

HL7 ORU_R01 2.5.1 Implementation Guide

ORU^R01 Unsolicited Transmission of an Observation Message

Document Version	2.0.0 STU (Standard for trial use)
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Status	Approved
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Document author:	Gareth Williams
Approved by	Welsh Technical Standards Board's Interoperability Standards Working Group
Date approved:	22 nd March 2023
Review date:	27 th January 2023

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Strategic Objective	Delivering High Quality Digital Services
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<u>Well-Being Of Future Generations Act</u>	A healthier Wales
If more than one standard applies, please list below:	

<u>DHCW Quality Standards</u>	N/A
If more than one standard applies, please list below:	

<u>Health Care Standard</u>	N/A
If more than one standard applies, please list below:	

<u>Equality Impact Assessment Statement</u>	Date of submission:
No, (detail included below as to reasoning)	Outcome:
Statement: N/A as a technical standard	

Approval/Scrutiny Route: Person/Committee/Group who have received or considered this		
Committee or Group	Date	Outcome
Interoperability Standards Working Group	17 th March 2022	Standard for trial use (STU)
Interoperability Standards Working Group - HL7v2 ORU Message Standards Task & Finish Group	27 th January 2023	Approved

Impact Assessment	
Quality And Safety Implications/Impact	No, there are no specific quality and safety implications related to the activity outlined in this report.

Legal Implications/Impact	No, there are no specific legal implications related to the activity outlined in this report.
Financial Implication/Impact	No, there are no specific financial implication related to the activity outlined in this report
Workforce Implication/Impact	No, there is no direct impact on resources as a result of the activity outlined in this report.
Socio Economic Implication/Impact	No. there are no specific socio-economic implications related to the activity outlined in this report

TABLE OF CONTENTS

1	Document History	6
1.1	Revision History	6
1.2	Reviewers	7
1.3	Authorisation	7
1.4	Document Location	8
2	Purpose	8
2.1	Implementation	8
3	Scope	8
3.1	Specification Scope	8
3.2	Message Security & Transport	9
3.3	Display/User Interface Requirements	9
4	HL7 Message Standards Overview	9
4.1	Escape Characters	9
4.2	HL7 Null	9
4.3	Message Control behaviour	10
5	Ignored Fields, Sequences and Components	10
6	ORU R01 Message Specification	10
6.1	ORU^R01 Message Structure	10
6.2	MSH – Message Header	11
6.3	PID – Patient Identification	14
6.4	NTE – Notes and Comments	20
6.5	PV1 - Visit	20
6.6	ORC – Common Order	24
6.7	OBR – Observation Request	26
6.8	OBX – Observation	28
6.9	SPM – Specimen	31
6.10	TQ1 – Timing Quantity	33
7	Complete ORU_R01 Message Examples	34
7.1	Text based report	34
7.2	Example Pathology result	35
7.3	Embedded Documents	35
	DHCW HL7 2.5.1 ORU_R01	4

7.4	Example Mixed Content	35
8	Acknowledge Messages	35
8.1	Example Ack messages	36
9	Environments	36
10	References	37
11	Definitions	37
	Appendix A – Using ORU to Publish PDF Reports	38
	Appendix B – ORU^R01^ORU_R01 Abstract Message Syntax	40
	Appendix C – Full example	41

1 Document History

1.1 Revision History

Date	Version	Author	Revision Summary
20 th July 2017	0.1	Gareth Williams	First Draft
17 th July 2018	0.2	Gareth Williams	Incorporated comments from review Draft for wider distribution
25 th Oct 2018	1.0	Gareth Williams	First published version Edits in this document: NHS Number validation Clarifications on MSH Sending Facility Added example on large OBX ED type
20 th Nov 2018	1.1	Gareth Williams	General clarifications from further reviews and comments from: Rebecca Cook Josh Jordan
4 th June 2019	1.2	Gareth Williams	General edits and clarifications
6 th June 2019	1.3	Lawrence Borge	TOC, Section 1 and footer updates Watermark removed. Comment PV1.8 example added
13 th June 2019	1.4	Gareth Williams Lawrence Borge	Section 6.5, Appendix A and B updates. Section 7 comments for review / action. General doc review updates. Appendix A updates and comments. Appendix B updates and comments. TOC updated.
1 st July 2019	1.4.1	Gareth Williams	Embedded ORU 2.5.1 Schema in Appendix B
11 th Feb 2019	1.4.1	Gareth Williams	Surname, Forename and DOB mandatory
5 th March 2019	1.4.2	Gareth Williams	Minor corrections
21 st September 2021/ February 2022	1.4.3	Stephen Winder/Lawrence Borge/Rob Jones	Conversion to Digital Health and Care Wales (DHCW) template Changes to OID details. Other minor updates, corrections.
16 th December 2022 – 27 th Jan	2.0.0	Rhodri Evans Josh Jordan	Updates following review by all members of the Wales Interoperability Standards Working Group

2023		Tracey Francis Gareth Griffiths Mark Frayne	
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1.2 Reviewers

This document requires the following reviews:


Date	Version	Name	Position
17 th March 2022	1.4.3	Interoperability Standards Working Group	All members
27 th January 2023	2.0.0	Interoperability Standards Working Group - HL7v2 ORU Message Standards Task & Finish Group	All members

1.3 Authorisation

Signing of this document indicates acceptance of its contents.

Author's Name:	Gareth Williams
Role:	Assistant Chief Architect
Signature:	 Author

Approver's Name:	Mark Frayne
Role:	Assistant Chief Architect, Co-chair of the Interoperability Standards Working Group

Signature:	 <hr style="width: 30%; margin: 0 auto;"/> <p>Mark Frayne Assistant Chief Architect</p>
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1.4 Document Location

Type	Location
Electronic - original	https://nhs.wales365.sharepoint.com/:f:/r/sites/NHSWalesFHIRProfiling/Shared%20Documents/General/HL7%20v2%20ORU_R01%20Implementation%20Guide?csf=1&web=1&e=TQvJGn
Electronic - this version	https://nhs.wales365.sharepoint.com/:f:/r/sites/NHSWalesFHIRProfiling/Shared%20Documents/General/HL7%20v2%20ORU_R01%20Implementation%20Guide?csf=1&web=1&e=TQvJGn

2 Purpose

This document describes the Digital Health and Care Wales (DHCW) implementation of the HL7 2.5.1 specification for sending and receiving patient based clinical data for unsolicited transmission of results. HL7 is a well-established industry framework already adopted as the common messaging language to use where interoperability is required between disparate health systems.

DHCW adheres strictly to the HL7 2.5.1 specification – deprecated types and structures or use of "local" codes will not be accepted unless otherwise permitted under the HL7 2.5.1 standard and agreed with DHCW.

When creating messages, suppliers need to consider the destination use of the data and how it will be displayed, so the use of namespaces and Universal Ids are strongly encouraged as well as uses of well-known coding systems such as Read, OPCS, SNOMED CT and LOINC. Human readable descriptions of codes must be included to help remove any ambiguity.

Example scenarios and uses of the ORU_R01 message structure:

- Laboratory Information System sending results to central data repository.
- Radiology Information System sending textual reports to primary care systems.
- Spirometry Diagnostic machine for consumption by national web viewer.
- Other clinical systems, such as, but not limited to, Cardiology, Audiology, Endoscopy, Genetics and Neurophysiology systems, sending reports as PDFs as well as data to national data repositories.

2.1 Implementation

During implementation, supplier systems will be registered as senders and provided with an Assigning Authority (synonymous with Issuing Authority) OID and Application Instance OID. These OIDs must be used to uniquely identify patient and application instances. This is important where Local coding systems are used to ensure there are no clashes of codes when data is stored in the national architecture.

Suppliers reading this document may wish to reference the **appendices** where several example messages are

provided. If there are queries regarding specific fields, then please refer to the detailed segment specifications in section 6.1 ORU^R01 Message Structure.

3 Scope

3.1 Specification Scope

This document describes the **ORU^R01 Unsolicited Transmission of an Observation Message** as specified in the HL7 2.5.1 standard published April 2007. This document also presents examples of the ORU message and describes usages of the data in recipient systems.

This document assumes the audience is already familiar with the HL7 2.5.1 concepts such as message segments, structure, field definitions and data types. As such, this document should be referenced alongside the HL7 2.5.1 specification.

3.2 Message Security & Transport

The HL7 standard itself does not impose message communication standards, the agreed method for message provenance, security and transport will be handled **during implementation** as this can differ depending on environment.

For simple trusted host-to-host transport the usual mechanism is the HL7 MLLP:

https://www.hl7.org/documentcenter/public_temp_2F5BDB1B-1C23-BA17-OC1B95E27F4F40F6/wg/inm/mllp_transport_specification.PDF

Depending on implementation, the message may need to be passed using network protocols such as HTTPS. In such cases the implementation approach will need to be agreed with the DHCW Integration Service.

HL7 v2 messages sent via HTTPS may also be represented as XML (see <https://caristix.com/help-center/v3/test/task/hl7-xml-encoding/>).

3.3 Display/User Interface Requirements

This specification is limited to the content of the HL7 ORU_R01 message. Requirements for display and/or user interface requirements are out of scope.

4 HL7 Message Standards Overview

This section provides a brief overview of the HL7 2.5.1 message conventions.

4.1 Escape Characters

The authority only supports the following standard escape characters.

Reason	Character to be escaped	Escaped value	Unescaped on input	Escaped on output
Field separator	|	\F\	Yes	Yes
Component separator	^	\S\	Yes	Yes

Subcomponent separator	&	\T\	Yes	Yes
Repetition separator	~	\R\	Yes	Yes
Escape character	\	\E\	Yes	Yes
New line	<new line>	\.br\	Yes	No

4.2 HL7 Null

The HL7 Null characters "" will be honoured - e.g., if a sending facility may wish to set an address line to null or remove a date of death.

4.3 Message Control behaviour

It is the responsibility of the sending facility to ensure messages are transmitted in the correct order. Messages will be processed in the order they are received.

The sender should resend a message if it does not receive a related ACK.

Duplicate messages will simply be processed again as a new version.

5 Ignored Fields, Sequences and Components

The tables in section 6 may denote that the field value can be supplied but may not be processed. However, sending systems are encouraged to populate as many fields as possible even though the information, in the short term, may not be used - e.g., Marital Status.

It is also imported to note that if a specific use case presents itself that requires one of the Ignored fields, then this can be agreed during implementation -e.g., Veteran Status.

6 ORU R01 Message Specification

This section describes the content of each of the ORU_R01 segments with examples of field and component values.

Please note that in the following tables the Optional (Opt) column follows the HL7 standard; whether DHCW expects a particular field will be discussed during implementation. Not providing a value where required or providing an invalid value will mean the entire message will be rejected with an *Application Reject* message.

The Optional column in following tables follow the HL7 2.5.1 documentation model:

- R - Required
- O - Optional
- C - Conditional on the trigger event or on some other field(s). The field definitions following the segment attribute table should specify the algorithm that defines the conditionality for this field.
- X - Not used with this trigger event
- B - Left in for backward compatibility with previous versions of HL7. The field definitions following the segment attribute table should denote the optionality of the field for prior versions.

There may be some optional segments in the message syntax that are not further specified. If the segment is used, the standard segment definition from the 2.5.1 HL7 Standard applies. This specification does not further constrain those segments.

6.1 ORU^R01 Message Structure

The following table describes the mandatory and optional segments within an ORU message.

Segment	Name	Opt	Rep	Notes/Requirements
MSH	Message Header	Required	1	MSH shall not contain data pertaining to a patient or the contained result. For example, facility code will not be used to derive Assigning Authority for a patient's identifier.
PID	Patient Identification	Required	1	Includes basic demographics
PD1	Additional Demographics	Optional	1	
NTE	Patient Notes and Comments	Optional	*	
PV1	Patient Visit	Required	1	Responsible Clinician should be provided within this segment. This is the clinician the report is to be returned to.
PV2	Patient Visit Additional information	Optional		
ORC	Common Order	Optional	1..*	
OBR	Observation Request	Required	1..*	
NTE(2)	Notes and Comments	Optional	*	
TQ1	Timing Quantity	Optional	*	
OBX	Observation	Required	*	
NTE	Notes and Comments	Optional	*	
SPM	Specimen	Optional	*	

6.2 MSH – Message Header

Note: for clarity, the use of full OIDs is required so there is no ambiguity between Application Instance and Assigning Authority. The correct OID type must be used in the correct field:

- Application Instance** – identifies the system that generated/published the HL7 message - e.g., MSH.3
- Assigning Authority** – Organisation/system that generated a patient identifier - e.g., a hospital case note number, see [Patient Identifier PID-3](#).

SE	DT	OP	Name	Expected Values and Examples
1	ST	R	Field Separator	| (ASCII 124)
2	ST	R	Encoding Characters	^^\& (ASCII 94,126,92 and 38)

SEQ	DT	OPT	Name	Expected Values and Examples
3	HD, ST	R	Sending Application	<p>During implementation, the provider system will receive instructions on how to register a system to receive an Application Instance OID to indicate the application producing the message:</p> <p style="text-align: center;">|NHSWales^2.16.840.1.113883.2.1.8.1.5.249^ISO|</p> <p>A software supplier may provide more than one application e.g. one cardiology system and one radiology system. The supplier must use the correct Application Instance OID to identify the source of the message.</p> <p style="text-align: center;">|ACMECARD^2.16.840.1.113883.2.1.8.1.5.111^ISO| |ACMERADI^2.16.840.1.113883.2.1.8.1.5.222^ISO|</p> <p>Internal Processing rule: If ^ exists then treated as HD type</p> <p>If ^ doesn't exist then treated as ST for backwards compatibility</p> <p style="text-align: center;">MSH|^^\&|ACME^2.16.840.1.113883.2.1.8.1.5.255|7A4BV|2.16.840.1.113883.2.1.8.1.5.200|RQFW3|...</p>
4	HD, ST	R	Sending Facility	<p>This will be provided / agreed during implementation.</p> <p>Example: |CAV^7A4BV^L,M,N| = University Hospital Wales, Cardiff and Vale HB</p> <p>CTM^7A5B1 = Royal Glamorgan Hospital, Cwm Taf HB CTM^7A5B3 = Prince Charles Hospital, Cwm Taf HB</p> <p>Note: The combination of MSH.3 and MSH.4 will allow the receiving application to uniquely identify the sending application instance. This allows for troubleshooting and or could allow for routing of the message.</p> <p>These fields will not be used to derive patient location, clinician locations or identity assigning authority</p> <p>The same internal processing rule applies here as for SEQ 3: if ^ exists then treat as type HD, otherwise treat as ST for backwards compatibility</p>

SEQ	DT	OPT	Name	Expected Values and Examples
5	HD, ST	R	Receiving Application	<p>During implementation the supplier will be given the appropriate OID of the receiving application</p> <p>|INSE^2.16.840.1.113883.2.1.8.1.5.200^ISO|</p> <p>The same internal processing rule applies here as for SEQ 3: if ^ exists then treat as type HD, otherwise treat as ST for backwards compatibility</p>
6	HD, ST	R	Receiving Facility	<p>In agreement during implementation</p> <p>|cymru.nhs.uk^RQFW3^L,M,N|</p> <p>The same internal processing rule applies here as for SEQ 3: if ^ exists then treat as type HD, otherwise treat as ST for backwards compatibility</p>
7	TS	R	Date/Time Of Message	<p>Data and time Creation of the message at source This should be the time of message transmit for debug/support purposes only. This field should not relate to clinical data</p> <p>If Time zone included here, then this will also be applied throughout the message processing</p> <p>|20170126143602| |20170126143602+0000| where any value up to + is date</p> <p>Anything after + will be treated as time zone</p>
8	ST	O	Security	Ignored
9	MSG	R	Message Type	|ORU^R01^ORU_R01|
10	ST	R	Message Control ID	<p>Unique value per message, up to 20 character alpha numeric string</p> <p>|2017012614360280000|</p>
11	PT	R	Processing ID	P Production, T Training, D Debugging (SIT)
12	VID	R	Version ID	2.5.1
13	NM	O	Sequence Number	Ignored by receiver
14	ST	O	Continuation Pointer	Ignored by receiver
15	ID		Accept Acknowledgment Type	<p>The recipient will always expect sender systems to honour AL (always)</p> <p>Please see ack section in this document and HL7 Table 0155</p>
16	ID		Application Acknowledgment Type	Ignored
17	ID		Country Code	Ignored
18	ID		Character Set	Unless a value is specified, ASCII-7 bit is assumed.

SEQ	DT	OPT	Name	Expected Values and Examples
19	CE		Principal Language Of Message	Ignored
20	ID		Alternate Character Set Handling Scheme	Ignored
21	EI		Message Profile Identifier	Ignored

6.3 PID – Patient Identification

Please remember that for ORU messages certain fields will be ignored.

SEQ	DT	OPT	Field	Example
1	SI	O	Set ID-PID	Constrained to 1
2	CX	B	Patient ID	Do not use
3	CX	R	Patient Identifier List*	<p>Only validated identifiers should be provided. E.g. a PAS number where it was received from the PAS via a feed. PAS Numbers entered manually in to local systems cannot be trusted.</p> <p>|M21300019^^^126^PI~9999999998^^^NHS^NH~77667766^^^ ^PI|</p> <p>Any identifiers without Assigning Authority will be ignored or possibly the message rejected.</p> <p>Please see further guidance in section 6.3.1 below.</p> <p>Flag for verified NHS Number – please see PID.32.</p>
4	CX	B	Alternate Patient ID – PID	

SEQ	DT	OPT	Field	Example																								
5	XP N	R	Patient Name	<p>Surname, forename component – Mandatory</p> <p> Bloggs^Joe^^Mr </p> <p> Bloggs^Joe^John^Jr^Mr^MD^L </p> <p>If no Name Type Code(ID) given L (Legal name) is assumed</p> <table border="1"> <thead> <tr> <th>Segment</th> <th>Segment Text</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>PID.5.1.1</td> <td>Surname</td> <td></td> </tr> <tr> <td>PID.5.2</td> <td>Given Name</td> <td></td> </tr> <tr> <td>PID.5.3</td> <td>Second and further given names</td> <td>Middle names should go here, seperated by a space.</td> </tr> <tr> <td>PID.5.4</td> <td>Suffix</td> <td></td> </tr> <tr> <td>PID.5.5</td> <td>Prefix</td> <td></td> </tr> <tr> <td>PID.5.6</td> <td>Degree</td> <td>E.g. MD</td> </tr> <tr> <td>PID.5.7</td> <td>Name Type Code</td> <td>Use HL7v2 code table 0200. E.g. L for legal name.</td> </tr> </tbody> </table>	Segment	Segment Text	Notes	PID.5.1.1	Surname		PID.5.2	Given Name		PID.5.3	Second and further given names	Middle names should go here, seperated by a space.	PID.5.4	Suffix		PID.5.5	Prefix		PID.5.6	Degree	E.g. MD	PID.5.7	Name Type Code	Use HL7v2 code table 0200. E.g. L for legal name.
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PID.5.6	Degree	E.g. MD																										
PID.5.7	Name Type Code	Use HL7v2 code table 0200. E.g. L for legal name.																										
6	XP N	O	Mother's Maiden Name																									
7	TS	R	Date/Time of Birth	<p> 20010328 </p> <p> 200103281054 </p>																								
8	IS	O	Administrative Sex	<p>HI7 Table 0001</p> <p>F - Female</p> <p>M - Male</p> <p>O - Other</p> <p>U - Unknown</p> <p>A - Ambiguous</p> <p>N - Not applicable</p> <p>Blank or null values will not be accepted</p>																								
9	XP N	B	Patient Alias																									
10	CE	O	Race																									

SE Q	DT	OPT	Field	Example																					
11	XAD	O	Patient Address [2.A.85]	<p>Only first address in sequence used and assumed to be Patient's Home address (H - 0190)</p> <p>All fields are optional, however it is strongly encouraged to provide as much address data as possible. Multiple addresses can be provided as PID.11 is a repeating field. PID.11.7 should be used to identify the differences of the addresses if multiple are provided.</p> <table border="1"> <thead> <tr> <th>Segment</th> <th>Segment Text</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>PID.11.1.1</td> <td>Street Address</td> <td>Address Line 1</td> </tr> <tr> <td>PID.11.2</td> <td>Other Designation</td> <td>Address Line 2</td> </tr> <tr> <td>PID.11.3</td> <td>City</td> <td>Address Line 3</td> </tr> <tr> <td>PID.11.4</td> <td>State or Province (Town)</td> <td>Address Line 4</td> </tr> <tr> <td>PID.11.5</td> <td>Zip Or Postal Code</td> <td>Address Line 5</td> </tr> <tr> <td>PID.11.7</td> <td>Address Type</td> <td>Use the HL7 code table 0190. E.g. H for home, M for mailing, C for temporary</td> </tr> </tbody> </table> <p>Components Street^Other^Town^County^Postcode^^AddressType </p> <p>Example 1 High Street^Cathays^Cardiff^Mid Glamorgan^CF11 8UL^^H </p>	Segment	Segment Text	Notes	PID.11.1.1	Street Address	Address Line 1	PID.11.2	Other Designation	Address Line 2	PID.11.3	City	Address Line 3	PID.11.4	State or Province (Town)	Address Line 4	PID.11.5	Zip Or Postal Code	Address Line 5	PID.11.7	Address Type	Use the HL7 code table 0190. E.g. H for home, M for mailing, C for temporary
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12	IS	B	County Code																						

SEQ	DT	OPT	Field	Example																		
13	XT N	O	Phone Number - Home	<ul style="list-style-type: none"> Telephone numbers are optional to provide, however if one is provided then Use Code and Type ID are mandatory. For backward compatibility, only the first number in the sequence can omit Type Id. This first number will be treated as the Primary Residence Number. Subsequent numbers must have Use Code and Type ID. Telephone numbers should not include any text data in them. E.g. MUM: 07123 456789. Comments like that should appear in PID.13.9. Any telephone numbers longer than 25 chars will simply be truncated. <p style="text-align: center;"> 01656 123123 01656 123123~07927655295^PRN^CP </p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Segment</th> <th>Segment Text</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>PID.13.1</td> <td>Telephone Number</td> <td>Telephone number associated with the patient</td> </tr> <tr> <td>PID.13.2</td> <td>Telecommunication Use Code</td> <td>Use the HL7 code table 0201. E.g. PRN = Primary Residence Number. WPN = Work Number.</td> </tr> <tr> <td>PID.13.3</td> <td>Telephone Equipment Type</td> <td>Use the HL7 code table 0202. E.g. PH = Telephone, CP = Mobile.</td> </tr> <tr> <td>PID.13.4</td> <td>Email</td> <td>Patients email address</td> </tr> <tr> <td>PID.13.9</td> <td>Any Text</td> <td>Any accompanying text that should go along with this block of information. E.g. Do not call patient after 8pm.</td> </tr> </tbody> </table> <p>Full example with type codes:</p> <p style="text-align: center;"> 01656123123^PRN^PH^^^^^^text~07927655295^ORN^CP^example@wales.nhs.uk^^^^text~01656 23123~01656123123^PRN^PH^abc@home.com~01656123123^PRN^PH </p> <p>In the following examples, the second number (component), will be ignored</p> <p style="text-align: center;"> 01656 123123~07927655295 </p>	Segment	Segment Text	Notes	PID.13.1	Telephone Number	Telephone number associated with the patient	PID.13.2	Telecommunication Use Code	Use the HL7 code table 0201. E.g. PRN = Primary Residence Number. WPN = Work Number.	PID.13.3	Telephone Equipment Type	Use the HL7 code table 0202. E.g. PH = Telephone, CP = Mobile.	PID.13.4	Email	Patients email address	PID.13.9	Any Text	Any accompanying text that should go along with this block of information. E.g. Do not call patient after 8pm.
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14	XT N	O	Phone Number - Business																			

SE Q	DT	OPT	Field	Example
15	CE	O	Primary Language	If supplied please refer to the language codes described in Core Reference Data Standards .
16	CE	O	Marital Status	If supplied please refer to the marital status codes described in Core Reference Data Standards .
17	CE	O	Religion	If supplied please refer to the religion codes described in Core Reference Data Standards .
18	CX	O	Account Number	
19	ST	B	SSN Number – Patient	
20	DL N	B	Driver’s License Number – Patient	
21	CX	O	Mother's Identifier	
22	CE	O	Ethnic Group	If supplied please refer to the ethnicity codes described in Core Reference Data Standards .
23	ST	O	Birth Place	
24	ID	O	Multiple Birth Indicator	
25	NM	O	Birth Order	
26	CE	O	Citizenship	
27	CE	O	Veterans Military Status	
28	CE	B	Nationality	
29	TS	O	Patient Death Date and Time	
30	ID	O	Patient Death Indicator	
31	ID	O	Identity Unknown Indicator	
32	IS	O	Identity Reliability Code	– see 6.3.3 NHS Number usage – PID.32
33	TS	O	Last Update Date/Time	
34	HD	O	Last Update Facility	
35	CE	C	Species Code	
36	CE	C	Breed Code	
37	ST	O	Strain	
38	CE	O	Production Class Code	
39	CW E	O	Tribal Citizenship	

6.3.1 Patient Identifier PID-3

Identifier Type Codes can be provided.

PI = Filler Identifier, for example RIS number, Cardiology number

MR = Case note, Medical Record or PAS number

NH = NHS Number

PE = Enterprise ID - e.g., MPI number

For example:

403281382^^^154^PI~N3084373^^^108^PI~5189214567^^^NHS^NH

6.3.2 Assigning Authority

Identifier Assigning Authority code must only be provided when guaranteed to be correct. Assigning Authority shall NOT be derived from the patient's location.

If providing a Filler Identifier, then the system MUST be registered as an assigning authority and provide an assigning authority code. Where Systems receive ADTs from local PAS systems then the AA must be passed through. Identifiers without assigning authority will be ignored or even in certain cases will be rejected back to the sending system.

If the provider system cannot provide an assigning authority value with 100% certainty, then the Identifier should NOT be provided (i.e., the struck-through text below should not be present).

403281382^^^154^PI~~~N3084373~~^^^MR

If a fully qualified OID is not provided, it will be assumed that the assigning authority being provided is of NHS Wales origin.

6.3.3 NHS Number usage – PID.32

If the provider system maintains the **NHS Number Tracing Status**, then this status code can be provided in PID.32 – Identity Reliability Code (IS) as per HL7 2.x specification.

01	Number present and verified
02	Number present but not traced
03	Trace required
04	Trace attempted - No match or multiple matches found
05	Trace needs to be resolved - (NHS Number or PATIENT detail conflict)
06	Trace in progress
07	Number not present and trace not required
08	Trace postponed (baby under six weeks old)

The following example shows the composite six-digit code where NSTS stands for NHS Number Tracing Service.

PID|... |||||N||NSTS01

Omitting the prefix would also be acceptable e.g.

PID|... |||||N||01

6.4 NTE – Notes and Comments

NTE segments can be used throughout the message (see 6.1 ORU^R01 Message Structure and 12Appendix B - ORU^R01^ORU_R01 ABSTRACT MESSAGE SYNTAX)

- The PID NTE should include any comments related to the patient e.g., clinical history.
- The OBR NTE should include any comments related to the order. E.g., *Specimen received in non-approved container.*
- The OBX NTE should include any comments related to the result/observation. E.g., *Potassium may be spuriously increased due to delay in transit; suggest repeat.*

To ensure data is stored and presented correctly, the Source of Comment and Comment Type fields Should be provided.

SE Q	DT	OP T	Name	Example
1	SI	O	Set Id – NTE	1
2	ID	O	Source of Comment	Use codes below. If empty, then L is assumed. L (Filler comment) P (Placer Comment) - e.g., Clinical Details on Pathology O (Other source of comment)
3	FT	O	Comment	Example: |? Diabetes|
4	CE	O	Comment Type	PI Patient Instructions AI Ancillary Instructions GI General Instructions 1R Primary Reason 2R Secondary Reason GR General Reason RE Remark DR Duplicate/Interaction Reason

6.4.1 Observations with multiple OBXs

The following segments show how comments for individual observations should be ordered in the message:

OBR|1|8642753100013^LIS|20923085580^LCS|083824^PANEL 083824^L|||19980728083600|||
 CH13380|19980728000000|||20923085580|19980730041800|||F
 OBX|1|NM|150001^HIV-1 ABS-O.D. RATIO^L|||N|X
 OBX|2|CE|001719^HIV-1 ABS, SEMI-QN^L||HTN|||N|F|19910123|| 19980729155700|BN
 NTE|1|L|Result: NEGATIVE by EIA screen.
 NTE|2|L|No antibodies to HIV-1 detected.
 OBX|3|CE|169999^L||SPRCS|||N|F||19980728130600|BN
 NTE|1|L|NOTE: Submission of serum
 NTE|2|L|separator tube recommended
 NTE|3|L|for this test. Thank you
 NTE|4|L|for your cooperation if you
 NTE|5|L|are already doing so.

6.5 PV1 - Visit

Data within the PV1 segment is mainly used to identify the ordering physician of the test - e.g., if a GP was ordering blood tests, then the GP Practice and GP Code would appear in PV1.3 and PV1.8.

SEQ	DT	OP T	Name	Example
1	SI	O	Set ID - PV1	Constrained to 1
2	IS	R	Patient Class	Only valid values from HL7 Table 004 (Patient Class) accepted
3	PL	R	Assigned Patient Location	For this implementation, this field will be used as the Requestors Location e.g. a GP Practice, a ward or outpatient location. This is the location the generated report would return to if generated on paper. |^^^^^^^Greendale Surgery^W95023| |^^^^^^^Cadog Ward^7A2AGCADOG| Note: this is a key field for downstream systems to search on
4	IS	O	Admission Type	Optional: Use only Elective or Emergency codes from HL7 Table 007 (Admission Type)
5	CX	O	Preadmit Number	
6	PL	O	Prior Patient Location	
7	XC N	O	Attending Doctor	Ignored
8	XC N	R	Referring Doctor	For this implementation, this should be the Requestor consultant/Responsible clinician for ORU messages. E.g., the Clinician requesting a Urea & Electrolytes profile. |1234567^Jones^Indiana^^^Dr^^^GMC&OID&ISO| |ABC123^Foster^G^^^Mr^^^L^^^DN| Please see section 6.5.1 for detail on this field, subcomponents, and further examples values.
8.1	ST	R	Id number	1234567

SEQ	DT	OPT	Name	Example
8.2	FN	R	Family Name	
8.2.1	ST	R	Surname	Jones
8.3	ST	R	Given Name	Indiana
8.6	ST	R	Prefix	Dr
8.9	HD	R	Assigning Authority	
8.9.1	IS	R	Namespace ID	GMC
8.9.2	ST	O	Universal ID	2.16.840.1.113883.2.1.3.2.4.18.29
8.9.3	IF	O	Universal ID Type	ISO
8.13	ID	R	Identifier Type Code (203)	e.g. DN – Doctor Number NP – Nurse Practitioner
9	XC N	B	Consulting Doctor	
10	IS	O	Hospital Service	
11	PL	O	Temporary Location	
12	IS	O	Preadmit Test Indicator	
13	IS	O	Re-admission Indicator	
14	IS	O	Admit Source	
15	IS	O	Ambulatory Status	
16	IS	O	VIP Indicator	
17	XC N	O	Admitting Doctor	
18	IS	O	Patient Type	
19	CX	O	Visit Number	
20	FC	O	Financial Class	
21	IS	O	Charge Price Indicator	
22	IS	O	Courtesy Code	
23	IS	O	Credit Rating	
24	IS	O	Contract Code	
25	DT	O	Contract Effective Date	
26	NM	O	Contract Amount	
27	NM	O	Contract Period	
28	IS	O	Interest Code	
29	IS	O	Transfer to Bad Debt Code	

SEQ	DT	OP T	Name	Example
30	DT	O	Transfer to Bad Debt Date	
31	IS	O	Bad Debt Agency Code	
32	NM	O	Bad Debt Transfer Amount	
33	NM	O	Bad Debt Recovery Amount	
34	IS	O	Delete Account Indicator	
35	DT	O	Delete Account Date	
36	IS	O	Discharge Disposition	
37	DL D	O	Discharged to Location	
38	CE	O	Diet Type	
39	IS	O	Servicing Facility	
40	IS	B	Bed Status	
41	IS	O	Account Status	
42	PL	O	Pending Location	
43	PL	O	Prior Temporary Location	
44	TS	O	Admit Date/Time	
45	TS	O	Discharge Date/Time	
46	NM	O	Current Patient Balance	
47	NM	O	Total Charges	
48	NM	O	Total Adjustments	
49	NM	O	Total Payments	
50	CX	O	Alternate Visit ID	
51	IS	O	Visit Indicator	
52	XC N	B	Other Healthcare Provider	

6.5.1 PV1.8 Referring Doctor

This field will be used to identify the responsible clinician for the request of the examination - e.g., the

consultant that requested radiology, the doctor that requested the pathology, or a nurse that requested results for a diabetic clinic within a primary care setting. As ORU messages are published by many source systems, it is essential that coding used in pv1.8 is unique to avoid potential clashes in downstream systems.

PV1.8 contains several subcomponents; the following table highlights and describes these.

PV1.8 Component	Example values	Reasoning
8.1 - ID Number	1234567 ABC123	Code to identify clinician
8.2.1 - Surname	Jones	
8.3 (given name)	Indiana	
8.6 (Prefix)	DR MR NRS	
8.9 Assigning Authority		
8.9.1 Namespace Id	GMC NMC L	For well-known national coding systems, the abbreviation can be used e.g., GMC For Local codes, processors will use value from MSH.3.1.
8.9.2 Universal Id	2.16.840.1.113883.2.1.3.2.4.18.29	If supplied, 8.9.2 only relates to the value in 8.9.1. This example is the GMC OID. ¹ The Sending Application OID can be provided here.
8.9.3 Universal Id Type	ISO	His field only denotes what 8.9.2 is. seeHL7 table 301
8.13 Identifier Type Code	DN NP	Tells us that 8.1 is a doctor code

The following are acceptable examples using well known identifiers, such as GMC, Prescribing Code, NMC number:

PV1.8
|1234567^Jones^Indiana^^^Dr^^^GMC&2.16.840.1.113883.2.1.3.2.4.18.29&ISO^^^DN|
|1234567^Jones^Indiana^^^Dr^^^GMC^^^DN|
|1234567^Jones^Indiana^^^Dr^^^&2.16.840.1.113883.2.1.3.2.4.18.29&ISO^^^DN|
|1234567^Jones^Indiana^^^Dr^^^&2.16.840.1.113883.2.1.3.2.4.18.29&ISO^^^DN|

Local identifiers are used in agreement with the receiving system:

PV1.8	Notes
|ABC123^Doe^Jane^^^Dr^^^SoftGene&2.16.840.1.113883.2.1.8.1.5.251&ISO^^^DN|	Full example
|ABC123^Doe^Jane^^^Dr^^^L^^^DN|	OID from MSH.3.2 will be used by receiver to uniquely identify code
|N123^Kay^P^^^NRS^^^L^^^NP|	OID from MSH.3.2 will be used

Examples of registered GP and Consultants; reference data will be from national registries - i.e., GMC DN = Doctor Number

¹ <https://www.hl7.org.uk/standards/object-identifiers-oids/hl7-uk-issued-oids/>

|1234567^Jones^Indiana^^^Dr^^^GMC^^^DN|
 |9876542^Watson^Edward^^^Dr^^^GMC^^^DN|
 |9876542^Fixer^Arnold^^^Mr^^^GMC^^^DN|

Example of registered nurses; where NMC = Nursing & Midwifery Council, RN = Registered Nurse Practitioner

|85E0146W^Bevan^Aneurin^^^Mr^^^NMC^^^RN|
 |81G0168W^Nightingale^Florence^^^Mrs^^^NMC^^^RN|
 |93C0122W^Barton^Clara^^^Mrs^^^NMC^^^RN|
 |97I4414E^Brain^Elisabeth^^^Mrs^^^NMC^^^RN|

Examples of Local codes; L = Local, RN = Registered Nurse

|N00001^Barton^Clara^^^Mrs^^^L^^^RN|
 |N00002^Brain^Elisabeth^^^Mrs^^^L^^^RN|

Example of Local Code for doctor

|N00002^Locum^Iama^^^Dr^^^L^^^DN|

6.6 ORC – Common Order

HL7 note: The ORC is permitted but not required in this message. Any information that could be included in either the ORC or the OBR must be included in the OBR on reporting.

Please provide ORC segment if there is an associated electronic order for the report.

If ORC is provided *Filler Order Number* and *Entered By* fields are mandatory.

SEQ	DT	OP T	Name	Example
1	ID	R	Order Control	Ignored See HL7 table 119
2	EI	C	Placer Order Number	Order Number
3	EI	C	Filler Order Number	See OBR 3 Under HL7 If ORC is not supplied then the Filler Order MUST appear in OBR.3 The Authorities preference for ORU^R01 messages if for OBR.3 to contain the order number
4	EI	O	Placer Group Number	
5	ID	O	Order Status	
6	ID	O	Response Flag	
7	TQ	B	Quantity/Timing	Use TQ1 segment (see 6.10)
8	EIP	O	Parent	
9	TS	O	Date/Time of Transaction	
10	XCN	O	Entered By	Mandatory if segment provided. This is the userid that generated the electronic order (transcriber). This is NOT the responsible clinician code. |Cymru\ga123456|
11	XCN	O	Verified By	
12	XCN	O	Ordering Provider	

SEQ	DT	OP T	Name	Example
13	PL	O	Enterer's Location	
14	XTN	O	Call Back Phone Number	
15	TS	O	Order Effective Date/Time	Useful if available for analysis purposes
16	CE	O	Order Control Code Reason	
17	CE	O	Entering Organization	
18	CE	O	Entering Device	
19	XCN	O	Action By	
20	CE	O	Advanced Beneficiary Notice Code	
21	XON	O	Ordering Facility Name	
22	XAD	O	Ordering Facility Address	
23	XTN	O	Ordering Facility Phone Number	
24	XAD	O	Ordering Provider Address	
25	CWE	O	Order Status Modifier	
26	CWE	C	Advanced Beneficiary Notice Override	
27	TS	O	Filler's Expected Availability Date/	
28	CWE	O	Confidentiality Code	To be agreed during implementation e.g. http://terminology.hl7.org/CodeSystem/v3-Confidentiality
29	CWE	O	Order Type	
30	CNE	O	Enterer Authorization Mode	
31	CWE	O	Parent Universal Service Identifier	

6.7 OBR – Observation Request

The population of the OBR is from the point of view of the Filler - i.e., a reporting message so not all OBR fields apply.

SEQ	DT	R	Name	Example
1	SI	O	Set ID - OBR	OBR|1|4321... OBR|2|4321...
2	EI	C	Placer Order Number	If no ORC supplied then this is mandatory if electronic

SE Q	DT	R	Name	Example
				If available then should be provided e.g. 287018^^255^ISO Must be qualified with the Assigning (Issuing) Authority
3	EI	C	Filler Order Number	Must be unique to Wales for this Filler department. This number will be displayed to users in downstream systems. It is therefore recommended that reasonably formatted numbers are used so that user cans query the report with the source system e.g. Accession number, Report ID, Episode Number, specimen number |287018^^255^ISO|
4	CE	R	Universal Service Identifier	E.g. SNOMED code |399208008^Plain chest X-ray (procedure)^SNM3|
5	ID	X	Priority – OBR	Ignored (deprecated - 2.5.1 Ch 7.4.1.5)
6	TS	X	Requested Date/Time	Ignored (deprecated – 2.5.1 Ch 7.4.1.6)
7	TS	C	Observation Date/Time	In the case of a specimen-associated study, this field shall represent the date and time the specimen was collected or obtained When the OBR is transmitted as part of a report message, the field must be filled in |20170126135745| |20170126135745+0000|
8	TS	O	Observation End Date/Time	|20170126135745| |20170126135745+0000|
9	CQ	O	Collection Volume	
10	XCN	O	Collector Identifier	
11	ID	O	Specimen Action Code	
12	CE	O	Danger Code	
13	ST	O	Relevant Clinical Information	
14	TS	B	Specimen Received Date/Time	Use SPM segment (see 6.9)
15	SPS	B	Specimen Source	Use SPM segment (see 6.9)
16	XCN	O	Ordering Provider	
17	XTN	O	Order Callback Phone Number	
18	ST	O	Placer Field 1	
19	ST	O	Placer Field 2	
20	ST	O	Filler Field 1	
21	ST	O	Filler Field 2	
22	TS	C	Results Rpt/Status Chng - Date/Time	This field specifies the date/time results reported or status changed. This field is used to indicate the date and time that the results are composed into a report and released This is a key date and will be used to trigger alerts and notifications in downstream systems.

SEQ	DT	R	Name	Example
23	MOC	O	Charge to Practice	
24	ID	O	Diagnostic Serv Sect ID	
25	ID	C	Result Status	<p>For this implementation, the status required is for the overall Report level, therefore the Result Status from OBR-25 will be used and OBX-11 status disregarded.</p> <p>For reports with Multiple OBRs it is expected that the Status will be the same in each OBR – so only the first OBR status will be used.</p> <p>For example, the OBR status is P If provided in OBX-11 for specific tests then the value from the obx shall be used</p> <p>e.g.</p> <p style="padding-left: 40px;">OBR|...||P OBX|...||I</p> <p>This MUST be accurate and provided and is mandatory for ORU messages</p> <p>HI7 Table 0123 O, I, S, A, P, C, R, F, X, Y Z</p>
26	PRL	O	Parent Result	
27	TQ	B	Quantity/Timing	Use TQ1 segment (see 6.10)
28	XCN	O	Result Copies To	
29	EIP	O	Parent	
30	ID	O	Transportation Mode	
31	CE	O	Reason for Study	
32	DL	O	Principal Result Interpreter	|^Jones^Indiana|
33	DL	O	Assistant Result Interpreter	
34	DL	O	Technician	
35	DL	O	Transcriptionist	
36	TS	O	Scheduled Date/Time	
37	M	O	Number of Sample Containers	
38	CE	O	Transport Logistics of Collected Sample	
39	CE	O	Collector's Comment	
40	CE	O	Transport Arrangement Responsibility	
41	ID	O	Transport Arranged	
42	ID	O	Escort Required	

SE Q	DT	R	Name	Example
43	CE	O	Planned Patient Transport Comment	
44	CE	O	Procedure Code	Use a code from relevant coding system such as SNOMED CT e.g. |399208008^Plain chest X-ray (procedure)^SNM3|
45	CE	O	Procedure Code Modifier	
46	CE	O	Placer Supplemental Service Information	
47	CE	O	Filler Supplemental Service Information	
48	CWE	C	Medically Necessary Duplicate Procedure Reason	
49	IS	O	Result Handling	
50	CWE	O	Parent Universal Service Identifier	

6.8 OBX – Observation

SE Q	DT	R	Name	Example																						
1	SI	O	Set ID – OBX	OBX Set Id must start at 1 and reset for each OBR e.g. OBR 1 ... OBX 1 ... OBX 2 ... OBR 2 ... OBX 1 ... OBX 2 ...																						
2	ID	C	Value Type	This indicates the value type of the Observation Value in OBX.5 HI7 Table 0125 E.g. (not exhaustive) <table border="1" data-bbox="646 1406 1169 1787"> <tbody> <tr><td>CE</td><td>Coded Entry</td></tr> <tr><td>DT</td><td>Date</td></tr> <tr><td>ED</td><td>Encapsulated Data</td></tr> <tr><td>FT</td><td>Formatted Text (Display)</td></tr> <tr><td>NM</td><td>Numeric</td></tr> <tr><td>RP</td><td>Reference Pointer</td></tr> <tr><td>SN</td><td>Structured Numeric</td></tr> <tr><td>ST</td><td>String Data.</td></tr> <tr><td>TM</td><td>Time</td></tr> <tr><td>TS</td><td>Time Stamp (Date & Time)</td></tr> <tr><td>TX</td><td>Text Data (Display)</td></tr> </tbody> </table>	CE	Coded Entry	DT	Date	ED	Encapsulated Data	FT	Formatted Text (Display)	NM	Numeric	RP	Reference Pointer	SN	Structured Numeric	ST	String Data.	TM	Time	TS	Time Stamp (Date & Time)	TX	Text Data (Display)
CE	Coded Entry																									
DT	Date																									
ED	Encapsulated Data																									
FT	Formatted Text (Display)																									
NM	Numeric																									
RP	Reference Pointer																									
SN	Structured Numeric																									
ST	String Data.																									
TM	Time																									
TS	Time Stamp (Date & Time)																									
TX	Text Data (Display)																									
3	CE	R	Observation Identifier	CE data type MUST be adhered to. CE.1 = Identifier CE.2 = Text CE.3 = Name of Coding System e.g. SCT, LN, L																						

SEQ	DT	R	Name	Example
				<p>|29893-5^HIV 1 Ab^LN| |11214006^Reactive^SCT|</p> <p>The use of well-known health coding systems rather than local codes is encouraged and can be discussed during implementation. If local (laboratory specific) codes are used then these must be correctly identified with "L" for Local</p> <p>|ECHO^TTE^L|</p>
4	ST	C	Observation Sub-ID	Allows grouping of OBXs see 7.4.2.4 for example Ignored
5	varies	C	Observation Value	<p>The content can vary but must be correctly identified in OBX.2 as the value type e.g. CE, TX, ED see Tbl 0125</p> <p>Coded Entry (CE) Value</p> <p>OBX|1|CE|ObsId^ObsText^ObsSys||ValueCode^ValueDescription^ValueCodingSystem|||||F|||20220101131415</p> <p>Date (DT) Value - YYYY[MM[DD]]</p> <p>OBX|2|DT|ObsId^ObsText^ObsSys||20220101|||||F|||20220101131415</p> <p>Embedded documents Source systems must use the ED value type</p> <p>OBX|2|ED|ObsId^ObsText^ObsSys||SourceR^AP^PDF^Base64^JAsD...eDasd==|||||F|||20220101131415</p> <p>Formatted Text (FT) Value (including HL7 Escape Sequences)</p> <p>OBX|3|FT|ObsId^ObsText^ObsSys||Formatted\.br\Text\.br\|||||F|||20220101131415</p> <p>Numeric (NM) Value This should be used for pure numerical values only</p> <p>OBX|2|NM|5497^CD4 COUNT^DCT||999|cells/mm3|101500|L|||||F|||20050217204000</p> <p>Reference Pointer (RP) Value</p> <p>OBX|10|RP|DOC^Document^L||http://documents.example.com/document123.pdf</p> <p>Structured Numeric (SN) Value Please note the importance of SN value type: a Troponin result <10000 would require a SN type where the first component is the comparator <, >, >=</p> <p>OBX|2|SN|5497^CD4 COUNT^DCT||<^10|cells/mm3|10-1500|L|||||F|||20050217204000</p>

SE Q	DT	R	Name	Example
				<p>|<^10000| will be displayed as <10000</p> <p>String Data (ST) Value</p> <p>OBX|6|ST|ObsId^ObsText^ObsSys||String Data|||||F|||20220101131415</p> <p>Time (TM) Value</p> <p>HH[MM[SS[.S[S[S[S]]]]]]|+/-ZZZZ</p> <p>OBX|7|TM|ObsId^ObsText^ObsSys||141516.1234+0001|||||F|||20220101131415</p> <p>Timestamp (TS) Value</p> <p>YYYY[MM[DD[HH[MM[SS[.S[S[S[S]]]]]]]]|+/-ZZZZ</p> <p>OBX|8|TS|ObsId^ObsText^ObsSys||20220101141516.1234+0001|||||F|||20220101131415</p> <p>Text Data (ST) Value</p> <p>String data meant for user display, may include leading spaces</p> <p>OBX|9|TX|ObsId^ObsText^ObsSys||Text Data|||||F|||20220101131415</p>
6	CE	O	Units	
7	ST	O	References Range	
8	IS	O	Abnormal Flags	
9	NM	O	Probability	
10	ID	O	Nature of Abnormal Test	
11	ID	R	Observation Result Status	<p>This value MUST be valid according to HL7 2.5.1 table 0085: Observation result status codes interpretation</p> <p>C - Record coming over is a correction and thus replaces a final result D - Deletes the OBX record F - Final results; Can only be changed with a corrected result. I - Specimen in lab; results pending N - Not asked; used to affirmatively document that the observation identified in the OBX was not sought when the universal service ID in OBR-4 implies that it would be sought. O - Order detail description only (no result) P - Preliminary results R - Results entered -- not verified S - Partial results X - Results cannot be obtained for this observation U - Results status change to final without retransmitting results already sent as 'preliminary.' E.g., radiology changes status from preliminary to final W - Post original as wrong, e.g., transmitted for wrong patient</p>
12	TS	O	Effective Date of Reference Range Values	

SE Q	DT	R	Name	Example
13	ST	O	User Defined Access Checks	
14	TS	O	Date/Time of the Observation	<p>For imaging services and procedures this should be provided</p> <p>This field is required in two circumstances:</p> <p>The first is when the observations reported beneath one report header (OBR) have different dates/times. This could occur in the case of queries, timed test sequences, or clearance studies where one measurement within a battery may have a different time than another measurement.</p> <p>The second is needed in the case of OBX segments that are being sent by the placer to the filler, in which case the date of the observation being transmitted is likely to have no relation to the date of the requested observation.</p>
15	CE	O	Producer's Reference	
16	XCN	O	Responsible Observer	
17	CE	O	Observation Method	
18	EI	O	Equipment Instance Identifier	
19	TS	O	Date/Time of the Analysis	
20			Reserved for harmonization with V2.6	
21			Reserved for harmonization with V2.6	
22			Reserved for harmonization with V2.6	
23	XON	O	Performing Organization Name	
24	XAD	O	Performing Organization Address	
25	XCN	O	Performing Organization Medical Director	

6.9 SPM – Specimen

The SPM segment is required where a specimen is submitted to a diagnostic service for analysis.

SEQ	DT	R	Name	Example
1	SI	O	Set ID – SPM	1, 2, 3, 4, etc
2	EIP	O	Specimen ID	2.2 Episode Number
3	EIP	O	Specimen Parent IDs	

4	CWE	R	Specimen Type	Code^Description^CodeSystem e.g. 119325001^Skin specimen^SNM3
5	CWE	O	Specimen Type Modifier	
6	CWE	O	Specimen Additives	e.g. FO^Fluoride Oxalate^AcmeLab
7	CWE	O	Specimen Collection Method	
8	CWE	O	Specimen Source Site	Code^Description^CodeSystem e.g. 299706009^Bone structure of wrist and/or hand (body structure)^SNM3
9	CWE	O	Specimen Source Site Modifier	Code^Description^CodeSystem e.g. 7771000^Left^SNM3
10	CWE	O	Specimen Collection Site	
11	CWE	O	Specimen Role	
12	CQ	O	Specimen Collection Amount	
13	NM	C	Grouped Specimen Count	
14	ST	O	Specimen Description	
15	CWE	O	Specimen Handling Code	
16	CWE	O	Specimen Risk Code	
17	DR	R	Specimen Collection Date/Time	CCYYMMDDhhmmss
18	TS	R	Specimen Received Date/Time	CCYYMMDDhhmmss
19	TS	O	Specimen Expiration Date/Time	
20	ID	O	Specimen Availability	
21	CWE	O	Specimen Reject Reason	
22	CWE	O	Specimen Quality	
23	CWE	O	Specimen Appropriateness	
24	CWE	O	Specimen Condition	
25	CQ	O	Specimen Current Quantity	
26	NM	O	Number of Specimen Containers	
27	CWE	O	Container Type	Code^Description^CodeSystem e.g. PT^Purple Top^AcmeLab
28	CWE	O	Container Condition	

29	CWE	O	Specimen Child Role	
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6.10 TQ1 – Timing Quantity

The TQ1 segment must be included to indicate a non-routine priority and, optionally, the date/time that services were requested.

SEQ	DT	OPT	Name	Example																																										
1	SI	O	Set ID - TQ1																																											
2	CQ	O	Quantity																																											
3	RPT	O	Repeat Pattern																																											
4	TM	O	Explicit Time																																											
5	CQ	O	Relative Time and Units																																											
6	CQ	O	Service Duration																																											
7	TS	O	Start date/time	Optional from request indicating the earliest date/time services should be started																																										
8	TS	O	End date/time	Optional from request indicating the latest date/time services should be performed (may be used to indicate an expected date for a report e.g., for an MDT)																																										
9	CWE	C	Priority	<p>e.g. TQ1 19000101 S^^^^^^Urgent</p> <p>9.1 Values from Table 0485</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> <th>Comment</th> </tr> </thead> <tbody> <tr> <td>S</td> <td>Stat</td> <td>With highest priority</td> </tr> <tr> <td>A</td> <td>ASAP</td> <td>Fill after S orders</td> </tr> <tr> <td>R</td> <td>Routine</td> <td>Default</td> </tr> <tr> <td>P</td> <td>Preop</td> <td></td> </tr> <tr> <td>C</td> <td>Callback</td> <td></td> </tr> <tr> <td>T</td> <td>Timing critical</td> <td>A request implying that it is critical to come as close as possible to the requested time, e.g., for a trough antimicrobial level.</td> </tr> <tr> <td>TS<integer></td> <td></td> <td>Timing critical within <integer> seconds.</td> </tr> <tr> <td>TM<integer></td> <td></td> <td>Timing critical within <integer> minutes.</td> </tr> <tr> <td>TH<integer></td> <td></td> <td>Timing critical within <integer> hours.</td> </tr> <tr> <td>TD<integer></td> <td></td> <td>Timing critical within <integer> days.</td> </tr> <tr> <td>TW<integer></td> <td></td> <td>Timing critical within <integer> weeks.</td> </tr> <tr> <td>TL<integer></td> <td></td> <td>Timing critical within <integer> months.</td> </tr> <tr> <td>PRN</td> <td>As needed</td> <td></td> </tr> </tbody> </table> <p>9.9 Original Text</p>	Value	Description	Comment	S	Stat	With highest priority	A	ASAP	Fill after S orders	R	Routine	Default	P	Preop		C	Callback		T	Timing critical	A request implying that it is critical to come as close as possible to the requested time, e.g., for a trough antimicrobial level.	TS<integer>		Timing critical within <integer> seconds.	TM<integer>		Timing critical within <integer> minutes.	TH<integer>		Timing critical within <integer> hours.	TD<integer>		Timing critical within <integer> days.	TW<integer>		Timing critical within <integer> weeks.	TL<integer>		Timing critical within <integer> months.	PRN	As needed	
Value	Description	Comment																																												
S	Stat	With highest priority																																												
A	ASAP	Fill after S orders																																												
R	Routine	Default																																												
P	Preop																																													
C	Callback																																													
T	Timing critical	A request implying that it is critical to come as close as possible to the requested time, e.g., for a trough antimicrobial level.																																												
TS<integer>		Timing critical within <integer> seconds.																																												
TM<integer>		Timing critical within <integer> minutes.																																												
TH<integer>		Timing critical within <integer> hours.																																												
TD<integer>		Timing critical within <integer> days.																																												
TW<integer>		Timing critical within <integer> weeks.																																												
TL<integer>		Timing critical within <integer> months.																																												
PRN	As needed																																													
10	TX	O	Condition text																																											

11	TX	O	Text instruction	
12	ID	C	Conjunction	
13	CQ	O	Occurrence duration	
14	NM	O	Total occurrence's	

7 Complete ORU_R01 Message Examples

These are provided for understanding – it is important not to simply copy these as templates, but to understand the importance individual field meanings from the segment tables provide in previous sections

7.1 Text based report

Note the formatting, such as whitespace, will be preserved where OBX Type is TX

```
MSH|^~\&|ACMELab^2.16.840.1.113883.2.1.8.1.5.999^ISO|CAV^7A4BV^L|cymru.nhs.uk^2.16.840.1.113883.2.1.8.1.5.200^ISO|NHSWales^RQFW3^L|20190514102527+0200||ORU^R01^ORU_R01|5051095-201905141025|T|2.5.1|||AL
PID|||403281375^^^154^PI~5189214567^^^NHS^NH||Bloggs^Joe^^Mr||20010328|M|||A B M U Health Board^One Talbot Gateway^Baglan^Neath port talbot^SA12 7BR|||01
PVI||U|||||CAR
ORC|MC|||||7A3C7MPAT^^^wales.nhs.uk&7A3&HL7^^^MH Pathology Dept,
OBR|1||8005372251-1-M0007|M0007^Urine MC^T\S|||201805240000|||^ABM: Dean Allen|||201805240000|^Dr J A Chess|^Chess^J^^^Dr|||201805240000|||F
TQ1|||||201805240000|201805240000|R^^^^^^^Routine
OBX|1|TX|^Report Line 1||Specimen received: Mid Stream Urine|||||F|||201805240000
OBX|2|TX|^Report Line 2|||||F|||201805240000
OBX|3|TX|^Report Line 3||Accession Number(s) U18S999001A|||||F|||201805240000
OBX|4|TX|^Report Line 4||White Blood Cell Count 10-99 x10^6/L|||||F|||201805240000
OBX|5|TX|^Report Line 5||Red Blood Cell Count >=100 x10^6/L|||||F|||201805240000
OBX|6|TX|^Report Line 6|||||F|||201805240000
OBX|7|TX|^Report Line 7||>= 10^8 cfu/L Escherichia coli (ECOL)|||||F|||201805240000
OBX|8|TX|^Report Line 8|||||F|||201805240000
OBX|9|TX|^Report Line 9|| Antibiotic/Culture: ECOL|||||F|||201805240000
OBX|10|TX|^Report Line 10|| -----|F|||201805240000
OBX|11|TX|^Report Line 11|| Nitrofurantoin S|||||F|||201805240000
OBX|12|TX|^Report Line 12|| Trimethoprim S|||||F|||201805240000
OBX|13|TX|^Report Line 13|| Amoxicillin R|||||F|||201805240000
OBX|14|TX|^Report Line 14|||||F|||201805240000
SPM|1|^8005372251||MMSU^Mid Stream Urine^ACME|||||201805240000|201805240000
```

7.2 Example Pathology result

```
MSH|^~\&|ACMELab^2.16.840.1.113883.2.1.8.1.5.999^ISO|CAV^7A4BV^L|cymru.nhs.uk^2.16.840.1.113883.2.1.8.1.5.200^ISO|NHSWales^RQFW3^L|20190514102527+0200||ORU^R01^ORU_R01|5051095-201905141025|T|2.5.1|||AL
PID||403281375^^^154^PI~5189214567^^^NHS^NH||Bloggs^Joe^^Mr||20010328|M|||A B M U Health
Board^One Talbot Gateway^Baglan^Neath port talbot^SA12 7BR|||||||||||||||||||||01
PVL||O|||||||CAR
ORC|OR|||||||||7A3C7MPAT^^^wales.nhs.uk&7A3&L,M,N^^^MH Pathology Dept,
OBR|1||914694928301|B3051^HbA1c (IFCC traceable)||201803091500|||^ABM: Angharad
Shore|||201803091500|^Dr Andar Gunneberg|^Gunneberg^Andar^^^Dr|||201803091500|||C
NTE|1||For monitoring known diabetic patients, please follow NICE guidelines. If not a known
diabetic and the patient is asymptomatic, a second confirmatory sample is required within 2 weeks
(WEDS Guidance). HbA1c is unreliable for diagnostic and monitoring purposes in the context of
several conditions, including some haemoglobinopathies, abnormal haemoglobin levels, chronic renal
failure, recent transfusion, pregnancy, or alcoholism.
OBX|1|NM|B3553^HbA1c (IFCC traceable)||49|mmol/mol|<48|H|||C||201803091500
OBR|2||914694928301|B0001^Full blood count||201803091500|||^ABM: Carl Owen|||201803091500|^Dr
Andar Gunneberg|^Gunneberg^Andar^^^Dr|||201803091500|||F
TQ1|||||201803091400|201803091500|S^^^Urgent
OBX|1|NM|B0300^White blood cell (WBC) count||3.5|x10^9/L|4.0-11.0|L|||F||201803091500
OBX|2|NM|B0307^Haemoglobin (Hb)||200|g/L|130-180|H|||F||201803091500
OBX|3|NM|B0314^Platelet (PLT) count||500|x10^9/L|150-400|H|||F||201803091500
OBX|4|NM|B0306^Red blood cell (RBC) count||6.00|x10^12/L|4.50-6.00|N|||F||201803091500
OBX|5|NM|B0308^Haematocrit (Hct)||0.60|L/L|0.40-0.52|H|||F||201803091500
OBX|6|NM|B0309^Mean cell volume (MCV)||120|fL|80-100|H|||F||201803091500
OBX|7|NM|B0310^Mean cell haemoglobin (MCH)||34.0|pg|27.0-33.0|H|||F||201803091500
SPM|1||9146949283||BLOO^Blood^ACME|||||201803091400|201803091500
```

7.3 Embedded Documents

Documents formats such as Word and PDF will need to be base64 encoded. During implementation, if PDFs are found to be larger than the OBX.5 size limit, which is 32K, suppliers may need to break up the base64 string across OBXs. For example:

```
OBX|1|ED|DOC^Document^L||^application^pdf^Base64^...first 30k chunk
OBX|2|ED|DOC^Document^L||^application^pdf^Base64^...second 30k chunk
:
OBX|n|ED|DOC^Document^L||^application^pdf^Base64^...last chunk
```

The processor will know to put the 32k chunks back together.

For large documents we use a pointer approach; implementers will need to agree the technical approach with DHCW teams. For example:

```
OBX|1|RP|DOC^Document^L||http://documents.example.com/document123.pdf
```

7.4 Example Mixed Content

The authority will accept mixed content within messages, for example, a particular OBX may contain data points of NM datatype, the next OBX may contain an ED type that contains a PDF.

It will be implementation specific as to whether both are provided or required.

8 Acknowledge Messages

It is recommended that Provider systems receive Acknowledgement messages. This means that the sending system knows that the message has been received, validated, and stored safely (but not processed). This is also the signal that the sending system can progress on to the next message.

8.1 Example Ack messages

The behaviour of the sender and receiver when receiving ACKs may differ dependent on the original message content. This behaviour will be agreed upon implementation. The authority broadly follows the HL7 standard for acknowledgments.

AA = Application Accept
 AE = Application Error
 AR = Application Reject

When a message is received and successfully stored the receiving system will return an acknowledge message with the ACK segment echoing the original ORUs control Id (MSH.10)

8.1.1 AA - Success

To ensure data integrity, only when the ACK message type with MSA.1 = AA is received should the sender progress on to the next message e.g.

```
MSH|^~\&|7edit||7edit||20180627162905||ACK|MSG-20180627-162905-0668|P|2.5.1
MSA|AA|CTL01234567890123|OK
```

8.1.2 AE - Unsuccessful – Application Error

An Application Error response tends to be due to a technical glitch. **Senders should attempt to resend the message after an agreed period** - e.g., 1 minute.

```
MSH|^~\&|7edit||7edit||20180628091548||ACK|MSG-20180628-091548-0505|P|2.5.1
MSA|AE|CTL123456789123|Application Error - unable to stored message database down
```

8.1.3 AR - Unsuccessful – Application Reject

The following example shows where simple date-of-birth validation check rejects the message. The sender **should not resend the message** but queue it for intervention by support personnel.

```
MSH|^~\&|7edit||7edit||20180628091548||ACK|MSG-20180628-091548-0505|P|2.5.1
MSA|AR|CTL123456789123|Application Reject - Validation fail, DOB empty
```

9 Environments

Suppliers will be provided with an Application OID

10 References

Type	Location
HL7 2.x	www.hl7.org
NHS Wales: DSCN Core Data Standards	https://dhw.nhs.wales/information-services/information-standards/data-standards/data-standards-files/data-standard-change-notices-docs/dscns-2022/20220524-dscn-2022-16-core-reference-data-standards-title-d0-3pdf/

11 Definitions

Term	Definition
DHCW	Digital Health and Care Wales About us - Digital Health and Care Wales
HL7	Health Level Seven International About Health Level Seven International | HL7 International
Read codes	Read Codes - NHS Digital
OPCS	OPCS Classification of Interventions and Procedures (datadictionary.nhs.uk)
SNOMED CT	SNOMED - Home | SNOMED International
LOINC	Home – LOINC

Appendix A – Using ORU to Publish PDF Reports

The following table describes the **minimum** fields to meet the NHS Wales Informatics Service standards. OIDs will be agreed as part of on-boarding process. The fields here are all **mandatory**

Required segments

MSH, PID, PV1, Single OBR, Single OBX

Field	HL7 Fieldname	Example Values
MSH.1	Field Separator	|
MSH.2	Encoding Characters	|^~\&|
MSH.3	Sending Application	|ACMECARD^2.16.840.1.113883.2.1.8.1.5.111^ISO|
MSH.4	Sending Facility	|CAV^7A4BV^L|
MSH.5	Receiving Application	|INSE^2.16.840.1.113883.2.1.8.1.5.200^ISO|
MSH.6	Receiving Facility	|cymru.nhs.uk^RQFW3^L|
MSH.7	Date/Time Of Message	|20170126143602|
MSH.9	Message Type	|ORU^R01^ORU_R01|
MSH.10	Message Control ID	|2017012614360280000|
MSH.11	Processing ID	|P|
MSH.12	Version ID	|2.5.1|
MSH.13	Accept Acknowledgment Type	|AL|
PID.1	Set ID-PID	|1|
PID.3	Patient Identifier List	|M21300019^^^2.16.840.1.113883.2.1.8.1.3.126^MR~9999999998^^^NHS^NH|
PID.5	Patient Name	|Bloggs^Joe^^Mr|
PID.7	Date/Time of Birth	|20010328|
PID.8	Administrative Sex	|M|
PID.11	Patient Address [2.A.85]	|Street^Other^Town^County^Postcode|
PID.13	Phone Number - Home	|01656 123123^PRN^PH~07927655295^ORN^CP^NET^X.400^abc@home.com~01656 123123~01656123123^PRN^PH^^^abc@home.com~01656123123^PRN^PH|
PID.32	Identity Reliability Code	|01|
PV1.1	Set ID - PV1	|1|
PV1.3	Assigned Patient Location	|^^^^^^^Greendale Surgery^W95023|
PV1.8	Referring Doctor	|1234567^Jones^Indiana^^^Dr^^^GMC|
PV1.10	Hospital Service	|311|
OBR.1	Set ID - OBR	|1|
OBR.2	Placer Order Number	|287018^^150^L|
OBR.3	Filler Order Number	|287018^^255^ISO|
OBR.4	Universal Service Identifier	|CXR^Chest Xray^RCR National Procedure Codes|
OBR.7	Observation Date/Time	|20170126135745|
OB6.16	Ordering Provider	|1234567^Jones^Indiana^^^Dr^^^GMC|
OBR.22	Results Rpt/Status Chng - Date/Time	|20170126135745|
OBX.1	Set ID – OBX	|1|
OBX.2	Value Type	|ED|
OBX.3	Observation Identifier	|MOLT^MOL TEST NAME^L|
OBX.5	Observation Value	|MOL^IM^PDF^Base64^JVBERI0X...|
OBX.11	Observation Result Status	|F|

OBX.1	Set ID – OBX	|2|
OBX.2	Value Type	|RP|
OBX.3	Observation Identifier	|MOLT^MOL TEST NAME^L|
OBX.5	Observation Value	|http://documents.example.com/document123.pdf|
OBX.11	Observation Result Status	|F|

Example message

```
MSH|^~\&|ACMELab^2.16.840.1.113883.2.1.8.1.5.999^ISO|CAV^7A4BV^L|cymru.nhs.uk^2.16.840.1.113883.2.1.8.1.5.200^ISO|NHSWales^RQFW3^L|20190514102527+0200||ORU^R01^ORU_R01|5051095-201905141025|T|2.5.1||AL
PID|1||0123456789^^^NHS^NH~LOCAL0001^^^2.16.840.1.113883.2.1.8.1.3.999^PI||Doe^John^^Mr||19800101|M||23 Short Street^Long Road^Any Town^Sunny County^CF25 6BF
PV1|1|N|^^^^^^The Riversdale Practice^W991234|||1234567^Jones^Indiana^^Dr^^GMC&&ISO||311
OBR|1||190000041:27491|MOLT^MOL TEST NAME^L^MOLT^MOL TEST NAME^L^NA||20190514102000+0200||SCC|O||20190514102000+0200||AGDOCTOC^ANNADOC^GDOC^^^^^^^^^DN||
||20190514102417+0200
OBX|1|ED|MOLT^MOL TEST NAME^L^^NA||MOL^IM^PDF^Base64^JVBERi0x...|||F
OBX|2|RP|MOLT^MOL TEST NAME^L^^NA||http://documents.example.com/document123.pdf|||F
```


Appendix B – ORU^R01^ORU_R01 Abstract Message Syntax

Segment	Name	Usage	Cardinality
MSH	Message Header	R	[1..1]
[[SFT]]	Software Segment	O	[0..*]
{	PATIENT_RESULT Begin	R	[1..*]
[	PATIENT Begin	O	[0..1]
PID	Patient Identification	R	[1..1]
[PD1]	Additional Demographics	O	[0..1]
[[NTE]]	Notes and Comments for PID	O	[0..*]
[[NK1]]	Next of Kin/Associated Parties	O	[0..*]
[	VISIT Begin	O	[0..1]
PV1	Patient Visit	R	[1..1]
[PV2]	Patient Visit – Additional Information	O	[0..1]
]	VISIT End		
]	PATIENT End		
{	ORDER_OBSERVATION Begin	R	[1..*]
[ORC]	Order Common	O	[0..1]
OBR	Observation Request	R	[1..1]
[[NTE]]	Notes and Comments for OBR	O	[0..*]
[[	TIMING_QTY Begin	O	
TQ1	Timing/Quantity	R	[1..1]
	Timing/Quantity Order Sequence	O	[0..*]
[[TQ2]]			
}}	TIMING_QTY End		
[CTD]	Contact Data	O	[0..1]
[[	OBSERVATION Begin	R	[1..*]
OBX	Observation related to OBR	R	[1..1]
[[NTE]]	Notes and Comments	O	[0..*]
}}	OBSERVATION End		
[[FT1]]	Financial Transaction	O	[0..*]
[[CT1]]	Clinical Trial Identification	O	[0..*]
[[	SPECIMEN Begin	O	[0..*]
SPM	Specimen Information related to OBR	R	[1..1]
[[OBX]]	Observation related to Specimen	O	[0..*]
}}	SPECIMEN End		
}	ORDER_OBSERVATION End		
}	PATIENT_RESULT End		
[DSC]	Continuation Pointer	O	[0..1]

Appendix C – Full example

The following example provides a mixture of observation types and contains embedded documents as base64 strings and specific types such as Numeric values with reference ranges.

MSH|^~&|ACMELab^2.16.840.1.113883.2.1.8.1.5.999^ISO|CAV^7A4BV^L|cymru.nhs.uk^2.16.840.1.113883.2.1.8.1.5.200^ISO|NHSWales^RQFW3^L|20190514102527+02
00||ORU^R01^ORU_R01|5051095-201905141025|T|2.5.1|||AL
PID|||403281375^154^PI-5189214567^^^NHS^NH||Bloggs^Joe^^Mr||20010328|M|||A B M U Health Board^One Talbot Gateway^Baglan^Neath port talbot^SA12
7BR|||||||||||||||||01
PV1||O|^|Greendale Surgery^W95023|||ABC123^Foster^G^^Mr^^L^^^DN||CAR
ORC|OR|||||7A3C7MPAT^^wales.nhs.uk^7A3&L,M,N^^^MH Pathology Dept,
OBR|1||914694928301|B3051^HbA1c (IFCC traceable)||201803091500||^ABM: Sian Jones|||201803091500|^Dr
Jones|^Jones^Indiana^^Dr|||201803091500||F
NTE|1||For monitoring known diabetic patients, please follow NICE guidelines. If not a known diabetic and the patient is asymptomatic, a second
confirmatory sample is required within 2 weeks (WEDS Guidance). HbA1c is unreliable for diagnostic and monitoring purposes in the context of several
conditions, including some haemoglobinopathies, abnormal haemoglobin levels, chronic renal failure, recent transfusion, pregnancy, or alcoholism.
OBX|1|NM|B3553^HbA1c (IFCC traceable)||49|mmol/mol|<48|H||C|||201803091500
OBR|2||914694928301|B0001^Full blood count||201803091500||^ABM: Sian Jones|||201803091500|^Dr Jones
Indiana|^Jones^Indiana^^Dr|||201803091500||F
TQ1|||||201803091400|201803091500|S^^^^^^Urgent
OBX|1|NM|B0300^White blood cell (WBC) count||3.5|x10^9/L|4.0-11.0|L||F||201803091500
OBX|2|SN|B0307^Haemoglobin (Hb)||<^149|g/L|130-180|H||F||201803091500
OBX|3|NM|B0314^Platelet (PLT) count||500|x10^9/L|150-400|H||F||201803091500
OBX|4|NM|B0306^Red blood cell (RBC) count||6.00|x10^12/L|4.50-6.00|N||F||201803091500
OBX|6|CE|B0309^Mean cell volume (MCV)||NA^Not assayed^ACME|fL|80-100|N||F||201803091500
SPM|1|^9146949283|BLOO^Blood^ACME|||||201803091400|201803091500
OBR|3||287018^7A4BV|CATH^Cardiac Catheter Report^L||20181109123851|||||20181109124818||R||1^^20181109123851
OBX|1|ED|CATH^Cardiac Catheter
Report^L|1|255^AP^pdf^Base64^JVBERi0xLjQKJcOkw7zDtsOfCjIgmCBvYmoKPDw...EYndk0IDAwdAwIG4gCnRyYwlsZXIKPDwvU216ZS|||||F
OBX|2|ED|CATH^Cardiac Catheter
Report^L|1|255^AP^pdf^Base64^AxNi9Sb290IDE0IDAgUgovSW5mbyAxNSAwIFIKL01EIFsgPE...KPj4Kc3RhcncR4cmVmCjEyNzg3CiUlRU9GCg==|||||F
OBR|4||A28701^7A4BV|Appointment^AppointmentLetter^L|||20181109123851|||||20181109124818||R||1^^20181109123851
OBX|1|ED|Appointment^Appointment Letter^L||251^AP^pdf^Base64^JVBERi0xLjQKJcOkw7zDtsOfCjIgmCBvYm...VmCjEyNzg3CiUlRU9GCg==|||||F
OBR|5||190000041:27491|MOLT^MOL TEST NAME^L^MOLT^MOL TEST
NAME^L^NA|||20190514102000+0200||ACME|O||20190514102000+0200||1234567^JONES^INDIANA^^DR^^GMC^^^DN|||||20190514102417+0200||DMOL|F|^R|||||
ACME&USER&SUPER|ACME|||||190000041^MOL^L
OBX|1|TX|INTER^INTERPRETATION^L^^^NA|MOLT|rwtu|||||F||20190514102417+0200||ACME||20190514102417+0200|||^^^^^^MyLAB
NTE|1|L|Interpreted by: ACME Super User, Signed on 05/14/2019 at 10:24|RE^Remark^HL70364^ELSG^L^2.5.1^NA
OBX|2|TX|RESTE^Reason for testing^L^^^NA|MOLT|erw|||||F||20190514102417+0200||ACME||20190514102417+0200|||^^^^^^MyLAB
OBX|3|TX|TMETH^Test Methodology^L^^^NA|MOLT|sfjg|||||F||20190514102417+0200||ACME||20190514102417+0200|||^^^^^^MyLAB
OBX|4|TX|RESUM^Result summary^L^^^NA|MOLT|tyityu|||||F||20190514102417+0200||ACME||20190514102417+0200|||^^^^^^MyLAB
OBX|5|TX|PATPH^Patient phenotype^L^^^NA|MOLT|ghfjg|||||F||20190514102417+0200||ACME||20190514102417+0200|||^^^^^^MyLAB
OBX|6|TX|FOLL^Follow-up^L^^^NA|MOLT|yue|||||F||20190514102417+0200||ACME||20190514102417+0200|||^^^^^^MyLAB
OBX|7|TX|MDS^Multi-disciplinary summary^L^^^NA|MOLT|tyu|||||F||20190514102417+0200||ACME||20190514102417+0200|||^^^^^^MyLAB
OBX|8|TX|RESLT^Result^L^^^NA|MOLT|dhjhd|||||F||20190514102417+0200||ACME||20190514102417+0200|||^^^^^^MyLAB
OBX|9|ST|GRFALN1^AlphaNumeric Generic Result Field
1^L^^^NA|MOLT|234dfsgsg|||||F||20190514102335+0200||ACME||20190514102417+0200|||^^^^^^MyLAB
OBX|10|ED|MOLT^MOL TEST
NAME^L^^^NA||MOL^IM^PDF^Base64^JVBERi0xLjMKJeLjz9MKMiAwIG9iago8PC...|||||F||20190514102335+0200||ACME||20190514102417+0200|||^^^^^^MyLAB
OBX|11|RP|MOLT^MOL TEST
NAME^L^^^NA||http://documents.example.com/document123.pdf|||||F||20190514102335+0200||ACME||20190514102417+0200|||^^^^^^MyLAB