

## Templates for using HL7 v2.5 messages

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**This document includes a set of templates for using HL7 v2.5 messages for the exchange of data from participating hospitals and clinics and a central repository.**

**An HL7 message is composed of segments designed for a specific purpose to carry data related to patient demographics, the encounter, and data created during the encounter. Each segment begins with a 3 letter mnemonic which identifies the segment. Some segments are repeating. If a data field is not used, the field delimiter is inserted so the position count in the segment is maintained.**

**Although I have included a few templates for segments you may not use at the beginning, they will be used shortly. There are many more segments that I will not include in this document at the present time for simplicity. If a need later arises for data included in these other segments, I will add to this document. The HL7 v2.n series of messages have grown over the past 20 years and are rather complete in content.**

**All messages begin with the MSH, or Message Header, segment. This segment identifies the sender and the receiver and includes a date/time stamp. Most messages will include also the Patient Identifier Segment (PID), the Patient Visit Segment (PV1), and a repeating number of OBX segments for the lab results and later for vital signs and other physical exam data elements. There is a segment for procedures and a segment for visit diagnoses that are not included at this time.**

**Each of the following tables is a segment. The column headings include the sequence number of field position within the segment, the maximum length, the data type, whether required or not, whether repeating or not, the element name, and which fields must be populated for your use. I will explain data types for those fields you will use. The tables are not complete. I did not define any fields beyond those currently required.**

## MSH - Message Header

SEQ	LEN	DT	OPT	RP/#	ELEMENT NAME	Comment	Site Content
1	1	ST	R		Field Separator	Filter bar ( )	
2	4	ST	R		Encoding Characters	--Component separator ^ --Sub-component separator ~ --Repetition separator \ --Escape character &	^~\&
3	227	HD	O		Sending Application		
4	227	HD	O		Sending Facility		Create a table of sending facilities
5	227	HD	O		Receiving Application		
6	227	HD	O		Receiving Facility		Create a name for receiving
7	26	TS	R		Date/Time Of Message	CCYYMMDDHHMM	200803231435
8	40	ST	O		Security		
9	15	MSG	R		Message Type	Type^Trigger	CSU^Z01
10	20	ST	R		Message Control ID		You may want to create a numbering scheme 12345
11	3	PT	R		Processing ID	Production (P), Training (T) or Debug (D)	P
12	60	VID	R		Version ID		2.5

Example:

```
MSH|^~\&||DukeHosp||VDC|200803231435||GEN^A05|12345||2.5
```

### Notes

1. HD (Hierarchical Designator) is a unique name that identifies the system that is either the source or the receiver of the data. It is a user defined name.
2. I suggest using a message type of CSU for unsolicited study data message and a trigger of Z01 for locally defined. If we need more than one message type of trigger event, we can define them.

## PID - Patient Identification

SEQ	LEN	DT	OPT	RP/#	ELEMENT NAME	COMMENT	SITE CONTENT
1	4	SI	O		Set ID - PID	Always	<b>1</b>
2	20	CX	B		Patient ID		<b>Medical Record Number</b>
3	250	CX	R	Y	Patient Identifier List		
4	20	CX	B	Y	Alternate Patient ID - PID		<b>Patient Control Number</b>
5	250	XPN	R	Y	Patient Name		
6	250	XPN	O	Y	Mother's Maiden Name		
7	26	TS	O		Date/Time of Birth		<b>CCYYMMDD</b>
8	1	IS	O		Administrative Sex	Gender M,F,U	<b>M, F, or U</b>
9	250	XPN	B	Y	Patient Alias		
10	250	CE	O	Y	Race		
11	250	XAD	O	Y	Patient Address		<b>^^^^ZIP</b>
12	4	IS	B		County Code		
13	250	XTN	O	Y	Phone Number - Home		
14	250	XTN	O	Y	Phone Number - Business		
15	250	CE	O		Primary Language		
16	250	CE	O		Marital Status		
17	250	CE	O		Religion		
18	250	CX	O		Patient Account Number		
19	16	ST	B		SSN Number - Patient		<b>SSN</b>
20	25	DLN	B		Driver's License Number - Patient		
21	250	CX	O	Y	Mother's Identifier		
22	250	CE	O	Y	Ethnic Group		
23	250	ST	O		Birth Place		
24	1	ID	O		Multiple Birth Indicator		
25	2	NM	O		Birth Order		
26	250	CE	O	Y	Citizenship		
27	250	CE	O		Veterans Military Status		
28	250	CE	B		Nationality		
29	26	TS	O		Patient Death Date and Time		
30	1	ID	O		Patient Death Indicator		

### EXAMPLE

PID|1|MRN||PCN|||19350109|M||27712|||||999-99-9999

### Notes

1. The address data type is XAD for extended address. It is a structure in which the address is broken into sub-components. The separator is the ^. The Zip code falls into the 5 position , hence the leading ^ above.

## PV1 - Patient Visit

SEQ	LEN	DT	OPT	RP/#	ELEMENT NAME	COMMENT	SITE CONTENT
1	4	SI	O		Set ID - PV1		1
2	1	IS	R		Patient Class		
3	80	PL	O		Assigned Patient Location		
4	2	IS	O		Admission Type		
5	250	CX	O		Preadmit Number		
6	80	PL	O		Prior Patient Location		
7	250	XCN	O	Y	Attending Doctor		Medicare Provider Number
8	250	XCN	O	Y	Referring Doctor		
9	250	XCN	B	Y	Consulting Doctor		
10	3	IS	O		Hospital Service		
11	80	PL	O		Temporary Location		
12	2	IS	O		Preadmit Test Indicator		
13	2	IS	O		Re-admission Indicator		
14	6	IS	O		Admit Source		
15	2	IS	O	Y	Ambulatory Status		
16	2	IS	O		VIP Indicator		
17	250	XCN	O	Y	Admitting Doctor		
18	2	IS	O		Patient Type		
19	250	CX	O		Visit Number		
20	50	FC	O	Y	Financial Class		
21	2	IS	O		Charge Price Indicator		
22	2	IS	O		Courtesy Code		
23	2	IS	O		Credit Rating		
24	2	IS	O	Y	Contract Code		
25	8	DT	O	Y	Contract Effective Date		
26	12	NM	O	Y	Contract Amount		
27	3	NM	O	Y	Contract Period		
28	2	IS	O		Interest Code		
29	4	IS	O		Transfer to Bad Debt Code		
30	8	DT	O		Transfer to Bad Debt Date		
31	10	IS	O		Bad Debt Agency Code		
32	12	NM	O		Bad Debt Transfer Amount		
33	12	NM	O		Bad Debt Recovery Amount		
34	1	IS	O		Delete Account Indicator		
35	8	DT	O		Delete Account Date		
36	3	IS	O		Discharge Disposition		
37	47	DLD	O		Discharged to Location		

38	250	CE	O		Diet Type	
39	2	IS	O		Servicing Facility	
40	1	IS	B		Bed Status	
41	2	IS	O		Account Status	
42	80	PL	O		Pending Location	
43	80	PL	O		Prior Temporary Location	
44	26	TS	O		Admit Date/Time	CCYYMMDD
45	26	TS	O	Y	Discharge Date/Time	CCYYMMDD
46	12	NM	O		Current Patient Balance	
47	12	NM	O		Total Charges	
48	12	NM	O		Total Adjustments	
49	12	NM	O		Total Payments	
50	250	CX	O		Alternate Visit ID	
51	1	IS	O		Visit Indicator	
52	250	XCN	B	Y	Other Healthcare Provider	

EXAMPLE

PV1|1||||MPN|||||||20080315|20080318

## OBX – Observation/Result

SEQ	LEN	DT	OPT	ITEM#	ELEMENT NAME	COMMENT	SITE CONTENT
1	4	SI	O	00569	Set ID – OBX		<b>Sequential numbers starting with 11</b>
2	2	ID	C	00570	Value Type		Result type NM = numeric ST = char string CE = coded element
3	250	CE	R	00571	Observation Identifier		<b>LOINC code</b>
4	20	ST	C	00572	Observation Sub-ID		
5	9999 g <sup>1</sup>	varies	C	00573	Observation Value		<b>Value of test</b>
6	250	CE	O	00574	Units		You need to agree on what units will be used
7	60	ST	O	00575	References Range		<b>Low value – high value</b>
8	5	IS	O	00576	Abnormal Flags		
9	5	NM	O	00577	Probability		
10	2	ID	O	00578	Nature of Abnormal Test		
11	1	ID	R	00579	Observation Result Status		
12	26	TS	O	00580	Effective Date of Reference Range		
13	20	ST	O	00581	User Defined Access Checks		
14	26	TS	O	00582	Date/Time of the Observation		
15	250	CE	O	00583	Producer's ID		
16	250	XCN	O	00584	Responsible Observer		
17	250	CE	O	00936	Observation Method		
18	22	EI	O	01479	Equipment Instance Identifier		
19	26	TS	O	01480	Date/Time of the Analysis		

EXAMPLE:

OBX|1|33509-1||11.1|G/DL|(12.5-16.0)