# ITS Stock Management Interface
# Information for IT suppliers v0.3

**Version 0.3 draft**

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## Document Control

This document is only valid on the day it was printed.

## Summary of changes

This section records the history of significant changes to this document. Only the most significant changes are described here.

| Version | Date | Author | Description of change |
|---|---|---|---|
| 0.1 | 15th January 2013 | JF | Initial Draft |
| 0.2 | 8th February 2013 | JF | Updated following feedback from 1st review |
| 0.3 | 7th March 2013 | JF | Updated following feedback from 2nd review |

Where significant changes are made to this document, the version number will be incremented by 1.0. Where changes are made for clarity and reading ease only and no change is made to the meaning or intention of this document, the version number will be increased by 0.1.

## Approvals and Reviews

The approvals below are for all documents which form part of this process (narrative, process flow, forms, meeting charters, etc). Revisions of these documents are approved and reviewed by the job roles identified below.

### Approvers:

This document was approved by:

| Name | Title | Date |
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| Stuart Penny | ITS Stock Management Project Exec | 14th March 2013 |
| Steve Carroll | AD Business Systems Solutions | |

## Reviewers:

This document was reviewed by:

| Name | Title | Date |
|---|---|---|
| Stuart Penny | ITS Stock Management Project Exec | 7th March 2013 |
| Steve Carroll | AD Business Systems Solutions | 8th February 2013 |
| Neil Barnes | Stock Management Business Case | 7th March 2013 |
| Ian Kerr | Stock Management Project Manager | 7th March 2013 |
| Sue Cotton | Pilot Lead | 8th February 2013 |
| Lucy Frith | Pilot Lead | 8th February 2013 |
| Richard Gray | Hospital Liaison Lead | 8th February 2013 |
| Pam Pye | Communication Lead | 7th March 2013 |

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# 1. Background

During 2011 NHSBT worked with a range of hospitals and other stakeholders to carry out analysis of hospital transfusion and the blood supply chain including:

A thorough evaluation of our internal operations in terms of efficiency, effectiveness and service delivery.

Considering how extending expertise and IT systems into hospitals could make the supply chain more efficient, improve the service to patients and make best use of donations.

Working with hospital transfusion laboratory stakeholders to look at how hospital transfusion may be configured in the future as a result of wider pathology modernisation changes.

Considering how NHSBT will need to transform or develop services such as Red Cell Immunohaematology (RCI) and supply chain management in this new environment.

The initial findings of this analysis indicated that by redeveloping some of our services to hospitals, we could reduce blood wastage, improve demand and collection planning, as well as providing RCI services in more integrated and innovative ways.

The findings indicated that working with hospital customers to develop more integrated systems to predict demand and replenish blood stocks could make the supply chain more efficient, make the fullest possible use of the valued donor gift and improve services for patients. In response we have developed a programme of work which includes a project to improve stock management, which is the focus of this document.

This project will involve working with hospitals to help calculate optimum stock levels and to pilot smarter systems for stock replenishment. This could minimise wastage and make the supply chain more efficient. There will be four hospital pilots, the first of which to commenced in summer 2012. Pilots are expected to be completed by July 2013.

The pilots were selected based on their potential for demonstrating the concept of this new approach to stock management, and their ability and willingness to work with us within the required processes and timescales, but not on the basis of their IT provider.

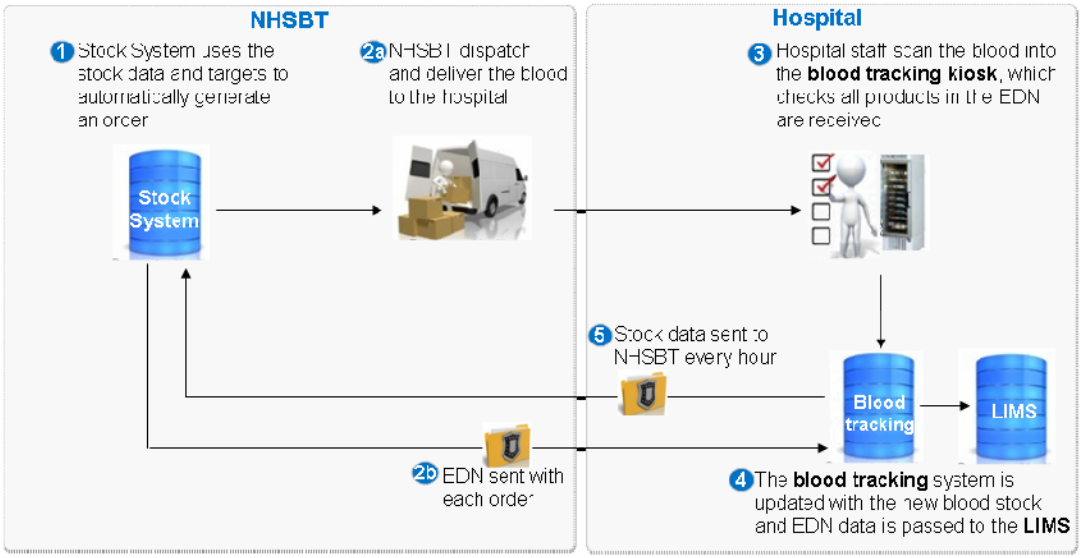
The purpose of this document is to describe the high level vision and system requirements for hospital IT suppliers. This document is currently draft and will be finalised once the pilots are complete. Therefore the proposed solution, requirements and interface specification are subject to change.

# 2. Overview of the stock management solution

The stock management project is a first step towards an optimised vein to vein blood supply chain. The IT solution proposed therefore must support this possible vision, which ultimately could include tracking blood vein to vein, movement of blood between hospitals and management of blood in secure remote issue fridges in hospitals without transfusion staff.

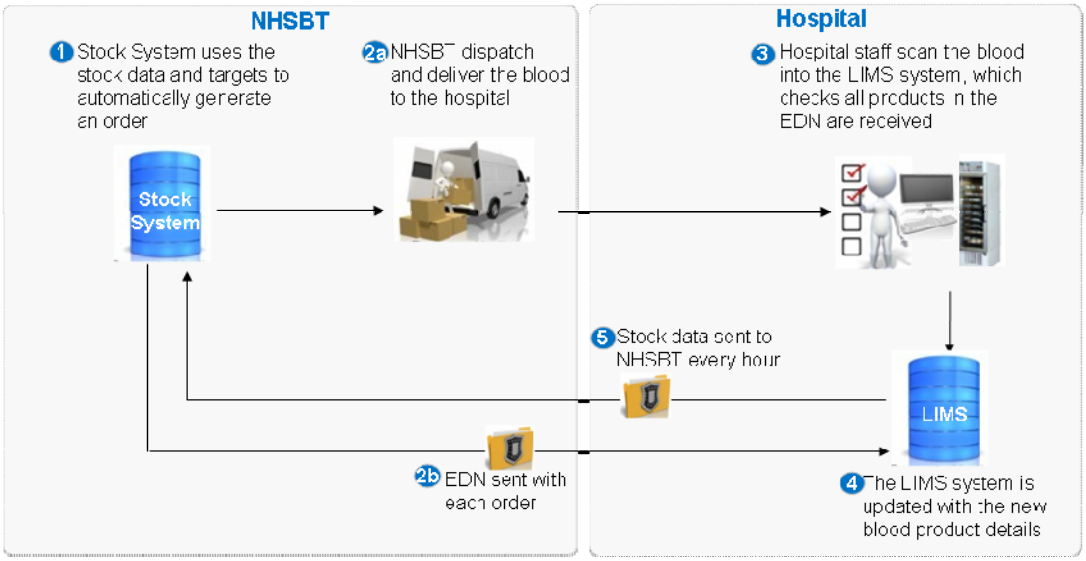
To fully support this vision will require a solution that allows non lab staff (porters, transport staff etc.) to receive a delivery of blood from NHSBT against an NHSBT electronic delivery note (EDN) and load that blood into a fridge. The kiosks currently used on blood tracking systems provide a simple and effective solution to this requirement, as shown in **option 1** below.

**Blood tracking based solution – NHSBT's Stock System will each day calculate how much blood a hospital needs, based on how much blood they currently have and agreed daily stock target (i.e. need to re-stock to 10 units of O- each day). Hospital staff will scan blood directly into the blood tracking system, which will check all blood on the EDN is accounted for. The blood tracking system will send the stock data files back to NHSBT.**




However, NHSBT recognise that not all hospitals have blood tracking systems, and may not want a solution that supports fridges in hospitals which do not have transfusion staff on site. For these hospitals we propose a simpler solution based on data from their LIMS systems, as shown in **option 2** below.

**LIMS based solution - NHSBT's Stock System will each day calculate how much blood a hospital needs, based on how much blood they currently have and agreed daily stock target (i.e. need to re-stock to 10 units of O- each day). Hospital staff will scan blood directly into the LIMS system, which will optional check all blood on the EDN is accounted for The LIMS will send the stock data files back to NHSBT.**




In this document NHSBT sets out the requirements for a data interface. If hospitals or IT suppliers can meet the requirements, then data can be provided from other systems or sources.

# 3. Hospital IT System Requirements

**Requirements for blood tracking Systems**

1. The blood tracking system must be able to ftp a fixed width flat file with the data and in the format described in Appendix A back to NHSBT up to every 20 minutes.
2. The data sent by the blood tracking system must provide an accurate picture of all stock in the hospital. It must therefore include blood products (red cells/platelets/FFP/Cryoprecipitate) in all stock locations, issue locations and in transit. It must not include blood that has been fated.
3. The blood tracking system must provide a simple solution to allow non lab staff to receive blood deliveries from NHSBT directly into remote fridges (i.e. a fridge in a hospital that does not have a lab or lab staff). All deliveries must be checked off against the EDN (electronic dispatch note). A simple way to do this is to pull (ftp pull) the NHSBT EDN from the NHSBT FTP server and reconcile the EDN with the delivery itself.

**Requirements for LIMS Systems**

1. The LIMS system must be able to ftp a fixed width flat file with the data and in the format described in Appendix A back to NHSBT up to every 20 minutes.
2. The data sent by the LIMS system must provide an accurate picture of all stock in the hospital. It must therefore include blood products (red cells/platelets/FFP/Cryoprecipitate) in all stock locations, issue locations and in transit. It must not include blood that has been fated.

# 4. Potential new requirements from the pilots

This section summarises new requirements that have been raised during the pilots and will be considered for inclusion in the final requirements and interface specification.

⇒ In future we would like to include fate data (common national code, not local and date/time) and de-reservation date/time. This could potentially be achieved by leaving units of blood in the interface file for x days once they have been fated/wasted.

# Appendix A - message specification

The following section specifies the structure and content of the Stock Management data file. This is the draft file structure being used for the ITS Stock Management pilots. Once the pilots are complete, it will be updated to reflect any lessons learnt or new requirements identified.

Text in red represents questions raised by IT suppliers and the answers given by NHSBT.

## Header Record

| Field | Field Name | Description | Length |
|---|---|---|---|
| 1 | Line Number | Incremental line number within the file. Header record will always have a value of 00001 | 5 |
| 2 | Record ID | Identifies the type of record. Fixed text of 'ISHEADER' | 8 |
| 3 | Record version | Identifies the version of the record. This<br>allows the content of the record to change over time and ensures that the receiver is able to determine whether it can parse the record.<br>**When might this change?** *If we changed the content of the message in some way – i.e. changed Source to the PULSE code.*<br>How would this be notified? *We would issue a change control*<br>**What is the starting version and format of the two characters?** *1_ (where _ is a space)* | 2 |
| 4 | Creation Date | Date of when the file was created<br>YYYYMMDD | 8 |
| 5 | Creation Time | Time of when the file was created HHMM | 4 |
| 6 | Source | Identifies the system from which the data originated<br>**Is the PULSE ID or an agreed "hospital" identifier?**<br>*It's an agreed hospital identifier* | 20 |
| 7 | Checksum | Modulus 97 checksum calculated from field 1 to 6 | 2 |
| 8 | Terminator | Carriage return and line feed (0x0D 0x0A) | 2 |

## Data Record

| Field | Field Name | Description | Length |
|---|---|---|---|
| 1 | Line Number | Incremental line number within the file | 5 |
| 2 | Record ID | Identifies the type of record (Fixed text of ISDATA) | 8 |
| 3 | Record version | Identifies the version of the record. This<br>allows the content of the record to change over time and ensures that the receiver is able to determine whether it can parse the record.<br>**When might this change?** *If we changed the content of the message in some way – i.e. changed Source to the PULSE code.*<br>**How would this be notified?** *We would issue a change control*<br>**What is the starting version and format of the two characters?** *1_ (where _ is a space)*<br>**Do we really need to duplicate this here given it's in the header record?** *Possible not. It just gives a bit more flexibility and we can consider a change for the final spec.* | 2 |
| 4 | Site Name | Name of the site where the inventory is located<br>**Again, is this the PULSE ID or hospital?** *It's an agreed hospital identifier* | 50 |
| 5 | Storage Location name | Name of the storage location where the inventory is located (i.e. the fridge, freezer or agitator)<br>**How granular do you want this to be? Every possible storage location (remember the vending machine scenario – 2A, 4G, 6H etc** – *individual fridge/freezer/agitator – not draw/shelf* | 50 |
| 6 | Unit Number | The human readable ISBT128 number including the keyboard check digit. | 14 |
| 7 | Product Code | The Codabar code without the prefix of suffix or the ISBT code without the prefix | 8 |
| 8 | Expiry Date | Date that the unit will expire YYYYMMDD | 8 |
| 9 | Expiry Time | Time that the unit will expire HHMM<br>**If not entered, should this default to 2359?**<br>**Where the lab have thawed FFP and CRYO they will have entered an actual expiry time which will be sent of enetered.** *Agree* | 4 |
| 10 | ABO | ABO of the unit (A, B, AB or O) | 2 |
| 11 | Rh | Rh of the unit (+, - or empty) | 1 |

| | | | |
|---|---|---|---|
| 12 | Status | Current status of the unit (0 = in, 1 = out of a location)<br><br>**Is this recording those units that have been collected from a fridge for transfusion and are seen as "out"?**<br><br>*If blood is in transit between two locations it will have a status of 'out'. Once it has been recevied into a fridge, it will have a status of 'in'.* | 1 |
| 13 | Condition | 0=available, 1=unusable, 2=delivered but not yet available**, 3=reserved for remote issue**<br><br>**Please clarify the meanings of all three statuses.**<br><br>*'available' – this includes all blood in a hospital that is usable (issued to a patient and not issued to a patient).*<br><br>*'unusable' – any blood that could not be given to a patient but is still in the system (timex etc.)*<br><br>*'delivered' – only required if you have blood that may be recorded in your system but held for some reason – i.e. issue with the order/EDN*<br><br>**Please can you add an additional status for blood that is available for remote issue, but not general stock?**<br><br>*Added status '3'* | 1 |
| 14 | Patient | Indicates if the unit is linked to a patient. 0 = No, 1 = Yes<br><br>**Does this mean allocated but not yet used and/or allocated and confirmed transfused?**<br>*Yes both – basically we want to know what stock is not allocated to a patient* | 1 |
| 15 | Checksum | Modulus 97 checksum calculated from field 1 to 14 | 2 |
| 16 | Terminator | Carriage return and line feed (0x0D 0x0A) | 2 |

## Footer record

| Field | Field Name | Description | Length |
|---|---|---|---|
| 1 | Line Number | Incremental line number within the file. Header record will always have a value of 00001 | 5 |
| 2 | Record ID | Identifies the type of record. Fixed text of 'ISFOOTER' | 8 |
| 3 | Record version | Identifies the version of the record. This allows the content of the record to change over time and ensures that the receiver is able to determine whether it can parse the record. | 2 |
| 4 | Number of Records | Number of records excluding the header and footer records. | 5 |
| 5 | Checksum | Modulus 97 checksum calculated from field 1 to 4 | 2 |
| 6 | Terminator | Carriage return and line feed (0x0D 0x0A) | 2 |