Standard for Use of HL7 Version 2 in the UK

(Short name: "HL72UK")

Version: A.3

Chapter 1 - Introduction

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1.1 Introduction and purpose

This document is the Standard for the use of HL7 Version 2 in the United Kingdom. This Standard therefore specifies the functions to which UK implementations of the HL7 Version 2 standard shall conform.

Integrated with the normative text of this Standard is Implementation Guidance indicated by the use of italicised text between ruled lines.

The motivations for this Standard are:

- The particular needs of UK-based healthcare systems not addressed within the HL7 Version 2 standard
- Making interworking easier by implementing certain features of HL7 in a standard way in the UK.

The intended users of this Standard are health information systems designers, specifiers and integrators. A general knowledge of information technology conventions is presumed.

Comments on this Standard and the guidance notes are very welcome.

1.2 Description

The base standard for this document is HL7 2.4; however, certain new features from HL7 2.5 have been 'pre-adopted' as they provide a good solution to UK requirements. The HL7 2.4 standard has not been reproduced in this document. However, where the HL7 UK standard differs from the published HL7 2.4 standard, the difference is noted in the appropriate chapter. All sections of HL7 2.5 that have been pre-adopted are reproduced in full.

For example, if HL7 UK has added Z-segments to a message, the full message construct is documented in this Standard. Where there is no deviation from HL7 2.4, the message construct does not appear; however, there is a statement referring the reader to the HL7 2.4 standard. Messages not supported in the UK are listed in the HL7 UK standard and marked as not supported. Messages that do not differ from HL7 2.4 are not listed.

Where HL7 UK has added to or changed field definitions, table values, or other content of a segment, the segment is documented in this Standard. Where there is no deviation from HL7 2.4, the segment is not documented. Equally (as with messages above), when segments are not supported by HL7 UK they are listed and marked as not supported. **Therefore this Standard must be read together with the HL7 2.4 standard**.

1.3 Scope

This Standard is intended to apply only in the United Kingdom. It may be used in other realms, but:

- The Standard may not properly represent healthcare practice outside the UK
- There may be possible conflicts with other Z-segments in use outside the UK.

1.4 Conformance

To conform to this Standard, implementations shall conform to the mandatory provisions of this document for the messages and segments implemented. These provisions are designated by use of the word “shall”.

Implementation guidance is also included in this document. It is designated by the heading ***'Implementation Guidance'*** and the use of italics for the text. For example:

Implementation Guidance

This segment should only be used for messages where the identity of the patient is not known.

Implementations need not apply this guidance. Its application is, however, considered to be good practice in the UK and may become part of future versions of this Standard.

Where domain areas are not included in this Standard (see section 1.5.1 below) they are not within the scope of this Standard. If UK implementations cover these domains, they shall conform to HL7 2.4.

Users of this Standard requiring to define a particular message and to test conformance to it are recommended to use the Veterans Administration "Message Workbench" which is freely available from the HL7 Implementation / Conformance website: http://www.hl7.org/Special/committees/ictc/index.cfm

1.5 Document layout

1.5.1 General information

The document is organised in chapters beginning with this Introduction. The second chapter concerns itself with message control and connectivity issues. The balance of the document consists of each of the domain areas as individual chapters. Some chapters will, by necessity,

refer to other chapters in the document (for example, Orders and Results). Others will stand alone.

The status of each of the domain area chapters in this document is as follows:

Chapter No.	Title	Status
2	Control	Modified for UK standard
3	Patient Administration	Modified for UK standard
4	Order Entry	Modified for UK standard
5	Query	Modified for UK standard
6	Finance	Not yet reviewed for the UK
7	Observation Reporting	Modified for UK standard
8	Master Files	Modified for UK standard
9	Medical Records	Not yet reviewed for the UK
10	Scheduling	Reviewed, but not modified for the UK standard
11	Patient Referral	Not yet reviewed for the UK
12	Patient Care	Not yet reviewed for the UK
13	Clinical Laboratory Automation	Not yet reviewed for the UK
14	Network Protocols	Not yet reviewed for the UK
Appendix A	Z-Messages, Segments & Fields	Modified for UK standard
Appendix B	Terminology	Added to the UK standard

The chapters or domains not reviewed for this version of the Standard will be considered for inclusion in future versions.

1.5.2 Document layout detail

Each chapter (except Appendix B) follows the same format:

Section title	Comments
Purpose	
Terminology	
Rules/Constraints	
Message Processing Rules/Constraints; Trigger Events & Message Definitions	1 Non-supported messages are included and marked as non-supported. 2 Messages identical to the HL7 2.4 construct (no z-segments added) are not documented in detail, but are listed, referring the reader to the HL7 2.4 standard. 3 Messages modified from HL7 2.4 (z-segments added, etc.) are documented in detail.

Section title	Comments
Data Type Definitions	
Use Cases & General Models	
Segment Definitions	**Segments:** 1 Non-supported segments are included and marked as non-supported. 2 Segments listed in the Messages (section 4 of each chapter) with no extra detail in the Data Definition (section 6 of each chapter) are supported as in the HL7 2.4 standard. 3 Segments with HL7 UK added content are documented in detail. **Tables:** 1 HL7 tables are listed only if there are additional HL7 UK values, or extra information listed with the table (e.g. supported values indicated.) The HL7 UK added content is clearly noted. If a table is supported as documented in HL7 2.4, it is not included. **R/O/C field requirements:** 1 All fields documented as conditionally required have conditionality rules documented in the field note if this Standard deviates from HL7 2.4. If the field is defined as conditional in HL7 2.4, the user is referred to the field note in the appropriate standard. 2 The following guidelines should be used when determining the Required/Optional/Conditional value for a field: **Inbound:** Required (R) – Message or segment cannot be processed without the element. Optional (O) – Element is used/stored if present, but no impact on functionality if absent. Conditional (C) - Under certain specific and documented conditions the element is required and under other conditions the element is not required. Note that the conditionality rule MUST be documented in the field note. **Outbound:** Required (R) - Element will always be populated and sent with a valid value. Optional (O) - The element is sent if it is populated in the application, but may not be valued. Conditional (C) - Under certain specific and documented conditions the element is always populated and under other conditions the element is either never or is only sometimes populated. Note that the conditionality rule MUST be documented in the field note. **Non-supported fields:** Non-supported fields in segments are indicated by **(not supported in the UK)** following the element name. The following guidelines should be used:

Section title	Comments
	Inbound: If received the element will be ignored; it will not be stored in the application or used to impact the message processing in any way. **Outbound:** If sent, the element may only be used by the receiving application following an implementation review.
Data Control	
Open Issues	

1.6 References

HL7 Version 2.4

Members of HL7 UK can obtain copies of HL7 2.4 from the HL7 UK Web site (www.hl7.org.uk).

Chapter 2 - Control

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2.1 Purpose

This chapter addresses:

- the issues surrounding the communications and control requirements among implementations conforming to this Standard
- message flow and acknowledgement, connectivity standards supported, data control, and ownership
- the implications and differences between routed and non-routed environments, and
- HL7 message construction and encoding rules.

2.2 Terminology

There are a number of differences in definition and interpretation of specific words and phrases between the US and the UK. Where there is a serious risk of confusion, Appendix B contains the definition to be used when interpreting this document. Where there is no specific UK definition, any definition provided in HL7 2.4 should be used.

Users of this Standard are strongly recommended to check the list of words and phrases listed in Appendix B before reading the rest of the document.

2.3 Rules/Constraints

Implementations conforming to this Standard shall implement application-level interface protocols that will allow for the use of the enhanced-acknowledgement mode. In this paradigm, the sending system tells the receiving system whether it is expecting a one- or a two-part response. The process for a simple case is as follows:

1 The sending system constructs and sends an HL7 message to the receiving system.

2 The receiving system examines the Accept acknowledgement type (MSH:15) and the application acknowledgement type (MSH:16) fields.

If both values are null, the receiving system shall follow the original acknowledgement rules:

- First, the message is validated syntactically. If it fails validation, a reject message shall be created and returned to the initiator.
- Second, the receiving application validates the content of the message. If this fails, a reject message shall be created and returned to the initiator. If it succeeds, an accept shall be returned, as appropriate.

If MSH:15 or MSH:16 are not null, error and acknowledgement messages shall be sent on accept acknowledgement and on application acknowledgement, depending on the interpretation of the values of these fields. Permitted values (*table 0155*) include:

- AL - always acknowledge
- NE - never acknowledge
- ER - error/reject conditions only
- SU - successful completion only

Note:

As will be discussed more fully in the sections to follow, the use of an interface engine or router in the process will not change these processing rules from the application sending system's point of view.

2.3.1 Replacement/units of completeness

Updates and data replacement on a system's database shall be driven by:

- The data received
- The data already on the receiving system's database
- The enterprise rules concerning the ownership of data

The unit of completeness among systems in the enterprise is the message. An initiating system shall construct a "fully populated" HL7 message in response to a trigger event. A "fully populated" message is a message containing all mandatory elements and all optional elements for which the originating system has values and thus provide the maximum information to the enterprise. Systems that receive a message are able to use as little or as much of the data as they require but shall ensure that all appropriate data on their own database is brought up to date in accordance with local rules for system database update.

2.3.2 Data distribution

Within the enterprise, implementations conforming to this Standard shall implement a one-to-many data broadcast capability in such a way as to either:

- use data values and meanings as defined in this Standard

or

- where direct conformance with this Standard is not an option, use an interface engine (or similar toolset) that implements an enterprise table management system for data normalisation

Sending applications shall send a single message in response to a trigger event. Any interface engine or router shall use user-managed tables to specify the target systems for each message.

2.3.3 Null versus not present representation

The fundamental issue being addressed by this section is “Database Synchronisation” in an enterprise environment. Different products have a variety of data models, none of which match in all details. This section specifies how to update and delete data contained in each data type, when different products support different components and sub-components of the same field.

Chaos can appear in an enterprise environment when general rules on how to populate components and sub-components with data and two double quote marks ("") are not in use. Data disappears when it should not, and remains unchanged when it should be updated or deleted. General rules are provided for populating a database from these data types. It does no good to specify how to populate a field if the receiving system is going to implement its own rules for populating its database. If the goal is “Database Synchronisation”, then both the sender and receiver of the data must have predictable rules for how they will process the data.

2.3.4 Data Types

Data types have been sorted into three categories:

- Primitive: Data types that contain no sub-components
- Simple: Data types that contain sub-components, but do not contain a ‘type’ code component.
- Complex: Data types that contain sub-components, including a component identified as a ‘type’ or ‘code’ component.

The rules defined in this section are not intended to override the data type definitions relating to required, optional, conditional attributes for fields, components and sub-components. When populating fields and the application has data for the components, the data type rules for populating components shall still apply.

Systems that support 'State Change Recognition' to data in their data base are still encouraged to follow the rules in this section to create messages that conform to this Standard. State Change Recognition is defined as the ability to recognize the specific changes (addition, modification or deletion) that have occurred to trigger a message; and to which specific record these changes have occurred.

Data type	Name	Primitive / Simple	Complex	HL7 UK notes
AD	Address			Not supported / See XAD.
CD	Channel definition	X		For waveform data only, see HL7 2.4 Chapter 7, Section7.16.2.
CE	Coded element	X		No new CEs are allowed after HL7 version 2.3. Use CWE or CNE instead.
CF	Coded element with formatted values	X		
CK	Composite ID with check digit			Not supported / See CX.
CM	Composite		X	No new CMs are allowed after HL7 Version 2.2
CN	Composite ID number and name			Not supported / See XCN.
CNE	Coded with no exceptions	X		
CP	Composite price	X		
CQ	Composite quantity with units	X		
CWE	Coded with exceptions	X		
CX	Extended composite ID with check digit		X	
DLN	Driver's license number	X		
DR	Date/time range	X		
DT	Date	X		
ED	Encapsulated data		X	Not supported. In HL7 supports ASCII MIME-encoding of binary data.
EI	Entity identifier	X		Component "universal ID type" is not supported
FC	Financial class	X		

Data type	Name	Primitive / Simple	Complex	HL7 UK notes
FT	Formatted text	X		
HD	Hierarchic designator	X		Component “universal ID type” is not supported.
ID	Coded values for HL7 tables	X		
IS	Coded value for user-defined tables	X		
JCC	Job code/class	X		
MA	Multiplexed array	X		For waveform data only, see HL7 2.4 Chapter 7, Section 7.14.1.2.
MO	Money			Not supported / See CP
NA	Numeric array	X		For waveform data only, see HL7 2.4 Chapter 7, Section 7.14.1.1.
NM	Numeric	X		
PL	Person location	X		Component “person location type” is not supported.
PN	Person name			Not supported / See XPN.
PPN	Performing person time stamp		X	
PT	Processing type	X		
QIP	Query input parameter list			Not supported.
QSC	Query selection criteria			Not supported.
RCD	Row column definition			Not supported.
RI	Repeat interval	X		Scheduling chapter Only:
RP	Reference pointer	X		Components “type of data” and “subtype” are not supported.
SCV	Scheduling class value pair	X		Scheduling chapter only:
SI	Sequence ID	X		
SN	Structured numeric	X		
ST	String	X		
TM	Time	X		
TN	Telephone number			Not supported / See XTN
TQ	Timing/quantity	X		For timing/quantity specifications for orders, see Chapter 4
TS	Time stamp	X		
TX	Text data	X		

Data type	Name	Primitive / Simple	Complex	HL7 UK notes
VH	Visiting hours	X		
VID	Version identifier	X		
XAD	Extended address		X	
XCN	Extended composite ID number and name	X		Component "name type code" is not supported.
XON	Extended composite name and ID number for organizations		X	
XPN	Extended person name		X	
XTN	Extended telecommunications number		X	

2.3.4.1 Deletes/updates of primitive and simple data types

This section identifies the simple data types; that is, those that do not have a "type" code component and primitive data types, or data types that do not contain sub-components. Refer to the unabridged table of data types above, of which the "Primitive / Simple" column identifies the data types to which these rules shall apply.

Implementation Guidance

It is recommended that these rules should not be interpreted so as to cause the receiving system to update its master files from non-master file messages. Master files updates should ideally only result from the receipt of a master file message (see Chapter 8).

2.3.4.1.1 Assumptions

- If the field/sub-component is designated REQUIRED by HL7, the sending system shall support it/have data for it.
- If the field/sub-component is designated as CONDITIONAL by HL7, the sending system shall support the conditionality rule as defined by HL7 (and shall support/have data for at least the conditionally required fields according to the conditionality rule).

  In a real message, once the condition rules for the data type of the field are applied to the actual data in the field, the components and sub-components of the field are either required or optional. This is why the algorithms below do not need to deal with the conditional components of data types.

  To illustrate this point, think of the CE data type, and assume that you, as a sending system, either support only the text (2nd) component in your database, or have a situation when you need to communicate a freeform description that is not associated with a coded identifier. Since it is suggested in this document that both the code (1st) and text (2nd) components are "conditionally required" (meaning that either code or text

must be populated in the field), then, in this example, the code component would be considered optional (not supported) while the text component would be considered required (supported). If, on the other hand, you support only the code component in your database, then the code component would be considered required while the text component would be considered optional.

- If the field/sub-component is designated as OPTIONAL by HL7, the sending system may or may not support/have data for it.
- The following construction and parsing rules are to be interpreted in the context of processing a single field, within a single HL7 message. That is, a receiving/parsing system shall perform its database updates based upon the specific "entity" (e.g. patient XYZ, order 123, etc.) referred to in the message. Any system sending/constructing HL7 messages based upon these rules must also have applied them in the context of the entity referred to in the message.

2.3.4.1.2 Sending system construction rules

The sending system shall use the following rules for constructing simple data types:

Hierarchy	Rule
1.	If the component/sub-component is supported by the sending system then
1.1.	If data is present for the component/sub-component then
1.1.1.	Populate the component/sub-component with the data
1.2.	Else data is not present for the component/sub-component then
1.2.1.	Populate the component/sub-component with ("")
2.	Else the component/sub-component is not supported by the sending system then
2.1.	Do not populate the component/sub-component

Note:

Each component or sub-component in a “simple” data type constructed using these rules shall contain:

- Data (`|data|`), when the component/sub-component is supported and has data, or
- Two double quote marks (`|""|`), when the component/sub-component is supported but does not have data, or
- An empty component (`|^^|`), when the component/sub-component is not supported.
- When constructing a field, if the sending system does not support the latter optional components/sub-components of a data type, it is not required to populate the component or sub-component delimiters as placeholders for the unsupported components or sub-components. For example, with the CE data type, if the alternate triplet is not supported (i.e., components 4, 5, & 6), then the field can be populated in either of the following ways: `|data^data^data|` or `|data^data^data^^^|`.

2.3.4.1.4 Receiving system parsing rules

Implementation Guidance

It is suggested that the receiving system should do the following for a simple data type:

Hierarchy	Rule
1.	*If the component/sub-component is supported then*
1.1	*If the component/sub-component is not present (||) then*
1.1.1	*Quit*
1.2	*Else the component/sub-component is present then*
1.2.1	*If the component/sub-component is null (|""|) then*
1.2.1.1	*If the component/sub-component is the only one that is required then*
1.2.1.1.1	*Delete all components of the datatype in your database*
1.2.1.2	*Else multiple component/sub-components are required then*
1.2.1.2.1	*If all the required component/sub-components are null then*
1.2.1.2.1.1	*Delete all components of the datatype in your database*
1.2.1.2.2	*Else all the required component/sub-components are not null then*
1.2.1.2.2.1	*Populate your database with the component/sub-component data*
1.2.2	*Else the component/subcomponent is not null (|data|) then*
1.2.2.1	*Populate your database with the component/subcomponent data*
2.	*Else the component/subcomponent is not supported then*
2.1	*Quit*

2.3.4.1.5 Examples

The following four examples illustrate the rules for constructing:

- a simple data type without multiple components (primitive data type)
- a multi-component data type with a required component
- a multi-component data type with a conditionally required component, and
- a multi-component data type with all optional components.

Example 1 PID-23 Birth place (ST)

This is a primitive type without multiple components.

Components: <Birth place (required)>

Scenario	Construct
You support the component and have data for the supported component.	|Nottingham|
You support the component, but do not have data for the component.	|""|
You do not support the component.	||

Example 2 PV1-03 Assigned Patient Location (PL)

This is a multi-component data type with a required component.

Components: <point of care> ^ <room> ^ <bed> ^ <facility (required)> ^ <location status>

Scenario	Construct
You support all HL7 UK supported components, and have data for all components.	|PED^4102^0^ST1A^OCC|
You support all HL7 UK supported components, and do not have a location status.	|PED^4102^01^ST1A^""|
You support all HL7 UK supported components, except location status, and have data for all supported components.	|PED^4102^01^ST1A|
You support all HL7 UK supported components, and do not have a room, bed, or location status.	|PED^""^""^ST1A^""|
You support all HL7 UK supported components, and do not have a point of care, room, bed, or location status.	|""^""^""^ST1A^""|
You support all HL7 UK supported components, and do not have values for any component (i.e., deleting the field).	|""^""^""^""^""|
The only component you support is facility, and you have a value for facility.	|^^^ST1A|
The only component you support is facility, and you do not have a value for facility.	|^^^""|

Example 3 PID-28 Nationality (CE)

This is a multi-component data type with a conditionally required component.

Components: <identifier (Conditional)> & <Application ID> ^ <text (Conditional)> ^ <name of coding system> ^ <alternate identifier> & <Application ID> ^ <alternate text> ^ <name of alternate coding system>

Scenario	Construct
You support all components, and have data for all components.	|0999^Great Britain^ 99H1234^GB^Great Britain^ISO166|
All components are supported, and the data is text only (i.e., a freeform value).	|""^Great Britain^""^""^""^""|

Scenario	Construct
Only the code component is supported, and there is no code data.	|""^^^^^| or |""|
Both the code and text components are supported, and there is no code or text data.	|""^""^^^^| or |""^""|
Only the text component is supported, and there is no text data.	|^""^^^^| or |^""|
Only the text component is supported, and there is text data.	|^Great Britain^^^^| or |^Great Britain|

Example 4 SCH-11 Appointment Quantity Timing (TQ)

This is a multi-component data type with all optional components.

Components: <quantity> ^ <interval> ^ <duration> ^ <start date/time> ^ <end date/time> ^ <priority> ^ <condition> ^ <text> ^ <conjunction> ^ <order sequencing>

Scenario	Construct
All components are supported, and there is data for all components.	|1^BID^W1^200001011230^200001071230^R^Keep Blood pressure below 110^Full text version of the instructions^S^S|
All components are supported, and there is data for all components except the Condition Component.	|1^BID^W1^200001011230^200001071230^R^""^Full text version of the instructions^S^S|
All components are supported except the Condition Component, and there are data for all supported fields.	|1^BID^W1^200001011230^200001071230^R^^Full text version of the instructions^S^S|
All components supported, and deleting all components of the field.	|""^""^""^""^""^""^""^""^""^""|
All components are supported except the Condition Component, and there is no data for any supported fields.	|""^""^""^""^""^""^^""^""^""|

2.3.4.2 Deletes/updates of complex data types

No procedure has been decided for complex data types.

2.3.4.3 Deletes/updates of repeating fields

2.3.4.3.1 Deletes/updates of repeating primitive and simple data types

This section deals with handling deletes of repeating primitive and simple data types. The rules for handling deletes and updates for repeating simple data types for the sender are as follows:

- Repeating simple data types shall be updated in "snapshot", i.e. delete and replace all. This means the sending system shall not leave any repeats empty, nor shall it populate any repeats with two double quote marks (""). The only exception to this is when the final repeat is being deleted (see next bullet).
- Deleting the final/only repeat of repeating, simple data types. In this case, the final/only repeat shall be deleted just as if it was not a repeating field. The rules given in 2.3.4.1.2 shall apply in this case.

The rules for the receiver are as follows:

- Repeating simple data types shall be updated in "snapshot", i.e. delete and replace all. This means the receiving system shall replace all the repeated data in its database with the repeating data in the field.
- If the field is populated as described in 2.3.4.1 for deleting a field, then the receiving system shall remove (or mark as inactive) all repeats of the field from its database.

2.3.4.3.2 Examples

This section provides examples of deleting a repeating field using different data types.

Example 1 PID-5-Patient Name (XPN)

This is a multi-component data type with a required sub-component.

Components: <family name (required)> ^ <given name> ^ <middle initial or name> ^ <suffix> ^ <prefix> ^ <degree> ^ <name type code>

Scenario	Construct
You support all HL7 UK-supported components, and have 3 repeats.	`|WILSON^MARY^I^III^VON^1^ER~WILSON^MARI^ANN^III^VON^1^AL~WILSON^MARLI^ANNE^III^VON^1^ER|`
You support all HL7 UK-supported components, and have 2 repeats remaining after deleting the second repeat from the previous example.	`|WILSON^MARY^I^III^VON^1^ER~WILSON^MARLI^ANNE^III^VON^1^ER|`
You support all HL7 UK-supported components, and have only one occurrence remaining after deleting the first and second repeats from the first example above.	`|WILSON^MARLI^ANNE^III^VON^1^ER|`

Scenario	Construct
You support all HL7 UK-supported components and are deleting all repeats.	|""^""^""^""^""^""^"" |

Example 2 NK1 – 29 Contact Reason (CE)

This is a multi-component data type with a conditionally required sub-component.

Components: <identifier (Conditional)> & <Application ID> ^ <text (Conditional)> ^ <name of coding system> ^ <alternate identifier> & <Application ID> ^ <alternate text> ^ <name of alternate coding system>

Scenario	Construct
Initial Field (fully coded~free text~coded-no text), and you support all HL7 UK-supported components, and have 3 repeats.	|0001^REASON 1 ^99H1234^R1^REAS1^99EMP~""^HL7UK^""^""^""^""~0002^""^99H1234^""^""^""|
You are deleting the second repeat from the previous example, and you support all HL7 UK-supported components.	|0001^REASON 1^99H1234^R1^REAS1^99EMP~0002^""^99H1234^""^""^""|
You are deleting the third repeat from the first example above, and you support all HL7 UK-supported components.	|0001^REASON 1^99H1234^R1^REAS1^99EMP~""^HL7UK^""^""^""^"" |
You are deleting the first and second repeats from the first example above, and you support all HL7 UK-supported components.	|0002^""^99H1234^""^""^""^""|
You are deleting the entire field (i.e., deleting all repeats), and support all HL7 UK-supported components.	|""^""^""^""^""^""|
You are deleting the entire field (i.e., deleting all repeats), and support only the text component (2).	|^""^^^^| or |^""|

2.3.4.3.3 Deletes/updates of repeating complex data types

Implementation Guidance

This area of implementation has not yet been clarified. Please be very careful in this area.

2.3.5 Reserved character set

All data shall be represented as displayable/printable characters from a selected character set. By default, the ASCII displayable character set (hexadecimal values between 20 and 7E, inclusive) shall be used unless negotiated between implementation parties. The field separator shall be chosen from the ASCII displayable character set. All the other special separators and other special characters are also displayable characters except that the segment separator is the ASCII Carriage Return character (hexadecimal '0D').

In HL7 version 2.2, there was no mechanism to denote the actual character set being deployed for the interfacing systems. However, with HL7 version 2.3, a specific field has been added to the MSH segment that denotes the deployed character set (MSH:18). There is nothing intrinsic to the HL7 standard that restricts the legal data set to the printable ASCII characters. The former restriction was imposed to accommodate the limitations of many existing communication systems. To conform to this Standard, the only character set that shall be supported is the ASCII displayable character set (hexadecimal '20' - '7E' inclusive).

2.3.6 Continuation messages and segments

Implementation Guidance

It is recommended that continuation messages are not implemented.

2.3.7 Formatting codes

Implementation Guidance

It is recommended that the standard HL7 delimiters be used. Changing the delimiters on each transaction is discouraged.

When a field of type TX, FT, or CF is being encoded, the escape character may be used to signal certain special characteristics of portions of the text field. The escape character is whatever display ASCII character is specified in the <escape character> component of *MSH-2-encoding characters*. For purposes of this section, the character \ will be used to represent the character so designated in a message. An **escape sequence** consists of the escape character followed by an escape code ID of one character, zero (0) or more data characters, and another occurrence of the escape character. The following escape sequences are defined:

\H\	start highlighting
\N\	normal text (end highlighting)
\F\	field separator
\S\	component separator
\T\	subcomponent separator
\R\	repetition separator
\E\	escape character
\Xdddd...\	hexadecimal data
\Zdddd...\	locally defined escape sequence

The **escape sequences** for field separator, component separator, subcomponent separator, repetition separator, and escape character are also valid within an ST data field.

No escape sequence may contain a nested escape sequence.

2.4 Messages processing rules/constraints

2.4.1 Communications environment

Implementation Guidance

It is recommended that TCP/IP be used to send messages.

The HL7 Standard defines messages at the application level, as well as the procedures used to exchange them. This is the area defined conceptually by the seventh level of the ISO model for Open System Interconnection (OSI). The remaining six levels of this model are addressed using a set of recommended lower layer protocols, as described in the HL7 Implementation Guide. The HL7 Standard requires that the communications environment shall provide the following capabilities:

- error-free transmission
- character conversion
- message length management

Implementations conforming to this Standard shall use the HL7-defined Minimal Lower Layer Protocol (MLLP) as the basis for the specification of the lower-level communications requirements in a pure network environment. Generally, this will encompass physical network connectivity and transportation (for example, using Token Ring, Ethernet, and FDDI as appropriate) utilizing the TCP/IP or LU 6.2 protocols for communications management over these networks. From the perspective of the application, the selection of one protocol or another shall be transparent.

Message envelopes for the MLLP have the following format:

<SB>dddd<EB><CR>

where:

<SB> = Start block character (ASCII <VT> that is, x0B)

dddd = data, the HL7 message

<EB> = end block character (ASCII <FS> that is, x1C)

<CR> = Carriage return (ASCII x0D)

Dial-up/asynchronous access will also need to be supported. HL7 has defined a Hybrid Lower Layer Protocol (HLLP) to handle the mechanics of this. It is expected that there will be differences between implementations based on such things as maximum message length. However, message parameters such as start/end of block, checksum, continuation, ack-ing, and nak-ing shall all conform to the current specification as defined in the HL7 Implementation Guide.

2.4.2 Router versus non-router

Implementation Guidance

Where an interface engine or router has been implemented, application systems will not be responsible for managing routing among themselves nor for managing the conversion of data to the representation system of other systems. Each system will instead be responsible for providing a single version of any message in a common format, with agreed-upon standard values for table-based data, and containing in the message as much information as the system is capable of identifying and providing. It will be the responsibility of the routing system, in conjunction with any implemented enterprise-wide table management capability, to ensure proper delivery of messages to the correct locations and with the appropriate data context.

In order to achieve this capability, there are certain basic requirements that the routing function ought to be able to perform. These include:

- *one-to-many message dissemination based on source system ID and message type*
- *the ability to perform remote procedure calls*
- *the ability to perform appropriate acknowledgement of messages, including use of message control ID and sequence numbers if required*

It is recommended that applications have the capability of queuing outbound messages in the event that the link to the hub or foreign system is down.

2.4.3 Router impact on message flow, message control ID & sequence number protocol

Implementation Guidance

For the purpose of what follows, initiating system is the system that generates a message based on a trigger event, and receiving system is the application system that accepts and uses the data. The router or interface engine is not the receiving system.

The introduction of an intermediate routing mechanism means that there are two hops between the initiating system and the receiving system. The first is from the initiating system to the router, and the second is from the router to the receiving system. This introduces the need for two levels of integrity checking with regard to the proper receipt of messages. First, there is the need to ensure that a message is delivered. Second, there is a need to ensure that the receiving system can communicate back to the initiating system if there is an application error.

When the initiating system sends a message (1), the router shall acknowledge receipt. This acknowledgement shall return the message control ID of the message sent in the MSA:2 field.

The router shall pass the message on to one or more receiving systems (2). At the same time, any outbound message stream (2) may contain messages from other initiating systems. Without some co-ordinating or differentiating mechanism, it is possible that the router could send two messages from different systems across an interface, each containing the same message control ID.

Beyond this, the receiving system shall ACK/NAK the message it receives (3). A NAK based on "did not receive" shall be addressed by resending the message from the router. However, an ACK or NAK based on application validation needs to be routed back to the proper initiating system (4). There are several possible solutions to this problem. Among them are:

- co-ordinating the message control IDs across all systems in an enterprise
- including as the first part of the message control ID the sending system ID
- using a second data element to manage validation of receipt between the router and the receiving system

The third option might be enabled using the sequence number protocol field in the message header. Sequence numbers are not viable by themselves end-to-end for the same reason described above for message control IDs. They would, however, provide for a reliable means of ensuring that all messages in a stream between the router and receiving system were sent and received properly.

2.4.4 Non-local data access

Issues associated with WAN connections have to do with how the data connectivity occurs at lower protocol layers. It is not related to the HL7 specification. If proper application-layer protocols are implemented, then there is no difference between a WAN connection of a system and its local connection from the perspective of the HL7 specification. Implementation-specific considerations may include the need for encryption of data or other security measures and the management of bandwidth associated with slow link speeds.

2.4.5 Batch transfers

Implementation Guidance

It is recommended that batch protocols should not be used in any UK implementations.

2.5 Data type definitions

The data type definitions specified in the following sections shall supersede the Notes/Format column in the HL7 v2.4 document, HL7 Data Types, Figure 2-2.

This section includes all the data types supported by this Standard. Primitive data types (where no components are defined) are listed for the purpose of explicitly stating that this one component is the "required component" as discussed in section 2.3.4.1 "Deletes/updates of primitive and simple data types".

2.5.1 CD - Channel definition

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Channel identifier	CM	CM	
2	Waveform source	CM	CM	
3	Channel sensitivity/units	CM	CM	
4	Channel calibration parameters	CM	CM	
5	Sampling frequency	NM	NM	
6	Minimum/maximum data values	CM	CM	

Implementation Guidance

It is recommended that HL7 should not be used for vital signs waveform data in any UK implementations. In rare instances it may be decided that this facility is suitable for "snapshots" of information where the timeliness of delivery is not paramount.

2.5.2 CE - Coded element

This data type transmits codes and the text associated with the code. This type has six components arranged in two groups.

If a system supports a free form value for a CE data type, this shall be passed in the text (component 2) with the identifier (component 1) not valued. This represents a freeform or override value and should be processed as such by the receiving system. This behaviour shall apply to all messages with the exception of MFNs, which shall require the identifier and text components, unless an exception is specifically indicated in the field notes.

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Identifier	ST	CM	C
1.1	Identifier		ST	C
1.2	Application ID		ST	O
2	Text	ST	ST	C
3	Name of Coding System	ST	ST	O
4	Alternate Identifier	ST	CM	O
4.1	Alternate Identifier		ST	O
4.2	&Alternate Application ID		ST	O
5	Alternate Text	ST	ST	O
6	Name of Alternate Coding System	ST	ST	O

Field notes

2.5.2.1 Identifier (CM)

Conditionality rule: This component shall be required if the second component, Text, is not valued.

2.5.2.1.2 Application ID (ST)

Definition: This optional subcomponent shall be used to report the departmental ID associated with the identifier when this level of specificity is needed.

2.5.2.2 Text (ST)

Definition: This construct can be used to report freeform information not associated with an identifier by systems that support this functionality.

Conditionality rule: This component shall be required if the first component, Identifier, is not valued.

2.5.2.3 Name of Coding System (ST)

Definition: When the coding system is known, for example, in the case of standard coding systems such as ASTM or ICD9, the coding system should be reported.

The HL7 or HL7 UK assigned table value may be reported as the coding system, for example, HL70296 for language. If the component is not valued, the receiving system may assume the coding system is the HL7 table.

Implementation Guidance

In addition to the values recommended by HL7, it is recommended that UK implementations conforming to this Standard adopt the following additional values to the user-defined table 0396.

HL7 UK recommends the addition of the following to the User Defined Table 0396 – Coding System:

Value	Description
OPCS4	Office of Population, Censuses and Surveys Classification of Surgical Operations and Procedures (OPCS) – 4th revision
SNCT	Systemized Nomenclature of Medicine Clinical Terms (SNOMED-CT)

2.5.3 CF - Coded element with formatted values

The CF data type shall be supported as a CE.

2.5.4 CM - Composite

Retained for backward compatibility.

2.5.5 CP - Composite price

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Price	MO	MO	R
2	Price Type (not supported in the UK)	ID		
3	From Value (not supported in the UK)	NM		
4	To Value (not supported in the UK)	NM		
5	Range Units (not supported in the UK)	CE		
6	Range Type (not supported in the UK)	ID		

2.5.6 CQ - Composite quantity with units

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Quantity	NM	NM	R
2	Units	CE	CE	C

2.5.7 CWE - Coded with exceptions

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Identifier	ST	CM	C
1.1	Identifier		ST	C
1.2	Application ID		ST	O
2	Text	ST	ST	C
3	Name of Coding System	ST	ST	O
4	Alternate Identifier	ST	CM	O
4.1	Alternate Identifier		ST	O
4.2	&Alternate Application ID		ST	O
5	Alternate Text	ST	ST	O
6	Name of Alternate Coding System	ST	ST	O
7	Coding system version ID	ST	ST	O
8	Alternate coding system version ID	ST	ST	O
9	Original Text	ST	ST	O

2.5.8 CX - Extended composite ID with check digit

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	ID Number	ST	ST	R
2	Check Digit (not supported in the UK)			
3	Code Identifying Check Digit Scheme (not supported in the UK)			
4	Assigning Authority	HD	HD	R
5	Identifier Type Code	IS	IS	R
6	Assigning Facility	HD	HD	O

Field notes

2.5.8.5 Identifier Type Code (IS)

Values for Identifier Type Code are specified in *HL7 Table 0203 – Identifier Type*. In addition to these values, HL7 UK allows use of a code of 'CE' to indicate an Identifier Type of 'Consultant Episode'.

2.5.9 DLN - Driver's license number

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	License Number	ST	ST	R
2	Issuing State, Province, Country	IS	IS	O
3	Expiration Date	DT	DT	O

2.5.10 DR - Date/time range

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Range start date/time	TS	TS	R
2	Range end date/time	TS	TS	O

2.5.11 DT - Date

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Date	DT	DT	R

2.5.12 EI - Entity identifier

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Entity Identifier	ST	ST	R
2	Namespace ID	IS	IS	R
3	Universal ID (not supported in the UK)			
4	Universal ID Type (not supported in the UK)			

Field notes

2.5.12.2 Namespace ID (IS)

Definition: This field shall be Required, as components 3 and 4 are not supported.

2.5.13 FC - Financial class

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Financial Class	IS	IS	R
2	Effective Date/Time	TS	TS	O

2.5.14 FT – Formatted text data

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Formatted text data	FT	FT	R

2.5.15 HD - Hierarchic designator

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Namespace ID	IS	IS	R
2	Universal ID (not supported in the UK)			
3	Universal ID Type (not supported in the UK)			

2.5.16 ID – Coded value for HL7 tables

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Coded value	ID	ID	R

2.5.17 IS – Coded value for user defined tables

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Coded value	IS	IS	R

2.5.18 JCC - Job code/class

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Job Code	IS	IS	O
2	Job Class	IS	IS	O

2.5.19 MA - Multiplexed array

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Sample 1 from channel 1	NM	NM	
2	Sample 1 from channel 2	NM	NM	
3	Sample 1 from channel 3	NM	NM	
...	Sample 2 from channel 1	NM	NM	
	Sample 2 from channel 2	NM	NM	
	Sample 2 from channel 3	NM	NM	
…				

Implementation Guidance

It is recommended that HL7 should not be used for vital signs waveform data in any UK implementations. In rare instances it may be decided that this facility is suitable for "snapshots" of information where the timeliness of delivery is not paramount.

2.5.20 NA - Numeric array

This data type is used to represent a series (array) of numeric values, each one having a data type of NM. Refer to HL7 2.4 Chapter 7, Section 7.14.1.1, “NA - numeric array,” for a complete description of this data type.

2.5.21 NM - Numeric

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Numeric	NM	NM	R

2.5.22 PL - Person location

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Point Of Care	IS	IS	O
2	Room	IS	IS	O
3	Bed	IS	IS	O
4	Facility	HD	HD	R
5	Location Status	IS	IS	O
6	Person Location Type (not supported in the UK)			
7	Building (not supported in the UK)			
8	Floor (not supported in the UK)			
9	Location Description (not supported in the UK)			

Field notes

2.5.22.4 Facility (HD)

It is recommended that if the field is supplied then the facility becomes required.

2.5.23 PPN - Performing person time stamp

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	ID Number	ST	ST	C
2	Family Name	ST	ST	C
3	Given Name	ST	ST	O
4	Middle Initial or Name	ST	ST	O
5	Suffix	ST	ST	O
6	Prefix	ST	ST	O
7	Degree	ST	ST	O
8	Source Table	IS	IS	O
9	Assigning Authority	HD	HD	R
10	Name Type Code	ID	ID	O
11	Identifier Check Digit (not supported in the UK)			
12	Code Identifying the Check Digit Scheme (not supported in the UK)			
13	Identifier Type Code	IS	IS	O
14	Assigning Facility (not supported in the UK)			
15	Date/Time Action Performed	TS	TS	O

Field notes

2.5.23.1 ID Number (ST)

Conditionality rule: This component shall be required when the second component, family name, is not valued.

2.5.23.2 Family Name (ST)

Conditionality rule: This component shall be required when the first component, ID Number, is not valued.

2.5.24 PT - Processing type

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Processing ID	ID	ID	R
2	Processing Mode	ID	ID	O

2.5.25 RI - Repeat interval

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Repeat Pattern	IS	IS	R
2	Explicit Time Interval	ST	ST	O

2.5.26 RP - Reference pointer

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Pointer	ST	ST	R
2	Application ID	HD	HD	R
3	Type Of Data (not supported in the UK)			
4	Subtype (not supported in the UK)			

2.5.27 SCV - Scheduling class value pair

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Parameter Class	IS	IS	O
2	Parameter Value	ST	ST	O

2.5.28 SI - Sequence ID

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Sequence ID	SI	SI	R

2.5.29 SN - Structured numeric

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Comparator	ST	ST	O
2	Num1	NM	NM	O
3	Separator/Suffix	ST	ST	O
4	Num2	NM	NM	O

2.5.30 ST – String data

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	String data	ST	ST	R

2.5.31 TM - Time

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Time	TM	TM	R

2.5.32 TQ - Timing quantity

The Explicit Time Interval subcomponent of the TQ data type utilizes a comma (,) as a list delimiter. Use of this delimiter shall be accommodated at the application parser level, not at the HL7 message parser level. Use of commas in lists will not be a factor in the judging of compliance.

Components: <quantity> ^ <interval> ^ <duration> ^ <start date/time> ^ <end date/time> ^ <priority> ^ <condition> ^ <text> ^ <conjunction> ^ <order sequencing>

Sub-components of interval are: <repeat pattern (ID)> & <explicit time interval (ST)> & <relative time interval (ST)> & <days of the week (ST)> & <days on interval (ST)> & <days off interval (ST)> & <non-standard frequency indicator (ST)>

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Quantity	CQ	CQ	O
2	Interval	CM	CM	O
2.1	repeat pattern		ID	O
2.2	explicit time interval		ST	O
2.3	relative time interval		ST	O

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
2.4	days of the week		ST	O
2.5	days on interval		ST	O
2.6	days off interval		ST	O
2.7	non-standard frequency indicator		ST	O
3	Duration	ST	ST	O
4	Start Date/Time	TS	TS	O
5	End Date/Time	TS	TS	O
6	Priority	ST	ID	O
7	Condition	ST	ST	O
8	Text	TX	TX	O
9	Conjunction	ST	ID	O
10	Order Sequencing	CM	Complex	O
11	Occurrence duration	CE	CE	O
12	Total occurrences	NM	NM	O

Field notes

2.5.32.1 Quantity (CQ)

Definition: Denotes the quantity of the service to be provided.

The default value shall be **one**.

2.5.32.2 Interval (CM)

Definition: Represents the most complex portion of the data element.

Sub-components shall be conditionally required to support various functions.

2.5.32.2.1 Repeat pattern

The repeat pattern shall be the unique identifier of a Frequency/Schedule record. This value shall be unique across all Frequencies/Schedules for a given filling department; i.e., pharmacy. This value is validated against the Frequency/Schedule master file.

If the Frequency/Schedule for this order is a non-standard record (non-standard being any departure from the standard record), the <repeat pattern> should be left blank or the original repeat pattern can be sent and the Non-Standard Indicator set to “99NSF”. If a site wants to add a permanent record to the Frequency/Schedule master file it should be done manually or via the supported master file message.

2.5.32.2.2 Explicit time interval

For absolute frequencies, this field shall list the exact times the order is to occur. The format of the times shall be: HHMM,HHMM,... There is no stated maximum for the times per day.

This sub-component utilises a comma (,) as a list delimiter. Use of this delimiter must be accommodated at the application parser level, not at the HL7 message parser level. Use of commas in lists will not be a factor in the judging of compliance.

2.5.32.2.3 Relative time interval

Implementation Guidance

It is suggested that implementations conforming to this Standard should adopt the extended TQ data type to include this sub-component.

For the dynamic addition of relative frequencies, this sub-component shall reflect the time interval between occurrences of an order. If this field is valued it overrides any value in the explicit time interval. The format of this field shall be <integer>M, H, or D; where <integer> is the repeat interval in Minutes, Hours or Days. This field may be repeated although support of this concept may be limited by the receiving system.

For example: `^Q6H&&360M^` ... `^Q6H&&6H^` ... `^QD&&1D^`

2.5.32.2.4 Days of the week

Implementation Guidance

It is suggested that implementations conforming to this standard should adopt the extended TQ data type to include this sub-component.

Data in this sub-component supports dynamic addition of frequencies occurring on specific days of the week. The format of this field shall be: <integer>J<day#>, where <integer> is the repeat interval and <day#> are the days of occurrence with Monday =1 and Sunday = 7.

For example, `^BID&0800,2000&&1J135^` means twice daily every Monday, Wednesday, and Friday

2.5.32.2.5 Days on

Implementation Guidance

It is suggested that implementations conforming to this Standard should adopt the extended TQ data type to include this sub-component.

For the dynamic addition of frequencies with alternating days, the format of this field shall be: <integer>D, where <integer> is the number of consecutive days for which the schedule occurs. This field is coupled to the days off sub-component.

2.5.32.2.6 Days off

Implementation Guidance

It is suggested that implementations conforming to this Standard should adopt the extended TQ data type to include this sub-component.

For the dynamic addition of frequencies with alternating days, the format of this field shall be: <integer>D, where <integer> is the number of consecutive days for which the schedule does not occur. This field is coupled to days on sub-component.

For example; ^BID&0800,2000&&&2D&3D^ ... means twice-daily 2 days on, 3 days off

Note:

If the Days on / Days off fields are valued they override any value in the Days of the week field. Both fields, Days on and Days off, are required if this logic is being used.

2.5.32.2.7 Non-standard frequency indicator

Implementation Guidance

It is suggested that implementations conforming to this Standard should adopt the extended TQ data type to include this sub-component.

If the information pertaining to the stated Repeat Pattern has been changed by the user at order entry time, this field can be used to communicate this change. If the value = "99SFC" or no value is sent, the Repeat Pattern and related data shall be assumed to be unchanged. If the value = "99NSF", the information contained in this message should be used to perform scheduling.

For example; ^BID&0900,2100&&&2D&3D&99NSF^ ... means twice daily, 2 days on, 3 days off, and these times are specific to this message.

2.5.32.3 Duration (ST)

Definition: Defines how long or how many times the service is to continue.

The default shall be INDEF (do indefinitely). The format of this field shall be <units><integer>. The following codes are recommended for the units: M = minutes, H = hours, D = days, X = number of times at interval specified, O = same as 'X', INDEF = default.

2.5.32.4 Start date/time (TS)

Definition: Marks the actual time the order should start. A blank field shall default to current date/time. STAT orders shall also default to current date/time.

2.5.32.5 End date/time (TS)

Definition: Shows the latest date/time the service should be performed (inclusive).

2.5.32.6 Priority (ID)

Definition: Defines the urgency of the request.

The default is 'R' (Routine).

2.5.33 TS – Timestamp

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Date/Time	ST	ST	R

Field notes

2.5.33.1 Date/Time (ST)

Definition: The format of this field is CCYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]]][+/-ZZZZ]

2.5.34 TX – Text data

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Text data	TX	TX	R

2.5.35 VH - Visiting hours

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Start Day Range	ID	ID	O
2	End Day Range	ID	ID	O
3	Start Hour Range	TM	TM	O
4	End Hour Range	TM	TM	O

2.5.36 XAD - Extended address

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Street Address	ST	ST	O
2	Other Designation	ST	ST	O
3	City	ST	ST	O
4	State or Province	ST	ST	O
5	Zip or Postal Code	ST	ST	O
6	Country	ID	ID	O
7	Address Type	ID	ID	O
8	Other Geographic Designation	ST	ST	O
9	County/Parish Code (not supported in the UK)			
10	Census Tract (not supported in the UK)			
11	Address representation code (not supported in the UK)			
12	Address validity range	DR	DR	O

Field notes

2.5.36.8 Other Geographic Designation (IS)

Implementation Guidance

It is recommended that this field should be used to hold the Health Authority (HA) or equivalent..

2.5.37 XCN - Extended composite ID number and name for persons

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Id Number	ST	ST	C
2	Family Name	ST	ST	C
3	Given Name	ST	ST	O
4	Middle Initial or Name	ST	ST	O
5	Suffix	ST	ST	O
6	Prefix	ST	ST	O
7	Degree	ST	ST	O
8	Source Table	IS	IS	O

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
9	Assigning Authority (not supported in the UK)			
10	Name Type Code (not supported in the UK)			
11	Identifier Check Digit (not supported in the UK)			
12	Code Identifying The Check Digit Scheme (not supported in the UK)			
13	Identifier Type Code (not supported in the UK)			
14	Assigning Facility (not supported in the UK)			

Field notes

2.5.37.1 ID Number (ST)

Conditionality Rule: This component shall be required when the second component, family name, is not valued.

2.5.37.2 Family Name (ST)

Conditionality rule: This component shall be required when the first component, ID Number, is not valued.

2.5.37.8 Source Table (IS)

Definition: HL7 has assigned Table Identifier HL70010 for Physicians.

2.5.38 XON - Extended composite name and identification number for organizations

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Organization Name	ST	ST	R
2	Organization Name Type Code	IS	IS	O
3	ID Number	NM	ST	R
4	Check Digit (not supported in the UK)			
5	Code Identifying Check Digit Scheme (not supported in the UK)			
6	Assigning Authority	HD	HD	R
7	Identifier Type Code	IS	IS	R
8	Assigning Facility (not supported in the UK)			

Field notes

The following mapping shall be used for mapping CE data types to XON data types:

XON component name	Source of value (in terms of CE data type)	CE component
1 - Organization Name	Text	2
2 - Organization Name Type Code	*User Defined Table 0204*. Suggest use value 'D' – Display Name from this table.	N/A
3 - ID Number	Identifier	1.1
4 - Check Digit	Not Supported	N/A
5 - Code Identifying Check Digit Scheme	Not Supported	N/A
6 - Assigning Authority	Assigning authority based on general principles for determining this value.	N/A
7 - Identifier Type Code	*User Defined Table 0203*. Use value 'XX'.	N/A
8 - Assigning Facility ID	Assigning facility based on general principles for determining this value.	N/A

2.5.39 XPN - Extended person name

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	Family Name	ST	ST	R
2	Given Name	ST	ST	O
3	Middle Initial or Name	ST	ST	O
4	Suffix	ST	ST	O
5	Prefix	ST	ST	O
6	Degree	ST	ST	O
7	Name Type Code	ID	ID	O
8	Name Representation Code (not supported in the UK)			

Field notes

2.5.39.1 Family Name (ST)

Mother's maiden name (PID-6) typically uses the family name field only.

2.5.39.7 Name Type Code (ID)

Patient Name (PID-5) will use Name type code (XPN-7). Patient Alias (PID-9) must only use Name type code (XPN-7) for backwards compatibility purposes.

Implementation Guidance

In addition to the values defined by HL7, only in UK implementations such as the NHS CFH Interoperability Toolkit, the following additions and removals must be made to the HL7 table 0200.

HL7 UK only in implementations such as the NHS CFH Interoperability Toolkit, adds the following values to the HL7 table 0200:

Value	Description
PREFERRED	Preferred name
PREVIOUS-BIRTH	Birth name
PREVIOUS-BACHELOR	Bachelor name
PREVIOUS-MAIDEN	Maiden name
PREVIOUS	Other previous name

HL7 UK only in implementations such as the NHS CFH Interoperability Toolkit, removes the following values from the HL7 table 0200:

Value	Description
B	Name at Birth
M	Maiden Name
N	Nickname /"Call me" Name/Street Name

2.5.40 XTN - Extended telecommunication number

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
1	TN – telephone number	TN	TN	O
1.1	Country Code	ST	ST	O
1.2	Area Code	ST	ST	O
1.3	Phone Number	ST	ST	R
1.4	Extension	ST	ST	O
1.5	Beeper Code	ST	ST	O
1.6	Short Comment	ST	ST	O
2	Telecommunication use code	ID	ID	O
3	Telecommunication equipment type	ID	ID	O
4	Email address	ST	ST	O
5	Country code (not supported in the UK)			

Seq	Element name	HL7 data type	HL7 UK data type	HL7 UK R/O/C
6	Area/city code (not supported in the UK)			
7	Phone number (not supported in the UK)			
8	Extension (not supported in the UK)			
9	Any text (not supported in the UK)			

2.6 Segment definitions

The following sections identify those message segments specific to the Control chapter. Refer to the latest HL7 manual for further detail.

2.6.1 MSH: Message header segment

The MSH segment defines the intent, source, destination, HL7 version, processing options, and some syntactical definitions of the message.

Seq	HL7 UK data type	HL7 UK R/O/C	RP/#	Element name
1	ST	R		Field Separator
2	ST	R		Encoding Characters
3	CM	O		Sending Application
4	ST	O	Y	Sending Facility
5	ST	O		Receiving Application
6	ST	O		Receiving Facility
7	TS	R		Date/Time of Message
8	ST	O		Security
9	CM	R		Message Type
10	ST	R		Message Control ID
11	ID	R		Processing ID
12	ID	R		Version ID
13	CM	O		Sequence Number
14	ST	O		Continuation Pointer
15	ID	O		Accept Acknowledgement Type
16	ID	O		Application Acknowledgement Type
17	ID	O		Country Code
18	ID	O	Y/3	Character Set

Seq	HL7 UK data type	HL7 UK R/O/C	RP/#	Element name
19	CE	O		Principal Language of Message

Field notes

2.6.1.3 Sending Application (CM)

Implementation Guidance

It is suggested that this required field should contain a unique string of up to six-characters in length. The first two characters are to be drawn from the Sending Application Codes table, and the last four optional characters are to be business unit defined. The specific values of these four characters are to be negotiated within each implementation. The purpose of this field is to insure the unique identification of the originating application's message and the possible route(s) of processing and distribution of that message. Each Sending Application value represents a logical Master Patient Index (MPI). If an application supports multiple logical MPIs, then each MPI instance shall be defined as a different Sending Application value within an enterprise.

2.6.1.4 Sending Facility (ST)

Implementation Guidance

It is suggested that HL7 UK adopts the definition that this required field represents the facility originating the application message. The facility can be a real and physical entity such as a hospital, health care institution, or clinic, for example. In addition, the facility can be a virtual or logical entity such as an automated service used to instantiate person records, such as backloading historical person data or an administrative function, such as table maintenance.

With special regard to table maintenance, the sending facility may repeat with the appropriate encoding repetition character.

Note:

If no value is available, the default is the value found in MSH:3 and shall be replicated in this field, only if your application does not support the concept of facility, for example Managed Care systems do not support the concept of facility.

Facility code	Description
RI	Royal Edinburgh Hospital
99GPD	Recommended values to denote Global Person Data Feed
99SMP	Recommended values to denote Subscriber Member Process
99MFS	Recommended values to denote Master File Service
<string>	Required Default = MSH:3 (Sending Application)

2.6.1.9 Message Type (CM)

Any Z triggers are documented in Appendix A.

2.6.1.14 Continuation Pointer (ST)

Implementation Guidance

It is suggested that implementations conforming to this Standard should adopt a length of one (1) character for this field.

2.6.1.15 Accept Acknowledgement Type (ID)

Definition: Refer to section 2.3 for additional information.

2.6.1.16 Application Acknowledgement Type (ID)

Definition: Refer to section 2.3 for additional information.

2.6.2 NTE: Notes and comments segment

The NTE segment is used to communicate various notes and comments in a common format.

Seq	HL7 UK data type	HL7 UK R/O/C	RP/#	Element name
1	SI	O		Set ID – NTE
2	ID	O		Source of Comment
3	FT	O		Comment
4	CE	O		Comment type

Field notes

2.6.2.2 Source of Comment (ID)

Implementation Guidance

In addition to the values defined by HL7, It is suggested that implementations conforming to this Standard adopt the following additional values to HL7 table 0105.

HL7 Table 0105 - Source of Comment:

Value	Description
POC	Placer Order Comment
AOC	Filler Order Comment
OOC	Other Order Comment

Value	Description
PIN	Placer Instructions
AIN	Filler Instructions
OIN	Other Instructions

2.7 Data control

The specifics of data control are largely driven by the requirements of the process models for the enterprise. For example, the order management model speaks to the specific flow of messages among systems in the enterprise, identifies ownership requirements for entities such as order, placer, and filler, and addresses the issue of how these requirements are handled when presented with the complexity of multiple order management systems.

Some general observations on data control issues such as data ownership, keys, unit of work, and replacement follow.

2.7.1 Data ownership

"The HL7 Standard makes no assumptions about the ownership of data." However, within an enterprise, there is the need to manage ownership of data in order to protect its integrity. Examples include:

- Physician
- Order
- Visit
- Patient
- Test
- Appointment

This Standard uses a number of means to manage the ownership of data at both the point of entry and within the database management model itself. Methods include:

- management of the data entry function to prevent the modification of data that a system or user does not own
- the definition of ownership of key data elements within the context of the processes which use them (as is described in other chapters of this document)
- the use of ETM to build and manage a set of enterprise values and their translation across data from different systems and to normalize and de-normalize data entering or leaving the repository system

Data ownership from a control perspective is not an issue as long as it is agreed that:

- the data entry system is controlled, based on the prevailing management or business rules, and
- updates are broadcast to all interested parties

Chapter 3 - Patient Administration

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3.1 Purpose

The Patient Administration message set provides for the transmission of new or updated demographic and visit information about patients and/or persons. Since virtually any system attached to the network requires information about patients, the Patient Administration message set is one of the most commonly used. Generally, information is entered into a Patient Administration system and passed to other interested systems either in the form of an unsolicited update or in response to a record-oriented query.

3.2 Terminology

There are a number of differences in definition and interpretation of specific words and phrases between the US and the UK. Where there is a serious risk of confusion, Appendix B contains the definition to be used when interpreting this document. Where there is no specific UK definition, any definition provided in HL7 2.4 should be used.

Users of this Standard are strongly recommended to check the list of words and phrases listed in Appendix B before reading the rest of the document.

3.3 Rules/constraints

3.3.1 Identifiers

3.3.1.1 Field definitions

There is the need to be able to identify a person at several levels, not the least of which is a patient. For the purposes of this Standard, primary identifiers are allocated as follows:

PID:3	<Patient ID - Internal>	Unique Medical Record Number as first iteration
PV1:19	<Visit number>	Patient's episode id

3.3.1.2 Unique attributes

PID:3 (Patient ID – Internal) shall hold all the patient identifiers. This includes any temporary numbers and the NHS number or CHI number.

If systems populate PID:2 then this value shall also be included in the PID:3 list of identifiers. PID:2 is not supported in the UK, but any local agreements may make use of PID:2.

The format of the NHS and CHI are as follows:

```
<number>^^^NHS^NH

<number>^^^CHI^NH
```

All numbers shall have the assigning authority and the type identified. Where there are multiple medical record numbers (type MR) it is the assigning authority that differentiates the numbers.

3.3.1.3 Usage notes

It is imperative that each system allocating numbers be assigned a **Unique Facility Identifier** (also known as assigning authority) to complement the implementation of the person/patient identifiers. For example, if the Queen Elizabeth Hospital issues medical record number 987654321, it would have the following form: `|987654321^^^QE^MR|`. See HL7 2.4 2.9.12.6 for an explanation of this fourth component <assigning authority ID (ST)>. This extends to those participants that issue more than one type of medical record number. For example, if the Queen Elizabeth Hospital issues an A&E number in addition to the number above then it would have the following form: `|A2001030299^^^QEAE^MR|`. Under some scenarios, patients may be admitted or registered by an ancillary system. Where downtime numbering is available, the system may choose to have the ancillary system assign a medical record number and account number from a pre-numbered list. Barring this, the ancillary user may register the patient and assign their own ID number resulting in an A01 (admit a patient) or A04 (register a patient) with the facility's temporary number in PID:3.

Ancillary admits are never broadcast to the enterprise; rather they are directed to the ancillary's host system for processing. Admission to the host Patient Administration system triggers the A01/A04 message to the enterprise inclusive of the temporary ID. Receipt of the host's message allows the ancillary system to reconcile its temporary ID to the appropriate identifiers.

3.4 Trigger events & message definitions

3.4.1 Admit a patient (event code A01)

Implementation Guidance

It is recommended that if the patient in an A01 is not known to the system then the receiving system should attempt to enrol the patient as part of the admission

ADT^A01	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
[{ NK1 }]	Next of Kin	3
PV1	Patient Visit	3
[PV2]	Patient Visit – Additional Information	3
[{ OBX }]	Observation/Result	7
[{ AL1 }]	Allergy Information	3
[{ DG1 }]	Diagnosis Information	6
[{ PR1 }]	Procedures	6

"Z" segments added in this Standard		Chapter
[ZU1]	UK Additional Data	Appendix A
[ZU2]	UK Additional Data - Augmented Care **(for backwards compatibility only)**	Appendix A
[ZU3]	UK Additional Data - Attendance Details	Appendix A
[ZU4]	UK Additional Data - Waiting List	Appendix A
[ZU6]	UK Additional Data – Labour and Delivery	Appendix A
[ZU7]	UK Additional Data – Birth	Appendix A
[ZU8]	UK Additional Data – Miscellaneous Demographic	Appendix A

3.4.2 Transfer a patient (event code A02)

ADT^A02	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3

[PD1]	Additional Patient Identification	3
PV1	Patient Visit	3
[PV2]	Patient Visit – Additional Information	3
[{ OBX }]	Observation/Result	7

"Z" segments added by this Standard		**Chapter**
[ZU1]	UK Additional Data	Appendix A
[ZU2]	UK Additional Data – Augmented Care **(for backwards compatibility only)**	Appendix A
[ZU3]	UK Additional Data - Attendance Details	Appendix A
[ZU4]	UK Additional Data - Waiting List	Appendix A
[ZU6]	UK Additional Data – Labour and Delivery	Appendix A
[ZU7]	UK Additional Data – Birth	Appendix A
[ZU8]	UK Additional Data – Miscellaneous Demographic	Appendix A

3.4.3 Discharge a patient (event code A03)

ADT^A03	**ADT message**	**Chapter**
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
PV1	Patient Visit	3
[PV2]	Patient Visit – Additional Information	3
[{ OBX }]	Observation/Result	7

"Z" segments added by this Standard		**Chapter**
[ZU1]	UK Additional Data	Appendix A
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[ZU3]	UK Additional Data - Attendance Details	Appendix A
[ZU4]	UK Additional Data - Waiting List	Appendix A
[ZU6]	UK Additional Data – Labour and Delivery	Appendix A
[ZU7]	UK Additional Data – Birth	Appendix A
[ZU8]	UK Additional Data – Miscellaneous Demographic	Appendix A

3.4.4 Register a patient (event code A04)

For a recurring outpatient episode of care, an A04 message should only be sent when the account is initially established. Then, each time thereafter that the patient checks in, a Patient Arriving (A10) message should be sent for each department that the patient sees, in order to distinguish between multiple visits within the same episode of care. In a situation where the patient sees multiple departments during a single recurring visit, a Patient Departing (A09) message could be sent upon completion of seeing one department before sending a Patient Arriving (A10) when seeing any subsequent department(s). Also, the Cancel patient arriving (A32) and Cancel patient departing (A33) messages are applicable for making corrections in this recurring outpatient visit context. Finally, a Discharge (A03) message is still required to indicate the end of a recurring outpatient episode of care.

ADT^A04	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
[{ NK1 }]	Next of Kin	3
PV1	Patient Visit	3
[PV2]	Patient Visit – Additional Information	3
[{ OBX }]	Observation/Result	7
[{ AL1 }]	Allergy Information	3
[{ DG1 }]	Diagnosis Information	6
[{ PR1 }]	Procedures	6

"Z" segments added by this Standard		Chapter
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[ZU4]	UK Additional Data - Waiting List	Appendix A
[ZU6]	UK Additional Data – Labour and Delivery	Appendix A
[ZU7]	UK Additional Data – Birth	Appendix A
[ZU8]	UK Additional Data – Miscellaneous Demographic	Appendix A

3.4.5 Pre-admit a patient (event code A05)

The A05 event normally occurs in the primary Patient Administration system and the message is broadcast to interested systems. PV2:8 <Expected Admit Date> shall contain the expected admission/arrival date, if available. The subsequent admission or registration shall

trigger an A01 event, in the case of an admitted patient, or an A04 event, in the case of a non-admitted patient.

ADT^A05	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
[{ NK1 }]	Next of Kin	3
PV1	Patient Visit	3
[PV2]	Patient Visit – Additional Information	3
[{ OBX }]	Observation/Result	7
[{ AL1 }]	Allergy Information	3
[{ DG1 }]	Diagnosis Information	6
[{ PR1 }]	Procedures	6

"Z" segments added by this Standard		Chapter
[ZU1]	UK Additional Data	Appendix A
[ZU2]	UK Additional Data - Augmented Care **(for backwards compatibility only)**	Appendix A
[ZU3]	UK Additional Data - Attendance Details	Appendix A
[ZU4]	UK Additional Data - Waiting List	Appendix A
[ZU6]	UK Additional Data – Labour and Delivery	Appendix A
[ZU7]	UK Additional Data – Birth	Appendix A
[ZU8]	UK Additional Data – Miscellaneous Demographic	Appendix A

3.4.8 Update patient information (event code A08)

An A08 event occurs when any patient information not otherwise addressed by a unique trigger event is changed. As noted under A02, it may be necessary to supplement some event messages with an A08 message; particularly when the original trigger event allows changes to non-event specific information. The A08 event may occur in any system holding patient information and the message shall be broadcast to all interested systems.

A PID:3 (patient number) needs to be defined to trigger an A08 update person message.

ADT^A08	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3

[{ NK1 }]	Next of Kin	3
PV1	Patient Visit	3
[PV2]	Patient Visit – Additional Information	3
[{ OBX }]	Observation/Result	7
[{ AL1 }]	Allergy Information	3
[{ DG1 }]	Diagnosis Information	6
[{ PR1 }]	Procedures	6

"Z" segments added by this Standard		**Chapter**
[ZU1]	UK Additional Data	Appendix A
[ZU2]	UK Additional Data – Augmented Care **(for backwards compatibility only)**	Appendix A
[ZU3]	UK Additional Data – Attendance Details	Appendix A
[ZU4]	UK Additional Data – Waiting List	Appendix A
[ZU5]	UK Additional Data – Psychiatric Census	Appendix A
[ZU6]	UK Additional Data – Labour and Delivery	Appendix A
[ZU7]	UK Additional Data – Birth	Appendix A
[ZU8]	UK Additional Data – Miscellaneous Demographic	Appendix A

3.4.9 Patient departing (event code A09)

For a recurring outpatient episode of care, an A04 message should only be sent when the episode is initially established. Then, each time thereafter that the patient checks in, a Patient Arriving (A10) message should be sent for each department that the patient sees, in order to distinguish between multiple visits within the same episode of care. In a situation where the patient sees multiple departments during a single recurring visit, a Patient Departing (A09) message could be sent upon completion of seeing one department before sending a Patient Arriving (A10) when seeing any subsequent department(s). Also, the Cancel Patient Arriving (A32) and Cancel Patient Departing (A33) messages are applicable for making corrections in this recurring outpatient visit context. Finally, a Discharge (A03) message is still required to indicate the end of a recurring outpatient episode of care.

ADT^A09	**ADT message**	**Chapter**
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
PV1	Patient Visit	3
[PV2]	Patient Visit – Additional Information	3
[{ OBX }]	Observation/Result	7

[{ DG1 }]	Diagnosis Information	6

3.4.10 Patient arriving (event code A10)

For a recurring outpatient episode of care, an A04 message should only be sent when the account is initially established. Then, each time thereafter that the patient checks in, a Patient Arriving (A10) message should be sent for each department that the patient sees in order to distinguish between multiple visits within the same episode of care. In a situation where the patient sees multiple departments during a single recurring visit, a Patient Departing (A09) message could be sent upon completion of seeing one department before sending a Patient Arriving (A10) when seeing any subsequent department(s). Also, the Cancel Patient Arriving (A32) and Cancel Patient Departing (A33) messages are applicable for making corrections in this recurring outpatient visit context. Finally, a Discharge (A03) message is still required to indicate the end of a recurring outpatient episode of care.

ADT^A10	**ADT message**	**Chapter**
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Information	3
[{ OBX }]	Observation/Result	7
[{ DG1 }]	Diagnosis Information	6

3.4.11 Cancel admit (event code A11)

ADT^A11	**ADT message**	**Chapter**
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Information	3
[{ OBX }]	Observation/Result	7
[{ DG1 }]	Diagnosis Information	6

"Z" segments added by this Standard		**Chapter**
[ZU1]	UK Additional Data	Appendix A

[ZU2]	UK Additional Data - Augmented Care **(for backwards compatibility only)**	Appendix A
[ZU3]	UK Additional Data - Attendance Details	Appendix A
[ZU4]	UK Additional Data - Waiting List	Appendix A
[ZU6]	UK Additional Data – Labour and Delivery	Appendix A
[ZU7]	UK Additional Data – Birth	Appendix A
[ZU8]	UK Additional Data – Miscellaneous Demographic	Appendix A

3.4.12 Cancel transfer (event code A12)

ADT^A12	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Information	3
[{ OBX }]	Observation/Result	7
[{ DG1 }]	Diagnosis Information	6

"Z" segments added by this Standard		Chapter
[ZU1]	UK Additional Data	Appendix A
[ZU2]	UK Additional Data - Augmented Care **(for backwards compatibility only)**	Appendix A
[ZU3]	UK Additional Data - Attendance Details	Appendix A
[ZU4]	UK Additional Data - Waiting List	Appendix A
[ZU6]	UK Additional Data – Labour and Delivery	Appendix A
[ZU7]	UK Additional Data – Birth	Appendix A
[ZU8]	UK Additional Data – Miscellaneous Demographic	Appendix A

3.4.13 Cancel discharge (event code A13)

ADT^A13	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
[{ NK1 }]	Next of Kin	3

PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Information	3
[{ OBX }]	Observation/Result	7
[{ AL1 }]	Allergy Information	3
[{ DG1 }]	Diagnosis Information	6
[{ PR1 }]	Procedures	6

"Z" segments added by this Standard		**Chapter**
[ZU1]	UK Additional Data	Appendix A
[ZU2]	UK Additional Data - Augmented Care **(for backwards compatibility only)**	Appendix A
[ZU3]	UK Additional Data - Attendance Details	Appendix A
[ZU4]	UK Additional Data - Waiting List	Appendix A
[ZU6]	UK Additional Data – Labour and Delivery	Appendix A
[ZU7]	UK Additional Data – Birth	Appendix A
[ZU8]	UK Additional Data – Miscellaneous Demographic	Appendix A

3.4.15 Pending transfer (event code A15)

ADT^A15	**ADT message**	**Chapter**
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Information	3
[{ OBX }]	Observation/Result	7
[{ DG1 }]	Diagnosis Information	6

"Z" segments added by this Standard		**Chapter**
[ZU1]	UK Additional Data	Appendix A
[ZU2]	UK Additional Data – Augmented Care **(for backwards compatibility only)**	Appendix A
[ZU3]	UK Additional Data – Attendance Details	Appendix A
[ZU4]	UK Additional Data - Waiting List	Appendix A
[ZU6]	UK Additional Data – Labour and Delivery	Appendix A
[ZU7]	UK Additional Data – Birth	Appendix A
[ZU8]	UK Additional Data – Miscellaneous Demographic	Appendix A

3.4.21 Patient goes on a "leave of absence" (event code A21)

Field EVN:6 contains the date/time the Leave of Absence (LOA) event actually occurred to the patient. On an A21 it should have the LOA start date. A new field in the PV2 segment shall be used in this message to communicate the LOA expected return date/time.

ADT^A21	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Information	3
[{ OBX }]	Observation/Result	7

"Z" segments added by this Standard		Chapter
[ZU1]	UK Additional Data	Appendix A
[ZU2]	UK Additional Data - Augmented Care **(for backwards compatibility only)**	Appendix A
[ZU3]	UK Additional Data - Attendance Details	Appendix A
[ZU4]	UK Additional Data - Waiting List	Appendix A
[ZU6]	UK Additional Data – Labour and Delivery	Appendix A
[ZU7]	UK Additional Data – Birth	Appendix A
[ZU8]	UK Additional Data – Miscellaneous Demographic	Appendix A

3.4.22 Patient returns from a "leave of absence" (event code A22)

Field EVN-6 contains the date/time the event actually occurred to the patient. On an A22 it should have the return date.

ADT^A22	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Information	3
[{ OBX }]	Observation/Result	7

"Z" segments added by this Standard	Chapter

[ZU1]	UK Additional Data	Appendix A
[ZU2]	UK Additional Data - Augmented Care **(for backwards compatibility only)**	Appendix A
[ZU3]	UK Additional Data - Attendance Details	Appendix A
[ZU4]	UK Additional Data - Waiting List	Appendix A
[ZU6]	UK Additional Data – Labour and Delivery	Appendix A
[ZU7]	UK Additional Data – Birth	Appendix A
[ZU8]	UK Additional Data – Miscellaneous Demographic	Appendix A

3.4.24 Link patient information (event code A24)

An A24 event is used to associate additional patient identifiers with any patient identifiers that have already been established between intercommunicating systems for a given person.

This Standard supports linkage of identifiers at the patient level only (PID.3), not of any subordinate level identifiers (PID.18 or PV1.50).

When constructing an A24 message, the patient (1) PID segment shall echo the existing identifier(s) already known to other systems, while the patient (2) PID segment shall supply the additional identifier(s) to be associated with those identifier(s) being echoed in the patient (1) PID segment.

For example, this message allows for the linkage of patient (2) PID segment, field 3 identifiers (e.g. a medical record number or an NHS number) to the person identified in the patient (1) PID segment, as these new numbers are assigned.

ADT^A24	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient (1) Identification	3
[PD1]	Additional Patient (1) Identification	3
[PV1]	Patient (1) Visit	3
PID	Patient (2) Identification	3
[PD1]	Additional Patient (2) Identification	3
[PV1]	Patient (2) Visit	3

3.4.28 Add person information (event code A28)

An A28 event occurs when a person is added to a database and the information is subsequently broadcast to other interested systems. This event is typically driven by the

enrolment of a specific population, or by the explicit act of acquiring person data as a by-product of performing the admission/registration process.

The construct of this message relies on existing segments; it must be understood that any reference to <patient> is equally applicable to <person> as in PID:5 <Patient/Person Name>. The receiving system is under no obligation to accept or act upon the A28 message unless deemed appropriate under their processing rules.

ADT^A28	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
[{ NK1 }]	Next of Kin	3
[PV1]	Patient Visit	3
[PV2]	Patient Visit - Additional Information	3
[{ OBX }]	Observation/Result	7
[{ AL1 }]	Allergy Information	3
[{ DG1 }]	Diagnosis Information	6
[{ PR1 }]	Procedures	6

3.4.31 Update person information (event code A31)

An A31 event occurs when person information is updated in the master patient administration system. Do not substitute this message for the A08 event used to update patient information. Since there are no specific trigger events relevant to person activity, the A31 message is used to communicate any and all changes to person information. The construct of this message relies on existing segments; it must be understood that any reference to <patient> is equally applicable to <person> as in PID:5 <Patient/Person Name>.

An A08 event occurs when any patient information not otherwise addressed by a unique trigger event is changed. As noted under A02, it may be necessary to supplement some event messages with an A08 message; particularly when the original trigger event allows changes to non-event specific information. The A08 event may occur in any system holding patient information and the message shall be broadcast to all interested systems.

A PID:3 (patient number) needs to be defined to trigger an A31 update person message.

ADT^A31	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3

[{ NK1 }]	Next of Kin	3
[PV1]	Patient Visit	3
[PV2]	Patient Visit – Additional Information	3
[{ OBX }]	Observation/Result	7
[{ AL1 }]	Allergy Information	3
[{ DG1 }]	Diagnosis Information	6
[{ PR1 }]	Procedures	6

3.4.34 Merge patient information - patient ID only (event code A34)

Implementation Guidance

A34 is kept for backward compatibility only. It is strongly recommended that systems use A40 rather than A34.

On an implementation basis, if A34 is acceptable then the system should use it, but if a system uses the A40 then that should take precedence.

3.4.38 Cancel pre-admit (event code A38)

ADT^A38	**ADT message**	**Chapter**
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Demographics	3
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Info	3
"Z" segments added by this Standard		**Chapter**
[ZU1]	UK Additional Data	Appendix A
[ZU2]	UK Additional Data - Augmented Care **(for backwards compatibility only)**	Appendix A
[ZU3]	UK Additional Data - Attendance Details	Appendix A
[ZU4]	UK Additional Data - Waiting List	Appendix A
[ZU6]	UK Additional Data – Labour and Delivery	Appendix A
[ZU7]	UK Additional Data – Birth	Appendix A
[ZU8]	UK Additional Data – Miscellaneous Demographic	Appendix A

3.4.40 Merge Patient – Patient ID list (event code A40)

An A40 event signals the merging of two patient records that have been identified as belonging to the same person. The patient record identified by the identifier list in PID-3 is retained as the 'correct' record and the other, identified in the MRG-1 identifier list, is discarded. This does not imply that the latter has been deleted from the database of the system – the discarded record may be retained for historical or other purposes.

All records subordinate to the discarded record become subordinate to the retained record. It is left to the application how the relocation of subordinate records from the discarded to the retained patient record identifiers is achieved.

The A40 message should not be used to change data in the retained patient record. For example, it is likely that demographic data in the two merged records differ and quite possibly some data in the discarded record is actually correct. If a patient administration system allows a merge operation to include the option of including certain data items from the discarded patient (or visit) record in the retained record, this should generate two messages: an A40 followed by an A31 (or A08).

ADT^A40	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
MRG	Merge information	3

3.4.42 Merge visit – visit number (event code A42)

An A42 event signals a merge of records for a single visit that was incorrectly filed under two different visit numbers. The incorrect source visit number identified in the MRG-5 is merged with the correct target visit number identified in the PV1-19. The incorrect visit number shall then never be referenced in future transactions, although it may be retained for audit trail or other purposes associated with database index implementation requirements.

Any other identifiers that were previously associated with the incorrect visit number become associated with the new visit number. It is left to the application how the reallocation of subordinate records from the incorrect to the correct visit number is achieved.

An A42 shall not be used for any purpose other than merging visit numbers. Thus the lists superior level identifiers contained in the PID-3 and MRG-1 fields should be the same. Also, any changes made to the visit record itself should be reflected in an A08 event.

ADT^A42	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3

PID	Patient Identification	3
[PD1]	Additional Patient Identification	3
MRG	Merge information	3
[PV1]	Patient visit	3

3.4.46 Change external ID (event code A46)

This trigger is not supported in the UK

3.4.47 Change internal ID (event code A47)

An A47 event is used to signal a change of an incorrectly assigned patient identifier. The incorrect patient identifier is stored in the MRG-1 field and is to be changed to the correct patient identifier, which is the only patient identifier included in PID-3. An A47 event changes the value of the patient identifier without affecting other subordinate identifiers. The identifier in PID:3 must not identify an existing patient on the receiving system. (If both patients exist this should be sent as a merge (A40) not as a number change).

Both the PID and MRG segments refer to the same person. PID-3 shall contain only one patient identifier that is the replacement patient identifier. MRG-1 shall contain only one identifier that is the patient identifier being replaced.

Implementation Guidance

When demographic data in other fields change, it is recommended that the A31 event be used in conjunction with this message.

ADT^A47	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Demographics	3
MRG	Merge Information	3

3.4.52 Cancel “leave of absence” for a patient (event code A52)

The A52 event is sent when an A21 (patient goes on “leave of absence”) event is cancelled, either because of erroneous entry of the A21 event or because of a decision not to put the patient on “leave of absence” after all.

Implementation Guidance

The fields included when this message is sent should be the fields pertinent to communicate this event. When other important fields change, it is recommended that the A08 (update patient information) event be used in addition.

It is recommended that field EVN-6 contains the date/time the event actually occurred to the patient. On an A52, it should have the LOA start date. A new field will be added to the PV2 segment to be used in this message to communicate the LOA expected return date/time.

ADT^A52	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Demographics	3
PV1	Patient Visit	3
[PV2]	Patient Visit – Additional Info.	3
[{OBX}]	Observation/Result	7

3.4.53 Cancel patient returns from a "leave of absence" (event code A53)

The A53 event is sent when an A22 (patient returns from a "leave of absence") event is cancelled, either because of erroneous entry of the A22 event or because of a decision not to return the patient from "leave of absence" after all.

Implementation Guidance

The fields included when this message is sent should be the fields pertinent to communicate this event. When other important fields change, it is recommended that the A08 (update patient information) event be used in addition.

It is recommended that field EVN-6 contains the date/time the event actually occurred to the patient. On an A53, it should have the LOA end date. A new field will be added to the PV2 segment to be used in this message to communicate the LOA expected return date/time.

ADT^A53	ADT message	Chapter
MSH	Message Header	2
EVN	Event Type	3
PID	Patient Identification	3
[PD1]	Additional Demographics	3
PV1	Patient Visit	3
[PV2]	Patient Visit – Additional Info.	3

[{OBX}]	Observation/Result	7

3.5 Segment definitions

The following sections identify those message segments specific to the Patient Administration chapter. Refer to the latest HL7 manual for further detail. If there are no changes from the HL7 2.4 specification, it is not documented here.

3.5.1 EVN: Event type segment

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1				Event Type Code. **(not supported in the UK)**
2	TS	R		Recorded Date/Time
3				Date/Time of Planned Event. **(not supported in the UK)**
4				Event Reason Code. **(not supported in the UK)**
5	XCN	O		Operator ID
6	TS	O		Event Occurred
7				Event facility. **(not supported in the UK)**

Field notes

3.5.1.2 Recorded Date/Time

It is important to re-iterate that this field is the computer system time not message generation time.

3.5.1.6 Event Occurred (TS)

If a discharge or admission (normal and pre) date is not present in the respective messages this shall be the secondary field to check for a date. It is the primary field to look for dates for transfers.

Implementation Guidance

It is suggested that UK implementations conforming to this Standard consider EVN-6 (Event Occurred) to be a required field.

3.5.2 PID: Patient ID segment

Refer to Sections 3.3.1 for additional information on identifiers.

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	SI	O		Set ID – Patient ID
2				Patient ID (External ID). **(not supported in the UK)**
3	CX	R	Y	Patient Identifiers
4	CX	O		Alternate Patient ID – PID
5	XPN	R	Y	Patient Name
6	XPN	O		Mother's Maiden Name
7	TS	O		Date/Time of Birth
8	IS	O		Sex
9	XPN		Y	Patient Alias **(for backwards compatibility only)**
10				Race. **(not supported in the UK)**
11	XAD	O	Y	Patient Address
12				County Code **(not supported in the UK)**
13	XTN	O	Y	Phone Number – Home
14	XTN	O	Y	Phone Number – Business
15	CE	O		Primary Language – Patient
16	IS	O		Marital Status
17	IS	O		Religion
18	CX	O		Patient Account Number
19	ST	O		SSN Number – Patient (not supported yet in the UK. Populate with NI for possible integration of SS in healthcare)
20	DLN	O		Driver's License Number – Patient
21	CX	C	Y	Mother's Identifier
22	IS	O		Ethnic Group
23	ST	O		Birth Place
24	ID	O		Multiple Birth Indicator
25	NM	O		Birth Order
26	CE	O	Y	Citizenship
27				Veteran's Military Status **(not supported in the UK)**
28	CE	O	Y	Nationality
29	TS	O		Patient Death Date and Time
30	ID	O		Patient Death Indicator

Seq	HL7 UK data type	R/O/C	RP/#	Element name
31	ID	O		Identity Unknown Indicator
32	IS	O	Y	Identity Reliability Code

Field notes

3.5.2.3 Patient ID (Internal ID) (CX)

Definition: This field is a full list of patient identifiers required to uniquely identify the patient across communicating systems. Details of identifiers are described in section 3.3.1.2.

Implementation Guidance

Please refer to section 3.3.1.2 for implementation rules for unique identifiers.

It is strongly recommended that at least one of PID:3 uniquely identifies the patient across all systems that will process the message. This uniqueness is based on all three required components. If this is not the case then a system should send as many identifiers as will uniquely identify the patient across all the systems that receive and process the message.

3.5.2.3.5 Identifier Type Code (IS)

Values for Identifier Type Code are specified in *HL7 Table 0203 – Identifier Type*. In addition to these values, HL7 UK allows use of a code of 'CE' to indicate an Identifier Type of Consultant Episode.

3.5.2.4 Alternate Patient ID – PID (CX)

Definition: Temporary patient number. This Standard deprecates all other uses.

HL7 deviation: This field repeats in HL7 2.4; this Standard does not support repetitions.

3.5.2.4.5 Identifier Type Code (IS)

Values for Identifier Type Code are specified in *HL7 Table 0203 – Identifier Type*. In addition to these values, HL7 UK allows use of a code of 'CE' to indicate an Identifier Type of Consultant Episode.

3.5.2.5 Patient Name (XPN)

Seq	Element name	HL7 data type	HL7 UK data type	R/O/C
1	Family Name	ST	ST	R
2	Given Name	ST	ST	O
3	Middle Initial or Name	ST	ST	O

Seq	Element name	HL7 data type	HL7 UK data type	R/O/C
4	Suffix	ST	ST	O
5	Prefix	ST	ST	O
6	Degree	ST	ST	O
7	Name Type Code	ID	ID	O
8	Name Representation **(not supported in the UK)**			

3.5.2.5.1 Family Name (ST)

Definition: The legal name should be reported in this component, therefore the type code is not valued in component 7. If the legal patient name is not known, the literal "Unknown" is valued as the last name field.

3.5.2.5.7 Name Type Code

Patient Name (PID-5) will use Name type code (XPN-7). Patient Alias (PID-9) must only use Name type code (XPN-7) for backwards compatibility purposes.

Implementation Guidance

HL7 UK only in implementations such as the NHS CFH Interoperability Toolkit, adds the following values to the HL7 table 0200:

Value	Description
PREFERRED	Preferred name
PREVIOUS-BIRTH	Birth name
PREVIOUS-BACHELOR	Bachelor name
PREVIOUS-MAIDEN	Maiden name
PREVIOUS	Other previous name

3.5.2.6 Mother's Maiden Name (XPN)

Definition: Mother's maiden name (PID-6) typically uses the family name field only.

Seq	Element name	HL7 data type	HL7 UK data type	R/O/C
1	Family Name	ST	ST	R
2	Given Name	ST	ST	O
3	Middle Initial or Name	ST	ST	O
4	Suffix **(not supported in the UK)**			
5	Prefix **(not supported in the UK)**			

Seq	Element name	HL7 data type	HL7 UK data type	R/O/C
6	Degree **(not supported in the UK)**			
7	Name Type Code **(not supported in the UK)**			
8	Name Representation **(not supported in the UK)**			

3.5.2.8 Sex (IS)

This field should contain the self-declared current gender (administrative sex) of a person.

Implementation Guidance

It is suggested that UK implementations conforming to this Standard, adopt the values used by the UK Government Data Standards Catalogue for the User-defined table 0001.

3.5.2.9 Patient Alias (XPN)

This is to be used for backwards compatibility only. Patient Name (PID-5) and the appropriate Name type code (XPN-7) should be used in place of this.

3.5.2.11 Patient Address (XAD)

Seq	Element name	HL7 UK data type	R/O/C
1	Street Address	ST	O
2	Other Designation	ST	O
3	City	ST	O
4	State or Province	ST	O
5	Zip or Postal Code	ST	O
6	Country	IS	O
7	Address Type	ID	O
8	Other Geographic Designation	IS	O
9	County/Parish Code **(not supported in the UK)**	IS	
10	Census Tract **(not supported in the UK)**		
11	Address representation code	ID	O
12	Address validity range	DR	O

3.5.2.11.6 Country (IS)

Use the three-byte numeric version of *ISO Table 3166*.

3.5.2.13 Phone Number – Home (XTN)

Implementation Guidance

In order to represent a mobile phone number as a home number, the following combination of Telecommunication Use Code (XTN-2) and Telecommunication Equipment Type (XTN-3) should be used:

Mobile Phone Number

= Telecommunication Use Code: PRN Primary Residence

+ Telecommunication Equipment Type: CP Cellular Phone

An ordinary home phone number should be represented as follows:

Home Phone Number

= Telecommunication Use Code: PRN Primary Residence

+ Telecommunication Equipment Type: PH Telephone

Seq	Element name	HL7 UK data type	R/O/C
1	TN – telephone number	TN	O
1.1	Country Code	ST	O
1.2	Area Code	ST	O
1.3	Phone Number	ST	R
1.4	Extension	ST	O
1.5	Beeper Code	ST	O
1.6	Short Comment	ST	O
2	Telecommunication use code	ID	O
3	Telecommunication equipment type	ID	O
4	Email address	ST	O
5	Country code **(not supported in the UK)**		
6	Area/city code **(not supported in the UK)**		
7	Phone number **(not supported in the UK)**		
8	Extension **(not supported in the UK)**		
9	Any text **(not supported in the UK)**		

3.5.2.14 Phone Number – Business (XTN)

Implementation Guidance

In order to represent a mobile phone number as a business number, the following combination of Telecommunication Use Code (XTN-2) and Telecommunication Equipment Type (XTN-3) should be used:

Mobile Phone Number

= Telecommunication Use Code: WPN Work Number

+ Telecommunication Equipment Type: CP Cellular Phone

An ordinary business phone number should be represented as follows:

Business Phone Number

= Telecommunication Use Code: WPN Work Number

+ Telecommunication Equipment Type: PH Telephone

Seq	Element name	HL7 UK data type	R/O/C
1	TN – telephone number	TN	O
1.1	Country Code	ST	O
1.2	Area Code	ST	O
1.3	Phone Number	ST	R
1.4	Extension	ST	O
1.5	Beeper Code	ST	O
1.6	Short Comment	ST	O
2	Telecommunication use code	ID	O
3	Telecommunication equipment type	ID	O
4	Email address	ST	O
5	Country code **(not supported in the UK)**		
6	Area/city code **(not supported in the UK)**		
7	Phone number **(not supported in the UK)**		
8	Extension **(not supported in the UK)**		
9	Any text **(not supported in the UK)**		

3.5.2.15 Primary Language – Patient (CE)

Seq	Element name	HL7 UK data type	R/O/C
1	Identifier	CM	C
1.1	Identifier	ID	C
1.2	Application ID **(not supported in the UK)**		
2	Text	ST	C
3	Name of Coding System	ST	O
4	Alternate Identifier	CM	O
4.1	Alternate Identifier **(not supported in the UK)**		
4.2	Alternate Application ID	ST	O
5	Alternate Text	ST	O
6	Name of Alternate Coding System	ST	O

3.5.2.15.1 Identifier (CM)

Definition: This field should contain the identifier of the primary language of the person.

Implementation Guidance

Use ISO Table 639-1. In addition to the values defined by ISO, UK implementations conforming to this Standard must adopt the following five additional values for non spoken languages to the HL7 table 0296.

HL7 UK adds the following values to HL7 Table 0296 – Primary Language:

Value	Description
q1	Braille
q2	American Sign Language
q3	Australian.Sign Language
q4	British Sign Language
q5	Makaton

3.5.2.16 Marital Status (IS)

Definition: This field should contain the legal marital status of a person.

Implementation Guidance

It is suggested that UK implementations conforming to this Standard, adopt the values used by the UK Government Data Standards Catalogue for the User-defined table 0002.

3.5.2.17 Religion (IS)

Definition: This field should contain the self-declared Religious or other Belief System Affiliation of a person.

Implementation Guidance

It is suggested that UK implementations conforming to this Standard, adopt the values used by the Office of National Statistics as part of the UK Census 2001 for the User-defined table 0006. An updated list of these values can be found on the NHS Data Model and Dictionary for England. These values are enforced in NHS England by an Approved Information Standards Board for Health and Social care (ISB HaSC) Change to an Information standard.

The Standards Consultancy Group (a consultancy service within the Data Standards and Products department of NHS Connecting for Health) has produced standards guidance on how to use this list of values.

3.5.2.18 Patient Account Number (CX)

Definition: This is typically referred to as the billing number and tends to tie the patient to a specific billable incidence of care. The billing scenario may be related to a single visit, recurring visits, or a stay as an admitted patient. Typically account numbers are assigned for each episode incidence and are listed as visits under the MPI.

Conditionality rule: The Patient Account Number is conditionally required by this Standard in messages related to a specific incidence of patient care. It is not required in the following messages: *A14 - Pending Admit*, *A28 - Add Person Information*, *A29 - Delete Person Information*, and *A31 - Update Person Information*. Refer to section 3.3.1 for additional information and suggested values for <type> from *User-defined table 0203 – Identifier type*.

HL7 deviation: This field is optional in HL7 and conditionally required in this Standard.

Seq	Element name	HL7 data type	HL7 UK data type	R/O/C
1	ID Number	ST	NM	R
2	Check Digit **(not supported in the UK)**			
3	Code Identifying Check Digit Scheme **(not supported in the UK)**			

Seq	Element name	HL7 data type	HL7 UK data type	R/O/C
4	Assigning Authority	HD	HD	R
5	Identifier Type Code **(not supported in the UK)**			
6	Assigning Facility **(not supported in the UK)**			

3.5.2.19 SSN Number – Patient (ST)

This Standard supports a field length of sixteen to accommodate international requirements. The social security number shall include dashes, for example, 999-99-9999. Do not use the social security number as the sole person identifier index because this number is not necessarily unique. All use of this field is discouraged. The social security number should be reported as an identifier type in PID-3.

3.5.2.20 Driver's License Number – Patient (DLN)

In later versions of HL7 this field is included for backward compatibility. It is now placed in PID:3 with all the other identifiers.

Seq	Element name	HL7 data type	HL7 UK data type	R/O/C
1	License number	ST	ST	O
2	Issuing state, province, country	IS	IS	O
3	Expiration date	DT	DT	O

3.5.2.20.2 Issuing state, province, country (IS)

A two-character component implies a state code and a three-character component implies a country code. Only the three-character form shall be used in the UK.

3.5.2.21 Mother's Identifier (CX)

Conditionality rule: The Mother's PID:3 Identifier is required by this Standard when the patient is a newborn.

HL7 deviation: This field is optional in HL7 but conditionally required by this Standard.

Seq	Element name	HL7 data type	HL7 UK data type	R/O/C
1	ID Number	ST	NM	R
2	Check Digit **(not supported in the UK)**			
3	Code Identifying Check Digit Scheme **(not supported in the UK)**			
4	Assigning Authority	HD	HD	R
5	Identifier Type Code	IS	IS	R
6	Assigning Facility **(not supported in the UK)**			

3.5.2.22 Ethnic Group (IS)

Definition: This field should contain the self-declared Ethnic Group of a person.

Implementation Guidance

It is suggested that UK implementations conforming to this Standard, adopt the values used by the UK Government Data Standards Catalogue and the Office of National Statistics as part of the UK Census 2001. An updated list with national codes, can be found in the NHS Data Model and Dictionary for England for the User-defined table 0189.

3.5.2.26 Citizenship (CE)

Definition: This field contains the patient's country of citizenship. This field should not be used to contain Overseas Visitor Status. OSV Status (ZU1-10) must be used to contain these status values.

Implementation Guidance

HL7 UK implementations use ISO table 3166 numeric codes as the values for the HL7 Table 0399 – Country Code.

3.5.2.27 Veteran's Military Status (CE)

Seq	Element name	HL7 UK data type	R/O/C
1	Identifier	CM	C
1.1	Identifier	ST	C
1.2	Application ID **(not supported in the UK)**		
2	Text	ST	C
3	Name of Coding System	ST	O
4	Alternate Identifier **(not supported in the UK)**		
4.1	Alternate Identifier **(not supported in the UK)**		
4.2	Alternate Application ID **(not supported in the UK)**		
5	Alternate Text **(not supported in the UK)**		
6	Name of Alternate Coding System **(not supported in the UK)**		

3.5.2.28 Nationality (CE)

Use the three-byte numeric version of *ISO Table 3166*.

Seq	Element name	HL7 UK data type	R/O/C
1	Identifier	CM	C

Seq	Element name	HL7 UK data type	R/O/C
1.1	Identifier	ST	C
1.2	Application ID **(not supported in the UK)**		
2	Text **(not supported in the UK)**		
3	Name of Coding System **(not supported in the UK)**		
4	Alternate Identifier **(not supported in the UK)**		
4.1	Alternate Identifier **(not supported in the UK)**		
4.2	Alternate Application ID **(not supported in the UK)**		
5	Alternate Text **(not supported in the UK)**		
6	Name of Alternate Coding System **(not supported in the UK)**		

3.5.2.29 Patient Death Date and Time (TS)

This Standard supports a field length of seventeen: YYYYMMDDHHMM[+/-ZZZZ]

3.5.2.31 Identity Unknown Indicator (IS)

Definition: This can be used to indicate to the receiving system that this record should not be matched to an existing record.

- Y – Patient's Identity is Unknown
  Used to indicate to the receiving system that it should not attempt to "fuzzy" match or associate this information to an existing person, only exact patient identifier matching. Examples of its use could be John Does, veterinary specimens, new-borns, other specimens, persons with very limited demographic data or any person for which matching or associations are not applicable.
  A person associated with this indicator shall be referred to as "Pseudo Person".
- N or blank – Patient's Identity is known.
  Used to indicate to the receiving system that normal "fuzzy" matching logic and associations to existing persons should occur.
  A person associated with an "N" or blank indicator shall be referred to as a "Full Person".

To promote a "Pseudo Person" to a "Full Person", the sending system shall either send double quotes or an "N". From that point forward, the person shall be seen as a "Full Person". A "Full Person" can never be demoted to "Pseudo Person".

3.5.2.32 Identity Reliability Code (IS)

Table values are:

Value	Description
US	Unknown/Default Social Security Number
UD	Unknown/Default Date of Birth
UA	Unknown/Default Address
AL	Patient/Person Name is an Alias
ED	Estimated Date of Birth
NSTSn	NHS Number Tracing Status – 'n' is the actual code value
PDSn	NHS Number Tracing Status – 'n' is the actual code value

A maximum of one NHS Number Tracing Status value from the NHS Data Model and Dictionary for England shall be included in this repeating field.

3.5.3 PV1: Patient visit segment

Refer to Sections 3.3.1 for additional information on identifiers.

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	SI	O		Set ID - PV1
2	IS	R		Patient Class
3	PL	O		Assigned Patient Location
4	IS	O		Admission Type
5				Pre-admit Number **(not supported in the UK)**
6	PL	O		Prior Patient Location
7	XCN	O		Attending Doctor – e.g. SHO
8	XCN	O		Referring Doctor
9	XCN	O	Y	Consulting Doctor
10	IS	O		Hospital Service – specialty
11				Temporary Location **(not supported in the UK)**
12				Pre-Admit Test Indicator **(not supported in the UK)**
13	IS	O		Readmission Indicator
14	IS	O		Admit Source
15	IS	O	Y	Ambulatory Status
16	IS	O		VIP Indicator
17	XCN	O		Admitting Doctor

Seq	HL7 UK data type	R/O/C	RP/#	Element name
18	IS	O		Patient Type
19	CX	O		Visit Number
20				Financial Class **(not supported in the UK)**
21				Charge Price Indicator **(not supported in the UK)**
22				Courtesy Code **(not supported in the UK)**
23				Credit Rating **(not supported in the UK)**
24	IS	O	Y	Contract Code
25	DT	O	Y	Contract Effective Date
26	NM	O	Y	Contract Amount
27	NM	O	Y	Contract Period
28				Interest Code **(not supported in the UK)**
29				Transfer to Bad Debt Code **(not supported in the UK)**
30				Transfer to Bad Debt Date **(not supported in the UK)**
31				Bad Debt Agency Code **(not supported in the UK)**
32				Bad Debt Transfer Amount **(not supported in the UK)**
33				Bad Debt Recovery Amount **(not supported in the UK)**
34				Delete Account Indicator **(not supported in the UK)**
35				Delete Account Date **(not supported in the UK)**
36	IS	O		Discharge Disposition
37	CM	O		Discharged to Location
38	IS	O		Diet Type
39				Servicing Facility **(not supported in the UK)**
40				Bed Status **(not supported in the UK)**
41				Account Status **(not supported in the UK)**
42				Pending Location **(not supported in the UK)**
43				Prior Temporary Location **(not supported in the UK)**
44	TS	C		Admit Date/Time
45	TS	C		Discharge Date/Time
46				Current Patient Balance **(not supported in the UK)**
47				Total Charges **(not supported in the UK)**
48				Total Adjustments **(not supported in the UK)**
49				Total Payments **(not supported in the UK)**
50	CX	O		Alternate Visit ID
51				Visit Indicator **(not supported in the UK)**

Seq	HL7 UK data type	R/O/C	RP/#	Element name
52				Other Healthcare Provider **(not supported in the UK)**

Field notes

3.5.3.2 Patient Class (IS)

The PV1 segment is required by HL7 but is not populated by in this Standard in *person events*, for example, *A28 - Add Person* and *A31 - Update Person*. Since PV1-2 is a required field, the following values have been added to *User-defined Table 0004*:

W – Waiting list

N - Not applicable

U - Unknown

C - Commercial Account

The commercial account identifier is used in commercial laboratory applications.

3.5.3.3 Assigned Patient Location (PL)

Definition: Component 3 – bed location can be used to indicate a "rooming-in" bed that was created on the fly by taking the assigned mother's bed and adding a suffix of 'B00x' to the mother's bed. 'B' indicates rooming-in bed/baby. '00x' can go from 001 – 009, allowing up to nine rooming-in potentials. Example – Mother assigned to 301-1, the baby shall have the room/bed of 301-1B001. Negotiation at implementation is required since receiving systems will be required to build these rooming-in beds manually in their location room/bed masterfile. There will be a client specific number of beds that will require manual builds.

3.5.3.4 Admission Type (IS)

Definition: This field should contain the type of admission of a patient.

Implementation Guidance

Only UK implementations such as the NHS CFH Interoperability Toolkit, must adopt the values from Admission Method in the NHS Data Model and Dictionary for England for the User-defined table 0007. For all other uses, the default values in the User-defined table 0007 may be used.

3.5.3.9 Consulting Doctor (XCN)

Definition: This is the consultant in charge of the care spell. The first one being the main consultant. In the cases of shared care it is a list of the separate consultants.

3.5.3.14 Admit Source (IS)

Definition: This field should contain the physical source of admission of a patient.

Implementation Guidance

Only UK implementations such as the NHS CFH Interoperability Toolkit, must adopt the values from Source of Admission in the NHS Data Model and Dictionary for England for the User-defined table 0023. For all other uses, the default values in the User-defined table 0023 may be used.

3.5.3.16 VIP Indicator (IS)

Definition: This field is used to contain indicate whether a patient record is sensitive or not.

Implementation Guidance

It is suggested that UK implementations conforming to this Standard, adopt the values from the Information Sensitivity Indicator used in the NHS England Personal Demographics Service (PDS) for the User-defined table 0099. Guidance created by Personal Demographics Service (a department of Data Standards and Products within NHS Connecting for Health) exist in the form of use cases and scenarios.

3.5.3.17 Admitting Doctor (XCN)

Definition: This is the Doctor who made the decision to admit. The responsible HCP.

3.5.3.19 Visit ID (CX)

This is a unique number representing the actual visit by a patient. The number shall be unique within assigning authority and number type.

Implementation Guidance

It is recommended that new implementations use the CX data type.

A visit may be one of the following:

- an admission
- an A&E attendance
- a community contract
- an OP attendance (Appointment)

3.5.2.36 Discharge Disposition (IS)

Definition: This field should contain the discharge destination of a patient.

Implementation Guidance

Only UK implementations such as the NHS CFH Interoperability Toolkit, must adopt the values from Discharge Destination in the NHS Data Model and Dictionary for England for the User-defined table 0112. For all other uses, the default values in the User-defined table 0112 may be used.

3.5.2.38 Diet Type (IS)

Definition: This field should contain the main diet type eaten of a person.

Implementation Guidance

It is suggested that UK implementations conforming to this Standard, adopt the values of Diet Type in the ISD Scotland Health and Social Care Dictionary for the User-Defined table 0114.

3.5.3.44 Admit Date/Time (TS)

Conditionality rule: The Admit Date/Time is conditionally required by this Standard in those events where it should be present. For example, it might not be present in an *A05 - Pre-Admit a Patient*, however *PV2-8 Expected Admit Date* would be populated.

3.5.3.45 Discharge Date/Time (TS)

Conditionality rule: The Discharge Date/Time is conditionally required by this Standard in those events where it should be present. For example, it would not be present in an *A05 - Pre-Admit a Patient*, however it should be present in an *A03 - Discharge a Patient*.

3.5.3.50 Alternate Visit ID (CX)

HL7 UK allows the use of this field to further qualify the Visit ID (PV1:19).

Implementation Guidance

A typical use of this field would be to specify a consultant episode within an inpatient stay. PV1:19 would be used to identify the inpatient stay and the alternate visit ID would identify the specific consultant episode. Clearly this approach requires that sending and receiving systems use consistent methods of identifying these components.

3.5.4 PV2: Patient visit - additional information segment

Although annotated as an optional segment, consideration should be given to including it in all Pre-Admit (A05) and Pending Discharge (A16) messages. This allows the expected admit date and expected discharge date to be explicit, rather than implied from EVN:3 <Date/time of planned event>.

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1				Prior Pending Location **(not supported in the UK)**
2				Accommodation Code **(not supported in the UK)**
3	CE	O		Admit Reason
4	CE	O		Transfer Reason
5				Patient Valuables **(not supported in the UK)**
6				Patient Valuables Location **(not supported in the UK)**
7				Visit User Code **(not supported in the UK)**
8	TS	C		Expected Admit Date/Time
9	TS	C		Expected Discharge Date/Time
10				Estimated Length of Inpatient Stay **(not supported in the UK)**
11				Actual Length of Inpatient Stay **(not supported in the UK)**
12	ST	O		Visit Description
13				Referral Source Code **(not supported in the UK)**
14				Previous Service Date **(not supported in the UK)**
15				Employment Illness Related Indicator **(not supported in the UK)**
16				Purge Status Code **(not supported in the UK)**
17				Purge Status Date **(not supported in the UK)**
18				Special Program Code **(not supported in the UK)**
19				Retention Indicator **(not supported in the UK)**
20				Expected Number of Insurance Plans **(not supported in the UK)**

Seq	HL7 UK data type	R/O/C	RP/#	Element name
21				Visit Publicity Code **(not supported in the UK)**
22				Visit Protection Indictor **(not supported in the UK)**
23				Clinic Organisation Name **(not supported in the UK)**
24				Patient Status Code **(not supported in the UK)**
25	IS	O		Visit Priority Code
26				Previous Treatment Date **(not supported in the UK)**
27				Expected Discharge Disposition **(not supported in the UK)**
28				Signature on File Date **(not supported in the UK)**
29				First Similar Illness Date **(not supported in the UK)**
30				Patient Charge Adjustment Code **(not supported in the UK)**
31				Recurring Service Code **(not supported in the UK)**
32				Billing Media Code **(not supported in the UK)**
33				Expected Surgery Date & Time **(not supported in the UK)**
34				Military Partnership Code **(not supported in the UK)**
35				Military Non-Availability Code **(not supported in the UK)**
36				New-born Baby Indicator **(not supported in the UK)**
37				Baby Detained Indicator **(not supported in the UK)**
38	CE	O		Mode of arrival
39				Recreational drug use **(not supported in the UK)**
40				Admission level care **(not supported in the UK)**
41				Precaution code **(not supported in the UK)**
42				Patient condition code **(not supported in the UK)**
43				Living will **(not supported in the UK)**
44				Organ donor **(not supported in the UK)**
45				Advance directive code **(not supported in the UK)**
46				Patient status effective date **(not supported in the UK)**
47				Expected LOA return date **(not supported in the UK)**

Field notes

3.5.4.8 Expected Admit Date (TS)

Conditionality rule: This field is conditionally required by this Standard. It is required in *A05 - Pre-Admit a Patient* and *A14 - Pending Admit messages*.

3.5.4.9 Expected Discharge Date (TS)

Conditionality rule: This field is conditionally required by this Standard. It is required in an *A16 - Pending Discharge* message.

3.5.5 NK1: Next of kin/associated parties segment

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	SI	R		Set ID – NK1
2	XPN	R		Name
3	CE	R		Relationship
4	XAD	O		Address
5	XTN	O	Y	Phone Number
6	XTN	O	Y	Business Phone Number
7	CE	O		Contact Role
8	DT	O		Start Date
9	DT	O		End Date
10				Next of Kin/Associated Party's Job Title **(not supported in the UK)**
11				Next of Kin/Associated Job Code/Class/Job Description **(not supported in the UK)**
12				Next of Kin/Associated Party's Employee Number **(not supported in the UK)**
13				Organisation Name **(not supported in the UK)**
14				Marital Status **(not supported in the UK)**
15	IS	O		Sex
16	TS	O		Date/Time of Birth
17				Living Dependency **(not supported in the UK)**
18				Ambulatory Status **(not supported in the UK)**
19				Citizenship **(not supported in the UK)**
20	CE	O		Primary Language
21				Living Arrangement **(not supported in the UK)**
22				Publicity Indicator **(not supported in the UK)**
23				Protection Indicator **(not supported in the UK)**
24				Student Indicator **(not supported in the UK)**
25	IS	O		Religion
26				Mother's Maiden Name **(not supported in the UK)**
27				Nationality **(not supported in the UK)**

Seq	HL7 UK data type	R/O/C	RP/#	Element name
28				Ethnic Group **(not supported in the UK)**
29				Contact Reason **(not supported in the UK)**
30				Contact Person's Name **(not supported in the UK)**
31				Contact Person's Telephone Number **(not supported in the UK)**
32				Contact Person's Address **(not supported in the UK)**
33	CX	O	Y	Next of Kin/Associated Party's Identifiers
34				Job Status **(not supported in the UK)**
35				Race **(not supported in the UK)**
36				Handicap **(not supported in the UK)**
37				Contact Person Social Security Number **(not supported in the UK)**

Field notes

3.5.5.2 Name (XPN)

Next of Kin Name is required by this Standard.

3.5.5.3 Relationship (CE)

Next of Kin Relationship is required by this Standard.

Implementation Guidance

Only UK implementations such as the NHS CFH Interoperability Toolkit, must adopt the values from Relationship Type in the NHS England Personal Demographics Service (PDS) for the User-defined table 0063. For all other uses, the default values in the User-defined table 0063 may be used.

3.5.5.15 Sex (IS)

This field should contain the self-declared current gender (administrative sex) of a person.

Implementation Guidance

It is suggested that UK implementations conforming to this Standard, adopt the values used by the UK Government Data Standards Catalogue for the User-defined table 0001.

3.5.5.25 Religion (IS)

This field should contain the self-declared Religious or other Belief System Affiliation of a person.

Implementation Guidance

It is suggested that UK implementations conforming to this Standard, adopt the values used by the Office of National Statistics as part of the UK Census 2001 for the User-defined table 0006. An updated list of these values can be found on the NHS Data Model and Dictionary for England. These values are enforced in NHS England by an Approved Information Standards Board for Health and Social care (ISB HaSC) Change to an Information standard.

The Standards Consultancy Group (a consultancy service within the Data Standards and Products department of NHS Connecting for Health) has produced standards guidance on how to use this list of values.

3.5.6 AL1: Patient allergy information segment

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	SI	R		Set ID - AL1
2	IS	O		Allergy Type
3	CE	R		Allergy Code/Description
4	IS	O		Allergy Severity
5	ST	O		Allergy Textual Reaction
6	DT	O		Identification Date

Field notes

3.5.6.2 Allergy Type (IS)

Allergy Type uses the suggested *User-Defined Table 0127* as valid values. This Standard has also added extensions to this table.

User-defined Table 0127

Value	Description
DA	Drug Allergy
FA	Food Allergy
MA	Miscellaneous Allergy
MC	Miscellaneous Contraindication
IO	Iodine
OC	Organic Chemicals
IC	Inorganic Chemicals
IN	Insects

Value	Description
OT	Other **(not supported in the UK)**

3.5.6.3 Allergy Code/Mnemonic/Description (CE)

Code and coding system shall be used to uniquely identify the allergy. The description shall be used as the textual description the application displays to the user if this is a non-recognised code or is a non-coded allergy. If the code and coding system are not used, the description may still be used as a free text allergy.

3.5.6.4 Allergy Severity (IS)

Definition: The severity of the allergy.

A numeric value system has been proposed to allow for descriptions to vary between systems. Values are 0-9 where 0 is unknown and 9 is the most severe. Examples are as follows:

User-defined Table 0128 - Allergy Severity

Value	Description
0	Unknown
1	Insignificant/Minimal
3	Mild
5	Moderate
7	Moderate-Severe
9	Very Severe
6	Other **(not supported in the UK)**

3.5.6.5 Allergy Textual Reaction (ST)

Definition: This field is the textual description of the reaction.

3.5.6.6 Identification Date (DT)

Definition: Date the allergy was identified.

3.5.7 MRG: Merge patient information segment

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	CX	R	Y	Prior Patient ID – Internal
2	CX	O		Prior Alternate Patient ID **(not supported in the UK)**

Seq	HL7 UK data type	R/O/C	RP/#	Element name
3	CX	O		Prior Patient Account Number **(not supported in the UK)**
4	CX	C		Prior Patient ID – External **(not supported in the UK)**
5	CX	C		Prior Visit Number
6	CX	C		Prior Alternate ID **(not supported in the UK)**
7	XPN	O		Prior Patient Name **(not supported in the UK)**

Field notes

3.5.7.1 Prior Patient ID – Internal (CX)

Definition: List of discarded or incorrect patient identifiers, replaced by identifiers included in the PID-3.

In the case of an A40 (Merge Patient) event this field represents the list of identifiers of the non-surviving patient record. It corresponds to the identifiers list reported in PID-3, with which it should be 'tightly coupled'. This means that all identifiers in the MRG-1 list should have an equivalent of the same type in the PID-3, with matching assigning authority and identifier type, and should be reported in the same position in the list.

Implementation Guidance

It is recommended that all known identifiers of the non-surviving patient record be reported here.

It is also strongly recommended that at least one of the identifiers listed in the MRG-1 in an A40 message should uniquely identify the discarded patient record across all systems that will process the message.

In the case of an A43 (move patient information – patient ID list) or an A47 (change patient ID) this field should contain only a single value – that of the incorrect patient identifier being moved or changed. In both cases there shall be an equivalent identifier, with matching assigning authority and identifier type in the PID-3 identifier list.

Note:

In an A42 message this field will have the same value as PID:3

3.5.7.5 Prior Visit Number (CX)

Definition: Incorrect visit number replaced by one valued in the PV1:19.

Conditionality rule: This field is valued in an A42 message, but not in others.

3.5.8 PD1: Patient additional demographic segment

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	IS	O	Y	Living Dependency **(not supported in the UK)**
2	IS	O		Living Arrangement **(not supported in the UK)**
3	XON	O	Y/2	Patient Primary Facility
4	XCN	O		Patient Primary Care Provider Name & ID No.
5	IS	O		Student Indicator **(not supported in the UK)**
6	IS	O		Handicap **(not supported in the UK)**
7	IS	O		Living Will **(not supported in the UK)**
8	IS	O		Organ Donor **(not supported in the UK)**
9	ID	O		Separate Bill **(not supported in the UK)**
10	CX	O	Y	Duplicate Patient **(not supported in the UK)**
11	CE	O		Publicity Indicator **(not supported in the UK)**
12	ID	O		Protection Indicator **(for backwards compatibility only)**

Field Notes

3.5.8.3 Patient Primary Facility (XON)

Definition: this Standard supports the following component definition:

The first repetition is the practice (patients shall have only one) and it shall be coded. The second repetition is the surgery, if the surgery is not the same code as the practice. This second repetition is by local agreement and it may be a description. That is, without a code but with a name.

Seq	Element name	HL7 data type	HL7 UK data type	R/O/C
1	Organisation Name	ST	ST	C
2	Organisation Name Type Code **(not supported in the UK)**			
3	ID Number	NM	ST	C
4	Check Digit **(not supported in the UK)**			
5	Code Identifying Check Digit Scheme **(not supported in the UK)**			
6	Assigning Authority **(not supported in the UK)**			
7	Identifier Type Code **(not supported in the UK)**			
8	Assigning Facility **(not supported in the UK)**			

3.5.8.3.1 Organisation Name (ST)

Conditionality rule: This component is required if it is the surgery (second repetition) and there is no code available (local agreement).

3.5.8.3.3 ID Number (NM)

Conditionality rule: This component is required if it is the practice (first repetition).

3.5.8.4 Patient Primary Care Provider Name & Number

This field shall hold the patients registered GP using the national code.

Seq	Element name	HL7 data type	HL7 UK data type	R/O/C
1	ID Number	ST	ST	R
2	Family Name **(not supported in the UK)**			
3	Given name **(not supported in the UK)**			
4	Second and further given names**(not supported in the UK)**			
5	Suffix (e.g. JR or III) **(not supported in the UK)**			
6	Prefix (e.g. DR) **(not supported in the UK)**			
7	Degree (e.g. MD) **(not supported in the UK)**			
8	Source table **(not supported in the UK)**			
9	Assigning authority **(not supported in the UK)**			
10	Name type code **(not supported in the UK)**			
11	Identifier check digit **(not supported in the UK)**			
12	Code identifying the check digit scheme**(not supported in the UK)**			
13	Identifier type code **(not supported in the UK)**			
14	Assigning facility **(not supported in the UK)**			
15	Name representation code**(not supported in the UK)**			
16	Name context **(not supported in the UK)**			
17	Name validity range **(not supported in the UK)**			

Implementation Guidance

To ensure data consistency, this Standard assumes that GPs are identified between systems using just their national codes. To facilitate this approach the national GP file should be shared by all participating systems. This may be achieved by accessing a common copy of the data or each system holding all off or a required sub-set of the file. In the latter case, the files should be maintained in step using Master File messages as defined in Chapter 8.

3.5.9 OBX: Observation/result segment

The message structure in this Standard provides for the use of the OBX segment in an ADT context. In order to ensure that this is used in an appropriate manner, the following guidelines should be adopted:

The OBX segment should only be used in an agreed context to transmit data for agreed fields (Observation Identifier). The target field on the receiving system should be identified as part of the interface definition. The data type should be determined as part of the interface definition and where coded values are used, the code scheme should be defined.

The situation should not arise where a receiving system is passed an OBX with either an unknown Observation identifier or an unknown code value within an identifier. An observation identifier should be unique within a provider context.

Implementation Guidance

When local codes are used as the first identifier in the Observation Identifier field it is recommended that a universal identifier is sent as well to permit receivers to equate results from different providers of the same service.

3.6 Data control

3.6.1 Ownership

Each of the legacy Patient Administration systems in the enterprise has the concept of owning its own patient data. These systems are being updated to accept inbound Patient Administration transactions, but once received, they continue to treat the new information as their own. In fact, the patient data may be owned by different systems throughout the enterprise.

This should not prove detrimental, as each of the Patient Administration systems in the enterprise will have access to the repository system that will contain records for all of the patients known to the enterprise. Further, it is expected that the legacy systems will be

enhanced so those patients being registered/admitted to other enterprise facilities will not be added to their databases.

All Patient Administration information shall be broadcast. Each system that maintains an image of the Patient Administration information shall monitor the broadcasts and update their databases as necessary to maintain coherence with the broadcaster.

3.7 Open issues

The current PD1 segment allows a GP to be recorded for a patient. The segment does not allow for a GDP to be recorded. The segment (or an appropriate alternative) requires further design work to allow this data to be exchanged between systems.

Chapter 4 - Order Entry

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4.1 Purpose

This document describes the standard for the use of HL7 v2 for Orders and Observations in the UK. Where areas of HL7 v2.5 have been pre-adopted, full definitions have been included in this chapter. This standard allows compliance with the NHS definition of a 'Request' as presented in the NHS Data Dictionary & Manual.

This chapter only specifically covers Laboratory and Diagnostic Imaging and should be read in conjunction with the full HL7 2.4 standard.

4.2 Terminology

There are a number of differences in definition and interpretation of specific words and phrases between the US and the UK. Where there is a serious risk of confusion, Appendix B contains the definition to be used when interpreting this document. Where there is no specific UK definition, any definition provided in HL7 2.4 should be used.

Users of this Standard are strongly recommended to check the list of words and phrases listed in Appendix B before reading the rest of the document.

4.3 Quantity/Timing (TQ) Data Type Definition

Implementation Guidance

For Laboratory systems, Parent/Child relationships regarding the 'Interval' component should be handled within the Order Management area. Transactions that are submitted to a Filler system should be at an atomic level. A Parent that will generate 3 orders over time, each requiring a separate sample, should be submitted to the Filler as three separate transactions each having a unique Placer Number. Where the timing is used for the administration of Blood Units, the required dates may be submitted to the Filler system within a single transaction where the Cross-match will utilize a single sample from the patient.

For Radiology, multiple timing requirements may be submitted within a single transaction, where this is agreed between the Placer and Filler. The transactions should be for a single service point and/or modality. Where multiple Diagnostic imaging services are carried out within a single service point, local agreement should be reached according to the reporting mechanisms of the filler.

The message implementation guidelines support the use of Quantity/Timing for transmission between a Placer and an Order Management system but it is recommended that the Filler receive discrete timed orders.

4.3.6 Priority component (ID)

Definition: This field describes the urgency of the request.

Implementation Guidance

The following values are recommended (the default for Priority is R):

S	=	*Stat (Urgent)*	*With highest priority (generally also 'Phoned)*
A	=	*ASAP*	*Process after Stat orders*
R	=	*Routine*	*Default*
C	=	*Callback*	*Process after Stat orders and 'Phone*

4.3.10 Order sequencing component (CM)

Not supported in the UK for Orders.

4.3.11 Occurrence duration component (CE)

Not supported in the UK for Orders.

4.3.12 Total occurrences component (NM)

Not supported in the UK for Orders.

4.3.13 Examples of quantity/timing usage

It is expected that the timing segment is used for such data as Time required for Blood Units rather than collection details. HL7UK supports the receipt of compound orders that have been broken down into individual components by an order management system and does not recommend the passing of compound orders to the provider system. Much of the use of Timing is for Order Management systems that co-ordinate the processing or collection of orders:

```
3^Once
```

Perform the service at one point in time, eg. order 3 units of blood to be given once.

```
1^QHS^X2
```

Perform the service twice at bedtime, eg., give a unit of blood at bedtime on two sequential nights.

The following would be received by the provider laboratory system as separate requests for Blood Glucose, one per message:

```
1^Q1H^X5^200223051030
```

Perform a service every hour for 5 hours starting at 10:30 a.m. on 23rd May 2002, eg., draw a blood glucose.

```
1^QAM^X3^^^^^^S~1^QOD^D4^^^^if K+>5.5
```

Perform a service every morning for 3 days and then do it every other day for 4 days (ie., max twice) if the serum potassium is greater than 5.5.

4.4 Trigger Events & Message Definitions

This section includes trigger events and message definitions that are general to all orders in addition to the Observation and Diagnostic Study.

To comply with the NHS requirements for Pathology Requesting, there shall be a link between the Sample details and the Service item(s). Each Service Item may be linked to one, and only one, sample details. This means that for each sample type within the message there is a unique identifier and a link to each Service to be performed on that sample. This shall be achieved by use of messages (OML) with Specimen (SPM) segment where the order applies to a specimen

4.4.1 ORM - General Order Message (event code O01)

Not supported in the UK. OMG, OML, OMD, OMS, OMN and OMP shall be used instead.

4.4.2 ORR - General Order Response Message Response to any ORM (event code O02)

Not supported in the UK.

4.4.19 OMG - General Clinical Order Message (event code O19)

The function of this message is to initiate the transmission of information about a general clinical order that uses the OBR segment. This includes placing new orders, cancellation of existing orders, discontinuation, holding, etc. OMG messages can originate also with a placer, filler, or an interested third party.

This message shall be used for all Diagnostic imaging orders or orders without a sample.

This message shall not be used for requesting/referring laboratory tests. OML shall be used instead. This allows identification of the Sample and use of a unique Sample Number.

The trigger event for this message is any change to a general clinical order. Such changes include submission of new orders, cancellations, updates, patient and non-patient-specific orders, etc.

One or more requestable items (ORC/OBR pairs) may be submitted within a single transaction. Each ORC/OBR pair shall have a unique placer number. Where a requested item is broken down by the filler into multiple services, each of the resulting components shall have the same placer number as the original requested item.

Note:

This version of the UK standard does not support previous results.

Each service shall have a unique placer number although multiple services may be contained in a single message.

OMG^O19	General Clinical Order Message	Chapter
MSH	Message Header	2
[{NTE}]	Notes and Comments (for Header)	2
[		
PID	Patient Identification	3
[PD1]	Additional Demographics	3
[{NTE}]	Notes and Comments (for Patient ID)	2
[		
PV1	Patient Visit	3
[PV2]	Patient Visit- Additional Info	3
]		
[		
{		
IN1	Insurance	6

OMG^O19	General Clinical Order Message	Chapter
[IN2]	Insurance Additional Info **(not supported in the UK)**	6
[IN3]	Insurance Add'l Info - Cert. **(not supported in the UK)**	6
}		
]		
[GT1]	Guarantor **(not supported in the UK)**	6
[{AL1}]	Allergy Information	3
]		
{		
ORC	Common Order	4
OBR	Observation	4
[{NTE}]	Notes and Comments (for Detail)	2
[CTD]	Contact Data **(not supported in the UK)**	11
[{DG1}]	Diagnosis	6
[		
{		
OBX	Observation/Result	7
[{NTE}]	Notes and Comments (for Results)	2
}		
]		
{	Previous Results Section **(not supported in the UK)**	
[		
[		
PID	Patient Identification **(not supported in the UK)**	3
[PD1]	Additional Demographics **(not supported in the UK)**	3
]		
[		
PV1	Patient Visit **(not supported in the UK)**	3
[PV2]	Patient Visit Add. Info **(not supported in the UK)**	3
]		
[{AL1}]	Allergy Information **(not supported in the UK)**	3
{		
[ORC]	Common Order **(not supported in the UK)**	4
OBR	Order Detail **(not supported in the UK)**	4
{[NTE]}	Notes and Comments **(not supported in the UK)**	2
[CTD]	Contact Data **(not supported in the UK)**	10
{		

OMG^O19	General Clinical Order Message	Chapter
OBX	Observation/Result **(not supported in the UK)**	7
[{NTE}]	Notes and Comments **(not supported in the UK)**	2
}		
}		
]		
}		
[{FT1}]	Financial Transaction **(not supported in the UK)**	6
[{CTI}]	Clinical Trial Identification	7
[BLG]	Billing Segment **(not supported in the UK)**	4
}		

Where multiple services are requested that comprise a set of linked examinations, the Placer Group Number may be used to link these together.

4.4.20 ORG - General Clinical Order Acknowledgement Message (event code O20)

The function of this message is to respond to an OMG message. An ORG message is the application acknowledgment to an OMG message. See Chapter 2 for a description of the acknowledgment paradigm.

In ORG the PID and ORC segments are optional, particularly in case of an error response. However, ORC segments are always required in ORG when the OBR is present. For example, a response ORG might include only the MSH and MSA.

The function (eg., cancel, new order) of both OMG and ORG messages is determined by the value in ORC-1-order control. (See the table of order control values for a complete list.)

ORG^O20	General Clinical Order Acknowledgment Message	Chapter
MSH	Message Header	2
MSA	Message Acknowledgment	2
[ERR]	Error	2
[{NTE}]	Notes and Comments (for Header)	2
[		
[		
PID	Patient Identification	3
[{NTE}]	Notes and Comments (for Patient ID)	2

ORG^O20	General Clinical Order Acknowledgment Message	Chapter
]		
{		
ORC	Common Order	4
[OBR]	Observation	4
[{NTE}]	Notes and Comments (for Detail)	2
[{CTI}]	Clinical Trial Identification	7
}		
]		

4.4.25 OML - Laboratory Order Message (event code O33)

The following message structure is used for the communication of laboratory and other order messages and must be used for lab automation messages.

Although there are a number of OML messages available in HL7, the use of which depends on the specific type of event, the message listed below shall be used for all orders where a sample is required.

OML^O33	Laboratory Order Message related to a single sample with multiple containers	Chapter
MSH	Message Header	2
[{NTE}]	Notes and Comments (for Header)	2
[		
PID	Patient Identification	3
[PD1]	Additional Demographics	3
[{NTE}]	Notes and Comments (for Patient ID)	2
[		
PV1	Patient Visit	3
[PV2]	Patient Visit- Additional Info	3
]		
[		
{		
IN1	Insurance	6
[IN2]	Insurance Additional Info **(Not Supported)**	6
[IN3]	Insurance Add'l Info - Cert. **(Not Supported)**	6
}		
]		
[GT1]	Guarantor **(Not Supported)**	6

OML^O33	Laboratory Order Message related to a single sample with multiple containers	Chapter
[{AL1}]	Allergy Information	3
]		
{		
SPM	Specimen	7
[{OBX}]	Additional Specimen Characteristics	7
{[SAC]}	Specimen Container Details **(not supported in the UK)**	13
{		
ORC	Common Order	4
[		
{		
TQ1	Timing/Quantity	4
[{TQ2}]	Timing/Quantity Order Sequence	4
}		
]		
[		
OBR	Observation Request	4
[TCD]	Test Code Details	13
[{NTE}]	Notes and Comments (for Detail)	2
[{DG1}]	Diagnosis	6
[		
{		
OBX	Observation/Result	7
[TCD]	Test Code Detail	13
[{NTE}]	Notes and Comments (for Results)	2
}		
]		
[	*Previous Results Section* **(not supported in the UK)**	
{		
[		
PID	Patient Identification **(not supported in the UK)**	3
[PD1]	Additional Demographics **(not supported in the UK)**	3
]		
[		
PV1	Patient Visit **(not supported in the UK)**	3
[PV2]	Patient Visit Add. Info **(not supported in the UK)**	3
]		

OML^O33	Laboratory Order Message related to a single sample with multiple containers	Chapter
[{AL1}]	Allergy Information **(not supported in the UK)**	3
{		
[ORC]	Common Order **(not supported in the UK)**	4
[		
{		
TQ1	Timing/Quantity **(not supported in the UK)**	4
[{TQ2}]	Timing/Quantity Order Sequence **(not supported in the UK)**	4
}		
]		
OBR	Order Detail **(not supported in the UK)**	4
{[NTE]}	Notes and Comments **(not supported in the UK)**	2
{		
OBX	Observation/Result **(not supported in the UK)**	7
[{NTE}]	Notes and Comments **(not supported in the UK)**	2
}		
}		
}		
]		
]		
[{FT1}]	Financial Transaction **(not supported in the UK)**	6
[{CTI}]	Clinical Trial Identification	7
[BLG]	Billing Segment **(not supported in the UK)**	4
}		
}		

4.4.26 ORL - General Laboratory Order Response Message to any OML (event code O34)

The function of this message is to respond to an OML message where the original trigger event produced an OML with the Specimen Group segment above the ORC. An ORL message is the application acknowledgment to an OML message. See Chapter 2 for a description of the acknowledgment paradigm.

ORL^O34	General Laboratory Order Acknowledgment Message	Chapter
MSH	Message Header	2

MSA	Message Acknowledgment	2
[ERR]	Error	2
[{NTE}]	Notes and Comments (for Header)	2
[		
PID	Patient Identification	3
{		
SPM	Specimen	4
[{OBX}]	Additional Specimen Characteristics	7
{	Common Order	4
ORC		
[		
{		
TQ1	Timing/Quantity	4
[{TQ2}]	Timing/Quantity Order Sequence	4
}		
]		
[OBR]	Observation Request	4
}		
}		
]		

Conditions of Use

Where the order is not sample based, this message shall not be used; OMG shall be used.

When the OML is used, the message shall be for a single service provider. The Placer Numbers shall be unique for each ORC/OBR pair.

The SPM segment contains sufficient information for the identification of multiple containers of the same type for the sample.

Order messages commonly consist of calls for one or more services from a single department such as Chemistry (CHM) or Haematology (HAE). In situations where a department is configured as a 'Blood Sciences' combining CHM and HAE, the message could contain Samples (SPM) with requests for Blood Sciences as the Service Provider. Where analysis is carried out on the same sample/container, the services shall be grouped under the same SPM.

For Medical Imaging requests, the OMG shall be used and the above conditions of use shall apply with the exception that requests may be for different service providers so long as they are part of the same processing department. An imaging department may 'own' Echo, Radiology etc.

4.5 Segment Definitions

The following segments are common to many order messages.

4.5.1 ORC: Common Order Segment

The Common Order segment (ORC) is used to transmit fields that are common to all orders (all types of services that are requested). The ORC segment is required in the Order message. ORC is mandatory in Order Acknowledgment (ORR) messages if an order detail segment is present, but is not required otherwise.

If details are needed for a particular type of order segment (eg., Pharmacy, Dietary), the ORC must precede any order detail segment (eg., RXO, ODS). In some cases, the ORC may be as simple as the string:

```
ORC|OK|<placer order number>|<filler order number>|.
```

If details are not needed for the order, the order detail segment may be omitted. For example, to place an order on hold, one would transmit an ORC with the following fields completed: ORC-1-order control with a value of HD, ORC-2-placer order number, and ORC-3-filler order number.

There is some overlap between fields of the ORC and those in the order detail segments. These are described in the succeeding sections.

ORC Segment

Seq	HL7 UK data type	R/O/C	RP/#	Element Name
1	ID	R		Order Control
2	EI	C		Placer Order Number
3	EI	C		Filler Order Number
4	EI	O		Placer Group Number
5	ID	O		Order Status
6	ID	O		Response Flag
7	TQ	O	Y	Quantity/Timing
8	CM	O		Parent
9	TS	O		Date/Time of Transaction
10	XCN	O	Y	Entered By
11	XCN	O	Y	Verified By
12	XCN	O	Y	Ordering Provider
13	PL	O		Enterer's Location

14	XTN	O	Y/2	Call Back Phone Number
15	TS	O		Order Effective Date/Time
16	CE	O		Order Control Code Reason
17	CE	O		Entering Organization
18	CE	O		Entering Device
19	XCN	O	Y	Action By
20	CE	O		Advanced Beneficiary Notice Code **(not supported in the UK)**
21	XON	O	Y	Ordering Facility Name
22	XAD	O	Y	Ordering Facility Address
23	XTN	O	Y	Ordering Facility Phone Number
24	XAD	O	Y	Ordering Provider Address
25	CWE	O	N	Order Status Modifier

Field notes

4.5.1.8 Parent (CM)

Supported for Dynamic Function Tests (eg. Glucose Tolerance Test) only within result messages. See chapter 7 for use.

4.5.2 OBR: Observation Request Segment

Each OBR associated with an ORC should fulfill the following conditions: -

If present, the Placer Number shall be the same as that in ORC-2.

Where the order does not require a Sample and the OMG is used, all the ORC/OBR segments should represent services for a single modality and/or service point. This causes the following to be true: -

All OBR-7 dates/times should be the same if populated
All OBR-10 contents should be the same
All OBR-11 contents should be the same
All OBR-15 contents should be the same
Etc.

The Observation Request (OBR) segment is used to transmit information specific to an order for a diagnostic study or observation, physical exam, or assessment.

OBX segments can be sent by the placer along with an order to provide the filling service with clinical data needed to interpret the results. (See Chapter 7 for OBX details.)

Seq	HL7 UK data type	R/O/C	RP/#	Element Name
1	SI	O		Set ID – OBR
2	EI	C		Placer Order Number
3	EI	C		Filler Order Number
4	CE	R		Universal Service Identifier
5	ID	B		Priority – OBR **(not supported in the UK)**
6	TS	B		Requested Date/Time
7	TS	C		Observation Date/Time #. Use SPM:17 when a sample is required
8	TS	O		Observation End Date/Time #. Use SPM:17 when a sample is required
9	CQ	O		Collection Volume * **(not supported in the UK)**
10	XCN	O	Y	Collector Identifier * **(not supported in the UK)**
11	ID	O		Specimen Action Code * **(not supported in the UK)**
12	CE	O		Danger Code **(not supported in the UK)**
13	ST	O		Relevant Clinical Information
14	TS	C		Specimen Received Date/Time * **(not supported in the UK)**
15	CM	C		Specimen Source **(not supported in the UK)**
16	XCN	O	Y	Ordering Provider
17	XTN	O	Y/2	Order Callback Phone Number **(not supported in the UK)**
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 +
23	CM	O		Charge to Practice + **(not supported in the UK)**
24	ID	O		Diagnostic Serv Sect ID
25	ID	C		Result Status +
26	CM	O		Parent Result +
27	TQ	O	Y	Quantity/Timing
28	XCN	O	Y/5	Result Copies To
29	CM	O		Parent
30	ID	O		Transportation Mode **(not supported in the UK)**
31	CE	O	Y	Reason for Study
32	CM	O		Principal Result Interpreter +

Seq	HL7 UK data type	R/O/C	RP/#	Element Name
33	CM	O	Y	Assistant Result Interpreter +
34	CM	O	Y	Technician +
35	CM	O	Y	Transcriptionist +
36	TS	O		Scheduled Date/Time +
37	NM	O		Number of Sample Containers * **(not supported in the UK)**
38	CE	O	Y	Transport Logistics of Collected Sample * **(not supported in the UK)**
39	CE	O	Y	Collector's Comment *
40	CE	O		Transport Arrangement Responsibility **(not supported in the UK)**
41	ID	O		Transport Arranged **(not supported in the UK)**
42	ID	O		Escort Required **(not supported in the UK)**
43	CE	O	Y	Planned Patient Transport Comment **(not supported in the UK)**
44	CE	O	N	Procedure Code **(not supported in the UK)**
45	CE	O	Y	Procedure Code Modifier **(not supported in the UK)**
46	CE	O	Y	Placer Supplemental Service Information
47	CE	O	Y	Filler Supplemental Service Information

Field notes

The daggered (+) items in this segment are known to the filler, not the placer. They are valued by the filler, as needed when the OBR segment is returned as part of a report.

The starred (*) fields are only relevant when an observation is associated with a specimen. These are completed by the placer when the placer obtains the specimen. They are completed by the filler when the filler obtains the specimen. OBR:7 - observation date/time and OBR:8 - observation end date/time (flagged with #) are the physiologically relevant times. In the case of an observation on a specimen, this information should be carried in SPM:17. In the case of an observation obtained directly from a subject (eg., BP, Chest X-ray), they represent the start and end time of the observation.

These values shall be returned to the placer in the result transaction (See chapter 7)

4.5.2.1 Set ID - OBR (SI)

For the first order transmitted, the sequence number shall be 1; for the second order, it shall be 2; and so on.

4.5.2.2 Placer order number (EI)

This field is identical to ORC:2 - placer order number.

4.5.2.4 Universal service identifier (CE)

For pathology applications, the Read 'Bounded List' codes[1] should be used where appropriate values are available. For other use, local codes must be agreed as part of the implementation.

4.5.2.7 Observation date/time (TS)

Definition: This field is the clinically relevant date/time of the observation. In the UK, when the OBR is transmitted as part of a report message, the field shall be populated unless the SPM segment is used. In this case, (SPM:17) shall be populated (and take precedence over OBR:7).

4.5.2.8 Observation end date/time (TS)

Definition: This field contains the end date and time of a study or timed specimen collection. In the UK, this should be populated at the ORC level unless the SPM segment is used when the SPM:17 shall carry the information.

4.5.2.9 Collection volume (CQ)

Where SPM is used, the Collection volume shall be carried in Collection amount in SPM:12

4.5.2.12 Danger code (CE)

Where the SPM segment is present, the information shall be recorded in SPM:16

4.5.2.13 Relevant clinical information (ST)

Implementation Guidance

This field should only be used for clinical information that is not a naturally occurring condition for the patient. Thus, it should be used for a disease state or condition, but information such as LMP or Pregnant status should use OBX segments

4.5.2.14 Specimen received date/time (TS)

Information should be carried in SPM:18.

---

1 http://www.connectingforhealth.nhs.uk/systemsandservices/pathology/edifact/technical/standards/bounded/index_html/

4.5.2.15 Specimen source (CM)

Not Supported in the UK Information should be carried in SPM:4, 8 & 9.

4.5.2.16 Ordering provider (XCN)

This shall be populated at the ORC level and be the same for all ORCs in a message as a request may only be for one ordering provider (NHS definition).

4.5.2.17 Order callback phone number (XTN)

Not supported in UK Use ORC:14.

4.5.2.24 Diagnostic Service Sect ID (ID)

Definition: This field is the section of the diagnostic service where the observation was expected to be performed. If the study was performed by an outside service, the identification of that service should be recorded here. Refer to *HL7 Table 0074 - Diagnostic service section ID (UK)* for valid entries.

HL7 Table 0074 - Diagnostic service section ID (UK)

Value	Description
AU	Audiology
BG	Blood Gases
BLB	Blood Bank
BLS	Blood Sciences
CUS	Cardiac Ultrasound
CTH	Cardiac Catheterisation
CT	Computed Tomography
CH	Chemical Pathology
CP	Cytopathology
CPG	Cytopathology – Gynaecological
CPN	Cytopathology – Non-Gynaecological
EC	Electrocardiography
EN	Electroencephalography
HM	Haematology
HP	Histopathology
HPL	Haemophilia Centre
IMM	Immunopathology
LAB	Laboratory (unspecified)
MB	Medical Microbiology

Value	Description
MS	Mortuary Services
NMS	Nuclear Medicine
MRI	Magnetic Resonance Imaging
NP	Neuropathology
OUS	Obstetric Ultrasound
OT	Occupational Therapy
OTH	Other
OSL	Outside Lab
PHR	Pharmacy
PT	Physiotherapy
PF	Respiratory Function
RAD	Radiology
US	Non-obstetric Ultrasound
RT	Clinical Oncology
SR	Serology
TX	Toxicology
VR	Virology

All orders in a message shall be for the same Diagnostic Service.

4.5.2.26 Parent result (CM)

In the UK, only supported for DFT reporting where the placer system can display the results in an appropriate manner.

See chapter 7 for DFT reporting.

4.5.2.27 Quantity/timing (TQ)

Sample related timings are carried in SPM, if present.

Populate date/time at the ORC level.

Where the same priority applies to all order items, the priority shall be carried in the SPM segment where used, otherwise it may be carried in the OBR as different service items may have different requirements.

4.5.2.30 Transportation mode (ID)

Definition: This field identifies how (or whether) to transport a patient, when applicable. Refer to *HL7 Table 0124 - Transportation mode (UK)* for valid codes.

HL7 Table 0124 - Transportation mode (UK)

Value	Description
STR	Stretcher
PRM	Pram
CARR	Carried
INC	Incubator
WLK	Walking
WHLC	Wheelchair
BED	Bed
PORT	Mobile (on ward or away from delivery department)
OTH	Other (*see note below*)

Note:

OTH is a valid code but, if used, the text component shall be populated

4.5.2.32 Principal Result Interpreter (CM)

By local agreement this should be used for either the Authorizer of the results or the responsible party of the service provider.

4.5.2.37 Number of sample containers (NM)

Not supported in the UK. Information should be carried in SPM:26.

4.5.3 SPM: Specimen Segment

SPM represents the attributes specific and unique to a specimen.

Seq	HL7 UK data type	R/O/C	RP/#	Element Name
1	SI	O		Set ID – SPM
2	EIP	O		Specimen ID
3	EIP	O	Y	Specimen Parent Ids
4	CWE	R		Specimen Type
5	CWE	O	Y	Specimen Type Modifier **(not supported in the UK)**
6	CWE	O	Y	Specimen Additives
7	CWE	O		Specimen Collection Method
8	CWE	O		Specimen Source Site
9	CWE	O	Y	Specimen Source Site Modifier

Seq	HL7 UK data type	R/O/C	RP/#	Element Name
10	CWE	O		Specimen Collection Site **(not supported in the UK)**
11	CWE	R	Y	Specimen Role
12	CQ	O		Specimen Collection Amount
13	NM	C		Grouped Specimen Count **(not supported in the UK)**
14	ST	O	Y	Specimen Description
15	CWE	O	Y	Specimen Handling Code
16	CWE	O	Y	Specimen Risk Code
17	DR	O		Specimen Collection Date/time
18	TS	O		Specimen Received Date/time +
19	TS	O		Specimen Expiration Date/time
20	ID	O		Specimen Availability **(not supported in the UK)**
21	CWE	O	Y	Specimen Reject Reason +
22	CWE	O		Specimen Quality **(not supported in the UK)**
23	CWE	O		Specimen Appropriateness **(not supported in the UK)**
24	CWE	O	Y	Specimen Condition +
25	CQ	O		Specimen Current Quantity **(not supported in the UK)**
26	NM	O		Number of Specimen Containers
27	CWE	O		Container Type
28	CWE	O		Container Condition **(not supported in the UK)**
29	CWE	O		Specimen Child Role **(not supported in the UK)**

The daggered (+) items in this segment are known to the filler, not the placer. They are valued by the filler as needed when the SPM segment is returned as part of a report.

Field notes

4.5.3.1 Set ID - SPM (SI)

Definition: This field contains the sequence number. This field is used to identify SPM segment instances in message structures where the SPM segment repeats.

4.5.3.2 Specimen ID (EIP)

Definition: This field contains a unique identifier for the specimen as referenced by the Placer application, the Filler application, or both. It should be used as a mechanism for the identification of a sample as numbered by the sender of the message in the case of Orders.

This field is not required, as there are use cases in which a unique specimen identifier may not exist. In the first scenario, a placer application may initiate an observation request against an existing specimen without uniquely identifying the specimen. Additionally, in the

case of the TCU_U10 message structure, used in Automated equipment test code settings messages, the SPM segment is used to define required characteristics of the specimen. As such, TCU_U10 uses SPM to define a virtual specimen, and a specific specimen ID would not exist. Filler applications would be expected to assign a Specimen ID and populate this field accordingly.

Implementation Guidance

To facilitate grouping of services, it is recommended that this field should be populated by the placer with a Placer Sample number. Where the placer is one laboratory passing work to another, this would be the initiating laboratory number.

4.5.3.3 Specimen Parent IDs (EIP)

Definition: This field contains the identifiers for the specimen or specimens that contributed to the specimen that is described by the segment instance.

If this field repeats, then SPM:11 Specimen Role should be valued with "L" (pooled). The repetitions of this field then carry the specimen IDs of the contributing parent specimens to the pool.

4.5.3.4 Specimen Type (CWE)

Definition: This field describes the precise nature of the entity that is the source material for the observation.

Any physical entity that may have observations made about it may qualify as a specimen. The entry in this attribute describes the specific entity as precisely as possible, whether that is a complex organism (eg., an ostrich) or a specific cellular mass (eg., a specific muscle biopsy).

This attribute corresponds to OBR.15 – Specimen Source and SAC.6 – Specimen Source component 1 – Specimen source name or code. These components, and the SPS data type, were deprecated upon the development of this segment.

- A nationally recognised coding system shall be used, where available, for this field.

4.5.3.6 Specimen Additives (CWE)

Definition: This field identifies any additives introduced to the specimen before or at the time of collection. These additives may be introduced in order to preserve, maintain or enhance the particular nature or component of the specimen. Refer to *HL7 Table 0371 – Additive* for valid values (See HL7 v2.5).

4.5.3.7 Specimen Collection Method (CWE)

Definition: Describes the procedure or process by which the specimen was collected.

A nationally recognised coding system shall be used, where available, for this field. Valid coding sources for this field in the UK are:

- Clinical Terms (Read codes v3)

4.5.3.8 Specimen Source Site (CWE)

Definition: specifies the source from which the specimen was obtained. For example, in the case where a liver biopsy is obtained via a per-cutaneous needle, the source would be 'liver.'

This shall be used to describe the anatomical origin of the sample.

A nationally recognised coding system shall be used, where available, for this field. Valid coding sources for this field in the UK are:

- Clinical Terms (Read codes v3)

4.5.3.9 Specimen Source Site Modifier (CWE)

Definition: This field contains modifying or qualifying description(s) about the specimen source site

The use of this attribute is to modify, qualify or further specify, the entity described by SPM.8 – Specimen Source Site. This is particularly useful when the code set used in SPM.8 does not provide the precision required to fully describe the site from which the specimen originated. For example, if the specimen source site was precisely described as 'left radial vein' but the code set employed only provided 'radial vein,' this attribute could be employed to add the modifier 'left.'

A nationally recognised coding scheme shall be used, where available, for this field eg. Clinical Terms v3 (Read Codes). If such a scheme is not available, user defined values may be used.

Refer to *User-Defined Table 0542 – Specimen Source Type Modifier* for suggested values.

User-defined Table 0542 – Specimen Source Type Modifier

Value	Description	Comment
	No suggested values	

For UK implementations, this shall be used to carry a site qualifier in instances where laterality etc. needs to be included in the request.

4.5.3.11 Specimen Role (CWE)

This field indicates the role of the sample. Refer to *User-defined Table 0369 – Specimen role* for suggested values. Each of these values is normally identifiable by the systems and its components and can influence processing and data management related to the specimen.

If this field is not populated, then the specimen described has no special, or specific, role other than serving as the focus of the observation. Such specimens include patient, environmental and other specimens that are intended for analysis.

A grouped specimen consists of identical specimen types from multiple individuals that do not have individual identifiers and upon which the same services will be performed. If the specimen role value is "G" then the Grouped Specimen Count (SPM:20) must be valued with the total number of specimens contained in the group.

If this field repeats, then SPM:11 Specimen Role should be valued with "L" (pooled). The repetitions of this field then carry the specimen IDs of the contributing parent specimens to the pool.

User-defined Table 0369 - Specimen Role

Value	Description
B	Blind Sample
C	Calibrator, used for initial setting of calibration
E	Electronic QC, used with manufactured reference providing signals that simulate QC results
F	Specimen used for testing proficiency of the organization performing the testing (Filler)
G	Group (where a specimen consists of multiple individual elements that are not individually identified) **(not supported in the UK)**
L	Pool (aliquants/aliquots of individual specimens combined to form a single specimen representing all of the components.)
O	Specimen used for testing Operator Proficiency
P	Patient
Q	Control specimen
R	Replicate
V	Verifying Calibrator, used for periodic calibration checks

4.5.3.12 Specimen Collection Amount (CQ)

Definition: This field specifies the volume or mass of the collected specimen. For laboratory tests, the collection volume is the volume of a specimen. Specifically, units should be expressed in the ISO Standard unit abbreviations (ISO-2955, 1977). This is a results-only field except when the placer or a party has already drawn the specimen. (See Chapter 7 for full details about units.)

This replaces the Sample Volume field in ORC

4.5.3.14 Specimen Description (ST)

Definition: This is a text field that allows additional information specifically about the specimen to be sent in the message

4.5.3.15 Specimen Handling Code (CWE)

Definition: This describes how the specimen needs to be stored during collection, in transit, and upon receipt. As this field is not required, no assumptions can be made as to meaning when this field is not populated.

User-defined Table 0376 - Special handling considerations

Code	Description	Comment/Usage Note/Definition
C37	Body temperature	Critical to keep specimen at body temperature: 36 - 38°C.
AMB	Ambient temperature	Keep specimen at ambient (room) temperature, approximately 22 ± 2°C. Accidental refrigeration or freezing is of little consequence
CAMB	Critical ambient temperature	Critical ambient – specimen must not be refrigerated or frozen.
REF	Refrigerated temperature	Keep specimen at refrigerated temperature: 4-8°C. Accidental warming or freezing is of little consequence
CREF	Critical refrigerated temperature	Critical refrigerated – specimen must not be allowed to freeze or warm until immediately prior to testing
FRZ	Frozen temperature	Keep specimen at frozen temperature: -4°C. Accidental thawing is of little consequence
CFRZ	Critical frozen temperature	Critical frozen – specimen must not be allowed to thaw until immediately prior to testing
DFRZ	Deep frozen	Deep-frozen: -16 to -20°C.
UFRZ	Ultra frozen	Ultra cold frozen: ~ -75 to -85°C. (ultra cold freezer is typically at temperature of dry ice).
NTR	Liquid nitrogen	Keep specimen in liquid nitrogen.
PRTL	Protect from light	Protect specimen from light (eg. wrap in aluminum foil).
CATM	Protect from air	Critical. Do not expose specimen to atmosphere. Do not uncap.
DRY	Dry	Keep specimen in a dry environment.
PSO	No shock	Protect specimen from shock.
PSA	Do not shake	Do not shake specimen.
UPR	Upright	Keep specimen upright. Do not turn upside down.
MTLF	Metal Free	Specimen container is free of heavy metals including lead.

4.5.3.16 Specimen Risk Code (CWE)

Definition: This field contains any known or suspected specimen hazards, eg., exceptionally infectious agent or blood from a hepatitis patient. Either code and/or text may be absent. However, the code is always placed in the first component position and any free text in the second component. Thus, a component delimiter must precede free text without a code. . Refer to *User-defined Table 0489 – Risk Codes* for suggested entries

User-defined Table 0489 – Risk Codes

Code	Description	Comment/Usage Note/Definition
BIO	Biological	The dangers associated with normal biological materials. ie. potential risk of unknown infections. Routine biological materials from living subjects.
COR	Corrosive	Material is corrosive and may cause severe injury to skin, mucous membranes and eyes. Avoid any unprotected contact.
ESC	Escape Risk	The entity is at risk for escaping from containment or control.
AGG	Aggressive	A danger that can be associated with certain living subjects, including humans.
IFL	Material Danger Inflammable	Material is highly inflammable and in certain mixtures (with air) may lead to explosions. Keep away from fire, sparks and excessive heat.
EXP	Explosive	Material is an explosive mixture. Keep away from fire, sparks, and heat.
INF	Material Danger Infectious	Material known to be infectious with human pathogenic microorganisms. Those who handle this material must take precautions for their protection.
BHZ	Biohazard	Material contains microorganisms that are an environmental hazard. Must be handled with special care.
INJ	Injury Hazard	Material is solid and sharp (eg., cannulas.) Dispose in hard container.
POI	Poison	Material is poisonous to humans and/or animals. Special care must be taken to avoid incorporation, even of small amounts.
RAD	Radioactive	Material is a source for ionizing radiation and must be handled with special care to avoid injury of those who handle it and to avoid environmental hazards.

4.5.3.17 Specimen Collection Date/Time (DR)

Definition: The date and time when the specimen was acquired from the source. The use of the Date Range data type allows for description of specimens collected over a period of time, for example, 24-hour urine collection. For specimens regarded as "collected at a point in time", the first component (start date/time) only will be populated.

4.5.3.18 Specimen Receive Date/Time (TS)

Definition: The specimen-received date/time is the time that the specimen is received at the diagnostic service. The actual time that is recorded is based on how specimen receipt is managed and may correspond to the time the sample is logged in. This is fundamentally different from SPM:17 Specimen Collection date/time.

4.5.3.19 Specimen Expiration Date/Time (TS)

Definition: This field is the date and time the specimen can no longer be used. For example, in the Blood Banking environment the specimen can no longer be used for pre-transfusion compatibility testing.

4.5.3.21 Specimen Reject Reason (CWE)

Definition: This describes one or more reasons the specimen is rejected for the specified observation/result/analysis. Refer to *HL7 Table 0490 – Specimen Reject Reason* for valid values.

This field shall be populated by the Filler where the information needs to be conveyed back to the Placer.

HL7 Table 0490 – Specimen Reject Reason

Value	Description
EX	Expired
QS	Quantity not sufficient
RB	broken container
RC	Clotting
RD	missing collection date
RA	missing patient ID number
RE	missing patient name
RH	Hemolysis
RI	Identification problem
RM	Labeling
RN	Contamination
RP	missing phlebotomist ID,
RR	improper storage
RS	name misspelling

4.5.3.24 Specimen Condition (CWE)

Definition: A mode or state of being that describes the nature of the specimen

User-defined Table 0493 - Specimen Condition

Value	Description
AUT	Autolyzed
CLOT	Clotted
CON	Contaminated
COOL	Cool
FROZ	Frozen
HEM	Hemolyzed
LIVE	Live
ROOM	Room temperature
SNR	Sample not received

4.5.3.26 Number of Specimen Containers (NM)

Definition: This field identifies the number of containers for a given sample. For sample receipt verification purposes; may be different from the total number of samples that accompany the order.

4.5.3.27 Container Type (CWE)

Definition: The container in or on which a specimen is transported.

A national code scheme should be used for this where available.

4.5.3.28 Container Condition (CWE)

Not supported in the UK. SPM:24 may be used to convey issues with containers in which samples are transported.

4.6 General Message Examples

The purpose of this section is to show how certain specific situations shall be handled using the order entry protocol. The ellipses represent uncompleted details. The symbol // precedes comments for clarification.

Parent/Child is presented first to preserve the US format. It is followed by general examples of use.

4.6.1 Parent and Child Orders (DFTs)

Parent and Child orders are supported for Dynamic Function Tests only or multiple procedures on an order where the placer system is capable of displaying the results in an appropriate manner.

Where the placer cannot manage an appropriate display of discrete values, DFTs shall be reported as a text block

Parent/Child orders, where used, shall be managed in the following manner.

A Placer system shall submit a single order for a Dynamic Function Test. That order shall be expanded by the filler on receipt of samples to add a child for each sample that is part of the DFT.

Because the LAB application must turn the single order above into three orders for three separate Glucose analyses (services), the results of each shall be reported under its own OBR segment. Several response levels are possible depending on the Response Flag:

a) If the Response Flag is N (as it is), then the filler LAB application only responds "I got the order."

```
MSH|...
MSA|...
```

The only implication of this response is that the order was received.

b) If the Response Flag were R, then the filler LAB application must communicate to the PC the fact of the creation of child orders, but with no details:

```
MSH|...
MSA|...
ORC|PA|A226677^HISS|C.02.002299^LAB|946281^PC
ORC|CH|A226677^HISS|C.02.002301^LAB|946281...     // 1st child ORC
ORC|CH|A226677^HISS|C.02.002302^LAB|946281...     // 2nd child ORC
ORC|CH|A226677^HISS|C.02.002303^LAB|946281...     // 3rd child ORC
...                                               // Other parts follow
```

What has been said here is "Three child orders named C.02.002301, C.02.002302, and C.02.002303 have been created from Order A226677." Notice that the placer order numbers are identical in the children's ORCs.

c) If the Response Flag were D, then the filler LAB application must communicate to the PC application the fact of the replacement and also the exact replacement order segments. Where Parent/Child orders are not supported, the filler shall manage all samples internally and report the DFT as a Text report against the single order item.

On completion, work shall be reported as a series of Child orders against the parent

```
MSH|...
PID|...
```

```
SPM|S0018822^HISS|C.02.002299^LAB|B^Blood^L||||V^Venous^L|||||||
 |HB^Hepatitis Risk^L|200203290800|200203291100||||||||1|FL^Fluo
 ride^L|
ORC|PA|A226677^HISS|C.02.002299^LAB|...       // original order's ORC
OBR|1|A226677^HISS|C.02.002299^LAB|44V..^Glocose Tolerance
 Test^RD|...                                   // original order segment
ORC|CH|A226677^HISS|C.02.002301^LAB|...       // 1st child ORC
OBR|1|A226677^HISS|C.02.002301^LAB|44f..^Serum Glucose Level^RD|
 ||200203290800|...                           // 1st child OBR
OBX|1|SN|44f..^Serum Glucose Level^RD||3.56|mmol/l|4.7-6.1|L|||F
 |||200203290800|...                         // 1st Glucose result
ORC|CH|A226677^HISS|C.02.002299^LAB|...       // 2nd child ORC
OBR|1|A226677^HISS|C.02.002299^LAB|44f3.^30 Min Serum Glucose Le
 vel|||2002032908030|...                      // 2nd child OBR
OBX|1|SN|44f3.^30 Min Serum Glucose Level||5.77|mmol/l|4.7-6.1|L
 |||F|||200203290830|...                      // 2nd Glucose Result
ORC|CH|A226677^HISS|C.02.002299^LAB|...       // 3rd child ORC
OBR|1|A226677^HISS|C.02.002299^LAB|44f4.^60 Min Serum Glucose Le
 vel|||2002032908900|...                      // 3rd child OBR
OBX|1|SN|44f4.^60 Min Serum Glucose Level ||4.56|mmol/l|4.7-6.1|
 L|||F|||2002032908900|...                    // 3rd Glucose Result
OBX|2|ST|COM^Comment^L||No evidence of unusual response to chall
 enge|||||||F||                               //Comment
...                                           //Other parts might follow
```

Reporting as a series of 'Child' orders requires that the placer system shall have the capability of presenting the GTT to the user in an appropriate manner. The SPM segment, if used (see chapter 7), shall allow for the transmission of the Sample timing.

Reported as a single text report against the Placer Number

```
MSH|...
PID|...
SPM|1|
OBR|1|A226677^HISS|C.02.002299^LAB|44V..^Glucose Tolerance Test^
 RD||...                                      // original order segment
OBX|1|ST|     Glucose  0 mins    2.4 mmol/l  // report
OBX|2|ST|     Glucose 15 mins    7.5 mmol/l
OBX|3|ST|     Glucose 30 mins    5.3 mmol/l
OBX|4|ST|     Glucose 45 mins    5.1 mmol/l
OBX|5|ST|     Glucose 60 mins    5.1 mmol/l
OBX|6|ST|     No evidence of diabetes
```

As both these mechanisms can be supported, it is essential that agreement be reached between communicating parties as to the one to be implemented on a particular link.

4.6.2 General examples

The purpose of this section is to show how certain specific situations are handled using the order entry protocol. The ellipses represent uncompleted details. The symbol // precedes comments for clarification.

Laboratory message examples: U&E

Request:-

```
MSH|...
PID|...
PD1|...
PV1|...
//Urea & Electrolytes://
SPM|0018825^HISS|C.02.002283^LAB|B^Blood^L|||V^Venous^L|||||||||
 HB^Hepatitis Risk^L|200212060930|...
ORC|NW|0018825^HISS|||||^^^^^R
OBR|1|0018825^HISS|CM3562^LAB|44JB^Urea & Electrolytes^RD||...
```

Result:-

```
MSH|...
PID|...
PD1|...
PV1|...
//Urea & Electrolytes://
SPM|0018825^HISS|C.02.002283^LAB|B^Blood^L|||V^Venous^L|||||||||
 HB^Hepatitis Risk^L|200212060930|...
OBR|1|0018825^HISS|CM3562^LAB|44JB^Urea & Electrolytes^RD||...
OBX|1|NM|44I5.^SODIUM^RD||140|mmol/L|136-148|N|||F|...
OBX|2|NM|44I4.^POTASSIUM^RD||5.8|mmol/L|3.5-5|H|||F|...
OBX|3|NM|44J9.^UREA^RD||3.5|mmol/L|2.4-3.4|N|||F|...
OBX|4|NM|44J3.^CREATININE^RD||27|mmol/L|45-120|N|||F|...
```

FBC & ESR

Request: -

```
MSH|...
PID|...
SPM|S0018830^HISS||B^Blood^L|||V^Venous^L|||||||||HB^Hepatitis R
 isk^L|200203290800|||||||||2|SEQ^Sequesterine|
```

Same sample but 2 containers supplied

```
//FBC://
ORC|NW|0018831^HISS|||||^^^^^R
OBR|1|0018826^HISS||424..^Full Blood Count (FBC)^RD||...
//ESR://
ORC|NW|0018827^HISS|||||^^^^^R
OBR|2|0018827^HISS||42B6.^Erythrocyte Sedimentation Rate^RD||...
```

Result:-

```
MSH|...
PID|...
SPM|S0018830^HISS||B^Blood^L|||V^Venous^L|||||||||HB^Hepatitis R
 isk^L|200203290800|200203291100||||||||2|SEQ^Sequesterine|
//FBC://
OBR|1|0018826^HISS|HEM3269^LAB|424..^Full Blood Count (FBC)^RD||
 ...
OBX|1|NM|423..^Haemoglobin^RD||13.4|GM/DL|14-18|N|||F|||||||200
 203291130|...
OBX|2|NM|425..^Haematocrit - PCV^RD||40.3|%|42-52|L|||F|||||||2
 00203291130|...
OBX|3|NM|426..^RBC - Red Blood Cell Count^RD||4.56|10*6/ml|4.7-6
 .1|L|||F|||||||200203291130|...
OBX|4|NM|42A..^Mean Corpuscular Volume (MCV)^RD||88|fl|80-94|N||
 |F|||||||200203291130|...
OBX|5|NM|428..^Mean Corpusc. Haemoglobin (NCH)^RD||29.5|pg|27-31
 |N|||F|||||||200203291130|...
OBX|6|NM|429..^Mean Corpusc. Hb. Conc. (MCHC)^RD||33|%|33-37|N||
 |F|||||||200203291130|...
OBX|7|NM|42H..^Total White Cell Count^RD||10.7|10*3/ml|4.8-10.8|
 N|||F|||||||200203291130|...
OBX|8|NM|42b0.^Percentage Neutrophils^RD||68|%|||||F|||||||||200
 203291130|...
OBX|9|NM|42b1.^Percentage Lymphocytes^RD||29|%|||||F|||||||2002
 03291130|...
OBX|10|NM|42b2.^Percentage Monocytes^RD||1|%|||||F|||||||200203
 291130|...
OBX|11|NM|42b9.^Percentage Eosinophils^RD||2|%|||||F|||||||2002
 03291130|...
//ESR://
OBR|2|0018827^HISS|HEM3270^LAB|42B6.^Erythrocyte sedimentation r
 ate^RD||...
OBX|1|NM|42B6.^Erythrocyte sedimentation rate^RD||7|MM/HR|0-10|N
 |||F|||||||200203291130|...
```

Urine Culture

Requests for Microbiology are the same as those for other disciplines but may result in a Text report.

Text results are transmitted using repeating OBX segments for each line of a report. The line length may be restricted such that each OBX does not wrap into another line. This may be a requirement where there is a need to retain the positional format of a report and is particularly true where columns are used. The line length will be agreed between parties and a non-proportional font used.

Request:-

```
MSH|...
```

```
PID|...
PV1|...
SPM|10099288^HISS|UR^Urine^L|MS^Mid-Stream^L||CC^Clean Catch^L||
 |||||||HB^Hepatitis Risk^L|200212060930|||||||||1|SU^Sterile Un
 iversal^L|
ORC|NW|P8754^HISS|||||^^^^^R
OBR|2|P8754^HISS||UC^Urine Culture^1|...
```

Result: -

```
SPM|10099288^HISS^U.02.000876^LAB|UR^Urine^L|MS^Mid-Stream^L||CC
 ^Clean Catch^1|||||||||HB^Hepatitis Risk^L|200212060930|||||||
 |1|SU^Sterile Universal^L|
OBR|2|P8754^HISS|M.02.1501^MIC|UC^Urine Culture^1|...
OBX|1|TX|REP^Microbiology Report|1|Microscopy: -|||A|||F|...
OBX|2|TX|REP^Microbiology Report|1|      White Cells: - > 100/hp
 f|||A|||F|...
OBX|3|TX|REP^Microbiology Report|1|        Red Cells: - Nill|||A
 |||F|...
OBX|4|TX|REP^Microbiology Report|1|            Casts: -Nill seen
 |||A|||F|...
OBX|5|TX|REP^Microbiology Report|1|Culture: -|||A|||F|...
OBX|6|TX|REP^Microbiology Report|1|Heavy growth of > 10*5 Organi
 sms/ml: -|||A|||F|...
OBX|7|TX|REP^Microbiology Report|1| |||A|||F|...
OBX|8|TX|REP^Microbiology Report|1|Culture: -
        Sensitivity|||A|||F|...
OBX|9|TX|REP^Microbiology Report|1|1) Escherichia coli: -
          1|||A|||F|...
OBX|10|TX|REP^Microbiology Report|1|                    Ampicil
 lin      S|||A|||F|...
OBX|11|TX|REP^Microbiology Report|1|                     Cephal
 ixin      S|||A|||F|...
OBX|12|TX|REP^Microbiology Report|1|                     Ciprof
 loxacin   S|||A|||F|...
OBX|13|TX|REP^Microbiology Report|1|                     Nitrof
 urantoin  R|||A|||F|...
OBX|14|TX|REP^Microbiology Report|1||||A|||F|...
OBX|15|TX|REP^Microbiology Report|1|Comment: -|||A|||F|...
OBX|16|TX|REP^Microbiology Report|1|Please repeat after completi
 on of a course of antibiotics. |||A|||F|...
OBX|17|TX|REP^Microbiology Report|1|The course must be completed
  at least 2 days prior to |||A|||F|...
OBX|18|TX|REP^Microbiology Report|1|collection of a new sample||
 |A|||F|...
```

Where reported as discrete values, the mechanism for reporting Isolates uses the sub-identifier in the OBX segments to link together the isolate and observations relating to it.

```
PID...
```

```
SPM|10099288^HISS|UR^Urine^L|MS^Mid-Stream^L||CC^Clean Catch^l||
 |||||||HB^Hepatitis Risk^L|200212060930|||||||||1|SU^Sterile Un
 iversal^L|
OBR|1|849||4J15.^Sample: Organism Sensitivities^RD|||||||||| 200
 209271140|MSU^MID-STREAM
OBX|1|CE|ORG^ORGANISM^L|02-100987|ECOL^ESCHERICHIA COLI^L||||||F
 ||||||||200209281532|
OBX|2|CE|CEPH^CEPHALOTHIN^L|02-100987|S^SUSCEPTIBLE^L||||||F||||
 ||D^DISK^L||200209281532|
OBX|3|CE|TET^TETRACYCLINE^L|02-100987|R^RESISTANT^L||||||F||||||
 D^DISK^L||200209281532|
OBX|4|CE|ORG^ORGANISM^L|02-100966|NHS^NON-HAEMOLYTIC STREPTOCOCC
 US^L||||||F||||||D^DISK^L||200209281532|
OBX|5|CE|CEPH^CEPHALOTHIN^L|02-100966|S^SUSCEPTIBLE^L||||||F||||
 ||D^DISK^L||200209281532|
OBX|6|CE|TET^TETRACYCLINE^L|02-100966|R^RESISTANT^L||||||F||||||
 D^DISK^L||200209281532|
OBX|7|CE|GM^GENTAMICIN^L|02-100966|R^RESISTANT^L||||||F||||||D^D
 ISK^L||200209281532|
```

The test code will be used in the fashion of LOINC codes such that there is a unique code for each Test/method. This allows the reporting of Sensitivities, Zone sizes and MICs using different test identifiers. The use of OBX:17 for Method is optional.

4.6.3 Radiology Requests

In a simple case, a single attendance has a single procedure requested. This will result in a single section of authorized text in the corresponding report.

```
PID
OBR|1|ORDR1^|288852^RAD|^CHEST^Local_RAD
OBX|1|FT|^CHEST^HIS^^^||CHEST -~Heart size normal.
```

In a more complex case, a single attendance may be booked, containing three ordered procedures.
Procedure one: Chest Xray, order ORDR1.
Procedure two: Abdomen, Order ORDR2.
Procedure three: Pelvis, Order ORDR3.

This can result in a single report, covering all three procedures.Three different HL7 messages can then be produced, containing the same report text for all three procedures.

```
PID
OBR|1|ORDR1^|288852^RAD|^CHEST^Local_RAD
OBX|1|FT|^CHEST^HIS^^^||CHEST -~Heart size normal.~~ABDOMEN -~~B
  owel gas pattern normal..~~~~~~~~PELVIS ~ No evidence of injur
  y seen

PID
OBR|1|ORDR2^|288852^RAD|^ABDOMEN^Local_RAD
```

```
OBX|1|FT|^ABDOMEN^HIS^^^||CHEST -~Heart size normal.~~ABDOMEN -~
  ~Bowel gas pattern normal..~~~~~~~~~PELVIS ~ No evidence of inj
  ury seen

PID
OBR|1|ORDR3^|288852^RAD|^PELVIS^Local_RAD
OBX|1|FT|^PELVIS^HIS^^^||CHEST -~Heart size normal.~~ABDOMEN -~~
  Bowel gas pattern normal..~~~~~~~~~PELVIS ~ No evidence of inju
  ry seen
```

Alternatively, the report can be handled thus: -

As above, a single attendance may be booked, containing three ordered procedures.
Procedure one: Chest Xray, order ORDR1.
Procedure two: Abdomen, Order ORDR2.
Procedure three: Pelvis, Order ORDR3.

A single report can be produced, again covering all three procedures. However, in this example the report is carried in a single message.

```
PID
OBR|1|ORDR1^|288852^RAD|^CHEST^Local_RAD
OBR|2|ORDR2^|288852^RAD|^ABDOMEN^Local_RAD
OBR|3|ORDR3^|288852^RAD|^PELVIS^Local_RAD
OBX|1|FT|288852^^RAD^^^||CHEST -~Heart size normal.~~ABDOMEN -~~
  Bowel gas pattern normal..~~~~~~~~~PELVIS ~ No evidence of inju
  ry seen
```

Where structured reports are required, suffixes to OBX:3 are used to identify different segments of a report and sub-identifiers in OBX:4 used to link OBX segments together. Where there are multiple OBX segments for the same suffix, the sub-identifier maintains the order by using an n.n format.

```
PID
OBR 'request for examination'
OBX|1|CE|880304&ANT|1|T57000^GALLBLADDER^SNM|
OBX|2|TX|880304&GDT|1|THIS IS A NORMAL GALL BLADDER|
OBX|3|TX|880304&MDT|1|MICRO EXAMINATION SHOWS NORMAL TISSUE|
OBX|4|CE|880304&IMP|1|M-00100^NML^SNM|
OBX|5|CE|880304&ANT|2|T57000^APPENDIX^SNM|
OBX|6|TX|880304&GDT|2|THIS IS A RED, INFLAMED APPENDIX|
OBX|7|TX|880304&MDT|2|INFLAMMATION WITH MANY PUS CELLS|
OBX|8|CE|880304&IMP|2.1|M-40000^INFLAMMATION NOS^SNM|
OBX|9|CE|880304&IMP|2.2|M-30280^FECALITH^SNM|
```

4.7 Open Issues

None

Chapter 5 - Query

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5.1 Purpose

This chapter deals with query messages and the responses to them. A query may be formulated to request data about single patients, groups of patients or data that is not directly patient–related; it will require parameters that may be simple or complex and the response to the query will be in the form of one of many 'possibles' – in terms both of content and format. Indeed there is no practical limit to the number of query/response pairs that could be devised, a fact recognized by HL7 in the changes made to the standard in version 2.4. In place of the prescription of earlier versions, the standard has adopted an approach based on 'Conformance Statements'. A conformance statement is "a declaration that sets forth the name of the query supported by the Server, the logical structure of the information that can be queried, and the logical structure of what can be returned". The intention is that such statements will be published by system suppliers (according to the guidelines set out in the standard). In addition the standard supports earlier formats ("original" and "enhanced" mode query/response pairs) and also publishes a number of Conformance Statements for the most commonly used query/response interactions.

5.2 Terminology

The following definitions are used throughout this chapter:

5.2.1 Enhanced Mode Queries

In HL7 V2.3, "enhanced mode queries" were introduced to provide a much higher level of precision in queries than was available in the earlier "original mode queries" (see below). In particular it introduced new ways of specifying a query rather than passing simple parameters. These included Embedded Query Language (e.g. SQL) queries, virtual table request queries, stored procedure requests and event replay requests.

5.2.2 Original Mode Queries

Prior to HL7 V2.3 the QRD and QRF segments carried the parameters of an HL7 query. These segments were intended for use by all queries so the content of these segments could only be loosely defined. Such "original mode queries" actually represent just a starting point for defining queries.

5.2.3 Query

An HL7 formatted request for data.

5.2.4 Record format

Query responses sent in HL7 message format specific to a functional area such as ADT, Order, Response, or Master File.

5.2.5 Requesting system

The system that originates a query.

5.2.6 Response

An HL7 formatted message returned in response to a query.

5.2.7 Responding system

The system that returns a response to a query.

5.3 Rules/constraints

The overall approach to query/response messaging is as follows:

- Those original and enhanced mode queries known to be in use in the UK are retained for backward compatibility only. These are indicated in the table in section 5.4.1.

Note:

A consultation exercise was undertaken with HL7 UK members prior to the publication of this chapter to establish use of original and enhanced mode queries.

- The table in section 5.4.1 also indicates which of the conformance statements set out in the HL7 V2.4 Standard are supported in the UK. The term "supported in the UK" means that the conformance statement should be used exactly as stated in the HL7 V2.4 Standard, with the proviso that the use in a query or response message of any HL7

segment is in accordance with the UK Standard.
For example, the PID-2 patient ID field is declared in chapter 3 as "not supported in the UK", and this stricture applies to any query or response message that may make use of the PID segment.

- Any UK suppliers wishing to publish a Conformance Statement to describe an interface, the function of which is not covered by any existing Conformance Statement, should do so in the way described in Chapter 5 of the HL7 V2.4 Standard.

Implementation Guidance

It is strongly recommended that any Conformance Statements published for use in the UK should be submitted to HL7 UK. HL7 UK will include UK specific Conformance Statements in an appendix to future versions of this document. The availability of a Conformance Statement library should prevent an unnecessary proliferation of such Statements and promote a consistent approach to the use of Query messages.

Submission and Publication of Conformance Statements is subject to the following:

- *Publication will not imply certification of the statement by HL7 UK.*
- *HL7 UK reserves the right not to publish any Conformance Statement that in its opinion does not follow the design guidelines set out in the HL7 v2.4 Standard.*
- *It is a condition of submission that other parties may freely use the Conformance Statement in the development and implementation of HL7 interfaces.*

5.4 Trigger events & message definitions

5.4.1 Summary of pre-defined query and response messages

The following chart summarizes the query and response messages defined in chapter 5 of the HL7 standard, and their status in the UK:

Description	Query	Response	Response type	Defining segment(s)	HL7 V2.4 Section no.	UK status
Cancel query	QCN				5.4.6	S
Embedded query language query	EQQ		Enhanced mode (superceded)	EQL	5.10.2.0	N
Query By Parameter	QBP			QPD	5.4.1, 5.4.2, 5.4.3	S
Query, original Mode	QRY		Original mode (superceded)	QRD/QRF	5.10.2	N
Event Replay Query	RQQ		Enhanced mode (superceded)	ERQ	5.10.4.2	N
Stored procedure request	SPQ		Enhanced mode (superceded)	SPR	5.10.4.3	N

Description	Query	Response	Response type	Defining segment(s)	HL7 V2.4 Section no.	UK status
Virtual Table query	VQQ		Enhanced mode (superceded)	VTQ	5.10.4.4	N
Display response		RDY	Display	DSP	5.4.3	S
Enhanced display response		EDR	Enhanced mode (superceded)	DSP	5.10.4.0, 5.10.4.3, 5.10.4.4	N
Event replay response		ERP	Enhanced mode (superceded)	ERQ	5.10.4.2, 5.10.4.3	N
Response Segment Pattern		RSP	Segment pattern		5.4.1,	S
Response tabular		RTB	tabular	RDF/RDT	5.4.2,	S
Tabular Data Response		TBR	tabular	RDF/RDT	5.10.4.4	S
Unsolicited display message	UDM		Display (superceded)	URD/URS	5.10.1.2	N

The following chart delineates the query/response messages defined in the functional chapters of the HL7 standard:

Description	Query	Response	Response type	Defining segment(s)	HL7 V2.4 Section no.	UK status
ADT response	QRY^A19	ADR^A19	Original mode	QRD/QRF	3.3.19	B
Allocate identifiers	QBP^Q24	RSP^K24	Segment pattern	QBP	3.3.59	S
Ancillary RPT (display) (for backward compatibility only)		ARD	Original mode		7	N
Find candidates	QBP^Q22	RSP^K22	Segment pattern	QBP	3.3.57	S
Get corresponding identifiers	QBP^Q23	RSP^K23	Segment pattern	QBP	3.3.58	S
Get person demographics	QBP^Q21	RSP^K21	Segment pattern	QBP	3.3.56	S
Order status query/ Order status response	OSQ^Q06	OSR^Q06	Original mode	QRD/QRF	4.4.3	N
Pharmacy administration information	QRY^Q27	RAR^RAR	Original mode	QRD/QRF	4.13.14	N
Master files query	MFQ		Original mode		8.4.3	N
Master files query response		MFR	Original mode		8.43	N
Personnel information	QBP^Qnn	RSP^Knn	Segment pattern	QBP	15.3.7	X

Description	Query	Response	Response type	Defining segment(s)	HL7 V2.4 Section no.	UK status
Pharmacy dispense information	QRY^Q28	RDR^RDR	Original mode	QRD/QRF	4.13.15	N
Pharmacy dose information	QRY^Q30	RGR/RGR	Original mode	QRD/QRF	4.13.17	N
Pharmacy encoded order information	QRY^Q29	RER^RER	Original mode	QRD/QRF	4.13.16	N
Pharmacy prescription order response	QRY^Q26	ROR^ROR	Original mode	QRD/QRF	4.13.13	N
Request clinical information	RQC^I05		Original mode	QRD/QRF	11.3.5	N
Results of observation, query for	QRY^R02	ORF^R04	Original mode	QRD/QRF	7.2.2	N
Return Clinical Information		RCI^I05	Original mode	QRD/QRF	11.2.5	N
Return Clinical List		RCL^I06	Original mode	QRD/QRF	11.3.6	N
Return patient referral	RRI		Original mode		11.5	N
Return patient referral		RRI	Original mode		11.5	N
Schedule query	SQM		Original mode		10.5.3	N
Schedule query response		SQR	Original mode		10.5.3	N
Query for vaccination record	VXQ^V01		Original mode		4.17.3	N
Vaccination query record response		VXR^V03	Original mode		4.17.5	N
Vaccination query response with multiple PID matches		VXX^V02	Original mode		4.17.4	N

Key to UK status symbols:

S Supported in the UK
B Supported in the UK for backward compatibility only
N Not supported in the UK
X Outside the functional areas specifically covered by the UK Standard.

5.5 Use cases & general models

Specific use cases are described (where relevant) in functional sections, as referred to in the tables in section 5.4.

5.6 Segment definitions

There are no segments within the scope of this chapter that have been added or changed for use within the UK.

5.7 Data control

There are no data control issues within the scope of this chapter that are specific to UK usage of HL7.

5.8 Open issues

None.

Chapter 6 - Finance

Until this chapter has been reviewed by HL7 UK, implementations should use ‘HL7 2.4 or later’.

Chapter 7 - Observation Reporting

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7.1 Purpose

This document describes the standard for the use of HL7 v2 for Orders and Observations in the UK. Where areas of HL7 v2.5 have been pre-adopted, full definitions have been included in this chapter. This standard allows compliance with the NHS definition of a 'Request' as presented in the NHS Data Dictionary & Manual.

This chapter only specifically covers Laboratory and Diagnostic Imaging and should be read in conjunction with the full HL7 2.4 standard.

Specific UK requirements for the transfer of wave form data have not been considered for this version of the UK Standard and the provisions of HL7 2.4 should be used until UK requirements are considered in a future version of this document.

7.2 Terminology

There are a number of differences in definition and interpretation of specific words and phrases between the US and the UK. Where there is a serious risk of confusion, Appendix B contains the definition to be used when interpreting this document. Where there is no specific UK definition, any definition provided in HL7 2.4 should be used.

Users of this Standard are strongly recommended to check the list of words and phrases listed in Appendix B before reading the rest of the document.

7.3 Trigger events and message definitions

7.3.1 ORU – unsolicited observation message (event code R01)

The ORU message shall be used for transmitting results to other systems where Specimen information is not necessary. The OUL message shall be used to accommodate the laboratory processes of laboratory automation systems or where specimen information is required to be exchanged.

With the type (OBX) defined in this chapter, and the OBR defined in Chapter 4, one can construct almost any clinical report as a 3-level hierarchy, with the PID segment defined in Chapter 3 at the upper level, an order record (OBR) at the next level and one or more observation records (OBX) at the bottom.

One result segment (OBX) is transmitted for each component of a diagnostic report, such as an EKG or obstetrical ultrasound or electrolyte battery.

The CTD segment in this trigger is used to transmit temporary patient contact details specific to this order.

ORU^R01	Unsolicited Observation Message	Chapter
MSH	Message Header	2
{		
[		
PID	Patient Identification	3
[PD1]	Additional Demographics	3
[{NK1}]	Next of Kin/Associated Parties	3
[{NTE}]	Notes and Comments (for Patient ID)	2
[		
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Info	3
]		
]		
{		
[ORC]	Order common	4
OBR	Observations Report ID	7
{[NTE]}	Notes and comments (for Detail)	2
[CTD]	Contact Data	11
{		
[OBX]	Observation/Result	7
{[NTE]}	Notes and comments	2
}		
[{FT1}]	Financial Transaction (**Not supported in the UK)**	6
{[CTI]}	Clinical Trial Identification	7
}		
}		
[DSC]	Continuation Pointer	2

ACK^R01	Acknowledgment	Chapter
MSH	Message header	2
MSA	Message acknowledgment	2

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. Many report headers (OBR) may be sent beneath each patient segment, with many separate observation segments (OBX) beneath each OBR. Note segments (NTE) may be inserted after any of the above segments. The note segment applies to the entity that immediately precedes it, i.e., the patient if it follows the PID segment, the observation if it follows the OBR segment and the individual result if it follows the OBX segment.

A Report transaction shall be limited to a single patient. Multiple requested items in OBR (batteries) segments may be repeated for each Specimen with multiple OBX segments for each OBR.

Comments may be sent as a Note (NTE) at the appropriate level. Test/result comments shall not be sent as an observation value with the same value as the test code. For example, there have been instances where the same Observation code such as Sodium (Read 44I5.) is used to report the numerical value in one OBX and a comment on the test in a second OBX.

7.3.2 QRY/ORF – query for results of observation (event codes R02 and R04)

The query response format options are described in chapter 5, Section 5.2.4 “Response format”.

7.3.22 OUL – unsolicited laboratory observation message (event code R22)

7.3.22.1 Unsolicited Specimen-centric Observation Message

This message was designed to accommodate specimen-centric testing as opposed to previous HL7 constructs which were order-centric. It should be applicable to testing where there is no container (eg. elephant on a table) and laboratory automation systems requiring container.

Generally this construct allows transfer of multiple results related to a specimen from a patient, where this specimen has been in none, one, or multiple containers.

In addition to the patient related results themselves, it permits the communication of the following kinds of information:

- Analysis results of a non patient related Specimen (e.g., environmental) – patient related segments (e.g., PID, PD1, PV1, PV2) are optional

Note:

Provisions in the HL7 2.5 standard relating to use of the SAC segment are not supported in the UK.

Refer to Draft HL7 v2.5 Chapter 13 Laboratory Automation for examples of usage.

OUL^R22	Unsolicited Specimen-centric Observation Message	Chapter
MSH	Message Header	2
[NTE]	Notes and Comments	2
[		
PID	Patient Identification	3
[PD1]	Additional Demographics	3
[{NTE}]	Notes and Comments (for Patient ID)	2
]		
[		
PV1	Patient Visit	3
[PV2]]	Patient Visit – Additional Information	3
]		
{		
SPM	Specimen information	
[OBX]	Additional specimen information	
[		
{		
SAC	Container information **(Not supported in the UK)**	
[INV]	Detailed Substance information (e.g., id, lot, manufacturer, … of QC specimen) **(Not supported in the UK)**	
}		
]		
{		
OBR	Observation Order	7
[ORC]	Common Order	4
[{NTE}]	Notes and Comments (for Detail)	2
[		
{		
TQ1	Timing/Quantity	4
[{TQ2}]	Timing/Quantity Order Sequence	4

OUL^R22	Unsolicited Specimen-centric Observation Message	Chapter
}		
]		
[		
{		
OBX	Observation Result	7
[TCD]	Test Code Detail	13
{[SID]}	Substance Identifier (e.g., reagents used for testing)	13
[{NTE}]	Notes and Comments	2
}		
]		
[{CTI}]	Clinical Trial Identification	7
}		
}		
[DSC]	Continuation Pointer	2

7.4 Segments

The full definitions of many segments required for reporting clinical observations are included in other chapters. The patient identification segment (PID) is provided in Chapter 3. The NTE segment is in Chapter 2.

7.4.1 OBR: Observation Request Segment

Seq	HL7 UK Data type	R/O/C	RP/#	Element Name
1	SI	O		Set ID - OBR
2	EI	C		Placer Order Number
3	EI	C		Filler Order Number
4	CE	R		Universal Service Identifier
5	ID	X		Priority – OBR **(Not supported in the UK**
6	TS	X		Requested Date/Time
7	TS	C		Observation Date/Time # **(Not supported in the UK - Use SPM)**
8	TS	O		Observation End Date/Time # **(Not supported in the UK - Use SPM)**

Seq	HL7 UK Data type	R/O/C	RP/#	Element Name
9	CQ	O		Collection Volume * **(Not supported in the UK - Use SPM)**
10	XCN	O	Y	Collector Identifier * **(Not supported in the UK)**
11	ID	O		Specimen Action Code *
12	CE	O		Danger Code **(Not supported in the UK - Use SPM)**
13	ST	O		Relevant Clinical Info.
14	TS	C		Specimen Received Date/Time * **(Not supported in the UK – Use SPM)**
15	CM	O		Specimen Source * **(Not supported in the UK - Use SPM)**
16	XCN	O	Y	Ordering Provider
17	XTN	O	Y/2	Order Callback Phone Number **(Not supported in the UK)**
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 +
23	CM	O		Charge to Practice + **(Not supported in the UK)**
24	ID	O		Diagnostic Serv Sect ID
25	ID	C		Result Status +
26	CM	O		Parent Result +
27	TQ	O	Y	Quantity/Timing
28	XCN	O	Y/5	Result Copies To
29	CM	O		Parent (**Not supported in the UK)**
30	ID	O		Transportation Mode (**Not supported in the UK)**
31	CE	O	Y	Reason for Study
32	CM	O		Principal Result Interpreter +
33	CM	O	Y	Assistant Result Interpreter +
34	CM	O	Y	Technician +
35	CM	O	Y	Transcriptionist +
36	TS	O		Scheduled Date/Time +
37	NM	O		Number of Sample Containers * (**Not supported in the UK)**
38	CE	O	Y	Transport Logistics of Collected Sample * (**Not supported in the UK)**
39	CE	O	Y	Collector's Comment *

Seq	HL7 UK Data type	R/O/C	RP/#	Element Name
40	CE	O		Transport Arrangement Responsibility (**Not supported in the UK)**
41	ID	O		Transport Arranged (**Not supported in the UK)**
42	ID	O		Escort Required (**Not supported in the UK)**
43	CE	O	Y	Planned Patient Transport Comment (**Not supported in the UK)**
44	CE	O		Procedure Code
45	CE	O	Y	Procedure Code Modifier
46	CE	O	Y	Placer Supplemental Service Information
47	CE	O	Y	Filler Supplemental Service Information

Field Notes

The daggered (+) items in this segment are not created by the placer and are known to the filler, not the placer. They are created by the filler and valued as needed when the OBR segment is returned as part of a report. Hence on a new order sent to the filler, they are not valued. There is an exception when the filler initiates the order. In that case, the filler order number is valued and the placer order number may be blank. They are valued by the filler as needed when the OBR segment is returned as part of a report.

The starred (*) fields are only relevant when an observation is associated with a specimen. These are completed by the placer when the placer obtains the specimen. They are completed by the filler when the filler obtains the specimen.

OBR-7-observation date/time and OBR-8-observation end date/time (flagged with #) are the physiologically relevant times. In the case of an observation on a specimen, they represent the start and end of the specimen collection. In the case of an observation obtained directly from a subject (e.g., BP, Chest X-ray), they represent the start and end time of the observation.

7.4.1.4 Universal service identifier (CE)

Components: <identifier (ST)> ^ <text (ST)> ^ <name of coding system (IS)> ^ <alternate identifier (ST)> ^ <alternate text (ST)> ^ <name of alternate coding system (IS)>

In the UK, National code scheme should be used, where available, but may be a local list by agreement.

Available Services must be agreed between communicating parties along with their components where batteries are used.

7.4.1.7 Observation date/time (TS)

Definition: This field is the clinically relevant date/time of the observation. In the case of observations taken directly from a subject, it is the actual date and time the observation was

obtained. In the case of a specimen-associated study, this field will not be supported as the timing will be carried in SPM 17

7.4.1.22 Results rpt/status chng - date/time (TS)

Definition: 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, or that a status, as defined in ORC-5-order status, is entered or changed. (This is a results field only.) When other applications (such as office or clinical database applications) query the laboratory application for un-transmitted results, the information in this field may be used to control processing on the communications link. Usually, the ordering service would want only those results for which the reporting date/time is greater than the date/time the inquiring application last received results.

7.4.1.24 Diagnostic serv sect ID (ID)

Definition: This field is the section of the diagnostic service where the observation was performed. If the study was performed by an outside service, the identification of that service should be recorded here. Refer to HL7 UK Table 0074 - Diagnostic service section ID (Chapter 4) for valid entries.

7.4.1.25 Result status (ID)

Definition: This field is the status of results for this order. This conditional field is required whenever the OBR is contained in a report message. It is not required as part of an initial order.

There are two methods of sending status information. If the status is that of the entire order, use ORC-15-order effective date/time and ORC-5-order status. If the status pertains to the order detail segment, use OBR-25-result status and OBR-22-results report/status change - date/time. If both are present, the OBR values override the ORC values.

This field would typically be used in a response to an order status query where the level of detail requested does not include the OBX segments. When the individual status of each result is necessary, OBX:11-Observation resultstatus may be used. Refer to HL7 Table 0123 - Result status for valid entries.

HL7 Table 0123 - Result status

Value	Description
O	Order received; specimen not yet received
I	No results available; specimen received, procedure incomplete
S	No results available; procedure scheduled, but not done
A	Some, but not all, results available
P	Preliminary: A verified early result is available, final results not yet obtained
C	Correction to results

Value	Description
R	Results stored; not yet verified
F	Final results; results stored and verified. Can only be changed with a corrected result.
X	No results available; Order canceled.
Y	No order on record for this test. (Used only on queries)
Z	No record of this patient. (Used only on queries)

7.4.1.26 Parent result (CM)

The mechanism that shall be used for conveying information about isolates will use OBXs with sub-identifiers. Sub-identifiers should be unique within the assigning system but shall be unique within the 'Filler Number'.

7.4.1.37 Number of sample containers (NM)

This field is replaced by SPM 26

Definition: This field identifies the number of containers for a given sample. For sample receipt verification purposes; may be different from the total number of samples which accompany the order.

7.4.1.40 Transport arrangement responsibility (CE)

Not supported for results

7.4.1.41 Transport arranged (ID)

Not supported for results.

7.4.2 OBX: Observation/Result Segment

The OBX segment is used to transmit a single observation or observation fragment. It represents the smallest indivisible unit of a report. Its structure is summarized in Figure 7-5.

Its principal mission is to carry information about observations in report messages. But the OBX can also be part of an observation order (see Section 4.2, "Order Message Definitions"). In this case, the OBX carries clinical information needed by the filler to interpret the observation the filler makes. For example, an OBX is needed to report the inspired oxygen on an order for a blood oxygen to a blood gas lab, or to report the menstrual phase information which should be included on an order for a pap smear to a cytology lab. HL7 2.4 Appendix A.7 includes codes for identifying many of pieces of information needed by observation producing services to properly interpret a test result. OBX is also found in other HL7 messages that need to include patient clinical information.

Seq	HL7 UK Data type	R/O/C	RP/#	Element Name
1	SI	O		Set ID – OBX
2	ID	C		Value Type
3	CE	R		Observation Identifier
4	ST	C		Observation Sub-ID
5	*	C	Y	Observation Value
6	CE	O		Units
7	ST	O		References Range
8	IS	O	Y/5	Abnormal Flags
9	NM			Probability **(Not supported in the UK)**
10	ID		Y	Nature of Abnormal Test **(Not supported in the UK)**
11	ID	R		Observation Result Status
12	TS			Date Last Observation Normal Value **(Not supported in the UK)**
13	ST	O		User Defined Access Checks
14	TS	O		Date/Time of the Observation
15	CE	O		Producer's ID
16	XCN	O	Y	Responsible Observer
17	CE	O	Y	Observation Method
18	EI	O	Y	Equipment Instance Identifier
19	TS	O		Date/Time of the Analysis

Field Notes

7.4.2.2 Value type (ID)

HL7 definitions apply with the following addition:

In order to ensure that observations data types and values are consistent, each observation should have an agreed data type which will not change. National data schemes should be used where available and where these define a data-type as in the Read bounded list, these shall be used.

In order to allow for the common practice in laboratories of reporting a comparator (< or >) with a numeric value, the SN data type shall be adopted for all numeric Observation Values.

7.4.2.3 Observation identifier (CE)

Components: <identifier (ST)> ^ <text (ST)> ^ <name of coding system (IS)> ^ <alternate identifier (ST)> ^ <alternate text (ST)> ^ <name of alternate coding system (IS)>

Definition: This field contains a unique identifier for the observation. The format is that of the Coded Element (CE). Example: 44I5.^Serum Sodium^RD2.

For the UK, this should be, by default, the Read bounded list. Local lists may be used by agreement.

7.4.2.5 Observation value (*)

Multiple OBX segments with the same observation ID (see above) and different data types shall not be used.

Coded values

When an OBX segment contains values of CE data types, the observations are stored as a combination of codes and/or text. In Section 7.5.2, examples of results that are represented as CE data types are shown in the first and second OBX segments of OBR 1 and the first and second OBX segments of OBR 2. The observation may be an observation battery ID (for recommended studies), a diagnostic code or finding (for a diagnostic impression), or an anatomic site for a pathology report, or any of the other kinds of coded results.

It is not necessary to always encode the information stored within a coded observation. For example, a chest X-ray impression could be transmitted as pure text even though it has a CE data type. In this case, the test must be recorded as the second component of the result code, eg.

```
OBX|1|CE|71020&IMP|1|^CONGESTIVE HEART FAILURE.|...
```

However, separate impressions, recommendations, etc., even if recorded as pure text, should be recorded in separate result segments. That is, they shall, as a minimum, be sent as:

```
OBX|1|CE|71020&IMP|1|^CONGESTIVE HEART FAILURE|...
OBX|2|CE|71020&IMP|2|^PNEUMONIA|....
```

Preferably fully-coded results that include computer understandable codes (component 1) instead of, or in addition to, the text description (component 2) should be used. One may include multiple values in a CE value and these can be mixtures of code and text, but only when they are needed to construct one diagnosis, impression, or concept. When text follows codes as an independent value it would be taken as a modifier or addenda to the codes. eg.

```
OBX|1|CE|710120&IMP^CXR|1|428.0^CONGESTIVE HEART
    FAILURE^I9C~^MASSIVE HEART|...
```

Implementation Guidance

Where CE data types are used, the Code should always be included along with the text description. This does not mandate the use of the code by the receiving system but allows for its use when required. The use of CNE and CWE data types instead of CE should be considered.

7.4.2.6 Units (CE)

Components: <identifier (ST)> ^ <text (ST)> ^ <name of coding system (IS)> ^ <alternate identifier (ST)> ^ <alternate text (ST)> ^ <name of alternate coding system (IS)>

Background: When an observation's value is measured on a continuous scale, one must report the measurement units within the units field of the OBX segment. Since HL7 Version 2.2 of the specification, all fields that contain units are of data type CE. The default coding system for the units codes consists of the ISO abbreviation for a single case unit (ISO 2955-83) plus extensions that do not collide with ISO abbreviations. We designate this coding system as ISO+ (see Figure 7-13). Both the ISO unit's abbreviations and the extensions are defined in Section 7.4.2.6.2, "ISO and ANSI customary units abbreviations." The ISO+ abbreviations are the codes for the default coding system. Consequently, when ISO+ units are being used, only ISO+ abbreviations need be sent, and the contents of the units field will be backward compatible to HL7 Version 2.1.

To allow for the sending of units as text, Units may be sent as code, code + text or just as text by agreement.

7.4.2.8 Abnormal flags (IS)

Definition: This field contains a table lookup indicating the normalcy status of the result. We strongly recommend sending this value when applicable. (See ASTM 1238 - review for more details). Refer to User-defined Table 0078 - Abnormal flags for valid entries.

When the laboratory can discern the normal status of a textual report, such as chest X-ray reports or microbiologic culture, these should be reported as N when normal and A when abnormal. Multiple codes, e.g., abnormal and worse, would be separated by a repeat delimiter, e.g., A~W.

User-defined Table 0078 - Abnormal flags

Value	Description
L	Below low normal
H	Above high normal
LL	Below lower panic limits
HH	Above upper panic limits
<	Below absolute low-off instrument scale
>	Above absolute high-off instrument scale
N	Normal (applies to non-numeric results)

Value	Description
A	Abnormal (applies to non-numeric results)
AA	Very abnormal (applies to non-numeric units, analogous to panic limits for numeric units)
Null	No range defined, or normal ranges don't apply
U	Significant change up
D	Significant change down
B	Better--use when direction not relevant
W	Worse--use when direction not relevant
S	Susceptible. Indicates for microbiology susceptibilities only.
R	Resistant. Indicates for microbiology susceptibilities only.
I	Intermediate. Indicates for microbiology susceptibilities only.
MS	Moderately susceptible. Indicates for microbiology susceptibilities only.
VS	Very susceptible. Indicates for microbiology susceptibilities only.
UU	Highly significant change up
DD	Highly significant change down
C	Significant change
CC	Highly significant change

Results may also be reported in shorthand by reporting the normalcy status without specifying the exact numeric value of the result. Such shorthand is quite common in clinical notes, where physicians will simply say that the glucose result was normal. Such shorthand reporting is also seen in drug experience reporting. In such cases, the result can be reported in the OBX by reporting the normalcy code in OBX-8-abnormal flags without specifying any value in OBX-5-observation value. The use of Normalcy/abnormalcy is not supported.

7.5 Examples Of Use

7.5.1 Unsolicited

The following is an unsolicited transmission of radiology data.

```
MSH|^~\&|XRAY||CDB||200003291411||ORU^R01|K172|P|...
PID|...
OBR|1|X89-1501^OE|78912^RD|71020^CHEST XRAY AP \T\LATERAL|||2000
 03290800|||9218^MASTERS^JOHN^B|...
OBX|1|CE|71020&IMP^RADIOLOGIST'S IMPRESSION|4|^MASS LEFT LOWER L
 OBE|||A|||F|...
OBX|2|CE|71020&IMP|2|^INFILTRATE RIGHT LOWER LOBE|||A|||F|...
```

```
OBX|3|CE|71020&IMP|3|^HEART SIZE NORMAL|||N|||F|...
OBX|4|FT|71020&GDT|1|circular density (2 x 2 cm) is seen in the
 posterior segment of the LLL.  A second, less well-defined infi
 ltrated circulation density is seen in the R mid lung field and
 appears to cross the minor fissure#||||||F|...
OBX|5|CE|71020&REC|5|71020^Follow up CXR 1 month||30-45||||F|...
```

7.5.2 Laboratory

7.5.2.1 U&E

Request:-

```
MSH|...
PID|...
PD1|...
PV1|...
//Urea & Electrolytes://
SPM|S0018825^HISS|C.02.002283^LAB|B^Blood^L|||V^Venous^L|||||||
 |HB^Hepatitis Risk^L|200212060930|...
ORC|NW|0018826^HISS|||||^^^^^R
OBR|1|0018826^HISS|CM3562^LAB|44JB^Urea & Electrolytes^RD||...
```

Result:-

```
MSH|...
PID|...
PD1|...
PV1|...
//Urea & Electrolytes://
SPM|S0018825^HISS|C.02.002283^LAB|B^Blood^L|||V^Venous^L|||||||
 |HB^Hepatitis Risk^L|200212060930|...
OBR|1|0018826^HISS|CM3562^LAB|44JB^Urea & Electrolytes^RD||...
NTE|SCOM|Sample Haemolysed
OBX|1|NM|44I5.^SODIUM^RD||140|mmol/L|136-148|N|||F|...
OBX|2|NM|44I4.^POTASSIUM^RD||5.8|mmol/L|3.5-5|H|||F|...
NTE|K|Sample Haemolysed.  Potassium elevated probably due to
 Haemolysis
OBX|3|NM|44J9.^UREA^RD||3.5|mmol/L|2.4-3.4|N|||F|...
OBX|4|NM|44J3.^CREATININE^RD||27|mmol/L|45-120|N|||F|...
```

7.5.2.2 FBC & ESR

Request: -

```
MSH|...
PID|...
SPM|S0018830^HISS||B^Blood^L|||V^Venous^L|||||||||HB^Hepatitis R
 isk^L|200203290800|||||||||2|SEQ^Sequesterine|
```

Same Specimen but 2 containers supplied

```
//FBC://
ORC|NW|0018831^HISS|||||^^^^^R
OBR|1|0018831^HISS||424..^Full Blood Count (FBC)^RD||...
//ESR://
ORC|NW|0018832^HISS|||||^^^^^R
OBR|2|0018832^HISS||42B6.^Erythrocyte Sedimentation Rate^RD||...
```

Result:-

```
MSH|...
PID|...
SPM|S0018830^HISS||B^Blood^L|||V^Venous^L|||||||||HB^Hepatitis R
 isk^L|200203290800|200203291100||||||||2|SEQ^Sequesterine|
//FBC://
OBR|1|0018831^HISS|HEM3269^LAB|424..^Full Blood Count (FBC)^RD||
 ...
OBX|1|NM|423..^Haemoglobin^RD||13.4|GM/DL|14-18|N|||F|||||||200
 203291130|...
OBX|2|NM|425..^Haematocrit - PCV^RD||40.3|%|42-52|L|||F|||||||2
 00203291130|...
OBX|3|NM|426..^RBC - Red Blood Cell Count^RD||4.56|10*6/ml|4.7-6
 .1|L|||F|||||||200203291130|...
OBX|4|NM|42A..^Mean Corpuscular Volume (MCV)^RD||88|fl|80-94|N||
 |F|||||||200203291130|...
OBX|5|NM|428..^Mean Corpusc. Haemoglobin (NCH)^RD||29.5|pg|27-31
 |N|||F|||||||200203291130|...
OBX|6|NM|429..^Mean Corpusc. Hb. Conc. (MCHC)^RD||33|%|33-37|N||
 |F|||||||200203291130|...
OBX|7|NM|42H..^Total White Cell Count^RD||10.7|10*3/ml|4.8-10.8|
 N|||F|||||||200203291130|...
OBX|8|NM|42b0.^Percentage Neutrophils^RD||68|%|||||F|||||||||200
 203291130|...
OBX|9|NM|42b1.^Percentage Lymphocytes^RD||29|%|||||F|||||||2002
 03291130|...
OBX|10|NM|42b2.^Percentage Monocytes^RD||1|%|||||F|||||||200203
 291130|...
OBX|11|NM|42b9.^Percentage Eosinophils^RD||2|%|||||F|||||||2002
 03291130|...
//ESR://
OBR|2|0018832^HISS|HEM3270^LAB|42B6.^Erythrocyte sedimentation r
 ate^RD||...
OBX|1|NM|42B6.^Erythrocyte sedimentation rate^RD||7|MM/HR|0-10|N
 |||F|||||||200203291130|...
```

7.5.2.3 Dynamic Function Tests (See also Chapter 4)

Dynamic Function Tests shall be supported by either of two mechanisms for reporting.

This provides suitable mechanisms for placer systems which are unable to display discrete results for a DFT appropriately and for those which can.

DFTs shall be requested as a single order item such as Glucose Tolerance Test (GTT)

```
PID
SPM                                    \\Master Specimen
   ORC
   OBR                                 \\GTT
```

This identifies to the laboratory that a GTT is required. Work shall be requested against this master order depending on the LIMS. On completion, work shall either be reported as: -

a single text report against the Placer Number

```
MSH|...
PID|...
SPM|1|
OBR|1|A226677^HISS|C.02.002299^LAB|44V..^Glucose Tolerance Test^
 RD||...                                          // original order segment
OBX|1|ST|     Glucose  0 mins    2.4 mmol/l   // report
OBX|2|ST|     Glucose 15 mins    7.5 mmol/l
OBX|3|ST|     Glucose 30 mins    5.3 mmol/l
OBX|4|ST|     Glucose 45 mins    5.1 mmol/l
OBX|5|ST|     Glucose 60 mins    5.1 mmol/l
OBX|6|ST|     No evidence of diabetesor
```

Reported as a series of Child orders against the Parent

```
MSH|...
PID|...
SPM|S0018822^HISS|C.02.002299^LAB|B^Blood^L||||V^Venous^L|||||||
 |HB^Hepatitis Risk^L|200203290800|200203291100||||||||1|FL^Fluo
 ride^L|
ORC|PA|A226677^HISS|C.02.002299^LAB|...       // original order's ORC
OBR|1|||44V..^Glocose Tolerance Test^RD|...   // original order segment
ORC|CH|A226677^HISS|C.02.002301^LAB|...       // 1st child ORC
OBR|1|||44f..^Serum Glucose Level^RD|||200203290800|...
                                               // 1st child OBR
OBX|1|SN|44f..^Serum Glucose Level^RD||3.56|mmol/l|4.7-6.1|L|||F
 |||200203290800|...                          // 1st Glucose result
ORC|CH|A226677^HISS|C.02.002299^LAB|...       // 2nd child ORC
OBR|1|||44f3.^30 Min Serum Glucose Level|||2002032908030|...
                                               // 2nd child OBR
OBX|1|SN|44f3.^30 Min Serum Glucose Level||5.77|mmol/l|4.7-6.1|L
 |||F|||200203290830|...                       // 2nd Glucose Result
ORC|CH|A226677^HISS|C.02.002299^LAB|...       // 3rd child ORC
OBR|1|||44f4.^60 Min Serum Glucose Level|||2002032908900|...
                                               // 3rd child OBR
OBX|1|SN|44f4.^60 Min Serum Glucose Level ||4.56|mmol/l|4.7-6.1|
 L|||F|||2002032908900|...                     // 3rd Glucose Result
```

```
OBX|2|ST|COM^Comment^L||No evidence of unusual response to chall
 enge|||||||F||                                    //Comment
...                                                // Other parts might follow
```

Reporting as a series of 'Child' orders requires that the placer system has the capability of presenting the GTT to the user in an appropriate manner.

7.5.2.4 Paired Sera

The requesting and reporting of paired sera pose a problem to both the placer and filler. The Requester on the placer system may not be aware of the collection of earlier Specimens that have been submitted to the laboratory as they may have come from a different source (location). The request will arrive at the laboratory without any indication of earlier Specimens and it is left to the laboratory to identify earlier Specimens and relate them. Testing is generally carried on receipt of an initial request for serology and it is only in certain circumstances that the specimen is placed on hold until a further one is received.

The placer will receive results back on a specimen sent for analysis but may also receive results on an earlier specimen about which it has no record.

For requesting from a Hospital system, it is recommended that each request for serology be placed independently. For reporting, unless the placer system has the ability to display multiple linked specimens in an appropriate manner, a text report will be the recommended route.

Where a placer system has the ability to display discrete results for specific specimen groups, the mechanism shall be that the parent placer order number is identified in OBR 29.

7.5.3 Narrative report messages

This example of the body of reports shows the following observation from what are usually free text reports. The text within these examples that begins with //are explanatory comments, not a formal part of the message. The following outline shows the segments that are included in this example message.

a) patient identifying record (PID)

b) EKG order record (OBR)

c) EKG coded result record (OBX)

d) EKG result records (OBX):

1) ventricular rate

2) atrial rate

3) QRS width

4) PR interval

e) order record for chest x-ray (OBR)

f) two diagnostic impressions for CXR (OBX)

g) description record for CXR (OBX)

h) a recommendation record for CXR (OBX)

i) an order record for surgical pathology (OBR)

j) a gross description record for pathology showing use of anatomy fields (OBX)

k) a microscopic description record for pathology (OBX)

l) vital signs request (OBR)

m) six vital signs (OBX)

n) part of the physical history (OBR & OBX)

o) end record

```
MSH|...
PID|...
```

//Order record for EKG

```
OBR|1|P8753^OE|EK5230^EKG|93000^EKG|||200212061230|||401-0^INTER
 N^JOE^^^^MD^L|...
```

//Two interpretation records for EKG:

```
OBX|1|CE|93000&IMP^EKG|1|^Sinus bradycardia|||A|||F|...
OBX|2|CE|93000&IMP^EKG|2|^Occasional PVCs|||A|||F|...
```

//Four numeric results for EKG:

```
OBX|3|NM|8897-1^QRS COMPLEX RATE ^LN||80|/min|60-100|||||F|...
OBX|4|NM|8894-8^PULSE RATE^LN||80|/min|60-100||||F|...
OBX|5|NM|8633-0^QRS DURATION ^LN||.08|msec|.06-.10||||F|...
OBX|6|NM|8625-6^P-R INTERVAL ^LN||.22|msec|.18-.22||||F|...
```

//Order record for CXR:

```
OBR|2|P8754^OE|XR1501^XR|71020^Chest X-ray AP\T\Lateral|||198703
 290800|||401-0^INTERN^JOE^^^^MD^L|...
```

//Two CXR diagnostic impressions:

```
OBX|1|CE|71020&IMP^Radiologist's Impression|1|.61^RUL^ACR~.212^B
 ronchopneumonia^ACR|||A|||F|...
OBX|2|CE|71020&IMP|2|51.71^Congestive heart failure^ACR|||A|||F|
 ...
```

//CXR Description with continuation records:

```
OBX|3|TX|71020&GDT||Infiltrate probably representing bronchopneu
 monia in the right lower lobe.  Also pulmonary venous congestio
 n cardiomegaly and cephalization, indicating early congestive
 heart failure.|...
```

//Recommendations about CXR report to follow up one month with a repeat CXR:

```
OBX|4|CE|71020&REC||71020^Followup CXR 1 month^AS4||||||F|...
```

//Order record for pathology report:

```
OBR|3|P8755^OE|SP89-739^SP|88304^Surgical Path Report|||19870329
 0800|||401-0^INTERN^JOE^^^^MD^L|...
OBX|1|CE|88304&ANT^Surgical Path Report|1|Y0480-912001^orbital r
 egion^SNM||||||F|...
```

//Gross description record (with overflow) for pathology:

```
OBX|2|TX|88304&GDT^GrossSpecimenDescription|1|The specimen is re
 ceived in four containers.  The first is labeled with the patie
 nt's name and consists of three fragments of reddish-brown tiss
 ue each of which measures 2mm in greatest dimension.  They are
 wrapped in tissue paper and submitted in toto in a single casse
 tte|...
```

//Microscopic description record for pathology:

```
OBX|3|TX|88304&MDT^MicroscopicDescription|1|Sections of the firs
 t specimen received for frozen section diagnosis reveal thick w
 alled, ramifying vessels lined by a single layer of flattened e
 ndothelial cells.  The thick smooth muscle walls exhibit no mal
 ignant cytological features nor do the endothelial lining cells
 .  Within the same specimen are also found fragments of fibrous
  connective tissue, bone, and nerve which are histologically un
 remarkable||||||F|...
```

Note:

For reporting where the line length needs to be retained in order to ensure positional formatting, repeating OBX segments will be used with a maximum of nn characters of text in the Value field. A non-proportional font shall be used.

Vital signs:

```
OBR|4|P8756^OE|N2345^NR|3000.02^VITAL SIGNS| ||198703290800|||40
 1-0^INTERN^JOE^^^^MD^L|...
OBX|1|NM|8462-4^INTRAVASCULAR DIASTOLIC:PRES:^LN||90|mm(hg)|60-9
 0||||F|...
```

```
OBX|2|NM|8479-8^INTRAVASCULAR SYSTOLIC:PRES:^LN||120|mm(hg)|100-
 160||||F|...
OBX|3|NM|8478-0^INTRAVASCULAR MEAN:PRES:^LN||100|mm(hg)|80-120|N
 |||F|...
OBX|4|NM|8867-4^HEART BEAT RATE^LN||74|/min|60-100|N|||F|...
OBX|5|ST|8357-6^BLOOD PRESSURE METHOD^LN||MANUAL BY CUFF||||||F|
 ...
OBX|6|ST|8886-4^HEART RATE METHOD^LN||MANUAL BY PALP||||||F|...
```

//Part of the patient's history://

```
OBR|5|P8568^OE|HX2230^CLN||2000^HISTORY| ||198703290800||401-0^I
 NTERN^JOE^^^^MD^L||...
OBX|1|CE|8661-1^CHIEF COMPLAINT^LN||...
OBX|2|ST|8674-4^HISTORY SOURCE^LN||PATIENT||||||F|...
OBX|3|TX|8684-3^PRESENT ILLNESS^LN||SUDDEN ONSET OF CHEST PAIN.
 2 DAYS, PTA ASSOCIATED WITH NAUSEA, VOMITING \T\ SOB.  NO RELIE
 F WITH ANTACIDS OR NTG. NO OTHER SX. NOT PREVIOUSLY ILL.||||||F
 |...
```

//and so on.//

7.5.4 Reporting Cultures and Susceptibilities

The current recommendation for Microbiology reports is that they be transmitted as a Text Block. This is acceptable for reporting to GP and HIS systems where the results are displayed as received but not acceptable for Lab – Lab EDI. The mechanism for the reporting of isolates is described later in this chapter.

Where positional formatting of text needs to be retained, the line length may be restricted such that receiving systems are not required to wrap text. This is important where tables or arrays are used to display information. In such instances, non-proportional fonts should be used and the line length restricted in the outbound OBX to an agreed value such that each line of text may be displayed as a single screen line on the receiving system.

7.5.4.1 Culture Battery/Report Representation

Organisms and other observations/tests are reported using multiple OBX segments. The granularity expected for HL7culture reports is one observation per organism.

All OBX segments which have the same observation ID and sub-ID are part of a single observation.

Each organism in a culture battery is assigned a unique OBX-4-observation sub-ID (and is therefore a separate observation). The organism name is given in OBX-5-observation value (results). It is recommended, but not required, that the organism name may change over time, but the corresponding observation sub-ID never changes. (The observation ID will be identical for all organisms reported.)

Recommended:

```
OBX|1|CE|organism^413^L|123456|^E. Coli||||||F|...
OBX|2|CE|organism^413^L|123457|^S. Aureus||||||F|...
```

The observation ID for an isolate and related observations should be unique at least within a filler number. This will ensure that changes to isolate identities can be made as they are further identified.

Not recommended: Not supported.

```
OBX|1|CE|organism1^413^L|1|^E. Coli||||||F|...
OBX|2|CE|organism2^413^L|1|^S. Aureus||||||F|...
```

7.5.4.2 Susceptibility Battery/Report Representation

Each antimicrobial should be reported as a separate (OBX) observation where the Observation ID is a code for the antimicrobial in combination with the method used (MIC, Disk etc). This is managed under LOINC as unique test codes are provided for the different antibiotics for each method. Where a site wishes to use the test code to describe the antibiotic without a method, OBX:17, (Observation Method) may be used to identify if the test was carried out using a specific method (MIC, Disk etc). (OBXs for non-antimicrobials observations and related information may be present in the same battery.)

HL7 allows for MIC and disk diffusion (Kirby Bauer) susceptibility results to be combined in the same OBX segment. An OBX can contain a MIC value (in OBX-5-observation value (results)) and OBX-8-abnormal flag that indicates whether the organism is sensitive, resistant, or intermediate (see HL7 table 0078- Abnormal flags under abnormal flag fields). This is not supported. Each should be reported in a separate OBX with the appropriate test for MIC or Zone size or Interpretation + the antibiotic.

Or, an OBX can contain a disk diffusion result string (e.g., sensitive) in the Observation Results field and the disk diffusion interpretation in OBX-8-abnormal flags (e.g., S).

A susceptibility battery may only contain results corresponding to a single organism that has been previously reported in a culture battery.

7.5.4.3 Identification of the Organism for a Susceptibility Battery

Example.

Sending of isolates and susceptibilities.

Isolates should be identified in an OBX with a unique Isolate identifier. This should then be used in the following OBX segments for the susceptibilities using the unique ID as a sub-id

In this example, OBX 4 has been used to identify the isolate and its associated susceptibilities. OBX 17 has also been used to identify the method.

```
SPM|0018825^HISS|M.02.0029983.A^LAB||U^Urine^L|MS^Mid-stream^L||
 |||||||||HB^Hepatitis Risk^L|200212060930|||||||1|UNI^Sterile
 Universal^L||||
ORC|RE|849||||||||||4L^HENRY^SHAW^|||
OBR|1|849||4J15.^Sample: Organism Sensitivities^RD|||||||||2002
 12070930|MSU^MID-STREAM
OBX|1|CE|ORG^ORGANISM^L|02-100987|ECOL^ESCHERICHIA COLI^L||||||F
 |||200212070930|
OBX|2|CE|CEPH^CEPHALOTHIN^L|02-100987|S^SUSCEPTIBLE^L||||||F|||2
 00212070930|D^DISK^L||200212070930|
OBX|3|CE|TET^TETRACYCLINE^L|02-100987|R^RESISTANT^L||||||F|||200
 212070930|D^DISK^L||200212070930|
OBX|4|CE|ORG^ORGANISM^L|02-100966|NHS^NON-HAEMOLYTIC STREPTOCOCC
 US^L||||||F|||200212070930|D^DISK^L||200212070930|
OBX|5|CE|CEPH^CEPHALOTHIN^L|02-100966|S^SUSCEPTIBLE^L||||||F|||2
 00212070930|D^DISK^L||200212070930|
OBX|6|CE|TET^TETRACYCLINE^L|02-100966|R^RESISTANT^L||||||F|||200
 212070930|D^DISK^L||200212070930|
OBX|7|CE|GM^GENTAMICIN^L|02-100966|R^RESISTANT^L||||||F|||200212
 070930|D^DISK^L||200212070930|
```

7.6 Open Issues

None

Chapter 8 - Master Files

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8.1 Purpose

Master files are the common reference data shared by integrated systems i.e. ward codes, consultant codes, GPs, diagnostic tests etc. These files have historically been maintained manually in individual systems. However, as integrated solutions become more complex and more critical to patient care, centrally managed and consistent reference data assumes greater importance. This chapter describes the messages required to support master file maintenance in the UK.

These common master files require periodic and routine maintenance spanning multiple systems. The Master File Notification (MFN) transaction provides a means of maintaining master files. The end result is consistent interchange of synchronized data and meaningful translation of common codes and text.

The Master File Notification message supports the distribution of changes to various master files between systems using online or batch processing modes. A given MFN message is related to a single master file. However, the location of a record-level event code on the Master File Entry (MFE) segment allows a single message to contain several types of changes (events) to that file, for example, add, delete, and update.

The MFN events do not specify whether the receiving system must support an automated change of the master file targeted in the transaction, nor do they specify whether the receiving system must create a master file in the same form as that maintained on the source system.

In general, the way in which the receiving system processes the change notification message will depend on both the design of the receiving system and the requirements negotiated at the site. Some systems and/or sites may specify a manual review of all changes to a particular master file. Some may specify a totally automated process. Not every system at every site will need all the fields contained in the master file segment(s) following the MFE segment for a particular master file entry. Also, some systems may need to supplement the data sent by the master system because they have their own system-specific data that is not maintained elsewhere.

This also means that an application acknowledgement (or a deferred application acknowledgement) from a receiving system stating that it changed a particular record in its version of the master file, does not imply that the receiving system now has an exact copy of the information (and state) that is on the sending system. The acknowledgement means only that whatever subset of that master file's data (and state) that has been negotiated at the site is kept on the receiving system in such a manner that a new Master Files Notification transaction with the same primary key can be applied unambiguously (in the manner negotiated at the site) to that subset of information.

8.2 Terminology

The following sections explain the master file terminology used in this chapter.

8.2.1 Master file load

The loading of the entire contents of one or more master files onto a system. This is usually done as part of an implementation project. This data transmission is typically achieved by either:

- a general activity which triggers an HL7 message for every entry for all or selected records to be loaded, or
- a proprietary format (eg. flat-file) agreed between interested parties.

8.2.2 Master file maintenance

The provision of a single entry or a collection of entries in a single master file to a receiving system. This data transmission is typically linked to the process of master file modification, such as a new entry to the master file (add), removal of an entry from the master file (delete), or modification to an existing entry (update).

8.3 Rules/constraints

8.3.1 Rules

These rules shall apply to all master file transactions:

1) If only one system has values for a master file, the master file shall be owned only by that system.
2) If there are no subscribers to a master file within the enterprise, no broadcast of entries for the master file associated with either the initial load or maintenance activities is required.
3) Systems that use common reference data are not obliged to share master file data electronically.
4) The receiving system may determine whether or not to process any or all master file activities based on master file identification, sending system, or particular data sent; eg.

a receiving system may only process updates to the clinicians table for clinicians having a particular clinical specialty.

5) Primary/alternate record key value couplets shall not relate to more than one master file. In other words, a single master file shall be specified in the MFI:1 field of the Master File Identification segment. All subsequent Master File Entry (MFE) segments shall be related to that master file only.

8.4 Trigger events & message definitions

The Master Files Change Notification message can be used for the following message-level trigger events:

1) M02 – additions, deletions or updates to the staff/practitioner master file.
2) M04 - additions, deletions or updates to the charge description master file.
3) M05 - additions, deletions or updates to the location master file including PCGs, PCTs, practices and surgeries in the UK.
4) ZL7 – additions, deletions or updates to generic Master files.

The process flow is usually:

1) Master file data is created/amended/deleted in the master system
2) An appropriate MFN message is created describing the changes
3) The MFN message is broadcast to all relevant receiving systems (as agreed at implementation)
4) The receiving systems process the changes according to the rules agreed at implementation.
5) There is a specific hierarchy of master file updates and additions for the creation of consistent GP/Practice/Surgery reference data in the UK. This hierarchy is:
    a) Create any necessary parent organizations (PCG/PCT) - MFN ^ M05
    b) Create GP Practice linked to parent organization through LRL segment - MFN^M05
    c) Create GP record linked to GP Practice through PRA segment - MFN ^ M02
    d) Create Surgery linked to GP Practice through LRL segment - MFN ^ M05
6) The data created in 5c and 5d above are assigned to a specific patient record through the PD1 segment described in chapter 3 of the UK standard.

8.4.2 Master file - staff/practitioner (event code M02)

MFN^M02	MFN message	Chapter
MSH	Message Header	2
MFI	Master File Identification	8
{		
MFE	Master File Entry	8
STF	Staff Identification	8
[PRA]	Practitioner Detail	8
}		

This message shall be used to convey GP and associated practice data. The MFN^M05 message (Patient location master file) is used to maintain surgery details.

8.4.5 Patient location master file message (event code M05)

This message is used to describe locations at which patient care can be delivered including wards, clinics, service departments, GP practices and GP surgeries. In addition, the message may be used to create entries for parent organizations such as PCGs and PCTs.

MFN^M05	Master File Notification	Chapter
MSH	Message Header	2
MFI	Master File Identification	8
{		
MFE	Master File Entry	8
LOC	Patient Location Master	8
[{LCH}]	Location Characteristic **(Not supported in the UK)**	8
[{LRL}]	Location Relationship	8
{		
LDP	Location Department **(Not supported in the UK)**	8
[{LCH}]	Location Characteristic **(Not supported in the UK)**	8
[{LCC}]	Location Charge Code **(Not supported in the UK)**	8
}		
}		

8.4.97 Generic master file message (event code ZL7)

MFN^ZL7	Master File Notification	Chapter
MSH	Message Header	2

MFN^ZL7	Master File Notification	Chapter
MFI	Master File Identification	8
{		
MFE	Master File Entry	8
ZL7	Generic Master File update	8
}		

Implementation Guidance

It is recommended that this message is used for all simple reference file updates comprising a code and a description. HL7 UK also recommends the use of standard HL7 table identifiers and descriptions as listed in Appendix A of HL7 2.4.

8.5 Segment definitions

8.5.1 MFI: Master file identification segment

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	CE	R		Master File Identifier
2	HD	C		Master File Application Identifier
3	ID	R		File-Level Event Code (Not supported in the UK)
4	TS	O		Entered Date/Time
5	TS	O		Effective Date/Time
6	ID	R		Response Level Code

Field notes

8.5.1.1 Master file identifier (CE)

Definition: This field is a CE data type that identifies a standard HL7 master file. This table may be extended by local agreement during implementation to cover site-specific master files (z-master files).

HL7 Table 0175 - Master file identifier code

Value	Description
CDM	Charge description master file
LOC	Location master file
PRA	Practitioner master file
STF	Staff master file

Implementation Guidance

HL7 UK recommends use of the HL7 assigned table number as the master file identifier code if one is not specified in HL7 Table 0175. For example, a master file of Marital Status codes would be identified by HL70002. Refer to Appendix A of HL7 2.4 for valid values.

8.5.2 MFE: Master file entry segment

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	ID	R		Record-level Event Code
2	ST	C		MFN Control ID
3	TS	C		Effective Date/Time
4	Varies	R	Y	Primary Key Value – MFE
5	ID	R	Y	Value Type

Field notes

8.5.2.4 Primary key value - MFE (Varies)

Definition: This field uniquely identifies the record of the master file (identified in the MFI segment) to be changed (as defined by the record-level event code). The data type of the field is defined by the value of MFE:5 - Value type.

Implementation Guidance

Primary Key is a repeating field, thus it can be used to convey a number of identifiers . It is recommended that where the data type is CE the following identifiers are used to represent standard coding systems:

INT – an unchanging internal code generated by the master system .If this code type is available from the master system it should be used as its fixed nature enables changes of external identifier to be reliably applied.

OCS – A national code assigned by the Organization Code Service (OCS) for GPs, Dentists, Consultants, practices etc.

Other identifiers may be agreed at implementation as required.

8.5.3 STF: Staff identification segment

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	CE	R		STF - Primary Key Value
2	CX	R		Staff ID Code
3	XPN	O		Staff Name
4	IS	O		Staff Type
5	IS	O		Sex
6	TS	O		Date of Birth
7	ID	O		Active/Inactive
8	CE	O		Department
9	CE	O	Y	Service
10	XTN	O		Telephone
11	XAD	O		Office/Home Address
12	CM	O	Y	Activation Date
13	CM	O	Y	Inactivation Date – STF
14	CE	O		Backup Person ID
15				E-mail Address **(Not supported in the UK)**
16	ID	O		Preferred Method of Contact
17				Marital Status **(Not supported in the UK)**
18				Job Title **(Not supported in the UK)**
19				Job Code/Class/Description **(Not supported in the UK)**
20				Employment Status **(Not supported in the UK)**
21				Additional Insured on Auto **(Not supported in the UK)**

Seq	HL7 UK data type	R/O/C	RP/#	Element name
22				Driver's License Number - Staff **(Not supported in the UK)**
23				Copy Auto Ins **(Not supported in the UK)**
24				Auto Ins. Expires **(Not supported in the UK)**
25				Date Last DMV Review **(Not supported in the UK)**
26				Date Next DMV Review **(Not supported in the UK)**

Field notes

8.5.3.4 Staff type (IS)

Definition: This field contains a code identifying the type of staff. Refer *to User-defined Table 0182 - Staff type* for suggested values. Values may include codes for staff, practitioner (physician, nurse, therapist, etc.), referral agent or agency, etc.

User-defined Table 0182 – Staff type

Value	Description
GP	General Practitioner
GDP	General Dental Practitioner
CN	Consultant

8.5.3.5 Sex (IS)

This field should contain the self-declared current gender (administrative sex) of a person.

Implementation Guidance

It is suggested that UK implementations conforming to this Standard, adopt the values used by the UK Government Data Standards Catalogue for the User-defined table 0001.

8.5.3.11 Office/home address (XAD)

Implementation Guidance

It is recommended that GP practice and surgery addresses are not sent in this component, but conveyed in LOC:5.

8.5.4 PRA: Practitioner detail segment

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	CE	R		PRA - Primary Key Value
2	CE	O		Practitioner Group
3	IS	O		Practitioner Category
4				Provider Billing **(Not supported in the UK)**
5	CM	O		Specialty
6	CM	O	Y	Practitioner ID Numbers
7				Privileges **(Not supported in the UK)**
8	DT	O		Date Entered Practice

Field notes

8.5.4.2 Practitioner group (CE)

Implementation Guidance

It is recommended that this field be used to define the health organization to which the practitioner belongs. eg. for a General Practitioner this will be their national practice code.

8.5.4.6 Practitioner ID Numbers (CM)

Implementation Guidance

It is recommended that this field is NOT used to convey national code for practitioners - ideally these should be used as a primary key. However, the field can be used for local identifiers.

8.5.5 LOC: Location identification

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	PL	R		Primary Key Value - LOC
2	ST	O		Location Description
3	IS	R	Y	Location Type - LOC
4	XON	O	Y	Organization Name - LOC

Seq	HL7 UK data type	R/O/C	RP/#	Element name
5	XAD	O	Y	Location Address
6	XTN	O	Y	Location Phone
7				License Number (Not supported in the UK)
8				Location Equipment (Not supported in the UK)
9				Location Service Code (Not supported in the UK)

Field notes

8.5.5.3 Location type - LOC (IS)

Definition: This field contains the code identifying what type of location this is. Refer to *User-defined Table 0260 - Patient location type* for suggested values.

User-defined Table 0260 - Patient location type

Value	Description
N	Nursing Unit
R	Room
B	Bed
E	Exam Room
O	Operating Room
C	Clinic
D	Department
L	Other Location
P	Practice
PCG	PCG
PCT	PCT
S	Surgery

8.5.5.5 Location address (XAD)

Implementation Guidance

It is recommended that where this is used to convey GP surgery address information, the field should NOT repeat.

8.5.6 LRL: Location relationship segment

The LRL segment is used to identify one location's relationship to another location, the nearest lab, pharmacy, etc.

HL7 Attribute Table - LRL - Location Relationship

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	PL	R		Primary Key Value - LRL
2	ID	O		Segment Action Code
3	EI	O		Segment Unique Key
4	CE	R		Location Relationship ID
5	XON	C	Y	Organizational Location Relationship Value
6	PL	C		Patient Location Relationship Value

Implementation Guidance

In the UK one of the uses of this segment is to define the relationship between a GP practice and its surgeries.

8.6 Data Control

8.6.1 Ownership

Each system in the enterprise has the potential to either be the unique, single owner of a master file or be a co-owner of the master file. If the system is the single owner of the master file, all entries in the master file will be controlled by that system. If the system is a co-owner of the master file, the system will be the single owner of a set of entries in the master file. As in the single owner scenario, the owner of a set of entries will control all activities that affect its entries. Within these general guidelines, it is also possible for the receiver of master file information to determine the validity of an activity related to a master file or master file entry.

Implementation Guidance

Each enterprise has the ability to determine ownership based on the systems involved. This analysis is considered to be a requirement to ensure that master file integrity is maintained throughout the enterprise. To facilitate the analysis of master file ownership for both the initial load and maintenance data flow, it is recommended that the master files be linked by their primary use (such as ADT and Order/Result). By identifying the functional use of a master file, the list of potential owners of the master file information can be more readily identified. For example, all systems that can request services (clinical systems, order management, laboratory, radiology etc.) and provide services (laboratory, radiology etc.) would require the synchronization of the master files from each system that is used to populate the Universal Service Identifier element in the OBR segment.

8.7 Open issues

None

8.8 Examples

8.8.1 Create Practice

An M05 event occurs on the system responsible for maintaining practices. The following message is generated:

```
MSH|^~\&|iIE|iSOFT IE|REMASS AE|REMASS AE|20020419133227||MFN^M0
 5|2|P|2.4|||AL|AL|||
MFI|LOC|iSOFT||20020419133227|20020419133227|AL
MFE|MAD|112233445566|20020419133227|565758|PL
LOC|565758|The Hollies Medical Centre|S|The Hollies Medical Cent
 re|St Andrews Road^Sheffield^^^S11 9OU|01142500897|
```

The practice code is 565758

8.8.2 Create Surgeries

```
MSH|^~\&|iIE|iSOFT IE|REMASS AE|REMASS AE|20020419133227||MFN^M0
 5|2|P|2.4|||AL|AL|||
MFI|LOC|iSOFT||20020419133227|20020419133227|AL
MFE|MAD|112233445566|20020419133227|123ABC|PL
LOC|123ABC| The Hollies Medical Centre |S|Great Bradwell Surgery
 |Church Street^Bradwell^Sheffield^^S15 6YY|01142667095|
```

```
LRL|123ABC|A|1|PAR||565758
```

The practice code (parent organization) is 565758. The code representing the surgery is 123ABC. The LRL segment defines the relationship between practice and surgery.

8.8.3 Create GP (with associated Practice)

```
MSH|^~\&|iIE|iSOFT IE|REMASS AE|REMASS AE|20020419133227||MFN^M0
 2|2|P|2.4|||AL|AL|||
MFI|PRA|iSOFT||20020419133227|20020419133227|AL
MFE|MAD|112233445566|20020419133227|G123456|PL
STF|G123456^^OCS~88773^^INT||Jenkins^William^^^Dr|GP|M|19560719|
 A|||01142667095||19910321|||william.jenkins@gpnet.org|
PRA|G123456^^OCS~88773^^INT|565758^^OCS||||||19910321
```

GP William Jenkins has a national code of G123456 and an internal code on the master system of 88773. The PRA segment links him to practice 565758.

8.8.4 Add GP to patient record with different practice and surgery

```
MSH|^~\&|iIE|iSOFT IE|REMASS AE|REMASS AE|20020419133227||ADT^A0
 8|2|P|2.4|||AL|AL
EVN|A08|20020419133227
PID|||1992154^^^SD^MR||Bloomer^George^^^MR||19770101|M|||Salisbu
 ry District H^Odstock Road^SALISBURY^Wiltshire^SP2 8BJ^QD7^HOME
 ||01722 446251|||S|COF||||WHI||||||||199911100110|Y
PD1|||The Hollies Medical Centre^^123ABC~Great Bradwell Surgery^
 ^565758|G123456^^OCS|
```

The PD1 segment shows the patient registered to GP G123456 at practice 123ABC; the patient's normal surgery is 565758.

Chapter 9 - Medical Records

Until this chapter has been reviewed by HL7 UK, implementations should use ‘HL7 2.4 or later’.

Chapter 10 - Scheduling

HL7 UK adopts the described Scheduling functionality in HL7 with no additions or amendments.

Chapter 11 - Patient Referral

Until this chapter has been reviewed by HL7 UK, implementations should use ‘HL7 2.4 or later’.

Chapter 12 - Patient Care

Until this chapter has been reviewed by HL7 UK, implementations should use ‘HL7 2.4 or later’.

Chapter 13 - Clinical Laboratory Automation

Until this chapter has been reviewed by HL7 UK, implementations should use ‘HL7 2.4 or later’.

Chapter 14 - Network Protocols

Until this chapter has been reviewed by HL7 UK, implementations should use ‘HL7 2.4 or later’.

Appendix A - Z-Messages, Segments & Fields

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A.1 Purpose

This Appendix specifies the Z-Messages, segments and fields for use by implementations conforming to this Standard. This will help to avoid naming collisions and identify common data requirements not met by existing HL7 definitions. This will also allow for better documentation and possible re-use of these local definitions.

A.2 Terminology

Z-Messages, segments, and fields are constructs that allow for mutually agreeable extensions to the defined HL7 data set. The letter Z has been set aside by HL7 to accommodate these extensions.

In addition to this, HL7 UK reserves the 'ZU' identifier for the implementation of Z-Segments in this Standard. Implementations conforming to this Standard shall use identifiers other than ZU for locally-agreed extensions.

A.3 Rules/constraints

Even though Z constructs are an acceptable part of the HL7 structure, in general these constructs should not interfere with the normal parsing and application of a message.

Implementation Guidance

- *Every message, segment, or field that is found in this appendix is not currently part of HL7 2.4. This guideline may move along as versions of HL7 are published.*
- *Use of Z-Messages, segments and fields must be pre-approved by HL7 UK.*
- *Z-Segments will be implemented in a hierarchical structure determined by the structure of the message they are appended to. For example, the ZPI precedes the ZPV because the PID is encountered in the message before the PV1.*
- *Use messages that begin with Z for new or as yet unrecognised messages, for example, Z44 in lieu of A44 for use of an HL7 v2.4 ADT message in an HL7 v2.2 interface.*
- *Z-Messages with use cases will appear in their appropriate chapters. Z-Segments and Z-Fields will appear in Appendix A.*
- *Message type ID (MSH:9.1), Trigger event ID (MSH:9.2), and Event Type Codes (EVN:1) must be defined for all Z-Messages. These values are extensions of HL7 Table 0076 - Message Type and HL7 Table 0003 - Event Type.*

- *Never re-use Z-Message IDs.*
- *Avoid re-using Z-Segment IDs.*
- *Locate Z-Segments at the end of the message.*
- *Avoid complex dependencies with existing segments, for example, a repeating piggyback Z-Segment that is conditionally required.*
- *It is strongly recommended that systems avoid putting Z-Fields at the end of existing Z-Segments. This is to ensure future compatibility if HL7 should extend the number of fields in any given segment.*
- *Locate Z-Fields at the end of segments, for example, AL1 extensions.*
- *Z-Fields and Z-Segments cannot be "required" in a given message.*
- *Z-Segments that are optional may contain required fields. If you populate the segment, you must populate the required fields.*
- *Sending systems will populate Z-Segments where data is available.*

A.3.1 Table of supported Z-Segments

The Section/chapter column indicates the section within this chapter where the details of the segment are defined. The sub-sections in section 4 of this chapter correlate to the chapters throughout the manual – for example section A.4.3 contains the Z-Segments related to Chapter 3.

Z-seg	Name	Purpose	Section/ chapter
ZU1	UK Additional data	Additional episode data	A.4.3.1
ZU2	UK Augmented care	UK Specific details not in HL7 (for backwards compatibility only)	A.4.3.2
ZU3	UK Additional Data - Attendance details	UK Specific details not in HL7	A.4.3.3
ZU4	UK Additional Data - Waiting List	UK Specific details not in HL7	A.4.3.4
ZU5	UK Additional Data - Psychiatric census	UK Specific details not in HL7	A.4.3.5
ZU6	UK Additional Data - Labour and delivery	UK Specific details not in HL7	A.4.3.6
ZU7	UK Additional Data - Birth	UK Specific details not in HL7	A.4.3.7
ZU8	UK Additional Data - Miscellaneous Demographic	UK Specific details not in HL7	A.4.3.8

A.3.2 Table of supported Z-Fields

There are as yet no supported Z-Fields in this Standard

A.3.3 Table of supported Z-Messages

There are as yet no supported Z-Messages in this Standard

A.4 Segment definitions

A.4.1 Chapter 1 - Introduction

There are no Z-Segments associated with this chapter.

A.4.2 Chapter 2 - Control

There are no Z-Segments associated with this chapter.

A.4.3 Chapter 3 - Patient Administration

A.4.3.1 ZU1: UK Additional Data

This Z-Segment is needed for additional UK required data. For full details of the data items refer to the NHS Data dictionary and Manual.

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	TS	O		Date of decision to admit.
2	CE	O		Intended Management.
3	IS	O		Coding status.
4	TS	O		Consultant Episode start Date/Time.
5	TS	O		Consultant Episode end Date/Time.
6	CE	O		Consultant's main Specialty.

Seq	HL7 UK data type	R/O/C	RP/#	Element name
7	CE	O		Treatment Specialty
8				(Not Used)
9	CE	O		Neonatal Level of Care.
10	CE	O		OSV Status.
11				(Not Used)
12				(Not Used)
13	CE	O		Source of Referral
14	CE	O		Service Type Requested
15	TS	O		Referral Request Received Date.
16	TS	O		Referral Date.
17	CE	O		Referral Receipt Method.
18	ID	O		Written Referral Indicator.
19	CE	O		First Regular Day or Night Admission.
20	CE	O		Psychiatric Admission Status.
21	OP	O		Significant Facility.
22	ID	O		Medically Fit Indicator.
23	ID	O		Embedded Daycase Indicator.
24	TS	O		Ready for Discharge.
25	CE	O		Borrowed Bed Specialty
26	XCN	O		Borrowed Bed HCP
27	IS	O		NHS Number Tracing Status

Field notes

A.4.3.1.1 Date of Decision to admit (TS)

Definition: This date may be the same as the date of admission (e.g. most emergency admissions). Alternatively, a decision can be made to admit at a future date. This decision denotes that it is intended the Patient be admitted to a hospital bed, either immediately or in the future. It records the event that a clinical decision to admit a Patient to a hospital bed has been made by or on behalf of someone, who has the right of admission to a hospital provider.

A.4.3.1.2 Intended Management (CE)

Definition: This categorisation describes what is intended to happen to the Patient. Occasionally the Patient's treatment does not go exactly to plan. For example, a Patient admitted as a day case may develop complications and have to be kept in overnight. Therefore another data item, Patient Classification, is used to describe what actually happens to the Patient. See the NHS data manual for codes.

A.4.3.1.3 Coding Status (IS)

Definition: This defines the status of the patient information. Suggested values are:

Value	Description
I	Incomplete
C	Complete

A.4.3.1.6 Consultants Main Specialty (CE)

Definition: This is the patient consultant's main specialty. This may be different from the patient's specialty. The national code and any local code will be sent in this field.

A.4.3.1.7 Treatment Specialty (CE)

Definition: The specialty of the actual treatment given.

A.4.3.1.9 Neonatal Level of Care (CE)

Definition: The value recorded must be the highest level of care given during the Consultant Episode.

Implementation Guidance

This originates from Neonatal level of care in the NHS Data Model and Dictionary for England.

A.4.3.1.10 OSV Status (CE)

Definition: UK healthcare organisations must determine eligibility for free NHS treatment for patients. This is done normally via a questionnaire based upon Department of Health Guidance that results in an Overseas Visitors Status being assigned.

Implementation Guidance

This originates from Overseas Visitor Status Classification in the NHS Data Model and Dictionary for England and HL7 UK implementations should use this as the values for the User-defined Table 0171.

This field should not be used to contain Citizenship. Citizenship (PID-26) should be used to contain citizenship values.

A.4.3.1.14 Service Type Requested (CE)

Values:

Value	Description
1	Advice/consultation
2	Specific procedure
3	Other

A.4.3.1.18 Written referral indicator (ID)

Values: 'Y' or 'N' - *HL7 Table 0136*

A.4.3.1.19 First Regular day or Night Admission (CE)

Values:

Code	Classification
0	First in a series
1	Subsequent to first in a series
8	*Not applicable: this episode of care is neither the first nor any subsequent attendance within a sequence of regular day/night admissions.*
9	*Not known: this episode is an attendance with a sequence of regular day/night admissions, but the status of this episode within the attendance is not known: a validation error*

This is another NHS Data Manual item. It indicates that an inpatient attendance is part of a series of planned admissions and if it is whether or not it is the first one.

A.4.3.1.20 Psychiatric Admission Status

This data item is deliberately in this segment and not ZU5 because ZU5 is the psychiatric census segment and this is admission information. Psychiatric admission status is mandatory for all psychiatric admissions.

Implementation Guidance

This originates from Psychiatric Patient Status in the NHS Data Model and Dictionary for England.

A.4.3.1.21 Significant Facility (OP)

This facility is that which is used in SMRs.

A.4.3.1.22 Medical Fit Indicator (ID)

Definition: 'Y' or 'N' *HL7 Table 0136*

A.4.3.1.23 Embedded Daycase Indicator (ID)

Definition: 'Y' or 'N' *HL7 Table 0136*

This is specific to Scottish implementations.

A.4.3.1.24 Ready for Discharge (TS)

Definition: Date patient first became medically fit for discharge.

A.4.3.1.25 Borrowed Bed Specialty (CE)

Definition: Specialty code of the bed, for which it was originally intended, if it is being used for another specialty.

A.4.3.1.26 Borrowed Bed HCP (XCN)

Definition: National code of HCP from whom Bed Borrowed.

A.4.3.1.27 NHS Number Tracing Status (IS)

Definition: Status code

Implementation Guidance

This originates from NHS Number Tracing Status value in the NHS Data Model and Dictionary for England.

A.4.3.2 ZU2: UK Additional Data – Augmented Care

This segment has been retained for backwards compatibility only in the HL7 UK A3 specification.

For full details of the data items refer to the NHS Data Model and Dictionary for England.

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	TS	R		Augmented Care start date
2	CE	R		AC care period source
3	NM	R		AC Intensive care level days.

Seq	HL7 UK data type	R/O/C	RP/#	Element name
4	NM	R		AC High dependency Care level days
5	PL	R		AC location
6	NM	R		AC No. of Organ Systems supported
7	CE	R		AC Specialty Function Code
8	ID	R		AC planning indicator
9	CE	R		AC Outcome indicator
10	CE	R		AC Period Disposal
11	DT	C		AC End Date

Field notes

A.4.3.2.1 AC Start Date (TS)

If ZU2:01 Augmented Care Start Date is sent as "" then the Augmented Care Period (as identified by PV1:19) is to be deleted.

A.4.3.2.3 AC Intensive Care level days (NM)

Range of values: 0-999

A.4.3.2.4 AC High dependency care level days (NM)

Range of values: 0-999

A.4.3.2.5 AC location (PL)

Definition: Location of augmented care.

A.4.3.2.6 AC No. of organ systems supported (NM)

Range of values: 0-9

A.4.3.2.7 AC Specialty function code (CE)

Definition: Specialty National Code

A.4.3.2.8 AC Planning indicator (ID)

Values: 'Y' or 'N' *HL7 Table 0136*

A.4.3.2.11 AC End date (DT)

This field is required if the Augmented care period (as identified by the episode) is not the current one.

A.4.3.3 ZU3: UK Additional Data – Attendance Details

The data items in this segment are all OP data items (which includes, but is not limited to, Ward Attenders). All of these items are required to construct a CMDS; i.e. they are NHS requirements.

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	CE	O		Location Type
2	CE	O		Medical Staff Type seeing Patient
3	CE	O		Attended or DNA
4	CE	O		Outcome of Attendance
5	CE	O		Transport Requirements
6	CE	O		Attendance Class
7	CE	O		Diary Type
8	CE	O		Appointment Type
9	CE	O		Patient Age Sex Mix
10	CE	O		Intended Clinical Care Intensity
11	CE	O		Broad Patient Group
12	CE	O		First Attendance Indicator
13	CE	O		Cancelled By
14	CE	O		Source of Attendance

Field notes

A.4.3.3.2 Medical staff type seeing patient (CE)

Values:

Code	Classification
01	Consultant
02	Consultant firm
03	Not applicable (e.g. ward attenders)
04	Not known

A.4.3.3.3 Attended or DNA (CE)

Values:

Code	Classification
5	Patient arrived on time or, if late, before the relevant health care professional was ready to see them
6	Patient arrived late, after the relevant health care professional was first ready to see them, but was seen
7	Patient arrived late and could not be seen
2	Appointment cancelled by patient
3	Did not attend - no advance warning given
4	Appointment cancelled or postponed by the Health Care Provider

A.4.3.3.4 Outcome of Attendance (CE)

Implementation Guidance

This item originates from Outcome of Attendance in the NHS Data Model and Dictionary for England.

A.4.3.3.5 Transport Requirements (CE)

Implementation Guidance

This item originates from Transport Need in the NHS Data Model and Dictionary for England.

A.4.3.3.9 Patient Age Sex Mix (CE)

Definition: This item is derived from and and relates to the intended use of a ward.

Implementation Guidance

This item is derived from the combination of both Age Group Intended and Sex of Patients in the NHS Data Model and Dictionary for England.

A.4.3.3.10 Intended Clinical Care Intensity (CE)

Definition: Code defining extra care intended.

Implementation Guidance

This item originates from Intended Clinical Care Intensity (which must also include values from Clinical Care Intensity) in the NHS Data Model and Dictionary for England.

A.4.3.3.11 Broad Patient Group (CE)

Definition: Broad classification of the patient's specialty.

A.4.3.3.12 First attendance indicator (CE)

Definition: Is this the first attendance, a follow up or not known?

A.4.3.3.13 Cancelled by (CE)

Definition: Coded type of person who cancelled this attendance.

A.4.3.3.14 Source of attendance (CE)

Definition: Coded reason for attendance.

A.4.3.4 ZU4: UK Additional Data – Waiting List

This data is all part of the WL CMDS.

It is true that a WL can be regarded as a schedule but Chapter 10 triggers/messages are built around a request for resource (ARQ) / reply with schedule (SCH) mechanism. UK WL events are better viewed as ADT and in any case need data items that are part of the PV1 segments and not part of SCH.

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	TS	O		Date this provider.
2	TS	O		Original date on list
3	TS	O		Guaranteed Admission date.
4	TS	O		Suspension start date
5	TS	O		Suspension end date
6	TS	O		TCI date
7	CE	O		Responsible HCP provider
8	CE	O		Source if addition
9	CE	O		Removal/Reinstate reason
10	TS	O		Removal/Reinstate date
11	CE	O		Outcome of offer of admission

Seq	HL7 UK data type	R/O/C	RP/#	Element name
12	CE	O		Initiator of suspension
13	CE	O		Waiting list type
14	CE	O		Reason for exceeding Guarantee Date
15	TS	O		Last Review Date

Field notes

A.4.3.4.1 Date this provider

Standard Waiting List CMDS (Data Manual) item.

A.4.3.4.3 Guaranteed Admission date

Standard Waiting List CMDS (Data Manual) item.

A.4.3.4.9 Removal/Reinstate reason (CE)

Implementation Guidance

This originates from Elective Admission List Removal Reason from the NHS Data Model and Dictionary for England.

A.4.3.4.11 Outcome of offer of admission (CE)

Implementation Guidance

This originates from Admission Offer Outcome in the NHS Data Model and Dictionary for England.

A.4.3.4.12 Initiator of Suspension (CE)

Implementation Guidance

Definition: Identifier = Code as per Elective Admission Suspension Indicator in the NHS Data Model and Dictionary for England.

A.4.3.4.13 Waiting list type (CE)

Definition: Identifier = Code as per Data Manual plus the name of the coding system in use.

A.4.3.4.14 Reason for exceeding Guarantee date (CE)

Definition: Identifier = Code as per Data Manual plus the name of the coding system in use.

A.4.3.4.15 Last Review Date (TS)

Standard Waiting List CMDS (Data Manual) item.

A.4.3.5 ZU5: UK Additional Data – Psychiatric Census

This information is intended for a once a year psychiatric census information for the patient

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	DT	R		Census Year.
2	CE	O		Legal Status on Admission
3	CE	O		Legal Status at Census Date
4	CE	O		Mental Category
5	TS	O		Date Detention Commenced
6	NM	O		Ward Type at Census Date

A.4.3.6 ZU6: UK Additional Data – Labour & Delivery

Labour and Delivery data that is not explicitly defined in the ZU6 segment or any other segment defined in this Standard shall be communicated by means of an Observation (OBX) segment.

Implementation Guidance

Although ZU6 and ZU7 are usually sent as a pair of segments (ie. if one is present, the other is also sent) there may be situations where it is valid for the sending system to just send one or the other. Consequently, receiving systems should not make any assumptions about the other segments present in a message if ZU6 or ZU7 is received.

ZU6 and ZU7 contain data required for the Maternity CDS. However, as the complete CDS requires data from both the mother and baby it is recognised that these segments cannot be used to construct a single message capable of sending the complete CDS.

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1	ST	O		Antenatal GP
2	TS	O		First Antenatal Assessment Date
3	NM	O		Number of Previous Pregnancies
4	CE	O		Actual Delivery Place
5	TS	O		Delivery Date
6	CE	O		Intended Delivery Place
7	CE	O		Delivery Place Change Reason

Seq	HL7 UK data type	R/O/C	RP/#	Element name
8	NM	O		Estimated Gestation Length at Initial Assessment (weeks)
9	CE	O		Labour/Delivery Onset Method
10	CE	O		Delivery Method
11	CE	O		Status Of Person Conducting Delivery
12	CE	O		Anaesthetic Given During Labour/Delivery
13	CE	O		Anaesthetic Given Post Labour/Delivery
14	NM	O		Number of babies

Field notes

A.4.3.6.8 Estimated Gestation Length at Initial Assessment (weeks) (NM)

Range of values: 10-49

A.4.3.6.9 Labour/Delivery Onset Method (CE)

Implementation Guidance

This originates from Labour/Delivery Onset Method in the NHS Data Model and Dictionary for England.

A.4.3.6.12 Anaesthetic Given During Labour/Delivery (CE)

Implementation Guidance

This originates from Anaesthetic Given During Labour/Delivery in the NHS Data Model and Dictionary for England.

A.4.3.6.13 Anaesthetic Given Post Labour/Delivery (CE)

Implementation Guidance

This originates from Anaesthetic Given Post Labour/Delivery in the NHS Data Model and Dictionary for England.

A.4.3.6.14 Number of Babies (NM)

Range of values: 1-9

A.4.3.7 ZU7: UK Additional Data – Birth

Birth data that is not explicitly defined in the ZU7 segment or any other segment defined in this Standard shall be communicated by means of an Observation (OBX) segment.

Implementation Guidance

Although ZU6 and ZU7 are usually sent as a pair of segments (ie. if one is present, the other is also sent) there may be situations where it is valid for the sending system to just send one or the other. Consequently, receiving systems should not make any assumptions about the other segments present in a message if ZU6 or ZU7 is received.

ZU6 and ZU7 contain data required for the Maternity CDS. However, as the complete CDS requires data from both the mother and baby it is recognised that these segments cannot be used to construct a single message capable of sending the complete CDS.

Seq	HL7 UK data type	R/O/C	RP/#	Element name
1				Not Used
2	CE	O		Live or Still Birth Code
3	NM	O		Birth Weight.
4				Not Used
5	CE	O		Resuscitation Method
6	NM	O		Gestation Length at Onset of Labour (weeks)
7	NM	O		Number of births this confinement
8	ID	O		Suspected Congenital Anomaly
9	NM	O		Birth Order

Field notes

A.4.3.7.2 Live or Still Birth code (CE)

Seq	Element name	HL7 UK data type	R/O/C
1	Identifier	CM	C
2	Not used		
3	Name of Coding System	ST	O

A.4.3.7.2.1 Identifier (CM)

The codes to be used will be:

Value	Classification
1	Live
2	Still birth, ante partum
3	Still birth, intra partum
4	Still birth, indeterminate
5	Dead

A.4.3.7.2.3 Name of coding system (ST)

Shall be ‘UKNHSDM’.

A.4.3.7.3 Birth Weight (NM)

Values to be in grams.

A.4.3.7.5 Resuscitation Method (CE)

Seq	Element name	HL7 UK data type	R/O/C
1	Identifier	CM	C
2	Not used		
3	Name of Coding System	ST	O

A.4.3.7.5.1 Identifier (CM)

As defined in the NHS Data Manual

A.4.3.7.5.3 Name of coding system (ST)

Shall be 'UKNHSDM'.

A.4.3.4.6 Gestation Length at Onset of Labour (weeks) (NM)

Range of values: 10-49.

A.4.3.4.7 Number of births this Confinement (NM)

Range of values: 1-9.

A.4.3.4.8 Suspected Congenital anomaly (NM)

Values: 'Y' or 'N' - *HL7 Table 0136*.

A.4.3.7.9 Birth Order (NM)

Range of values: 1 – Number of Births this Confinement.

A.4.3.8 ZU8: UK Additional Data – Miscellaneous Demographic

This is an optional segment introduced to contain miscellaneous person demographic data.

Seq	HL7 UK data type	R/O/C/X/ B/W	RP/#	Element name
1	IS	O		Sexual Orientation
2	IS	O		DCR Consent to Share
3	IS	O		SCR Consent to Store
4	IS	O		Location Hiding

A.4.3.8.1 Sexual Orientation (IS)

Definition: This data element is used to store the self-declared sexual identity of a patient.

Implementation Guidance

It is suggested that UK implementations conforming to this Standard adopt the following values for the User-defined table ZU032. These values comply with guidance created by the Office of National Statistics.

User-defined Table ZU032– Sexual Orientation:

Value	Description
1	Heterosexual
2	Homosexual (Not Specified)
2a	Gay Man
2b	Lesbian / Gay Woman
3	Bisexual
4	Not Certain
U	Unknown
X	Other
Z	Not Stated (PERSON asked but declined to respond)

A.4.3.8.2 DCR Consent to Share (IS)

Definition: This field is used to transmit a code indicating consent to share a patient's detailed care information.

Implementation Guidance

It is suggested that UK implementations conforming to this Standard adopt the following values for the User-defined table ZU056. This originates from the Consent to Share Indicator in the NHS England Personal Demographics Service (PDS).

User-defined Table ZU056 – DCR Consent to Share:

Value	Description
1	Express consent
2	Express dissent
3	Consent Status Unknown
NULL	Implies Consent

A.4.3.8.3 SCR Consent to Store (IS)

Definition: This field is used to transmit a code indicating consent to store a patient's summary care information.

Implementation Guidance

It is suggested that UK implementations conforming to this Standard adopt the following values for the User-defined table ZU058. This originates from the SCR Consent Preference/Permission to View used in the NHS England Summary Care Record.

User-defined ZU058 – SCR Consent to Store:

Value	Description
Yes	Patient need not be asked every time for permission to view their Summary Care Record.
No	Patient does not wish to have a Summary Care Record.
NULL	Patient must be asked every time for permission to view their Summary Care Record.

A.4.3.8.4 Location hiding (IS)

Definition: This flag allows the local system to indicate what scope of location hiding it will use when communicating with other HL7 connected systems.

Implementation Guidance

Applications should offer the ability to "hide" patient location details to protect the patient. This feature should be used, for example, to protect the location details of an abused spouse. It is intended to offer a reasonable but limited level of protection, while still allowing essential care processes to continue.

Typically a hiding capability will involve blanking / obscuring / protecting location-related fields including:

Addresses

Telephone numbers

Email addresses

Next of kin details

GP details

Both the concept of "local hiding" and the national NHS England Personal Demographic Service (PDS) "S-Flag" provide functionality for hiding of patient location information. However the implementation details are not the same.

- *The "S-flag" feature in PDS simply limits the release of location data from PDS itself, which PDS handles by never releasing such data.*
- *"Local hiding" could involve simple discarding of incoming messages relating to hidden patients, through to more sophisticated Role Based Access Controls (RBAC) controlling the visibility of individual fields. If applications offer hiding of location details at a local level then, what is appropriate for local applications is more flexible and may be different to the approach taken by PDS.*

The appropriate system response (e.g. message) to search facilities for patients who are locally hidden and whose location details should be protected is a local decision, depending on the need to restrict the locations details but still provide effective care. By including the value of the patient "location hiding" status, an application allows downstream processing in other applications to also provide appropriate handling of these "hidden" location details.

It is suggested that UK implementations conforming to this Standard adopt the following values for the User-defined table ZU057.

User-defined Table ZU057 – Location Hiding:

Value	Description
2	National S-flag determines location hiding - location details should be hidden because the "S-Flag" on the NHS England Personal Demographics Service (PDS) is set.
1	Local Location Hiding - location details should be hidden, because a "local hiding" flag within the sending application is set.
0	No Location Hiding - location details are not sensitive and may be displayed normally.

A.4.4 Chapter 4 - Order Management

There are no Z-Segments associated with this chapter.

A.4.5 Chapter 5 - Query

There are no Z-Segments associated with this chapter.

A.4.6 Chapter 6 - Finance

There are no Z-Segments associated with this chapter.

A.4.7 Chapter 7 – Observation Reporting

There are no Z-Segments associated with this chapter.

A.4.8 Chapter 8 - Master Files

There are no Z-Segments associated with this chapter.

A.4.9 Chapter 9 - Medical Records

There are no Z-Segments associated with this chapter.

A.4.10 Chapter 10 - Scheduling

There are no Z-Segments associated with this chapter.

A.4.11 Chapter 11 - Patient Referral

There are no Z-Segments associated with this chapter.

A.4.12 Chapter 12 – Patient Care

There are no Z-Segments associated with this chapter.

A.4.13 Chapter 13 – Clinical Laboratory Automation

There are no Z-Segments associated with this chapter.

A.4.14 Chapter 14 – Network Protocols

There are no Z-Segments associated with this chapter.

A.5 Field definitions

All Z-Fields will be documented within the specific chapters where the HL7 segments are defined.

A.6 Open issues

None.

Appendix B - Terminology

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B.1 Purpose

There are a number of differences in definition and interpretation of specific words and phrases between the US and the UK. Where there is a serious risk of confusion, the definitions and explanations in the following glossary should be used when interpreting the Standard for use in the UK.

B.2 Glossary

The following list has three columns:

- Term – The word or phrase that is being defined
- HL7 UK Usage – The meaning that is to be used when the word or phrase is encountered in this Standard
- Notes – Additional non-normative information relating to the word or phrase.

Term	Definition / Explanation	Notes
Aliquot	A portion of a specimen placed in a separate container to facilitate concurrent testing or to hold in reserve for future use.	The portion of the specimen is typically removed from the original specimen after initial processing, such as centrifugation, to obtain serum or plasma samples, and is considered to be chemically identical to all other subdivisions of an original sample of serum, plasma, urine, CSF, etc. It may be necessary to identify the aliquot as an individual specimen distinct from the original specimen in a collection container labeled with a unique identifier that may be linked to or associated with the primary collection container.

Term	Definition / Explanation	Notes
Battery	A set of one or more observations identified by a single name and code number and treated as a shorthand unit for ordering or retrieving results of the constituent observations. The word battery is used in this specification synonymously with the word profile or panel. The individual observation elements within a battery may be characteristic of a physiologic system (e.g., liver function tests), or many different physiologic systems. See also *Investigation* and *Set*	In keeping with the mathematical conventions about set, a battery can be a single observation. Vital signs, electrolytes, routine admission tests, and obstetrical ultrasound are all examples. Vital signs (conventionally) consist of diastolic and systolic blood pressure, pulse, and respiratory rate. Electrolytes usually consist of Na+, K+, Cl-, and HCO3-. Routine admission tests might contain CBC, Electrolytes, SMA12, and Urinalysis. (Note that the elements of a battery for our purposes may also be batteries). Obstetrical ultrasound is a battery made up of traditional component measurements and the impression, all of which would be returned as separate results when returned to the requestor. A test involving waveform recording (such as an EKG) can be represented as a battery comprised of results of many categories, including digital waveform data, labels and annotations to the data, measurements, and the impression
Container	The receptacle (eg. tube, bottle, jar, bag etc.) that holds a patient specimen.	
Enrolment	The recording of demographic information not specific to a *Registration*.	
Filler	*Person* or *Service* who produces the *Observation*(s) (fills the order) requested by the *Requestor*. The word is synonymous with "producer" and includes diagnostic services and clinical services and care providers who report observations about their patients. .	The clinical laboratory is a producer of lab test results (filler of a lab order), the nursing service is the producer of vital signs observations (the filler of orders to measure vital signs), and so on. The filler can also originate requests for services (new orders), add additional services to existing orders, replace existing orders, put an order on hold, discontinue an order, release a held order, or cancel existing orders
Investigation	One or more *Observation* identified by a single code. May also be used to refer to a single test in some situations. See also *Battery* and *Set*	

Term	Definition / Explanation	Notes
Observation	A measurement of a single variable or a single value derived logically and/or algebraically from other measured or derived values. See also *Test*	A test result, a diastolic blood pressure, and a single chest X-ray impression are examples of observations.
Order	A *Request* for a service from one application to a second application.	The second application may in some cases be the same; ie, an application is allowed to place orders with itself. The service may be for an individual item, a battery of tests, a compound order of multiple services, an order carried out over time.
Patient	A *Person* actively involved in an episode of care. A Patient my be either 'admitted' or 'non-admitted'	
Person	An individual known to the communicating systems through some relationship, which may or may not involve an episode of care. In many instances, the person may simply be a member of a population of interest to the systems. A person actively involved in an episode of care becomes a *Patient*.	Systems may choose to not accept (or not store) person information except as relevant to their processes.
Placer	Person or service that requests (places order for) an observation battery, e.g., the physician, the practice, clinic, or ward service, that orders a lab test, X-ray, vital signs, etc. The meaning is synonymous with, and used interchangeably with, *Requestor*.	
Registration	The act of recording personal information such as demographics, resulting in an inpatient or outpatient treatment status. See also *Enrolment*.	
Request	An *Order* for one or more diagnostic services from the same provider. Where a *Specimen* is used as the basis for the *Investigation*s, all shall be related to the same *Specimen*.	
Requestor	Used interchangeably with *Placer*	
Sample	Used interchangeably with *Specimen*	
Specimen Number	An identifier for a single *Specimen*.	

Term	Definition / Explanation	Notes
Specimen Type	Coded identification of type of *Specimen*. Example(s): urine, blood, sputum, swab, synovial fluid.	
Set	One or more related pathology tests carried out on a single sample. Sets are generally considered to be a logical test group for requesting and reporting purposes.	
Specimen	The discrete portion of a body fluid or tissue taken for examination, study, or analysis of one or more quantities or characteristics, to determine the character of the whole. Used interchangeably with *Sample*.	The substance may still be referred to as a specimen if it has been processed from the obtained specimen; thus, examples of specimens include whole blood and serum or plasma prepared from whole blood; saliva; cerebrospinal fluid; feces; urine; fingernail clippings; hair clippings; tissue samples, even if embedded in a paraffin block.
Test	See *Observation*	