



Merge Hemo™

v. 10.0

HL7 INTERFACE SPECIFICATION

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INDICATIONS FOR USE:

Merge Hemo displays, measures, and records physiological data from a patient undergoing a cardiac catheterization procedure.

The Hemo System can visualize and capture vital sign values including ECG, impedance respiration, SpO2 and Pleth waveforms, invasive blood pressure, temperature, non-invasive blood pressure (NIBP), Thermodilution cardiac output and Fractional Flow Reserve (FFR). The system can display and capture diagnostic quality 12 Lead resting ECG to visualize arrhythmias, and ST-segment changes. Some Hemo systems have an option to measure and display Side-stream End Tidal Carbon Dioxide (EtCO2) along with apnea and respiration rates calculated from the EtCO2 waveform.

The hemodynamic portion of the system is comprised of the Patient Data Module (PDM) and the Merge Hemo Monitor PC. The two units are connected via a serial interface.

All vital parameters are acquired and calculated in the PDM. This data is then transmitted to the Merge Hemo Monitor PC via the serial interface. All data can then be displayed on the Merge Hemo Monitor PC. The Merge Hemo system is not intended to produce alarms for out-of-range conditions.

Patient allergies and current medication information can be entered by the user and displayed by the system. If desired and using a third party database the Hemo system can display drug to drug or drug to allergy interaction information.

The system is intended for use in hospital cardiac catheterization laboratories and in pre-and post-procedure care areas in the hospital under the close supervision of qualified medical personnel.

For application support or to report issues with user documentation, contact Customer Support:

- Direct Merge Hemo Support: 866-261-5761
- Email: MergeSupport@us.ibm.com
- Web site: <http://www.merge.com/Solutions/Cardiology/Merge-Hemo.aspx>



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Doc #	Revision	Date	Description
HEMO-6376	7.0	12/20/16	Implementation input throughout.

The latest revision of this document can be found in [Merge Communities](#).

Purpose

To document the HL7 Interface specification and to identify information needed to achieve integration with a hospital information system (HIS).

Scope

Applies to Merge Hemo 10.0 and HL7 10 and later.

For Merge Hemo systems installed with Merge Cardio™, refer to the Cardiology HL7 Interface Specification.

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General Information

The HL7 Interface is bidirectional. As a server, it receives and processes a subset of incoming ADT, ORM, ORU (laboratory results) and DFT (inventory) messages from the HIS. As a client, it sends an ORU or MDM (Case/Procedure reports) messages to the HIS.

Benefits of the HL7 Interface:

- Reduction or elimination of redundant physician and technician manual entry of patient data in the hemodynamics application
- Automatic scheduling of cath procedures in the hemodynamics application
- Means for HIS to send laboratory results to the hemodynamics application
- Means for for specific HIS systems to send allergy information to the hemodynamics application
- Means for inventory systems to send items for a study to the hemodynamics application
- Means for HIS to receive clinical reports from the hemodynamics application

The HL7 Interface allows for moderate configuration changes to meet site-specific requirements. It can be adapted to an institution's existing HL7 communications protocol and messaging structure if changes are not feasible on the institution's interface engine and/or HIS components. That stated, some modifications may require engineering development, which in turn constitutes site customization and is subject to a separate Statement of Work.

Applicable Standards

The Interface follows the requirements and guidelines of the following directives, specifications and standards:

ANSI/HL7 V2.3.1-1999	HL7 Standard Version 2.3.1
ANSI/HL7 V2.3-1997	HL7 Standard Version 2.3

Definitions

Term/Abbreviation	Definition
HL7	Health Level 7
HIS	Hospital Information System (includes an interface engine where applicable)

Networking Requirements

MLLP Transport Protocol

All inbound and outbound HL7 messages transferred between the HL7 Interface and the HIS are done via TCP/IP socket -based communications with the message in the following HL7 MLLP data protocol form:

<SB><HL7 Data><EB>

where:

<SB> is the start block. It is a single **ASCII 11** (x0B) character.

<HL7 Data> is the HL7 message flatwire consisting of HL7 segments. Each segment must be terminated by an **ASCII 13** (x0D) character.

<EB> is the end block. It is a two character sequence; **ASCII 28** (x1C) followed by **ASCII 13** (x0D).

Network Connection and Transport Protocols

The HL7 Interface requires the following networking capabilities from the HIS:

- The physical network layer is Ethernet.
- The HL7 messages will be transmitted using MLLP over TCP/IP. **Batch HL7 is not supported.**
- The HIS will connect to a configurable port at an IP Address that has been selected by the Hospital's Network and/or the IS department. Multiple inbound connections to this port are supported.
- The HIS will accept HL7 ACK acknowledgement messages in response to the messages sent to the HL7 Interface.
- The HIS will buffer messages in the event that the connection to the HL7 Interface goes down. The buffered messages will be sent once the connection has been re-established.
- The HIS will listen on a port at specific IP Address to receive unsolicited report messages from the HL7 Interface.
- The HIS will send acknowledgement messages with the HL7 ACK message type in response to the unsolicited report messages sent from HL7 Interface.

Messaging Data Flow

The HL7 Interface is capable of handling unsolicited data flow. As a server, the HL7 Interface accepts unsolicited messages sent by the HIS. The HL7 Interface, in turn, replies with an HL7 acknowledgment message of type ACK. As a client, the HL7 Interface sends unsolicited messages to the HIS. The HL7 Interface, in turn, expects an HL7 acknowledgement message of type ACK.

The HL7 Interface transfers and processes HL7 messages with the following conditions:

- Original Acknowledgement rules apply.
- Non-deferred reply is used.
- Segments are not continued across messages.
- Messages are not batched.

Messages transferred between the HL7 Interface and the HIS are sent individually (segments do not span more than one HL7 message), and are acknowledged individually.

As a server, on startup, the HL7 Interface waits for a TCP/IP connection requests initiated by the HIS. When the HIS is required to send a message when there is no existing connection, the HIS must connect to the HL7 Interface to request a connection. Upon acceptance of the requested connection, the HIS transfers the message data and keeps the connection open until an acknowledgement from the HL7 Interface is received. After this message transfer and acknowledgement cycle, the HIS may keep the connection open for further message transfers or disconnect from the HL7 Interface until another connection is required.

As a client, the HL7 Interface will attempt to connect to the HIS when data is available for transfer to the HIS. After the message is sent, the HL7 Interface client will wait the configured amount of time for an acknowledgement to be returned. If an acknowledgement is not returned, the HL7 Interface will attempt to resend the message again the configured number of times. If a message has not been acknowledged after the configured number of attempts, the HL7 Interface will attempt to send the next message in the queue.

Message Acknowledgment

Acknowledgement from HL7 Interface

The HL7 Inbound Interface acknowledges a message upon receipt. The acknowledgement is sent on the same TCP/IP connection as the inbound message.

The acknowledgment message returned from the hemodynamics application conforms to the following message format:

MSH MSA [ERR]

The message type returned for all acknowledgements is **ACK**. **MSA-1** will be **AA**. The HL7 Interface echoes the originating message's message control ID in **MSA-2**. If an unsupported message is received, an acknowledgement message having type **ACK**, code **AA** is returned with **Message type not supported** in the Text Message field **MSA-3**. The ERR segment contains the **Error Code and Location** in **ERR-1**.

Enhanced acknowledgement is not supported.

MSH Segment	Description	Notes
MSH-1	Field Separator	' '
MSH-2	Encoding Characters	'^~\&'
MSH-3	Sending Application	
MSH-4	Sending Facility	
MSH-5	Receiving Application	
MSH-6	Receiving Facility	
MSH-7	Date/Time of Message	Date from MSH-7 of incoming message
MSH-9	Message type	'ACK'
MSH-10	Message control ID	
MSH-11	Processing ID	'P'
MSH-12	Version ID	'2.3'

MSA Segment	Description	Notes
MSA-1	Acknowledgement Code	'AA'
MSA-2	Message Control ID	ID taken from Message Control ID field (MSH-10) of incoming message.

ERR Segment	Description	Notes
ERR-1	Error Code and Location	

Acknowledgement from HIS

The acknowledgment message returned from the HIS consists of the **MSH** and **MSA** segments. The message type returned for all acknowledgements is **ACK**. The HIS echoes the originating message's message control ID in **MSA-2**. The ERR segment is not used.

MSH Segment	Description	Notes
MSH-1	Field Separator	' '
MSH-2	Encoding Characters	'^~&'
MSH-7	Date/Time of Message	Date/time
MSH-9	Message type	'ACK'
MSH-10	Message control ID	Unique identifier.
MSH-11	Processing ID	'P'
MSH-12	Version ID	'2.3'

MSA Segment	Description	Notes
MSA-1	Acknowledgement Code	Status from HIS
MSA-2	Message Control ID	ID taken from Message Control ID field (MSH-10) of incoming message.
MSA-3	Text Message	

Inbound Supported Messages

Message Types Supported

Message Type	Description
ADT^A01	Patient Admit
ADT^A03	Patient Discharge
ADT^A04	Patient Registration
ADT^A08	Patient Update
ADT^A11	Cancel Admission
ADT^A34	Merge Patient Information
ADT^A40	Merge Patient Information
ORM^O01	New Order (NW) Cancel Order (CA) Order Cancel (OC)
ORU^R01	Results Message (Laboratory)
DFT^P03	Inventory Receipt

Message Processing Description

ADT Messages

When the HL7 Interface receives **ADT^A01** (patient admission) or **ADT^A04** (patient registration) messages, it stores the applicable patient demographics in the HIS patient database table and makes these patients available to the hemodynamics application to schedule cath procedures.

When the HL7 Interface receives **ADT^A03** (patient discharge) or **ADT^A11** (cancel admission) messages, it marks the HIS patient database records and any associated scheduled cath studies in the hemodynamics application (if one was scheduled and if the cath procedure has not taken place) to be deleted. Marking, rather than immediately deleting, is done so that the records will not be removed should there be other messages received subsequently. Once a day, a SQL job will be run that will look for all HIS patient database records marked for deletion. The applicable HIS patient visit record will be deleted. If there are no other HIS patient visit records for that patient, the HIS patient record will also be removed. This is done so that if there are multiple visits scheduled, the HIS patient record will remain in the system.

When the HL7 Interface receives **ADT^A08** (patient information update) messages, it updates the patient demographics stored in the hemodynamics application.

When the HL7 Interface receives **ADT^A34** (merge patient identifier) or **ADT^A40** (merge patient identifier) messages, the patient identifier stored in the hemodynamics application is updated with the new patient identifier. This requires active patient registrations of both patient identifiers. All studies and HIS patient visit records are also updated to use the new patient identifier. Patient name and demographics are not updated and it is recommended that a patient information update message be sent following the merge patient identifier message so that this is updated.

Order Messages

When the HL7 Interface receives an **ORM^O01-NW** (new order) message, it will schedule a study if there is not already a scheduled study for this patient and placer order number in the hemodynamics application. If a scheduled study already exists, it will update information for that study and its associated patient and HIS patient records.

When the HL7 Interface receives an **ORM^O01-CA** (cancel order) or **ORM^O01-OC** (order canceled) messages, it will delete the scheduled study in the hemodynamics application, if the placer order number matches.

Laboratory Results Messages

When the HL7 Interface receives an **ORU^R01** (laboratory results) message, it stores the relevant laboratory results in the database, and makes these laboratory results available to the hemodynamics application to include in the cath study.

Inventory Receipt Messages

When the HL7 Interface receives a **DFT^P03** (inventory receipt) message, it will add the item to any open, in-process, study or studies for the patient whose MRN is contained in the PID-3.1 field if the study's Actual Study Date is between the current day and the previous day. Otherwise, the message will be ignored and not further processed.

The FT1-7.1 segment must match the Hemo database Inventory.MfgPartNumber field to find an inventory record that would be used to create a study equipment record.

Message Grammar

This section describes the default structure of the HL7 Interface supported messages. The following notation applies:

[] Can have '0' of these items

{ } Can have 'n' number of these items

Optional and repeating fields are allowed provided that use of these structures does not conflict with other requirements stated in this specification.

General Structure of the Message

Message Type	Event Type	Message
ADT	A01, A04, A08	MSH PID [NK1] [PV1] [IN1] [IN2] [AL1]
ADT	A03, A11	MSH PID [PV1]
ADT	A34, A40	MSH PID [PV1] MRG
ORM	O01	MSH PID [PV1] [NK1] [AL1] [IN1] [IN2] ORC OBR [ZPL]
ORU	R01	MSH PID [PV1] OBR OBX
DFT	P03	MSH PID [PV1] FT1

NOTE: The PV1 segment is processed for ADT messages only if a scheduled study already exists that was initially created by an ORM message. PV1 information is not processed with ADT-only implementations.

Merge Best Practices recommend an Order-driven workflow, where ORM messages are sent in to generate Scheduled Studies. It is recommended that manually creating a Scheduled Study in Merge Hemo based on ADT information is only to be used in emergency cases.

Message Segment Definition

The following section describes the segments and fields supported by the HL7 Interface. Values shown in **bold** are required. Optional fields are not bolded.

ADT Message Segment Definition

MSH Segment	Description	Notes	Database Table:Column
MSH-1	Field Separator		N/A
MSH-2	Encoding Characters		N/A
MSH-3	Sending Application		N/A
MSH-4	Sending Facility		N/A
MSH-5	Receiving Application		N/A
MSH-7	Date/Time of Message		N/A
MSH-9	Message Type	'ADT^A01', etc.	N/A

MSH Segment	Description	Notes	Database Table:Column
MSH-10	Message Control ID		N/A
MSH-11.1	Processing ID		N/A
MSH-12	Version ID	2.3.1	N/A
MSH-15	Accept ACK Type		N/A

PID Segment	Description	Notes	Database Table:Column
PID-3.1	Patient Identifier List	Allowed to be repeating but only the first repeating item is used.	Patient:MRN
PID-3.4	Issuer of Patient ID		Patient:IssuerTag (FK Issuer.tag). Issuer.IPID will have this value.
PID-4.1	Patient Alternate ID		Study.AlternateID
PID-5.1.1	Patient Name - Family Name		Patient:LastName
PID-5.2	Patient Name - Given Name		Patient:FirstName
PID-5.3	Patient Name - Middle Name		Patient:MiddleName
PID-7	Date Time Of Birth		Patient:Date_Of_Birth
PID-8	Patient Sex		Patient:Sex
PID-10	Race		Patient:Race_ID (FK SelectionItems:ID)
PID-11.1	Patient Address - Street Address		Patient:Address
PID-11.3	Patient Address - City		Patient:City
PID-11.4	Patient Address - State Or Province		Patient:State
PID-11.5	Patient Address - Zip Or Postal Code		Patient:Zip

PID Segment	Description	Notes	Database Table:Column
PID-13.1	Phone Number - Home		Patient:Home_Phone
PID-14.1	Phone Number - Office		Patient:Work_Phone
PID-18.1	Patient Account Number		Study:FinancialNumber
PID-19.1	Social Security Number		Patient:SSN

NK1 Segment	Description	Notes	Database Table:Column
NK1-2.1	Name - Family Name		Patient:Next_Of_Kin
NK1-2.2	Name - Given Name		Patient:Next_Of_Kin
NK1-2.3	Name - Middle Name		Patient:Next_Of_Kin
NK1-5.1	Phone Number		Patient:Kin_Phone
NK1-30.1	Contact Person's Name - Family Name		Patient:Local_Contact
NK1-30.2	Contact Person's Name - Given Name		Patient:Local_Contact
NK1-30.3	Contact Person's Name - Middle Name		Patient:Local_Contact
NK1-31.1	Contact Person's Telephone Number		Patient:Contact_Phone

PV1 Segment	Description	Notes	Database Table:Column
PV1-2.1	Patient Class		Study:PatientClass
PV1-3.2	Assigned Patient Location - Room		Study:RoomNumber
PV1-7.1	Attending Doctor - ID Number	Sys Config > Edit Personnel > Hospital Id field must match this value Initial MD	Personnel:Hospital_ID Study:Case_ID (FK StudyStaff:Case_ID) StudyStaff:Person_ID (FK Personnel:Person_ID)
PV1-7.2	Attending Doctor - Family Name		Personnel:Last_Name
PV1-7.3	Attending Doctor - Given Name		Personnel:First_Name

PV1 Segment	Description	Notes	Database Table:Column
PV1-7.4	Attending Doctor - Middle Name		Personnel:Middle_Name
PV1-7.7	Attending Doctor - Degree		Personnel:Degree
PV1-8.1	Referring Doctor - ID Number	Sys Config > Edit Personnel > Hospital Id field must match this value	Personnel:Hospital_ID Study:Case_ID (FK StudyStaff:CaseID) StudyStaff:ReferringMD_ID (FK Personnel:Person_ID)
PV1-8.2	Referring Doctor - Family Name		Personnel>Last_Name
PV1-8.3	Referring Doctor - Given Name		Personnel:First_Name
PV1-8.4	Referring Doctor - Middle Name		Personnel:Middle_Name
PV1-8.7	Referring Doctor - Degree		Personnel:Degree
PV1-19.1	Visit Number		Study:VisitNumber
PV1-44	Admit Date Time	If missing, the admit date and time will be set to the current date and time.	Study:AdmitDate

IN1 Segment	Description	Notes	Database Table:Column
IN1-2.2	Insurance Plan ID		Patient:Third_Party_Number
IN1-4.1	Insurance Company Name		Patient:Third_Party

IN2 Segment	Description	Notes	Database Table:Column
IN2-6	Medicare Health Insurance Card Number		Patient:Medicare
IN2-8	Medicaid Case Number		Patient:Medicaid

NOTE: AL1 data is not immediately saved to the Hemo database table fields identified below. The data is saved to those fields when the user presses the **Get HIS Allergies** button on the **History > Allergies** tab for a study.

AL1 Segment	Description	Notes	Database Table:Column
AL1-3.1	Allergy Code	Send Active Allergies only	StudyAllergy.AllergyID (FK Allergy.tag)
AL1-3.2	Allergy Description		StudyAllergy.AIText
AL1-5	Allergy Reaction		StudyAllergy.Reaction

MRG Segment	Description	Notes	Database Table:Column
MRG-1.1	PriorPatientIdentifierList	Allowed to be repeating but only the first repeating item is used.	N/A
MRG-1.4	Issuer of Patient ID	IPID	N/A

ORM Message Segment Definition

For **MSH**, **PID**, **PV1**, and **AL1** segments, refer to **“ADT Message Segment Definition” on page 12.**

NOTE: The HL7 Interface supports single order only per order message.

ORC Segment	Description	Comment	Database Table:Column
ORC-1	Order Control	Supported Order Control values: New Order (NW) Order Cancel (CA) Order Cancelled (OC)	N/A

OBR Segment	Description	Notes	Database Table:Column
OBR-2.1	Placer Order Number		Study:PlacerOrderNumber
OBR-3.1	Accession Number		Study:AccessionNumber
OBR-4.1	Universal Service ID - Identifier		UniversalService:UniversalServiceID_ID Study:UniversalServiceTag (FK UniversalService:tag)
OBR-4.2	Universal Service ID - Text		UniversalService:UniversalServiceID_Text
OBR-16.1	Ordering Doctor - ID	Sys Config > Edit Personnel > Hospital Id field must match this value	Personnel:Hospital_ID Study:OrderingMD_ID (FK Personnel:Person_ID)
OBR-16.2	Ordering Doctor - Family Name		Personnel:Last_Name
OBR-16.3	Ordering Doctor - Given Name		Personnel:First_Name
OBR-16.4	Ordering Doctor - Middle Name		Personnel:Middle_Name
OBR-16.7	Ordering Doctor - Degree		Personnel:Degree
OBR-24	Diagnostic Service Section ID	Used to filter order messages so that only those directed to the Cath Lab are processed by the HL7 Interface. <u>MUST</u> be set to the value of 'CTH'.	N/A
OBR-27.4	Quantity Timing - Start Date Time		Study:Scheduled_Start

NOTE: ZPL is a non-standard HL7 segment. It is used to provide additional information for Merge Hemo and to differentiate between departments in a multi-facility/department location.

ZPL Segment	Description	Comment	Database Table:Column
ZPL-2	Case Number		Study.CaseNumber
ZPL-3	Department Code	Needed for multi-department sites. If not supplied, and multi-department, study will be scheduled for "Unassigned" department.	Study.FacilityDepartmentTag (FK - FacilityDepartment.tag) linked via FacilityDepartment.HL7DepartmentCode

ORU (Laboratory Results) Message Segment Support

For MSH and PV1 segments, refer to [“ADT Message Segment Definition” on page 12.](#)

PID Segment	Description	Notes	Database Table:Column
PID-3.1	Patient ID (Internal ID)		HI7_Observation_Value:Patient_MRN
PID-5.1	Patient Name - Family Name		N/A
PID-5.2	Patient Name - Given Name		N/A
PID-7	Date and Time of Birth		N/A
PID-8	Sex		N/A
PID-19	Social Security Number		N/A

OBR Segment	Description	Notes	Database Table:Column
OBR-2.1	Placer Order Number		
OBR-3.1	Accession Number		Study:AccessionNumber
OBR-4.1	Universal Service ID - Identifier		
OBR-4.2	Universal Service ID - Text		
OBR-7	Observation Date and Time	Date format: YYYYMMDDHHMMSS. If this value is not present then each OBX-14 must have a value. This will be used if value in OBX-14 is empty.	HI7_Observation_Value:Observation_Date

OBX Segment	Description	Notes	Database Table:Column
OBX-1	Set ID		N/A
OBX-2	Value Type		N/A
OBX-3.1	Observation Identifier - Identifier	A list is of identifiers must be provided to configure the HL7 Interface	HI7_Msg_Obs_Code:Msg_Obs_Code
OBX-5	Observation Value		HI7_Observation_Value:Observation_Value StudyLab table (each supported lab result value is stored in the appropriate field in this table when the lab results are incorporated in a study)
OBX-6.1	Units - Identifier	A list is of identifiers must be provided to configure the HL7 Interface	HL7_Observation_Value:Observation_ID (FK HL7_MSG_OBS_CODE:ID) HL7_MSG_OBS_CODE:MSG_OBS_CODE
OBX-7	References Range		HI7_Observation_Value:Reference_Range

OBX Segment	Description	Notes	Database Table:Column
OBX-8	Abnormal Flag		HI7_Observation_Value:Abnormal_Flag
OBX-14	Date/Time of Observation	Date format: YYYYMMDDHHMMSS. If this value is not present then each OBR-7 must have a value.	HI7_Observation_Value:Observation_Date
OBX-15.1	Producer's ID - Identifier		HI7_Observation_Value:Producer_Id
OBX-15.2	Producer's ID - Text		HI7_Observation_Value:Producer_Id_Text
OBX-16.1	Responsible Observer - ID Number		HI7_Observation_Value:Responsible_Observer_Id
OBX-16.2	Responsible Observer - Family Name		HI7_Observation_Value:Responsible_Observer_Lastname
OBX-16.3	Responsible Observer - First Name		HI7_Observation_Value:Responsible_Observer_Firstname
OBX-17.1	Observation Method - Identifier		HI7_Observation_Value:Observation_Method_Id
OBX-17.2	Observation Method - Text		HI7_Observation_Value:Observation_Method_Text

DFT Message Segment Support

For MSH and PID segments, refer to “[ADT Message Segment Definition](#)” on page 12.

NOTE: The HL7 Interface supports single order only per order message.

FT1 Segment	Description	Notes	Database Table:Column
FT1-4.1	Transaction Date Time		
FT1-6.1	Transaction Type	ISS/V for issue; CRD/R for credit (future)	
FT1-7.1	Item ID	Must match the Hemo database Inventory.PartNumber field	

Other Message Types and Segments

The HL7 Interface will discard HL7 messages with message types other than those outlined above, unless specified elsewhere. Segments that do not contain any of the specified necessary or optional fields are also ignored. If possible, the HIS or interface engine should filter messages that are not supported by HL7 Interface to minimize the number of messages it has to receive, process, and ultimately discard.

Outbound Supported Messages

Text vs PDF Outbound Options

Merge Hemo has several options of sending study reports to the HIS in an HL7 ORU message.

- **Text:** a text file is sent to the HL7 system embedded in the OBX-5 segment.
- **PDF Link:** the PDF will be output to a file name and location specified in the **HL7OutboundReportFilename** and **HL7OutboundReportLocation** settings, respectively. After creating the PDF file at the specified location, the path to the PDF is sent to the HL7 system in the OBX-5 segment.
- **PDF Direct:** a PDF file is created and sent using a web service. This web service sends the PDF to the supported EMR.

Ensure the following are in place if **PDF Direct** functionality is desired:

- Supported EMR
- Merge Cardio Application Server with Merge web service and EMR web service installed
- **PDF Share:** the PDF will be output to a file name and location specified in the **HL7OutboundReportFilename** and **HL7OutboundReportLocation** settings, respectively.
- **PDF to HL7:** the PDF will be embedded into the OBX-5 segment of the HL7 message in a base64 encoded format and sent to the HL7 system.

Only one of these options can be enabled per department.

File Naming Convention of the External PDF

External PDF file naming is flexible to meet the customer's needs. The file name is defined using a mix of hard-coded strings and placeholders. Placeholders are removed and replaced with information from the study or patient when the file is saved. Refer to the System Management chapter of the Merge Hemo 10.0 User Manual for more information.

An example file name might be John Jimmie Jones.pdf.

File Share

The external PDF is written to the external file share using the credentials of the user logged on to the Merge Hemo application. The Hospital IT department should give write permissions for that file share to the personnel having responsibility for sending case reports. It is recommended to add the Merge Hemo Users Active Directory group.

HL7 Escape Sequence Conversion

Special characters or delimiters which are not allowed in the content of HL7 messages are converted into escape sequences. The HL7 escape sequence conversions are listed below.

- replace escape character '\' with \E\
- replace field separator '|' with \F\
- replace component separator '^' with \S\
- replace repetition character '~' with \R\
- replace '&' string with \T\

NOTE: An example ORU message for a system configured for returning the UNC Path to an external PDF is shown in the Appendix.

The backslash characters are part of Microsoft Windows convention for specifying a server name (e.g., \\MyServer). In addition, backslash characters are defined as HL7 delimiters. According to the HL7 standard, the Merge Hemo HL7 interface will add the appropriate HL7 escape sequence for backslashes as part of the string returned.

For example, if the PDF was stored on \\Myserver\Reports share with a naming convention of [PatientName].pdf, the value returned in OBX-5 for the UNC path would be \\E\Myserver\E\Reports\E\John Jimmie Jones.pdf.

Message Types Supported

Message Type	Description
ORU^R01	Report (Case/Procedure)
MDM^T02	Report (Case/Procedure)

Message Processing Description

When a Case/Procedure report is verified in the hemodynamics application, the HL7 Interface will send either an ORU^R01 or MDM^T02 to HIS as configured.

Message Grammar

This section describes the default structure of the HL7 Interface supported messages. The following notation applies:

[] Can have '0' of these items

{ } Can have 'n' number of these items

Optional and repeating fields are allowed provided that use of these structures does not conflict with other requirements stated in this specification.

General Structure of the Message

Message Type	Event Type	Message
ORU	R01	MSH PID PV1 OBR {OBX} [DSC] [ZPL]
MDM	T02	MSH EVN PID PV1 TXA {OBX} [ZPL]

Message Segment Definition

The following section describes the segments and fields supported by the HL7 Interface. Values shown in **bold** are required. Optional fields are not bolded.

MDM (Case Report) Message Segment Definition

NOTE: The HL7 Interface supports either ORU^R01 or MDM^T02, but not both for a given implementation.

MSH Segment	Description	Notes	Database Table:Column
MSH-1	Field Separator	" "	N/A
MSH-2	Encoding Characters	"^~\&"	N/A
MSH-3	Sending Application	Merge Hemo	N/A
MSH-4	Sending Facility	Merge Hemo	N/A
MSH-5	Receiving Application		N/A
MSH-7	Date/Time of Message	Current date/time. Date format: YYYYMMDDHHMMSS.	N/A
MSH-9	Message Type	"ORU^R01"	N/A
MSH-10	Message Control ID	System generated. Unique identifier.	N/A
MSH-11.1	Processing ID	"P"	N/A

MSH Segment	Description	Notes	Database Table:Column
MSH-12	Version ID	"2.3"	N/A
MSH-15	Accept ACK Type	AL	N/A

EVN Segment	Description	Notes	Database Table:Column
EVN-2	Recorded Date/Time		N/A

PID Segment	Description	Notes	Database Table:Column
PID-3.1	Patient Identifier List		Patient:MRN
PID-3.4	Issuer of Patient ID		Patient:IssuerTag (FK Issuer.tag). Issuer.IPID will have this value.
PID-4.1	Patient Alternate ID		Study.AlternateID
PID-5.1	Patient Name - FamilyName		Patient:LastName
PID-5.2	Patient Name - GivenName		Patient:FirstName
PID-5.3	Patient Name - Middle Name		Patient:MiddleName
PID-7.1	Date Time of Birth		Patient:Date_Of_Birth
PID-8.1	Patient Sex		Patient:Sex
PID-10.1	Race		Patient:Race_ID (FK SelectionItems:ID)
PID-11.1	Patient Address - Street Address		Patient:Address
PID-11.3	Patient Address - City		Patient:City
PID-11.4	Patient Address - State or Province		Patient:State
PID-11.5	Patient Address - Zip or Postal code		Patient:Zip

PID Segment	Description	Notes	Database Table:Column
PID-13.1	Phone Number - Home		Patient:Home_Phone
PID-14.1	Phone Number - Office		Patient:Work_Phone
PID-18.1	Patient Account Number		Study:FinancialNumber
PID-19.1	Social Security Number		Patient:SSN

PV1 Segment	Description	Notes	Database Table:Column
PV1-2.1	Patient Class		Study:PatientClass
PV1-3.2	Assigned Patient Location - Room		Study:RoomNumber
PV1-7.1	Attending doctor - ID Number	Sys Config > Edit Personnel > Hospital Id field must match this value Initial MD	Personnel:Hospital_ID Study:Case_ID (FK StudyStaff:Case_ID) StudyStaff:Person_ID (FK Personnel:Person_ID)
PV1-7.2	Attending doctor - Family Name		Personnel:Last_Name
PV1-7.3	Attending doctor - Given Name		Personnel:First_Name
PV1-7.4	Attending doctor - Middle Name		Personnel:Middle_Name
PV1-7.7	Attending doctor - Degree		Personnel:Degree
PV1-8.1	Referring doctor - ID Number	Sys Config > Edit Personnel > Hospital Id field must match this value	Personnel:Hospital_ID Study:Case_ID (FK StudyStaff:CaseID) StudyStaff:ReferringMD_ID (FK Personnel:Person_ID)
PV1-8.2	Referring doctor - Family Name		Personnel:Last_Name
PV1-8.3	Referring doctor - Given Name		Personnel:First_Name
PV1-8.4	Referring doctor - Middle Name		Personnel:Middle_Name
PV1-8.7	Referring doctor - Degree		Personnel:Degree

PV1 Segment	Description	Notes	Database Table:Column
PV1-19.1	Visit Number		Study:VisitNumber
PV1-44	Admit Date & Time	If missing, the admit date and time will be set to the current date and time. Date format: YYYYMMDDHHMMSS	Study:AdmitDate

TXA Segment	Description	Notes	Database Table:Column
TXA-1	Set ID-TXA	1	N/A
TXA-2	Document Type	CR = Case Report	N/A
TXA-3	Document Content Presentation	FT = Formatted text	N/A
TXA-4	Activity Date/Time		Study:Cath_Date
TXA-5	Primary Activity Provider Code/Name		Study:Case_ID (FK StudyStaff:Case_ID) StudyStaff:Person_ID
TXA-12	Unique Document Number		Study:Case_ID
TXA-14	Placer Order Number		Study:PlacerOrderNumber
TXA-17	Document Completion Status	AU = Authenticated	
TXA-22.1	Authentication Person, Time Stamp - ID number		Personnel:Hospital_ID Study:Case_ID (FK StudyStaff:Case_ID) StudyStaff:Person_ID (FK Personnel:Person_ID) Personnel: Hospital_ID
TXA-22.2	Authentication Person, Time Stamp - Family Name		Personnel:Last_Name

TXA Segment	Description	Notes	Database Table:Column
TXA-22.3	Authentication Person, Time Stamp - Given Name		Personnel:First_Name
TXA-22.15	Authentication Person, Time Stamp - Date/Time Action Performed		Current Date and Time

The OBX segment encapsulates the entire text of the verified report. HL7 Interface supports three options: (1) one OBX segment containing the whole report; (2) one OBX segment per line; (3) configurable number of bytes per OBX segment.

OBX Segment	Description	Notes	Database Table:Column
OBX-1	Set ID		N/A
OBX-2	Value Type	Value is set to "TX"	N/A
OBX-5	Observation Data		HIS_TextReports:Text
OBX-11	Observation Status	Value is set to "F"	N/A

NOTE: ZPL is a non-standard HL7 segment. It is used to provide additional information for Hemo and to differentiate between departments in a multi-facility/department location.

ZPL Segment	Description	Notes	Database Table:Column
ZPL-2	Case Number		Study.CaseNumber
ZPL-3	Department Code	Needed for multi-department sites. If not supplied, and multi-department, study will be scheduled for "Unassigned" department.	Study.FacilityDepartmentTag (FK - FacilityDepartment.tag) linked via FacilityDepartment.HL7DepartmentCode

ORU (Case Report) Message Segment Definition

For **MSH**, **PID**, **PV1**, **OBX** and **ZPL** segments definition, refer to “**MDM (Case Report) Message Segment Definition**” on page 24.

NOTE: The HL7 Interface supports either ORU^R01 or MDM^T02, but not both for a given implementation.

OBR Segment	Description	Notes	Database Table:Column
OBR-2.1	Placer Order Number		Study:PlacerOrderNumber
OBR-3.1	Accession Number		Study:AccessionNumber
OBR-4.1	Universal Service ID - Identifier		UniversalService:UniversalServiceID_ID Study:UniversalServiceTag (FK UniversalService:tag)
OBR-4.2	Universal Service ID - Text		UniversalService:UniversalServiceID_Text
OBR-6	Requested Date & Time	Scheduled date for cath Date format: YYYYMMDDHHMMSS.	Study:Scheduled_Start
OBR-7	Observation Date & Time	Date cath was performed Date format: YYYYMMDDHHMMSS	Study:CathDate
OBR-16.1	Ordering Doctor - ID		Personnel:Hospital_ID Study:OrderingMD_ID (FK Personnel:Person_ID)
OBR-16.2	Ordering Doctor - Family Name		Personnel>Last_Name
OBR-16.3	Ordering Doctor - Given Name		Personnel:First_Name
OBR-22	Report Results/Status Change Date	Date format: YYYYMMDDHHMMSS This is the date the report is verified/confirmed	Current Date and Time

OBR Segment	Description	Notes	Database Table:Column
OBR-25	Status/Correction Flag	Used to determine whether or not it is the first time the result has been uploaded. If the result message is a subsequent result, then this field will have value of 'C', otherwise it is empty signaling the first time the result has been uploaded.	
OBR-27.4	Quantity Timing - Start Date/Time	Scheduled date for cath Date format: YYYYMMDDHHMMSS.	Study:Scheduled_Start
OBR-32.1.1	Sending Person - ID	The clinical user running the record station who sends the report.	Personnel:Hospital_ID Study:Case_ID (FK StudyStaff:Case_ID) StudyStaff:Person_ID (FK Personnel:Person_ID) Personnel: Hospital_ID
OBR-32.1.2	Sending Person - Family Name		Personnel:Last_Name
OBR-32.1.3	Sending Person - Given Name		Personnel:First_Name

Other Message Types and Segments

The HL7 Interface will discard HL7 messages with message types other than those outlined above. Segments that do not contain any of the specified necessary or optional fields are also ignored.

Message Filtering

If possible, the HIS or interface engine should filter messages that are not supported by HL7 Interface to minimize the number of messages it has to receive, process, and ultimately discard.

Laboratory Results ID And Unit ID

In order to correctly process laboratory results, the identifiers used by HIS to identify the laboratory result (OBX-3.1) as well as the units (OBX-6.1) must be provided and must contain a value, even for labs such as INR that represent a ratio. The Lab values provided in OBX-5 must be numeric. The Merge Hemo application will not process values that contain non numeric characters (e.g., > 2.10).

The Laboratory Result units in OBX-6.1 are independently set from the units displayed in the application and will not appear to the user. Lab Reference Ranges are set in the Merge Hemo application, and will not be read from HL7. These ranges are static and will be applied to all patient types, regardless of gender or age.

The following table shows the defaults used by HL7 Interface.

Laboratory Result Name	Default Identifiers Recognized by the HL7 Interface (OBX-3.1)	Default Units Recognized by the HL7 Interface (OBX-6.1)
Activated clotting time - Pre	ActPre	sec
Activated clotting time - Post	ActPost	sec
Alanine aminotransferase	Alt	U/L
Aspartate aniotransferase	Ast	U/L
Blood Urea Nitrogen	BUN	mg/dL
c Reactive Protein	cRP	mg/dL
Calcium	Ca	mg/dL
Carbon dioxide	CO2	meq/L
Chloride	Cl	meq/L
Cholesterol	Cholesterol	mg/dL
Creatinine	Creat	mg/dL
Creatine phosphokinase	CPK	iu/L
Creatine phosphokinase-MB	CPKMB	iu/L
Glucose	GLU	mg/dL
Glycated Hemoglobin	A1c	%
Hematocrit	HCT	%
Hemoglobin	Hgb	g/dL
High Density Lipoprotein	HDL	mg/dL
International Normalized Ratio	INR	ratio of PT
Lactate dehydrogenase	LDH	U/L

Laboratory Result Name	Default Identifiers Recognized by the HL7 Interface (OBX-3.1)	Default Units Recognized by the HL7 Interface (OBX-6.1)
Low Density Lipoprotein	LDL	mg/dL
Partial Thromboplastin Time	PTT	Sec
Platelet count	Plat	th/mm3
Potassium	K	meq/L
Prothrombin time	PT	Sec
Red Blood Cell count	RBC	mil/mm3
Sodium	Na	meq/L
Triglycerides	Triglycerides	mg/dL
Troponin I	Troponin	ng/ml
Troponin T	TroponinT	ng/ml
White Blood Cell count	WBC	th/mm3

saved\.\br\16:21 Static Image 4 saved\.\br\16:21 Catheter was removed.\.\br\16:23 The Avanti Sheath 11cm,
 7F, Cordis J\T\J was sutured in place in the Fem \.\br\Art (right).\.\br\16:23 Sterile dressing applied to
 site.\.\br\16:23 End Case record created.\.\br\16:24 Recorded in condition 1: AOp.\.\br\10:03 Case
 recovered\.\br\14:17 Case Report Printed\.\br\14:18 Case Report Printed\.\br\14:20 Case Report
 Printed\.\br\ENDCASE\.\br\A total of 250 mL's of Iovue-370 was used. 225 mL's of contrast was
 \.\br\administered to the patient leaving 25 mL's wasted. \.\br\11.5 minutes total fluoro time. \.\br\Patient
 transferred to Floor.\.\br\Interventional outcome was
 successful\.\br\.\br\Equipment\.\br\.\br\Mfg.\X09\Description\X09\Size\X09\Barcode\.\br\.\br\Cordis
 J\T\J\X09\Avanti Sheath 11cm\X09\7F\X09\504607X\.\br\Cordis J\T\J\X09\JL4 Guide\X09\7F\X09\778-
 081-00\.\br\Scimed\X09\Choice XS\X09\014X300\X09\12119-
 01J\.\br\ACS\X09\Gemini\X09\2.5X30\X09\+H512100291530XX\.\br\.\br\Medications\.\br\.\br\.\br\In
 Lab\X09\11/12/2002 15:56\X09\VERSED\X09\2.00 mg\X09\.\br\In Lab\X09\11/12/2002
 15:56\X09\NITROGLYCERINE S/L\X09\50.00 mg\X09\.\br\In Lab\X09\11/12/2002
 15:56\X09\XYLOCAINE\X09\30.00 mL\X09\.\br\Patient History \.\br\.\br\Patient is a male weighing 220.0
 pounds and is 5 feet, 10 inches tall.\.\br\.\br\On Going Assessments\.\br\.\br\
 Date\X09\Time\X09\BP\X09\HR\X09\SpO2\X09\Resp.\X09\Temp.\X09\ACT\X09\Comments \.\br\11/12/
 2002\X09\15:58\X09\122/88 \X09\80\X09\98\X09\--\X09\--\X09\--\X09\.\br\11/12/2002\X09\16:13\X09\125/
 80 \X09\88\X09\96\X09\--\X09\--\X09\--\X09\.\br\.\br\Initial Assessments\.\br\.\br\Respiratory
 comment:\.\br\ \.\br\.\br\Rate\.\br\14\.\br\BPM\.\br\TV:\.\br\ \.\br\IMV:\.\br\ \.\br\FIO2:\.\br\
 \.\br\SpO2\.\br\98\.\br\percent\.\br\PEEP:\.\br\ \.\br\PS:\.\br\
 \.\br\.\br\O2\.\br\4\.\br\LPM\.\br\.\br\.\br\

\.\br\ \.\br\PTCA PROCEDURE Cath Date: 11/12/
 2002\X09\MRN: 04040433\X09\9\.\br\|F]

Sample Outbound ORU^R01 (Result) Message (Multiple OBX Segments)

```

MSH|^~\&|HS-
HEMODYNAMICS^"^^"||Hemodynamics^"^^"||HIS||20060118113431||ORU^R01|06011811343132980244|
P|2.3||AL|
PID|||111111||Lastname^Firstname||19680708000000|M|||12345 Somewhere
Ave^^Ottawa^ON^90504||(111)111-1111|(222)222-2222|||ACT111|111111111|
PV1||"^^"RM1|||111111^Attending^Firstname|22222^Referring^Firstname|"|||||VID111"|||||2003
1101140400|
OBR||PON111222||12345^Cath||20060111143000|"|||||55555^Ordering^Firstname|"|||||20060111143910|
|"|||||11111&Attending&Firstname|
OBX|1|TX||Cardiac Catheterization Report|"||||F|
OBX|2|TX|"||||F|
OBX|8|TX||vendor|"||||F|
OBX|9|TX||at|"||||F|
OBX|10|TX|"||||F|
OBX|11|TX||809C South Mouse Ave."||||F|
OBX|12|TX||Winter Park, FL 32789|"||||F|
OBX|13|TX|"||||F|
OBX|17|TX||General|"||||F|
OBX|18|TX|| Patient Information:""||||F|
OBX|19|TX||Patient:""||||F|
OBX|20|TX||PROCEDURE PTCA|"||||F|
OBX|21|TX||DOB:""||||F|
OBX|22|TX||02/02/1950|"||||F|
OBX|23|TX||Sex:""||||F|
OBX|24|TX||M|"||||F|
OBX|25|TX||SSN:""||||F|
OBX|26|TX||123-45-6789|"||||F|
OBX|27|TX|"||||F|
OBX|28|TX||Age:""||||F|
OBX|29|TX||52 Years|"||||F|
OBX|30|TX||Room No:""||||F|
OBX|31|TX||"||||F|
OBX|37|TX|| Case Information:""||||F|
OBX|38|TX|"||||F|
OBX|42|TX||Mrn:""||||F|
OBX|43|TX||04040433|"||||F|
OBX|44|TX||Admit Date:""||||F|
OBX|45|TX||11/12/2002|"||||F|
OBX|46|TX||Hospital No.:""||||F|
OBX|47|TX||1|"||||F|
OBX|48|TX||Date of Procedure:""||||F|
OBX|49|TX||11/12/2002|"||||F|
OBX|50|TX||Time:""||||F|
OBX|51|TX||15:55|"||||F|
OBX|52|TX||Disc No:""||||F|

```

OBX|53|TX|||0|||||F|
 OBX|54|TX|||Case No:|||||F|
 OBX|55|TX|||56423|||||F|
 OBX|56|TX|||Scheduled Time:|||||F|
 OBX|57|TX|||00:04|||||F|
 OBX|58|TX|||Frame/Side No:|||||F|
 OBX|59|TX||| |||||F|
 OBX|60|TX|||Protocol No:|||||F|
 OBX|61|TX||| |||||F|
 OBX|62|TX|||Financial No.:|||||F|
 OBX|63|TX|||567457|||||F|
 OBX|64|TX|||Lab No:|||||F|
 OBX|65|TX|||1|||||F|
 OBX|67|TX|||||||F|
 OBX|68|TX|||Patient Status:|||||F|
 OBX|69|TX|||urgent|||||F|
 OBX|70|TX|||Physician:|||||F|
 OBX|71|TX|||test Zdoctor|||||F|
 OBX|73|TX|||||||F|
 OBX|74|TX||| Procedures:|||||F|
 OBX|75|TX|||IV site check Forearm (left)\X09\Sheath Insertion Fem Art (right)|||||F|
 OBX|76|TX|||Guide Cath Insert Fem Art (right)\X09\Coronary Angiogram LCA|||||F|
 OBX|77|TX|||PTCA wire insertion Fem Art (right)\X09\Balloon Insertion Fem Art (right)|||||F|
 OBX|78|TX|||PTCA LAD Mid\X09\Sheath sutured Fem Art (right)|||||F| OBX|79|TX|||||||F|
 OBX|80|TX|||*****|||||F|
 OBX|81|TX|||*****|||||F|
 OBX|84|TX|||||||F|
 OBX|85|TX|||Patient Information|||||F|
 OBX|86|TX|||Capitated Pricing:|||||F|
 OBX|87|TX||| No|||||F|
 OBX|88|TX||| |||||F|
 OBX|90|TX|||Street Address|||||F|
 OBX|91|TX|||City|||||F|
 OBX|92|TX|||St.|||||F|
 OBX|93|TX|||Zip|||||F|
 OBX|94|TX||| Street Address|||||F|
 OBX|95|TX||| City|||||F|
 OBX|96|TX||| |||||F|
 OBX|97|TX||| Zip|||||F|
 OBX|98|TX|||||||F|
 OBX|99|TX|||Home Phone #|||||F|
 OBX|100|TX|||Work Phone #|||||F|
 OBX|101|TX||| |||||F|
 OBX|104|TX|||Next of Kin|||||F|
 OBX|105|TX|||Kin Phone #|||||F|
 OBX|106|TX||| |||||F|
 OBX|109|TX|||Local Contact|||||F|
 OBX|110|TX|||Contact Phone #|||||F|
 OBX|111|TX||| |||||F|
 OBX|114|TX|||Insurance|||||F|

OBX|115|TX|||||||F|
 OBX|116|TX|||Medicare #|||||F|
 OBX|117|TX|||Medicaid #|||||F|
 OBX|118|TX||| |||||F|
 OBX|121|TX|||Third Party|||||F|
 OBX|122|TX|||Party #|||||F|
 OBX|123|TX||| |||||F|
 OBX|126|TX|||Staff|||||F|
 OBX|127|TX|||||||F|
 OBX|128|TX|||Referring Physician:|||||F|
 OBX|129|TX||| |||||F|
 OBX|131|TX|||Assisting Physician(s):|||||F|
 OBX|140|TX|||||||F|
 OBX|141|TX|||Fellow(s):|||||F|
 OBX|142|TX||| |||||F|
 OBX|149|TX||| \X096x|||||F|
 OBX|150|TX|||||||F|
 OBX|151|TX|||Scrub:|||||F|
 OBX|152|TX||| |||||F|
 OBX|153|TX|||X-ray:|||||F|
 OBX|154|TX||| |||||F|
 OBX|155|TX|||Record:|||||F|
 OBX|156|TX||| Staff, One|||||F|
 OBX|157|TX|||Other:|||||F|
 OBX|158|TX||| |||||F|
 OBX|159|TX|||Circulating:|||||F|
 OBX|160|TX||| |||||F|
 OBX|164|TX|||_____|||||F|
 OBX|165|TX|||Chronological Log (Military Time)|||||F|
 OBX|166|TX|||||||F|
 OBX|168|TX|||15:55 Patient Arrival Time (Pt. in proc room)|||||F|
 OBX|169|TX|||15:55 Initial Case assessment performed.|||||F|
 OBX|170|TX|||15:55 Consent signed and verified.|||||F|
 OBX|171|TX|||15:56 A 22g IV was noted in the Forearm (left).|||||F|
 OBX|172|TX|||15:56 MD notified|||||F|
 OBX|173|TX|||15:56 MD arrived|||||F|
 OBX|174|TX|||15:56 2.000 mg VERSED via Peripheral IV by Staff, One.|||||F|
 OBX|175|TX|||15:56 Patient complaining of chest pain.|||||F|
 OBX|176|TX|||15:56 50.000 mg NITROGLYCERINE S/L via Sublingual by Staff, One.|||||F|
 OBX|177|TX|||15:56 30.000 cc XYLOCAINE via Subcutaneous by Zdoctor, test.|||||F|
 OBX|178|TX|||15:56 Avanti Sheath 11cm, 7F, Cordis J\TJ|||||F|
 OBX|179|TX|||15:57 JL4 Guide, 7F, Cordis J\TJ|||||F|
 OBX|180|TX|||15:57 Choice XS, 014X300, Scimed|||||F|
 OBX|181|TX|||15:57 Gemini, 2.5X30, ACS|||||F|
 OBX|182|TX|||15:58 BP 122/88 HR 80 SaO2 98.0|||||F|
 OBX|183|TX|||15:58 A Avanti Sheath 11cm, 7F, Cordis J\TJ was advanced into the Fem Art |||||F|
 OBX|184|TX|||(right) using the Modified Seldinger technique.|||||F|
 OBX|185|TX|||15:58 A JL4 Guide, 7F, Cordis J\TJ was advanced over a wire.|||||F|
 OBX|186|TX|||16:13 BP 125/80 HR 88 SaO2 96.0|||||F|
 OBX|187|TX|||16:14 Recorded in condition 1: AO.|||||F|

OBX|188|TX|||16:19 The LCA was injected and visualized.|||||F|
 OBX|189|TX|||16:19 A Choice XS, 014X300, Scimed was introduced through the JL4 Guide, 7F, |||||F|
 OBX|190|TX|||Cordis J\T\J.|||||F|
 OBX|191|TX|||16:20 A Gemini, 2.5X30, ACS was inserted over a Choice XS, 014X300, Scimed .|||||F|
 OBX|192|TX|||16:20 The LAD Mid had a Gemini, 2.5X30, ACS positioned which was deployed to |||||F|
 OBX|193|TX|||14ATM for 60seconds.|||||F|
 OBX|194|TX|||16:20 Balloon removed.|||||F|
 OBX|195|TX|||16:21 Wire removed.|||||F|
 OBX|196|TX|||16:21 The LCA was injected and visualized.|||||F|
 OBX|197|TX|||16:21 Static Image 1 saved|||||F|
 OBX|198|TX|||16:21 Static Image 2 saved|||||F|
 OBX|199|TX|||16:21 Static Image 3 saved|||||F|
 OBX|200|TX|||16:21 Static Image 4 saved|||||F|
 OBX|201|TX|||16:21 Catheter was removed.|||||F|
 OBX|202|TX|||16:23 The Avanti Sheath 11cm, 7F, Cordis J\T\J was sutured in place in the Fem |||||F|
 OBX|203|TX|||Art (right).|||||F|
 OBX|204|TX|||16:23 Sterile dressing applied to site.|||||F|
 OBX|205|TX|||16:23 End Case record created.|||||F|
 OBX|206|TX|||16:24 Recorded in condition 1: AOp.|||||F|
 OBX|207|TX|||10:03 Case recovered|||||F|
 OBX|208|TX|||14:17 Case Report Printed|||||F|
 OBX|209|TX|||14:18 Case Report Printed|||||F|
 OBX|210|TX|||14:20 Case Report Printed|||||F|
 OBX|211|TX|||ENDCASE|||||F|
 OBX|212|TX|||A total of 250 mL's of Isovue-370 was used. 225 mL's of contrast was |||||F|
 OBX|213|TX|||administered to the patient leaving 25 mL's wasted. |||||F|
 OBX|214|TX|||11.5 minutes total fluro time. |||||F|
 OBX|215|TX|||Patient transferred to Floor.|||||F|
 OBX|216|TX|||Interventional outcome was successful|||||F|
 OBX|217|TX||| |||||F|
 OBX|219|TX|||Equipment|||||F|
 OBX|220|TX||| |||||F|
 OBX|221|TX|||Mfg.\X09\Description\X09\Size\X09\Barcode|||||F|
 OBX|222|TX||| |||||F|
 OBX|223|TX|||Cordis J\T\J\X09\Avanti Sheath 11cm\X09\7F\X09\504607X|||||F|
 OBX|224|TX|||Cordis J\T\J\X09\JL4 Guide\X09\7F\X09\778-081-00|||||F|
 OBX|225|TX|||Scimed\X09\Choice XS\X09\014X300\X09\12119-01J|||||F|
 OBX|226|TX|||ACS\X09\Gemini\X09\2.5X30\X09\+H512100291530XX|||||F|
 OBX|227|TX||| |||||F|
 OBX|229|TX|||Medications|||||F|
 OBX|230|TX||| |||||F|
 OBX|232|TX|||In Lab\X09\11/12/2002 15:56\X09\VERSED\X09\2.00 mg\X09\|||||F|
 OBX|233|TX|||In Lab\X09\11/12/2002 15:56\X09\NITROGLYCERINE S/L\X09\50.00 mg\X09\|||||F|
 OBX|234|TX|||In Lab\X09\11/12/2002 15:56\X09\XYLOCAINE\X09\30.00 mL\X09\|||||F|
 OBX|235|TX|||Patient History |||||F|
 OBX|236|TX||| |||||F|
 OBX|237|TX|||Patient is a male weighing 220.0 pounds and is 5 feet, 10 inches tall.|||||F|
 OBX|238|TX||| |||||F|
 OBX|240|TX|||On Going Assessments|||||F|
 OBX|241|TX||| |||||F|

OBX|242|TX||
 Date\X09\Time\X09\BP\X09\HR\X09\SpO2\X09\Resp.\X09\Temp.\X09\ACT\X09\Comments |||||F|
 OBX|243|TX|||11/12/2002\X09\15:58\X09\122/88 \X09\80\X09\98\X09\--\X09\--\X09\--\X09\|||F|
 OBX|244|TX|||11/12/2002\X09\16:13\X09\125/80 \X09\88\X09\96\X09\--\X09\--\X09\--\X09\|||F|
 OBX|245|TX|||||F|
 OBX|247|TX|||Initial Assessments|||||F|
 OBX|248|TX|||||F|
 OBX|249|TX|||Respiratory comment:|||||F|
 OBX|250|TX||| |||||F|
 OBX|252|TX|||Rate|||||F|
 OBX|253|TX|||14|||||F|
 OBX|254|TX|||BPM|||||F|
 OBX|255|TX|||TV:|||||F|
 OBX|256|TX||| |||||F|
 OBX|257|TX|||IMV:|||||F|
 OBX|258|TX||| |||||F|
 OBX|259|TX|||FIO2:|||||F|
 OBX|260|TX||| |||||F|
 OBX|261|TX|||SpO2|||||F|
 OBX|262|TX|||98|||||F|
 OBX|263|TX|||percent|||||F|
 OBX|264|TX|||PEEP:|||||F|
 OBX|265|TX||| |||||F|
 OBX|266|TX|||PS:|||||F|
 OBX|267|TX||| |||||F|
 OBX|270|TX|||O2|||||F|
 OBX|271|TX|||4|||||F|
 OBX|272|TX|||LPM|||||F|
 OBX|273|TX|||||F|
 OBX|275|TX|||_____
 _____|||F|
 OBX|276|TX|||_____|||F|
 OBX|277|TX|||PTCA PROCEDURE Cath Date: 11/12/2002\X09\MRN: 04040433\X09\9|||||F|

\.br\administered to the patient leaving 25 mL's wasted. \.br\11.5 minutes total fluoro time. \.br\Patient transferred to Floor.\.br\Interventional outcome was successful.\.br\.\.br\Equipment\.\.br\Mfg.\X09\Description\X09\Size\X09\Barcode\.\.br\Cordis J\T\J\X09\Avanti Sheath 11cm\X09\7F\X09\504607X\.\.br\Cordis J\T\J\X09\JL4 Guide\X09\7F\X09\778-081-00\.\.br\Scimed\X09\Choice XS\X09\014X300\X09\12119-01J\.\.br\ACS\X09\Gemini\X09\2.5X30\X09\+H512100291530XX\.\.br\.\.br\Medications\.\.br\.\.br\In Lab\X09\11/12/2002 15:56\X09\VERSED\X09\2.00 mg\X09\.\.br\In Lab\X09\11/12/2002 15:56\X09\NITROGLYCERINE S/L\X09\50.00 mg\X09\.\.br\In Lab\X09\11/12/2002 15:56\X09\XYLOCAINE\X09\30.00 mL\X09\.\.br\Patient History \.br\.\.br\Patient is a male weighing 220.0 pounds and is 5 feet, 10 inches tall.\.br\.\.br\On Going Assessments\.\.br\.\.br\Date\X09\Time\X09\BP\X09\HR\X09\SpO2\X09\Resp.\X09\Temp.\X09\ACT\X09\Comments \.br\11/12/2002\X09\15:58\X09\122/88 \X09\80\X09\98\X09\--\X09\--\X09\--\X09\.\.br\11/12/2002\X09\16:13\X09\125/80 \X09\88\X09\96\X09\--\X09\--\X09\--\X09\.\.br\.\.br\Initial Assessments\.\.br\.\.br\Respiratory comment:\.br\ \.br\.\.br\Rate\.\.br\14\.\.br\BPM\.\.br\TV:\.br\ \.br\IMV:\.br\ \.br\FIO2:\.br\ \.br\SpO2\.\.br\98\.\.br\percent\.\.br\PEEP:\.br\ \.br\PS:\.br\ \.br\.\.br\.\.br\O2\.\.br\4\.\.br\LPM\.\.br\.\.br\

\.br_____.br\PTCA PROCEDURE Cath Date: 11/12/2002\X09\MRN: 04040433\X09\9\.\.br\|||||F]

Sample Outbound MDM^T02 (Result) Message (Multiple OBX Segments)

```

MSH|^~\&|HS-
HEMODYNAMICS^""^""|Hemodynamics^""^""|HIS||20060118122820||MDM^T02|06011812282049854460
|P|2.3||AL|
EVN|T02|20060118122820|
PID||111111||Lastname^Firstname||1968070800000|M||12345 Somewhere
Ave^^Ottawa^ON^90504|(111)111-1111|(222)222-2222|||ACT111|111111111|
PV1||""^RM1|||11111^Attending^Firstname|22222^Referring^Firstname|||VID111|||2003
1101140400|
TXA|1|CR|FT|""|151|||1200001CR|""||AU|||11124^Attending24^Firstname24^^^^^^^^^^^^2006011811
2939|
OBX|1|TX||Cardiac Catheterization Report|||F|
OBX|2|TX|||F|
OBX|8|TX||vendor|||F|
OBX|9|TX||at|||F|
OBX|10|TX|||F|
OBX|11|TX||809C South Mouse Ave.|||F|
OBX|12|TX||Winter Park, FL 32789|||F|
OBX|13|TX|||F|
OBX|17|TX||General|||F|
OBX|18|TX|| Patient Information:|||F|
OBX|19|TX||Patient:|||F|
OBX|20|TX||PROCEDURE PTCA|||F|
OBX|21|TX||DOB:|||F|
OBX|22|TX||02/02/1950|||F|
OBX|23|TX||Sex:|||F|
OBX|24|TX||M|||F|
OBX|25|TX||SSN:|||F|
OBX|26|TX||123-45-6789|||F|
OBX|27|TX|||F|
OBX|28|TX||Age:|||F|
OBX|29|TX||52 Years|||F|
OBX|30|TX||Room No:|||F|
OBX|31|TX|| |F|
OBX|37|TX|| Case Information:|||F|
OBX|38|TX|||F|
OBX|42|TX||Mrn:|||F|
OBX|43|TX||04040433|||F|
OBX|44|TX||Admit Date:|||F|
OBX|45|TX||11/12/2002|||F|
OBX|46|TX||Hospital No.:|||F|
OBX|47|TX||1|||F|
OBX|48|TX||Date of Procedure:|||F|
OBX|49|TX||11/12/2002|||F|
OBX|50|TX||Time:|||F|
OBX|51|TX||15:55|||F|

```

OBX|52|TX|||Disc No:|||||F|
 OBX|53|TX|||0|||||F|
 OBX|54|TX|||Case No:|||||F|
 OBX|55|TX|||56423|||||F|
 OBX|56|TX|||Scheduled Time:|||||F|
 OBX|57|TX|||00:04|||||F|
 OBX|58|TX|||Frame/Side No:|||||F|
 OBX|59|TX||| |||||F|
 OBX|60|TX|||Protocol No:|||||F|
 OBX|61|TX||| |||||F|
 OBX|62|TX|||Financial No.:|||||F|
 OBX|63|TX|||567457|||||F|
 OBX|64|TX|||Lab No:|||||F|
 OBX|65|TX|||1|||||F|
 OBX|67|TX|||||||F|
 OBX|68|TX|||Patient Status:|||||F|
 OBX|69|TX|||urgent|||||F|
 OBX|70|TX|||Physician:|||||F|
 OBX|71|TX|||test Zdoctor|||||F|
 OBX|73|TX|||||||F|
 OBX|74|TX||| Procedures:|||||F|
 OBX|75|TX|||IV site check Forearm (left)\X09\Sheath Insertion Fem Art (right)|||||F|
 OBX|76|TX|||Guide Cath Insert Fem Art (right)\X09\Coronary Angiogram LCA|||||F|
 OBX|77|TX|||PTCA wire insertion Fem Art (right)\X09\Balloon Insertion Fem Art (right)|||||F|
 OBX|78|TX|||PTCA LAD Mid\X09\Sheath sutured Fem Art (right)|||||F|
 OBX|79|TX|||||||F|
 OBX|80|TX|||*****|||||F|
 OBX|81|TX|||*****|||||F|
 OBX|82|TX|||||||F|
 OBX|85|TX|||Patient Information|||||F|
 OBX|86|TX|||Capitated Pricing:|||||F|
 OBX|87|TX||| No|||||F|
 OBX|88|TX||| |||||F|
 OBX|90|TX|||Street Address|||||F|
 OBX|91|TX|||City|||||F|
 OBX|92|TX|||St.|||||F|
 OBX|93|TX|||Zip|||||F|
 OBX|94|TX||| Street Address|||||F|
 OBX|95|TX||| City|||||F|
 OBX|96|TX||| |||||F|
 OBX|97|TX||| Zip|||||F|
 OBX|98|TX|||||||F|
 OBX|99|TX|||Home Phone #|||||F|
 OBX|100|TX|||Work Phone #|||||F|
 OBX|101|TX||| |||||F|
 OBX|104|TX|||Next of Kin|||||F|
 OBX|105|TX|||Kin Phone #|||||F|
 OBX|106|TX||| |||||F|
 OBX|109|TX|||Local Contact|||||F|
 OBX|110|TX|||Contact Phone #|||||F|

OBX|111|TX||| |||||F|
 OBX|114|TX||Insurance|||||F|
 OBX|115|TX||| |||||F|
 OBX|116|TX||Medicare #|||||F|
 OBX|117|TX||Medicaid #|||||F|
 OBX|118|TX||| |||||F|
 OBX|121|TX||Third Party|||||F|
 OBX|122|TX||Party #|||||F|
 OBX|123|TX||| |||||F|
 OBX|126|TX||Staff|||||F|
 OBX|127|TX||| |||||F|
 OBX|128|TX||Referring Physician:|||||F|
 OBX|129|TX||| |||||F|
 OBX|130|TX||| |||||F|
 OBX|131|TX||Assisting Physician(s):|||||F|
 OBX|132|TX||| |||||F|
 OBX|141|TX||Fellow(s):|||||F|
 OBX|142|TX||| |||||F|
 OBX|149|TX|| \X096x|||||F|
 OBX|150|TX||| |||||F|
 OBX|151|TX||Scrub:|||||F|
 OBX|152|TX||| |||||F|
 OBX|153|TX||X-ray:|||||F|
 OBX|154|TX||| |||||F|
 OBX|155|TX||Record:|||||F|
 OBX|156|TX|| Staff, One|||||F|
 OBX|157|TX||Other:|||||F|
 OBX|158|TX||| |||||F|
 OBX|159|TX||Circulating:|||||F|
 OBX|160|TX||| |||||F|
 OBX|164|TX|||_____| |||||F|
 OBX|165|TX||Chronological Log (Military Time)|||||F|
 OBX|166|TX||| |||||F|
 OBX|168|TX||15:55 Patient Arrival Time (Pt. in proc room)|||||F|
 OBX|169|TX||15:55 Initial Case assessment performed.|||F|
 OBX|170|TX||15:55 Consent signed and verified.|||F|
 OBX|171|TX||15:56 A 22g IV was noted in the Forearm (left).|||F|
 OBX|172|TX||15:56 MD notified|||F|
 OBX|173|TX||15:56 MD arrived|||F|
 OBX|174|TX||15:56 2.000 mg VERSED via Peripheral IV by Staff, One.|||F|
 OBX|175|TX||15:56 Patient complaining of chest pain.|||F|
 OBX|176|TX||15:56 50.000 mg NITROGLYCERINE S/L via Sublingual by Staff, One.|||F|
 OBX|177|TX||15:56 30.000 cc XYLOCAINE via Subcutaneous by Zdoctor, test.|||F|
 OBX|178|TX||15:56 Avanti Sheath 11cm, 7F, Cordis J\T\J|||F|
 OBX|179|TX||15:57 JL4 Guide, 7F, Cordis J\T\J|||F|
 OBX|180|TX||15:57 Choice XS, 014X300, Scimed|||F|
 OBX|181|TX||15:57 Gemini, 2.5X30, ACS|||F|
 OBX|182|TX||15:58 BP 122/88 HR 80 SaO2 98.0|||F|
 OBX|183|TX||15:58 A Avanti Sheath 11cm, 7F, Cordis J\T\J was advanced into the Fem Art |||F|
 OBX|184|TX|||(right) using the Modified Seldinger technique.|||F|

OBX|185|TX|||15:58 A JL4 Guide, 7F, Cordis J\T\J was advanced over a wire.|||||F|
 OBX|186|TX|||16:13 BP 125/80 HR 88 SaO2 96.0|||||F|
 OBX|187|TX|||16:14 Recorded in condition 1: AO.|||||F|
 OBX|188|TX|||16:19 The LCA was injected and visualized.|||||F|
 OBX|189|TX|||16:19 A Choice XS, 014X300, Scimed was introduced through the JL4 Guide, 7F, |||||F|
 OBX|190|TX|||Cordis J\T\J.|||||F|
 OBX|191|TX|||16:20 A Gemini, 2.5X30, ACS was inserted over a Choice XS, 014X300, Scimed .|||||F|
 OBX|192|TX|||16:20 The LAD Mid had a Gemini, 2.5X30, ACS positioned which was deployed to |||||F|
 OBX|193|TX|||14ATM for 60seconds.|||||F|
 OBX|194|TX|||16:20 Balloon removed.|||||F|
 OBX|195|TX|||16:21 Wire removed.|||||F|
 OBX|196|TX|||16:21 The LCA was injected and visualized.|||||F|
 OBX|197|TX|||16:21 Static Image 1 saved|||||F|
 OBX|198|TX|||16:21 Static Image 2 saved|||||F|
 OBX|199|TX|||16:21 Static Image 3 saved|||||F|
 OBX|200|TX|||16:21 Static Image 4 saved|||||F|
 OBX|201|TX|||16:21 Catheter was removed.|||||F|
 OBX|202|TX|||16:23 The Avanti Sheath 11cm, 7F, Cordis J\T\J was sutured in place in the Fem |||||F|
 OBX|203|TX|||Art (right).|||||F|
 OBX|204|TX|||16:23 Sterile dressing applied to site.|||||F|
 OBX|205|TX|||16:23 End Case record created.|||||F|
 OBX|206|TX|||16:24 Recorded in condition 1: AOp.|||||F|
 OBX|207|TX|||10:03 Case recovered|||||F|
 OBX|208|TX|||14:17 Case Report Printed|||||F|
 OBX|209|TX|||14:18 Case Report Printed|||||F|
 OBX|210|TX|||14:20 Case Report Printed|||||F|
 OBX|211|TX|||ENDCASE|||||F|
 OBX|212|TX|||A total of 250 mL's of Isovue-370 was used. 225 mL's of contrast was |||||F|
 OBX|213|TX|||administered to the patient leaving 25 mL's wasted. |||||F|
 OBX|214|TX|||11.5 minutes total fluoro time. |||||F|
 OBX|215|TX|||Patient transferred to Floor.|||||F|
 OBX|216|TX|||Interventional outcome was successful|||||F|
 OBX|217|TX||| |||||F|
 OBX|219|TX|||Equipment|||||F|
 OBX|220|TX||| |||||F|
 OBX|221|TX|||Mfg.\X09\Description\X09\Size\X09\Barcode|||||F|
 OBX|222|TX||| |||||F|
 OBX|223|TX|||Cordis J\T\J\X09\Avanti Sheath 11cm\X09\7F\X09\504607X|||||F|
 OBX|224|TX|||Cordis J\T\J\X09\JL4 Guide\X09\7F\X09\778-081-00|||||F|
 OBX|225|TX|||Scimed\X09\Choice XS\X09\014X300\X09\12119-01J|||||F|
 OBX|226|TX|||ACS\X09\Gemini\X09\2.5X30\X09\+H512100291530XX|||||F|
 OBX|227|TX||| |||||F|
 OBX|229|TX|||Medications|||||F|
 OBX|230|TX||| |||||F|
 OBX|232|TX|||In Lab\X09\11/12/2002 15:56\X09\VERSED\X09\2.00 mg\X09\|||||F|
 OBX|233|TX|||In Lab\X09\11/12/2002 15:56\X09\NITROGLYCERINE S/L\X09\50.00 mg\X09\|||||F|
 OBX|234|TX|||In Lab\X09\11/12/2002 15:56\X09\XYLOCAINE\X09\30.00 mL\X09\|||||F|
 OBX|235|TX|||Patient History |||||F|
 OBX|236|TX||| |||||F|
 OBX|237|TX|||Patient is a male weighing 220.0 pounds and is 5 feet, 10 inches tall.|||||F|

```

OBX|238|TX|||||||F|
OBX|240|TX|||On Going Assessments|||||F|
OBX|241|TX|||||||F|
OBX|242|TX|||
Date\X09\Time\X09\BP\X09\HR\X09\SpO2\X09\Resp.\X09\Temp.\X09\ACT\X09\Comments |||||F|
OBX|243|TX|||11/12/2002\X09\15:58\X09\122/88 \X09\80\X09\98\X09\--\X09\--\X09\--\X09\|||||F|
OBX|244|TX|||11/12/2002\X09\16:13\X09\125/80 \X09\88\X09\96\X09\--\X09\--\X09\--\X09\|||||F|
OBX|245|TX|||||||F|
OBX|247|TX|||Initial Assessments|||||F|
OBX|248|TX|||||||F|
OBX|249|TX|||Respiratory comment:|||||F|
OBX|250|TX||| |||||F|
OBX|252|TX|||Rate|||||F|
OBX|253|TX|||14|||||F|
OBX|254|TX|||BPM|||||F|
OBX|255|TX|||TV:|||||F|
OBX|256|TX||| |||||F|
OBX|257|TX|||IMV:|||||F|
OBX|258|TX||| |||||F|
OBX|259|TX|||FIO2:|||||F|
OBX|260|TX||| |||||F|
OBX|261|TX|||SpO2|||||F|
OBX|262|TX|||98|||||F|
OBX|263|TX|||percent|||||F|
OBX|264|TX|||PEEP:|||||F|
OBX|265|TX||| |||||F|
OBX|266|TX|||PS:|||||F|
OBX|267|TX||| |||||F|
OBX|270|TX|||O2|||||F|
OBX|271|TX|||4|||||F|
OBX|272|TX|||LPM|||||F|
OBX|273|TX|||||||F|
OBX|275|TX|||_____
_____|||||F|
OBX|276|TX|||_____|||||F|
OBX|277|TX|||PTCA PROCEDURE Cath Date: 11/12/2002\X09\MRN: 04040433\X09\9|||||F|

```

Sample ORU message sending back UNC path to an external PDF of Case Report

```
MSH|^~\&|HS-Hemodynamics|HS-
Hemodynamics|HIS||20111201101948||ORU^R01|11120110194849466295|P|2.3||AL|
PID|||025525689987||Williams^David||19510207000000|M|||||||0|
PV1||O||||1234567^Doctor^Z|||||||||||||20111129000000|
OBR||113020111115||||20111130000000|20111130101400|||||||||20111201084857||C|||||1234567&Doc
tor&Z|
OBX|1|TX||\E\E\phoenix-server\E\HIS_Reports\E\John Jimmie Jones.pdf|||||F|
```

Sample DFT^P03 Message

```
MSH|^~\&|BAXP|BILLING|HCS|001|20130313120510||DFT^P03|00002|P|2.2
EVN|P03|20130313120510
PID|1||111111||Allergy^Albert^Alan^Jr^Mr^MD^A||19680708|M||Caucasian|12345 Somewhere
Ave^^Ottawa^ON^90504-9999^^P|(111)111-1111|(222)222-2222|||ACT111|111111111|||||20120101|Y
PV1|1|^||||
FT1||||20130313||ISS|1005202||1|||||||33556
```

Sample DFT^P03 Message with no MRN

```
MSH|^~\&|BAXP|BILLING|HCS|001|20130313120510||DFT^P03|00002|P|2.2
EVN|P03|20130313120510
PID|1||XXXXXX||Test^DFT||19630414|M||Caucasian|1313 Mockingbird
Lane^^Gotham^NY^10101|||||0332300109
PV1|1|^||||
FT1||||20130313||ISS|1005202||1|||||||33556
```

Sample DFT^P03 Message with no MRN and no Inventory Item

```
MSH|^~\&|BAXP|BILLING|HCS|001|20130313120510||DFT^P03|00002|P|2.2
EVN|P03|20130313120510
PID|1||||Test^DFT||19630414|M||Caucasian|1313 Mockingbird Lane^^Gotham^NY^10101|||||0332300109
PV1|1|^||||
FT1||||20130313||ISS|000117||1|||||||33556
```

Sample DFT^P03 Message with no Inventory Item

MSH|^~\&|BAXP|BILLING|HCS|001|20130313120510||DFT^P03|00002|P|2.2

EVN|P03|20130313120510

PID|1||111111||Allergy^Albert^Alan^Jr^Mr^MD^A||19680708|M||Caucasian|12345 Somewhere
Ave^^Ottawa^ON^90504-9999^^P||(111)111-1111|(222)222-2222||||ACT111|111111111|||||||20120101|Y

PV1|1|^||||

FT1||||20130313||ISS|000117||1|||||||33556