

Ohio Department of Health, Bureau of Infectious Diseases

HL7 2.5.1 Validation Technical Specifications

Segment	Seq	HL7 2.5.1 Supported	ODH REQUIRED?	Misc. Info/Notes	sample format (see HL7 2.5.1 Implementation Guide for more examples, as well as NIST sample messages)
		Typical problem areas highlighted in yellow.			
MSH -required segment	1	field separator	Y		MSH ^~\&
	2	encoding characters	Y		MSH ^~\&
	3	sending application		generally application OID	[SQ^2.16.840.1.113883.3.697^ISO]
	4	sending facility name	Y	CLIA needed as identifier	[UNIVERSITY HOSPITAL^36D003333^CLIA]
	5	receiving application	Y		[OHDOH^2.16.840.1.114222.4.1.3674^ISO]
	6	receiving facility name	Y		[OHDOH^2.16.840.1.114222.4.1.3674^ISO]
	7	date/time of message	Y	YYYYMMDDHHMMSS	20150927102433
	9	message type	Y		
	10	message control ID	Y	Must be globally unique by MSH-4 value	2014031400001
	11	processing ID	Y		
	12	version ID (2.5.1)	Y		2.5.1
	15	accept acknowledgment type			AL
	16	application acknowledgment type			NE
	17	country code			
	21	message profile identifier			[PHLabReport-Ack^2.16.840.1.114222.4.10.3^ISO]
SFT - optional segment				Segment not used by Ohio	
PID -required segment	1	Set ID - PID	Y		
	3	Patient identifier list	Y	important to include ID in 3.1, ID type in 3.5 and associated facility name in 3.6.1; repeating segments acceptable; however; 'AI' type patient identifiers generally cause messages to fail (e.g. use SSN, MR, XX, AN, etc.)	[01653298^Univ Hosp&2.16.999.1.119922.4.1.9999&ISO^MR^Univ Hosp&2.16.999.1.119922.4.1.9999&ISO]
	5	patient name	Y		[STORM^WILLIAM^E^L]
	6	mother's maiden name			
	7	date of birth	Y	YYYYMMDD	19501023
	8	sex	Y	standard vocab	M, F, U, H, O, T
	9				
	10	race	Y	standard vocab	See PVHS RaceCategory CDC v1.xls; [2054-5^Black or African American^HL70005^B^Black or African American^L^2.5.1^1]
	11	patient address	Y	We geocode addresses -- Street address, city, state and zip are important	[246 N HIGH STREET^35 BLDG^COLUMBUS^OH^43215^H^FRANKLIN]
	13	patient phone number - home	Y	standard format; repeating segments acceptable	[^PRN^PH^614^8064104]
	14	patient phone number - business			
	16	marital status			
	17	religion			
	18	patient account number	not required, but ODH uses		
	21	mother's identifier			
	22	ethnicity	Y	standard vocab	H, N, U
	23	country of birth			
	24	multiple birth indicator			
	25	birth order			
	26	citizenship			
	27	veterans military status			
	29	patient death date and time			
	30	patient death indicator			
	31	identity unknown indicator			
32	identity reliability code				
33	last update date/time				
34	last update facility				
35	species code				
36	breed code				
37	strain				
38	production class code				
39	tribal citizenship				

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NK1 - optional segment				please suppress NK1, NK2 segments	
PV1 - optional segment				please suppress PV1, PV2 segments	
	2	patient class		If sending PV segments and populated, we can only accept E//O patient classes ONLY	
PV2 - optional segment				please suppress PV1, PV2 segments	
ORC - required segment	1	order control	Y	Required if sending HL7 2.5.1	
	2	placer order number	not required, but ODH uses	If sending susceptibility results using parent/child relationships, this field is required.	
	3	filler order number	not required, but ODH uses	If sending susceptibility results using parent/child relationships, this field is required.	
	4	placer group number			
	5	order status			
	6	response flag			
	8	parent			
	9	date/time of transaction			
	10	entered by			
	11	verified by			
	12	ordering provider		Should be same as OBR-16	
	13	enterer's location			
	14	call back phone number		Should be same as OBR-17	
	15	order effective date/time	Y	New HHS requirement (date test requested/ordered)	YYYYMMDD
	16	order control code reason			
	17	entering organization			
	18	entering device			
	19	action by			
	21	ordering facility name	Y	both ordering facility info and ordering provider information are required by HHS; repeating phone number segments acceptable	Wexner Medical Center^Wexner Medical Center&36D0329129&CLIA^XX^Wexner Medical Center
	22	ordering facility address	Y		410 W 10th Ave^Columbus^OH^43210^
	23	ordering facility phone	Y		^WPN^PH^614^2938652
24	ordering provider address	Y			
25	order status modifier				
27	filler's expected availability date/time				
28	confidentiality code				
29	order type				
30	enterer authorization mode				
31	parent universal service identifier				
	1	set ID			
	2	placer order number	Y		
	3	Filler order number	Y	generally includes accession number and application OID triplet	H134736^SQ^2.16.840.1.113883.3.697^ISO
	4	universal service ID	Y	generally includes the LOINC coded triplet	5195-3^HBV SURFACE AG SER QL^LN^HBSAG^Hep B Surface Ag^L^1^HBV SURFACE AG SER QL
	7	observation date/time	Y		
	8	observation end date/time			
	9				
	10	collector identifier			
	11	specimen action code		if populated, this can only be one character in length	A, G, L, O, P, R, S are accepted values
	12	danger code			

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OBR - required segment	13	relevant clinical information		not required, but ODH puts in a note on the ODRS case	
	14	specimen received date/time			
	15	specimen source			
	16	ordering provider and NPI	Y	used as ordering provider in ODRS; should be same value as ORC-12; Ordering Provider NPI required in first component (valid NPI is 10-digit numeric value), followed by Last Name and First Name; also only first 3 components required	1234567890^ORLOV^DIANE^^^^DDO^SQ&2.16.840.1.113883.3.697&ISO^L^^^DN^SQ&2.16.840.1.113883.3.697&ISO
	17	order callback phone number	Y	used as ordering provider phone; should be same as ORC-14	[^WPN^PH^^614^2934854]
	18	placer field 1			
	19	placer field 2			
	20	filler field 1			
	21	filler field 2			
	22	results report/status change date/time			
	23	charge to practice			
	24	diagnostic service ID			
	25	result status	Y	should be P or F	
	26	parent result	Y if sending susceptibility results in sequence 2	If sending susceptibility results, in OBR sequence 2, this should be comprised of LOINC triplet from OBX-3 in sequence 1, the sub-ID for the organism, and the description in OBX-5.2	625-4&BACTERIA STL CULT&LN&STCUL&Stool Culture&L^1.1^VIBRIO PARAHAEMOLYTICUS
	28	result copies to		ODH prefers these not be sent but will accept if sent	
	29	parent	Y if sending susceptibility results in sequence 2	If sending susceptibility results, in OBR sequence 2, this should be comprised of the placer order number from OBR-2 and the filler order number from OBR-3 in sequence 1	123487428-0&Hillcrest Hospital Laboratory&36D0337861&CLIA^H355351&SQ&2.16.840.1.113883.3.697&ISO
	31	reason for study	not required, but ODH uses		
	32	principal result interpreter			
	33	assistant result interpreter			
	34	technician			
	35	transcriptionist			
	36	scheduled date/time			
	39	collector's comment			
	44	procedure code			
	45	procedure code modifier			
	46	placer supplemental service information			
	47	filler supplemental service information			
	48	medically necessary....			
	49	result handling			
	50	parent universal service id			
TQ1 - optional				please suppress TQ1, TQ2 segments	
	1	set ID	Y		
	2	value type	Y		
	3	observation identifier	Y	standardized LOINC coding (test/question); should only be used for sending test codes, not for comment codes (use NTE segments for those)	Appropriate formatting of test/result information is hugely important. The ELR Implementation Guide has good information about this. ODH requires that in OBX-3 (all) and OBX-5 (if CWE data type), the
	4	observation sub-ID	Y		

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OBX - required segment	5	observation value	Y	standardized SNOMED coding where appropriate (result/answer); should contain no notes about the specimen or results (those should be included in NTE segments)	standardized code triplet must come first, before the locally coded triplet. *See below for examples.
	6	units	Y	if applicable	
	7	reference ranges	Y	if applicable; must be limited to one component	NEGATIVE
	8	abnormal flags	not required, but ODH uses	S/I/R results for susceptibility testing can be in this field	A^Abnormal^HL70078^A^Abnormal^HL70078^2.5.1^V1^Abnormal
	9	probability			
	10	nature of abnormal test			
	11	observation result status	Y	should be P, F, or C; if C (corrected results), a phone call should be made to local public health about the correction	
	12	effective date of reference range			
	13	user defined access checks			
	14	date/time of observation	Y		
	15	producers ID	Y		
	16	responsible observer			
	17	observation method (a.k.a. Device Identifier)		Device Identifier to be sent in OBX-17.2 for HL7 2.3.1 (CE data type) OR OBX-17.1 in HL7 2.5.1 (CWE data type) per new HHS requirement for COVID reporting	Example assay using HL72.3.1: ^TaqPath COVID-19 Combo Kit_Thermo Fisher Scientific, Inc._EUA^99ELR OR example assay using HL72.5.1: TaqPath COVID-19 Combo Kit_Thermo Fisher Scientific, Inc._EUA^99ELR
	18	equipment instance identifier			
	19	date/time of analysis	Y	used as result date for 2.5.1	
	23	performing organization	Y	used as performing lab for 2.5.1; CLIA in component 10, name in component 1	University Hospital^D^UH^XX^36D0033333
	24	performing organization address	Y	New HHS requirement	
25	performing organization medical director				

SPM - required segment (ODH constraint of one SPM segment per message)	1	set ID			
	2	specimen ID	Y	used as specimen ID for 2.5.1	
	3	specimen parent IDs			
	4	specimen type	Y	used as specimen type for 2.5.1; standard vocabulary	See PVHS SpecimenType HL7 2x V1.xls; Examples below here also: CVX^CERVIX^HL70487^CERVIX^Cervix^L^
	5	specimen type modifier			STL^STOOL = FECAL^HL70487^STOOL^Stool^L^
	6	specimen additives			SER^SERUM^HL70487^SERUM^M^
	7	specimen collection method			119339001^Stool specimen^SCT^STSWAB^Stool specimen received on swab^L^20130901
	8	specimen source site			122561005^Blood specimen from patient^SCT^BLUD^Blood^L^20130901
	9	specimen source site modifier			122575003^Urine specimen^SCT
	10	specimen collection site			
	11	specimen role			
	12	specimen collection amount		If populated, this must be truncated after SPM-12.2.3 (numeric result and coding system info) or SPM-12.2.6 (numeric result and both primary and alternate coding systems)	[5^mL&MilliLiter&UCUM] or [5^mL&MilliLiter&UCUM&mL&mL&L]
	13	grouped specimen count			
	14	specimen description			
	15	specimen handling code			
	16	specimen risk code			
	17	specimen collection date/time	Y	used as specimen collect date for 2.5.1	20150913120000-0500
	18	specimen received date/time	Y		20150913120000-0500

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	19	specimen expiration date/time			
	20	specimen availability			
	21	specimen reject reason			
	22	specimen quality			
	23	specimen appropriateness			
	24	specimen condition			
	25	specimen current quantity			
	26	number of specimen containers			
	27	container type			
	28	container condition			
	29	specimen child role			

NTE - optional segment	1	set ID			
	2	source of comment			
	3	comment		All specimen and result notes should be included as NTE segments and not OBX segments. IF sending COVID testing, please add NTE after OBX segment to indicate test kit performed and statement on FDA authorization under Emergency Use Authorization (EUA)	
	4	comment type	not required, but ODH uses		

Additional ODH constraints: if susceptibilities are sent, a culture test must accompany them and there can only be one set of susceptibility results per message; in OBX-3 (all) and OBX-5 (if CWE data type), the standardized code triplet must come first, before the locally coded triplet.

Additional information for hospital labs seeking Stage 2 Meaningful Use: per MU2 guidelines, you must use LOINC and SNOMED codes for test and results in OBX-3 and OBX-5.

***Test/result examples (ST, SN, and CWE result types)**

- OBX|1|ST|43304-5^CHLAMYDIA TRACH.,AMPLIFIED^LN^XCTRA^CHLAMYDIA TRACH.,AMPLIFIED^L|1|POSITIVE|
- OBX|1|SN|33331-0^West Nile virus IgM Ab [Titer] in Serum^LN^1522^West Nile virus AB IgM, ELISA, Serum^L||^1^32|[titer]^titer^UCUM^titer^titer^L^1.8.2|
- OBX|1|CWE|580-1^FUNGAL CULTURE/SM, MISC^LN^FUNCS^FUNGAL CULTURE/SM, MISC^L|1|23439005^Coccidioides immitis^SNM|
- OBX|2|CWE|24111-7^N gonorrhoea DNA XXX QI PCR^LN^GCAMP^N. gonorrhoeae amp.^L^2.46^v1^N. gonorrhoeae amp.|1|260373001^Detected^SCT^DET^DETECTED^L^20130901^v1|
- OBX|1|CWE|11475-1^Microorganism XXX Cult^LN^CULT^Culture results^L^2.46^v1^Culture results|1.1|19122007^Giardia intestinalis^SCT^GLAM^Giardia (lamblia) intestinalis^L^20130901^v1|
- OBX|1|CWE|11475-1^Microorganism XXX Cult^LN^CULT^Culture results^L^2.46^v1^Culture results|1.1|243365003^Acid-fast bacillus^SCT^AFBC^Acid fast bacillus^L^20130901^v1|
- OBX|1|CWE|5013-8^HSV DNA CSF QI PCR^LN^HSVTC^HSV CSF by PCR^L^2.46^v1^HSV CSF by PCR|1|10828004^Positive^SCT^POS^Positive^L^20130901^v1|
- OBX|1|CWE|11475-1^Microorganism XXX Cult^LN^CULT^Culture results^L^2.46^v1^Culture results|1.1|9861002^Streptococcus pneumoniae^SCT^SPN^Streptococcus pneumoniae^L^20130901^v1|

one susceptibility example

OBX|1|SN|18996-9^TOBRAMYCIN^LN^TO^TOBRAMYCIN^L^2.40^v1^TOBRAMYCIN|1|^16||R^Resistant^HL70078^R^Resistant^HL70078^2.5.1^v1^Resistant|

For assistance with LOINC codes, please visit: <http://search.loinc.org>

For assistance with SNOMED coding, please visit: <http://phinvads.cdc.gov/vads/SearchHome.action>