

1. Introduction

UK transfusion service and hospital blood bank computer systems have developed to provide sophisticated control of information on donors, blood components and patients, with secure methods of information transfer utilising bar codes and electronic data capture. However, secure information transfer between the transfusion centres and their customer hospitals has been limited to the bar coded information incorporated on the blood packs, and is of restricted scope.

Interest in developing electronic data transfer has been stimulated recently, with the emphasis on the electronic transfer of ordering and dispatch information. The UKBTS Standing Advisory Committee on IT recognised the desirability of developing UK wide standards for data transfer at an early stage in this process.

This document describes a standard for messages used in communication between blood services and their customers. Each message comprises a standard envelope and a message content. The envelope specifies the overall structure of UKBTS messages and identifies the specific message content included inside the envelope. The message content will comply with one of the message protocols defined in this document. Each message protocol defines the content and format of a specific type of data transaction.

The standard does not address the delivery mechanism, or any surrounding envelopes. Thus, it provides a standard which is relevant to delivery mechanisms as diverse as e-mail messages, web page downloads, ftp transfers, or ASCII text files.

At the same time it retains a standard presentation of messages which readily identifies them as belonging to the UKBTS set, and allows a general process to identify the type of message received, the source and the destination.

In the future it is hoped that ordering and dispatch information will be incorporated into HL7 message structures, and this will provide a future migration path for electronic messaging. However, the HL7 Blood Banking Special Interest Group have not started work in this area yet, and so it is likely to be some years before an HL7 message is available. In the meantime the messages defined in this document should be used.

2. Control of message structures.

The standard is controlled by the UKBTS Standing Advisory Committee on Information Technology (SACIT). All messages utilising the UKBTS envelope must comply with an approved message structure.

Proposals for new messages, or amendment to existing messages, should be submitted in the first instance to the chairman of SACIT. These will be reviewed by the EDI group and if approved will be incorporated into the standard. Whilst the objective is to obtain standards applied throughout the UK, the two level structure does allow the

flexibility of defining different structures at the message protocol level where essential.

3. General Protocol

The general protocol defines the general character of the overall message, and elements which are common to both the envelope and the message content. The message uses standard ASCII characters throughout, and lines are terminated with the carriage return (ASCII 13) character. Fields are all fixed width and left justified. Leading zeros for numeric fields are only used where explicitly indicated.

The following are standard components of every line transmitted:

3.1. *The line number*

A sequential number defining the line in the file, which is located in character positions 1 to 5 of every line. The header line will always have a line number of 00001.

3.2. *The checksum*

The checksum immediately precedes the carriage return terminator of each line. The checksum is calculated by taking the sum of the ASCII value of all characters in the line, and then determining the modulus 97 remainder which becomes the check sum.

4. Envelope Definition

The envelope definition defines the content of the first and last lines of the file/transmission.

The first or header line contains an identifier specifying that this is a message complying with a UKBTS specification, the date and time generated, the source and destination of the message, and the protocol number which identifies the relevant protocol to which the message conforms.

Source and destination identifiers for the Blood Services will be the ISBT128 Collection Facility Identification Code. It is anticipated that hospital blood banks will use the identifier assigned by their local Blood Service.

The terminator line contains a record count indicating the total number of message lines excluding the header and terminator lines, and a standard message terminator message.

Envelope Definition					
Header Line					
Field	Length	Description	Format	Mandatory ?	Notes
1	5	Line number	NNNNN	Y	Always 00001 for header
2	10	Fixed Text	"UKBTSSTART"	Y	
3	8	Date	YYYYMMDD	Y	
4	4	Time	HHMM	Y	
5	6	Protocol Number	NNNNNN	Y	Allocated by UKSACIT
6	6	Source ID	XXXXXX	Y	
7	6	Destination ID	XXXXXX	Y	
8	2	Checksum	NN	Y	
9	1	Terminator	Carriage return	Y	
Footer Line					
Field	Length	Description	Format	Mandatory ?	
1	5	Line number	NNNNN	Y	
2	9	Fixed Text	"UKBTSSTOP"	Y	
3	5	No of records	NNNNN	Y	
4	2	Checksum	NN	Y	
5	1	Terminator	Carriage return	Y	

5. Message Protocols

The following table indicates the protocols defined to date.

Protocol Number	Title	Description
000001	Blood Component Dispatch Information	Defines the message used to transfer information on blood component issues.
000002	Blood Derivative Dispatch Information	Defines the message used to transfer information on blood derivative issues.
000003	Reagent Dispatch Information	Defines the message used to transfer information on reagent issues.
000004	Blood Component Dispatch Acknowledgement	Defines the message used to transfer information on blood components received.
000005	Blood Component Fate Information	Defines the message used to transfer information on the fate of blood components received.

The message protocols contain a range of data defined as either mandatory or optional. The mandatory fields give essential information and must contain valid data. The optional fields give the flexibility to build in a wide range of additional information, but if not required are left as blank (space character) fields.

9. Protocol 000005 – Blood Component Fate Information

One data line structure is currently defined within this protocol. The data line is a multiple occurrence line with an entry for each item in the message. The data line has a line type indicator in common with the previous protocols to allow for additional line types to be created if required. It is expected that this message will be generated daily and will include information on all units that are:

1. Free for use
2. Allocated to patient (either directly or notionally)
3. Has been marked as transfused or wasted in the period from the date the report was last gathered (minus 5 days) up until the present date.

This message will be used for all products with the exception of certain batched products (such as anti-D). Some batched products are excluded as each dose may not be allocated a unique unit number (Platelet Pools are not excluded).

Message Protocol 000005					
Blood Component Fate Information					
Data line					
Field	Length	Description	Format	Mandatory ?	
1	5	Line number	NNNNN	Y	
2	1	line type	N	Y	= "1"
3	15	Unit number	C(15)	Y	ISBT 128 donation identification number (data characters with check character, e.g. "G151797123456L "
4	9	Product code	C(9)	Y	Component code (either a full 9 character codabar code (including start and stop characters), or an 8 character ISBT128 product code excluding the data identifier characters)
5	2	Group ABO	C(2)	Y	'A','B','O' or 'AB'
6	2	Group Rh D	C(1)	Y	'+' or '-'
7	1	Status	C(1)	Y	F = free A = allocated T = transfused W = wasted C = Confirmed transfusion n.b. Confirmed transfusion refers to transfusions that have been positively confirmed by electronic means.
8		Wasted Classification Code	C(5)	N	Only used if "Status" (Field 7) is marked as wasted (W). The Wasted Classification Codes are maintained by the

					Blood Stocks Management Scheme (see below).
9		Date used/wasted	YYYYMMDD	N	Only if marked as wasted (W) or transfused (T or C). Presumptive YYYYMMDD should be included if exact date not known.
10		Time used/wasted	HHMM	N	Only if marked as wasted (W) or transfused (T or C). Optional.
11		Patient Age	NNN	N	Only if marked as transfused (T or C). Optional. Age in number of full years.
12		Patient Gender	C(1)	N	Only if marked as transfused (T or C). Optional. M = Male, F = Female
13		Blank Field	C(10)	N	Area reserved for future use.
14		Checksum	NN	Y	
15		Terminator	Carriage return	Y	

Message Protocol 000005 Blood Component Fate Information

Field 8 : Wasted Classification Code

Product Super Group	Code	Full Name	Code Usage	Date Started	Date Stopped
RED CELL	TIMEX	Time Expiry	The expiry date on the unit has passed	01 Apr 2001	N/A
RED CELL	OTCOL	Out of temperature control outside laboratory	Unit has been left out of temperature range for longer than 30 mins on the wards, in theatres or in any other non-laboratory location	01 Apr 2001	N/A
RED CELL	OTCIL	Out of temperature control outside laboratory	Unit has been left out of temperature range for longer than 30 mins in the laboratory.	01 Apr 2001	31 Mar 2003
RED CELL	FFAIL	Fridge Failure	The unit has been discarded as a direct result of a fridge failure	01 Apr 2003	N/A
RED CELL	MISCN	Miscellaneous	Any other reason the unit is wasted that is not covered by other codes.	01 Apr 2001	N/A
PLATELET	MORNU	Medically Ordered Not Used	Platelets ordered for medical procedure but not used	01 Apr 2003	N/A

Message Protocol 000005 Blood Component Fate Information

Field 8 : Wasted Classification Code

Product Super Group	Code	Full Name	Code Usage	Date Started	Date Stopped
PLATELET	SORNU	Surgically Ordered Not Used	Platelets ordered for surgical procedure but not used	01 Apr 2003	N/A
PLATELET	STMEX	Stock Time Expired	If a stock of platelets is held, the expiry date on the unit has passed	01 Apr 2003	N/A
PLATELET	WOSOL	Wasted outside of laboratory	Unit has been left out of temperature range for longer than 30 mins in the laboratory.	01 Apr 2003	N/A
PLATELET	WIMPT	Wasted Import	Unit imported with patient but not used	01 Apr 2003	N/A
PLATELET	MISCN	Miscellaneous	Any other reason the unit is wasted that is not covered by other codes.	01 Apr 2003	N/A

These codes are managed by the Blood Stocks Management Scheme. For further information visit <http://www.bloodstocks.co.uk>