



RIAYATI Program **Interface Control Document (HL7 ORU Inbound)**

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Version and Distribution History			
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1.0	15-May-2020	Draft Specification	MOHAP
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3.1	07-Apr-2021	Trivial changes for Phase 1B	MOHAP
3.2	20-Apr-2021	OMRN and Assigning Authority related updates	MOHAP
3.3	30-Aug-2021	<p>Changes based on Integration Testing</p> <ul style="list-style-type: none"> Added "Vital Signs" in the ORU Message overview section. Removed "Family History" and "Social History" data sets. Updated ORC-2 as Required and ORC-3 as Optional. Updated ORC-12 as Required if Available (RA). Updated ORC-29 - OBS value with vitals reference. Updated OBR-2 as Required and OBR-3 as Optional. Updated OBR-7 as Required if Available (RA) Updated OBR-16 as Required if Available (RA). Updated OBR-24 as Required if Available (RA). Updated OBR-NTE:4 as Required if Available. Added new sub section under OBX with all the Vital values (Code, Description and Unit values) as expected by RIAYATI. Updated OBX: 3 with Vital section reference. Added OBX:3.3 field as mandatory. Updated OBX:6 as Required if Available and added Vital section reference. The previous table for the Unit mapping is also removed. 	MOHAP

		<ul style="list-style-type: none"> Updated OBX:14 Date format to YYYYMMDD[HHMM]. Updated OBX-NTE:4 as Required if Available (RA). 	
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		OBR-16 changed to optional	MOHAP
		NTE-3 changed to optional	MOHAP
		NTE-4 changed to optional	MOHAP
		ORC-12 changed to optional	MOHAP
		OBR-16 changed to optional	MOHAP
		NTE-3 changed to optional	MOHAP
		NTE-4 changed to optional	MOHAP
4.2	17-Nov-2025	Updated PID-4 and PID-19 as Not required Added OBR-14 as Required if Available and Updated OBR-24 as Not required	MOHAP

Table 1: Version History

Document Acceptance and Sign-Off		
Name	Signature	Date
MOHAP		25-Dec-2025

Table 2: Document Acceptance and Sign-off

1 About this document

1.1 Purpose of this Document

The interfaces addressed in this document are designed to allow bi-directional communications using the health care industry's Health Level 7 (HL7) version 2.5.1 standards for the exchange of electronic health data between information systems. The interfaces are designed to:

- Process transcriptions communicated electronically from a sending system (such as an electronic medical record or practice management system) into the Riayati HIE receiving system.

This document describes the interface, addresses the data structure and available communication options, and provides other coordination information for implementing the interface. To assist the parties involved in planning, installing, and using the interface, applicable message segments are included.

We will commonly refer to the above as "providers", i.e., those who are participating in Riayati HIE program.

This document covers the following:

- a) The protocols and handshake supported for exchange of messages.
- b) Message Segment descriptions of different event type supported by Riayati HIE.

References to the HL7 standard are made throughout this document. The web site for HL7 specifications can be found at <http://www.hl7.org/>.

1.2 Audience

This document is intended for the Technical Team from the Provider Organizations from the Northern Emirates and EMR vendors.

1.3 Abbreviations and Terms

Abbreviation	Term
API	Application Programming Interface
ESB	Enterprise Service Bus
FHIR	Fast Healthcare Interoperability Resources
HIE	Health Information Exchange
HTTP	Hyper Text Transport Protocol
IHE	Integrating Health Enterprise
MOHAP	Ministry of Health and Prevention
SOAP	Simple Object Access Protocol
UAE	United Arab Emirates

Table 3: Abbreviations and Terms

2 Introduction

2.1 RIAYATI Program

His Highness Sheikh Mohammed bin Rashid Al Maktoum announced in 2015 the initiative to establish a Health Information Exchange system – “RIAYATI” for patients in the Northern Emirates, UAE. In order to facilitate the movement of patients across healthcare providers, as well as connect public and private hospitals and clinics to share and exchange Health Records.

The RIAYATI Service will be the primary force driving an integrated, sustainable modern digital health platform that improves the safety of the patients, healthcare quality and population health in general through the safe sharing of medical data and information of all healthcare system beneficiaries across the Northern Emirates.

2.2 Health Information Exchange

RIAYATI Health Information Exchange will make quality healthcare data available for improvement of the patient care and support the futuristic innovative services like Clinical Decision Support, UAE specific clinical pathways, advanced analytics and Artificial Intelligence.

The RIAYATI HIE has various components as mentioned below to support the above-mentioned objectives.

- Enterprise Service Bus
- Registries
 - Patient Registry
 - Provider Registry
 - Organization Registry
 - Document Registry
 - Terminology Registry
- Repositories
 - Clinical Data
 - Documents

2.3 HL7 Concepts

2.3.1 HL7 Definitions

- i. **Message:** A message is the atomic unit of data transferred between systems. It is comprised of a group of segments in a defined sequence. Each message has a message type that defines its purpose and a trigger event. For example, the ADT is a message type and A01 is a trigger event. Between text messages in a batch, two carriage returns/line feeds (hex characters 0D0A0D0A) represent the end of each message.
- ii. **Segment:** A segment is a logical grouping of data fields. Segments within a defined message may be required or optional, may occur only once, or may be allowed to repeat. Each segment is named and is identified by a segment ID, a unique 3-character code. The hex characters '0D0A' that act as a Segment Terminator (equivalent to a Carriage Return and Line Feed) denote the end of each segment.
- iii. **Field:** A field is a string of characters. The segment it is in and the position within the segment identify each field; e.g., PID-5 is the fifth field of the PID segment. Optional data fields need not be valued. Whether a field is required, optional, or conditional in a segment is specified in the segment attribute tables.

A maximum length of the field is stated as normative information. Exceeding the listed length should be considered an error.

In segments attribute table Required/Mandatory data is designated as “**R**” and Optional field data is designated as “**O**” and Required if available is designated as “**RA**”.

- iv. **Component:** A component is one of a logical grouping of items that comprise the contents of a coded or composite field. Within a field having several components, not all components are required to be valued. Examples in this document demonstrate both fully valued and partially valued coded and composite fields.

Item number: Each field is assigned a unique item number. Fields that is used in more than one segment will retain their unique item number across segments.

- v. **Null and empty fields:** The null value is transmitted as two double quote marks (""). A null-valued field differs from an empty field. An empty field should not overwrite previously entered data in the field. The null value means that any previous value in this field should be overwritten.
- vi. **Data Type:** A data type restricts the contents and format of the data field. Data types are given a 2- or 3-letter code. Some data types are coded or composite types with several components. The applicable data type is listed and defined in each field definition. Refer <http://www.hl7.org/> for complete listing of data types used in this document and their definitions.
- vii. **Delimiters:** The delimiter values are given in MSH-1 and MSH-2 and used throughout the message. Applications must use agreed upon delimiters to parse the message.

Following are the recommended delimiters for laboratory messages:

Delimiter	Suggested Value	Usage
Segment Terminator	<CR> ((hex 0D0A)	Terminates a segment record. This value cannot be changed by implementers.
Field Separator		Separates two adjacent data fields within a segment. It also separates the segment ID from the first data field in each segment.
Component Separator	^	Separates adjacent components of data fields where allowed.
Subcomponent Separator	&	Separates adjacent subcomponents of data fields where allowed. If there are no subcomponents, this character may be omitted.
Repetition Separator	~	Separates multiple occurrences of a field where allowed.
Escape Character	\	Escape character for use with any field represented by an ST, TX or FT data type, or for use with the data (fourth) component of the ED data type. If no escape characters are used in a message, this character may be omitted. However, it must be present if subcomponents are used in the message.

- viii. **Message Syntax:** Each abstract message is defined in special notation that lists the 3-letter segment identifiers in the order they will appear in the message. The general rule is as follows: No brackets around it - Required - **[]** - Optional - **{ }** - Repeating - **{ [] }** - Optional Repeating.
- ix. **Trigger Events:** The HL7 Standard is written from the assumption that an event in the real world of healthcare creates the need for data to flow among systems. The real-world event is called the trigger event. For example, the trigger event, an observation (e.g., a CBC result) for a patient is available, may cause the need for that observation to be sent to several other systems. When the transfer of information is initiated by the application system that deals with the triggering event, the transaction is termed an unsolicited update.
- x. **Z segments:** Are not supported.

2.3.2 HL7 Standards – Exceptions

Some exceptions to the HL7 conventions are noted herein. Data is added, updated and removed at the segment level. Messages should contain ALL current data. It is recommended that all segments for demographic interfaces contain fully populated fields appropriate for the message type. It is also recommended that all messages contain all segments. This should be observed even if the data has not changed.

Message segment maps indicate fields not directly used by the Riayati HIE as shaded entries. Unused fields are shown up to the last segment field that is processed by the Riayati HIE.

2.3.3 Robust Port Connectivity

If the sending system communicates to the Riayati HIE via a TCP/IP port number, it must be able to dynamically determine the status of the port to which it sends. In the event the client interface server has been rebooted or restarted for any reason, the sending system must be able to detect that the port was offline and reopen the port without user support.

2.3.4 Communications Options

Riayati HIE can configure an interface to function using TCP/ IP over Secure site-to-site Virtual Private Network (VPN) or File transfer using SFTP.

VPN (Virtual Private Network)

A Secure site-to-site Virtual Private Network (VPN) between Riayati HIE Servers and participants (Sending Systems) shall be implemented.

TCP/IP

TCP/IP is the preferred communications protocol for exchanging HL7 messages. The following is a list of the major guidelines for the establishment of TCP/IP communications:

1. A Site to site Secure VPN Tunnel will need to be established between the Participant and the Riayati HIE host system vendor prior to establishing the TCP/IP port and socket connection.
2. Unique TCP/IP port addresses and socket numbers must be determined by the client, Riayati HIE, and the host system vendor prior to installation. Suggested ports are:
3. The sending system will act as a TCP/IP client and is responsible for opening the port prior to sending data. The receiving system will act as a TCP/IP server.

IMPORTANT NOTE: The sending system must be able to monitor the status of the port and must be able to reconnect to the port without user support if it has been disconnected.

4. The HL7 minimal lower layer protocol recommendations are observed.
5. The leading character for each transmission can be configured for each interface and is represented here as <VT> (ASCII 11).
6. Up to three ending characters for each transmission can be configured for each interface. They are represented here as <FS> (ASCII 28) and <CR> (ASCII 13).

7. Each segment is followed by a <CR> (ASCII 13).
8. The exchange of messages will be as follows:

At the execution of the trigger event in the host system, the host sends a message to Riayati HIE:

Host System	Riayati HIE	
<VT> MSH segment<CR> followed by first segment<CR> followed by next segment<CR> ... last segment<CR> <FS><CR> <CR>	➔	Received by the product TCP/IP Receiver and placed in a directory on the file system. Predetermined identifiers in the message are validated by the Receiver script, if valid. The product takes the message and file to a SQL Message Queue, parser process it into the Data Store.

After receipt of each message, the product sends an ACK Message to Host on the same port number:

Host System	Riayati HIE	
Received by Host	←	<VT> MSH segment<CR> MSA segment<CR> ERR segment<CR> <FS><CR> <CR>

If the MSA indicates that the message was received, then the host is free to send the next message. This is repeated until all messages are sent. If the MSA indicates that the message contained an error, the host must resend the message until either the MSA indicates the message was received, or the interface times out.

The simple general acknowledgment (ACK) should be sent by the receiving system to respond to the receipt of the messages.

The product TCP/IP Receiver script processes the MSH segment and the Message Control ID (MSH-10) is used to construct the outbound HL7 ACK. The ACK message only indicates that the message was received. Errors in processing usually result in HIE Event log messages. If the MSH segment is not found or cannot be processed, a HL7 NAK is sent. In the case of a low-level error, a TCP/IP NAK is returned.

MSA Example with MSH Message Header:

```
MSH|^~\&|SENDING_APP|SENDING_APP|RECEIVING_APP|RECEIVING_APP|20190801222928586+0400||
ACK^R01|89899775||2.5.1MSA|AA|dfx20030917141003|message text
ERR||ERR^1^1|Validation Error Text
```

3 Basic Message Construction Rules

3.1 Encoding Rules for Sending

- Encode each segment in the order specified in the abstract message format.
- Place the Segment ID first in the segment.
- Precede each data field with the field separator.
- Encode the data fields in the order and data type specified in the segment definition table.
- End each segment with the segment terminator.
- Component separators need not be represented for components, subcomponents, or repetitions that come at the end of a field. The data fields below, for example, are equivalent:

^XXX&YYY&&^ is equal to ^XXX&YYY^

|ABC^DEF^^| is equal to |ABC^DEF|

3.2 Encoding Rules for Receiving

The following rules apply to receiving HL7 messages and converting their contents to data values:

- Ignore segments, fields, components, subcomponents, and extra repetitions of a field that are present but were not expected.
- Treat segments that were expected but are not present as consisting entirely of fields that are not present.
- Treat fields and components that are expected but were not included in a segment as not present.
- For the Rich Text Format and HTML content the below HL7 Escaping needs to be handled from the source system.

Delimiter	HL7 character
Field separator ()	\F\
Component separator (^)	\S\
Repetition separator (~)	\R\
Escape character (\)	\E\
Sub-component separator (&)	\T\

- For the Rich Text Format content the below Escape sequence needs to be handled.

HL7 Character	Description
\.sp <number>\	End current output line and skip <number> vertical spaces. <number> is a positive integer or absent. If <number> is absent, skip one space. The horizontal character position remains unchanged. Note that for purposes of compatibility with previous versions of HL7, "^\.sp\" is equivalent to "\.br\".
\.br\	Begin new output line. Set the horizontal position to the current left margin and increment the vertical position by 1.
\.fi\	Begin word wrap or fill mode. This is the default state. It can be changed to a no-wrap mode using the .nf command.
\.nf\	Begin no-wrap mode.

\.in <number>\	Indent <number> of spaces, where <number> is a positive or negative integer. This command cannot appear after the first printable character of a line.
\.ti <number>\	Temporarily indent <number> of spaces where number is a positive or negative integer. This command cannot appear after the first printable character of a line.
\.sk < number>\	Skip <number> spaces to the right.
\.ce\	End current output line and center the next line.

- f) For the TX and FT Data type of content the below formatted text needs be handled with the OBX Observation value and NTE Comments.

Delimiter	HL7 character	Example (Raw HL7)	Example (Formatted)
Field separator	\F\	FEVER\FDRY COUGH\F\	FEVERIDRY COUGH
Component separator	\S\	DOOR1\S\LINE1\S\COUNTY\S\	DOOR1^LINE1^COUNTY^
Repetition separator	\R\	DOOR1\S\LINE1\R\COUNTY\S\	DOOR1^LINE1~COUNTY^
Escape character	\E\	DOOR1\E\LINE1\E\COUNTY\E\	DOOR1\LINE1\COUNTY\
Sub-component separator	\T\	DOOR1\T\LINE1\T\COUNTY	DOOR1&LINE1&COUNTY
Start high lighting	\H\	\H\FEVER\N\	FEVER
End high lighting	\N\	\H\FEVER\N\	FEVER
Hexa decimal data	\Xdddd...\	CODE:\X10\	CODE:A

4 HL7 ORU^R01 (Unsolicited transmission of an observation message)

The HL7 ORU-R01 message transmits observations and results from the producing system/filler example EMR, LIS, EKG system, etc to the Riayati HIE.

Types of observations reported in the ORU-R01 message includes:

- Clinical Lab results from Biochemistry, Microbiology, Pathology, Immunology, Virology, etc
- Imaging study reports for Radiology Point of Care/ Rapid test
- Departmental Diagnosis test like Cardiology, Pulmonary, Neurology, Obstetric, Neonatal and any other department
- Patient condition or other data (i.e. Functional Status, Notes, etc.)
- Vital Signs

The ORU message is a structured report where each observation is separated into an individual entity, and then separated into fields. ORU messages do not carry images; they use varying data types, but most often use text, numeric and coded values.

IMPORTANT NOTE: The Riayati HIE is a visit base system; therefore PV1-19 (Patient Visit Number) is required in all messages. Messages with a blank Patient Visit number will be flag as a bad message and ignored.

IMPORTANT NOTE: DSC segments, ADD segments, and any continuation pointer functionality derived from these segments are not supported.

IMPORTANT NOTE: All coded fields use standard HL7 field codes unless otherwise specified. Any deviations from the standard HL7 field code tables must be reported to the Riayati HIE.

All messages must be sent in Snapshot mode - Riayati HIE expects all data to present in all the messages, for example every message for the Result must have all active part of the report. If any corrected report is sent after original report Riayati HIE application expects all OBR and OBX segment is sent for the report, if partial report is sent in latest message, Riayati HIE application will not retain part of the report sent in earlier messages.

HL7 ORU messages uses the segments listed below:

Message Segments	Segment Name	Comments
MSH	Message Header	Required
PID	Patient Identification	Required
PV1	Patient Visit	Required
{ORC	Common Order	Required
{OBR	Observation Request (Lab Order)	Required
[{NTE}]	Notes and Comments (for Order Choice)	Optional
{OBX	Observation/Result	Required
[{NTE}]	Notes and Comments (for Results)	Optional
[{SPM}]	Specimen	Optional

Note: Fields which are used in the integration, only those fields are mentioned in the segment specification.

Designing Micro Lab Results Interface:

Riyati HIE is designed to house Microbiology, General (Clinical) Lab, and Pathology results in their appropriate tables.

Here is some of the key information required from the provider side to process the ORU Microbiology result messages, which is different from other LAB result message.

- Differentiate between General Labs, Microbiology, and Pathology results – This information is typically sent across in the OBR 24 - DiagnosticServSectId field and in one of the OBR 4.x subfields.
- Format for sending Cultures/Sensitivity results. The standard HL7 format for microbiology results contains multiple OBR segments, one for the Parent Culture and one each for the subsequent sensitivity results. The OBX segment uses the Observation Sub-ID field (4) to uniquely number the organisms. These Sub-ID numbers are then used in subsequent OBR / OBX segments to match the sensitivity results to the appropriate organisms. Note that the Parent Result (field 26) and Parent Number (field 29) fields in the OBR segment of the sensitivity results must correspond to the corresponding fields in the OBR segment for the organism results. See example of the messages below

NOTE: In this example: OBR 1st segment and associated OBX's are stored on the Culture tables, and OBR 2nd and 3rd are associated tables are stored in Micro tables.

Multiple OBR, OBR 1 is Culture, OBR 2 and OBR 3 (and so on) are the sensitivities.

Example for Urine culture result message.

```
OBR|1|1234|56789|99999^C Urine|||20080116112200|
OBX|1|TX|11111^ORGANISM|1| Escherichia coli^EC |||||F|||
OBX|2|TX|11111^ORGANISM|2| Enterococi^E species |||||F|||
OBR|2|1234|56789|MIC^MIC|||20080116112200|||URINE, BLADDER|20080116124000|Urine, Bladder|
OBX|1|CE|ORGANISM|1| Escherichia coli^EC |||||20080124132212|
OBX|2|NM|4680007^Amp|1|1.0|||S|||F|||20080124132212||
OBX|3|NM|4680052^Cefaz|1|<=2|||S|||F|||20080124132212||
OBX|4|NM|4680081^Gent|1|>8|||R|||F|||20080124132212||
OBX|5|NM|4680105^Nitro|1|<=32|||S|||F|||20080124132212||
OBX|6|NM|4680141^Tetra|1|<=1|||S|||F|||20080124132212||
OBX|7|NM|4680134^SXT|1|<=10|||S|||F|||20080124132212||
OBR|2|1234|56789|MIC^MIC|||20080116112200|||URINE, BLADDER|20080116124000|Urine, Bladder|
OBX|1|CE|ORGANISM|2| Enterococi^E species |||||20080124131932|
OBX|2|NM|4680007^Amp|2|>8|||R|||F|||20080124131932||
OBX|3|NM|4680115^Pen|2|2|||S|||F|||20080124131932||
OBX|4|NM|4680105^Nitro|2|<=32|||S|||F|||20080124131932||
OBX|5|NM|4680141^Tetra|2|<=0.5|||S|||F|||20080124131932||
OBX|6|NM|4680152^Vanc|2|1.0|||S|||F|||20080124131932||
```

Definitions

Term	Definition
R	Required
O	Optional
RA	Required if available

Message Acknowledgement

Riyati HIE will respond with Acknowledgement (ACK) Message for each ORU Message with the MSA Segment along with ERR segment in case of any validation error in the HL7 message.

MSA Segment

Seg/Field	Req	HL7 Name	Data Type	Max Len	Comments
MSA-1	R	Acknowledgment Code	ID	2	HL7 Table 0008
MSA-2	R	Message Control ID	ST	20	

ERR Segment

Seg/Field	Req	HL7 Name	Data Type	Max Len	Comments
ERR-1	Backwards Compatible	Error Code and Location	ELD	493	Specifies the segment that contains an error and describes the nature of the error.
ERR-2	O	Error Location	ERL	18	This data type identifies the segment and its constituent where an error has occurred.
ERR-3	R	HL7 Error Code	CWE	705	Specifies a coded element and its associated detail.

4.1 MSH – Message Header

The following fields may be required from Attribute Table:

Seg/Field	Req	HL7 Name	Data Type	Max Len	Comments
MSH-1	R	Field Separator	ST	1	This field contains the HL7 field separator " " and is located between the segment ID "MSH" and the MSH 2 field. This dictates that " " will act as the field separator for the rest of the HL7 message. ' ' (ASCII 124)
MSH-2	R	Encoding Characters	ST	4	'^~\&' where '^' is the component delimiter (ASCII 94) '~' is the repeat delimiter (ASCII 126) '\' is the escape delimiter (ASCII 92) '&' is the subcomponent delimiter (ASCII 38)
MSH-3	O	Sending Application Namespace ID	HD	227	This field identifies the Sending Application as defined in the internal. This Application code will be assigned by Riayati. Table No: To be discussed during onboarding.
MSH-4	R	Sending Facility Namespace ID	HD	227	Facility License Number.
MSH-5	O	Receiving Application Namespace ID	HD	227	
MSH-6	O	Receiving Facility Namespace ID	HD	227	
MSH-7	R	Date/Time of Message	TS	26	Format: YYYYMMDDTTTT
MSH-8	O	Security	ST	40	
MSH-9	R	Message Type	MSG	15	
MSH-9.1	R	Message Code	ID	3	ORU
MSH-9.2	R	Trigger Event	ID	3	R01
MSH-9.3	R	Message Structure	ID	7	ORU_R01
MSH-10	R	Message Control ID	ST	20	Unique message number Note: If a message is received with the same Message Control ID as the immediately previous message, it will be treated as an error.



MSH-11	O	Processing ID	PT	3	P (Production) or T (Testing) or D (Development)
MSH-12	R	Version ID	VID	60	HL7 version 2.5.1
MSH-13	O	Sequence Number	NM	15	
MSH-14	O	Continuation Pointer	ST	180	
MSH-15	O	Accept Acknowledgment Type	ID	2	
MSH-16	O	Application Acknowledgment Type	ID	2	
MSH-17	O	Country Code	ID	3	
MSH-18	O	Character Set	ID	16	
MSH-19	O	Principal Language of Message	CE	250	
MSH-20	O	Alternate Character Set Handling Scheme	ID	20	
MSH-21	O	Message Profile Identifier	EI	427	

Sample MSH segment:

MSH|^~&|SENDING_APP|SENDING_FACILITY|RECEIVING_APP|RECEIVING_FACILITY|198808181126|SECURITY|ORU^R01^ORU_R01|MSG00001|P|2.5|||AL|NE|THA|UNICODE UTF-8|||

4.2 PID - Patient Identification

The following fields may be required from Attribute Table:

Seg/Field	Req	HL7 Name	Data Type	Max Len	Comments
PID-1	RA	Set ID	SI	4	There will only be one patient being sent at a time. Therefore, this will always be set to the value of "1".
PID-2	O	Patient ID – External	CX	20	
PID-3	R	Patient Identifier	CX	250	<p>Number types SSN/EID, DL, or MRN here will override any SSN/EID, DL, or MRN in PID-4, PID-19, and PID-20.</p> <p>Every instance of PID-3 will be parsed. Number is parsed from "subfield 1" and Number Type is parsed from "subfield 5". Number Type should have value "EID", "MRN", "OMRN", "PPN", "GCCID" only.</p> <p>Component 1: Medical Record Number, Organization level Medical Record Number, Emirates Id, GCC Id, Passport Number</p> <p>Component 5: ID Domain</p> <p>Component 6: Facility Mnemonic</p>
PID-3.1	R	Patient ID – Internal	ST	15	<p>Note 1: ID must be unique. Failure to ensure uniqueness can result in patient record mismatches.</p> <p>Note 2:</p> <ul style="list-style-type: none"> There can be only one primary patient identifier (MRN) and multiple secondary identifiers per patient and facility in PID_3_1. Secondary identifier can be Emirates Id (with no hyphens), GCC Id or Passport Number The PID_3_5 should have MRN for primary identifier. The PID_3_5 should have OMRN for Organisation level Medical Record Number. The PID_3_5 should have EID for Emirates Id identifier. The PID_3_5 should have GCCID for GCC Id identifier. The PID_3_5 should have PPN for Passport Number identifier. There can be only one combination of MRN with Facility number. Along with MRN either of three secondary valid identifiers is mandatory each message.

					<ul style="list-style-type: none"> Facility id in PID_3_6 for primary local identifier for the message sending facility, must Match with facility Id in MSH.4. <p>Note 3: For the Emirates ID, use the below when ID is not available.</p> <ul style="list-style-type: none"> All 0's – Visitors (Tourists), Non-Residents who have no Emirates ID. All 1's – New-borns and other Residents for whom the Emirates ID will be obtained later. All 2's – Special category where the Patient will not have Emirates ID forever. All 9's – Emergency / Unconscious Patients for whom the Emirates ID is not known. <p>Format:</p> <p>MR001^^F12345^MRN~OMR001^^^APPCODE^OMRN~789123412345671^^ICA^EID~1046403927^^GCC^GCCID~PASS001^^INTNL^PPN</p>
PID-3.4	R	Assigning Authority	HD	227	
PID-3.4.1	R	Assigning Authority: Namespace Identifier	IS	20	<p>Facility License Number for MRN.</p> <p>Application / Organisation code assigned by Riayati for OMRN.</p> <p>"ICA" for EID.</p> <p>"GCC" for GCC ID.</p> <p>"INTNL" for Passport Number.</p>
PID-3.4.2	O	Assigning Authority: Universal Identifier	ST	199	
PID-3.4.3	O	Assigning Authority: Universal Identifier Type	ID	6	
PID-3.5	R	Identifier Type Code	ID	5	Identifier Type should have the value either "EID", "MRN", "OMRN", "PPN" or "GCCID".
PID-3.6.1	O	Assigning Facility: Namespace Identifier	IS	20	
PID-3.6.2	O	Assigning Facility: Universal Identifier	ST	199	
PID-3.6.3	O	Assigning Facility: Universal Identifier Type	ID	6	
PID-3.7	O	Effective Date	DT	8	Format: YYYYMMDD[HHMM]
PID-3.8	O	Expiration Date	DT	8	Format: YYYYMMDD[HHMM]
PID-4	O	Alternate Patient ID	CX	20	Not required. Identifiers are to be sent only in PID-3.



PID-5	R	Patient Name	XPN	100	Only the first instance of this field is used. Component 1: Last Name Component 2: First Name Component 3: Middle Initial Component 4: Suffix Component 5: Title Component 6: Degree
PID-5.1	R	Patient Family name	FN	194	
PID-5.2	R	Patient Given name	ST	30	
PID-5.3	O	Patient Middle Initial or Name	ST	30	
PID-5.4	O	Patient Name Suffix	ST	20	
PID-5.5	O	Patient Name Prefix	ST	20	
PID-5.14	O	Patient Name Professional Suffix	ST	199	
PID-6	O	Mother's Maiden Name	XPN	250	This field contains the mother's maiden name.
PID-6.1	O	Mother's Maiden Name: Family Name	FN	194	
PID-6.2	O	Mother's Maiden Name: Given Name	ST	30	
PID-6.3	O	Mother's Maiden Name: Middle initial	ST	30	
PID-6.4	O	Mother's Maiden Name: Suffix	ST	20	
PID-6.5	O	Mother's Maiden Name: Prefix	ST	20	
PID-7	R	Date/time of Birth	TS	26	Only the date part of BirthTime is stored. Format: YYYYMMDD
PID-8	R	Sex	IS	1	HL7 Table 0001 If demographics contain no gender, the patient's gender will appear in the Clinical Viewer as "NS" for "Not Specified".
PID-9	O	Patient Alias	XPN	250	Component 1: Last Name Component 2: First Name Component 3: Middle Initial Component 4: Suffix Component 5: Title



					Component 6: Degree
PID-9-1	O	Patient Alias Family Name	FN	194	
PID-9-2	O	Patient Alias Given Name	ST	30	
PID-9-3	O	Patient Alias Middle Name	ST	30	
PID-9-4	O	Patient Alias Suffix	ST	20	
PID-9-5	O	Patient Alias Prefix	ST	20	
PID-10	O	Race Code	CE	250	If this field is valued, both code and description to be sent in the first two components as per the code table. PID.10.1 and PID.10.2
PID-10.1	O	Race Identifier Code	ST	20	HL7 Table 0005
PID-10.2	O	Race Identifier Description Text	ST	199	
PID-10.3	O	Race Identifier Code System	ID	20	
PID-10.6	O	Race Identifier Code System Version	ID	20	
PID-11	R	Address	XAD	250	Every non-null instance of PID-11 will be parsed. Component 1: Street Component 2: Street (Secondary, i.e., APT) Component 3: City Component 4: State Component 5: Zip Code
PID-11.1	R	Street Address	SAD	184	
PID-11.2	O	Other Designation	ST	120	
PID-11.3	R	City	ST	50	
PID-11.4	R	State or Province	ST	50	HL7 table 0347: Please use the description from the code table.
PID-11.5	O	Zip or Postal Code	ST	12	
PID-11.6	R	Country	ID	3	
PID-11.7	RA	Address Type	ID	3	HL7 table 0190
PID-11.8	O	Other Geographic Designation	ST	50	

PID-11.9	RA	County/Parish	IS	20	
PID-12	RA	County Code	IS	4	Three-digit ISO code
PID-13	R	Phone Number – Home	XTN	250	The TelecommunicationUseCode and TelecommunicationEquipmentTy are used to determine if the phone is a home phone or a mobile phone. Repeating field. Each instance can represent one of the Telecommunication information (Cell Phone, Phone Number and Email Address).
PID-13.1	O	Phone Number – Home Telephone Number	ID	199	Patient home phone number. Only parsed when the PID-13.3 is “CP” or “PH” Formatted as 009715xxxxxxx
PID-13.2	R	Phone Number – Home Telecommunication Use Code	ID	3	“EMR” – Emergency Number (for Cell Phone). “PRN” – Primary Residence Number (for Home Phone Number). “NET” – Network (email) Address (for Email Address).
PID-13.3	R	Phone Number – Home Telecommunication Equipment Type	ST	8	“CP” – Cell Phone. “PH” – Home Phone Number. “Internet” – Email Address.
PID-13.4	O	Phone Number – Home Email Address	ST	199	Patient E-mail address. Only parsed when the PID-13.3 is “Internet”
PID-14	O	Phone Number – Business	XTN	100	The TelecommunicationUseCode and TelecommunicationEquipmentTy are used to determine if the phone is a business phone or a mobile phone. Only one instance is expected with Work Phone Number.
PID-14.1	O	Phone Number – Business Telephone Number	ST	250	Formatted as 009714xxxxxxx
PID-14.2	O	Phone Number – Business Telecommunication Use Code	ID	3	“WPN” – Work Primary Number.
PID-14.3	O	Phone Number – Business Telecommunication Equipment Type	ST	8	“EMP” – Employer
PID-14.4	O	Phone Number – Business Email Address	ST	199	
PID-15	R	Primary Language	CE	250	Patient's primary language If this field is valued, both code and description to be sent in the first two components as per the code table, PID.15.1 and PID.15.2



PID-15.1	RA	Primary Language Code	ST	20	HL7 table 0296
PID-15.2	O	Primary Language Description Text	ST	199	
PID-15.3	O	Primary Language Code System	ID	20	
PID-15.6	O	Primary Language Code System Version	ID	20	
PID-16	RA	Marital Status	CE	250	If this field is valued, both code and description to be sent in the first two components as per the code table. PID.16.1 and PID.16.2.
PID-16.1	RA	Marital Status Code	ST	20	HL7 table 0002
PID-16.2	O	Marital Status Description Text	ST	199	
PID-16.3	O	Marital Status Code System	ID	20	
PID-16.6	O	Marital Status Code System Version	ST	20	
PID-17	O	Religion	CE	250	If this field is valued, both code and description to be sent in the first two components as per the code table. PID.17.1 and PID.17.2
PID-17.1	R	Religion Code	ST	20	HL7 table 0006
PID-17.2	O	Religion Description Text	ST	199	
PID-17.3	O	Religion Code System	ID	20	
PID-17.6	O	Religion Code System Version	ID	20	
PID-18	O	Patient Account Number	CX	250	
PID-19	O	SSN/EID Number – Patient	ST	16	Not required. Identifiers are to be sent only in PID-3.
PID-20	O	Driver's License Number	DLN	25	Driving License Number. This is not expected to be part of PID-3 Identifier list. Used only if there is no DL in PID-3 or PID-4.
PID-20.1	O	Driver's License Number	ST	20	
PID-20.2	O	Driver's License Number State	IS	20	
PID-21	O	Mother's Identifier	CX	250	Required for newborn patient records Mother Patient's MRN ID for the newborn patient records.



PID-22	O	Ethnic Group	CE	250	Patients Ethnicity If this field is valued, both code and description to be sent in the first two components as per the code table. PID.22.1 and PID.22.2
PID-22.1	O	Ethnic Group Code	ST	20	Riayati table RYT1028
PID-22.2	O	Ethnic Group Descriptive Text	ST	199	
PID-22.3	O	Ethnic Group Code System	ID	20	
PID-22.6	O	Ethnic Group Code System Version	ID	20	
PID-23	O	Birthplace	ST	250	
PID-24	O	Multiple Birth Indicator	ID	1	Required only for newborn patient records. HL7 table 0136
PID-25	O	Birth Order	NM	2	Integer value. Required only for newborn patient record and is part of multiple birth.
PID-28	O	Nationality	CE	250	HL7 table 0212 If this field is valued, both code and description to be sent in the first two components as per the code table. PID.28.1 and PID.28.2
PID-28.1	O	Nationality Code	ST		HL7 table 0212
PID-28.2	O	Nationality Description	ST		
PID-29	O	Patient Death Date/time	TS	26	Time of death Format: YYYYMMDD[HHMM]
PID-30	O	Patient Death Indicator	ID	1	HL7 table 0136 A value of "Y" in the HL7 will be parsed as 1, "N" will be parsed as 0, the delete instruction (two double quotes) will be parsed as-is, and any other value in the HL7 will not be parsed.

Sample PID segment:

PID|||MR001^^F12345^MRN~OMR001^^APPCODE^OMRN~789123412345671^^ICA^EID~1046403927^^GCC^GCCID~P
ASS001^^INTNL^PPN||Family Name^Given Name^Second Name^Mr.||19610615|M||| STREET^^SHAIK
KHALIA^DXB^145445|GL|09715512346548^EMR^CP^~^NET^Internet^reach@email.com|00971027654321^WPN^EMP||S||AC
C128563||

4.3 PV1 - Patient Visit

The following fields may be required from Attribute Table:

Seg/Field	Req	HL7 Name	Data Type	Max Len	Comments
PV1-1	O	Set ID	SI	3	This field contains the number that identifies this transaction.
PV1-2	R	Patient Class	IS	1	Supported values: E = Emergency I = Inpatient O = Outpatient C = Community N = Not Applicable P = Pre-admit G = Generated S = Silent
PV1-3	O	Assigned Patient Location	PL	80	Required when PV1-2: Patient Class is for Inpatient or Emergency or Outpatient.
PV1-3.1	O	Point of care	IS	20	Location Note: For Outpatient Encounter this field will contain Speciality description.
PV1-3.2	O	Room	IS	20	Room
PV1-3.3	O	Bed	IS	20	Bed
PV1-3.4	O	Facility	HD	227	Facility License Number (where the visit happens)
PV1-3.7	O	Building	IS	20	
PV1-3.8	O	Floor	IS	20	
PV1-3.9	O	Location Description	ST	199	
PV1-4	O	Admission Type	IS	2	This is a Patient's "Admit Priority" as defined in Admissions. HL7 table 0007 Value 'N' mandatory for Newborn messages.
PV1-5	O	Pre-admit Number	CX	250	A number given to the patient prior to being admitted but while information is being gathered
PV1-5.1	O	Pre-admit Number ID	ST	15	
PV1-5.4.2	O	Pre-admit Number Assigning Authority	ST	199	

PV1-5.5	O	Pre-admit Number Identifier Type Code	ID	5	
PV1-6	O	Prior Patient Location	PL	80	
PV1-7	R	Attending Doctor	XCN	250	
PV1-7.1	R	Attending Doctor ID Number	ST	15	Must be valid DOH, MOHAP or DHA license number.
PV1-7.2	R	Attending Doctor Last Name	FN	194	
PV1-7.3	O	Attending Doctor First Name	ST	30	
PV1-7.4	O	Attending Doctor Middle Name	ST	30	
PV1-7.5	O	Attending Doctor Suffix	ST	20	
PV1-7.6	O	Attending Doctor Prefix	ST	20	
PV1-7.7	O	Attending Doctor Degree	IS	5	HL7 Table 0360
PV1-7.9	R	Attending Doctor Assigning Authority	HD	227	Licensing Authority. Must have the value either MOHAP, DHA or DOH.
PV1-8	O	Referring Doctor	XCN	250	
PV1-8.1	R	Referring Doctor ID Number	ST	15	Must be valid DOH, MOHAP or DHA license number.
PV1-8.2	O	Referring Doctor Last Name	FN	194	
PV1-8.3	O	Referring Doctor First Name	ST	30	
PV1-8.4	O	Referring Doctor Middle Name	ST	30	
PV1-8.5	O	Referring Doctor Suffix	ST	20	
PV1-8.6	O	Referring Doctor Prefix	ST	20	
PV1-8.7	O	Referring Doctor Degree	IS	5	HL7 Table 0360
PV1-8.9	R	Referring Doctor Assigning Authority	HD	227	Licensing Authority. Must have the value either MOHAP, DHA or DOH.
PV1-9	O	Consulting Doctor	XCN	250	
PV1-9.1	R	Consulting Doctor ID Number	ST	15	Must be valid DOH, MOHAP or DHA license number.



PV1-9.2	O	Consulting Doctor Last Name	FN	194	
PV1-9.3	O	Consulting Doctor First Name	ST	30	
PV1-9.4	O	Consulting Doctor Middle Name	ST	30	
PV1-9.5	O	Consulting Doctor Suffix	ST	20	
PV1-9.6	O	Consulting Doctor Prefix	ST	20	
PV1-9.7	O	Consulting Doctor Degree	IS	5	HL7 Table 0360
PV1-9.9	R	Consulting Doctor Assigning Authority	HD	227	Licensing Authority. Must have the value either MOHAP, DHA or DOH.
PV1-10	O	Hospital Service	IS	3	Hospital service code as shared by MOHAP code set mapping. Riayati Table: RYT1035
PV1-11	O	Temporary Location	PL	80	
PV1-12	O	Pre-admit Test Indicator	IS	2	
PV1-13	O	Re-admission Indicator	IS	2	
PV1-14	O	Admit Source	IS	6	HL7 Table 0023
PV1-15	O	Ambulatory Status	IS	2	HL7 Table 0009
PV1-16	O	VIP Indicator	IS	2	This is a Y/N flag that is defined as the VIP. Value 'Y' is mandatory for every VIP patient related message. To remove the previously wrongly set VIP flag HL7 Null ("") can be used.
PV1-17	C	Admitting Physician	XCN	250	Required when PV1-2: Patient Class is Inpatient with Main Responsible Physician (MRP) for the visit.
PV1-17.1	R	Admitting Physician ID Number	ST	15	
PV1-17.2	O	Admitting Physician Family Name	FN	194	
PV1-17.3	O	Admitting Physician Given Name	ST	30	
PV1-17.4	O	Admitting Physician Middle Name	ST	30	

PV1-17.5	O	Admitting Physician Suffix	ST	20	
PV1-17.6	O	Admitting Physician Prefix	ST	20	
PV1-17.7	O	Admitting Physician Degree	IS	5	HL7 Table 0360
PV1-17.9	R	Admitting Physician Assigning Authority	HD	227	Licensing Authority. Must have the value either MOHAP, DHA or DOH.
PV1-18	O	Patient Type	IS	2	HL7 Table 0018
PV1-19	R	Visit Number ID	CX	250	Visit number must be unique for the facility.
PV1-19.1	R	Visit Number ID	ST	15	
PV1-19.4	R	Visit Number Assigning Authority	HD	227	Facility License Number. Must match with facility Id in MSH.4
PV1-19.5	O	Visit Number Identifier Type Code	ID	5	
PV1-20	O	Financial Class	FC	50	This is the Patient's Financial Class as defined as Fin Class in Admissions. HL7 Table 0064
PV1-21	O	Charge Price Indicator	IS	2	
PV1-22	O	Courtesy Code	IS	2	
PV1-23	O	Credit Rating	IS	2	
PV1-24	O	Contract Code	IS	2	
PV1-25	O	Contract Effective Date	DT	8	Format: YYYYMMDD[HHMM]
PV1-26	O	Contract Amount	NM	12	
PV1-27	O	Contract Period	NM	3	
PV1-28	O	Interest Code	IS	2	
PV1-29	O	Transfer to Bad Debt Code	IS	4	
PV1-30	O	Transfer to Bad Debt Date	DT	8	Format: YYYYMMDD[HHMM]
PV1-31	O	Bad Debt Agency Code	IS	10	

PV1-32	O	Bad Debt Transfer Amt	NM	12	
PV1-33	O	Bad Debt Recovery Amt	NM	12	
PV1-34	O	Delete Account Indicator	IS	1	
PV1-35	O	Delete Account Date	DT	8	Format: YYYYMMDD[HHMM]
PV1-36	C	Discharge Disposition	IS	3	The conditions under which the patient was discharged. Mandatory for A03 message. Riayati Table: RYT1024
PV1-37	O	Discharge to Location	DLD	47	
PV1-38	O	Diet Type	CE	250	
PV1-39	O	Servicing Facility	IS	2	HL7 Table No:0115
PV1-40	O	Bed Status	IS	1	
PV1-41	O	Account Status	IS	2	HL7 Table No:0117
PV1-42	O	Pending Location	PL	80	
PV1-43	O	Prior Temporary Location	PL	80	
PV1-44	R	Admit Date/Time	TS	26	This field contains the admit date/time. If there is no value in this field, the system will use the date and time from when the message is transmitted. Format: YYYYMMDD[HHMM]
PV1-45	C	Discharge Date/Time	TS	26	This field contains the discharge date/time. Mandatory for A03 message. Format: YYYYMMDD[HHMM]

Sample PV1 segment:

```
PV1|1|O|General^^F12345||||GD12345^LastName^FirstName^^Dr.^^ASSIGNING_AUTH|14||||P||||453640^^F12345|||||||
||||1|Home|||||20200401111800|20200401112000
```

4.4 ORC – Common Order

The following fields may be required from Attribute Table:

Seg/Field	Req	HL7 Name	Data Type	Max Len	Comments
ORC-1	R	Order Control	ID	2	<p>Supported values:</p> <p>Two double quotes ("") = Inactivate all orders of this type (Status="I")</p> <p>Four double quotes ("""") = Clear/delete all orders of this type (Status="C")</p> <p>R = Replace - Applies only to Atomic Result Items. Clears previous result items before storing all new items, ignoring matching on test item code. Use ONLY when always receiving full updates. Using this with partial updates may cause a loss of test item data.</p> <p>Any other value = Add or Update.</p>
ORC-2	O	Placer Order Number	EI	22	<p>This field is the placer application's order number. This is unique order number generated for every order, and order number remains same when any actions are taken on this particular order (like Modify/Cancel/etc....)</p> <p>OBR-2 will be used if a value can be parsed from it, else ORC-2 will be used.</p>
ORC-3	R	Filler Order Number	EI	22	<p>This field is the order number associated with the filling application.</p> <p>OBR-3 will be used if a value can be parsed from it, else ORC-3 will be used.</p>
ORC-4	O	Placer Group Number	EI	22	<p>This field contains a unique identifier for the Placer Group as referenced by the Placer application, the Filler application, or both. A Placer Group is a set of orders grouped together by the placer application, and subsequently identified by the placer application and/or by the filler application.</p>
ORC-5	O	Order Status	ID	2	HL7 Table: 38
ORC-6	O	Response Flag	ID	1	
ORC-7	RA	Quantity Timing	TQ	200	Only the first instance of this field is used.
ORC-7.1	RA	Quantity Timing Quantity	NM	16	<p>Number of items ordered.</p> <p>Order Quantity is parsed from (in order of precedence) OBR-27.1.1, or ORC-7.1.1.</p>
ORC-7.3	RA	Quantity Timing Duration	ST	6	<p>Duration.</p> <p>This is parsed from (in order of precedence) OBR-27.3, or ORC-7.3.</p>
ORC-7.4	RA	Quantity Timing	TS	26	Start date and time of the Order.



		Start Date/Time			This is parsed from (in order of precedence) OBR-27.4, OBR-6.1, or ORC-7.4. Format: YYYYMMDD[HHMM]
ORC-7.5	RA	Quantity Timing End Date/Time	TS	26	End date and time of the Order This is parsed from (in order of precedence) OBR-27.5, or ORC-7.5. Format: YYYYMMDD[HHMM]
ORC-7.6	RA	Quantity Timing Priority	ST	6	The Priority of the Order Priority is parsed from (in order of precedence) OBR-27.6, OBR-5, or ORC-7.6. Riayati Table: RYT1143
ORC-7.7	RA	Quantity Timing Condition	ST	199	Condition, e.g., "keep BP below 110". Condition is parsed from (in order of precedence) OBR-27.7, or ORC-7.7.
ORC-7.8	RA	Quantity Timing Text	TX	200	Text instructions or directions, e.g. "After food", or if Duration etc. isn't coded, "Take 3 twice a day" Length subject to the total streamlet size limit - 3,000,000. Text instruction is parsed from (in order of precedence) OBR-27.8, or ORC-7.8.
ORC-8	O	Parent	EIP	200	
ORC-9	O	Date/Time of Transaction	TS	22	This field contains the date and time of the event that initiated the current transaction as reflected in ORC-1 Order Control Code. This field is not equivalent to MSH-7 Date and Time of Message which reflects the date/time of the physical message. Format: YYYYMMDD[HHMM]
ORC-10	O	Entered by	XCN	250	Only the first instance of this field is used.
ORC-11	O	Verified by	XCN	250	This field contains the identity of the person who verified the accuracy of the entered request. Note that this refers to the current transaction as reflected in ORC-1 Order Control Code. It is used in cases where the request is entered by a technician and needs to be verified by a higher authority (e.g., a nurse). OBR-32 will be used if present, else the first non-null instance of ORC-11 will be used if there is one.
ORC-12	O	Ordering Provider	XCN	250	This field contains the identity of the person who is responsible for creating the request (i.e., ordering physician). Ordering Provider is parsed from (in order of precedence) OBR-16 or ORC-12 and ORC-24.
ORC-12.1	O	Id Number	ST	15	Must be a valid License number from MOH/DOH/DHA licensing authority



ORC-12.2	O	Family Name	FN	194	
ORC-12.3	O	Given Name	ST	30	
ORC-12.4	O	Second and Further Given Names or Initials Thereof	ST	30	
ORC-12.9	O	Assigning Authority	HD	227	Licensing Authority. Must have the value either MOHAP, DHA or DOH.
ORC-13	O	Enterer's Location	PL	80	Only the Point of Care component ORC-13.1 is currently used when it is not null.
ORC-14	O	Call Back Phone Number	XTN	250	OBR-17 is used if any regular (business), mobile, or fax numbers or e-mail addresses can be parsed from it, else ORC-14 is used.
ORC-15	O	Order Effective Date Time	TS	26	This field contains the date/time that the changes to the request took effect or are supposed to take effect.
ORC-16	O	Order Control Code Reason	CE	250	
ORC-17	O	Entering Organization	CE	250	
ORC-18	O	Entering Device	CE	250	
ORC-19	O	Action by	XCN	250	
ORC-20	O	Advanced Beneficiary Notice Code	CE	250	
ORC-21	O	Ordering Facility Name	XON	250	Will be processed in combination of ORC-22 and ORC-23.
ORC-22	O	Ordering Facility Address	XAD	250	Will be processed in combination of ORC-21 and ORC-23.
ORC-23	O	Ordering Facility Phone Number	XTN	250	Will be processed in combination of ORC-21 and ORC-22.
ORC-24	O	Ordering Provider Address	XAD	250	Will be processed in combination of ORC-12.
ORC-25	O	Order Status Modifier	CWE	250	



ORC-26	O	Advanced Beneficiary Notice Override Reason	CWE	60	
ORC-27	O	Filler's Expected Availability Date/Time	TS	26	
ORC-28	R	Confidentiality Code	CWE	250	This field contains information about the level of security and/or sensitivity surrounding the order. If this field is valued, both code and description to be sent in the first two components as per the code table. ORC.28.1 and ORC.28.2 HL7 Table: 0177
ORC-28.1	R	Confidentiality Code	ST	20	HL7 Table: 0177
ORC-28.2	R	Confidentiality Description	ST	199	
ORC-29	R	Order Type	CWE	250	Order type must be one of the following: -LAB for lab orders and results -OBS for observations / vitals -RAD for radiology orders and results -OTH for everything else including Other Departmental Tests. Riayati Table: RYT1126
ORC-31	O	Parent universal service identifier	CWE	250	

Sample ORC segment:

ORC|NW|3591873-96^CODING_SYS|3591873-
96^CODING_SYS||CM||||20200401112357||GD12345^FirstName^LastName^^^^^&ASSIGNING_AUTH|||||||||N|LAB|

4.5 OBR – Observation Request

The following fields may be required from Attribute Table:

Seg/Field	Req	HL7 Name	Data Type	Max Len	Comments
OBR-1	R	Set ID	SI	4	Send as a sequential number starting with 1, for the first observation. For multiple data sets, the SET ID field is used to identify repetitions.
OBR-2	R	Placer Order Number	EI	22	A PlacerOrderNumber is required for every OBR segment. If an OBR is transmitted without a PlacerOrderNumber, the message will be deemed invalid, and it must be unique against facility. OBR-2 will be used if a value can be parsed from it, else ORC-2 will be used.
OBR-2.1	R	Identifier	ST	199	
OBR-2.3	O	Namespace	IS	199	
OBR-2.4	O	Name	ID	6	
OBR-3	C	Filler Order Number	EI	22	OBR-3 will be used if a value can be parsed from it, else ORC-3 will be used.
OBR-3.1	R	Identifier	ST	199	
OBR-3.3	RA	Namespace	IS	199	
OBR-3.4	RA	Name	ID	6	
OBR-4	R	Universal Service ID	CE	250	
OBR-4.1	R	Identifier	ST	20	Must be CPT4 code for Procedure and CDT for dental code
OBR-4.2	RA	Text	ST	199	
OBR-4.3	RA	NameOfCodingSystem	ID	20	Must be CPT4 for all procedure (other than dental) or CDT for dental
OBR-4.4	RA	AlternateIdentifier	ST	20	
OBR-4.5	RA	AlternateText	ST	199	
OBR-4.6	RA	NameOfAlternateCodingSystem	ID	20	
OBR-5	O	Priority	ID	2	The Priority of the Order. Priority is parsed from (in order of precedence) OBR-27.6, OBR-5, or ORC-7.6.



					Riayati Table: RYT1143
OBR-6	O	Requested Date/Time	TS	26	Start date and time of the Order. This is parsed from (in order of precedence) OBR-27.4, OBR-6.1, or ORC-7.4 Format: YYYYMMDD[HHMM]
OBR-7	RA	Observation Date/Time	TS	26	Date/time the specimen was collected. OBR-7.1 and SPM-17.1 represent the same value and therefore should contain the same value if both are present. Format: YYYYMMDD[HHMM]
OBR-8	O	Observation End Date/Time	TS	26	
OBR-9	O	Collection Volume	CQ	20	
OBR-10	O	Collector Identifier	XCN	250	
OBR-11	O	Specimen Action Code	ID	1	HL7 Table No:0065
OBR-12	O	Danger Code	CE	250	
OBR-13	O	Relevant Clinical Info	ST	300	
OBR-14	RA	Specimen Received Date/Time	TS	26	Date/Time the specimen was received by the Performing Facility. Format: YYYYMMDD[HHMM]
OBR-15	O	Specimen Source	SPS	300	Must be mapped with external EMR systems. Required when OBR-24 having one of the below values: BG Blood Gases BLB Blood Bank CH Chemistry CP Cytopathology HM Haematology IMM Immunology LAB Laboratory MB Microbiology MCB Mycobacteriology MYC Mycology SP Surgical Pathology SR Serology TX Toxicology VR Virology



OBR-15-1.1	R	Specimen Source Name or Code Identifier	ST	20	
OBR-15-1.2	R	Specimen Source Name or Code Text	ST	199	
OBR-15-1.3	O	Specimen Source Name or Code Coding System	ID	20	
OBR-15-1.4	O	Specimen Source Name or Code Alternate Identifier	ST	20	
OBR-15-1.5	O	Specimen Source Name or Code Alternate Text	ST	199	
OBR-15-1.6	O	Specimen Source Name or Code Alternate Coding System	ID	20	
OBR-16	O	Ordering Provider	XCN	250	Only the first instance of this field is used. Ordering Provider is parsed from (in order of precedence) OBR-16, or ORC-12 and ORC-24.
OBR-16.1	O	Ordering Provider ID Number	ST	15	Must be valid DOH, MOHAP or DHA license number.
OBR-16.2	O	Ordering Provider Family name	FN	194	
OBR-16.3	O	Ordering Provider Given name	ST	30	
OBR-16.4	O	Ordering Provider Middle initial or Name	ST	30	
OBR-16.5	O	Ordering Provider Suffix	ST	20	
OBR-16.9	O	Assigning authority	HD	227	Licensing Authority. Must have the value either MOHAP, DHA or DOH.
OBR-17	O	Order Callback Phone Number	XTN	250	OBR-17 is used if any regular (business), mobile, or fax numbers or e-mail addresses can be parsed from it, else ORC-14 is used.
OBR-18	O	Placers Field #1	ST	60	
OBR-19	O	Placers Field #2	ST	60	
OBR-20	O	Fillers Field #1	ST	60	
OBR-21	O	Fillers Field #2	ST	60	
OBR-22	R	Results Report/Status Change - Date/Time	TS	26	Time the result was authenticated/verified, Time of result.



OBR-23	O	Charge to Practice	MOC	40	
OBR-24	O	Diagnostic Service Sect ID	ID	10	Not to be populated
OBR-25	R	Result Status	ID	1	<p>HL7 Table 0123</p> <p>Note: Sending a value of 'X' will prepend the following to the display of the report:</p> <p>***THIS REPORT HAS BEEN CANCELLED**</p> <p><BLANK LINE></p> <p><BLANK LINE></p> <p><BLANK LINE></p> <p><BLANK LINE></p>
OBR-26	O	Parent Results	PRL	400	<p>If the Result in this Order is the child of an observation in another Order, this is a copy of the parent observation.</p> <p>For example, the parent observation could be a bacterial culture identified in a specimen taken from the patient, and this order would contain the antibiotic susceptibilities of that culture.</p>
OBR-27	O	Quantity/Timing	TQ	200	
OBR-27.1	RA	Quantity Timing Quantity	NM	16	<p>Number of items ordered.</p> <p>Order Quantity is parsed from (in order of precedence) OBR-27.1.1, or ORC-7.1.1.</p>
OBR-27.3	RA	Quantity Timing Duration	ST	6	<p>Duration.</p> <p>This is parsed from (in order of precedence) OBR-27.3, or ORC-7.3.</p>
OBR-27.4	RA	Quantity Timing Start Date/Time	TS	26	<p>Start date and time of the Order.</p> <p>This is parsed from (in order of precedence) OBR-27.4, OBR-6.1, or ORC-7.4.</p> <p>Format: YYYYMMDD[HHMM]</p>
OBR-27.5	RA	Quantity Timing End Date/Time	TS	26	<p>End date and time of the Order</p> <p>This is parsed from (in order of precedence) OBR-27.5, or ORC-7.5.</p> <p>Format: YYYYMMDD[HHMM]</p>
OBR-27.6	RA	Quantity Timing Priority	ST	6	<p>The Priority of the Order</p> <p>Priority is parsed from (in order of precedence) OBR-27.6, OBR-5, or ORC-7.6.</p> <p>Riayati Table: RYT1143</p>
OBR-27.7	RA	Quantity Timing Condition	ST	199	<p>Condition, e.g., "keep BP below 110"</p> <p>Condition is parsed from (in order of precedence) OBR-27.7, or ORC-7.7.</p>



OBR-27.8	RA	Quantity Timing Text	TX	200	Text instructions or directions, e.g. "After food", or if Duration etc. isn't coded, "Take 3 twice a day" Length subject to the total streamlet size limit - 3,000,000. Text instruction is parsed from (in order of precedence) OBR-27.8, or ORC-7.8.
OBR-28	O	Result Copies To	XCN	250	
OBR-29	O	Parent Number	EIP	200	The Filler Id of the parent observation.
OBR-30	O	Transportation Mode	ID	20	HL7 Table No:0124
OBR-31	O	Reason for Study	CE	250	
OBR-32	O	Principal Result Interpreter	NDL	200	OBR-32 will be used if present, else the first non-null instance of ORC-11 will be used if there is one.
OBR-33	O	Assistant Result Interpreter	NDL	200	
OBR-34	O	Technician	NDL	200	
OBR-35	O	Transcriptionist	NDL	200	
OBR-35.1.1	O	Transcriptionist ID	ST	15	
OBR-35.1.2	O	Transcriptionist Family Name	ST	50	
OBR-35.1.3	O	Transcriptionist Given Name	ST	30	
OBR-35.1.4	O	Transcriptionist Middle Name	ST	30	
OBR-35.1.5	O	Transcriptionist Suffix	ST	20	
OBR-35.1.6	O	Transcriptionist Prefix	ST	20	
OBR-35.1.7	O	Transcriptionist Degree	IS	5	
OBR-35.1.8	O	Transcriptionist Source Table	IS	4	
OBR-35.1.9	O	Transcriptionist Namespace ID	IS	20	
OBR-35.1.10	O	Transcriptionist Universal ID	ST	199	
OBR-35.1.11	O	Transcriptionist Universal ID Type	ID	6	
OBR-36	O	Schedule date/time	TS	26	



OBR-37	O	Number of Sample Containers	NM	4	
OBR-38	O	Transport Logistics of Collected Sample	CE	250	
OBR-39	O	Collector's Comment	CE	250	
OBR-40	O	Transport Arrangement Responsibility	CE	250	
OBR-41	O	Transport Arranged	ID	30	HL7 Table No 0224
OBR-42	O	Escort Required	ID	1	HL7 Table No 0225
OBR-43	O	Planned Patient Transport Comment	CE	250	
OBR-44	O	Procedure Code	CE	250	
OBR-45	O	Procedure Code Modifier	CE	250	
OBR-50	O	Parent universal service Identifier	CWE	250	

Sample OBR segment:

OBR|1|123456^^CODING_SYS|123456^^CODING_SYS|84153^PSA
TOTAL^CPT|||20200401095959|20200401112357|||||20200401100946||GD9816^FirstName^LastName^^^^&ASSIGNING_A
UTH|||||20200401112357||CH|F||GD9816^FirstName^LastName^^^^&ASSIGNING_AUTH||||

4.6 OBR-NTE – OBR Notes and Comments Segment

This segment is used for sending notes and comments related to order only like comment against test.

The following fields may be required from Attribute Table:

Seg/Field	Req	HL7 Name	Data Type	Max Len	Comments
NTE-1	O	Set ID	SI	4	Send as a sequential number starting with 1, for the first comment line per observation or observation result that the comment is associated with.
NTE-2	O	Source of Comment	ID	8	HL7 table 0105
NTE-3	O	Comment	FT	65536	
NTE-4	O	Comment Type	CE	250	
NTE-4.1	O	Comment Type ID	ST	2	
NTE-4.2	O	Comment Type Text	ST	199	Recommendation is using this field only for Notes. We have encountered few subscribers' feeds to contain Reference Range and Lab report values in this field. Reference range must be sent in OBX-7 field and Lab report values in OBX-5
NTE-4.3	O	Comment Type Coding System	ID	20	HL7 table 0364

4.7 OBX - Observation/Result

The following fields may be required from Attribute Table:

Note: The RP value (reference pointer) must be used if the actual observation value is not sent in OBX but exists somewhere else. For example, if the observation consists of an image (document or medical), the image itself cannot be sent in OBX. The sending system may in that case opt to send a reference pointer. The receiving system can use this reference pointer whenever it needs access to the actual image through other interface standards, e.g., DICOM, or through appropriate data base servers.

Seg/Field	Req	HL7 Name	Data Type	Max Len	Comments
OBX-1	R	Set ID	SI	4	Send as a sequential number starting with 1, for the first observation result per observation. No Null values in DB
OBX-2	R	Value type	ID	2	Must be "NM" – "Numeric" (or) "ST" – String Data (or) "TX" – Text Data (or) "RP" – Reference Pointer
OBX-3	R	Observation Identifier	CE	250	We generally expect LOINC Code, alternatively if we are provided a Mnemonic Master then we will use it to create a custom Lookup and map it to LOINC. For Vitals, please refer the section Vital Signs
OBX-3.1	R	Observation Identifier	ST	20	We generally expect LOINC Code, alternatively if we are provided a Mnemonic Master then we will use it to create a custom Lookup and map it to LOINC
OBX-3.2	O	Observation Identifier Text	ST	199	
OBX-3.3	R	Observation Identifier Coding System	ID	20	Must be LOINC
OBX-4	O	Observation Sub-ID	ST	20	The Interface Type, defined in PTH, that each Data Section should file.
OBX-5	R	Observation Value		99999	Repeating fields of OBX-5 is not supported. If results have multiple lines each line must be represented in Different OBX segments. Supported data type for this field are NM, ST, TX and RP. Note: <ul style="list-style-type: none"> RP data type is using for URL based result which will be used only in case of Radiology Results. Results string length is limited to 3MB only.
OBX-6	RA	Units	CE	250	Must be available for OBX-2 "NM" value types and it should not be any encoded values. For Vitals, please refer the section Vital Signs

OBX-6.1	O	Units Identifier	ST	20	Code for the Units
OBX-6.2	R	Units Text	ST	199	Description of the Units
OBX-7	RA	References range	ST	60	Must be available for OBX-2 "NM" value types and it should be based on age if available
OBX-8	O	Abnormal Flags	IS	5	HL7 Table 0078
OBX-9	O	Probability	NM	5	
OBX-10	O	Nature of Abnormal Test	ID	2	HL7 Table 0080
OBX-11	R	Observation Result Status	ID	1	HL7 Table 0085
OBX-12	O	Effective Date of Reference Range	TS	26	
OBX-13	O	User Defined Access Checks	ST	20	
OBX-14	R	Date/Time of the Observation	TS	26	Observation Date. Format: YYYYMMDD[HHMM]
OBX-15	O	Producer's Identifier	CE	250	
OBX-16	O	Responsible Observer	XCN	250	
OBX-17	O	Observation Method	CE	250	

Sample OBX segment:

OBX|1|NM|29^PSA,
Total^CODING_SYS||0.589|ng/mL^ng/mL^CODING_SYS|<2.0|N|||F|||20200401112357||GD12345^LastName^First
Name^^^^^^&ASSIGNING_AUTH|||20200401112357|||Hospital^^MFXXX^^&ASSIGNING_AUTH

Sample OBX segment with Radiology URL link:

OBX|2|RP|399067008^Lateral
projection|1234567^http://imaging.acme.com/wado/server?requestType=WADO\T\contentType=application%2Fdicom&studyUid=1.2.840.113619.2.21.848.34082.0.538976288.3\T\seriesUid=1.2.840.113619.2.21.3408.700.0.757923
840.3.0\T\objectUid=1.2.840.11361907579238403408700.3.0.14.19970327150033^AP^DICOM||-|||F|

4.7.1 Vital Signs

The Vital Sign values should be sent in OBX Segments only for the below observations with LOINC based codes and the Units given below:

OBX:3.1 - Vitals Code	OBX:3.2 - Vitals Description	OBX:6 -Units
8310-5	Body Temperature	DegC
8867-4	Heart Rate	bpm
9279-1	Respiratory Rate	bpm
8480-6	Systolic Blood Pressure	mmHg
8462-4	Diastolic Blood Pressure	mmHg

59408-5	SpO2	%
8302-2	Height	cm
8306-3	Height (Lying)	cm
29463-7	Weight	kg
3141-9	Weight Measured	kg
39156-5	BMI (Body Mass Index)	kg/m2
3140-1	BSA (Body Surface Area)	m2
72514-3	Pain Scale	
8287-5	Head Circumference	cm

Sample OBX segments with Vitals:

OBX|1|NM|8480-6^Systolic Blood Pressure^LOINC||120.0|mmHg||||F||202109101550

OBX|2|NM|8462-4^Diastolic Blood Pressure^LOINC||70.0|mmHg||||F||202109101550

OBX|3|NM|8302-2^Height^LOINC||198.0|cm||||F||202109101550

OBX|4|NM|29463-7^Weight^LOINC||85.0|kg||||F||202109101550

OBX|5|NM|8867-4^Heart Rate^LOINC||65.0|bpm||||F||202109101550

OBX|6|NM|8310-5^Body Temperature^LOINC||41.0|DegC||||F||202109101550

OBX|7|NM|9279-1^Respiratory Rate^LOINC||52.0|bpm||||F||202109101550

OBX|8|NM|8287-5^Head Circumference^LOINC||85.0|cm||||F||202109101550

OBX|9|NM|72514-3^Pain Scale^LOINC||6||||F||202109101550

OBX|10|NM|39156-5^BMI (Body Mass Index^LOINC|kg/m2|26.7||||F||202109101550

4.8 OBX-NTE – OBX Notes and Comments Segment

This segment is used for sending notes and comments related to results only like comment against any test parameter.

The following fields may be required from Attribute Table:

Seg/Field	Req	HL7 Name	Data Type	Max Len	Comments
NTE-1	O	Set ID	SI	4	Send as a sequential number starting with 1, for the first comment line per observation or observation result that the comment is associated with.
NTE-2	O	Source of Comment	ID	8	HL7 table 0105
NTE-3	R	Comment	FT	65536	
NTE-4	RA	Comment Type	CE	250	
NTE-4.1	R	Comment Type ID	ST	2	
NTE-4.2	R	Comment Type Text	ST	199	Recommendation is using this field only for Notes. We have encountered few subscribers' feeds to contain Reference Range and Lab report values in this field. Reference range must be sent in OBX-7 field and Lab report values in OBX-5
NTE-4.3	R	Comment Type Coding System	ID	20	HL7 table 0364

Sample OBX-NTE segment:

NTE|1|X^N^3|The Acetaminophen metabolite N-acetyl-p-benzo-quinone-imine|
 NTE|2|X^N^3|(NAPQI)and N-acetylcysteine (NAC), which Acetaminophen|
 NTE|3|X^N^3|intoxications are frequently treated with, may cause falsely|
 NTE|4|X^N^3|low results for this analyte.|

4.9 SPM – Specimen

The intent of this segment is to describe the characteristics of a specimen. An advantage afforded by a separate specimen segment is that it generalizes the multiple relationships among order(s), results, specimen(s) and specimen container(s).

Seg/Field	Req	HL7 Name	Data Type	Max Len	Comments
SPM-1	O	Set ID – SPM	SI	4	
SPM-2	O	Specimen ID	EIP	80	
SPM-3	O	Specimen Parent IDs	EIP	80	
SPM-4	R	Specimen Type	CWE	250	If this field is valued, both code and description to be sent in the first two components as per the code table. SPM.4.1 and SPM.4.2
SPM-4.1	R	Specimen Type Code	ST	20	HL7 Table 0487
SPM-4.2	R	Specimen Type Description	ST	199	
SPM-5	O	Specimen Type Modifier	CWE	250	SPM-5 is a repeating field. Each instance will be parsed as a Specimen Type Modifier in the list.
SPM-5.1	O	Specimen Type Modifier Identifier	ST	2	
SPM-5.2	R	Specimen Type Modifier Text	ST	199	
SPM-6	O	Specimen Additives	CWE	250	SPM-6 is a repeating field. Each instance will be parsed as a Specimen Additive in the list.
SPM-7	O	Specimen Collection Method	CWE	250	
SPM-7.1	O	Specimen Type Modifier Identifier	ST	2	
SPM-7.2	R	Specimen Type Modifier Text	ST	199	
SPM-8	O	Specimen Source Site	CWE	250	
SPM-8.1	O	Specimen Source Site Identifier	ST	2	
SPM-8.2	R	Specimen Source Site Text	ST	199	
SPM-9	O	Specimen Source Site Modifier	CWE	250	SPM-9 is a repeating field. Each instance will be parsed as a Specimen Source Site Modifier in the list.

SPM-9.1	O	Specimen Source Site Modifier Identifier	ST	2	
SPM-9.2	R	Specimen Source Site Modifier Text	ST	199	
SPM-10	O	Specimen Collection Site	CWE	250	
SPM-10.1	O	Specimen Collection Site Identifier	ST	2	
SPM-10.2	R	Specimen Collection Site Text	ST	199	
SPM-11	O	Specimen Role	CWE	250	SPM-11 is a repeating field. Each instance will be parsed as a Specimen Role in the list.
SPM-11.1	O	Specimen Role Identifier	ST	2	
SPM-11.2	R	Specimen Role Text	ST	199	
SPM-12	O	Specimen Collection Amount	CQ	20	
SPM-12.1	O	Specimen Collection Amount Quantity	NM	16	
SPM-12.2	O	Specimen Collection Amount Unit	CE	20	
SPM-17	O	Specimen Collection Date / Time	DR	26	Date/time the specimen was collected. OBR-7.1 and SPM-17.1 represent the same value and therefore should contain the same value if both are present. Format: YYYYMMDD[HHMM]

Sample SPM segment:

SPM|1|4222||67922002^Serum^SCT||NONE|SWA|||||||20160308170551

5 Appendix – Minimum Lab reports to be tested during onboard testing.

Following Lab reports must be tested during UAT if these departmental reports are captured by sending system.

Department	Investigation Name
Microbiology	Smear & Stains
	Culture & Sensitivity
Pathology	Biopsy
Genetic Testing	Complementation Test
	FISH
Cardiology	
	Electrocardiography
	Holter Monitoring
	Electrophysiological
Respiratory	Spirometry
	Challenge Test
	Peak Flow Measurement
	Plethysmography
	Diffusion Capacity test
Neurology	Electroencephalogram
	Electromyography
	Nerve Conduction Velocity
Obstetrics	Amniocentesis
	Chorionic Villus Sampling
	Cordocentesis
	Non-Stress Test
ENT	Audiometry/ PTA
	Tympanometry
	Otoacoustic Emissions
Ophthalmology	Tonometry
	Tophography
	Retinal Tomography
Gastroenterology	Esophageal/ Gastric Manometry
Point of Care	Blood Glucose
	Dipstick Urinalysis
	Rapid Strep test
	Cardiac Markers



	Activated Clotting Time
	O2 Saturation
	Blood Gases and Elelctrolytes
	Hemoglobin
	Rapid HIV
	TSH
	hCG/ Pregnancy testing
	Creatinine
	PT/ INR
	Fecal Occult Blood test