Info HQ

Info HQ v3.1

HL7 SPECIFICATION

Abbott

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Introduction

Foreword

This manual specifies HL7-based messaging between the Info HQ point-of-care data management system and a Laboratory Information System or other host system.

This manual assumes the reader is familiar with programming techniques and is capable of programming using a high-level language. This manual also assumes the reader has a good working knowledge of network communications and HL7 as they relate to the computer system that interfaces with Info HQ.

HL7 information in this manual applies to:

- Info HQ Express v1.2 and later

Refer to the Info HQ documentation for information on communication setup and HL7 interface troubleshooting.

Customer support

For technical support information, refer to the Info HQ documentation for your version.

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References

This guide is based on the following documents:

HL7 Version 2.6 Messaging Standard
HL7 Implementation Support Guide for HL7 Standard Version 2.3

Purpose

The Abbott Info HQ HL7 specification is intended to specify the electronic communication to and from an external Information System (LIS/HIS) using HL7 messaging. This interface is based on the standard, Health Level 7, Version 2.6.

Scope

This specification focuses exclusively on the HL7 based electronic communication between the Info HQ system and an unspecified LIS or other host system.

The remainder of this document specifies the dynamic and static aspects of the Abbott Info HQ HL7 interface in detail. The specification defines the message details for relevant HL7 message types, both the dynamic aspects of information interchange (i.e., the systems that participate in such interchanges and the real-world events that trigger messaging) as well as the static aspects of messaging (i.e., the structure and contents of the electronic messages that are exchanged).

Acronyms

ADT	Admission, Discharge and Transfer
AMR	Analytical Measurement Range
CAL VER	Calibration Verification
DOB	Date of Birth
HIS	Hospital Information System
HL7	Health Level Seven
LAN	Local Area Network
LIS	Laboratory Information System
MLLP	Minimal Lower Layer Protocol
QC	Quality Control test
TCP/IP	Transmission Control Protocol/Internet Protocol

Definitions

CDS Mode	This is a feature in Info HQ to support backward compatibility of CDS based on INTER32-SPC-HL7 document. Not all fields will behave exactly as CDS and may exhibit differences as noted. CDS compatibility mode is intended to support legacy CDS interfaced systems.
Client	For the purposes of this document the client is the message initiator in a network communication environment. Info HQ can act as a client or a server.
Data Link Layer	Lower level protocol providing services for establishing a link connection, transferring data and releasing the connection. Also provides services for delimiting messages.
Info HQ	Web-based POC data management system, deployed on the organization's LAN or WAN, typically behind the health system's firewall that allows collection, analysis, correction, and sharing of test results data with ability to transmit results to external information systems.
Messaging Layer	This layer specifies the conventions used in structuring information (messages) for transmission to external host systems and for receiving information from these host systems.
Physical Layer	Physical Layer, aka Layer 1, is the physical connection directing transmission of binary data bits between Info HQ and external host computers across a mechanical and electrical connection.
Server	For the purposes of this document the server is the message receiver in a network communication environment. Info HQ can act as a server or a client. Server is also known as Host in this document.
Standard Mode	The Info HQ Standard Mode follows the industry standard HL7 v2.6 format, which includes enhanced acknowledgements. This mode is the default mode for Info HQ Express v1.2 and beyond.

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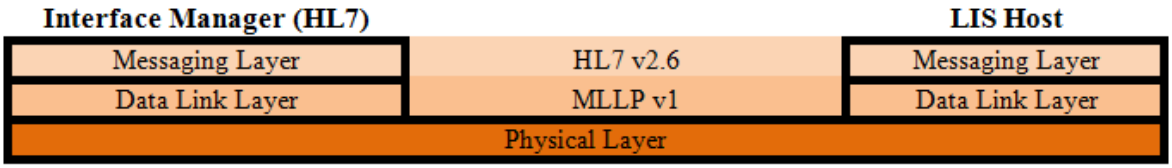
1 - Overview

1.1 Protocol Details

The HL7 Interface is based on a multi-layer protocol implementation, for ease of connectivity with existing HL7-based host systems.



Physical Layer

Info HQ can be connected to an external LIS/HIS through a network connection using TCP/IP as the transport protocol. Most of the details of error detection and correction are handled by the lower levels of TCP/IP and do not require any supplementation.

Lower Level Protocol

Info HQ uses the Minimal Lower Layer Protocol (MLLP) as defined in Appendix C, section C. 4, of the HL7 v2.3.1 *Implementation Support Guide*. The protocol assumes operation in a networked environment, such as TCP/IP, in which most details of error detection and correction are handled by the lower levels of the network protocol and do not require supplementation.

Channel Use of Network Connections

Info HQ will support two separate network channels:

1. Client Channel – for message transactions that are initiated by Info HQ.
2. Server Channel – for message transactions that are responded to by Info HQ.

Each communication channel makes use of a MLLP network connection to send and receive the messages.

Messaging Layer

Info HQ uses the protocol defined by the HL7 v2.6 standard as the basis for the message content layer of the communication interface. This layer specifies the conventions used in structuring information (messages) for transmission to external host systems and for receiving information from these host systems.

Client Transactions

Info HQ acts as a client (or sender) for the following message transactions:

- Unsolicited Observation without order number (ORU-30)
- Unsolicited Observation with order number (ORU-32)

Server Transactions

Info HQ acts as a server (or receiver) for the following message transactions:

- Admit/Visit Notification
- Transfer a Patient
- Discharge/End Patient Visit
- Update Patient Information
- Update Person Information
- Merge Patient Identification

2 - HL7 Low Level Protocols

2.1 MLLP

Info HQ uses MLLP (referred to as the Minimal Lower Layer Protocol) for an HL7 message. The HL7 Message is wrapped using a header and trailer (immediately followed by a carriage return).

It is assumed that this HL7 protocol will be used only in a network environment. Most of the details of error detection and correction are handled by the lower levels of any reasonable network protocol and do not require any supplementation.

HL7 messages are enclosed by special characters to form a block. The format is as follows:

<VT>dddd<FS><CR>

<VT> = Start Block character (1 byte)
ASCII <VT>, i.e., <0x0B>. This should not be confused with the ASCII characters SOH or STX.

dddd = Data (variable number of bytes)
This is the HL7 data content of the block.

<FS> = End Block character (1 byte)
ASCII <FS>, i.e., <0x1C>.
This should not be confused with the ASCII characters ETX or EOT.

<CR> = Carriage Return (1 byte) Terminator
The ASCII carriage return character, i.e., <0x0D>.

2.2 HL7 Messages

Note: Parameters in square brackets ([ ]) are optional.

Results

The ORU message format is defined as:

	Unsolicited Observation Message	Chapter
MSH	Message Header	3
{		
[		
PID	Patient Identification	3

			Unsolicited Observation Message	Chapter
]				
{				
	ORC		Order Common	
	OBR		Observations Report ID	4
	{			
		[OBX]	Observation/Result	4
		{[NTE]}	Notes and Comments	4
	}			
}				
}				

ADT Messages

The ADT message format is defined as:

			Unsolicited Observation Message	Chapter
MSH			Message Header	4
{				
[				
	PID		Patient Identification	4
	[			
	PV1		Patient Visit	4
	]			
]				
}				

Acknowledgement Messages

Except for pass-through systems and ACK messages, Info HQ will acknowledge any HL7 message it receives. An ACK message consists of an MSH segment and an MSA segment. The MSA contains the Message ID from the message that was received.

			Unsolicited Observation Message	Chapter
MSH			Message Header	5
{				
[				
	MSA		Message Acknowledgement	5

```
        ]
}
```

Multiple Communication Modes

With the release of Info HQ Express v1.2, Info HQ supports multiple communication modes, referred to as CDS mode and Standard mode. This specification will denote when and where there are differences, those differences will appear inline within the text and tables.

Beginning with Info HQ Express v1.2 both CDS and Standard mode are supported with a configuration toggle.

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3 - Results (R30 and R32)

3.1 Message Header Segment

The Header Segment contains data about intent, source, destination and some specific syntax of the message. The following table details the exact format of the Message Header Segment sent from Info HQ to the Host. Info HQ supports ORU R30 and R32 for patient results. QC results will use ORU R30 message type only, regardless of the message selection under the LIS connectivity profile. LOINC code is not supported for QC results.

Fields listed below are supported:

Table 1: Message Header: Info HQ System to Host (MSH)

HL7 Field	Field Name	Maximum Characters	Option	Field Contents/Example	Comments
1	Field Separator	1	R	| - Field	Field delimiter: vertical bar
2	Encoding Characters	4	R	^ - Component	Component delimiter: caret
				~ - Repeat	Repeat delimiter: tilde
				\ - Escape	Escape delimiter: backslash
				& - Sub Component	Sub Component: ampersand
3	Sending Application	180	O	Abbott Point of Care	Always “Abbott Point of Care”
4	Sending Facility	180	O	Abbott Point of Care	Always “Abbott Point of Care”
5	Receiving Application	180	O	<Blank>	blank
6	Receiving Facility	180	O	<Blank>	blank

HL7 Field	Field Name	Maximum Characters	Option	Field Contents/Example	Comments
7	Date/Time of Message	26	R	20190906112350 Or 20190906112350-04:00	CDS Mode: YYYYMMDDHHMMSS Standard Mode: YYYYMMDDHHMMSS+/-ZZ:ZZ
9	Message Type	15	R	ORU^R30 Or ORU^R30^ORU_R30 Or ORU^R32	CDS Mode: Message Code ^ Trigger Event Standard Mode: Message Code ^ Trigger Event ^ Message Structure
10	Message Control ID	38	R	String	Unique ID
11	Processing ID	3	R	Always “P”	Production indicator
12	Version ID	8	R	2.6	HL7 version of the message
15	Commit/Accept Acknowledgement Type	2	O	AL	AL – Always
16	Application Acknowledgement Type	2	O	AL	AL – Always
17	Country Code	3	O	< >	Three character acronym for country, blank by default.

Transmitted to Host example:

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20190906112350-04:00||ORU^R30^ORU-R30|290|P|2.6|||AL|AL

3.2 Patient Information Segment

The Patient Information Segment is used as the primary means of communicating patient identification information or to identify the result type for QC tests. The following table details the exact format of the Patient Information Segment sent from Info HQ to the Host.

Fields listed below are supported:

Table 2: Patient Information Segment: Info HQ System to Host

HL7 Field	Field Name	Maximum Characters	Option	Field Contents/Example	Comments
1	Set ID - PID	3	O	1	Segment sequence
3	Patient Identifier	200	R	123456^^^ 123456 32P47-0 QC15068^1 QC92978	Only 1 identifier supported Patient test: Patient ID Control, CalVer: Lot #^Level Proficiency: Sample ID "QC" is the prefix for all Control, CalVer and Proficiency identifiers
5	Patient Name	Last Name: 50 First Name: 50 Middle Name: 50	O	EVERYMAN2 ^ADAM ^ALEX	Last Name ^First Name ^Middle Name
7	Date/Time of Birth	26	O	19701021000000	YYYYMMDDHHMMSS
8	Administrative Sex	1	O	M	Patient Gender, as received: Female = F Male = M Unknown = U
18	Patient Account Number	199	O	ED/Area1 Or < >	CDS mode: Facility Name^Department Name/Area Name Standard mode: leaves it empty

Transmitted to Host example:

PID|1||32147^^^||EVERYMAN1^ADAM1^A^III||19610615000000|M|||||||| ED/Area1

3.3 Observation Request Segment

The Observation Request Segment is used to transmit information that is specific to a diagnostic study or observation. The following table details the exact format of the Observation Request Segment sent from Info HQ to the Host.

Fields listed below are supported:

Table 3: Observation Request Segment: Info HQ System to Host

HL7 Field	Field Name	Maximum Characters	Option	Field Contents/ Example	Comments
1	Set ID - OBR	3	O	1	Sequence Number
2	Place Order Number	427	O	< > Or 1234567	R30: empty. R32: Order #.
4	Universal Service Identifier	300	O	^^^EG7+ Or EG7+	Identifier code for requested observation/test/ battery.
5	Priority	2	O	P	Always “P”, Priority

HL7 Field	Field Name	Maximum Characters	Option	Field Contents/Example	Comments
7	Observation Date/Time #	26	R	20191029010746 Or 20191029010746-04:00	Test result end date and time with format CDS Mode: YYYYMMDDHHMMSS Standard Mode: YYYYMMDDHHMMSS+/-ZZ:ZZ (time-zone optional)
11	Specimen Action Code	1	O	O	Not supported for QC; O for patient results
15	Specimen Source	80	O	Capillary	Specimen type for patient test is transferred as received. CONTROL for liquid control CALVER for cal/ver PROFICIENCY for proficiency
18	Placer Field 1	199	O	MercyHosp^ED/Area1	Facility Name^Department Name/Area Name
20	Filler Field 1 +	20	O	K16014	Reagent (cartridge) lot number
21	Filler Field 2 +	3	O	M	M, F, U only
34	Technician +	30	O	95	Operator ID

Transmitted to Host example:
OBR|1|1234567||i-STAT EC8+|||20190629211347-04:00||||O||||Capillary|||MercyHosp^ED/Area1||K16014|M|||||||||||95

3.4 Observation Result Segment

The Observation Result Segment is used to transmit a single observation or observation fragment. Info HQ is capable of transmitting Patient test results to the Host system. The following table details the exact format of the Observation Result Segment sent from Info HQ to the Host.

Fields listed below are supported:

Table 4: Observation Result Segment: Info HQ System to Host (OBX)

HL7 Field	Field Name	Maximum Characters	Field Contents/Example	Comments
1	Set ID- OBX	3	1	Sequence Number
2	Value Type	2	ST	Default to "ST"
3	Observation Identifier	20	^^^Na (no LOINC) 38789-2^Na^LN^Na (with LOINC) Or Na^Na (no LOINC) 38789-2^Na^LN (with LOINC)	CDS Mode: ^^^Analyte Name (no LOINC) LOINC Code^ Unique observation identifier ^LN^Analyte Name (with LOINC) Standard Mode: Unique observation identifier^Analyte Name (no LOINC) LOINC Code^ Unique observation identifier ^LN (with LOINC)
5	Observation Value	705	45.7	Value observed during collection
6	Units	50	mmol/L	Measurement units
7	References Range	50	1.12-1.32	References Range
8	Abnormal Flag	10	HH	Support L, H, LL, HH, <, >
11	Observation Result Status	24	F	Final results; can only be changed with corrected result

HL7 Field	Field Name	Maximum Characters	Field Contents/Example	Comments
14	Date/Time of the Observation	24	20190906112350 Or 20190906112350-04:00	CDS Mode: YYYYMMDDHHMMSS Standard Mode: YYYYMMDDHHMMSS+/-ZZ:ZZ
16	Responsible Observer	705	2222	Individual responsible for observation
17	Observation Method	199	M	i-STAT Alinity: M (Measured) = M C (Calculated) = C I (Externally input) = I U (Unknown) = U A (Stopped test) = A i-STAT 1: M (Measured) = 0 C (Calculated) = 1 I (Reported) = 2 U (Unknown) = <blank> A (Stopped test) = n/a
18	Equipment Instance Identifier	50	123	Device serial number
19	Date/Time of the Analysis	26	20190906112350 Or 20190906112350-04:00	CDS Mode: YYYYMMDDHHMMSS Standard Mode: YYYYMMDDHHMMSS+/-ZZ:ZZ

Transmitted to Host example:

OBX|3|ST| ICA ^ICA||2.09|mmol/L|1.12-1.32|HH|||F|||20190906112350-04:00||2222|M|123|20131029010746-04:00

3.5 NTE

The Comment Segment is used for sending notes and comments that accompany test result data. The following table details the exact format of the Comment Segment sent from Info HQ to the Host.

Table 5: Comment Segment: Info HQ System to Host (NTE)

HL7 Field	Field Name	Maximum Characters	Field Contents/Example	Comments
1	Set ID - NTE	3	1	Sequence Number
4	Comment Type	201	CPB=Yes	Name/Value Pair
6	Entered Date / Time	26	20131029010746 Or20131029010746-04: 00	CDS Mode: YYYYMMDDHHMMSS Standard Mode: YYYYMMDDHHMMSS+/-ZZ:ZZ

Transmitted to Host example:

NTE|1|||CPB=Yes||20131029010746-04:00

3.6 Common Order Segment

The ORC segment is used to add order information. The following table details the exact format of the Order Record sent from Info HQ to host.

All field names below are filled according to the * in the column.

Table 6: Common Order Segment (ORC)

HL7 Field	Field Name	Maximum Characters	Field Contents/Example	Description
1	Order Control	2	NW	"NW" for ORU^R30 "RE" for ORU^R32
2	Place Order Number	427	< > Or 1234567	For messages without Order Number, R30, empty < >. For messages with Order Number, R32, Order #.
18	Entering Device	50	123	Device Serial#

Transmitted to Host example:

ORC|NW|1234567||||||||||||||||123

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4 - Patient Administration (ADT-A01, ADT-A02, ADT-A03, ADT-A08, ADT-A31, ADT-A40)

4.1 Patient Administration

The Patient Administration transaction set provides for the transmission of new or updated demographic and visit information about patients from a Host to Info HQ.

Message Segments

Message Header Segment (MSH)

The MSH segment defines the intent, source, destination, and some specifics of the syntax of a message. The following table details the exact format of the Message Header Segment sent from a Host to Info HQ.

Table 7: Message Header Segment (MSH)

HL7 Field	Field Name	Maximum Characters	Field Contents/Example	Comments
1	Field Separator	1	| - Field	Field delimiter: vertical bar
2	Encoding Characters	4	^ - Component	Component delimiter: caret
			~ - Repeat	Repeat delimiter: tilde
			\ - Escape	Escape delimiter: backslash
			& - Sub Component	Sub Component: ampersand
5	Sending Application	227	Abbott Point of Care	Abbott Point of Care
6	Sending Facility	227	Abbott Point of Care	Abbott Point of Care
7	Date/Time of Message	26	20190906112350	YYYYMMDDHHMMSS+/-ZZ:ZZ (time-zone optional)
9	Message Type	15	ADT^A08^ADT-A08	Message Code ^ Trigger Event ^ Message Structure
10	Message Control ID	199	String	Unique ID
11	Processing ID	3	P	Production indicator
12	Version ID	60	2.6	HL7 version of the message

Received from Host example:

MSH|^~\&|-||–Abbott Point of Care-|-Abbott -Point of Care-|20131126030935-04:00||ADT^A08^ADT-A08-|-854314|P|2.6

Patient Identification

The Patient Identification segment is used as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information. The following table details the exact format of the Patient Identification Segment sent from a Host to Info HQ.

Table 8: Patient Identification

HL7 Field	Field Name	Maximum Characters	Field Contents/Example	Comments
1	Set ID - PID	3	1	Segment sequence
3	Patient Identifier List	250	32147	Patient ID
5	Patient Name	Last Name: 50 First Name: 50 Middle Name: 50	EVERYMAN1 ^ADAM1 ^A	Last Name ^ First Name ^ Middle Name
7	Date/Time of Birth	26	19610615123456	YYYYMMDDHHMMSS
8	Administrative Sex	1	F, M, U or O	Patient Gender
11	Patient Address	250	2222 HOME STREET ^^GREENS BORO ^NC ^27401^USA	Patient Home Address Street ^ ^ City ^ State ^ Zip ^ Country
13	Phone Number – Home	250	(555) 555-2004	Patient Home Phone
14	Phone Number – Business	250	(555) 555-2004	Patient Work Phone

Received from Host example:

PID|1||32147||EVERYMAN1^ADAM1^A^III||19610615123456|M|||2222 HOME STREET^^GREENSBORO^NC^27401^USA||(555) 555-2004|(555)555-2004

4.2 PV1 Segment

The Patient Visit Information segment is used to communicate information that is specific to a patient visit. The following table details the exact format of the Patient Visit Information sent from a Host to Info HQ.

Table 9: PV1 Segment

HL7 Field	Field Name	Maximum Characters	Field Contents/Example	Comments
1	Set ID – PV1	3	1	Sequence number
3	Assigned Patient Location	50	Downtown Hospital^LocRoom^LocBed^LocDept^^^LocBuilding^LocFloor	Patient's initial assigned location or location to which patient is being moved. Important: This HOST 'FacilityLocation' must be mapped to the actual Info HQ facility when configuring the system. FacilityLocation ^Room ^Bed ^DeptLocation ^^^Building name ^Floor
7	Attending Doctor	320	004777 ^ATTEND ^A ARON^^A^title	PhysicianID ^LastName ^FirstName ^^Suffix ^Title
44	Admit Date/Time	26	20070110230012	Format: YYYYMMDDHHMMSS
45	Discharge Date/ Time	26	Discharge Date/Time (A03 message only, normally blank)	Format: YYYYMMDDHHMMSS

Received from Host example:

PV1|1|| Downtown Hospital^LocRoom^LocBed^LocDept^^^LocBuilding^LocFloor ||||004777^ATTEND^AARON^^A^title||||||||||||||||||||||||||||||||||||20070110230012

4.3 MRG Segment

The MRG segment provides receiving applications with information necessary to initiate the merging of patient data as well as groups of records. The following table details the exact format of the Merge Patient - Patient Identifier List sent from a Host to Info HQ.

Table 10: MRG Segment

HL7 Field	Field Name	Maximum Characters	Field Contents/Example	Comments
1	Patient Identifier	250	PID123	Patient ID

Received from Host example:

MRG|PID123

5 - Acknowledgement Messages

5.1 Acknowledgement Messages

Info HQ supports both general acknowledgement message (ACK) and an application level acknowledgement for observation reporting.

HL7 v2 specifies two major message acknowledgement modes, original and enhanced. As specified by IHE, Info HQ will support the original acknowledgement mode for all Patient Administration messages. For observation reporting, Info HQ will support the enhanced acknowledgement mode.

General Acknowledgement

The simple general acknowledgement (ACK) can be used where the application does not define a special application level acknowledgement message or where there has been an error that precludes application processing. It is also used for commit/accept level acknowledgements.

For the general acknowledgement (ACK) message, the value of MSH-9-2 Trigger event is equal to the value of the MSH-9-2 Trigger event in the message being acknowledged. The value of MSH-9-3-Message structure for the general acknowledgement message is always ACK.

Application Acknowledgement, With Accession Number

This trigger event supports the use case of a response to any of the three ORU trigger events, communicating an accession number if appropriate. Because HL7 does not in general support communicating structured information in NTE segments, the ACK^R01 message trigger has been reserved to accommodate this use case in future versions of the HL7 specification.

Info HQ provides the ability to receive acknowledgments on a second port, distinct from the port used in the outbound setup. Configuring a port specific for ACK messages is done within the Info HQ configuration. See the *Info HQ System Manual* for details.

Message Segments

Message Header (MSH)

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

Table 10: Message Header

HL7 Field	Field Name	Maximum Characters	Field Contents/Example	Comments
1	Field Separator	1	| - Field	Field delimiter: vertical bar
2	Encoding Characters	4	^ - Component	Component delimiter: caret
			~ - Repeat	Repeat delimiter: tilde
			\ - Escape	Escape delimiter: backslash
			& - Sub Component	Sub Component: ampersand
3	Sending Application	227	Abbott Point of Care	Outbound: Abbott Point of Care Inbound: Sending App Name / Empty
4	Sending Facility	227	Abbott Point of Care	Outbound: Abbott Point of Care Inbound: Sending Facility Name / Empty
7	Date/Time of Message	26	20131126030935 Or 20131126030935-04:00	CDS Mode: YYYYMMDDHHMMSS Standard Mode: YYYYMMDDHHMMSS+/-ZZ:ZZ
9	Message Type	15	ACK^R01 Or ACK	CDS Mode: Message Code ^ Trigger Event (for inbound App ACK only) All others: Message Code
10	Message Control ID	199	string	Unique ID
11	Processing ID	3	P	Production indicator
12	Version ID	60	2.6	HL7 version of the message

HL7 Field	Field Name	Maximum Characters	Field Contents/Example	Comments
15	Commit/Accept Acknowledgement Type	2	AL	Inbound Commit ACK: NE Inbound App ACK: AL Outbound Commit ACK: NE AL – Always NE – Never
16	Application Acknowledgement Type	2	NE	NE – Never

Example:
MSH|^~\&|LIS|LIS|||20140916160659||ACK^R01|11739|P|2.6|AL|NE

Message Acknowledgement (MSA)

The MSA segment contains information sent while acknowledging another message. The following table details the exact format of the Message Header sent from Info HQ to a Host or from a Host to Info HQ.

Table 11: Message Acknowledgement (MSA)

HL7 Field	Field Name	Maximum Characters	Field Contents/Example	Comments
1	Acknowledgement Code	2	AA	Acknowledgement Code; AA, AE, CA, CE Outbound Commit ACK = CE when MSA.3 format is incorrect in the successful inbound App ACK.
2	Message Control ID	38	234	Unique ID; must equal to MSH.10 of associated ORU message.
3	Text Message	200	AE, AR, CE, CR: Patient ID not recognized by LIS AA: 12345^Smith,Bob Or < >	If AE, AR, CE, CR, specify detailed error message. If AA: Order #^Patient last name,Patient first name Or Empty Note: If AA, Order #, Patient last name, and Patient first name each has a maximum length of 50 characters.
6	Error Condition	80	1010	Error condition corresponding to the text in MSA 3

```
MSA|AA|234|12345^Smith,-Bob|||
```

APPENDIX A - HL7 Message Examples

A.1 HL7 Message Examples

Info HQ to HOST, Standard Mode Messages

R30 + No LOINC

ORU IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20190924133639-04:00||ORU^R30^ORU-R30|1|P|2.6|||AL|AL
PID|1||4656|||||A
ORC|NW|||||||||||||||||0
OBR|1|||i-STAT CG4+|||20160630160957-04:00||||O||||Arterial|||Unassigned^Unassigned||D16068|||||||||||||6565ghggg
OBX|1|ST|PH^PH||7.124||735-745|LL|||F|||20160630160957-04:00||6565ghggg|M|0|20160630160957-04:00
OBX|2|ST|TCO2^TCO2||17|mmol/L|22-27|L|||F|||20160630160957-04:00||6565ghggg|C|0|20160630160957-04:00
OBX|3|ST|PO2^PO2||141|mmHg|80-100|H|||F|||20160630160957-04:00||6565ghggg|M|0|20160630160957-04:00
OBX|4|ST|PCO2^PCO2||47.2|mmHg|34-46|H|||F|||20160630160957-04:00||6565ghggg|M|0|20160630160957-04:00
OBX|5|ST|BE,ecf^BE,ecf||-14|mmol/L|-3-3|L|||F|||20160630160957-04:00||6565ghggg|C|0|20160630160957-04:00
OBX|6|ST|HCO3^HCO3||15.5|mmol/L|22-26|L|||F|||20160630160957-04:00||6565ghggg|C|0|20160630160957-04:00
OBX|7|ST|LAC^LAC||6.95|mmol/L|36-125|HH|||F|||20160630160957-04:00||6565ghggg|M|0|20160630160957-04:00
OBX|8|ST|SO2^SO2||98|%|94-99||||F|||20160630160957-04:00||6565ghggg|C|0|20160630160957-04:00
NTE|1|||Repeat_Test=No||20160630160957-04:00
NTE|2|||Caregiver ID=5655vfghg||20160630160957-04:00
NTE|3|||Read Back Confirm=Yes||20160630160957-04:00
NTE|4|||Date/Time of Callback=20160630161000-04:00||20160630160957-04:00
NTE|5|||Notification Comment=Comment: Notify MD||20160630160957-04:00
NTE|6|||Patient Name=5555bfhhh 5355gfg||20160630160957-04:00

Commit ACK IHQ←LIS

MSH|^~\&|||Abbott Point of Care|Abbott Point of Care|20190924134841-04:00||ACK|1|P|2.6|||NE|NE
MSA|CA|1||||

App ACK IHQ←LIS

MSH|^~\&|HL7Sim|LIS|i-STAT|i-STAT|20190924134841-04:00||ACK|1|P|2.6|||AL|NE
MSA|AA|1|OD_20160630160957^Johnson,Mark|||

Commit ACK IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20190924134842-04:00||ACK|1|P|2.6|||NE|NE|
MSA|CA|1||||

R32 + No LOINC

ORU IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20190924133639-04:00||ORU^R32^ORU-R32|1|P|2.6|||AL|AL
PID|1||4656||Kirby^Joe|||A
ORC|RE|OD_20160630160957|||||||||||||||0
OBR|1|OD_20160630160957||i-STAT CG4+|||20160630160957-04:00||||O||||Arterial|||Unassigned^Unassigned||D16068|||||||||||||6565ghggg
OBX|1|ST|PH^PH||7.124||735-745|LL|||F|||20160630160957-04:00||6565ghggg|M|0|20160630160957-04:00
OBX|2|ST|TCO2^TCO2||17|mmol/L|22-27|L|||F|||20160630160957-04:00||6565ghggg|C|0|20160630160957-04:00
OBX|3|ST|PO2^PO2||141|mmHg|80-100|H|||F|||20160630160957-04:00||6565ghggg|M|0|20160630160957-04:00
OBX|4|ST|PCO2^PCO2||47.2|mmHg|34-46|H|||F|||20160630160957-04:00||6565ghggg|M|0|20160630160957-04:00
OBX|5|ST|BE,ecf^BE,ecf||-14|mmol/L|-3-3|L|||F|||20160630160957-04:00||6565ghggg|C|0|20160630160957-04:00
OBX|6|ST|HCO3^HCO3||15.5|mmol/L|22-26|L|||F|||20160630160957-04:00||6565ghggg|C|0|20160630160957-04:00
OBX|7|ST|LAC^LAC||6.95|mmol/L|36-125|HH|||F|||20160630160957-04:00||6565ghggg|M|0|20160630160957-04:00
OBX|8|ST|SO2^SO2||98|%|94-99||||F|||20160630160957-04:00||6565ghggg|C|0|20160630160957-04:00
NTE|1|||Repeat_Test=No||20160630160957-04:00
NTE|2|||Caregiver ID=5655vfghg||20160630160957-04:00
NTE|3|||Read Back Confirm=Yes||20160630160957-04:00
NTE|4|||Date/Time of Callback=20160630161000-04:00||20160630160957-04:00
NTE|5|||Notification Comment=Comment: Notify MD||20160630160957-04:00
NTE|6|||Patient Name=5555bfhhh 5355gfg||20160630160957-04:00

Commit ACK IHQ←LIS

MSH|^~\&|||Abbott Point of Care|Abbott Point of Care|20190924135023-04:00||ACK|1|P|2.6|||NE|NE
MSA|CA|1||||

App ACK IHQ←LIS

MSH|^~\&|HL7Sim|LIS|i-STAT|i-STAT|20190924135023-04:00||ACK|1|P|2.6|||AL|NE
MSA|AA|1|OD_20160630160957^Kirby,Joe|||

Commit ACK IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20190924135023-04:00||ACK|1|P|2.6|||NE|NE|
MSA|CA|1||||

R30 + LOINC

ORU IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20200120161059-05:00||ORU^R30^ORU-R30|10|P|2.6|||AL|AL
PID|1||8856|||||U
ORC|NW|||||||||||||||||0
OBR|1|||i-STAT EG7+|||20160629210043-04:00||||O||||Venous|||DT^ER/Area1||N16029|||||||||||||55
OBX|1|ST|6298-4^K^LN||3.1|mmol/L|||||F|||20160629210043-04:00||55|M|0|20160629210043-04:00
OBX|2|ST|2947-0^NA^LN||131|mmol/L|||||F|||20160629210043-04:00||55|M|0|20160629210043-04:00
OBX|3|ST|1994-3^ICA^LN||0.88|mmol/L|||||F|||20160629210043-04:00||55|M|0|20160629210043-04:00
OBX|4|ST|11558-4^PH^LN||7.453|||||F|||20160629210043-04:00||55|M|0|20160629210043-04:00
OBX|5|ST|20565-8^TCO2^LN||10|mmol/L|||||F|||20160629210043-04:00||55|C|0|20160629210043-04:00
OBX|6|ST|11556-8^PO2^LN||156|mmHg|||||F|||20160629210043-04:00||55|M|0|20160629210043-04:00
OBX|7|ST|11557-6^PCO2^LN||13.2|mmHg|||||F|||20160629210043-04:00||55|M|0|20160629210043-04:00
OBX|8|ST|19235-1^BE,ecf^LN||-15|mmol/L|||||F|||20160629210043-04:00||55|C|0|20160629210043-04:00
OBX|9|ST|1959-6^HCO3^LN||9.3|mmol/L|||||F|||20160629210043-04:00||55|C|0|20160629210043-04:00
OBX|10|ST|2713-6^SO2^LN||100|%|||||F|||20160629210043-04:00||55|C|0|20160629210043-04:00
OBX|11|ST|20509-6^Hb*^LN||6.5|g/dL|||||F|||20160629210043-04:00||55|C|0|20160629210043-04:00
OBX|12|ST|20570-8^HCT^LN||19|%PCV|||||F|||20160629210043-04:00||55|M|0|20160629210043-04:00
NTE|1|||Caregiver ID=giver_OÒÓÔÖÕOEØ ÕºUÙÚÛÜŨSŚŠ ÕŨŚ||20160629210043-04:00
NTE|2|||Read Back Confirm=Yes||20160629210043-04:00
NTE|3|||Date/Time of Callback=20160630161000-04:00||20160629210043-04:00
NTE|4|||Notification Comment=cmt_cvbnmaàáâäæãåāªc êëęėēïįīĩĩí ęėē||20160629210043-04:00
NTE|5|||Patient Name=name_Ÿÿß

Commit ACK IHQ←LIS

MSH|^~\&|||Abbott Point of Care|Abbott Point of Care|20200120163518-05:00||ACK|10|P|2.6|||NE|NE
MSA|CA|10||||

App ACK IHQ←LIS

MSH|^~\&|HL7Sim|LIS|i-STAT|i-STAT|20200120163518-05:00||ACK|10|P|2.6|||AL|NE
MSA|AA|10|OD_20160629210043^Chen,Jason|||

Commit ACK IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20200120163518-05:00||ACK|10|P|2.6|||NE|NE|
MSA|CA|10||||

R32 + LOINC

ORU IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20200120161107-05:00||ORU^R32^ORU-R32|80|P|2.6|||AL|AL
PID|1||123406|||||F
ORC|RE|111|||||||||||||||0
OBR|1|111||6+|||20160222190317-05:00||||O|||||||DT^ER/Area1|||||||||||||||001
OBX|1|ST|6299-2^BUN^LN||18|mg/dL||L|||F|||20160222190317-05:00||001|C|0|20160222190317-05:00
OBX|2|ST|2947-0^NA^LN||142|mmol/L||H|||F|||20160222190317-05:00||001|I|0|20160222190317-05:00
OBX|3|ST|6298-4^K^LN||4.2|mmol/L||HH|||F|||20160222190317-05:00||001|U|0|20160222190317-05:00
OBX|4|ST|2069-3^CL^LN||102|mmol/L||LL|||F|||20160222190317-05:00||001|A|0|20160222190317-05:00
OBX|5|ST|2339-0^GLU^LN||104|mg/dL|||||F|||20160222190317-05:00||001|M|0|20160222190317-05:00
OBX|6|ST|20570-8^HCT^LN||46|%PCV|||||F|||20160222190317-05:00||001|M|0|20160222190317-05:00
OBX|7|ST|20509-6^HB^LN||15.6|g/dL|||||F|||20160222190317-05:00||001|M|0|20160222190317-05:00
NTE|1|||Caregiver ID=John||20160222190317-05:00
NTE|2|||Read Back Confirm=No||20160222190317-05:00
NTE|3|||Date/Time of Callback=-||20160222190317-05:00
NTE|4|||Patient Name=William Smith||20160222190317-05:00

Commit ACK IHQ←LIS

MSH|^~\&|||Abbott Point of Care|Abbott Point of Care|20200120164503-05:00||ACK|80|P|2.6|||NE|NE
MSA|CA|80||||

App ACK IHQ←LIS

MSH|^~\&|HL7Sim|LIS|i-STAT|i-STAT|20200120164503-05:00||ACK|80|P|2.6|||AL|NE
MSA|AA|80|OD_20160222190317^Johnson,Mark|||

Commit ACK IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20200120164503-05:00||ACK|80|P|2.6|||NE|NE|
MSA|CA|80||||

R30 + No LOINC

ORU IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20190924133639||ORU^R30|1|P|2.6|||AL|AL
PID|1||4656^^^||Wang^Peter|||A||||||||||Unassigned
ORC|NW|||||||||||||||||0
OBR|1|||^^^i-STAT CG4+|||20160630160957||||O||||Arterial|||Unassigned^Unassigned||D16068|||||||||||||6565ghggg
OBX|1|ST|^^^PH||7.124||735-745|LL|||F|||20160630160957||6565ghggg|M|0|20160630160957
OBX|2|ST|^^^TCO2||17|mmol/L|22-27|L|||F|||20160630160957||6565ghggg|C|0|20160630160957
OBX|3|ST|^^^PO2||141|mmHg|80-100|H|||F|||20160630160957||6565ghggg|M|0|20160630160957
OBX|4|ST|^^^PCO2||47.2|mmHg|34-46|H|||F|||20160630160957||6565ghggg|M|0|20160630160957
OBX|5|ST|^^^BE,ecf||-14|mmol/L|-3-3|L|||F|||20160630160957||6565ghggg|C|0|20160630160957
OBX|6|ST|^^^HCO3||15.5|mmol/L|22-26|L|||F|||20160630160957||6565ghggg|C|0|20160630160957
OBX|7|ST|^^^LAC||6.95|mmol/L|36-125|HH|||F|||20160630160957||6565ghggg|M|0|20160630160957
OBX|8|ST|^^^SO2||98|%|94-99||||F|||20160630160957||6565ghggg|C|0|20160630160957
NTE|1|||Repeat_Test=No||20160630160957
NTE|2|||Caregiver ID=5655vfghg||20160630160957
NTE|3|||Read Back Confirm=Yes||20160630160957
NTE|4|||Date/Time of Callback=20160630161000||20160630160957
NTE|5|||Notification Comment=Comment: Notify MD||20160630160957
NTE|6|||Patient Name=5555bfhhh 5355gfg||20160630160957

Commit ACK IHQ←LIS

MSH|^~\&|HL7Sim|HL7Sim|i-STAT|i-STAT|20190924135213||ACK|1|P|2.4|||NE|NE
MSA|CA|1|

App ACK IHQ←LIS

MSH|^~\&|HL7Sim|LIS|i-STAT|i-STAT|20190924135213||ACK^R01|1|P|2.4|||AL|NE
MSA|AA|1|OD_20160630160957^Wang,Peter|||

Commit ACK IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20190924135213||ACK|1|P|2.6|||NE|NE|
MSA|CA|1||||

R32 + No LOINC

ORU IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20200120161106||ORU^R32|64|P|2.6|||AL|AL
PID|1||911^^^||Craig^Michelle^Rodgers||19980101000000|F|||||||||ER/Area1
ORC|RE|111|||||||||||||||0
OBR|1|111||^^^CG8+|||20160129190419||||O||||Arterial|||DT^ER/Area1||W15264|||||||||||||001
OBX|1|ST|^^^K||6.7|mmol/L|3.5-4.9|HH|||F|||20160129190419||001|M|0|20160129190419
OBX|2|ST|^^^NA||163|mmol/L|138-146|HH|||F|||20160129190419||001|M|0|20160129190419
OBX|3|ST|^^^ICA||2.09|mmol/L|1.12-1.32|HH|||F|||20160129190419||001|M|0|20160129190419
OBX|4|ST|^^^PH||7.918||7.35-7.45|HH|||F|||20160129190419||001|M|0|20160129190419
OBX|5|ST|^^^GLU||46|mg/dL|70-105|L|||F|||20160129190419||001|M|0|20160129190419
OBX|6|ST|^^^TCO2||37|mmol/L|23-27|HH|||F|||20160129190419||001|C|0|20160129190419
OBX|7|ST|^^^PCO2||17.7|mmHg|35-45|LL|||F|||20160129190419||001|M|0|20160129190419
OBX|8|ST|^^^BE,ecf||20|mmol/L|-2-3|HH|||F|||20160129190419||001|C|0|20160129190419
OBX|9|ST|^^^HCO3||36.2|mmol/L|22-26|HH|||F|||20160129190419||001|C|0|20160129190419
OBX|10|ST|^^^SO2||100|%|95-98|H|||F|||20160129190419||001|C|0|20160129190419
OBX|11|ST|^^^Hb*||19.7|g/dL|12-17|H|||F|||20160129190419||001|C|0|20160129190419
OBX|12|ST|^^^HCT||58|%PCV|38-51|HH|||F|||20160129190419||001|M|0|20160129190419
OBX|13|ST|^^^PO2||214|mmHg|||||F|||20160129190419||001|M|0|20160129190419
OBX|14|ST|^^^PHPT||7.917||||||F|||20160129190419||001|M|0|20160129190419
OBX|15|ST|^^^PO2PT||214|mmHg|||||F|||20160129190419||001|M|0|20160129190419
OBX|16|ST|^^^PCO2PT||17.7|mmHg|||||F|||20160129190419||001|M|0|20160129190419
NTE|1|||Patient Temp=98.7 °F||20160129190419
NTE|2|||Allen's Test=Normal||20160129190419
NTE|3|||Draw Site=R Radial||20160129190419
NTE|4|||Position=Sitting||20160129190419
NTE|5|||Delivery System=Delivery System 2||20160129190419
NTE|6|||Mode=Mode 2||20160129190419

Commit ACK IHQ←LIS

MSH|^~\&|HL7Sim|HL7Sim|i-STAT|i-STAT|20200120170808||ACK|64|D|2.4|||NE|NE
MSA|CA|64|

App ACK IHQ←LIS

MSH|^~\&|HL7Sim|LIS|i-STAT|i-STAT|20200120170808||ACK^R01|64|D|2.4|||AL|NE
MSA|AA|64|OD_20160129190419^Kirby,Joe|||

Commit ACK IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20200120170808||ACK|64|P|2.6|||NE|NE|
MSA|CA|64||||

R30 + LOINC

ORU IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20200120161106||ORU^R30|71|P|2.6|||AL|AL
PID|1||123409^^^||Michael^Jack^L||19720608000000|F|||||||||ER/Area1
ORC|NW|||||||||||||||||0
OBR|1|||^^^E3+|||20151210190324||||O||||Arterial|||DT^ER/Area1||423J113360363|||||||||||||005
OBX|1|ST|6298-4^K^LN^K||4.2|mg/dL||L|||F|||20151210190324||005|C|0|20151210190324
OBX|2|ST|20570-8^HCT^LN^HCT||60|mmol/L||H|||F|||20151210190324||005|I|0|20151210190324
OBX|3|ST|20509-6^HB^LN^HB||20.4|mmol/L||HH|||F|||20151210190324||005|U|0|20151210190324
OBX|4|ST|2947-0^NA^LN^NA||143|mg/dL|||||F|||20151210190324||005|M|0|20151210190324
NTE|1|||Delivery System=Adult Vent||20151210190324
NTE|2|||Action Range Comment=v||20151210190324
NTE|3|||Allen's Test=Fail||20151210190324
NTE|4|||PtTemp=101.6 F||20151210190324
NTE|5|||DelSys=Adult Vent||20151210190324
NTE|6|||CPB=No||20151210190324
NTE|7|||Site=Heel Stick||20151210190324
NTE|8|||Sample Type=CORD||20151210190324
NTE|9|||Mode=BiPAP||20151210190324
NTE|10|||CMT=40052100251C||20151210190324

Commit ACK IHQ←LIS

MSH|^~\&|HL7Sim|HL7Sim|i-STAT|i-STAT|20200120165323||ACK|71|D|2.4|||NE|NE
MSA|CA|71|

App ACK IHQ←LIS

MSH|^~\&|HL7Sim|LIS|i-STAT|i-STAT|20200120165323||ACK^R01|71|D|2.4|||AL|NE
MSA|AA|71|OD_20151210190324^Koch,Paul|||

Commit ACK IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20200120165323||ACK|71|P|2.6|||NE|NE|
MSA|CA|71||||

R32 + LOINC

ORU IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20200120161108||ORU^R32|87|P|2.6|||AL|AL
PID|1||002^^^|||||U|||||||||ER/Area1
ORC|RE|43654654|||||||||||||||0
OBR|1|43654654||^^^G|||20160129190349||||O|||||||DT^ER/Area1
OBX|1|ST|2339-0^GLU^LN^GLU||110|mg/dL|||||F|||20160129190349|||M|0|20160129190349

Commit ACK IHQ←LIS

MSH|^~\&|HL7Sim|HL7Sim|i-STAT|i-STAT|20200120165627||ACK|87|D|2.4|||NE|NE
MSA|CA|87|

App ACK IHQ←LIS

MSH|^~\&|HL7Sim|LIS|i-STAT|i-STAT|20200120165627||ACK^R01|87|D|2.4|||AL|NE
MSA|AA|87|OD_20160129190349^Johnson,Mark|||

Commit ACK IHQ→LIS

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20200120165627||ACK|87|P|2.6|||NE|NE|
MSA|CA|87||||

HOST to Info HQ

A01 – Admit Patient

```
MSH|^~\&|HIS System|Device3|Abbott Point of Care|Abbott Point of
Care|20140916173543|| ADT^A01^ADT-A01|85249|P|2.6
PID|1||P9001||Smith^O^A||19610615123456|M||PatRace|PatAddr1^^PatCity^FL^33913^USA||58594
584467| 2399316004|||| PV1|1||Facility2^LocRoom^LocBed^LocDept^^^LocBuilding^LocFloor||||
DoctorCode^DoctorLast^DoctorFirst^^DoctorSuffix^Title|||||||||||||||||||||||||||||||||20140625143355

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20140916173802||ACK^A01^ACK|
fc1825b5-9a46-439b-9596-47f4daeb009f|P|2.6
MSA|AA|85249
```

A02 – Transfer Patient

```
MSH|^~\&|HIS System|Device3|Abbott Point of Care|Abbott Point of
Care|20140916173848|| ADT^A02^ADT-A02|85252|P|2.6
PID|1||P9001||Smith^O^A||19610615123456|M||PatRace|Daniels Rd^^Bonita
Springs^FL^32313^USA|| 53359458467|2399316004||||67876
PV1|1||Uptown^LocRoom^LocBed^LocDept^^^LocBuilding^LocFloor||||
DoctorCode6^DoctorLast6^DoctorFirst6^^DoctorSuffix6^Title|||||||||||||||||||||||||||||||2014062
5143355

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20140916174107||ACK^A02^ACK|
8125b4fd-627d-46d5-9fa5-2761c2c68565|P|2.6
MSA|AA|85252
```

A08 – Update Patient

```
MSH|^~\&|HIS System|Device3|Abbott Point of Care|Abbott Point of
Care|20140916174253|| ADT^A08^ADT-8|85257|P|2.6
PID|1||P9001||NewLastName^NewFirstName^NewMidddleName||19610615123456|M||Asian|PatAdd
r1^^San Francisco^CA^33954^USA||58594584467|2399316004||||
PV1|1||Uptown^LocRoom^LocBed^LocDept^^^LocBuilding^LocFloor||||
DoctorCode22^DoctorLast^DoctorFirst^^DoctorSuffix^Title|||||||||||||||||||||||||||||||20140625143355

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20140916174512||ACK^A08^ACK|
39805f9c-1fe2-480b-a017-1c2e48d9bad4|P|2.6
MSA|AA|85257
```

A03 – Discharge Patient

```
MSH|^~\&|HIS System|Device3|Abbott Point of Care|Abbott Point of
Care|20140916174049|| ADT^A03^ADT-A03|85256|P|2.6
PID|1||P9001||Smith^O^A||19610615123456|F||Hispanic|Oxbridge
Way^^Rochester^FL^33913^USA|| 5859458467|2399316004||||
PV1|1||Downtown^LocRoom^LocBed^LocDept^^^LocBuilding^LocFloor||||
DoctorCode^DoctorLast^DoctorFirst^^DoctorSuffix^Title|||||||||||||||||||||||||||||||20140625143355|20140
626143233

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20140916174308||ACK^A03^ACK|7c6b9dc0-
accb-43e3-91bc-e6f4233452f0|P|2.6
MSA|AA|85256
```

A31 – Update Person Information

```
MSH|^~\&|||Abbott Point of Care|Abbott Point of Care|20140916174253|| ADT^A31^ADT-A31|85257|
P|2.6
PID|1||P9001||NewLastName^NewFirstName^NewMidddleName||19610615|M||Asian|PatAddr1^^San
Francisco^CA^33954^USA||58594584467|2399316004||||
PV1|1||Uptown^LocRoom^LocBed^LocDept^^^LocBuilding^LocFloor||||
DoctorCode22^DoctorLast^DoctorFirst^^DoctorSuffix^Title||||||||||||||||||||||||||||||||||||20140625143355

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20140916174512||ACK^A31^ACK|
39805f9c-1fe2-480b-a017-1c2e48d9bad4|P|2.6
MSA|AE|85257|Patient ID not recognized|||1010
```

A40 – Merge Patient – Patient Identifier List

```
MSH|^~\&|||Abbott Point of Care|Abbott Point of Care|20141124100411||ADT^A40^ADT-A40|82390|
P|2.6
PID|||PID456
PV1|||DT^^^^^^^
MRG|PID123

MSH|^~\&|Abbott Point of Care|Abbott Point of Care|||20210907164353-04:00||ACK^A40^ACK|
3e689df1-f65d-4ae6-8ce2-82942efbbaf1|P|2.6
MSA|AA|82390
```

APPENDIX B - Cartridges and Analytes

B.1 Cartridges and Analytes

For the tables below, please note:

- Analyte names separated by "/" indicate possible variants of analyte strings for the same analyte. Only one analyte string variant will be received in one test result.
- The tables below represent the analytes which are supported for each cartridge type. Depending on the customization of an instrument, not all analytes will always be sent.
- An asterisk (*) indicates a calculated value.

Table 13: EC8+ supported analytes

pH
PCO2
HCO3
BE/BE,ecf/BE,bld
TCO2
Na
K
Cl
AnGap
Glu
BUN/Urea
Hct/Hct,CPB
Hb/Hb*/Hb*,CPB

Table 14: CG8+ supported analytes

pH
PCO2
PO2
HCO3
BE/BE,ecf/BE,bld
sO2
TCO2
Na
K
iCa
Glu
Hct/Hct,CPB
Hb/Hb*/Hb*,CPB

Table 15: EG7+ supported analytes

pH
PCO2
PO2
HCO3
BE/BE,ecf/BE,bld
sO2
TCO2
Na
K
iCa
Hct/Hct,CPB
Hb/Hb*/Hb*,CPB

Table 16: CHEM8+ supported analytes

Na
K
Cl
TCO2
BUN/Urea
Crea
eGFR (i-STAT Alinity only)
eGFR-a (i-STAT Alinity only)
Glu
iCa
AnGap
Hct/Hct,CPB
Hb/Hb*/Hb*,CPB

Table 17: EG6+ supported analytes

pH
PCO2
PO2
HCO3
BE/BE,ecf/BE,bld
sO2
TCO2
Na
K
Hct/Hct,CPB
Hb/Hb*/Hb*,CPB

Table 18: CG4+ supported analytes

pH
PCO2
PO2
HCO3
BE/BE,ecf/BE,bld
sO2
TCO2
Lac

Table 19: 6+ supported analytes

Na
K
Cl
Glu
BUN/Urea
Hct/Hct,CPB
Hb/Hb*/Hb*,CPB

Table 20: G3+ supported analytes

pH
PCO2
PO2
HCO3
BE/BE,ecf/BE,bld
sO2
TCO2

Table 21: EC4+ supported analytes

Na
K
Glu
Hct/Hct,CPB
Hb/Hb*/Hb*,CPB

Table 22: E3+ supported analytes

Na
K
Hct/Hct,CPB
Hb/Hb*/Hb*,CPB

Table 23: G supported analytes

Glu

Table 24: Crea supported analytes

Crea
eGFR (i-STAT Alinity only)
eGFR-a (i-STAT Alinity only)

Table 25: ACTk supported analytes

ACT WBT/ACT-K(Nonwarm)/ACT-K(Prewarm)

Table 26: ACTc supported analytes

ACT WBT/ACT-C(Nonwarm)/ACT-C(Prewarm)

Table 27: PTplus supported analytes

PT+
INR+

Table 28: PTplus/aPTT supported analytes

aPTT
PT+
INR+

Table 29: PT supported analytes

PT
INR

Table 30: β-HCG supported analytes

BhCG
hCG

Table 31: cTnI supported analytes

cTnI

Table 32: CK-MB supported analytes

CK-MB

Table 33: BNP supported analytes

BNP

Table 34: TnI-Nx supported analytes

TnI-Nx

Table 35: TBI supported analytes

Interpretation
GFAP
UCH-L1

Table 36: TBI Plasma supported analytes

Interpretation
GFAP
UCH-L1

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APPENDIX C - Analyte Symbols sent to LIS

C.1 Analyte Symbols Sent to the LIS

Analyte Value Strings

Test records may have accompanying analyte data, which is contained in the **Analyte** data table of the dataset returned to the third party data manager. The Value field is a string that may contain special characters that specify abnormal readings. The following table lists the possible values.

Value String	Comments
n	An integer or floating point with a possible negative prefix. This is the case of a successfully generated analyte value.
***	“Star Out,” measurement not possible (sensor error, etc.)
<>	Suppressed, value could not be calculated.
>n	Value is above the 'n' upper limit of the measurement range.
<n	Value is below the 'n' lower limit of the measurement range.
(+)	Positive hCG result
(-)	Negative hCG result
( )	Indeterminate hCG result

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