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This document contains a description of the HL7 interface that Endosoft currently supports, using the HL7 protocol standard in communicating with Hospital Information System (HIS) for the purpose of exchanging health care data. This interface specification is subject to modification and/or revision to incorporate changes, improvement, and enhancements.

Contact ENDOSOFT for any information regarding interface support for new messages, features that may have been added to the interfaces, but not yet documented in these specifications.
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</table>
General Specifications

Standard (Preferred) Interface Specifications

Connectivity: Network
Protocol: TCP/IP sockets (using Minimum Lower Layer Protocol)
Record format: HL7 Version 2.2 or 2.3 or 2.5

Methods and examples:
Send/Receive real-time, individual messages with acknowledgement of each message received before next message is sent. Supported messages include those for ADT, outbound billing/charges/results, and inbound Scheduling.
Typically one socket/port number is dedicated to messages being sent in the same direction (i.e., inbound/outbound) and to/from the same IP address (e.g., typically the same vendor). Acknowledgements for received messages are transmitted back on the same socket/port they were received on.

For example, at one facility, incoming ADT and incoming order/Scheduling messages from the same vendor could share one socket, while outgoing billing/charges/results messages to that vendor (i.e., an IP address) would use a second socket.

Other options ADT/
SCHEDULING Batch file (if TCP/IP protocol cannot be used as above)

Record format: HL7 version 2.2 or 2.3 or 2.5 "batch file" for possible but less desirable mat preferred; custom formats Method: Batch file creation on network drive or external drive

Standard Incoming or Outgoing Message Types
Our standard interface uses typical HL7 Version 2.2 or 2.3 or 2.5 records, messages, fields, definitions and processing rules. This document will detail how we use HL7, particularly which messages are used and which fields are required/optional.

The remaining documentation is organized as follows:

- General HL7 definitions and rules, as implemented by our standard interfaces
- HL7 Messages and their segment combinations, as supported by our standard interfaces
- Detailed information about each support segment, including field descriptions and requirements

**General HL7 Definitions and Rules**

**Sending and Receiving Systems; Inbound and Outbound Messages**

In this document, the system transmitting a message may be referred to as the "sender" or "sending/pitcher/pitching" system and the system receiving and acknowledging the message as the "receiver" or "receiving/catcher/catching" system. Messages sent by an ENDOSOFT interface may be referred to as "outbound" messages and those being received by an ENDOSOFT interface may be referred to as "inbound" messages. Therefore, the terms "inbound" and "outbound" will refer to the direction of message travel from ENDOSOFT's perspective.

**HL7 Messages**

A "message" is considered the minimal unit of data transferred between systems using HL7. For example, an admission transaction would be sent as an HL7 "ADT" message. Messages are comprised of two or more "segments" that act as building blocks for each message. Messages are delimited by a "start block" (HEX 0b ...or... ASCII / decimal 11) and an "end block" (HEX 1c plus HEX 0d ...or.... ASCII/decimal 28 plus ASCII/decimal 13). Also, see that each segment is terminated by an 0x0D (13) character.

Conceptual example:

```
<Hex 0b><HL7 Message segments><Hex 1c><Hex 0d>
```

**HL7 Segments**

HL7 messages are comprised of several HL7 segments. Examples of segments include: the "message header segment", "patient identification segment", "Patient
visit segment" and "financial transaction segment" segments, among many others. Each message is terminated by Hex 0d (decimal 13; the "carriage return" character).

Conceptual example:

```<Hex 0b>
<Message header segment><Hex 0d>
<Event segment><Hex 0d>
<Patient Id segment><Hex 0d>
<Patient visit segment><Hex 0d>
<Diagnosis segment><Hex 0d>
<Allergy segment><Hex 0d>
<Hex 1c><Hex 0d>
```

Optional segments and fields will be enclosed in brackets [ ] e.g., [AL1] indicates that the allergy segment is optional. Some segments may, on an optional basis, be repeated within the message. Repeating message options will be displayed with curly brackets { }. For example, {AL1} indicates that the allergy segment may be repeated if needed. These may also be combined, e.g., [{AL1}] indicates the allergy segment is optional and that it may be repeated if needed.

Some of the messages outlined below do not list all possible standard HL7 segments. These "unlisted" segments can be included within inbound HL7 messages, but will be ignored by the ENDOSOFT interface. Unlisted segments are assumed to be optional, and will not be included in outbound transactions unless the vendor contacts ENDOSOFT to make other arrangements.

**Fields**

Each segment begins with a unique 3-byte message identifier field (e.g., MSH for "message header", PID for "patient identification", etc.). Subsequent fields within the same segment are separated from one another by the field separator character, the "pipe" symbol, "|".

```e.g., PID|field2|field3|field4|.....etc.|<Hex 0d>
```

Fields are transmitted as character strings. Refer to the "Data Types" table below for a listing of the types of data found in the fields. Although field lengths are listed in the message and segment definition tables below, the interface will not "pad" the field with spaces when sending messages. Although the interface can receive fields padded with spaces, the sending system is **not** required to pad fields with spaces. If fields are blank (e.g., PID|| i.e., field separators with nothing between them) then the sender has no new value for these fields and any previous values in the receiver’s system should be left "as is". If the sender transmits two double quote marks as a field value (e.g., |""|), this null value should signal the receiving system to remove any previously held value. If all remaining fields in a segment have no data (and are all optional), the sending system may drop them and terminate the segment at that point. The receiving system should treat dropped fields as blank.

**Field Components and Subcomponents**

A few HL7 fields are defined as having more than one portion, each of which is separated by a component separator, "^". These field types are called "composite" fields. For example, the patient’s name field is usually sent as several components:

```
"....|last_name^first_name^initial^^|...."
```
Blank components are shown with two component separators with nothing between them: "^^". If all remaining components in a field definition have no data and are optional, the sending system may drop them. The receiving system should treat dropped components as blank.

Occasionally, components may divided into subcomponents, separated by the subcomponent separator, "&". Rules for their use are similar to those for the component separator.

The interface will usually not further subdivide fields below the "component" level unless otherwise noted. However, refer to standard HL7 documentation for standard subcomponent (and below) definitions if desired.

**Data Types**

The Data Type Category will appear in subsequent field definition tables to identify the format of the field or its components.

### Composites

- **ST** -- String
- **EI** -- Entity Identifier
- **IS** -- Coded value for user-defined tables
- **ID** -- Coded values for HL7 tables
- **TS** -- Time stamp
- **CM_MSH** -- MSH Event-Type Composite
- **PT** -- Processing Type
- **NM** -- Numeric
- **CE** -- Coded Element
- **XCN** -- Extended composite ID number and name
- **HD** -- Hierarchic Designator
- **SI** -- Sequence ID
- **CX** -- Extended composite ID with check digit
- **XPN** -- Extended person name
- **XAD** -- Extended Address
- **XTN** -- Extended telecommunications number
- **DLN** -- Driver's License Number
- **DT** -- Date
- **XON** -- Extended composite name and ID number
- **JCC** -- Job code/class
- **PL** -- Person location
- **FC** -- Financial class
- **CM** -- Composite - discouraged
- **CP** -- Composite Price
- **MO** -- Money
- **TQ** -- Timing/quantity
- **CQ** -- Composite Quantity with Units
- **TX** -- Text data
- **FT** -- Formatted text
- **Diagnosis Code** -- Coding

**Field Requirements**
In this documentation, fields will be marked as follows:

R = required,
O= Optional,
C = Conditional (if used, these will be explained) and
B = included for backwards compatibility with previous versions.

Unlisted standard HL7 fields are to be considered optional.

Receiver Processing Rules

The receiver should ignore any "extra" segments, fields, components, and subcomponents (i.e., that were transmitted but were not expected by the receiving system). The receiver should treat segments that were expected, but not present, as consisting entirely of fields that are blank. The receiver should treat fields, components and subcomponents that are expected, but not included in a segment, as blank.

The receiver should send one "ACK" (acknowledgement) message to the sender, following receipt of each message, as follows. After the receiver has received a properly delimited message, the receiver should process the message. If the receiver is unable to process the message because of improper message format, missing required field data, or the like, the receiver should send back an HL7 acknowledgement message (ACK) containing an MSA segment, with field #1 containing the value "AE" (application error).

HL7 Messages Supported by Our Standard Interfaces

Admission Messages

The "ADT" message type will be used for admission/patient demographic information from the hospital system to the ENDOSOFT database. Several (incoming) admission events are supported by the interface. Many admission messages share the same message format. When a subsequent message shares the same segment combinations as a previous one, the user will be directed to refer to the earlier message for more detail. The "trigger event" or "event" code (e.g., A01 = admit) found in the Message Header Segment and in the Event Segment define the type of admission message (admission, transfer, discharge, etc.). These will be discussed in the "HL7 Message Segment Detail" section of this documentation.

ADT - Admit a patient (A01)

An "admit patient" message (A01 "event") is used for "Admitted" patients only. These messages are sent as a result of patients beginning their stay in the healthcare facility. Normally, this information is entered in the hospital information system and broadcast to nursing units and ancillary systems. A admission message (A01 event) should be used to notify the ENDOSOFT database of a patient’s arrival in the healthcare facility.
ADT - Transfer a Patient (A02)

A "transfer patient" message (A02 event) should be sent to the interface when a patient is transferred to another ward, room or bed.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSH</td>
<td>Message Header</td>
</tr>
<tr>
<td>EVN</td>
<td>Event Type</td>
</tr>
<tr>
<td>PID</td>
<td>Patient Identification</td>
</tr>
<tr>
<td>PV1</td>
<td>Patient Visit</td>
</tr>
</tbody>
</table>

ADT - Discharge/End Visit (A03)

A "discharge patient" or "end visit" message (A03 event) should be sent when an inpatient’s stay in the healthcare facility is ended, or an outpatient or emergency room visit is ended. It signals that the patient’s status has changed to "discharged", that a discharge date/time has been assigned, and that the patient no longer requires services normally provided through the pharmacy database.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSH</td>
<td>Message Header</td>
</tr>
<tr>
<td>EVN</td>
<td>Event Type</td>
</tr>
<tr>
<td>PID</td>
<td>Patient Identification</td>
</tr>
<tr>
<td>PV1</td>
<td>Patient Visit</td>
</tr>
</tbody>
</table>

ADT - Register an Outpatient/ER Patient (A04)

A "register patient" message (A04 event) signals that the patient has arrived or checked in as an outpatient, recurring outpatient, or emergency room patient. Note: Users may be able to configure their system to process, or not process (ignore), some (or all) outpatient and emergency room registrations; in either case an "application accept" acknowledgement will be returned to the sender. This message uses the same segments as the "admit patient" (A01) message.

ADT - Pre-admit a Patient (A05)

A "pre-admission" message (A05 event) is sent to notify the interface of a patient pre-admission process. This message can also be used to pre-register an outpatient or emergency room patient. Note: Users may be able to configure their system to
process, or not process (ignore), this message type; in either case an "application accept" acknowledgement will be returned to the sender. This message uses the same segments as the "admit patient" (A01) message.

ADT - Change an Outpatient to an Inpatient (A06)

A "change outpatient to inpatient" message (A06 event) is sent when an outpatient or ER patient is being admitted as an inpatient. This message should signal the interface to changes a patient’s status from outpatient/ER to inpatient/admitted. If a patient is pre-registered (not registered) as an outpatient and then admitted as an inpatient, an "admission" message (A01 event) should be sent instead. This message uses the same segments as the "admit patient" (A01) message.

ADT - Change an Inpatient to an Outpatient (A07)

A "change inpatient to outpatient" message (A07 event) is sent when an inpatient becomes an outpatient and is still receiving care/services. This message uses the same segments as the "admit patient" (A01) message.

ADT - Update Patient Information (A08)

This message (A08 event) is used when any patient information has changed but when no other ADT event has occurred. For example, visit information updates. This message uses the same segments as the "admit patient" (A01) message.

ADT - Cancel Admission (A11)

For inpatients, the "cancel admission" message (A11 event) is sent when an earlier "admission" message (A01 event) is canceled, either because of an erroneous entry or because of a revised decision to not admit the patient. For outpatients/ER patients, the message is sent when an earlier "register outpatient" message (A04 event) is canceled for similar reasons. If the patient has orders on file, the patient will be discharged by the application. If no orders are on file, the patient's record will be deleted. This message uses the same segments as the "discharge patient" (A03) message.

ADT - Cancel Transfer (A12)

The "cancel transfer" message (A12 event) is intended to reverse an earlier "transfer" message, either because of an erroneous entry or because of a revised decision to not transfer the patient. This message uses the same segments as the "transfer patient" (A02) message and, for inbound messages, is treated as a second transfer.

ADT - Cancel Discharge (A13)
The "cancel discharge" message (A13 event) is sent when an earlier "discharge patient" message (A03 event) is canceled, either because of erroneous entry or because of a revised decision to not discharge, or end the visit of, the patient. This message uses the same segments as the "admit patient" (A01) message.

**ADT - Swap Patients (A17)**

The "swap patients" message (A17 event) is used to identify two patients that have exchanged beds. The interface will process inbound A17 events, but does not support this event for outbound messages.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSH</td>
<td>Message Header</td>
</tr>
<tr>
<td>EVN</td>
<td>Event Type</td>
</tr>
<tr>
<td>PID</td>
<td>Patient Identification (patient #1)</td>
</tr>
<tr>
<td>PV1</td>
<td>Patient Visit (patient #1)</td>
</tr>
<tr>
<td>PID</td>
<td>Patient Identification (patient #2)</td>
</tr>
<tr>
<td>PV1</td>
<td>Patient Visit (patient #2)</td>
</tr>
</tbody>
</table>

**ADT - Merge Records (A18)**

For inbound messages, the "merge records" message (A18 event) is used to combine two patient records into one. This may be used if a second, unwanted record for the same patient has been created accidentally by the other system. The interface does not support A18 events for outbound messages. [Note: To update patient medical record numbers, the interface sends outbound A36 event messages; to update patient account number, outbound A35 event messages are sent.]

<table>
<thead>
<tr>
<th>Segment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSH</td>
<td>Message Header</td>
</tr>
<tr>
<td>EVN</td>
<td>Event Type</td>
</tr>
<tr>
<td>PID</td>
<td>Patient Identification</td>
</tr>
<tr>
<td>MRG</td>
<td>Merge Information</td>
</tr>
<tr>
<td>PV1</td>
<td>Patient Visit</td>
</tr>
</tbody>
</table>

**ADT - Delete Record (A23)**

The "delete record" message (A23 event) is recognized by the interface for inbound messages and processed in the same manner as a "cancel admission" (A11 event) message. The "delete record" (A23) event is not supported for outbound ADT messages.

This message uses the same segments as the "discharge patient" (A03) message.

**ADT - Update Person (A31)**
The "update person" message (A31 event) is recognized by the interface for inbound messages and processed in the same manner as a "update patient information" (A08 event) message.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSH</td>
<td>Message Header</td>
</tr>
<tr>
<td>EVN</td>
<td>Event Type</td>
</tr>
<tr>
<td>PID</td>
<td>Patient Identification</td>
</tr>
<tr>
<td>PV1</td>
<td>Patient Visit</td>
</tr>
</tbody>
</table>

**ADT - Change Patient Account Number (A35)**

The "change account number" (A35 event) is used to update the patient's account number. This might be used if a patient record is entered with an incorrect account number.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSH</td>
<td>Message Header</td>
</tr>
<tr>
<td>EVN</td>
<td>Event Type</td>
</tr>
<tr>
<td>PID</td>
<td>Patient Identification</td>
</tr>
<tr>
<td>MRG</td>
<td>Merge Information</td>
</tr>
</tbody>
</table>

**ADT - Change Medical Record No and Account No (A36)**

The "change medical record no and account no" (A36 event) may be used to update the patient's medical record number and/or account number. This message uses that same segments as the "change patient account number".

**ADT - Merge two Patients based on internal patient id (A40 event)**

<table>
<thead>
<tr>
<th>Segment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSH</td>
<td>Message Header</td>
</tr>
<tr>
<td>EVN</td>
<td>Event Type</td>
</tr>
<tr>
<td>PID</td>
<td>Patient Identification</td>
</tr>
<tr>
<td>MRG</td>
<td>Merge Information</td>
</tr>
</tbody>
</table>

**Financial Messages (Out Bound)**

The DFT (Detailed Financial Transaction) message type is used to transmit charges from Endosoft to (hospital) financial system.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFT</td>
<td>Detailed Financial Transaction message</td>
</tr>
</tbody>
</table>
In this section of the documentation, we will detail the various HL7 segments that may be combined to form the messages supported by the interface. The section documents the fields that make up each of the message segments, and field requirements. Some detailed information will be provided regarding required fields, but optional fields will not usually be explained in detail. Fields that are listed in a table but not described/defined following the table, are not supported or used by the interface at this time.

The start block and end block characters that delimit each message (as discussed earlier) will not be included in the message descriptions below, but are nevertheless required for working interfaces. In addition, the carriage return character that terminates each segment will also not be included in the descriptions, but are also required for working interfaces.

**Segment ID**

Each segment must be preceded with an appropriate, unique 3 byte segment identifier (Segment ID). Although not treated as (or sequentially counted as) an official HL7 field, the segment ID is listed first in each of the following segment definition tables for easier reference.
**MSH - Message Header Segment**

The MSH segment is required for all messages and will always be the first Segment in the message. Thus every message will have at least two segments.

<table>
<thead>
<tr>
<th>Name</th>
<th>DataType</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Separator</td>
<td>ST</td>
<td>YES</td>
</tr>
<tr>
<td>Encoding Characters</td>
<td>ST</td>
<td>YES</td>
</tr>
<tr>
<td>Sending Application</td>
<td>EI</td>
<td></td>
</tr>
<tr>
<td>Sending Facility</td>
<td>EI</td>
<td></td>
</tr>
<tr>
<td>Receiving Application</td>
<td>EI</td>
<td></td>
</tr>
<tr>
<td>Receiving Facility</td>
<td>EI</td>
<td></td>
</tr>
<tr>
<td>Date/Time of Message</td>
<td>DT</td>
<td></td>
</tr>
<tr>
<td>Security</td>
<td>ST</td>
<td></td>
</tr>
<tr>
<td>Message Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Message Control ID</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Processing ID</td>
<td>PT</td>
<td></td>
</tr>
<tr>
<td>Version ID</td>
<td>ID</td>
<td>YES</td>
</tr>
<tr>
<td>Sequence Number</td>
<td>NM</td>
<td></td>
</tr>
</tbody>
</table>
14 Continuation Pointer ST
15 Accept Acknowledgement Type ID
16 Application Acknowledgement Type ID
17 Country Code ID
18 Character Set ID
19 Principal Language of Message CE

Field separator

This field contains the separator between the segment ID and the first real field. It serves as the separator and defines the character to be used as a field separator for the rest of the message. The interface will always use "|" (ASCII/decimal 124).

Encoding characters

This field contains four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. The interface uses "^^\&" respectively.

Sending application

This field defines which application sent the message. For messages sent by our standard interfaces, this will be "ENDOSOFT". For messages received by the interfaces, this field should be the other application’s ID.

Sending facility

This field defines which facility sent the message. For messages sent by the our interface, this will be user defined and unique to each installation. The other application should use the same "sending facility" ID to send messages to the interface. The "sending" and "receiving" facility should be the same.

Receiving application

This field uniquely identifies the receiving application among all other applications on the network. The other application vendor should define this.

Receiving facility

This field should be the same as the "Sending facility" (above).

Date/time of message

This field contains the date/time that the message was created in the date/time format: YYYYMMDDHHMM [SS]. The "seconds" portion is optional.
Message type

This is a composite field which includes 2 components: `<message type> ^ <trigger event>`
Message types are always 3 bytes and are required components. The message types used by the interface include:

<table>
<thead>
<tr>
<th>Message Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACK</td>
<td>General acknowledgment</td>
</tr>
<tr>
<td>ADT</td>
<td>ADT message (patient admission, discharge, transfer, and etc.)</td>
</tr>
<tr>
<td>DFT</td>
<td>Detailed financial transaction (billing transaction)</td>
</tr>
</tbody>
</table>

Trigger events are always 3 bytes. Trigger event codes also appear in the EVN (event) segment which is used to process many ADT messages. Recognized trigger events include:

**Trigger Event Types**

<table>
<thead>
<tr>
<th>Trigger Event</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01</td>
<td>Admit a patient</td>
</tr>
<tr>
<td>A02</td>
<td>Transfer a patient</td>
</tr>
<tr>
<td>A03</td>
<td>Discharge a patient</td>
</tr>
<tr>
<td>A04</td>
<td>Register an Outpatient</td>
</tr>
<tr>
<td>A05</td>
<td>Preadmit a patient</td>
</tr>
<tr>
<td>A06</td>
<td>Change an Outpatient to Inpatient</td>
</tr>
<tr>
<td>A07</td>
<td>Inpatient to outpatient &quot;transfer&quot;</td>
</tr>
<tr>
<td>A08</td>
<td>Update patient information</td>
</tr>
<tr>
<td>A11</td>
<td>Cancel admission</td>
</tr>
<tr>
<td>A12</td>
<td>Cancel transfer</td>
</tr>
<tr>
<td>A13</td>
<td>Cancel discharge</td>
</tr>
<tr>
<td>A17</td>
<td>Swap patients</td>
</tr>
<tr>
<td>A23</td>
<td>Delete a patient record</td>
</tr>
<tr>
<td>A36</td>
<td>Medical record number change</td>
</tr>
<tr>
<td>A40</td>
<td>Merge two Patients based on internal patient id</td>
</tr>
</tbody>
</table>

Message control ID

This field contains a value that uniquely identifies the message. The receiving system should echo this ID back to the sending system in the ACK message’s MSA segment. If a message is re-sent for any reason, the message control id will remain the same for each transmission of the identical message.

Processing ID

P = Production
Version ID
This is the HL7 version number in use. The interface will use version "2.3" or 2.5 in this field

MSA - message acknowledgment segment

The MSA segment is part of the "ACK" message type and is used to acknowledge a previously received message.

<table>
<thead>
<tr>
<th>Seq</th>
<th>Len</th>
<th>Fmt</th>
<th>Opt</th>
<th>Element Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
<td>R</td>
<td></td>
<td>Segment ID = &quot;MSH&quot;</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>ID</td>
<td>R</td>
<td>Acknowledgment Code</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
<td>ST</td>
<td>R</td>
<td>Message Control ID</td>
</tr>
<tr>
<td>3</td>
<td>80</td>
<td>ST</td>
<td>O</td>
<td>Text Message</td>
</tr>
<tr>
<td>4</td>
<td>15</td>
<td>NM</td>
<td>O</td>
<td>Expected Sequence Number</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>ID</td>
<td>O</td>
<td>Delayed Acknowledgment Type</td>
</tr>
<tr>
<td>6</td>
<td>100</td>
<td>CE</td>
<td>O</td>
<td>Error Condition</td>
</tr>
</tbody>
</table>

Acknowledgment code

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>Application Accept</td>
</tr>
<tr>
<td>AE</td>
<td>Application Error</td>
</tr>
</tbody>
</table>

Message control ID

This field contains the same message control ID that was in the message created by the sending system. It allows the sending system to match the response to the original message.

Text message

This optional field further describes an error condition.

Admissions Message Segments

PID - patient identification segment

The PID segment contains information about the patient, and is used to specifically identify the patient in the Endosoft database.

PID -- Patient Identification
### Patient ID (Internal ID)

This field should contain the patient's medical record number. This number should be the same each time the same patient is admitted/registered and is a required field in ENDOSOFT database. The interface will use this field a secondary identifier for the most recent admission (patient account number, field sequence #18, will be the primary identifier - see below). This field could be used by the interface to locate previous admission/order data for the patient.

### Patient name

This field contains one or more components. Family name and Given name is required field. The last two components (suffix and prefix) are not used by the interface and will be ignored.

```
family name (20) ^ <given name (12)> ^ <middle initial or name> ^ <suffix> ^ <prefix>
```
Date/Time of birth

This field contains the patient’s date of birth (YYYYMMDD). DateofBirth is a required field.

Patient address

Although this field is optional, it is highly desirable for outpatient registrations/admissions. The field components and subcomponents include:
<street address> ^ <2nd street address line> ^ <city> ^ <state> ^ <zip/postal code> ^ <country> ^ 

Phone number – home

Although this field is optional, it is highly desirable for outpatient registrations/admissions. The area code is required. Format: Components: 9999999999

Patient account number

This field contains the unique patient account number assigned by the hospital for each admission/registration. If the same patient is admitted/registered again, the number should be different each time.

E VN - event type segment

The EVN segment specifies the type of event contained within the message. Not all HL7 messages will include the EVN.

<table>
<thead>
<tr>
<th>Name</th>
<th>Data Type</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Event Type Code</td>
<td>ID</td>
<td></td>
</tr>
<tr>
<td>2 Recorded Date/Time</td>
<td>TS</td>
<td>YES</td>
</tr>
<tr>
<td>3 Date/Time Planned Event</td>
<td>TS</td>
<td></td>
</tr>
<tr>
<td>4 Event Reason Code</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>5 Operator ID XCN 6 Event Occurred</td>
<td>TS</td>
<td></td>
</tr>
</tbody>
</table>

Event type code

This field indicates the specific type of message. It is most commonly used to send ADT messages to the interface. This field will contain the same data as the "trigger event" (i.e., the second component of the MSH segment’s "message type" field). Refer to the event table listed in the MSH-"message type" section above.

Recorded date/time
This contains the date and time that the event was triggered on the hospital system. The interface will recognize formats: YYYYMMDDHHMMSS

**MRG -- Merge Patient Information**

<table>
<thead>
<tr>
<th>Name</th>
<th>Data Type</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prior Patient ID - Internal</td>
<td>CX</td>
<td></td>
</tr>
<tr>
<td>2. Prior Alternate Patient ID</td>
<td>CX</td>
<td></td>
</tr>
<tr>
<td>3. Prior Patient Account Number</td>
<td>CX</td>
<td></td>
</tr>
<tr>
<td>4. Prior Patient ID - External</td>
<td>CX</td>
<td></td>
</tr>
<tr>
<td>5. Prior Visit Number</td>
<td>CX</td>
<td></td>
</tr>
<tr>
<td>6. Prior Alternate Visit ID</td>
<td>CX</td>
<td></td>
</tr>
</tbody>
</table>

**PV1 - patient visit segment**

The PV1 segment is used to convey additional information about the patient’s admission/registration that is unique to this visit. This segment can also be used to schedule an appointment in ENDOSOFT

<table>
<thead>
<tr>
<th>Name</th>
<th>Data Type</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Set ID - PV1</td>
<td>SI</td>
<td></td>
</tr>
<tr>
<td>2. Patient Class</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>3. Assigned Patient Location</td>
<td>PL</td>
<td></td>
</tr>
<tr>
<td>4. Admission Type</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>5. Preadmit Number</td>
<td>CX</td>
<td></td>
</tr>
<tr>
<td>6. Prior Patient Location</td>
<td>PL</td>
<td></td>
</tr>
<tr>
<td>7. Attending Doctor</td>
<td>XCN</td>
<td>YES (for scheduling)</td>
</tr>
<tr>
<td>8. Referring Doctor</td>
<td>XCN</td>
<td></td>
</tr>
<tr>
<td>9. Consulting Doctor</td>
<td>XCN</td>
<td></td>
</tr>
<tr>
<td>10. Hospital Service</td>
<td>IS</td>
<td>YES (for scheduling)</td>
</tr>
<tr>
<td>11. Temporary Location</td>
<td>PL</td>
<td></td>
</tr>
<tr>
<td>12. Preadmit Test Indicator</td>
<td>IS</td>
<td>YES (for scheduling)</td>
</tr>
<tr>
<td>13. Readmission Indicator</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>14. Admit Source</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>15. Ambulatory Status</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>16. VIP Indicator</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>17. Admitting Doctor</td>
<td>XCN</td>
<td></td>
</tr>
<tr>
<td>18. Patient Type</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>19. Visit Number</td>
<td>CX</td>
<td></td>
</tr>
<tr>
<td>20. Financial Class</td>
<td>FC</td>
<td></td>
</tr>
<tr>
<td>21. Charge Price Indicator</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>22. Courtesy Code</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>23. Credit Rating</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>24. Contract Code</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>25. Contract Effective Date</td>
<td>DT</td>
<td></td>
</tr>
<tr>
<td>26. Contract Amount</td>
<td>NM</td>
<td></td>
</tr>
<tr>
<td>27. Contract Period</td>
<td>NM</td>
<td></td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
<td>Type</td>
</tr>
<tr>
<td>-------</td>
<td>---------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>28</td>
<td>Interest Code</td>
<td>IS</td>
</tr>
<tr>
<td>29</td>
<td>Transfer to Bad Debt Code</td>
<td>IS</td>
</tr>
<tr>
<td>30</td>
<td>Transfer to Bad Debt Date</td>
<td>DT</td>
</tr>
<tr>
<td>31</td>
<td>Bad Debt Agency Code</td>
<td>IS</td>
</tr>
<tr>
<td>32</td>
<td>Bad Debt Transfer Amount</td>
<td>NM</td>
</tr>
<tr>
<td>33</td>
<td>Bad Debt Recovery Amount</td>
<td>NM</td>
</tr>
<tr>
<td>34</td>
<td>Delete Account Indicator</td>
<td>IS</td>
</tr>
<tr>
<td>35</td>
<td>Delete Account Date</td>
<td>DT</td>
</tr>
<tr>
<td>36</td>
<td>Discharge Disposition</td>
<td>IS</td>
</tr>
<tr>
<td>37</td>
<td>Discharged to Location</td>
<td>CM</td>
</tr>
<tr>
<td>38</td>
<td>Diet Type</td>
<td>IS</td>
</tr>
<tr>
<td>39</td>
<td>Servicing Facility</td>
<td>IS</td>
</tr>
<tr>
<td>40</td>
<td>Bed Status</td>
<td>IS</td>
</tr>
<tr>
<td>41</td>
<td>Account Status</td>
<td>IS</td>
</tr>
<tr>
<td>42</td>
<td>Pending Location</td>
<td>PL</td>
</tr>
<tr>
<td>43</td>
<td>Prior Temporary Location</td>
<td>PL</td>
</tr>
<tr>
<td>44</td>
<td>Admit Date/Time</td>
<td>TS</td>
</tr>
<tr>
<td>45</td>
<td>Discharge Date/Time</td>
<td>TS</td>
</tr>
<tr>
<td>46</td>
<td>Current Patient Balance</td>
<td>NM</td>
</tr>
<tr>
<td>47</td>
<td>Total Charges</td>
<td>NM</td>
</tr>
<tr>
<td>48</td>
<td>Total Adjustments</td>
<td>NM</td>
</tr>
<tr>
<td>49</td>
<td>Total Payments</td>
<td>NM</td>
</tr>
<tr>
<td>50</td>
<td>Alternate Visit ID</td>
<td>CX</td>
</tr>
<tr>
<td>51</td>
<td>Visit Indicator</td>
<td>IS</td>
</tr>
<tr>
<td>52</td>
<td>Other Healthcare Provider</td>
<td>XCN</td>
</tr>
</tbody>
</table>

**Patient class**

Field values:
- E  Emergency
- I  Inpatient
- O  Outpatient
- P  Pre-Admit

**Assigned patient location**

This field identifies the current location of the patient. Components: `<unit> ^ <room> > ^ <bed>`

The first component may be the nursing station or ward. This field should normally be provided for inpatient admissions. The interface may be optionally configured to map certain patient classes or patient types to a pre-defined location, if the hospital/pharmacy system does not provide a location (e.g., map outpatients to a room called "OUTPAT", emergency room patients to "ER", etc.)

**Prior patient location**

For transfers, this field contains the patient’s prior location. Components: `<unit> ^ <room> > ^ <bed>`
Attending doctor

This field contains the attending doctor’s data.
Components: <ID number> ^ <family name> ^ <given name> ^ <middle initial> ^ ^ <degree>

Admitting doctor

This field contains the admitting doctor’s data.
Components: <ID number> ^ <family name> ^ <given name> ^ <middle initial> ^ ^ <degree>

Patient type

This field will be used to pass hospital specific patient types to the interface. For example, if the patient class is "O" (outpatient),

**AL1 - Patient Allergy Information(Optional)**

The AL1 segment is used to transmit one patient Allergies to the interface. Additional AL1 segments are sent for separate Allergies.

<table>
<thead>
<tr>
<th>Name</th>
<th>Data Type</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1        Set ID - AL1</td>
<td>SI</td>
<td>□</td>
</tr>
<tr>
<td>2        Allergy Type</td>
<td>IS</td>
<td>□</td>
</tr>
<tr>
<td>3        Allergy Code/Mnemonic/ Description</td>
<td>CE</td>
<td>□</td>
</tr>
<tr>
<td>4        Allergy Severity</td>
<td>IS</td>
<td>□</td>
</tr>
<tr>
<td>5        Allergy Reaction</td>
<td>ST</td>
<td>□</td>
</tr>
<tr>
<td>6        Identification Date</td>
<td>DT</td>
<td>□</td>
</tr>
</tbody>
</table>

**Allergy Type**

This field contains the allergy type for the patient.

**Allergy Description**

This field describes the allergy.

**DG1 - diagnosis segment (Optional)**

The DG1 segment is used to transmit one patient diagnosis to the interface. Additional DG1 segments are sent for separate diagnoses. If there is a new diagnosis, or a change in any of the diagnoses, they should all be resent to the interface.
<table>
<thead>
<tr>
<th>Name</th>
<th>Data Type</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Set ID - DG1</td>
<td>SI</td>
<td></td>
</tr>
<tr>
<td>2  Diagnosis Coding Method</td>
<td>ID</td>
<td></td>
</tr>
<tr>
<td>3  Diagnosis Code</td>
<td>Diagnosis Code</td>
<td></td>
</tr>
<tr>
<td>4  Diagnosis Description</td>
<td>ST</td>
<td></td>
</tr>
<tr>
<td>5  Diagnosis Date/Time</td>
<td>TS</td>
<td></td>
</tr>
<tr>
<td>6  Diagnosis Type</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>7  Major Diagnostic Category</td>
<td>CE</td>
<td></td>
</tr>
<tr>
<td>8  Diagnostic Related Group</td>
<td>CE</td>
<td></td>
</tr>
<tr>
<td>9  DRG Approval Indicator</td>
<td>ID</td>
<td></td>
</tr>
<tr>
<td>10 DRG Grouper Review Code</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>11 Outlier Type</td>
<td>CE</td>
<td></td>
</tr>
<tr>
<td>12 Outlier Days</td>
<td>NM</td>
<td></td>
</tr>
<tr>
<td>13 Outlier Cost</td>
<td>CP</td>
<td></td>
</tr>
<tr>
<td>14 Grouper Version and Type</td>
<td>ST</td>
<td></td>
</tr>
<tr>
<td>15 Diagnosis Priority</td>
<td>NM</td>
<td></td>
</tr>
<tr>
<td>16 Diagnosing Clinician</td>
<td>XCN</td>
<td></td>
</tr>
<tr>
<td>17 Diagnosis Classification</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>18 Confidential Indicator</td>
<td>ID</td>
<td></td>
</tr>
<tr>
<td>19 Attestation Date/Time</td>
<td>TS</td>
<td></td>
</tr>
</tbody>
</table>

**Diagnosis coding method**

ICD9 is the only valid coding system supported by the interface. This field should contain "I9" if the diagnosis is an ICD9 coded diagnosis. Otherwise, the field should be omitted. **Diagnosis code**

If the ICD9 code is available, it should be placed here.

**IN1 - Insurance Segment (IN1)**

The IN1 segment contains insurance policy coverage information necessary to produce properly pro-rated patient and insurance bills. If Insurance information is available for a patient, it should be present in IN1 segment. IN1 segment can be repeating segment if patient has more than one insurance policy.

**IN1 Fields**

<table>
<thead>
<tr>
<th>Name</th>
<th>Data Type</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN1-1</td>
<td>SI</td>
<td></td>
</tr>
<tr>
<td>IN1-2</td>
<td>CE</td>
<td></td>
</tr>
<tr>
<td>IN1-3</td>
<td>CX</td>
<td></td>
</tr>
<tr>
<td>IN1-4</td>
<td>XON</td>
<td></td>
</tr>
<tr>
<td>IN1-5</td>
<td>XAD</td>
<td></td>
</tr>
<tr>
<td>IN1-6</td>
<td>XPN</td>
<td></td>
</tr>
<tr>
<td>IN1-7</td>
<td>XTN</td>
<td></td>
</tr>
<tr>
<td>IN1-8</td>
<td>ST</td>
<td></td>
</tr>
<tr>
<td>IN1-9</td>
<td>XON</td>
<td></td>
</tr>
<tr>
<td>IN1-10</td>
<td>CX</td>
<td></td>
</tr>
<tr>
<td>IN1-11</td>
<td>XON</td>
<td></td>
</tr>
</tbody>
</table>
Out Bound HL7 Messages – Observation Reporting

The Endosoft transmits an order (ORU^R01) to the HIS when ever the procedure gets marked finished in the Endosoft, On the agreed upon time period Endosoft interface closes the connection and reconnects it to the Server. Once it connects, the outgoing interface queries the procedure table and picks the procedures which has been marked finished.
Procedure Message -- Observational report (response to query for results of observation)

Message Identity

ORU^R01

Segment Grammar

MSH

PID

{[OBR]}

{[OBX]}

Table Grammar

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSH</td>
<td>-</td>
</tr>
<tr>
<td>EndoProc</td>
<td>Table Corresponding to PROCEDURES table.</td>
</tr>
<tr>
<td>BlobTable</td>
<td>Table for outputting blobs like Endoscopy Report</td>
</tr>
<tr>
<td>ImageData</td>
<td>Image Data</td>
</tr>
</tbody>
</table>

MSH

The Endosoft usually uses Procedure Number as its application ID

01 Field separator
It is ‘|’ (vertical bar).

02 Encoding characters
They are ‘^~\&’

03 Sending Application
ID of the sending application is “Endosoft”

05 Receiving Application
ID of receiving application is "HIS"
11 Processing ID
Code for processing, always 'P'

12 Version ID
2.2

**OBR**

01 Set Identification

02 Placer Order Number
Copy of field ORC/2

03 Filler Order Number
Unique ID that allows the order to be identified within Endosoft where subfield 1 contains the ID and subfield 2 the application code (to be agreed upon).

04 Universal service ID The procedure.
Subfield 1 : the ID of the procedure
Subfield 2 : name of the procedure

07 Observation date/time
Date and time of the (scheduled) order. YYYYMMDDHHMM

13 Relevant Clinical information
Medical information provided with the order. Maximum of 100 characters.

16 Ordering Provider
Subfield 1 - ID (6 pos, may be larger in the future) of orderer.
Subfield 2 - Name of orderer

18 Placer field #1
Information from the orderer from the original order.

19 Placer field #2
as in 18

20 Filler Field#1
Date and time the order was registered in Endosoft (YYYYMMDDHHMM).

22 ResultsReported / Status changed
Date and time of last change (YYYYMMDDHHMM)

24 Diagnostic Service Section ID
Location code where order was performed

25 Result status
S-Order scheduled  
I-Order started  
P-Order finished  
R-Order evaluated  
F-order authorized and finalized  
C-Order was corrected  
D-Order was deleted  

28 Result Copies To  
Receivers of copies  
Subfield 1 - ID (6 pos)  
Subfield 2 - Name  
This field may contain more than one receiver, separated by the repetition character.  

32 Principal Result Interpreter Person (MD) who performed order.  
Subfield 1 - ID (6 pos)  
Subfield 2 - Name  

33 Assistant Interpreter  
Subfield 1 - ID (6 pos)  
Subfield 2 - Name  

34 Technician  
Subfield 1 - ID (6 pos)  
Subfield 2 - Name  

35 Transcriptionist  
Subfield 1 - ID (6 pos) Personell ID of hospital  
Subfield 2 - Name  

**OBX**  

01 Set Identification  

02 Value Type  
Represent what kind of data. In the case of reports we suggest FT. For images we suggest RP that refer to the image and the way it can be retrieved (i.e. the physical path or DICOM UID for the PAX broker).  

03 Observation Identifier  
Identification of the part of the order:  
Subfield 1 - ID  
Subfield 2 - Description  
Subfield 3 - Coding System (L)  

05 Observation Result  
Filled in accordance with field 2  

11 Observation Result Status
S-Order scheduled
I-Order started
P-Order finished
R-Order evaluated
F-order authorized and finalized
C-Order was corrected
D-Order was deleted

**FT1 - Financial transaction segment**
The FT1 segment contains the detail data necessary to post charges, payments, adjustments, etc. to patient accounting records.

**Figure 6-1. FT1 attributes**

<table>
<thead>
<tr>
<th>SEQ</th>
<th>LEN</th>
<th>DT</th>
<th>OPT</th>
<th>RP/#</th>
<th>TBL#</th>
<th>ITEM#</th>
<th>ELEMENT NAME</th>
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<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>SI</td>
<td>O</td>
<td></td>
<td></td>
<td>00355</td>
<td>Set ID -FT1</td>
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<tr>
<td>2</td>
<td>12</td>
<td>ST</td>
<td>O</td>
<td></td>
<td></td>
<td>00356</td>
<td>Transaction ID</td>
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<td>3</td>
<td>10</td>
<td>ST</td>
<td>O</td>
<td></td>
<td></td>
<td>00357</td>
<td>Transaction Batch ID</td>
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<td></td>
<td>00358</td>
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<td>O</td>
<td></td>
<td>00373</td>
<td>00373</td>
<td>Ordered By Code</td>
</tr>
</tbody>
</table>
Embedded base64 encoded PDF

Endosoft systems can also send the PDF embedded within the HL7 file in Base64 encoding, if you would like to store the procedure report directly within HIS.

```
OBR|8|10702^ProcedureReport|11010^REPORT^^^^|||19950924||||||||||201202251621||F||||||||||
OBX|1|ED|10702-0^REPORTEMBED||PDF^TEXT^^Base64^JVBERi0xLjINCjEgMCBvYmoNCjw8DQ ...
```

Sample Result message

In this sample message an OBX segment is for each 'form'. If a report consists of a Consent Form, a Pre-Procedure Evaluation, Procedure Report and a letter to the referring MD then 4 OBX segments are added. If there were 5 images added to the report, another 5 OBX segments are added.

```
MSH|^~\&|ENDOSOFT||HIS||200108161524||ORU^R01|98|P|2.2
PID|||11|||Doe|19400101|F|||----
OBR|1|98^ENDOSOFT|EGD^EGD|||199806291128||||||History of dyspepsia and heartburn not responding to therapy|||^John G
Referrer|||199806291128||199806291128|||F|||----|^John B
Smith
OBX|1|TX|&^|CL^Consent Letter^L\.|br\||F
OBX|2|TX|&^|ER^Endoscopy Report^L|Endosoft at UTECH\.br\|10
Railroad Ave, Albay, New York 12205 (800) 82 UTECH,.br\|10
Patient Name Isabel Doe,.br\|10
Date of Birth 03/06/1945,.br\|10
Record Number 1111,.br\|10
Date/Time of Procedure 06/29/1998, 11:28 AM,.br\|10
Referring Physician Sam Allright,.br\|10
Endoscopist John Doe,.br\|10
PROCEDURE PERFORMED\0x011,.br\|10
INDICATIONS FOR EXAMINATION,.br\|10
History of dyspepsia and heartburn not responding to therapy,.br\|10
Instruments:,.br\|10
Medications:
Visualization: Good  Tolerance: Good  Complications: None
Extent of Exam: None
Limitations: None

Procedure Technique:

Findings:

Diagnosis:

Recommendations:

Signature:_________________________________ John Doe, M.D.

| OBX | TX | &^ | PT | Procedure Technique^L | F
| OBX | TX | &^ | PR | Post Procedure Report^L | F
| OBX | TX | &^ | DR | Discharge Report^L | F
| OBX | TX | &^ | RL | Referring Letter^L | F

John Doe, M.D.
23 Main Street
Anytown, NY 22222
(123) 456-4567

Sam Allright, M.D.
10 Railroad Ave
Albany, NY 12205

RE: Isabel Doe
06/29/1998

Dear Sam;

An endoscopic procedure was performed on your patient Ms. Isabel Doe today. Following is a synopsis of the endoscopy report and my initial recommendations:

Performed:

Indications:

Findings:

Diagnosis:

Recommendations:

Thank you for the opportunity to assist you in the care of this patient. The findings were discussed with Ms. Doe today along with the recommendations and follow up arrangements. Please feel free to contact me if I can be of any further assistance.

Best Wishes.

Sincerely;

John Doe, M.D.

Addendum Message

MSH|^~&|ENDOSOFT||HIS||200108161524||ORU^R01|98|P|2.2
PID|||11|||Doe|19400101|F|1111
OBR|1||98_A0^ENDOSOFT|EGD^EGD|||199806291128|||History of dyspepsia and heartburn not responding to therapy|^John G Referrer|||199806291128|199806291128|F|||John B Smith
OBX|2|TX|&^|AR^Addendum Report^L|Endosoft at UTECH
10 Railroad Ave, Albany, New York 12205 (800) 82 UTECH,
Patient Name Isabel Doe
Date of Birth 03/06/1945
Record Number 1111
Date/Time of Procedure
06/29/1998, 11:28 AM
Referring Physician: Sam Allright
Endoscopist: John Doe

PROCEDURE PERFORMED:

EXAMINATION: History of dyspepsia and heartburn not responding to therapy.

INDICATIONS FOR EXAMINATION:

INSTRUMENTS:

MEDICATIONS:

Visualization: Good
Tolerance: Good
Complications: None

Extent of Exam:
Limitations: None

Procedure Technique:

FINDINGS:

ENDOSCOPIC DIAGNOSIS:

RECOMMENDATIONS:

Another format:

MSH|~&|UTECH|SMED|ENDOSOFT||200709121544||ORU^R01|1728|P|2.2
PID|1||B166383||xxxx^JOANxx||1966xxxx|F| | | | | |4023635316
OBR|1||1728^ENOS|Colonoscopy||200709031400||^ |
| || Abnormal flexible sigmoidoscopy. || |
| || 200709031400 || 200709031400 || UHND 2 | F | ||||| ^ Bxxx Ixxx
OBX|0|TX|Colonoscopy|Report|Foundation Trust |||||F|||200709031400
OBX|1|TX|Colonoscopy|Report|Endoscopy Unit |||||F|||200709031400
OBX|2|TX|Colonoscopy|Report|Tel:
|00000000000000 | ||||F| | |200709031400
OBX|3|TX|Colonoscopy|Report| ||||F||200709031400
OBX|4|TX|Colonoscopy|Report|Patient Name:MRS
xxxx^JOANxx| ||||F||200709031400
OBX|5|TX|Colonoscopy|Report|Date of Birth:16/09/xxxx ||||F| | |200709031400
OBX|6|TX|Colonoscopy|Report|Hospital Number:B166383 ||||F||200709031400
OBX|7|TX|Colonoscopy|Report|Date of Procedure:03/09/2007 ||||F| | |200709031400
OBX|8|TX|Colonoscopy|Report| ||||F||200709031400
OBX|9|TX|Colonoscopy|Report|Endoscopist:Mr. Ixxx
Bxxx| ||||F||200709031400
OBX|10|TX|Colonoscopy|Report|Registrar: ||||F| | |200709031400
OBX|11|TX|Colonoscopy|Report|Referring Physician: ||||F| | |200709031400
OBX|12|TX|^Colonoscopy|Report|Intern: DR xx
Wxxxxx|TXX|F||200709031400
OBX|13|TX|^Colonoscopy|Report|University|TXX|F||200709031400
OBX|14|TX|^Colonoscopy|Report|Of Durham|TXX|F||200709031400
OBX|15|TX|^Colonoscopy|Report|Student|TXX|F||200709031400
OBX|16|TX|^Colonoscopy|Report|Health Centre|TXX|F||200709031400
OBX|17|TX|^Colonoscopy|Report|42 Old|TXX|F||200709031400
OBX|18|TX|^Colonoscopy|Report|Elvet|TXX|F||200709031400
OBX|19|TX|^Colonoscopy|Report|xxxxxx|TXX|F||200709031400
OBX|20|TX|^Colonoscopy|Report|DH1 3JF|TXX|F||200709031400
OBX|21|TX|^Colonoscopy|Report|Medications: Buscopan 20 mg,
Midazolam 4 mg, Pethidine 50 mg|TXX|F||200709031400
OBX|22|TX|^Colonoscopy|Report|Instrument: cs6|TXX|F||200709031400
OBX|23|TX|^Colonoscopy|Report|Extent of Exam:
Caecum|TXX|F||200709031400
OBX|24|TX|^Colonoscopy|Report|Visualization:
Good|TXX|F||200709031400
OBX|25|TX|^Colonoscopy|Report|Tolerance:
Good|TXX|F||200709031400
OBX|26|TX|^Colonoscopy|Report|Complications:
None|TXX|F||200709031400
OBX|27|TX|^Colonoscopy|Report|PROCEDURE
PERFORMED|TXX|F||200709031400
OBX|28|TX|^Colonoscopy|Report|PROCEDURE
PERFORMED|TXX|F||200709031400
OBX|29|TX|^Colonoscopy|Report|PROCEDURE
PERFORMED|TXX|F||200709031400
OBX|30|TX|^Colonoscopy|Report|Abnormal flexible sigmoidoscopy.|
|TXX|F||200709031400
OBX|31|TX|^Colonoscopy|Report|Examinations FOR
EXAMINATION|TXX|F||200709031400
OBX|32|TX|^Colonoscopy|Report|Abnormal flexible sigmoidoscopy.|
|TXX|F||200709031400
OBX|33|TX|^Colonoscopy|Report|Abnormal flexible sigmoidoscopy.|
|TXX|F||200709031400
OBX|34|TX|^Colonoscopy|Report|Abnormal flexible sigmoidoscopy.|
|TXX|F||200709031400
OBX|35|TX|^Colonoscopy|Report|Abnormal flexible sigmoidoscopy.|
|TXX|F||200709031400
OBX|36|TX|^Colonoscopy|Report|Abnormal flexible sigmoidoscopy.|
|TXX|F||200709031400
OBX|37|TX|^Colonoscopy|Report|Abnormal flexible sigmoidoscopy.|
|TXX|F||200709031400
OBX|38|TX|^Colonoscopy|Report|Abnormal flexible sigmoidoscopy.|
|TXX|F||200709031400
OBX|39|TX|^Colonoscopy|Report|FINDINGS|||F|||200709031400
OBX|40|TX|^Colonoscopy|Report|1 mm Pedunculated polyp in the rectum, 10 cm from the anorectal verge.
Polypectomy|||F|||200709031400
OBX|41|TX|^Colonoscopy|Report|performed with snare resection.
Polyp retrieved. Histology pending.|||F|||200709031400
OBX|42|TX|^Colonoscopy|Report|||F|||200709031400
OBX|43|TX|^Colonoscopy|Report|||F|||200709031400
OBX|44|TX|^Colonoscopy|Report|ENDOSCOPIC DIAGNOSIS|||F|||200709031400
OBX|45|TX|^Colonoscopy|Report|Rectal polyp.|||F|||200709031400
OBX|46|TX|^Colonoscopy|Report|||F|||200709031400
OBX|47|TX|^Colonoscopy|Report|||F|||200709031400
OBX|48|TX|^Colonoscopy|Report|RECOMMENDATIONS|||F|||200709031400
OBX|49|TX|^Colonoscopy|Report|Follow up in OPD Urgently|||F|||200709031400
OBX|50|TX|^Colonoscopy|Report|||F|||200709031400
OBX|51|TX|^Colonoscopy|Report|||F|||200709031400
OBX|52|TX|^Colonoscopy|Report|RECALL DATE|||F|||200709031400
OBX|53|TX|^Colonoscopy|Report|||F|||200709031400
OBX|54|TX|^Colonoscopy|Report|||F|||200709031400
OBX|55|TX|^Colonoscopy|Report|COMMENTS|||F|||200709031400
OBX|56|TX|^Colonoscopy|Report|||F|||200709031400
OBX|57|TX|^Colonoscopy|Report|||F|||200709031400
OBX|58|TX|^Colonoscopy|Report|OPCS4 Code:|||F|||200709031400
OBX|59|TX|^Colonoscopy|Report|||F|||200709031400
OBX|60|TX|^Colonoscopy|Report|Signature:______________________
|Mr. xxxx xxxx|||F|||200709031400
OBX|61|TX|^Colonoscopy|Report|||F|||200709031400
OBX|62|TX|^Colonoscopy|Report|DRGHxxxxx|||F|||200709031400
OBX|63|TX|^Colonoscopy|Report|||F|||200709031400
OBX|64|TX|^Colonoscopy|Report|University Of xxxxxxx|||F|||200709031400
OBX|65|TX|^Colonoscopy|Report|Student Health Centre|||F|||200709031400
OBX|66|TX|^Colonoscopy|Report|42 xxxx|||F|||200709031400
OBX|67|TX|^Colonoscopy|Report|xxxxxxx|||F|||200709031400
Scheduling

SIU – Schedule Information Unsolicited

| MSH | Message Header       |
| SCH | schedule Activity Information |
| NTE | notes and comments   |
| PID | patient Identification |
| PV1 | patient visit        |
| PV2 | patient visit – additional information |
| OBX | Observation segment  |
| DG1 | Diagnosis Information |

| RGS | Resource Group Segment |
| AIS | Appointment information service |
| NTE | Notes and comments   |
| AIG | Appoint information – general Resource |
| NTE | Notes and Comments   |

| AIL | Appointment information – Location Resources |
| NTE | Notes and comments   |

| AIP | Appointment Information – Personnel Resource |
| NTE | Notes and Comments   |

ACK General Acknowledgement

| MSH | Message Header       |
| MSA | Message Acknowledgement |
| [ERR] | Error Information |

Events Supported

- Notification of new appointment booking (Event S12)
- Notification of appointment rescheduling (Event S13)
- Notification of appointment modification (Event S14)
- Notification of appointment cancellation (Event S15)
- Notification of appointment discontinuation (Event S16)
- Notification of appointment deletion (Event S17)
Order Messages (ORM^O01)

Order messages can be sent to Endosoft for Scheduling information needed to schedule an appointment in endosoft.

- **MSH**  
  Message Header
- **PID**  
  patient Identification
- **PV1**  
  patient visit
- **PV2**  
  patient visit – additional information
- **ORC**  
  Common Orders
- **OBX**  
  Observation segment

Minimum information needed for Endosoft to schedule an appointment are Date of appointment, Time of Appointment, Procedure to be performed and Physician name.

- Physician name - 437577^Duncan^Carolyn^J
- Date and time of Appointment – YYYYMMDDHHMMSS (20031209083500)
- Procedure – Col^Colonoscopy

Pathology messages

Observational report (results of observation)

Result messages can be sent to Endosoft for pathology and each line of the Pathology report should be sent in each OBX.

Message Identity  
**ORU^R01**

Segment Grammar

- **MSH**
- **PID**
- {[OBR]}
- {[OBX]}

Example Pathology result message:

- MSH|^~\&|||200401221203||ORU^R01||P|2.0
- PID||87654321||John^Doe||195702140000|M||000 San Juan Drive^^Coral Gables^Florida^33143||132-666-1900||012449259
- OBR|||GI
BIOPSY^GI|78611000||200401151052|||Doe^Ron^^^M.D.|||200401151052||F

OBX|1|TX||Lab Name: Test Lab, LLC.|||F

OBX|2|TX||Record Id: 28|||F
OBX|3|TX||Micro Date: 1/15/2004|||F

OBX|4|TX||Pathologist: Michael John, M.D. |||F
OBX|5|TX||EndosoftId: 0001|||F

OBX|6|TX||Item A: COLON, SIGMOID, 30 CM, BIOPSY:|||F

OBX|7|TX||Gross Description: Two tan fragments measuring 4 mm and 4 mm.|||F

OBX|8|TX||Diagnosis |||F

OBX|9|TX||NONSPECIFIC COLITIS, MODERATE WITH LYMPHOID FOLLICLES.|||F

OBX|11|TX||Item B: RECTUM, BIOPSY:|||F

OBX|12|TX||Gross Description: Single tan fragment measuring 4 mm.|||F

OBX|13|TX||Diagnosis |||F

OBX|14|TX||ACUTE HEMORRHAGIC AND CHRONIC NONSPECIFIC PROCTITIS, MODERATE.|||F

OBX|16|TX||Item C: STOMACH, ANTRUM, BIOPSY:|||F
OBX|17|TX||Gross Description: Twotan fragments measuring 4 mm and 3 mm.|||F

OBX|18|TX||Diagnosis ||||F
OBX|19|TX||CHRONIC GASTRITIS, MILD.|||F

OBX|20|TX||NEGATIVE FOR HELICOBACTER BY GIEMSA STAIN.|||F

OBX|21|TX||NEGATIVE FOR ATYPIA OR MALIGNANCY.|||F
OBX|23|TX||Note: |||F

OR it can be sent like:

MSH|^~&|ENDOSOFT|SMED|COR||200707161202||ORU^R01|6057|P|2.2
PID||||123|0|A.
Doe^William||19800909|F|||||||00001211234|00000-0000
IN1||||Empire Blue Cross~CDPHP|||564618~453454|||Adam K
Smith~TEST|||||YLN21681461~CD345354333
OBR|||6057^ENDOSOFT|E1|||200704191541||NEIL ROSEN
|200704191541|200704191541|NEIL ROSEN
OBX|1|TX||PR|PATHOLOGY REQUISITION~~ENDOSCOPY AND SURGICAL CENTER~7875 SW SUITE 201, FLORIDA 33153~302 2700000~~~Patient Name Doe A. William~Date of Birth 06/09/1980~Record Number 21756333~Procedure Number 322450~Date/Time of Procedure 07/16/2007, 07:05 AM~Referring Physician GAB LIZ, M.D.~Endoscopist Smith ROSEN, M.D.~Nurse LISSETTE Smith~PROCEDURE PERFORMED~EGD - Biopsy~~INDICATIONS FOR EXAMINATION~Chronic dyspepsia~Tissue Submitted~Biopsy of antrum.~~~FINDINGS~Mild antral gastritis.~Remainder unremarkable~ENDOSCOPIC DIAGNOSIS~Mild antral gastritis.~Remainder unremarkable~RECOMMENDATIONS~Call my office for final procedure and pathology results in 3 days.~Signature:_________________________________ NEIL ROSEN, M.D.~~CPT Codes~43239 UPPER GI ENDOSCOPY; W/ BX, SINGLE/MULTIPLE~~ICD-9 Codes~535.4 OTHER SPECIFIED GASTRITIS~|||F
Query

Endosoft will initiate a query and waits for the HIS (responder) to answer with data on one or more patients (Immediate Response). For following response-queries the use of DSC segments is supported. It is not necessary to send the message on a first in, first out basis. If any change is made to the patient data ADT^A04 and ADT^A08 messages can be used to keep the data synchronized with the HIS.

The query message

MSH
QRD
[DSC]

Response to a query

MSH MSA
QRD
{   PID
    [ZPI]
    PV1
    [IN1]
}
[DSC]

QRD

01 Query date time

Date and time of query, YYYYMMDDHHMM

02 Query format code

'R' only (record oriented) for patient query

03 Query priority

'I' only (immediate)
04 Query ID
Unique ID for the query

07 Quantity limited request

08 Who subject filter
ID for the searched patients.

Patient ID for DEM queries

Part of name for APN (do not use ‘*’) (JANSEN) Date of Birth (YYYYMMDD)

09 What subject filter
DEM Demographics (minimal requirement for query).

APN  Patient name lookup (not recommended).
PBN  Date of Birth and name.

ZPI
01 Set ID

01 Indication Deceased.
Not implemented in queries yet.

02 Name of partner

03 MD of patient
Subfield 1: 6 pos ID of MD (Physician of patient).
Subfield 2: Name of MD

**Sample Outgoing query message from Endosoft**

MSH|^~\&|Endosoft||HIS||2000112913212||QRY^Q01|20001129132121012|P|2.2
QRD|200011291320|R|I|200011291321210|||10^RD|1234560|DEM
Sample in-coming query reply messages (response from HIS):

- MSH|^~\&|HIS||LABQRY||20000724145115||ACK|20000724145115000006|P|2.2
- MSA|AR|5760087001250|Patient not in HIS
- QRD|199812101030|R||5768700125|||10^RD|121|DEM

(Patient was not found in HIS)

- MSH|^~\&|ZIS||LABQRY||20000724144653||ADT^A19|20000724144653000001|P|2.2
- MSA|AA|5760087001250
- QRD|199812101030|R||5768700125|||10^RD|1234560|DEM
- PID|0001|02801860|1234560||Test^Pat^J||19330313|M|||Address||038-3326751|||NH
- ZPI|0001|||012323^WILD^R^Danial
- PV1|O
- IN1||040900|xyz

- MSH|^~\&|ZIS||LABQRY||20000724144814||ADT^A19|20000724144814000004|P|2.2
- MSA|AA|5760087001250
- QRD|199812101030|R||5768700125|||10^RD|4348282|DEM
- PID|0001|00840342|4348282||Pat^Test^H||19230528|F|||Address||038-4533598|||M
- ZPI|0001|||Wife||014832^EDEMA^SJ
- PV1|O
- IN1||000091|Test|405969562

Out Bound Transcription Interface

1. MESSAGE SPECIFICATIONS

The Endosoft Outbound transcription interface Export Report transcriptions from Endosoft database and sends them to HIS system. The interface operates in one of two modes; (1) Exporting the content of the Report or (2) Exporting a pointer to where the Report can be located on a network file system or shared file systems drive connected to the Endosoft server.

MDM^T02 Original Document Notification and Content
This is a notification that a new Report has been transcribed.

MDM^T08 Edit Notification and Content
This is a notification that an existing Report has been edited/updated.
2. DETAILED SEGMENT LISTINGS

MSH – Message Header

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Required</th>
<th>Element Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Y</td>
<td>Field Separator</td>
<td>Typically:</td>
</tr>
<tr>
<td>2</td>
<td>Y</td>
<td>Encoding Characters</td>
<td>Typically: ^~&amp;</td>
</tr>
<tr>
<td>3</td>
<td>Y</td>
<td>Sending Application</td>
<td>ENDOSOFT</td>
</tr>
<tr>
<td>4</td>
<td>Y</td>
<td>Sending Facility</td>
<td>User defined</td>
</tr>
<tr>
<td>5</td>
<td>N</td>
<td>Receiving Application</td>
<td>User defined</td>
</tr>
<tr>
<td>6</td>
<td>N</td>
<td>Receiving Facility</td>
<td>Blank</td>
</tr>
<tr>
<td>7</td>
<td>Y</td>
<td>Date/Time of Message</td>
<td>Standard HL7 format</td>
</tr>
<tr>
<td>9</td>
<td>Y</td>
<td>Message Type</td>
<td>MDM^T02</td>
</tr>
<tr>
<td>10</td>
<td>Y</td>
<td>Message Control ID</td>
<td>Unique message ID</td>
</tr>
<tr>
<td>11</td>
<td>Y</td>
<td>Processing ID</td>
<td>D: Debug, P:Production</td>
</tr>
<tr>
<td>12</td>
<td>Y</td>
<td>Version ID</td>
<td>2.3 or 2.5</td>
</tr>
<tr>
<td>13</td>
<td>N</td>
<td>Sequence Number</td>
<td>Unique number generator</td>
</tr>
<tr>
<td>14</td>
<td>N</td>
<td>Continuation Pointer</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>N</td>
<td>Accept Acknowledgment Type</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>N</td>
<td>Application Acknowledgment Type</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>N</td>
<td>Country Code</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>N</td>
<td>Character Set</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>N</td>
<td>Principal Language</td>
<td></td>
</tr>
</tbody>
</table>
## EVN – Event Type

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Required</th>
<th>Element Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Y</td>
<td>Event Type Code</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Y</td>
<td>Date/Time of Event</td>
<td></td>
</tr>
</tbody>
</table>

## PID – Patient Identification

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Required</th>
<th>Element Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N</td>
<td>Set ID – Patient ID</td>
<td>1,2,3,4 (Usually set at 1)</td>
</tr>
<tr>
<td>2</td>
<td>N</td>
<td>Patient ID (External ID)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Y</td>
<td>Patient ID</td>
<td>Record Number</td>
</tr>
<tr>
<td>5</td>
<td>Y</td>
<td>Patient Name</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>N</td>
<td>Date of Birth</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>N</td>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>N</td>
<td>SSN Number Patient</td>
<td></td>
</tr>
</tbody>
</table>

## PV1 – Patient Visit

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Required</th>
<th>Element Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>N</td>
<td>Patient Location</td>
<td>Depending on customer’s unique episode criteria and on whether report is episode linked or only linked to patient</td>
</tr>
<tr>
<td>4</td>
<td>N</td>
<td>Episode Type</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Y</td>
<td>Attending Physician</td>
<td>Code^Lname^Fname^Mname (See Attachment 4)</td>
</tr>
<tr>
<td>10</td>
<td>N</td>
<td>Hospital Service</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>N</td>
<td>Visit Number</td>
<td>Unique identifier for an episode; see note for sequence no. 3 above</td>
</tr>
<tr>
<td>39</td>
<td>Y</td>
<td>Clinic Code</td>
<td>(See Attachment 4)</td>
</tr>
<tr>
<td>44</td>
<td>Y</td>
<td>Admit Date/Serv. Date</td>
<td>See note for sequence no. 3 above</td>
</tr>
<tr>
<td>45</td>
<td>N</td>
<td>Discharge Date</td>
<td>See note for sequence no. 3</td>
</tr>
</tbody>
</table>
### TXA – Transcription Report Header

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Required</th>
<th>Element Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Y</td>
<td>Document Type</td>
<td>Document type</td>
</tr>
<tr>
<td>4</td>
<td>Y</td>
<td>Activity Date/Time</td>
<td>e.g., service date</td>
</tr>
<tr>
<td>6</td>
<td>Y</td>
<td>Origination Date/Time</td>
<td>Dictation date</td>
</tr>
<tr>
<td>7</td>
<td>Y</td>
<td>Transcription Date/Time</td>
<td>Transcription date</td>
</tr>
<tr>
<td>8</td>
<td>N</td>
<td>Edit Date/Time</td>
<td>For updates only</td>
</tr>
<tr>
<td>9</td>
<td>Y</td>
<td>Originator Code/Name</td>
<td>Dictating doctor</td>
</tr>
<tr>
<td>11</td>
<td>N</td>
<td>Transcriptionist</td>
<td>Transcriptionist code/name</td>
</tr>
<tr>
<td>12</td>
<td>Y</td>
<td>Unique Document ID</td>
<td>Unique Number generator</td>
</tr>
<tr>
<td>13</td>
<td>N</td>
<td>Parent Document Number</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Y</td>
<td>Document Status</td>
<td>Document completion status (AU)</td>
</tr>
<tr>
<td>18</td>
<td>N</td>
<td>Confidentiality Status</td>
<td>Site-specific code values</td>
</tr>
<tr>
<td>19</td>
<td>N</td>
<td>Document Availability</td>
<td>Document availability status (AV)</td>
</tr>
</tbody>
</table>

### OBX – Observation

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Required</th>
<th>Element Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Y</td>
<td>Set ID</td>
<td>Sequential numbering for each OBX segment</td>
</tr>
<tr>
<td>2</td>
<td>Y</td>
<td>Value Type</td>
<td>TX – text</td>
</tr>
<tr>
<td>3</td>
<td>Y</td>
<td>REPORT</td>
<td>The text of the document.</td>
</tr>
</tbody>
</table>
Pharmacy Interface

HL7 RDE Message–Pharmacy/Treatment Encoded Order Message

Used by clinical applications to send an order to the pharmacy and/or dispensing systems. It may be sent as either an order containing a single pharmacy/treatment order for a patient or as an order containing multiple pharmacy/treatment orders for a patient (e.g., 1 mg tablet of Aspirin, 0.5 mg 0.5% Albuterol).

The transmission of orders occurs between the clinical application placing the order (the placer) and the clinical application filling the order (the filler). Typically, the clinician (e.g., physician) is entering orders on the EndoVault application which acts as the placer application in HL7 parlance. The system to which the order is targeted (e.g., the medication in the case of a complete pharmacy order) is the filler of the order.

The three RDE messages include Pharmacy encoded order messages:

• RDE-001 - ORM - Order message (also RDE, RDS, RGV, RAS)
• RDE-011 - RDE - Pharmacy/treatment encoded order
• RDE-025 - RDE - Pharmacy/treatment refill authorization request

The segments and groups of segments in the RDE message are as follows, and apply for all trigger events.

<table>
<thead>
<tr>
<th>SEGMENT/GROUP</th>
<th>NAME</th>
<th>OPTIONAL/REPEATABLE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSH</td>
<td>Message header</td>
<td>Required</td>
</tr>
<tr>
<td>NTE</td>
<td>Notes and comments</td>
<td>Optional, Repeatable</td>
</tr>
</tbody>
</table>

PatientGroup – Optional
<table>
<thead>
<tr>
<th>SEGMENT/GROUP</th>
<th>NAME</th>
<th>OPTIONAL/REPEATABLE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PID</td>
<td>Patient identification</td>
<td>Required</td>
</tr>
<tr>
<td>PID1</td>
<td>Patient demographics</td>
<td>Optional</td>
</tr>
<tr>
<td>NTE-1</td>
<td>Notes and comments</td>
<td>Optional, Repeatable</td>
</tr>
</tbody>
</table>

**PatientVisitGroup – Optional**

| PV1          | Patient visit             | Required                |
| PV2          |                           | Optional                |

| 1           | Optional, Repeatable      |

<table>
<thead>
<tr>
<th>CT1</th>
<th>Clinical Trial Identification</th>
<th>Optional</th>
</tr>
</thead>
</table>

**InsuranceGroup – Optional and repeatable group**

| IN1          | Insurance                   |                         |
| IN2          | Insurance additional info   |                         |
| IN3          | Insurance additional info certification |                         |
| GT1          | Guarantor                   |                         |
| AL1          | Patient allergy information |                         |

**PatientGroup – Optional**
OrderGroup – Repeatable
  ORC  Common order segment

PrescriptionOrderGroup – Optional
  RXO  Pharmacy prescription order
    NTE-2  Notes and comments segment
  RXR  Pharmacy route segment

ComponentOrderGroup – Optional
  RXC  Pharmacy component order segment
    NTE-3  Notes and comments segment

PrescriptionOrderGroup - Optional
  RXE  Pharmacy encoded order segment
  RXR-1  Pharmacy route segment
  RXC-1  Pharmacy component order segment

ObservationGroup - Repeatable
  OBX  Observation segment
    NTE-4  Notes and comments segment

ObservationGroup - Repeatable

In HL7 pipe and hat format, the RDE message would look like this:

| MSH|^~\&|ENDOVAULT_IF_FEED_OUT|ENDOVAULT Medical Center|||20091026120921||RDE|20091026120921|P|2.3||
| EVN||2009102612092156|||KLS
| PID||1061418|1061418||PYXIS^TEST^PATIENT 2||19240829|M||W|4130 US HWY 64E^^Clifton^NC^0000028906|CHE|8288378161^^^0000000000|0000000000||S|OT|1061418|9999999999|||N
| PV1||1^I/P^00003^UCC12^|D|005600^Test^Doe^MD|^|1|||1|5600^Test^Doe^MD|||200910010938|
| PV2|||U|20090930000000|||N
| MRG|112923
| OBX|1|ST|1010.3^Height||072|Inches
| OBX|2|ST|1010.1^Body Weight||190.00|pounds
| AL1||99999998^No Known Drug Allergies
| DG1|||A
| ORC|XO|00000010||IP||BID^1000,2200,^^200910150932^0^0^0^0^0^0^0^0^0|361906|PROPRANOLOL 40MG TAB (INDERAL)|40|||MG|EACH|HOLD FOR SBP #lg;90 |||||N
| RXR|PO NTE|||
General Order Message (ORM)
Endosoft send the ORM message whenever an order is created, modified or cancelled

Segment Grammar
MSH

PID

[PV1]

{
  ORC
  OBR
  [{NTE}]
  [{DG1}]
  [{OBX}]
}

Example: General Order message
MSH|^~\&||26589||69853|20060112123508|HJONES|ORM^O01|162|P|2.3||
PID|1||59863512||SMITH^JOHN^^^^||19840116|M|||26 FIRST
ST^MAJON^ST^3705^USA|||1568459|
ORC|NW|06-CH002703|||^ROUTINE|||12^GRANT^JILL^%^|||
OBR|1|06-
CH002703|10216|200601121233|HJONES|O||12^GRANT^JILL^%^|312|||^ ROUTINE
OBX|1||18||-|62110|XE
OBX|2||19||-|62110|XE
**Table Grammar**

**MSH**
Endosoft usually uses Procedure Number as its application ID
01 Field separator
It is '|' (vertical bar).

02 Encoding characters
They are ‘^~&’

03 Sending Application
ID of the sending application is “Endosoft”

05 Receiving Application
ID of receiving application is “HIS”

11 Processing ID
Code for processing, always 'P'

12 Version ID
2.2

**ORC**
01 Order Control

02 Placer Order Number

03 Filler Order Number

09 Date/Time of Transaction

12 Ordering Provider

**OBR**
01 Set Identification

02 Placer Order Number
Copy of field ORC/2

03 Filler Order Number
Unique ID that allows the order to be identified within Endosoft where subfield 1 contains the ID and subfield 2 the application code (to be agreed upon).

04 Universal service ID
The procedure.
Subfield 1: the ID of the procedure
Subfield 2: name of the procedure
07 Observation date/time
Date and time of the (scheduled) order. YYYYMMDDHHMM

13 Relevant Clinical information
Medical information provided with the order. Maximum of 100 characters.

16 Ordering Provider
Subfield 1 - ID (6 pos, may be larger in the future) of orderer.
Subfield 2 - Name of orderer

18 Placer field #1
Information from the orderer from the original order.

19 Placer field #2
as in 18

20 Filler Field#1
Date and time the order was registered in Endosoft (YYYYMMDDHHMM).

22 Results Reported / Status changed
Date and time of last change (YYYYMMDDHHMM)

24 Diagnostic Service Section ID
Location code where order was performed

25 Result status
S-Order scheduled
I-Order started
P-Order finished
R-Order evaluated
F-order authorized and finalized
C-Order was corrected
D-Order was deleted

28 Result Copies To
Receivers of copies
Subfield 1 - ID (6 pos)
Subfield 2 - Name
This field may contain more than one receiver, separated by the repetition character.

32 Principal Result Interpreter
Person (MD) who performed order.
Subfield 1 - ID (6 pos)
Subfield 2 - Name

33 Assistant Interpreter
Subfield 1 - ID (6 pos)
Subfield 2 - Name
34 Technician
   Subfield 1 - ID (6 pos)
   Subfield 2 - Name

35 Transcriptionist
Subfield 1 - ID (6 pos) Personnel ID of hospital
Subfield 2 - Name

**OBX**

01Set Identification

02Value Type
Represent what kind of data. In the case of reports we suggest FT. For images we suggest RP that refer to the image and the way it can be retrieved (i.e. the physical path or DICOM UID for the PAX broker).

03 Observation Identifier
Identification of the part of the order:
   Subfield 1 - ID
   Subfield 2 - Description
   Subfield 3 - Coding System (L)

05 Observation Result
Filled in accordance with field 2

11 Observation Result Status
S-Order scheduled
I-Order started
P-Order finished
R-Order evaluated
F-order authorized and finalized
C-Order was corrected
D-Order was deleted

**Master File Notification (MFN)**
Endosoft can send MFN messages when a provider is added or updated in the system. Endosoft can also receive this message, which will update the provider in the EHR system. This provider information can then be used to book procedure or visit in the EHR.

**Segment Grammar**

MSH
   Message Header

MFI
Endosoft HL7 Interface Specification Dated 04/05/2016

[MFE]

STF

Table Grammar

MFE
01 Add or Update (MAD/MUP)

STF
01 Primary Key Value-STF
02 Staff Identifier List

03 Staff Name

04 Staff Type

05 Administrative Sex

06 Date/Time of Birth

09 Hospital Service-STF

10 Phone

11 Office/Home Address/Birthplace

12 Institution Activation Date

13 Institution Inactivation Date