



LimitLIS®

HL7 Specification Requirements - v3.2

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 Financial Class is an Insurance Company or Medicare. The GT1 segment is not used. The Subscriber information is in the IN1 segment. Medications are transmitted from the NTE segment. 42

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ABOUT THIS DOCUMENT

Purpose of this Document

Health Level-7 or HL7 refers to a set of international standards for the electronic transfer of clinical and administrative data between software applications used by various healthcare providers.

The v3.2 HL7 Specification Requirements document is based on the HL7 Standard version 2.7. Although we fully support and recommend using HL7 version 2.7, we may process HL7 files conforming to older versions of the specifications (e.g., 2.3, 2.4).

LimitLIS® system supports four HL7 message types to transmit data: Orders (ORM_001), Results (ORU_R01), DFT Billing and ADT Demographic messages. The document v3.2 HL7 Specification Requirements introduces you to how HL7 is integrated into LimitLIS® version 3.2 and explains data mappings to the HL7 v.2.7 Standard.

Intended Audience

These requirements are intended for the following personnel:

- EHR/EMR Providers
- EHR/EMR Vendor
- RCM Provider/Vendor

Proprietary Statement

The v3.2 HL7 Specification Requirements document contains proprietary information of RURO, Inc.

It is intended solely for the information and use of parties operating LimitLIS® software. Such proprietary information may not be used, reproduced, or disclosed to any other parties for any other purpose without the expressed written permission of RURO, Inc.

Product Improvements

Continuous improvement of the software product is a policy of RURO, Inc. All specifications and designs, as well as the content of this document, may change at any time without prior notice.



Data Exchange Storage

RURO, Inc. hosts an SFTP server for HL7 data exchange with HIPAA-related compliance security and privacy provisions. The server has a directory structure and can be accessed via user account with proper permissions for laboratories and vendors. Data exchange can also be performed via an SFTP server hosted by a third party.

General Message Structure

HL7 messages provide the means for electronic data exchange between disparate systems. HL7 messages are made up of segments containing related data in a single line. The type of message determines the number and type of segments used.

Each segment begins with a 3-character code. Each segment is divided into fields, separated by the field delimiter character. The standard field delimiter is the vertical bar character “|” known as “the pipe.”

Fields are counted starting from zero. The three-letter segment type designation is field zero. Field counting is slightly different for the MSH line. The MSH segment starts with the three-letter designation, followed by the field delimiter, followed by the declaration of additional delimiters, and then by the first field of data. Because the field delimiter is counted as its own field in the MSH segment, the first field of data is field three.

ORM – Order Messages

HL7 Order (ORM_001) Message Structure

The table below describes the sequential structure of an HL7 Order message implemented in LimitLIS® v3.2.

Segments with no brackets around it – Required, [] – Optional, {} - May repeat, [{}] - Optional and May repeat.

If the transmission of any segment type will cause a processing problem in the receiving system, please bring this fact to the attention of the LimitLIS® project manager.

The Order (ORM) message structure:

MSH		Message Header
	PID	Patient Identification
	[{RXO}]	Pharmacy/Treatment Order
	[PV1]	Patient Visit
	[{IN1}]	Insurance
	[GT1]	Guarantor
	ORC	Common Order
	{OBR}	Orderable Test
	[{NTE}]	Notes and Comments
	[{NTE}]	Medical Necessity
	[{NTE}]	Medications
	[{DG1}]	Diagnosis
	[{OBX}]	Observations/Results (POC Tests)

HL7 Order (ORM_001) Segment Specifications – HL7 v.2.7

ORM is used to transmit information between systems about an Order. ORM messages involve changes to the order, such as new orders and information updates.

The tables below show the fields that will be used within each of the segments and the nature of the data each field contains. Below each table are placed example(s). All fields that have been greyed out are not used by LimitLIS® v3.2. If an EHR Order does not have the required data, or the data format does not follow the specifications below, it may cause a system error, and the order message may not be received.

If the receiving application requires the use of additional specific fields that are greyed out or not specified in this specification, please discuss this matter with the LimitLIS® project manager.

Some data may not be required for EHR Order processing but may be mandatory for a Laboratory interface. In this case, the requisition is placed on hold until updates with the required information are applied. Incomplete requisitions in an “On hold” state created in the Laboratory interface can be updated from the EHR Order based on a Placer Order Number (Requisition External Source ID).

A requisition can also be updated from the EHR Order based on a Placer Order Number (Requisition External Source ID) if it’s in a “Submitted” state. If the requisition is in any other state, the EHR Order processing will be denied.

Samples of the EHR Order are given in [Appendix 1](#).



Requirements

MSH – Message Header Segment

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

The MSH segment is required.

Field #	Field Name	Value (Format)	Required	Notes
0	Record Type	MSH	yes	
1	Field Separator		yes	Default Value, but we can support any other separator value
2	Encoding Characters	^~\&	yes	Default Value, but we can support any other values
3	Sending Application	String	no	HL7 Provider Name
4	Sending Facility	String	yes	Facility Name or Facility EHR Account Number
5	Receiving Application	String	no	Laboratory Name/ID
6	Receiving Facility	String	no	Laboratory Name/ID
7	Date/Time of Message	YYYYMMDDHHMM	no	Date/Time of Message
8	Security	Not Supported		
9	Message Type	ORM^O01	yes	Static Value
10	Message Control ID	String	no	Requisition External Source ID
11	Processing ID	Code	no	HL7 Mode: P – Production T – Training D – Debug/Testing
12	Version ID	2.7	no	HL7 Version Number
13-25		Not Supported		

```
MSH|^~\&|HL7 Provider Name|Facility Name or Facility EHR Account
Number|Laboratory Name|Laboratory Name|YYYYMMDDHHMM||ORM^O01|Requisition
External Source ID|P|2.7
```

PID – Patient Identification Segment

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.

The system allows creating a new patient record and updating an existing one (except for patient ID and date of birth) from the EHR Order.

The PID segment is required.

Field #	Field Name	Value (Format)	Required	Notes
0	Record Type	PID	yes	
1	Set ID - Patient ID	1	yes	Static Value
2	Patient ID	String	no	Patient External Source ID <i>* Will be used if PID.3 field is empty</i>
3	Patient Identifier List	String	yes	Patient External Source ID



Requirements

Field #	Field Name	Value (Format)	Required	Notes
				* Preferred value
4	Alternate Patient ID	String	no	Patient External Source ID * Will be used if PID.2 and PID.3 fields are empty
5	Patient Name	XPN format	yes	Last Name^First Name^Middle Name
6	Mother's Maiden Name	Not Supported		
7	Date/Time of Birth	YYYYMMDD	yes	Patient Date of Birth
8	Gender	Code	yes	F – Female M – Male U – Unknown
9-10		Not Supported		
11	Patient Address	XAD format	yes	Address 1^Address 2^City^State^Zip Code
12	County Code	Not Supported		
13	Phone Number - Home	String	yes	
14-40		Not Supported		

```
PID|1||Patient External Source ID||Last Name^First Name^Middle
Name||YYYYMMDD|Gender|||Address 1^Address 2^City^State^Zip Code||Phone Number
```

RXO – Pharmacy/Treatment Order Segment

The RXO segment identifies the treatment product or treatment ordered to be given to the patient such as medications and certain devices or supplies which might require a prescription. The RXO segment is used to transmit Medications.

Reflexed Tests will be added to a requisition according to the rules set up in the system for medications.

The RXO segment is optional and may repeat.

Field #	Field Name	Value (Format)	Required	Notes
0	Record Type	RXO	yes	
1	Requested Give Code	String	no	Medication Description
2-36		Not Supported		

```
RXO|Medication Description
```

PV1 – Patient Visit Segment

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

The PV1 segment is used in the LimitLIS® v3.2 system to identify a Financial class; however, the system recognizes the Financial Class by presence and absence of certain segments. The absence of the PV1 segment is determined as follows:

- “Insurance” if EHR Order contains the IN1 segment;
- “Facility” if EHR Order contains GT1, but not IN1;



Requirements

- “Patient/Self Pay” if EHR Order contains neither IN1 nor GT1.

Field #	Field Name	Value (Format)	Required	Notes
0	Record Type	PV1	yes	
1	Set ID - PV1	1	yes	Static Value
2	Patient Class	O	no	Static Value
3-7		Not Supported		
8	Referring Doctor	XCN format	no	Requesting Physician NPI Number^Physician Last Name^Physician First Name^Physician Middle Name^^^^^^^^^NPI
9-19		Not Supported		
20	Financial Class	Code	yes	Insurance Medicare Facility Patient/Self Pay * “Private Pay” is allowed and parsed as "Patient/Self Pay"
21-33		Not Supported		
34	Delete Account Indicator	N	no	Static Value
35-38		Not Supported		
39	Servicing Facility	String	no	Facility Name/ID
40-54		Not Supported		

```
PV1|1|O|||||Physician NPI Number^Physician Last Name^Physician First Name^Physician Middle Name^^^^^^^^^NPI|||||||Financial Class |||||||N||||Facility Name
```

IN1 – Insurance Segment

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

If the Financial Class is an Insurance Company or Medicare, this segment is required. It can be repeated for multiple insurance companies; the first IN1 segment will be treated as the primary.

The system allows creating a new Insurance Company from the EHR Order.

NOTE: The system searches Insurance Company by Payer ID (IN1.3) if present; otherwise, the Name (IN1.4) is used.

Field #	Field Name	Value (Format)	Required	Notes
0	Record Type	IN1	yes	
1	Set ID – IN1	#	yes	Sequence number
2	Health Plan ID	Not Supported		
3	Insurance Company ID	String	no	Insurance Company Payer ID
4	Insurance Company Name	String	yes	Insurance Company Name
5	Insurance Company Address	XAD format	no	Insurance Company Address 1^Address 2^City^State^Zip Code



Requirements

Field #	Field Name	Value (Format)	Required	Notes
6	Insurance Co Contact Person	Not Supported		
7	Insurance Co Phone Number	String	no	
8	Group Number	String	no	Patient's Insurance Co Group Number
9-15		Not Supported		
16	Name of Insured	XPN format	yes	Subscriber Name or Patient Name if IN1.17 is SEL^Self Last Name^First Name^Middle Name
17	Insured's Relationship to Patient	Code	yes	SEL^Self SPO^Spouse CHD^Child OTN^Other
18	Insured's Date of Birth	YYYYMMDD	no	Subscriber DOB or Patient DOB if IN1.17 is SEL^Self
19	Insured's Address	XAD format	no	Subscriber Address or Patient Address if IN1.17 is SEL^Self Address 1^Address 2^City^State^Zip Code
20-35		Not Supported		
36	Policy Number	String	yes	Patient's Insurance Co Policy Number
37-42		Not Supported		
43	Insured's Gender	Code	no	Subscriber Sex or Patient Sex if IN1.17 is SEL^Self F – Female M – Male U – Unknown
44-55		Not Supported		

IN1|1||Insurance Company Payer ID|Insurance Company Name|Insurance Company Address 1^Address 2^City^State^Zip Code||Insurance Co Phone Number|Patient's Insurance Co Group Number|||||||Patient Last Name^Patient First Name^Patient Middle Name|SEL^Self|Patient DOB|Patient Address 1^Address 2^City^State^Zip Code|||||||||||||||Patient's Insurance Co Policy Number|||||||Patient Sex

or

IN1|1||Insurance Company Payer ID|Insurance Company Name|Insurance Company Address 1^Address 2^City^State^Zip Code||Insurance Co Phone Number|Patient's Insurance Co Group Number|||||||Subscriber Last Name^Subscriber First Name^Subscriber Middle Name|Insured's Relationship to Patient|Subscriber DOB|Subscriber Address 1^Address 2^City^State^Zip Code|||||||||||||||Patient's Insurance Co Policy Number|||||||Subscriber Sex



GT1 – Guarantor Segment

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.

NOTE:

- If the Financial Class is **Facility**, the GT1 segment is **required**.
- If the Financial Class is **Insurance or Medicare**, the GT1 segment is optional and contains Subscriber information. If the EHR Order does not contain GT1 segment, the Subscriber data will be taken from IN1 segment.
- If the Financial Class is **Patient/Self Pay**, or Relation to insured is "**Self**", the GT1 segment is **not needed**.

Field #	Field Name	Value (Format)	Required	Notes
0	Record Type	GT1	yes	
1	Set ID - GT1	1	yes	Static Value
2	Guarantor Number	Not Supported		
3	Guarantor Name	XPN format	yes	Subscriber Last Name^Subscriber First Name^Subscriber Middle Name or Billing Facility Name
4	Guarantor Spouse Name	Not Supported		
5	Guarantor Address	XAD format	yes* *optional if Subscriber	Subscriber Address 1^Address 2^City^State^Zip Code or Billing Facility Address 1^Address 2^City^State^Zip Code
6	Guarantor Phone Number	String	no	Empty if Subscriber or Billing Facility Phone Number
7	Guarantor Business Phone Number	String	no	Empty if Subscriber or Billing Facility Phone Number
8	Guarantor Date of Birth	YYYYMMDD	no	Subscriber DOB or Empty if Facility
9	Guarantor Gender	Code	no	Subscriber Sex or Empty if Facility F – Female M – Male U – Unknown
10	Guarantor Type	Code	no	Y – for Person N – for Facility
11	Guarantor Relationship	Code	yes	If the Financial Class is Insurance or Medicare: SEL^Self SPO^Spouse CHD^Child



Requirements

Field #	Field Name	Value (Format)	Required	Notes
				OTH^Other If the Financial Class is Facility OTH^Other
12-57		Not Supported		

GT1|1||Subscriber Last Name^Subscriber First Name^Subscriber Middle Name||Subscriber Address1^Address 2^City^State^Zip Code|||Subscriber DOB|Subscriber Sex|Y|Guarantor Relationship

or

GT1|1||Billing Facility Name||Billing Facility Address1^Address 2^City^State^Zip Code|Billing Facility Phone Number|Billing Facility Phone Number|||N|OTH^Other

ORC – Common Order Segment

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. Only one ORC segment will be processed by LimitLIS® v3.2. The ORC segment should always have at least one OBR segment after it.

Field #	Field Name	Value (Format)	Required	Notes
0	Record Type	ORC	yes	
1	Order Control	NW	yes	Static value (New order/service)
2	Placer Order Number	String	yes	Requisition External Source ID
3-11		Not Supported		
12	Ordering Provider	XCN format	yes	Requesting Physician NPI Number^Physician Last Name^Physician First Name^Physician Middle Name^^^^^^^NPI NOTE: NPI is required and the physician must exist in the LimitLIS system.
13-34		Not Supported		

ORC|NW|Requisition External Source ID|||||||Physician NPI^Physician Last Name^Physician First Name^Physician Middle Name^^^^^^^NPI

OBR – Observation Request Segment

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



Requirements

The OBR segment is required and may repeat. As part of the associated ORC hierarchy, OBR should always follow ORC segment.

Field #	Field Name	Value (Format)	Required	Notes
0	Record Type	OBR	yes	
1	Set ID - OBR	#	yes	Sequence number of the OBR segments within the ORC segment.
2	Placer Order Number	String	no	Requisition External Source ID
3	Filler Order Number	Not Supported		
4	Universal Service Identifier	CWE format	yes	Test Panel Code^Test Panel Description or Test Code^Test Description or EHR Patient Signature Flag^Patient consent for testing
5	Priority	R	no	Static Value
6	Requested Date/time	Not Supported		
7	Observation Date/Time	YYYYMMDDHHMM	yes	Collection Date/Time
8-14		Not Supported		
15	Specimen Source	String	yes	Specimen Type Code or Name
16	Ordering Provider	XCN format	no	Requesting Physician NPI Number^Physician Last Name^Physician First Name^Physician Middle Name^^^^^^^^^NPI
17-54		Not Supported		

```
OBR|1|Requisition External Source ID||Test Panel Code^Test Panel
Description|R||YYYYMMDDHHMM|||||||Specimen Type Code or Name|Physician
NPI^Physician Last Name^Physician First Name^Physician Middle Name
^^^^^^^^^NPI
```

```
OBR|2|Requisition External Source ID||Test Code^Test
Description|R||YYYYMMDDHHMM|||||||Specimen Type Code or Name|Physician
NPI^Physician Last Name^Physician First Name^Physician Middle Name
^^^^^^^^^NPI
```

```
OBR|3|Requisition External Source ID||EHR Patient Signature Flag^Patient
consent for testing|R||YYYYMMDDHHMM|||||||Specimen Type Code or
Name|Physician NPI^Physician Last Name^Physician First Name^Physician Middle
Name^^^^^^^^^NPI
```

NTE – Notes and Comments Segment

The NTE segments are commonly used for sending Notes and Comments as well as sending Medications and Medical Necessity.



Requirements

The description in the message defines the meaning of the NTE segments. For each NTE, the description in the message should include an indication of the associated group, for example "Medications". To transfer Medications, either RXO or NTE segment will be used. A segment without the indication will be treated as a Comment.

The default maximum length of the text of an NTE record is 75 characters. On request, the maximum length can be set according to the receiving system. Please discuss this matter with the LimitLIS® project manager.

The NTE segment is optional and may repeat. As part of the associated OBR hierarchy, NTE should follow OBR segment.

Field #	Field Name	Value (Format)	Required	Notes
0	Record Type	NTE	yes	
1	Set ID - NTE	#	yes	Sequence number of the NTE segments within the OBR segment.
2	Source of Comment	P	no	P - Orderer (placer) is source of comment. Static Value
3	Comment	String	no	Indication of the associated group + Description: "Medications" + Medication Descriptions separated by a comma or "Medical Necessity"/"Statement of Medical Necessity" + Medical Necessity Description or "Comments" + Comment text
4-8		Not Supported		

```
NTE|1|P|Medications Medication Description1, Medication Description2
NTE|2|P|Medical Necessity text
```

or

```
NTE|2|P|Statement of Medical Necessity
NTE|3|P|Comments text
```

DG1 – Diagnosis Segment

The DG1 segment contains patient diagnosis information. LimitLIS® v3.2 supports ICD-10 codes. For other codes, please contact the project manager.

This segment is required and may repeat. However, the absence of DG1 will not prevent the EHR Order processing. If an EHR Order is submitted to the system with no or incorrect diagnosis codes, the requisition will be created and placed on hold with the corresponding comment.

If EHR Order contains more than 6 IC10 codes, only 6 first codes will be processed based on their order (sequence number) in the ORM message. The additional codes will still be applied to the order, but not in a specific sequence.

Field #	Field Name	Value (Format)	Required	Notes
0	Record Type	DG1	yes	



Requirements

Field #	Field Name	Value (Format)	Required	Notes
1	Set ID - DG1	#	yes	Sequence number
2	Diagnosis Coding Method	Not Supported		
3	Diagnosis Code	CWE format	yes	Diagnosis Code^Diagnosis Description
4-26		Not Supported		

DG1|1||Diagnosis Code^Diagnosis Description

OBX – Observation/Results Segment

In the HL7 Order message, implemented in LimitLIS® v3.2, the OBX segment is used to transmit Point of Care Test results and encoded signature file data.

To process the encoded patient signature data from the OBX segment, the EHR Order must contain the EHR Patient Signature Flag in the OBR segment, which should be set in the LimitLIS® v3.2 system for the Laboratory (Settings & Options).

Reflexed Tests will be added to a requisition according to the rules set up in the system for POC test results.

The system processes an EHR Order with no tests/OBR segments if reflexed POC tests are present.

This segment is optional and may repeat.

Field #	Field Name	Value (Format)	Required	Notes
0	Record Type	OBX	yes	
1	Set ID - OBX	#	yes	Sequence number
2	Value Type	ST	yes	ST – String data. Static Value.
3	Observation Identifier	CWE format	yes	POC Test Code^POC Test Name or Encoded signature file data: base-64^image/jpg
4	Observation Sub-ID	Not Supported		
5	Observation Value	Code	no	P – Positive N - Negative
6-30		Not Supported		

OBX|1|ST|POC Test Code^POC Test Name||P
 OBX|2|ST|POC Test Code^POC Test Name||N
 OBX|3|ST|base-64^image/jpg||/9j/4AAQSkZJR...

ORU – Result Messages

HL7 Result (ORU_R01) Message Structure

The table below describes the sequential structure of an HL7 Result message implemented in LimitLIS® v3.2 system.

Segments with no brackets around it – will be always sent, [] – Optional, {} - May repeat, [{}] - Optional and May repeat.

If the transmission of any segment type will cause a processing problem in the receiving system, please bring this fact to the attention of the LimitLIS® project manager.

The Result (ORU) message structure:

MSH				Message Header
	PID			Patient Identification
		ORC		Common Order
			{OBR}	Orderable Test
			{OBX}	Observations/Results
			[{NTE}]	Notes and Comments
			[{NTE}]	Outcome
			{OBX}	Observations/Results
			[{NTE}]	Notes and Comments
			[{NTE}]	Outcome
			{OBR}	Orderable Test
			{OBX}	Observations/Results
			[{NTE}]	Notes and Comments
			[{NTE}]	Outcome
			{OBX}	Observations/Results
			[{NTE}]	Notes and Comments

HL7 Result (ORU_R01) Segment Specifications – HL7 v.2.7

ORU is used in response to an order and provides clinical observations. In HL7 messaging, ORU messages provide structured patient-oriented clinical data between systems.

The ORU message is generated when a Requisition is released in the LimitLIS® v3.2 system, or when test results are corrected. The LimitLIS® v3.2 system also provides the ability to generate an HL7 Result file when a requisition is canceled by the laboratory. This option can be set in the LimitLIS® v3.2 interface for a Client/Facility via “Settings & Options”. The LimitLIS® v3.2 system also allows to resend EHR Results in bulk or individually, using the corresponding tools within the system UI.

The tables below show the fields that will be sent within each of the segments and the nature of the data each field contains. All fields that have been greyed out are not supported by LimitLIS® v3.2 and are not sent. Below each table is placed example(s).

If the receiving application requires the use of additional specific fields that are greyed out or not specified in this specification, please discuss this matter with the LimitLIS® project manager.



Requirements

Sample of the EHR Order are given in [Appendix 2](#).

MSH – Message Header Segment

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

The MSH segment is always sent.

Field #	Field Name	Value (Format)	Notes
0	Record Type	MSH	
1	Field Separator		Default Value, but other separator values can be supported
2	Encoding Characters	^~\&	Default Value, other values can be supported
3	Sending Application	HD format	LimitLIS® System Name^Version Number
4	Sending Facility	HD format	Lab Identifier^Lab Account Number <i>*Optional. Configured in LimitLIS® (HL7 Server Configurations)</i>
5	Receiving Application	String	HL7 Provider Name
6	Receiving Facility	HD format	Facility Name^EHR Account Number
7	Date/Time of Message	YYYYMMDDHHMMSS	EHR Record Creation Date/Time
8	Security	Not Supported	
9	Message Type	ORU^R01	Static Value
10	Message Control ID	String	Requisition ID
11	Processing ID	Code	HL7 Mode: P – Production T – Training D – Debug/Testing
12	Version ID	2.7	HL7 Version Number
13-25		Not Supported	

```
MSH|^~\&|LimitLIS System Name^Version Number|Lab Identifier^Lab Account
Number|HL7 Provider Name|Facility Name^EHR Account
Number|YYYYMMDDHHMMSS||ORU^R01|Requisition ID|P|2.7
```

PID – Patient Identification Segment

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.

The PID segment is always sent.

Field #	Field Name	Value (Format)	Notes
0	Record Type	PID	
1	Set ID - Patient ID	1	Static Value
2	Patient ID	String	Patient External Source ID or Patient MRN if the Patient does not have External Source ID

Requirements

Field #	Field Name	Value (Format)	Notes
3	Patient Identifier List	String	Patient External Source ID or Patient MRN if the Patient does not have External Source ID
4	Alternate Patient ID	String	Patient MRN
5	Patient Name	XPN format	Last Name^First Name^Middle Name
6	Mother's Maiden Name	Not Supported	
7	Date/Time of Birth	YYYYMMDD	
8	Gender	Code	F – Female M – Male U - Unknown
9-10		Not Supported	
11	Patient Address	XAD format	Address 1^Address 2^City^State^Zip Code
12	County Code	Not Supported	
13	Phone Number - Home	XTN format	Phone Number^^^^Area/City Code^Local Number^Extension
14-17		Not Supported	
18	Patient Account Number	String	Patient MRN
19-40		Not Supported	

```
PID|1|Patient External Source ID|Patient External Source ID|Patient
MRN|Patient Last Name^Patient First Name^Patient Middle
Name||YYYYMMDD|Gender|||Address 1^Address 2^City^State^Zip Code||Phone
Number^^^^Area/City Code^Local Number^Extension||||Patient MRN|||
```

ORC – Common Order Segment

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 always sent.

The ORC segment will always have at least one OBR segment after it.

Field #	Field Name	Value (Format)	Notes
0	Record Type	ORC	
1	Order Control	RE	Static value (Observations/Performed Service to follow)
2	Placer Order Number	String	Requisition External Source ID or Requisition ID if the Requisition does not have External Source ID
3	Filler Order Number	String	Requisition ID
4-5		Not Supported	
6	Response Flag	D	Static Value
7-8		Not Supported	
9	Date/Time of Transaction	YYYYMMDDHHMMSS	Released Date/Time
10-11		Not Supported	

Requirements

Field #	Field Name	Value (Format)	Notes
12	Ordering Provider	XCN format	Requesting Physician NPI Number^Physician Last Name^Physician First Name^Physician Middle Name^^^^^^^^NPI
13-14		Not Supported	
15	Order Effective Date/Time	YYYYMMDDHHMMSS	Received Date/Time
16-20		Not Supported	
21	Ordering Facility Name	XON format	Facility Name^D^^^^AN^^A^EHR Account Number
22-34		Not Supported	

```

ORC|RE|Requisition External Source ID|Requisition
ID|||D|||YYYYMMDDHHMMSS|||Physician NPI Number^Physician Last Name^Physician
First Name^Physician Middle Name^^^^^^^^NPI|||YYYYMMDDHHMMSS|||Facility
Name^D^^^^AN^^A^EHR Account Number
    
```

OBR – Observation Request Segment

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

The OBR segment will always be sent and may repeat. As part of the associated ORC hierarchy, OBR will always follow ORC segment. Each OBR will have at least one OBX segment associated with it.

Field #	Field Name	Value (Format)	Notes
0	Record Type	OBR	
1	Set ID - OBR	#	Sequence number of the OBR segments within the ORC segment.
2	Placer Order Number	String	Requisition External Source ID or Requisition ID if the Requisition does not have External Source ID
3	Filler Order Number	String	Requisition ID
4	Universal Service Identifier	CWE format	Test Code^Test Description^L or POC^POC Results (Static Value. Header for POC test results) or Base64^Embedded PDF (Static Value. Encrypted report file data)
5	Priority	R	Static Value
6	Requested Date/time	YYYYMMDDHHMMSS	Received Date/Time
7	Observation Date/Time	YYYYMMDDHHMMSS	Collection Date/Time
8-13		Not Supported	
14	Specimen Received Date/Time	YYYYMMDDHHMMSS	Received Date/Time
15	Specimen Source	String	Specimen Type Code or Specimen Type Name if the Specimen Type does not have a Code

Requirements

Field #	Field Name	Value (Format)	Notes
16	Ordering Provider	<u>XCN</u> format	Requesting Physician NPI Number^Physician Last Name^Physician First Name^Physician Middle Name^^^^^^^^NPI
17-21		Not Supported	
22	Date/Time Observations Reported	YYYYMMDDHHMMSS	Report Date/Time or Corrected Report Date/Time or Cancelled Report Date/Time
23-24		Not Supported	
25	Order Result Status	Code	F - Final results C - Correction to results
26-52		Not Supported	
53	Alternate Placer Order Number	String	Sample Number
54	Parent Order	Not Supported	

```
OBR|1|Requisition External Source ID|Requisition ID|POC^POC
Results|R|YYYYMMDDHHMMSS|YYYYMMDDHHMMSS|||||YYYYMMDDHHMMSS|Specimen Type
Code|Physician NPI^Physician Last Name^Physician First Name^Physician Middle
Name^^^^^^^^NPI|||||YYYYMMDDHHMMSS|||Order Result Status|
```

```
OBR|2|Requisition External Source ID|Requisition ID|Test Code^Test
Description^L|R|YYYYMMDDHHMMSS|YYYYMMDDHHMMSS|||||YYYYMMDDHHMMSS|Specimen
Type Code|Physician NPI^Physician Last Name^Physician First Name^Physician
Middle Name^^^^^^^^NPI|||||YYYYMMDDHHMMSS|||Order Result
Status|||||||||||||||||||||Sample Number
```

```
OBR|3|Requisition External Source ID|Requisition ID|Base64^Embedded
PDF|R|YYYYMMDDHHMMSS|||||YYYYMMDDHHMMSS|Specimen Type Code|Physician
NPI^Physician Last Name^Physician First Name^Physician Middle
Name^^^^^^^^NPI|||||YYYYMMDDHHMMSS|||Order Result Status|
```

OBX – Observation/Results Segment

In the ORU messages, the OBX segment is used to transmit clinical observation/results reporting information.

For the group of tests, which represents a collection of individual measurements, each measurement is conveyed in its own OBX segment.

Non-Reportable tests will not be sent.

Test results for analytes with enabled "Hide value" option will be sent without Outcome (in the NTE segment), and the Result value in the OBX.5 will be replaced with the Flag/HL7 Interpretation Code.

The OBX segment will be always sent and may repeat. As part of the associated OBR hierarchy, OBX will always follow the OBR segment.



Field #	Field Name	Value (Format)	Notes
0	Record Type	OBX	
1	Set ID - OBX	#	Sequence number of the OBX segments within the OBR segment.
2	Value Type	Code	ST – String data (for POC results, for results with interpretation value, and for qualitative analytes) NM - Numeric TX – Text Data (when the value length is > 32 characters) ED - Encapsulated data (for Base64 encoded report file)
3	Observation Identifier	CWE format	POC Test Code^POC Test Name^L or Analyte Name^Analyte Name^L^^ or PDF (Static Value. Encrypted report file data)
4	Observation Sub-ID	#	Empty if POC Test result or Sequence number of the OBX segments within the OBR segment if regular Tests or Base64 (Static Value. Encrypted report file data)
5	Observation Value	String	Test Result Value or Interpretation value or HL7 Interpretation Code for analytes with enabled "Hide value" option or Base64 encrypted report file
6	Units of Measure Identifier	String	Test Result Unit or Empty if qualitative analyte
7	Reference Ranges	String	Empty if POC Test result or qualitative analyte or Reference Range (Low Value - High Value)
8	Interpretation Code	Code	HL7 Interpretation Code of the result flag * see Appendix 5
9-10		Not Supported	
11	Observation Result Status	Code	F - Final results C - Correction to results
12-13		Not Supported	
14	Date/Time of the Observation	YYYYMMDDHHMMSS	Report Date/Time or Corrected Report Date/Time or Cancelled Report Date/Time
15	Producer ID	CWE format	POC^Point of Care (Static Value) or CLIA Number^Lab Name * <i>Optional. Configured in LimitLIS® (Laboratory → Report Settings)</i>
16	Responsible Observer	XCN format	Empty if POC Test result or Test Performer License Number^Test Performer Last Name^Test Performer First Name

Requirements

Field #	Field Name	Value (Format)	Notes
			* User who finalized test results
17-22		Not Supported	
23	Performing Organization Name	XON format	Lab Name * Optional. Configured in LimitLIS® (Laboratory → Report Settings)
24	Performing Organization Address	XAD format	Lab Address 1^Address 2^City^State^Zip Code * Optional. Configured in LimitLIS® (Laboratory → Report Settings)
25	Performing Organization Medical Director	XCN format	Lab Director Physicians Code^Lab Director Last Name^Lab Director First Name^^^Lab Director Degree * Configured in LimitLIS® (Laboratory Director Contact)
26-30		Not Supported	

```
OBX|1|ST|POC Test Code^POC Test Name^L||POC Test Result Value|Test Result
Unit||HL7 Interpretation Code|||Observation Result
Status|||YYYYMMDDHHMMSS|POC^Point of Care
```

or

```
OBX|1|NM|Analyte Name^Analyte Name^L^^|1|Test Result Value|Test Result Unit|
Low Value - High Value|HL7 Interpretation Code|||Observation Result
Status|||YYYYMMDDHHMMSS|CLIA Number^Lab Name|Test Performer License
Number^Test Performer Last Name^Test Performer First Name|||||Lab Name|Lab
Address 1^Address 2^City^State^Zip Code|Lab Director Physicians Code^Lab
Director Last Name^Lab Director First Name^^^Lab Director Degree
```

or

```
OBX|1|NM|Analyte Name^Analyte Name^L^^|1|HL7 Interpretation Code|Test Result
Unit|Low Value - High Value|HL7 Interpretation Code|||Observation Result
Status|||YYYYMMDDHHMMSS|CLIA Number^Lab Name|Test Performer License
Number^Test Performer Last Name^Test Performer First Name|||||Lab Name|Lab
Address 1^Address 2^City^State^Zip Code|Lab Director Physicians Code^Lab
Director Last Name^Lab Director First Name^^^Lab Director Degree
```

or

```
OBX|1|ED|PDF|Base64|Base64 encrypted report file
```

NTE – Notes and Comments Segment

The NTE segments are commonly used for sending Notes and Comments as well as posting Outcomes.

The description in the message containing an indication of the associated group, defines the meaning of the NTE segments. NTE without the indication will mean a Comment. NTE with "Outcome" indication will contain a certain value, if applicable. The Outcome is not sent for an analyte with enabled "Hide value" option.

Requirements

The default maximum length of the text of an NTE record is 75 characters. On request, the maximum length can be set according to the receiving system. Please discuss this matter with the LimitLIS® project manager.

The NTE segment is optional and may repeat. As part of the associated OBX hierarchy, NTE will follow the OBX segment.

Field #	Field Name	Value (Format)	Notes
0	Record Type	NTE	
1	Set ID - NTE	#	Sequence number of the NTE segments within the OBX segment.
2	Source of Comment	Code	L - Ancillary (filler) department is a source of comment O - Other system is a source of comment
3	Comment	String	Comment text or Outcome: value
4	Comment Type	Code	RE - Remark
5-8		Not Supported	

NTE|1|O|Comment text|

NTE|2|L|Outcome: CONSISTENT|RE

or

NTE|1|L|Outcome: INCONSISTENT|RE

DFT – Detail Financial Transaction

HL7 DFT_P03 Message Structure

The table below describes the sequential structure of an HL7 DFT message implemented in LimitLIS® v3.2 system.

Segments with no brackets around it – will be always sent, [] – Optional, {} - May repeat, [{}] - Optional and May repeat.

If the transmission of any segment type will cause a processing problem in the receiving system, please bring this fact to the attention of the LimitLIS® project manager.

The Detail Financial Transaction (DFT) message structure:

MSH	Message Header
PID	Patient Identification
PD1	Patient Additional Demographic
PV1	Patient Visit
{FT1}	Financial Transaction
{DG1}	Diagnosis
GT1	Guarantor
[{IN1}]	Insurance

HL7 DFT_P03 Segment Specifications – HL7 v.2.7

The DFT message describes a financial transaction that is sent to a billing system and is used for patient accounting purposes.

The DFT message is generated when a Requisition is released in the LimitLIS® v3.2 system. The system also allows to regenerate and resend DFT files in bulk or individually, using the corresponding tools in the system UI.

The tables below show the fields that will be sent within each of the segments and the nature of the data each field contains. All fields that have been greyed out will not be sent. Below each table is placed example(s).

If the receiving application requires the use of additional specific fields that are greyed out or not specified in this document, please discuss this matter with the LimitLIS® project manager.

Samples of the EHR Order are given in [Appendix 3](#).

Requirements

MSH – Message Header Segment

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

The MSH segment is always sent.

Field #	Field Name	Value (Format)	Notes
0	Record Type	MSH	
1	Field Separator		Default Value, but we can support any other separator value
2	Encoding Characters	^~\&	Default Value, but we can support any other values
3	Sending Application	HD format	LimitLIS® System Name^Version Number
4	Sending Facility	HD format	Lab Identifier^Lab Account Number * <i>Optional. Configured in LimitLIS® (HL7 Server Configurations)</i>
5	Receiving Application	String	HL7 Provider Name
6	Receiving Facility	HD format	Facility Name^Facility Billing Identifier * <i>Configured in LimitLIS® (Facility → “Settings & Options”)</i>
7	Date/Time of Message	YYYYMMDDHHMMSS	Billing Record Creation Date/Time
8	Security	Not Supported	
9	Message Type	DFT^P03	Static Value
10	Message Control ID	String	Requisition ID
11	Processing ID	Code	HL7 Mode: P – Production T – Training D – Debug/Testing
12	Version ID	2.7	HL7 Version Number
13-25		Not Supported	

```
MSH|^~\&|LimitLIS System Name^Version Number|Lab Identifier^Lab Account
Number|HL7 Provider Name|Facility Name^Facility Billing
Identifier|YYYYMMDDHHMMSS||DFT^P03|Requisition ID|P|2.7
```

PID – Patient Identification Segment

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

This segment will be always sent.

Field #	Field Name	Value (Format)	Notes
0	Record Type	PID	
1	Set ID - Patient ID	1	Static Value
2	Patient ID	String	Patient External Source ID or Patient MRN if the Patient does not have External Source ID
3	Patient Identifier List	String	Patient External Source ID



Requirements

Field #	Field Name	Value (Format)	Notes
			or Patient MRN if the Patient does not have External Source ID
4	Alternate Patient ID	String	Patient MRN
5	Patient Name	XPN format	Last Name^First Name^Middle Name
6	Mother's Maiden Name	Not Supported	
7	Date/Time of Birth	YYYYMMDD	
8	Gender	Code	F – Female M – Male U - Unknown
9-10		Not Supported	
11	Patient Address	XAD format	Address 1^Address 2^City^State^Zip Code
12	County Code	Not Supported	
13	Phone Number - Home	XTN format	Phone Number^^^^Area/City Code^Local Number^Extension
14-17		Not Supported	
18	Patient Account Number	String	Patient MRN
19-40		Not Supported	

```
PID|1|Patient External Source ID|Patient External Source ID|Patient
MRN|Patient Last Name^Patient First Name^Patient Middle
Name||YYYYMMDD|Gender|||Address 1^Address 2^City^State^Zip Code||Phone
Number^^^^Area/City Code^Local Number^Extension||||Patient MRN|||
```

PD1 – Patient Additional Demographic Segment

The Patient Additional Demographic (PD1) segment contains demographic information that is likely to change about the patient. In the LimitLIS® v3.2 system, this segment is used to transmit the Patient's Primary Physician NPI.

This segment will be always sent but may be empty.

Field #	Field Name	Value (Format)	Notes
0	Record Type	PD1	
1-3		Not Supported	
4	Patient Primary Care Provider Name & ID No.	Numeric	Primary Physician NPI (10 digits)
5-22		Not Supported	

```
PD1||||Primary Physician NPI
```

PV1 – Patient Visit Segment

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

This segment will be always sent.



Requirements

Field #	Field Name	Value (Format)	Notes
0	Record Type	PV1	
1	Set ID - PV1	1	Static Value
2	Patient Class	O	Static Value
3-7		Not Supported	
8	Referring Doctor	XCN format	Requesting Physician NPI Number^Physician Last Name^Physician First Name^Physician Middle Name^^^^^^^NPI
9-19		Not Supported	
20	Financial Class	Code	Insurance Medicare Facility Patient/Self Pay
21-33		Not Supported	
34	Delete Account Indicator	N	Static Value
35-51		Not Supported	
52	Other Healthcare Provider	XCN format	^Facility Account Manager Last Name^Facility Account Manager First Name^Facility Account Manager Middle Name * <i>Laboratory Contact which set in LimitLIS® for a Facility ("Settings & Options")</i>
53-54		Not Supported	

```
PV1|1|O|||||Physician NPI Number^Physician Last Name^Physician First
Name^Physician Middle
Name^^^^^^^NPI|||||||Financial Class|||||||N|||||||
^Facility Account Manager Last Name^Facility Account Manager First
Name^Facility Account Manager Middle Name
```

FT1 – Financial Transaction Segment

The FT1 segment contains the data necessary to post charges, payments, adjustments, etc., to patient accounting records.

There are three types of billing in LimitLIS® v3.2 depending on configuration:

1. Test Class billing (the option "Test Class Billing" is enabled in System Settings → General Settings → Features tab).

- Tests associated with a particular drug class will be grouped and billed as a class and not individually. Accordingly, the FT1 segment will be generated for each class, and the CPT code of the class will be sent in FT1.25.
- CPT codes on individual tests will be ignored, as well as the absence of the CPT code on a test. For example:
 - If on a test the CPT code is not specified, but the test is associated with a class, it is billed as the Test Class, and CPT code of the class will be sent to FT1;



Requirements

- If the test is associated with the class, but the CPT code specified on the test is different than the CPT code specified on the class, it is still billed as the Test Class, and the CPT code of the class will be sent to FT1.
- If a test has the CPT code, but it is not associated with a class, or the test is marked as “Non-Reportable”, it will be billed as an Individual Test. In this case, there will be separate FT1 segments per each CPT code specified on the test. The FT1 segment is generated only if the Individual Test has at least one CPT code on it.

2. HCPCS G048x Codes billing *(in addition to enabled option "Test Class Billing", the "HCPCS Code G048X Billing" option is enabled on an Insurance Company).*

- Tests associated with drug classes will be grouped by number of unique drug class values and billed as a G-Code depending on the number.
 - G0480 – 1 - 7 drug class(es);
 - G0481 – 8 - 14 drug classes;
 - G0482 – 15 - 21 drug classes;
 - G0483 – 22 or more drug classes.
- In this case, the FT1 segment will be generated for the corresponding group and display HCPCS G048x code in FT1.25.
- CPT codes on individual tests will be ignored, as well as absence of the CPT code on a test.
- If a test has a CPT code, but it is not associated with a class, or the test is marked as “Non-Reportable”, it will be billed as an Individual Test. In this case, there will be separate FT1 segments per each CPT code specified on a test. The FT1 segment is generated only if the Individual Test has at least one CPT code on it.

3. Individual Tests billing.

- If a test is marked as “Non-Reportable” or unrelated to a class, it will be billed as an Individual Test.
- If the option "Test Class Billing" is disabled, all tests will be billed individually.
- There will be separate FT1 segments per each CPT code specified on the test.
- The FT1 segment is generated only if the Individual Test has at least one CPT code on it.

Field #	Field Name	Value (Format)	Notes
0	Record Type	FT1	
1	Set ID – FT1	#	Sequence number
2-3		Not Supported	
4	Transaction Date	YYYYMMDDHHMMSS	Collection Date/Time
5	Transaction Posting Date	Not Supported	
6	Transaction Type	CG	Static Value (Charge)
7	Transaction Code	String	Test Code or Empty if Test Class Billing is set or Empty if HCPCS Code G048X Billing is set
8	Transaction Description	String	Test Description or Test Class Name or Empty if HCPCS Code G048X Billing is set

Requirements

Field #	Field Name	Value (Format)	Notes
9	Transaction Description - Alternate	String	Test Description or Test Class Name or Empty if HCPCS Code G048X Billing is set
10	Transaction Quantity	1	Static Value or Test Result value if Non-Reportable test is billed
11-19		Not Supported	
20	Performed By Code	XCN format	For Non-Reportable tests only: Test Performer License Number^Test Performer Last Name^Test Performer First Name <i>* User who finalized test results</i> Otherwise empty
21	Ordered By Code	XCN format	Requesting Physician NPI Number^Physician Last Name^Physician First Name^Physician Middle Name^^^^^^NPI
22	Unit Cost	Not Supported	
23	Filter Order Number	String	Sample Number
24	Entered By Code	Not Supported	
25	Procedure Code	String	CPT code or HCPCS G048x code in CNE format (G048x code^^HCPCS)
26-31		Not Supported	
32	Performing Facility	XON format	Lab Name^D^^^^PPIN^^^CLIA Number <i>* Optional. Configured in LimitLIS® (Laboratory → Report Settings)</i>
33	Ordering Facility	XON format	Facility Name^D^^^^FI^^^Facility Billing Identifier <i>* Configured in LimitLIS® (Facility → “Settings & Options”)</i>
34-43		Not Supported	

```
FT1|1|||YYYYMMDDHHMMSS||CG|Non-Reportable Test Code|Non-Reportable Test Description|Non-Reportable Test Description|Non-Reportable Test Result Value|||||||Test Performer License Number^Test Performer Last Name^Test Performer First Name|Physician NPI Number^Physician Last Name^Physician First Name^Physician Middle Name^^^^^^NPI||Sample Number||CPT Code|||||Lab Name^D^^^^PPIN^^^CLIA Number|Facility Name^D^^^^FI^^^Facility Billing Identifier|||
```

or

```
FT1|1|||YYYYMMDDHHMMSS||CG|Test Code|Test Description|Test Description|1|||||||Physician NPI Number^Physician Last Name^Physician First Name^Physician Middle Name^^^^^^NPI||Sample Number||CPT Code|||||Lab Name^D^^^^PPIN^^^CLIA Number|Facility Name^D^^^^FI^^^Facility Billing Identifier|||
```

or



Requirements

```
FT1|1|||YYYYMMDDHHMMSS||CG||Test Class Name|Test Class
Name|1|||Physician NPI Number^Physician Last Name^Physician First
Name^Physician Middle Name^^^^^^^NPI||Sample Number||CPT Code|||Lab
Name^D^^^^PPIN^^CLIA Number|Facility Name^D^^^^FI^^Facility Billing
Identifier|||
```

or

```
FT1|1|||YYYYMMDDHHMMSS||CG|||1|||Physician NPI Number^Physician Last
Name^Physician First Name^Physician Middle Name^^^^^^^NPI||Sample
Number||G048x code^^HCPCS|||Lab Name^D^^^^PPIN^^CLIA Number|Facility
Name^D^^^^FI^^Facility Billing Identifier|||
```

DG1 – Diagnosis Segment

The DG1 segment contains patient diagnosis information. Only ICD-10 is currently supported by LimitLIS® v3.2.

Up to 6 ICD10 codes are sent to billing based on their sequence of relevance/importance.

Regardless of length, the ICD10 codes are sent with one period after third character.

This segment will be always sent and may repeat.

Field #	Field Name	Value (Format)	Notes
0	Record Type	DG1	
1	Set ID - DG1	#	Sequence number
2	Diagnosis Coding Method	I10	Static Value
3	Diagnosis Code	CWE format	Diagnosis Code^Diagnosis Description^I10
4-26		Not Supported	

```
DG1|1|I10|Diagnosis Code^Diagnosis Description^I10
```

GT1 – Guarantor Segment

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.

This segment will be always sent.

Field #	Field Name	Value (Format)	Notes
0	Record Type	GT1	
1	Set ID - GT1	1	Static Value
2	Guarantor Number	String	Patient MRN if Financial Class (PV1.20) is “Patient/Self Pay” or Relation to Insured (GT1.11) is “Self”. Otherwise empty.
3	Guarantor Name	XPN format	Patient Last Name^Patient First Name^Patient Middle Name



Requirements

Field #	Field Name	Value (Format)	Notes
			or Subscriber Last Name^Subscriber First Name^Subscriber Middle Name or Billing Facility Name
4	Guarantor Spouse Name	Not Supported	
5	Guarantor Address	XAD format	Patient Address 1^Address 2^City^State^Zip Code or Subscriber Address 1^Address 2^City^State^Zip Code or Billing Facility Address 1^Address 2^City^State^Zip Code
6	Guarantor Phone Number	XTN format	Patient Phone Number^^^^Area/City Code^Local Number^Extension or Empty if Subscriber or Billing Facility Phone Number^^^^Area/City Code^Local Number^Extension
7	Guarantor Business Phone Number	XTN format	Patient Phone Number^^^^Area/City Code^Local Number^Extension or Empty if Subscriber or Billing Facility Phone Number^^^^Area/City Code^Local Number^Extension
8	Guarantor Date of Birth	YYYYMMDD	Patient DOB or Subscriber DOB or Empty if Facility
9	Guarantor Gender	Code	Patient Sex or Subscriber Sex or Empty if Facility F – Female M – Male U – Unknown
10	Guarantor Type	Code	Y – for Person N – for Facility
11	Guarantor Relationship	Code	If the Financial Class is Insurance, Medicare, or Patient/Self Pay: SEL^Self SPO^Spouse CHD^Child OAD^Other adult If the Financial Class is Facility: OTH^Other
12-57		Not Supported	

Requirements

```
GT1|1|Patient MRN|Patient Last Name^Patient First Name^Patient Middle
Name||Patient Address 1^Address 2^City^State^Zip Code|Patient Phone
Number^^^^^Area/City Code^Local Number^Extension|Patient Phone
Number^^^^^Area/City Code^Local Number^Extension|Patient DOB|Patient
Gender|Y|SEL^Self
```

or

```
GT1|1||Subscriber Last Name^Subscriber First Name^Subscriber Middle
Name||Subscriber Address 1^Address 2^City^State^Zip Code|||Subscriber
DOB|Subscriber Gender|Y|Guarantor Relationship
```

or

```
GT1|1||Billing Facility Name||Billing Facility Address 1^Address
2^City^State^Zip Code|Billing Facility Phone Number^^^^^Area/City Code^Local
Number^Extension|Billing Facility Phone Number^^^^^Area/City Code^Local
Number^Extension|||N|OTH^Other
```

IN1 – Insurance Segment

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

This segment will be sent only if the Financial Class is an Insurance Company or Medicare. The IN1 segment may repeat. The first IN1 segment will contain the primary insurance.

Field #	Field Name	Value (Format)	Notes
0	Record Type	IN1	
1	Set ID – IN1	#	Sequence number
2	Health Plan ID	Not Supported	
3	Insurance Company ID	String	Insurance Company Payer ID
4	Insurance Company Name	String	Insurance Company Name
5	Insurance Company Address	XAD format	Insurance Company Address 1^Address 2^City^State^Zip Code
6	Insurance Co Contact Person	Not Supported	
7	Insurance Co Phone Number	XTN format	Insurance Company Phone Number^^^^^Area/City Code^Local Number^Extension
8	Group Number	String	Patient's Insurance Co Group Number
9-15		Not Supported	
16	Name of Insured	XPN format	Subscriber Last Name^Subscriber First Name^Subscriber Middle Name or Patient Last Name^Patient First Name^Patient Middle Name
17	Insured's Relationship to Patient	Code	SEL^Self SPO^Spouse CHD^Child OAD^Other adult

Requirements

Field #	Field Name	Value (Format)	Notes
18	Insured's Date of Birth	YYYYMMDD	Subscriber DOB or Patient DOB
19	Insured's Address	XAD format	Subscriber Address 1^Address 2^City^State^Zip Code or Patient Address 1^Address 2^City^State^Zip Code
20	Assignment of Benefits	Y	Static Value
21-35		Not Supported	
36	Policy Number	String	Patient's Insurance Co Policy Number
37-42		Not Supported	
43	Insured's Gender	Code	Subscriber Sex or Patient Sex F – Female M – Male U – Unknown
44-55		Not Supported	

```
IN1|1||Insurance Company Payer ID|Insurance Company Name|Insurance Co Address
1^Address 2^City^State^Zip Code||Insurance Co Phone Number^^^^^Area/City
Code^Local Number^Extension|Patient's Insurance Co Group
Number|||||||Subscriber Last Name^Subscriber First Name^Subscriber Middle
Name|Insured's Relationship to Patient|YYYYMMDD|Subscriber Address 1^Address
2^City^State^Zip Code|Y|||||||||||||||Patient's Insurance Co Policy
Number|||Subscriber Gender|||||
```

or

```
IN1|1||Insurance Company Payer ID|Insurance Company Name|Insurance Co Address
1^Address 2^City^State^Zip Code||Insurance Co Phone Number^^^^^Area/City
Code^Local Number^Extension|Patient's Insurance Co Group
Number|||||||Patient Last Name^Patient First Name^Patient Middle
Name|SEL^Self|YYYYMMDD|Patient Address 1^Address 2^City^State^Zip
Code|Y|||||||||||||||Patient's Insurance Co Policy Number|||Patient
Gender|||||
```



ADT – Admit Discharge Transfer

There are 51 different types of ADT messages that are used for various trigger events. The following is the HL7 Data Mapping for the ADT_A04 "Patient registration" outbound Interface that is used in the LimitLIS® v3.2 system by default. If the receiving application requires the use of other trigger events, please discuss this matter with the LimitLIS® project manager as they may not be supported without additional development.

HL7 ADT_A04 Message Structure

The table below describes the sequential structure of an HL7 ADT_A04 message implemented in LimitLIS® v.3.2.

Segments with no brackets around it – will be always sent, [] – Optional, {} - May repeat, [{}] - Optional and May repeat.

If the transmission of any segment type will cause a processing problem in the receiving system, please bring this fact to the attention of the LimitLIS® project manager.

The Admit Discharge Transfer (ADT) message structure:

MSH	Message Header
PID	Patient Identification
PD1	Patient Additional Demographic
PV1	Patient Visit
GT1	Guarantor
[{IN1}]	Insurance

HL7 ADT_A04 Segment Specifications

The ADT message carries patient demographic information synchronized across healthcare systems.

An ADT message is generated when a requisition is released in the LimitLIS® v3.2 system for a newly enrolled patient so that the Client system can match the financial transaction to a patient within the system. The system also allows to resend Demographic files from the Patient record, using the corresponding tool in the system UI.

The tables below show the fields that will be sent within each of the segments and the nature of the data each field contains. All fields that have been greyed out will not be sent. Below each table is placed example(s).

If the receiving application requires the use of additional specific fields that are greyed out or not specified in this specification, please discuss this matter with the LimitLIS® project manager.

Samples of the EHR Order are given in [Appendix 4](#).

Requirements

MSH – Message Header Segment

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

The MSH segment is always sent.

Field #	Field Name	Value (Format)	Notes
0	Record Type	MSH	
1	Field Separator		Default Value, but we can support any other separator values
2	Encoding Characters	^~\&	Default Value, but we can support any other values
3	Sending Application	HD format	LimitLIS® System Name^Version Number
4	Sending Facility	HD format	Lab Identifier^Lab Account Number * <i>Optional. Configured in LimitLIS® (HL7 Server Configurations)</i>
5	Receiving Application	String	HL7 Provider Name
6	Receiving Facility	HD format	Facility Name^Facility Billing Identifier * <i>Configured in LimitLIS® (Facility → “Settings & Options”)</i>
7	Date/Time of Message	YYYYMMDDHHMMSS	Patient Demographic Record Creation Date/Time
8	Security	Not Supported	
9	Message Type	ADT^A04	Static Value
10	Message Control ID	String	Patient MRN
11	Processing ID	Code	HL7 Mode: P – Production T – Training D – Debug/Testing
12	Version ID	2.7	HL7 Version Number
13-25		Not Supported	

```
MSH|^~\&|LimitLIS System Name^Version Number|Lab Identifier^Lab Account
Number|HL7 Provider Name|Facility Name^Facility Billing
Identifier|YYYYMMDDHHMMSS||ADT^A04|Patient MRN|P|2.7
```

PID – Patient Identification Segment

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

This segment will always be sent.

Field #	Field Name	Value (Format)	Notes
0	Record Type	PID	
1	Set ID - Patient ID	1	Static Value
2	Patient ID	String	Patient External Source ID or Patient MRN if the Patient does not have External Source ID



Requirements

Field #	Field Name	Value (Format)	Notes
3	Patient Identifier List	String	Patient External Source ID or Patient MRN if the Patient does not have External Source ID
4	Alternate Patient ID	String	Patient MRN
5	Patient Name	XPN format	Last Name^First Name^Middle Name
6	Mother's Maiden Name	Not Supported	
7	Date/Time of Birth	YYYYMMDD	
8	Gender	Code	F – Female M – Male U - Unknown
9-10		Not Supported	
11	Patient Address	XAD format	Address 1^Address 2^City^State^Zip Code
12	County Code	Not Supported	
13	Phone Number - Home	XTN format	Phone Number^^^^Area/City Code^Local Number^Extension
14-17		Not Supported	
18	Patient Account Number	String	Patient MRN
19-40		Not Supported	

```
PID|1|Patient External Source ID|Patient External Source ID|Patient
MRN|Patient Last Name^Patient First Name^Patient Middle
Name||YYYYMMDD|Gender|||Address 1^Address 2^City^State^Zip Code||Phone
Number^^^^Area/City Code^Local Number^Extension||||Patient MRN|||
```

PD1 – Patient Additional Demographic Segment

The Patient Additional Demographic segment contains demographic information that is likely to change about the patient. In the LimitLIS® v3.2 system, this segment is used to transmit the Patient's Primary Physician NPI.

This segment will be always sent but may be empty.

Field #	Field Name	Value (Format)	Notes
0	Record Type	PD1	
1-3		Not Supported	
4	Patient Primary Care Provider Name & ID No.	Numeric	Primary Physician NPI (10 digits)
5-22		Not Supported	

```
PD1||||Primary Physician NPI
```

PV1 – Patient Visit Segment

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

This segment will be always sent.



Requirements

Field #	Field Name	Value (Format)	Notes
0	Record Type	PV1	
1	Set ID - PV1	1	Static Value
2	Patient Class	O	Static Value
3-19		Not Supported	
20	Financial Class	Code	Insurance Medicare Facility Patient/Self Pay
21-33		Not Supported	
34	Delete Account Indicator	N	Static Value
35-51		Not Supported	
52	Other Healthcare Provider	XCN format	^Facility Account Manager Last Name^Facility Account Manager First Name^Facility Account Manager Middle Name * <i>Laboratory Contact which set in LimitLIS® for a Facility ("Settings & Options")</i>

```
PV1|1|O|||||||||||||||||Financial Class|||||||||||||||||N|||||||||||||||||^Facility Account Manager Last Name^Facility Account Manager First Name^Facility Account Manager Middle Name
```

GT1 – Guarantor Segment

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.

This segment will be always sent.

Field #	Field Name	Value (Format)	Notes
0	Record Type	GT1	
1	Set ID - GT1	1	Static Value
2	Guarantor Number	String	Patient MRN if Financial Class (PV1.20) is "Patient/Self Pay" or Relation to Insured (GT1.11) is "Self". Otherwise empty.
3	Guarantor Name	XPN format	Patient Last Name^Patient First Name^Patient Middle Name or Subscriber Last Name^Subscriber First Name^Subscriber Middle Name or Billing Facility Name
4	Guarantor Spouse Name	Not Supported	
5	Guarantor Address	XAD format	Patient Address 1^Address 2^City^State^Zip Code or Subscriber Address 1^Address 2^City^State^Zip Code or

Requirements

Field #	Field Name	Value (Format)	Notes
			Billing Facility Address 1^Address 2^City^State^Zip Code
6	Guarantor Phone Number	XTN format	Patient Phone Number^^^^Area/City Code^Local Number^Extension or Empty if Subscriber or Billing Facility Phone Number^^^^Area/City Code^Local Number^Extension
7	Guarantor Business Phone Number	XTN format	Patient Phone Number^^^^Area/City Code^Local Number^Extension or Empty if Subscriber or Billing Facility Phone Number^^^^Area/City Code^Local Number^Extension
8	Guarantor Date of Birth	YYYYMMDD	Patient DOB or Subscriber DOB or Empty if Facility
9	Guarantor Gender	Code	Patient Sex or Subscriber Sex or Empty if Facility F – Female M – Male U – Unknown
10	Guarantor Type	Code	Y – for Person N – for Facility
11	Guarantor Relationship	Code	If the Financial Class is Insurance, Medicare, or Patient/Self Pay: SEL^Self SPO^Spouse CHD^Child OAD^Other adult If the Financial Class is Facility: OTH^Other
12-57		Not Supported	

```
GT1|1|Patient MRN|Patient Last Name^Patient First Name^Patient Middle Name||Patient Address 1^Address 2^City^State^Zip Code|Patient Phone Number^^^^Area/City Code^Local Number^Extension|Patient Phone Number^^^^Area/City Code^Local Number^Extension|Patient DOB|Patient Gender|Y|SEL^Self
```

or



Requirements

```
GT1|1||Subscriber Last Name^Subscriber First Name^Subscriber Middle
Name||Subscriber Address 1^Address 2^City^State^Zip Code|||Subscriber
DOB|Subscriber Gender|Y|Guarantor Relationship
```

or

```
GT1|1||Billing Facility Name||Billing Facility Address 1^Address
2^City^State^Zip Code|Billing Facility Phone Number^^^^^Area/City Code^Local
Number^Extension|Billing Facility Phone Number^^^^^Area/City Code^Local
Number^Extension|||N|OTH^Other
```

IN1 – Insurance Segment

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

This segment will be sent only if the Financial Class is an Insurance Company or Medicare. The IN1 segment may repeat. The first IN1 segment will contain the primary insurance.

Field #	Field Name	Value (Format)	Notes
0	Record Type	IN1	
1	Set ID – IN1	#	Sequence number
2	Health Plan ID	Not Supported	
3	Insurance Company ID	String	Insurance Company Payer ID
4	Insurance Company Name	String	Insurance Company Name
5	Insurance Company Address	XAD format	Insurance Company Address 1^Address 2^City^State^Zip Code
6	Insurance Co Contact Person	Not Supported	
7	Insurance Co Phone Number	XTN format	Insurance Company Phone Number^^^^^Area/City Code^Local Number^Extension
8	Group Number	String	Patient's Insurance Co Group Number
9-15		Not Supported	
16	Name of Insured	XPN format	Subscriber Last Name^Subscriber First Name^Subscriber Middle Name or Patient Last Name^Patient First Name^Patient Middle Name
17	Insured's Relationship to Patient	Code	SEL^Self SPO^Spouse CHD^Child OAD^Other adult
18	Insured's Date of Birth	YYYYMMDD	Subscriber DOB or Patient DOB
19	Insured's Address	XAD format	Subscriber Address 1^Address 2^City^State^Zip Code or Patient Address 1^Address 2^City^State^Zip Code
20	Assignment of Benefits	Y	Static Value
21-35		Not Supported	



Requirements

Field #	Field Name	Value (Format)	Notes
36	Policy Number	String	Patient's Insurance Co Policy Number
37-42		Not Supported	
43	Insured's Gender	Code	Subscriber Sex or Patient Sex F – Female M – Male U – Unknown
44-55		Not Supported	

```
IN1|1||Insurance Company Payer ID|Insurance Company Name|Insurance Co Address
1^Address 2^City^State^Zip Code||Insurance Co Phone Number^^^^^Area/City
Code^Local Number^Extension|Patient's Insurance Co Group
Number|||||||Subscriber Last Name^Subscriber First Name^Subscriber Middle
Name|Insured's Relationship to Patient|YYYYMMDD|Subscriber Address 1^Address
2^City^State^Zip Code|Y|||||||||||||||Patient's Insurance Co Policy
Number|||Subscriber Gender|||||
```

or

```
IN1|1||Insurance Company Payer ID|Insurance Company Name|Insurance Co Address
1^Address 2^City^State^Zip Code||Insurance Co Phone Number^^^^^Area/City
Code^Local Number^Extension|Patient's Insurance Co Group
Number|||||||Patient Last Name^Patient First Name^Patient Middle
Name|SEL^Self|YYYYMMDD|Patient Address 1^Address 2^City^State^Zip
Code|Y|||||||||||||||Patient's Insurance Co Policy Number|||Patient
Gender|||||
```



APPENDICES

Appendix 1 – ORM - Order Message Examples

Financial Class is an Insurance Company or Medicare. The GT1 segment contains Subscriber information. Medications are transmitted from the RXO segment. OBR and OBX contain Patient signature flag and data.

```
MSH|^~\&|Generick|OK Facility|RURO Diagnostics|RURO
Diagnostics|201708031200||ORM^O01|OK00000029|P|2.7|||||
PID|1||Ext320000||Bourne^Jason^Middle||19701008|M|||1414 V Street NW apt
552^^Cambridge^SH^20501||3012224444|||||
RXO|Fentanyl 10 mg tabletSig: 1 TABLET NIGHTLY Dispense: 30
PV1|1|O|||||1201012871^Doctor^Carla^^^^^^^^^^NPI|||||||||Insurance|||||
|||||N|||||OK Facility|||||||||
IN1|1||3232|Test32 Allied Benefits Systems Inc|777 17th St
SW^^Washington^DC^21557||8044041236|Gr4546|||||||Bourne^Amy^Middle|CHD^Child
|||||||||||||54659|||||
GT1|1||Bourne^Amy^Middle||555 west St apt
699^^Miami^Florida^25888||20170501|F|Y|CHD^Child
ORC|NW|OK00000029|||||||1201012871^Doctor^Carla^^^^^^^^^^NPI
OBR|1|OK00000029||22^Oxycodone|R||201709061157|||||||UR|1201012871^Doctor
^Carla^^^^^^^^^^NPI
OBR|2|OK00000029||8^Opiates-
Opioids|R||201708041157|||||||UR|1201012871^Doctor^Carla^^^^^^^^^^NPI
OBR|3||CONSENT^Patient consent for
testing|R||201708041157|||||||1201012871^Doctor^Carla^^^^^^^^^^NPI|||||
NTE|1|P|Medical Necessity Patient Jason Bourne, age 46 is diagnosed with
Typhoid arthritis
NTE|2|P|Comments The Patient has antibiotic allergy reactions
DG1|1||A0104^Typhoid arthritis
DG1|2||A009^Cholera, unspecified
OBX|1|ST|UOPIPOC^Opiates||P
OBX|2|ST|UMTDNPOC^Methadone||N
OBX||ST|base-64^image/jpg||/9j/4AA...
```

Financial Class is an Insurance Company or Medicare. The GT1 segment is not used. The Subscriber information is in the IN1 segment. Medications are transmitted from the NTE segment.

```
MSH|^~\&|Generick|OK Facility|RURO Diagnostics|RURO
Diagnostics|201708031200||ORM^O01|OK00000029|P|2.7
PID|1||999999990||Bourne^Jason^Middle||19701008|M|||1414 V Street NW apt
552^^Cambridge^SH^20501||3012224444
PV1|1|O|||||1201012871^Doctor^Carla^^^^^^^^^^NPI|||||||||Medicare|||||
|||||N|||||OK Facility
```



Requirements

```

IN1|1||20|OK Allied Benefits Systems Inc|777 17th St
SW^^Washington^DC^21557||8044041236|Gr4546|||||Bourne^Amy^Middle|CHD^Child
|20170501|5551 west St 699^^Miami^Florida^25888|||||54659|||||F
ORC|NW|OK00000029|||||1201012871^Doctor^Carla^^^^^^^^^^NPI
OBR|1|OK00000029||22^Oxycodone|R||201709061157|||||UR|1201012871^Doctor
^Carla^^^^^^^^^^NPI
OBR|2|OK00000029||8^Opiates-
Opioids|R||201708041157|||||UR|1201012871^Doctor^Carla^^^^^^^^^^NPI
NTE|1|P|Medications Oxycodone, Percocet
NTE|2|P|Medical Necessity Patient Jason Bourne, age 46 is diagnosed with
Typhoid arthritis
NTE|3|P|Comments The Patient has antibiotic allergy reactions
DG1|1||A0104^Typhoid arthritis
DG1|2||A009^Cholera, unspecified
OBX|1|ST|UOPIPOC^Opiates||P
OBX|2|ST|UMTDNPOC^Methadone||N
    
```

Financial Class is an Insurance Company or Medicare. The Guarantor/Relation to Insured is Patient.

```

MSH|^~\&|Generick|OK Facility|QA LAB Facility|QA LAB
Facility|201708031200||ORM^O01|OK00000029|P|2.7
PID|1||999999990||Bourne^Jason^Middle||19701008|M||1414 V Street NW apt
552^^Cambridge^SH^20501||3012224444
PV1|1|O|||||1201012871^Doctor^Carla^^^^^^^^^^NPI|||||Insurance|||||
|||||N|||||OK Facility
IN1|1||20|OK Allied Benefits Systems Inc|777 17th St
SW^^Washington^DC^21557||8044041236|Gr4546|||||Bourne^Jason^Middle|SEL^Sel
f|||||54659|||||
ORC|NW|OK00000029|||||1201012871^Doctor^Carla^^^^^^^^^^NPI
OBR|1|OK00000029||22^Oxycodone|R||201709061157|||||UR|1201012871^Doctor
^Carla^^^^^^^^^^NPI
OBR|2|OK00000029||8^Opiates-
Opioids|R||201708041157|||||UR|1201012871^Doctor^Carla^^^^^^^^^^NPI
NTE|1|P|Medications Oxycodone, Percocet
NTE|2|P|Medical Necessity Patient Jason Bourne, age 46 is diagnosed with
Typhoid arthritis
NTE|3|P|Comments The Patient has antibiotic allergy reactions
DG1|1||A0104^Typhoid arthritis
DG1|2||A009^Cholera, unspecified
OBX|1|ST|UOPIPOC^Opiates||P
OBX|2|ST|UMTDNPOC^Methadone||N
    
```

Financial Class is Facility.

```

MSH|^~\&|Generick|OK Facility|QA LAB Facility|QA LAB
Facility|201708031200||ORM^O01|OK00000029|P|2.7
PID|1||999999990||Bourne^Jason^Middle||19701008|M||1414 V Street NW apt
552^^Cambridge^SH^20501||3012224444
    
```



Requirements

PV1|1|O|||||1201012871^Doctor^Carla^^^^^^^^^NPI|||||Facility|||||
 |||||N||||OK Facility
GT1|1||Bee Well Family HC||1220 15th St NW^^Washington^DC^21458|918-208-
 7497|918-208-7497|||N|OTH^Other
ORC|NW|OK00000029|||||1201012871^Doctor^Carla^^^^^^^^^NPI
OBR|1|OK00000029||22^Oxycodone|R||201709061157|||||UR|1201012871^Doctor
 ^Carla^^^^^^^^^NPI
OBR|2|OK00000029||8^Opiates-
 Opioids|R||201708041157|||||UR|1201012871^Doctor^Carla^^^^^^^^^NPI
NTE|1|P|Medications Oxycodone,Percocet
NTE|2|P|Medical Necessity Patient Jason Bourne, age 46 is diagnosed with
 Typhoid arthritis
NTE|3|P|Comments The Patient has antibiotic allergy reactions
DG1|1||A0104^Typhoid arthritis
DG1|2||A009^Cholera, unspecified
OBX|1|ST|UOPIPOC^Opiates||P
OBX|2|ST|UMTDNPOC^Methadone||N

Financial Class is Patient/Self Pay.

MSH|^~\&|Generick|OK Facility|QA LAB Facility|QA LAB
 Facility|201708031200||ORM^O01|OK00000029|P|2.7
PID|1||999999990||Bourne^Jason^Middle||19701008|M|||1414 V Street NW apt
 552^^Cambridge^SH^20501||3012224444
PV1|1|O|||||1201012871^Doctor^Carla^^^^^^^^^NPI|||||Patient/Self
 Pay|||||N||||OK Facility
ORC|NW|OK00000029|||||1201012871^Doctor^Carla^^^^^^^^^NPI
OBR|1|OK00000029||22^Oxycodone|R||201709061157|||||UR|1201012871^Doctor
 ^Carla^^^^^^^^^NPI
OBR|2|OK00000029||8^Opiates-
 Opioids|R||201708041157|||||UR|1201012871^Doctor^Carla^^^^^^^^^NPI
NTE|1|P|Medications Oxycodone,Percocet
NTE|2|P|Medical Necessity Patient Jason Bourne, age 46 is diagnosed with
 Typhoid arthritis
NTE|3|P|Comments The Patient has antibiotic allergy reactions
DG1|1||A0104^Typhoid arthritis
DG1|2||A009^Cholera, unspecified
OBX|1|ST|UOPIPOC^Opiates||P
OBX|2|ST|UMTDNPOC^Methadone||N



Appendix 2 – ORU - Result Message Example

MSH|^~\&|LimitLIS.cloud^3|QA LAB Facility^32323232|Generic|OK
Facility^33333|20170919143511||ORU^R01|R00000453|P|2.7
PID|1|999999990|999999990|333333339|Bourne^Jason^Middle||19701008|M|||1414 V
Street NW apt 552^^Cambridge^SH^20501||3012224444^^^301^222-
4444^|||333333339|||
ORC|RE|OK0000031|R00000453||D|||20170919143400|||1201012871^Doctor^Carla^^
^^^NPI|||20170919142200|||OK Facility^D^^^AN^A^33333
OBR|1|OK0000031|R00000453|POC^POC
Results|R|20170919142200|20170906115700|||20170919142200|UR|1201012871^Do
ctor^Carla^^^NPI|||20170919143459||F|
OBX|1|ST|UBUPPOC^Buprenorphine^L||Not
Tested|ng/mL||N||F||20170919143459|POC^Point of Care
OBX|2|ST|UMTDNPOC^Methadone^L||Negative|ng/mL||N||F||20170919143459|POC^Poi
nt of Care
OBX|3|ST|UOPIPOC^Opiates^L||Positive|ng/mL||A||F||20170919143459|POC^Point
of Care
OBR|2|OK0000031|R00000453|24010^Clarity^L|R|20170919142200|20170906115700|||
||20170919142200|UR|1201012871^Doctor^Carla^^^NPI|||2017091914345
9||F|||170919000335
OBX|1|NM|24010 Clarity^24010 Clarity^L^^|1|2550|ng/dL|55.0 -
2000.0|HH||F||20170919143459|CLIA32^RURO Inc.|111^Titova^Oksana|||RURO
Inc.|321 Ballenger Center Drive^^Frederick^MD^21703|MD^Tebow^Tim^^^Ph.D
NTE|1|O|TR comment1|
OBR|3|OK0000031|R00000453|8^Opiates-
Opioids^L|R|20170919142200|20170906115700|||20170919142200|UR|1201012871^
Doctor^Carla^^^NPI|||20170919143459||F|||170919000335
OBX|1|ST|Noroxycodone^Noroxycodone^L^^|1|>2500.0|ng/dL|37.5|POS||F||201709
19143459|CLIA32^RURO Inc.|111^Titova^Oksana|||RURO Inc.|321 Ballenger
Center Drive^^Frederick^MD^21703|MD^Tebow^Tim^^^Ph.D
NTE|1|O|TR comment2|
NTE|2|L|Outcome: CONSISTENT|RE
OBX|2|ST|Oxycodone^Oxycodone^L^^|2|<37.5|ng/dL|37.5|NEG||F||20170919143459
|CLIA32^RURO Inc.|111^Titova^Oksana|||RURO Inc.|321 Ballenger Center
Drive^^Frederick^MD^21703|MD^Tebow^Tim^^^Ph.D
NTE|1|O|TR comment3|
NTE|2|L|Outcome: INCONSISTENT|RE
OBX|3|NM|Oxymorphone^Oxymorphone^L^^|3|4500|ng/dL|75.5|POS||F||20170919143
459|CLIA32^RURO Inc.|111^Titova^Oksana|||RURO Inc.|321 Ballenger Center
Drive^^Frederick^MD^21703|MD^Tebow^Tim^^^Ph.D
NTE|1|O|TR comment4|
NTE|2|L|Outcome: CONSISTENT|RE
OBR|4|OK0000031|R00000453|5100^Color^L|R|20170919142200|20170906115700|||
|20170919142200|UR|1201012871^Doctor^Carla^^^NPI|||20170919143459||
|F|||170919000335
OBX|1|ST|5100 Color^5100
Color^L^^|1|Detected||DET||F||20170919143459|CLIA32^RURO
Inc.|111^Titova^Oksana|||RURO Inc.|321 Ballenger Center



Requirements

```

Drive^^Frederick^MD^21703|MD^Tebow^Tim^^^^Ph.D
NTE|1|O|TR comment-qualitative|
OBR|5|OK00000031|R00000453|5135^Blood^L|R|20170919142200|20170906115700|||||
|20170919142200|BL|1201012871^Doctor^Carla^^^^^^^^^NPI|||||20170919143459||
|F|||||||||||||||||||||||||||170919000334
OBX|1|NM|5150 Clarity^5150 Clarity^L^^^|1|0.12|g/mL|0.254 -
0.98|L|||F|||20170919143459|CLIA32^RURO Inc.|111^Titova^Oksana|||||RURO
Inc.|321 Ballenger Center Drive^^Frederick^MD^21703|MD^Tebow^Tim^^^^Ph.D
NTE|1|O|comment|
OBR|6|OK00000031|R00000453|Base64^Embedded
PDF|R||20170906115700|||||20170919142200||1201012871^Doctor^Carla^^^^^^^^^
NPI|||||20170919143459|||F|
OBX|1|ED|PDF|Base64|^PDFReport^PDF^Base64^JVBERi0xLjQKMSAwIG9iago8PAovVG10bGU
gKP7/AFQAZQBzAHQAIABSAGUAcwBlAGwAdABzKQovUHJvZHVjZXIgcHdraHRtbHRvcGRmKQovQ

```



Appendix 3 – DTF - Detail Financial Transaction

Individual tests billing

- The DFT message contains Individual tests and Non-Reportable test.
- Financial Class is an Insurance Company or Medicare, Guarantor is a Subscriber.

```

MSH|^~\&|LimitLIS.cloud^3|QA LAB Facility^32323232|Generic|OK
Facility^5555511113333|20170920133158||DFT^P03|R00000455|P|2.7
PID|1|999999990|999999990|3333333339|Bourne^Jason^Middle||19701008|M|||1414 V
Street NW apt 552^^Cambridge^SH^20501||3012224444^^^^^301^222-
4444^|||||3333333339||||
PD1||||1922037001
PV1|1|O|||||1201012871^Doctor^Carla^^^^^^^^^NPI|||||||||Insurance|||||
|||||N|||||||||||||^oksana^
FT1|1|||20170919013000||CG|1|Amphetamines|Amphetamines|1|||||||||1201012871
^Doctor^Carla^^^^^^^^^NPI||170920000339||2233|||||RURO
Inc.^D^^^^PPIN^^CLIA32|OK Facility^D^^^^FI^^5555511113333||
FT1|2|||20170919013000||CG|1|Amphetamines|Amphetamines|1|||||||||1201012871
^Doctor^Carla^^^^^^^^^NPI||170920000339||3565|||||RURO
Inc.^D^^^^PPIN^^CLIA32|OK Facility^D^^^^FI^^5555511113333||
FT1|3|||20170919013000||CG|1|Amphetamines|Amphetamines|1|||||||||1201012871
^Doctor^Carla^^^^^^^^^NPI||170920000339||112|||||RURO
Inc.^D^^^^PPIN^^CLIA32|OK Facility^D^^^^FI^^5555511113333||
FT1|4|||20170919013000||CG|1111|NonRepTest|NonRepTest|119|||||||||111^Titova
^Oksana|1201012871^Doctor^Carla^^^^^^^^^NPI||170920000339||1213|||||RURO
Inc.^D^^^^PPIN^^CLIA32|OK Facility^D^^^^FI^^5555511113333||
DG1|1|I10|A00.9^Cholera, unspecified^I10
DG1|2|I10|A01.04^Typhoid arthritis^I10
GT1|1||Bourne^Amy^Middle||555 west St apt
699^^Miami^FL^25888|||20170501|F|Y|CHD^Child
IN1|1||20|OK Allied Benefits Systems Inc|777 17th St
SW^^Washington^DC^21557||8044041236^^^^^804^404-
1236^|Gr4546|||||Bourne^Amy^Middle|CHD^Child|20170501|555 west St apt
699^^Miami^FL^25888|Y|||||||||54659|||||F|||||
IN1|2||3232|Test32 Allied Benefits Systems Inc|777 17th St
SW^^Washington^DC^21557||8044041236^^^^^804^404-
1236^|Gr22|||||Bourne^Amy^Middle|OTH^Other|20170501|555 west St apt
699^^Miami^FL^25888|Y|||||||||Pol222|||||F|||||
IN1|3||INS1805|Advanced Data Solutions
(NRT/58202)|||Gr33|||||Bourne^Amy^Middle|OTH^Other|20170501|555 west St
apt 699^^Miami^FL^25888|Y|||||||||Pol333|||||F|||||

```

Test Class Billing

- Financial Class is Facility.

```

MSH|^~\&|LimitLIS.cloud^3|QA LAB Facility^32323232|Generic|OK
Facility^5555511113333|20170920135452||DFT^P03|R00000457|P|2.7

```



Requirements

PID|1|999999990|999999990|3333333339|Bourne^Jason^Middle||19701008|M|||1414 V Street NW apt 552^^Cambridge^SH^20501||3012224444^^^^^301^222-4444^|||||3333333339|||||

PD1|||||

PV1|1|O|||||1201012871^Doctor^Carla^^^^^^^^^^NPI|||||||||Facility|||||||N|||||||||^oksana^

FT1|1|||20170919004500||CG||Methadone|Methadone|1|||||||||1201012871^Doctor^Carla^^^^^^^^^^NPI||170920000341||80358|||||RURO Inc.^D^^^^^PPIN^^^CLIA32|OK Facility^D^^^^^FI^^^5555511113333|||

FT1|2|||20170919004500||CG||Stimulants, Synthetic|Stimulants, Synthetic|1|||||||||1201012871^Doctor^Carla^^^^^^^^^^NPI||170920000341||80371|||||RURO Inc.^D^^^^^PPIN^^^CLIA32|OK Facility^D^^^^^FI^^^5555511113333|||

DG1|1|I10|A00.9^Cholera, unspecified^I10

GT1|1||Bee Well Family HC||1220 15th St NW^^Washington^DC^21458|918-208-7497^^^^^918^208-7497^|918-208-7497^^^^^918^208-7497^|||N|OTH^Other

HCPCS G048x Codes billing

- Financial Class is an Insurance Company or Medicare, Guarantor is the Patient.

MSH|^~\&|LimitLIS.cloud^3|QA LAB Facility^32323232|Generic|OK Facility^5555511113333|20170920140050||DFT^P03|R00000458|P|2.7

PID|1|999999990|999999990|3333333339|Bourne^Jason^Middle||19701008|M|||1414 V Street NW apt 552^^Cambridge^SH^20501||3012224444^^^^^301^222-4444^|||||3333333339|||||

PD1|||||1922037001

PV1|1|O|||||1201012871^Doctor^Carla^^^^^^^^^^NPI|||||||||Insurance|||||||N|||||||||^oksana^

FT1|1|||20170919010000||CG|||1|||||||||1201012871^Doctor^Carla^^^^^^^^^^NPI||170920000342||G0481^^HCPCS|||||RURO Inc.^D^^^^^PPIN^^^CLIA32|OK Facility^D^^^^^FI^^^5555511113333|||

DG1|1|I10|A00.9^Cholera, unspecified^I10

GT1|1|3333333339|Bourne^Jason^Middle||1414 V Street NW apt 552^^Cambridge^SH^20501|3012224444^^^^^301^222-4444^|3012224444^^^^^301^222-4444^|19701008|M|Y|SEL^Self

IN1|1||20|OK Allied Benefits Systems Inc|777 17th St SW^^Washington^DC^21557||8044041236^^^^^804^404-1236^|Gr4546|||||Bourne^Jason^Middle|SEL^Self|19701008|1414 V Street NW apt 552^^Cambridge^SH^20501|Y|||||||||54659|||||M|||||



Appendix 4 – ADT - Admit Discharge Transfer

Financial Class is an Insurance Company or Medicare, Guarantor is a Subscriber.

```

MSH|^~\&|LimitLIS.cloud^3|QA LAB Facility^32323232|Generic|OK
Facility^5555511113333|201709211104933||ADT^A04|333333339|P|2.7
PID|1|999999990|999999990|333333339|Bourne^Jason^Middle||19701008|M|||1414 V
Street NW apt 552^^Cambridge^SH^20501||3012224444^^^^^301^222-
4444^|||||333333339||||
PD1||||1922037001
PV1|1|O|||||||||||||Insurance|||||||||N|||||||||^oksana^
GT1|1||Bourne^Amy^Middle||555 west St apt
699^^Miami^FL^25888|||20170501|F|Y|CHD^Child
IN1|1||20|OK Allied Benefits Systems Inc|777 17th St
SW^^Washington^DC^21557||8044041236^^^^^804^404-
1236^|Gr4546|||||Bourne^Amy^Middle|CHD^Child|20170501|555 west St apt
699^^Miami^FL^25888|Y|||||||||54659|||||F|||||
IN1|2||3232|Test32 Allied Benefits Systems Inc|777 17th St
SW^^Washington^DC^21557||8044041236^^^^^804^404-
1236^|Gr222|||||Bourne^Amy^Middle|OTH^Other|20170501|555 west St apt
699^^Miami^FL^25888|Y|||||||||Pol222|||||F|||||
IN1|3||1231tt|New Insurance Co OKS|4445 White St 98
NW^^Baltimore^MD^21493||12132146545^^^^^213^214-
6545^|Gr333|||||Bourne^Amy^Middle|OTH^Other|20170501|555 west St apt
699^^Miami^FL^25888|Y|||||||||Pol333|||||F|||||

```

Financial Class is Insurance Company or Medicare, Guarantor is the Patient

```

MSH|^~\&|LimitLIS.cloud^3|QA LAB Facility^32323232|Generic|OK
Facility^5555511113333|20170921114238||ADT^A04|333333339|P|2.7
PID|1|999999990|999999990|333333339|Bourne^Jason^Middle||19701008|M|||1414 V
Street NW apt 552^^Cambridge^SH^20501||3012224444^^^^^301^222-
4444^|||||333333339||||
PD1||||1922037001
PV1|1|O|||||||||||||Insurance|||||||||N|||||||||^oksana^
GT1|1|333333339|Bourne^Jason^Middle||1414 V Street NW apt
552^^Cambridge^SH^20501|3012224444^^^^^301^222-4444^|3012224444^^^^^301^222-
4444^|19701008|M|Y|SEL^Self
IN1|1||20|OK Allied Benefits Systems Inc|777 17th St
SW^^Washington^DC^21557||8044041236^^^^^804^404-
1236^|Gr4546|||||Bourne^Jason^Middle|SEL^Self|19701008|1414 V Street NW
apt 552^^Cambridge^SH^20501|Y|||||||||54659|||||M|||||

```

Financial Class is Facility

```

MSH|^~\&|LimitLIS.cloud^3|QA LAB Facility^32323232|Generic|OK
Facility^5555511113333|20170921114328||ADT^A04|333333339|P|2.7
PID|1|999999990|999999990|333333339|Bourne^Jason^Middle||19701008|M|||1414 V
Street NW apt 552^^Cambridge^SH^20501||3012224444^^^^^301^222-

```



Requirements

```

4444^|||||3333333339||||
PD1||||1922037001
PV1|1|O|||||||||||||||||Facility|||||||||||||||||N|||||||||||||||||^oksana^
GT1|1||Bee Well Family HC||1220 15th St NW^^Washington^DC^21458|918-208-
7497^^^^^918^208-7497^|918-208-7497^^^^^918^208-7497^|||N|OTH^Other

```

Financial Class is Patient/Self Pay.

```

MSH|^~\&|LimitLIS.cloud^3|QA LAB Facility^32323232|Generic|OK
Facility^5555511113333|20170921114402||ADT^A04|3333333339|P|2.7
PID|1|999999990|999999990|3333333339|Bourne^Jason^Middle||19701008|M|||1414 V
Street NW apt 552^^Cambridge^SH^20501||3012224444^^^^^301^222-
4444^|||||3333333339||||
PD1||||1922037001
PV1|1|O|||||||||||||||||Patient/Self
Pay|||||||||||||||||N|||||||||||||||||^oksana^
GT1|1|3333333339|Bourne^Jason^Middle||1414 V Street NW apt
552^^Cambridge^SH^20501|3012224444^^^^^301^222-4444^|3012224444^^^^^301^222-
4444^|19701008|M|Y|SEL^Self

```



Appendix 5 – HL7 Interpretation Codes

The Table below represents a list of standard HL7 Interpretation Codes of the result flags for HL7 version 2.7.

Value	Description
L	Low
H	High
LU	Very low
HU	Very high
LL	Critically low
HH	Critically high
<	Off-scale low
>	Off-scale high
N	Normal
A	Abnormal
AA	Critically abnormal
null	No range defined, or normal ranges don't apply
U	Significant change up
D	Significant change down
B	Better
W	Worse
S	Susceptible
R	Resistant
I	Intermediate
MS	Moderately susceptible. Indicates for microbiology susceptibilities only.
NS	Non-susceptible
SDD	Susceptible-dose dependent
IE	Insufficient evidence
SYN-R	Synergy - resistant
SYN-S	Synergy - susceptible
VS	Very susceptible. Indicates for microbiology susceptibilities only.
POS	Positive
NEG	Negative
IND	Indeterminate
DET	Detected
ND	Not Detected
AC	Anti-complementary substances present
TOX	Cytotoxic substance present
QCF	Quality Control Failure
RR	Reactive
WR	Weakly reactive
NR	Non-reactive
OBX	Interpretation qualifiers in separate OBX segments
HM	Hold for Medical Review

The Table below lists HL7 Interpretation Codes for HL7 version **2.3**.

Value	Description
L	Below low normal
H	Above high normal
LL	Below lower panic limits
HH	Above upper panic limits
<	Below absolute low-off instrument scale
>	Above absolute high-off instrument scale
N	Normal (applies to non-numeric results)
A	Abnormal (applies to non-numeric results)
AA	Very abnormal (applies to non-numeric units, analogous to panic limits for numeric units)
U	Significant change up
D	Significant change down
B	Better--use when direction not relevant
W	Worse--use when direction not relevant
S	Susceptible. Indicates for microbiology susceptibilities only.
R	Resistant. Indicates for microbiology susceptibilities only.
I	Intermediate. Indicates for microbiology susceptibilities only.
MS	Moderately susceptible. Indicates for microbiology susceptibilities only.
VS	Very susceptible. Indicates for microbiology susceptibilities only.

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