.g., NameOfLab
2	Universal ID	Facility OID or CLIA value
3	Universal ID Type	CLIA or ISO only (see list)

ID – Coded Value for HL7-Defined Tables

This is a data type for sending values that are from HL7-defined tables. It is used to send the coded value. This data type is just like the IS data type and the format is identical, but that one is used to send locally-defined table values. For example, MSH-15 is an ID data type and the values for the field are to come from the HL70155 table ([here](#)). If you look at the table, the values are AI, ER, NE, and SU. So, MSH-15 would look just like the example below. The takeaway for the data type is just send the code per the available values.

Example

- |NE|

IS – Coded Value for User-Defined Tables

This is a data type for sending values that are from user-defined tables. It is used to send the coded value. This data type is just like the IS data type and the format is identical, but that one is used to send locally-defined table values. For example, PID-8 is an IS data type and the values for the field are to come from the HL70001 table ([here](#)). What is slightly confusing about this example is that the table of values is HL70001 and the national guidance says to use the data type for “locally defined” values. However, this table is user-defined at a national level, not HL7. If you look at the table, the values in the table are A, F, M, N, O, and U. So, PID-8 would look just like the example below. The takeaway for the data type is just send the code per the available values.

Example

- |F|

MSG – Message Type

This is the message type data type. It is comprised of three parts:

ID	Description	
1	Message Code	
2	Trigger Event	
3	Message Structure	

NDL – Name with Date and Location

#	Description	DT	Usage	Information
1	Name	CNN	R	

Example

- |1234&Admit&Alan&A&III&Dr&MD&&DOC&2.16.840.1.113883.19.4.6&ISO|

NM – Numeric

This is the numeric data type. It is used to send numbers and can have an optional leading + or – as well as an optional decimal point.

Examples

- |1|
- |+1|
- |-1|
- |1.00|

PL – Person Location

The Person Location data type is comprised of three parts.

#	Description	DT	Usage	Information
1	Point of Care	IS	RE	HL70302 table is not defined.
2	Room	IS	RE	HL70303 table is not defined.
3	Bed	IS	RE	HL70304 table is not defined.

In this example, we're identifying the person was in the north wing, in room 127, in bed 1. Each facility will likely be different.

Example

- |North wing^127^1|

PRL – Parent Result Link

This is the Parent Result Link data type, and it is comprised of three components.

- Parent Observation Identifier – when used in OBR-26, this is the parent OBX-3.
- Parent Observation Sub-Identifier – when used in OBR-26, this is the parent OBX-4.
- Parent Observation Value Descriptor – when used in OBR-26, this is the parent OBX-5.
 - If OBX-5 is CE or CWE data type, this will be the text (OBX-5.2).

PT – Processing Type

#	Description	DT	Usage	Example
1	Processing ID	ID	R	D, P, or T (see HL70103 list)
2	Processing Mode	ID	O	A, T, I, Not present, or R (see HL70207 list)

Examples

- |P^T|
- |P|

SI – Sequence ID

This data type is used to order segments in a sequence. An example is a test that contains 2 OBX segments that looks like this:

- OBX|1|....
- OBX|2|....

Here, OBX-1 is the SI data type. The number increases sequentially to identify a particular OBX in the sequence.

The value for the SI data type is a non-negative number from 1 to 9999.

SN – Structured Numeric

This is the structured numeric data type and supports sending intervals, ratios, inequalities, and categorical results. Either the comparator or the separator are used. There are four segments to the SN data type.

ID	Description	Possible Value
1	Comparator	<=
2	First number	1
3	Separator	-
4	Second number	2

The comparator can be one of the following:

- <
- >
- =
- <=
- >=
- <>

The separator can be one of the following:

- -
- +
- /
- .
- :

Examples

- ^0^-^1 (saying the value is between 0 and 1)
- ^1^/^2 (saying it's ½)

- ^1^: ^2 (saying it's 1:2)
- <=^2.0000 (saying the value is less than or equal to 2.0000)
- ^2^+ (saying 2+)
- ^=64 (saying it is 64)

ST – String Data

This data type is simply text.

Example

|Put what you want here. |

TS – Time Stamp

This is a data type for sending date/time. It ends up being the same as the DTM data type because the second segment is no longer supported.

#	Description	DT	Usage	Example
1	Time	DTM	R	
2	Degree of Precision	ID	X	

Example

- |20150506143608.0031-0005 |

TX – Text Data

This is a simple data type. It's just text.

Example

- |This can be used to send just about anything. |

VID – Version Identifier

This is a data type with three components used to identify the version of HL7 message being sent, but for ELR submissions, it's limited to the literal value |2.5.1|. The only place this is used is in MSH-12.

Example

- |2.5.1|

XAD – Extended Address

#	Description	DT	Usage	Example
1	Street Address	SAD	R	
2	Other Designation	ST	RE	Suite, Apt, etc.
3	City	ST	R	
4	State or Province	ST	R	
5	Zip or Postal Code	ST	R	
6	Country	ID	RE	
7	Address Type	ID	RE	
9	County/Parish Code	IS	R	See PHVS County FIPS 6-4 table

Example

- |1234 Public Health Way^Suite 123^Lincoln^NE^68512^USA^L^^31109|

XCN – Extended Composite ID Number and Name for Persons

This is the “Extended Composite ID Number and Name for Persons” data type.

ID	Description	R/O	Data Type	Example
1	ID Number	RE	ST	1
2	Last Name	RE	FN	Doe
3	First Name	RE	ST	John
4	Middle Name(s) and/or initials	RE	ST	Quincy
5	Suffix	RE	ST	SR

6	Prefix	RE	ST	DR
7	Degree	O	IS	MD (see list)
8	Source Table	O	IS	(see list)
9	Assigning Authority	CE	HD	
10	Name Type Code	RE	ID	Must be L (NBS requirement). (see list)
14	Assigning Facility	RE	HD	
21	Professional Suffix	RE	ST	

Example

- |123^Admit^Alan^A^III^Dr^^&2.16.840.1.113883.19.4.6&ISO^L^^&2.16.840.1.113883.19.4.6&ISO^^^^^MD|

XON – Extended Composite Name and Identification Number for Organizations

This is the “Extended Composite Name and Identification Number for Organizations” data type.

ID	Description	R/O	Data Type	Example
1	Organization Name	CE	ST	
2	Organization Name Type Code	RE	IS	A, D, L, or SL (see HL70204 table)
6	Assigning Authority	CE	HD	
7	Identifier Type Code	CE	ID	AN, ANC, AND, etc. (see HL70203 table)
8	Assigning Facility	O	HD	
10	Organization Identifier	RE	ST	

Example

- |ACME Workplace^L^^^^^^^| or |ACME Workplace^L^^^^&2.16.840.1.113883.19.4.6&ISO^XX^^1234|

XPN – Extended Person Name

ID	Description	Usage	DT	Example
1	Family Name	RE	FN	
2	Given Name	RE	ST	
3	Second and Further Given Names or Initials	RE	ST	
4	Suffix	RE	ST	(e.g., JR, III)
5	Prefix	RE	ST	(e.g., DR)
6	Degree	O	IS	(see HL70630 table)
7	Name Type Code	RE	ID	Default to L if blank (see list) – NBS requires L or blank. https://nbscentral.sramanaged.com/redmine/issues/3272
14	Professional Suffix	RE	ST	See HL70360 table

Example

- |Doe^John^Q^^Dr^PHD^L^^^^^^^|

XTN – Extended Telecommunication Number

This is the “Extended Telecommunication Number” data type.

ID	Description	Usage	DT	Example
2	Telecommunication Use Code	RE	ID	PRN, WPN, etc. (see HL70201 table)
3	Telecommunication Equipment Type	RE	ID	PH, FX, CP, etc. (See HL70202 table)
4	Email Address	CE	ST	
5	Country Code	CE	NM	
6	Area/City Code	CE	NM	
7	Local Number	CE	NM	
8	Extension	CE	NM	
9	Any Text	RE	ST	e.g., Business Hours 8am to 5pm.

Example

- Home (primary residence) phone example: |^PRN^PH^^1^402^4713727^^|
- Work phone example: |^WPN^PH^^1^402^4713727^^|

Appendix A – HL7 2.5.1 Guide



HL7 2.5.1 Guide.pdf

<http://dhhs.ne.gov/epi%20docs/HL7-2.5.1-Guide.pdf>

Appendix B – 2019 Reportable Condition Checklist



2019 Reportable
Condition Checklist.

http://dhhs.ne.gov/epi%20docs/2019_Reportable_Condition_Checklist.pdf

Appendix C – COVID-19 Laboratory Data Reporting Guidance



covid-19-laboratory
-data-reporting-gui

<http://dhhs.ne.gov/epi%20docs/covid-19-laboratory-data-reporting-guidance.pdf>

Appendix D – COVID-19 Ask on Order Entry (AOE) Guidance

HHS ELR Submission Guidance – Impacts to HL7 Reporting

Guidance Released on June 4, 2020

CARES Act Section 18115 requires “every laboratory that performs or analyzes a test that is intended to detect SARSCoV-2 or to diagnose a possible case of COVID-19” to report the results from each such test to the Secretary of the Department of Health and Human Services (HHS).

Requires all data be reported through existing public health data reporting methods. Data is asked to be sent to state or local public health departments using existing reporting channels (in accordance with state law or policies).

The [HHS Guidelines](#) also outlined additional required demographic and device data elements as well as Ask on Order Entry questions. Below is additional guidance on how to configure the AOE’s.

Ask on Order Entry Questions from HHS

Ask on Order Entry Questions from HHS

1. First test (Y/N/U)
2. Employed in healthcare? Y/N/U
3. Symptomatic as defined by CDC? Y/N/U; if yes, then **Date of Symptom Onset mm/dd/yy**
4. *Hospitalized? Y/N/U
5. *ICU? Y/N/U
6. Resident in a congregate care setting (including nursing homes, residential care for people with intellectual and developmental disabilities, psychiatric treatment facilities, group homes, board and care homes, homeless shelter, foster care or other setting): (Y/N/U)
7. Pregnant? Y/N/U

First Test: Refers to first COVID-19 test:

1. First test (Y/N/U)

Definition	Allowable Answers	Implementation Guidance	Comments
Patient's first test for the condition of interest that is being ordered.	Y/N/UNK	OBX-2 = CWE OBX-3 = 95417-2^First test for condition of interest^LN OBX-5 can be one of: Y^Yes^HL70136 N^No^HL70136 UNK^Unknown^NULLFL	Defining intent of first test ordered. e.g.) first serology test vs first overall COVID-19 test. e.g.) clarification between first diagnostic test and first screening test

Employed in Healthcare:

- Designed to capture details about employees working in high-risk settings (potential super spreaders)
- Limited to healthcare workers
- NOTE: Clarified questions for providers to ask: “Do you currently work in a healthcare setting with routine access to patients?”

2. Employed in healthcare? Y/N/U

Definition	Allowable Answers	Implementation Guidance	Comments
Patients who work in a high-risk setting with patients who could be a super spreader.	Y/N/UNK	OBX-2 = CWE OBX-3 = 95418-0^Employed in a healthcare setting^LN OBX-5 can be one of: Y^Yes^HL70136 N^No^HL70136 UNK^Unknown^NULLFL	Examples: first responders, front line clinicians, environmental staff, therapists, in direct contact with patients or in their location

Symptomatic (as defined by CDC)

3a. Symptomatic as defined by CDC? Y/N/U; if yes, then Date of Symptom Onset mm/dd/yy

Definition	Allowable Answers	Implementation Guidance
Symptomatic per current CDC guidance at time of order for the reportable condition/illness	Y/N/UNK	OBX-2 = CWE OBX-3 = 95419-8^Has symptoms related to condition of interest^LN OBX-5 can be one of: Y^Yes^HL70136 N^No^HL70136 UNK^Unknown^NULLFL
If Symptomatic is Y: Date of Symptom Onset	mm/dd/yy	OBX-2 = DT OBX-3 = 11368-8^Illness or injury onset date and time^LN OBX-5 = formatted as YYYYMMDD

3b. List of symptoms – optional, if available

Definition	Allowable Answers	Implementation Guidance
List of potential symptoms	Cough Fever Chills Shortness of Breath Fatigue Headache Diarrhea Nausea Vomiting Loss of smell Congestion Runny nose Muscle aches	OBX-2 = CWE OBX-3 = OBX-3 = 75325-1^Symptom^LN OBX-5 = 49727002^Cough^SCT 386661006^Fever^SCT 267036007^Dyspnea^SCT 84229001^Fatigue^SCT 25064002^Headache^SCT 62315008^Diarrhea^SCT 422587007^Nausea^SCT 422400008^Vomiting^SCT 44169009^Loss of sense of smell^SCT 68235000^Nasal congestion^SCT 64531003^Nasal discharge^SCT 68962001^Muscle pain^SCT If no mapping found use: OTH^Other^NULLFL^^^^^^<value>

Hospitalized -

Was the patient hospitalized for the reportable illness?

- This may already be covered using “patient location” (inpatient) in the EMR

4. Hospitalized? Y/N/U → Patient Location

Definition	Allowable Answers	Implementation Guidance
Patient has been hospitalized for the reportable illness/condition that this order has been	Inpatient Long Term Care Facility Outpatient	OBX-2 = CWE OBX-3= LAB330^Patient location at time of specimen collection^PHINQUESTION OBX-5 can be one of: I^Inpatient^HL70004

placed for (suspected or diagnosed)	Intensive Care Unit	42665001^Long term care facility^SCT O^Outpatient^HL70004
-------------------------------------	---------------------	--

ICU

- IF already using “patient location” can expand the value set to include ICU, which means that the patient is hospitalized (as there are likely no ICUs outside of a hospital setting). OR may add this as an additional question.

5. ICU? Y/N/U

Definition	Allowable Answers	Implementation Guidance
Patient has been admitted/transferred to the ICU at any time during the encounter for the reportable illness/condition that the order has been placed for (suspected or diagnosed).	Y/N/UNK	OBX-2 = CWE OBX-3 = 95420-6^Admitted to intensive care unit for condition of interest^LN OBX-5 can be one of: Y^Yes^HL70136 N^No^HL70136 UNK^Unknown^NULLFL

Resident in a congregate care setting

- IF already using “patient location,” can expand the value set to identify prison, dorm, nursing home, or other settings. Or create a separate “residence” question.

6a. Resident in a congregate care setting

Definition	Allowable Answers	Implementation Guidance
This is at time of exposure where they normally live.	Y/N/UNK	OBX-2 = CWE OBX-3 = 95421-4^Resides in a congregate care setting^LN OBX-5 can be one of: Y^Yes^HL70136 N^No^HL70136 UNK^Unknown^NULLFL

6b. If yes, then Patient location (Optional)

Definition	Allowable Answers	Implementation Guidance	Comments
Patient Residence	Adult congregate living facility School Penal Institution Dormitory Rehabilitation Clinic Nursing Home Homeless Shelter Psychiatric Treatment Facilities Group Home Board and Care home Foster Care	OBX-2 = CWE OBX-3 = 75617-1^Residence [NAMCS]^LN	<i>If already using 'patient location', may EXPAND value set to include</i> 257698009^School^SCT 257656006^Penal institution^SCT PHC25^Dormitory^CDCPHINVS 702916001^Rehabilitation clinic^SCT 42665001^Nursing home^SCT 224675009^Hostel for the homeless^SCT 62480006^Psychiatric hospital^SCT PHC^Adult congregate living facility^CDCPHINVS (for Group Home Board and Care home) NEED CODE: Foster Care

Pregnancy

7. Pregnant? Y/N/U

Definition	Allowable Answers	Implementation Guidance	Comments
Condition: If patient is female Current pregnancy status of the patient	Pregnant, Not pregnant, Unknown	OBX-2 = CWE OBX-3 = 82810-3^Pregnancy status^LN OBX-5 = can be one of: 77386006^Patient currently pregnant^SCT 102874004^Possible pregnancy^SCT 60001007^Not pregnant^SCT UNK^Unknown^NULLFL	LOINC from https://loinc.org/sars-cov-2-and-covid-19/

CDC Guidance

- CDC strongly encourages the submission of all of the variables to assist in surveillance and response.
- Nebraska ELR HL7 2.5.1 Implementation Guide

Version History

Revision History	Version Date	Summary of Changes
2.0	June 11, 2020	Formatting
2.1	June 12, 2020	Addition of Appendix A and Appendix B
2.2	June 15, 2020	Addition of Appendix C
2.3	June 16, 2020	Revisions made to incorporate new required data fields
2.3.1	June 23, 2020	Corrected hyperlinks in Appendices
2.4	Sept 10, 2020	Updated with new required CDC data elements