



# HL7 Interface Specification: Diagnostic Lab and Radiology

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# Introduction

This specification is designed to provide information to diagnostic labs and radiology center partners sufficient to assist in the development of an interface between their lab information systems and Health Gorilla.

This document explains the technical details of our HL7 standard support. Interface development between HG and our vendors is approved by our business development team, then scheduled and managed by our engineering and development organization. We work in conjunction with our vendor partners to spend time analyzing and planning our interface to ensure that both parties are using the same optional features.

Our interfaces support the transmission of HL7 data and HL7 encapsulated PDFs as well as DICOM IODs and DICOM encapsulated PDFs.

# Message Structure

The following HL7 messages and segments are supported in the exchange of laboratory information.

Message Type	Description
ACK	General Acknowledgement
ORU	Observational Results
ORM	Observational Orders
MSA	Message Acknowledgement

Segments	Description
MSH	Message Header
PID	Patient Identification
PV1	Patient Visit
ORC	Common Order
OBR	Observation Request
OBX	Observation
IN1	Insurance
NTE	Notes and Comments
DG1	Diagnosis
GT1	Guarantor

# MSH - Message Header

The MSH segment defines the intent, source, destination, and some specifics of the syntax of a message.

Seq	Len	DT	OPT	RP#	TBL#	ITEM#	ELEMENT NAME
1	1	ST	R			00001	Field Separator
2	4	ST	R			00002	Encoding Characters
3	180	HD	O		0361	00003	Sending Application
4	180	HD	O		0362	00004	Sending Facility
5	180	HD	O		0361	00005	Receiving Application
6	180	HD	O		0362	00006	Receiving Facility
7	26	TS	R			00007	Date/Time of Message
8	40	ST	O			00008	Security
9	13	CM	R		0076/003	00009	Message Type
10	20	ST	R			00010	Message Control ID
11	3	PT	R			00011	Processing ID
12	60	VID	R		0104	00012	Version ID
13	15	NM	O			00013	Sequence Number
14	180	ST	O			00014	Continuation Pointer
15	2	ID	O		0155	00015	Accept Acknowledgment Type
16	2	ID	O		0155	00016	Application Acknowledgment Type
17	3	ID	O		0399	00017	Country Code
18	16	ID	O		0211	00692	Character Set
19	250	CE	O			00693	Principal Language of Message
20	20	ID	O		0356	01317	Alternate Character Set Handling Scheme

# PID - Patient Identification

The PID segment is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

Seq	Len	DT	OPT	RP#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O			00104	Set ID – PID
2	20	CX	B			00105	Patient ID
3	250	CX	R	Y		00106	Patient Identifier List
4	20	CX	B	Y		00107	Alternate Patient ID
5	250	XPN	R	Y		00108	Patient Name
6	250	XPN	O	Y		00109	Mothers Maiden Name
7	26	TS	O			00110	Date and Time of Birth
8	1	IS	O		0001	00111	Administrative Sex
9	250	XPN	B	Y		00112	Patient Alias
10	250	CE	O	Y	0005	00113	Race
11	250	XAD	O	Y		00114	Patient Address
12	4	IS	B		0289	00115	Country Code
13	250	XTN	O	Y		00116	Phone Number – Home
14	250	XTN	O	Y		00117	Phone Number – Business
15	250	CE	O		0296	00118	Primary language
16	250	CE	O		0002	00119	Marital Status
17	250	CE	O		0006	00120	Religion
18	250	CX	O			00121	Patient Account Number
19	16	ST	B			00122	SSN Number
20	25	DLN	O			00123	Drivers License Number
21	250	CX	O	Y		00124	Mothers Identifier
22	250	CE	O	Y	0189	00125	Ethnic Group
23	250	ST	O			00126	Birth Place
24	1	ID	O		0136	00127	Multiple Birth Indicator
25	2	NM	O			00128	Birth Order
26	250	CE	O	Y	0171	00129	Citizenship
27	250	CE	O		0171	00130	Veterans Military Status
28	250	CE	B		0212	00739	Nationality
29	26	TS	O			00740	Patient Death Date and Time

30	1	ID	O		0136	00741	Patient Death Indicator
31	1	ID	O	Y	0136	01535	Identity Unknown Indicator
32	20	IS	O	Y	0445	01536	Identity Reliability Code
33	26	TS	O			01537	Last Update Date and Time
34	40	HD	O			01538	Last Update Facility

## PV1 - Patient Visit

The PV1 segment is used by Registration/Patient Administration applications to communicate information on an account or visit-specific basis.

Seq	Len	DT	OPT	RP#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O			00131	Set ID- PV1
2	1	IS	R		0004	00132	Patient Class
3	80	PL	O			00133	Assigned Patient Location
4	2	IS	O		0007	00134	Admission Type
5	250	CX	O			00135	Pre-admit Number
6	80	PL	O			00136	Prior Patient Location
7	250	XCN	O	Y	0010	00137	Attending Doc
8	250	XCN	O	Y	0010	00138	Referring Doc
9	250	XCN	B	Y	0010	00139	Consulting Doc
10	3	IS	O		0069	00140	Hospital Service
11	80	PL	O			00141	Temporary Location
12	2	IS	O		0087	00142	Pre-admit Test Indicator
13	2	IS	O		0092	00143	Re-admission indicator
14	6	IS	O		0023	00144	Admit Source
15	2	IS	O	Y	0009	00145	Ambulatory Source
16	2	IS	O	Y	0099	00146	VIP Indicator
17	250	XCN	O	Y	0010	00147	Admitting Doc
18	2	IS	O		0018	00148	Patient Type
19	250	CX	O			00149	Visit Number
20	50	FC	O	Y	0064	00150	Financial Class
21	2	IS	O		0032	00151	Charge Price Indicator
22	2	IS	O		0045	00152	Courtesy Code

# ORC - Common Order

The Common Order segment (ORC) is used to transmit fields that are common to all orders (all types of services that are requested). The ORC segment is required in the Order (ORM) message.

Seq	Len	DT	OPT	RP#	TBL#	ITEM#	ELEMENT NAME
1	2	ID	R	N	00119	00215	Order Control
2	22	EI	C			00216	Placer Order Number
3	22	EI	C			00217	Filler Order Number
4	22	EI	O			00218	Placer Group Number
5	2	ID	O	N	0038	00219	Order Status
6	1	ID	O		0121	00220	Response Flag
7	200	TQ	O	Y		00221	Quantity / Timing
8	200	CM	O			00222	Parent
9	26	TS	O			00223	Date / Time of Transaction
10	250	XCN	O	Y		00224	Entered By
11	250	XCN	O	Y		00225	Verified By
12	250	XCN	O	Y		00226	Ordering Provider
13	80	PL	O			00227	Enter Location
14	250	XTN	O	Y/2		00228	Call Back Phone Number
15	26	TS	O			00229	Order Effective Date / Time
16	250	CE	O			00230	Order Code Control Code Reason
17	250	CE	O			00231	Entering Organization
18	250	CE	O			00232	Entering Organization
19	250	XCN	O	Y		00233	Action By
20	250	CE	O		0339	01310	Advanced Beneficiary Notice Code
21	250	XON	O	Y		01311	Ordering Facility Name
22	250	XAD	O	Y		01312	Ordering Facility Address
23	250	XTN	O	Y		01313	Ordering Facilitating Phone Number
24	250	XAD	O	Y		01314	Ordering Provider Address
25	250	CWE	O	N		01473	Order Status Modifier



# OBR - Observation Request

The Observation Request (OBR) segment is used to transmit information specific to an order for a diagnostic study or observation, physical exam, or assessment.

Seq	Len	DT	OPT	RP#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O			00237	Set ID- OBR
2	22	EI	C			00216	Placer Order Number
3	22	EI	C			00217	Filler Order Number
4	250	CE	R			00238	Universal Service Identifier
5	2	ID	B			00239	Priority- OBR
6	26	TS	B			00240	Requested Date / Time
7	26	TS	C			00241	Observation Date / Time
8	26	TS	O			00242	Observation End Date /Time
9	20	CQ	O			00243	Collection Volume
10	250	XCN	O	Y		00244	Collector Identifier
11	1	ID	O		0065	00245	Specimen Action Code
12	250	CE	O			00246	Danger Code
13	300	ST	O			00247	Relevant Clinical Information
14	26	TS	C			00248	Specimen Received Date / Time
15	300	CM	O		0070/00163	00249	Specimen Source
16	250	XCN	O	Y		00226	Ordering Provider
17	250	XTN	O	Y/2		00250	Order Call back Phone Number
18	60	ST	O			00251	Placer Field 1
19	60	ST	O			00252	Placer Field 2
20	60	ST	O			00253	Filler Field 1+
21	60	ST	O			00254	Filer Field 2 +
22	26	TS	C			00255	Results Report? Status Change – Date / Time
23	40	CM	O			00256	Charge To Practice
24	10	ID	O		0074	00257	Diagnostic Serv Sect ID
25	1	ID	C		0123	00258	Result Status

## OBX - Observation / Result

The OBX segment is used to transmit a single observation or observation fragment. It represents the smallest indivisible unit of a report. The OBX segment can also contain encapsulated data, e.g., a CDA document or a DICOM image. Its principal mission is to carry information about observations in report messages.

Seq	Len	DT	OPT	RP#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O			00569	Set ID- OBX
2	2	ID	C		0125	00570	Value Type (TX' = the value in OBX.5 is block text 'ED' = the value in OBX.5 is base64 encoded data )
3	250	CE	R			00571	Observation Identifier
4	20	ST	C			00572	Observation Sub-ID
5	655536		C	Y		00573	Observation Type( Only used if OBX-2 is 'ED' Valid values: 'PDF', 'GIF', 'JPG', 'BMP', 'HPDF' )
6	250	CE	O			00574	Units
7	60	ST	O			00575	Reference Range
8	5	IS	O	Y/5	0078	00576	Abnormal Flag
9	5	NM	O			00577	Probability
10	2	ID	O	Y	0080	00578	Nature of Abnormal Test
11	1	ID	R		0085	00579	Observation Result Status
12	26	TS	O			00580	Date Last Observation Normal Value
13	20	ST	O			00581	User Defined Access Checks
14	26	TS	O			00582	Date / Time of the Observation
15	250	CE	O			00583	Producers ID
16	250	XCN	O	Y		00584	Responsible Observer
17	250	CE	O	Y		00936	Observation Method
18	22	EI	O	Y		01479	Equipment Instance Identifier
19	26	TS	O			01480	Date / Time of the Analysis

# IN1 - Insurance

The IN1 segment contains insurance policy coverage information necessary to produce properly prorated and patient and insurance bills.

Seq	Len	DT	OPT	RP#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	R			00426	Set ID - IN1
2	60	CE	R		0072	00368	Insurance Plan ID
3	59	CX	R	Y		00428	Insurance Company ID
4	130	XON	O	Y		00429	Insurance Company Name
5	106	XAD	O	Y		00430	Insurance Company Address
6	48	XPN	O	Y		00431	Insurance Co. Contact Person
7	40	XTN	O	Y		00432	Insurance Co Phone Number
8	12	ST	O			00433	Group Number
9	130	XON	O	Y		00434	Group Name
10	12	CX	O	Y		00435	Insured's Group Employee ID
11	130	XON	O	Y		00436	Insured's Group Employee Name
12	8	DT	O			00437	Plan Effective Date
13	8	DT	O			00438	Plan Expiration Date
14	55	CM	O			00439	Authorization Information
15	3	IS	O		0086	00440	Plan Type
16	48	XPN	O	Y		00441	Name Of Insured
17	2	IS	O		0063	00442	Insured's Relationship To Patient
18	26	TS	O			00443	Insured's Date Of Birth
19	106	XAD	O	Y		00444	Insured's Address

# NTE - Notes and Comments

The NTE segment is defined here for inclusion in messages defined in other chapters. It is commonly used for sending notes and comments.

Seq	Len	DT	OPT	RP#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O			000096	Set ID – NTE
2	8	ID	O		01015	000097	Source of Comment
3	65536	FT	O	Y		000098	Comment
4	250	CE	O		0364	01318	Comment Type

# DG1 - Diagnosis

The DG1 segment contains patient diagnosis information of various types, for example, admitting, primary, etc.

Seq	Len	DT	OPT	RP#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	R			00375	Set ID - DG1
2	2	ID	(B) R		0053	00376	Diagnosis Coding Method
3	60	CE	O		0051	00377	Diagnosis Code
4	40	ST	B			00378	Diagnosis Description
5	26	TS	O			00379	Diagnosis Date / Time
6	2	IS	R		0052	00380	Diagnosis Type
7	60	CE	B		0118	00381	Major Diagnostic Category
8	4	IS	B		0055	00382	Diagnostic Related Group
9	2	ID	B		0136	00383	DRG Approval Indicator
10	2	IS	B		0056	00384	DRG Grouper Review Code
11	60	CE	B		0083	00385	Outlier Type
12	3	NM	B			00386	Outlier Days
13	12	NM	B			00387	Outlier Cost
14	4	ST	B			00388	Grouper Version And Type
15	2	NM	B			00389	Diagnosis Priority
16	60	XCN	O	Y		00390	Diagnosing Clinician
17	3	IS	O		0228	00766	Diagnosis Classification
18	1	ID	O		0136	00767	Confidential Indicator
19	26	TS	O			00768	Attestation Date / Time

# GT1 - Guarantor

The GT1 segment contains guarantor (e.g., the person or the organization with financial responsibility for payment of a patient account) data for patient and insurance billing applications.

Seq	Len	DT	OPT	RP#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	R			00405	Set ID - GT1
2	59	CX	O	Y		00406	Guarantor Number
3	48	XPN	R	Y		00407	Guarantor Name
4	48	XPN	O	Y		00408	Guarantor Spouse Name
5	106	XAD	O	Y		00409	Guarantor Address
6	40	XTN	O	Y		00410	Guarantor Ph Num-Home
7	40	XTN	O	Y		00411	Guarantor Ph Num-Business
8	26	TS	O			00412	Guarantor Date / Time Of Birth
9	1	IS	O		0001	00413	Guarantor Sex
10	2	IS	O		0068	00414	Guarantor Type
11	2	IS	O		0063	00415	Guarantor Relationship
12	11	ST	O			00416	Guarantor SSN

Data Types: Standard HL7 2.3 data types are used.

Encapsulated PDFs in HL7 are attached in the OBX segment. When attached, the value of OBX.2 = ED  
OBX.5 = Embedded PDF