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Blood Matters

Quarterly information for hospitals served by the National Blood Service

NATIONAL BLOOD SERVICE

NHS

Editorial

This issue of Blood Matters is mostly devoted to aspects of IT support for the transfusion process. Year on year, SHOT has demonstrated the most important problem with blood safety. Procedural errors dominate the reports and most of us believe that even more errors occur but are not reported. Significant sums of money have been poured into initiatives to reduce microbial and prion related risk but relatively little has been done to improve clinical procedural safety.

Most Trusts now have a Transfusion Committee and Hospital Transfusion Team (a requirement through Clinical Governance, mandated by HSC2002/009 "Better Blood Transfusion 2"). Around 60 to 65% of Trusts have appointed a Transfusion Practitioner and they have undoubtedly made a significant impact on improving transfusion practice at a local level by teaching, training and facilitating audits but the burden is huge in many cases. In many Trusts a single handed Transfusion Practitioner could spend the entire working week on mandatory training of basic transfusion for all the doctors, nurses, Operating Department Practitioners, phlebotomists, porters etc who are involved in the process. There must be a better way to improve the quality of the transfusion process and its documentation and to eliminate the human errors that undermine the otherwise impressive safety record of transfusion in the UK. The obvious solution to at least some of the problems is to invest in technology to assist or even control the process by positive identification of people and products throughout the process from "vein-to-vein" with semi-automatic and thorough documentation stored in robust, legible and permanent electronic records. (The European Blood Directive requires sensible documentation of transfusion processes and requires by ***Criminal Law*** that records be kept for at least 30 years.)

The kind of identification and process control technology is mature, relatively inexpensive and in common use in your local supermarket - indeed even the local corner shop - because it is widely accepted that the initial investment is essential to the subsequent effective running of the business. The donation and production side is already well served up to the issue of the blood to hospital blood banks. The problem lies with the taking and labelling of cross match samples from patients and with the subsequent bedside checks prior to transfusion. A number of pilot projects have already demonstrated that elements of the process can be improved by IT. Errors are picked up or prevented and time-consuming manual checks are simplified so that more time is available for other clinical tasks. However, these are one-off pilot projects run by enthusiasts with short term funding and none so far have been able to embrace the entire transfusion process. There needs to be a national standard system that can be used by any NHS employee involved in transfusion, wherever they work within the NHS.

The Chief Medical Officers' National Blood Transfusion Committee decided to set up an Information Technology Working Group in 2002 to work to the following remit:

1. To collate information on projects directed at improving the safety and effectiveness of transfusion practice through the use of IT.

2. To make recommendations on how to make best use of IT for improving transfusion practice, including the safety of the clinical transfusion process, appropriate use of blood, and the documentation of transfusion.

3. To establish key standards and principles for clinical transfusion IT systems, including functionality, connectivity, security and confidentiality. Transfusion systems should integrate with the development of other hospital-based systems such as pharmacy, pathology and electronic patient records.

4. To make recommendations on the development of IT links between hospital blood banks, users of their services in hospitals and primary care, and the NBS.

5. To stimulate further progress in the use of IT for hospital transfusion practice, including consideration of new projects to further the field, and the provision of appropriate access to funding through NHS R&D, Health Technology Assessment and Modernisation of Pathology initiatives.

6. To work with other organisations involved in improving transfusion practice, including commercial suppliers.

Progress has been made under all of the headings, as demonstrated by some of the following articles. At the same time, the National Programme for Information Technology (NPfIT) was launched with significant funding and a very ambitious remit to establish an electronic patient record (Clinical Records Service – CRS) to replace all existing paper records and to also include electronic prescribing, blood test ordering, clinic bookings, images and laboratory results. Contracts have been awarded to IT companies working in consortia to build the CRS and 5 regional Local Service Providers (LSP) to cover England. There are no exactly equivalent plans for Wales, Scotland or Northern Ireland. The spine will house basic identifier (new NHS number) and unchanging data (such as blood group and possibly the transfusion history) and is populated from the LSP systems which also handle more transient and intense data.

The IT Working Group has lobbied intensively for priority to be given to aspects of positive patient identification and product tracking so that a National (English at least) and comprehensive system for support of transfusion could be in place within the next 5 years.

It is essential that the needs of transfusion are stated and restated at every opportunity and at every relevant forum. This is not just for transfusion. If we get the IT support right for positive patient / staff identification, documentation and process control of transfusion, then the same investment will largely solve other problems relating to drug and infusion errors and "wrong sided operations". Arguably these other clinical

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scenarios may be more important and potentially hazardous than transfusion, but we have the data (SHOT) and the legal requirement for enhanced recording (European Blood Directive) to make the case more persuasive or, in my opinion, irresistible.

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The National Programme for IT

Vision of the future

Giving patients more choice and control over their own health and care, and creating a health service "designed around the patient," are both at the heart of the Government's vision for the NHS in England.

Over the next ten years, modern computer systems, fit for the twenty first century, will be installed in the NHS. Once the work is complete, these systems will, for the first time, connect more than 500,000 health professionals in England.

This will ensure that the right information is available to the right people at the right time, with all those involved in the care of a patient having secure access to up-to-date, accurate information for diagnosis, treatment and care. It will also enable patients to have easier access to their own health and care information.

What is the National Programme for IT?

The National Programme for IT will procure, develop and implement modern, integrated IT infrastructure and systems for all NHS organisations in England by 2010. Key elements of this integrated approach are:

- the NHS Care Records Service (NHS CRS), with an individual electronic NHS Care Record for all England's 50+ million patients, securely accessible by both the patient and those caring for them
- Choose and Book, an electronic booking service offering patients greater choice of hospital, clinic and more convenience in the date and time of their appointment
- a system for the Electronic Transmission of Prescriptions (ETP), to make prescribing and dispensing safer and easier
- a new National Network for the NHS (N3), providing IT infrastructure and broadband connectivity to meet NHS needs now and into the future
- Picture Archiving and Communications Systems (PACS) to capture, store and distribute static and moving digital medical images
- QMAS – the Quality Management and Analysis System giving GP practices and primary care trusts objective evidence and feedback on the care delivered to patients
- *Contact* – a central email and directory service for the NHS.

How will the National Programme for IT enhance patient care?

The new way of storing and sharing information will allow patients to access information more easily when making decisions about their health and care. For example, they will have faster access to their record by using a secure internet connection than is possible by requesting a paper copy.

Diagnosis and treatment will be safer and speedier, because carers will have the right information available to them at the right time, including X-rays and other medical images. These will be stored electronically so they can be easily made available at different locations. If required, they can also be forwarded to specialists for their advice.

The new technology will bring advantages over paper records and X-ray films which can be lost, difficult to read and inaccessible when they are needed. It is also inherently more secure than paper records and patients will be able to opt-out of having some or all of their information shared electronically.

Why do we need it?

Care delivery is escalating in volume and is becoming increasingly complex and specialised, often provided by teams working across a number of organisations.

Although most healthcare settings already store patient information on computer systems, these systems are not linked nationally. This means there is currently no national means to transfer and share health and care information efficiently, securely and confidentially across the NHS. This is simply not sustainable.

The National Programme will address these issues. It will ensure that patients and those caring for them have secure access to accurate, up-to date information. This will help the NHS to deliver the best possible service.

What are the benefits?

PATIENTS

Patients will eventually have access to their NHS Care Record through a secure NHS gateway on the internet. This will allow them to be more informed and involved in decisions about their own care and treatment.

The care provided will be safer, because vital information for diagnosis and treatment will be available wherever that care is required.

Patients will find it faster and easier to make hospital appointments at a time, date and place to suit them.

CLINICIANS

Clinicians will have ready access to more comprehensive, more up-to-date information to support diagnosis.

They will be able to make more efficient referrals, gain alerts to contra-indicated therapies and significantly achieve early detection of disease outbreaks.

The administrative burden will be significantly reduced as it will no longer be necessary to spend time chasing up referrals or missing notes.

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THE NHS

The NHS Care Records Service will provide better intelligence on how the NHS works, and on the health of citizens, with anonymised information collected nationally. It will be easier to see if infectious diseases are spreading. The numbers will be real, in real time, not just a sample from spotter practices.

The NHS will benefit from the National Programme for IT's negotiating power. Already, savings of over £430 million have been achieved.

Implementing the National Programme for IT

The National Programme for IT will be implemented by National Application Service Providers (NASPs) and Local Service Providers (LSPs).

NASPs are responsible for purchasing and integrating IT systems common to all users nationally. LSPs will supply and integrate IT systems and services on a local level for five regional clusters of strategic health authorities – London, North East, Southern, Eastern and North West/West Midlands. This process will be led by a regional implementation director (RID) in each cluster.

More information

More detailed information on the National Programme for Information Technology, who is involved, and the timescales for implementation can be obtained by visiting the programme's website at *www.npfit.nhs.uk*

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Standard Coding Will Help Reduce Errors And Improve Patient Safety

For the first time ever the NHS is developing a definitive dictionary of medicines and devices, which will help reduce errors and improve patient safety. Known as the NHS Dictionary of Medicine and Devices, or dm+d, it has been developed jointly between the NHS Information Authority (NHSIA) and the Prescription Pricing Authority (PPA).

Why the dm+d is so important

The dictionary provides a unique code for each drug or device plus a text description and is integrated with SNOMED Clinical Terms, the standard clinical terminology for health information IT systems. It will allow computer systems to exchange information about the specific medicines or devices used in the diagnosis or treatment of patients. Collaboration between the Chief Medical Officer's National Blood Transfusion Committee and the dm+d authoring team at the NHSIA has ensured that blood products and components will be part of the dictionary's content.
dm+d is an NHS standard reference and will be used to identify and describe all medicines, devices and blood products held on the NHS Care Records Service (NHSCRS). Its requirement to be used in all NHS systems forms a significant step forward that will allow information sharing and enable effective decision support through the linkage of data. It will also remove the need for data to be re-keyed when it is transferred to a different computer system, eliminating the risk of transcription error.

How the dm+d can support error reduction and patient safety in blood transfusion practice

The specification of blood transfusion regimes follows a similar pattern to the way medicines are prescribed in the NHS. The appropriate blood product is chosen and authorized for administration by a clinician through consideration of the patient's condition, allergies (or in this case predicted phenotype derived immune reactions) and the evidence base for treatment. The appropriate products are then administered to the patient as part of ongoing care.

Given the considerable ongoing efforts to develop prescribing and administration functionality for NHS systems within the National Programme, assimilation of blood transfusion specification and administration into dm+d can offer access to the same type of automated support for medications in an environment clinicians will be increasingly familiar with. For example:

- Clinical decision support systems can begin to offer alerts when blood products that could precipitate transfusion reactions are prescribed. These could be blood/patient, blood/condition, blood/drug or blood/lab test derived.
- Auto-identification of patients and products at the point of administration can begin to prevent administration errors.
- Seamless tracking of products to patients and potential product problems can be achieved.
- Evidence of outcome associated with intervention type can begin to be assimilated on a national scale.

How the dm+d is structured

Most computer users are unaware of the coding systems that underpin the complex software that they use on a day-to-day basis. At first sight, it might seem that dm+d need be no more than a list of items and codes. However, consideration of the processes of prescribing, dispensing and administration indicates a more elaborate system is required. The coding system needs to be able to support prescribing and dispensing of original packs in primary care. Such functionality will also be required in the acute sector together with prescribing, supply and administration of single unit doses, be that medication or blood products.

The dm+d contains a number of related pieces of information for each product or product family. These are described as the:

- Virtual Therapeutic Moiety (VTM) – an abstraction of therapeutic intent e.g. "Human albumin solution"
- Virtual Medicinal Product (VMP) – an abstraction of the 'commercially' available products on the market e.g. "Albumin human 20% solution for injection 100ml bottles"
- Actual Medicinal Product (AMP) - the physically existing product that can be handled, manipulated and administered to patients e.g. "Zenalb 20% solution for injection 100ml bottles (BPL)"

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- Virtual Medicinal Product Pack – the packaged equivalent of the VMP e.g. “Albumin human 20% solution for injection 100ml bottles 1 bottle”
- Actual Medicinal Product Pack – the packaged equivalent of the AMP e.g. “Zenalb 20% solution for injection 100ml bottles (BPL) 1 bottle”

When the dm+d will contain blood products

Detailed discussions with the IT Working Group are scheduled for this month to decide how blood products are to be represented in the dm+d model. Preliminary debate has suggested that this format will closely follow the ISBT 128 product nomenclature. Following consultation on the solutions reached preliminary estimations are that population will commence in the first quarter of 2005/06 and be complete by the end of the second quarter.

More information can be found on the web site *(www.dmd.nhs.uk)* or by contacting the dm+d Help Desk on (0845 850 0001).

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SNOMED Codes: What Are They And Why Are They Important?

There are three major classification systems that are important in the coding of medical terminology in the UK. SNOMED, Read Codes and the International Classification of Diseases (ICD). All classification systems are designed for a particular purpose and using them in areas where the code authors did not intend them to be used will inevitably lead to problems.

SNOMED CT (Systematised Nomenclature of Medicine – Clinical Terms), is now the preferred clinical terminology for the NHS. The College of American Pathologists (CAP) and the United Kingdom’s NHS Information Authority agreed to develop a new collaborative set of codes, SNOMED Clinical Terms, which combines codes currently used. SNOMED Clinical Terms creates a single unified terminology to underpin the development of the integrated electronic patient record by providing an essential building block of a common computerised language for use across the world.

SNOMED is intended to be a general-purpose and comprehensive terminology, designed to index virtually all of the events found in the medical record.

Each SNOMED CT code consists of five or six digit alphanumeric characters. The codes are assigned to clinical terms within one of eleven classifications. Terms can be cross-referenced between classifications. Each code carries information about the terms it designates, giving an indication as to the medical context of that code. SNOMED also allows the composition of complex terms from simpler terms.

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Hospital Transfusion IT – The Perfect System

In the beginning there was paper, lots of paper. The introduction of Laboratory Information Management Systems (LIMS) has brought significant advantages.

- Fast and accurate data retrieval
- Improvements in quality of work
- Rationalisation of procedures
- Incorporation of safety controls at key stages
- Interfaces with automation
- Statistical information more easily retrieved

Hospital transfusion can be seen as a hybrid between pathology and pharmacy with features of both patient testing and the release of a product (‘pharmaceutical’) for clinical therapy. It is the nature of the clinical therapeutic section of blood bank work, and the potentially fatal results of system failures, that distinguish the requirements of blood bank IT from other pathology disciplines.

There are BCSH guidelines regarding pre-compatibility testing and hospital blood bank systems, currently being updated, and it is not the intention of this article to go through this guidance in detail. Those responsible for managing blood banks must avail themselves of the relevant testing and computer guidelines and ensure their systems are flexible enough for the work to be performed in such a way as to satisfy national guidance while meeting local needs.

Some aspects of an ideal system are:

- It is essential that the LIMS is able to prevent the issue of incompatible components and alert users to any special transfusion requirements e.g. irradiated products, antigen negative red cells.
- The consequence of not having the system operational at all times leads to significant clinical risk. Urgent demand for blood components cannot be delayed if the system goes down; the inability to check patient history and control product release through the IT system is a repeated cause of adverse events (see SHOT reports). Therefore, systems must be in place to try and ensure 24/7 availability with contingency plans in place in the event of failure. Backups must be made on a regular basis and a system of mirroring is recommended so that failure of primary hardware need not lead to suspension of the system or data loss. It is essential that a contingency plan is in place to cover any serious failure or disk corruption in order to ensure data retrieval and integrity. It is certainly recommended that, where systems are spread across different sites and networks are used to distribute LIMS, there are backup network lines available. Then, in the event of failure of the primary network line, systems in the sites remote to the central server hub should still have access to their IT. The central server hub should be located in a safe, temperature controlled environment, protected by UPS and attached to the hospital emergency power supply.

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- There is a need to exert strict control over database changes, particularly when the blood bank system is part of a comprehensive pathology LIMS.
- Patient identity and matching to historical records is of great importance. The use of unique patient identifiers is crucial and the ability to use the NHS number is highly desirable and may become essential, if not as the prime identifier at least as a searchable field. The system must be guarded against duplicate records so good merging policies are essential to preserve data quality.
- Wherever possible, electronic input devices such as scanners or electronic ward based request software are recommended.
- Systems that cover multiple laboratories must ensure that they have access to historical data on patients moving between hospitals. Multiple sites, while having a single patient database, need to ensure that they can cope with separate stock locations across the sites.
- In order to meet current and impending legislative requirements, records must be kept for determined periods, some of which will be substantial (30 years). Data must be maintained and moved across to new systems as the old systems become obsolete. This can best be achieved by ensuring ESCROW arrangements with the LIMS provider or by using specialist record storage companies.
- LIMS are essential laboratory management tools but, themselves, require management. LIMS that provide audit data, stock data, look backs, test request patterns and blood product usage data as simple pre-written statistical functions embedded within the system are to be commended. However, we must not take IT systems for granted and any new system or upgrade must be validated, with acceptance testing performed before use . This will be demanded of us by the quality systems to be put in place to satisfy the new EU directive. Therefore, consideration should be given to the setting up of a separate test environment on the system where changes can be tested and training of staff can occur with dummy data.
- No laboratory is an island and LIMS systems need to be able to interface securely to clinical systems that operate throughout the hospital. These may include Patient Administration Systems, issue fridge control systems, ward based request and results systems and bedside checking systems. In the near future it is likely that electronic communications between hospitals and blood centres will improve and LIMS will need to accept and absorb patient and product data from this external source.

The National Programme for IT (NPfIT) will also place demands on hospital blood bank systems, with the requirement to accept patient data from the central 'spine' and for data to be placed onto the 'spine' from the laboratory. There is a working party from the National Blood Transfusion Committee working with the NPfIT to clarify details. The NPfIT Local Service Providers (LSPs) are required to provide systems to a published specification, the Output Based Specification, which includes a significant section on Transfusion (pages 225-236). The specifications broadly match guidelines but the exact mechanism of implementation by the LSPs remain unknown.

This article gives only a glimpse into the complexity surrounding hospital blood bank IT. IT systems are of substantial benefit in hospital transfusion laboratories but require significant management if those benefits are to be realised.

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Use Of Electronic Methods To Enhance The Safety And Effectiveness Of Blood Transfusion

A variety of approaches have been used in hospitals to reduce the risk of transfusion errors, for example:-

a) increasing the number of staff involved in pre-transfusion checking procedures,
b) using specially trained nurses to carry out all procedures in relation to transfusion,
c) additional identification systems for blood transfusion,
d) increasing the monitoring of blood administration,
e) retesting the patient's ABO group at the bedside before a transfusion is given,
f) physical barriers to transfusion, such as placing the unit of blood in a locked plastic bag, which can only be opened with a code marked on the patient's wristband and the crossmatch sample.

None of these methods are ideal; they are impractical in routine practice, have not been shown to be totally effective in preventing transfusion errors or are costly. The solution to the problem of ABO-incompatible transfusions lies with developments in technology to minimise human errors.

We have been evaluating a barcode patient identification system involving hand-held computers for blood sample collection and the administration of blood for 3 years in work funded by NBS. Audits of practice have been carried out before and after its introduction in different settings. The first baseline audit in day-case haematology revealed poor practice, particularly in patient identification. Significant improvements were found in the procedure for the administration of blood following the introduction of barcode patient identification, including an improvement from 11.8% to 100% in the correct verbal identification of patients.[1] Staff found the barcode identification system easy to operate, and preferred it to standard procedures.

The process involving barcode patient identification compelled staff to adhere to certain actions, for example the checking of patient identification wristbands. During the baseline audit, it was observed that individuals were frequently distracted and interrupted whilst checking blood, for example interrupting a procedure to answer the telephone or to respond to questions from patients and colleagues.

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Was the positive impact on compliance with policy a direct result of the technology or of the allied education and training? Could a comparable result be achieved with education alone, which is possibly a cheaper option? An additional audit was conducted to compare compliance with policy before education, after education and then again after education and with the support of the barcode patient identification system. It was found that education and training had a positive impact on compliance with policy (from 5% to 40%), but that this was improved to 100% compliance following the introduction of the barcode identification system.[1]

The same system was introduced into cardiac surgery. Revisions were made to the software to allow rapid checking of units for urgent transfusions. Control of blood collection from blood refrigerators was added, providing electronic control of the hospital transfusion process from sample collection through the laboratory, blood collection and the administration of blood. In addition, a novel automated system for *remote issue of blood* was developed using the rules for electronic issue and an electronic link between the blood bank computer and distant blood fridges to allow printing of compatibility labels at blood fridges rather than only in the blood bank. This provides rapid access to blood for patients requiring it urgently, and the potential to reduce blood wastage because units of blood in blood fridges are available for any patient with the same ABO and RhD group rather than a single patient.

Complete documentation of each transfusion episode is increasingly important, and is a requirement of forthcoming EU Directives. Robust documentation is very difficult with manual systems. Information held on the handhelds can be downloaded into the blood bank computer so that a complete record of the transfusion episode is documented, including that the right patient received the transfusion, when it was transfused, the bedside checks, observations, and the identification of the staff carrying out each step.

There is also the potential for electronic linkage to:-

- the NBS for ordering of blood, the results of investigations, and to provide information about the types of patients being transfused (age, gender, diagnosis and procedure) to monitor patterns of blood use and to inform planning to meet future demands
- the BSMS for blood stock management
- SHOT for incident reporting.

In addition, electronic prescribing of blood could be developed to facilitate better compliance with local and national guidelines for the use of blood.

Computerised transfusion aids cannot eliminate human error, but the less complicated and more 'user friendly' the procedure is, the less scope there is for error.[2] Their introduction should be accompanied by comprehensive education, training and continued support, and there is potential to facilitate audit of and compliance with standards for transfusion, and drive necessary improvements in practice. A planned approach is required for their implementation and funding. The implementation costs for a hospital mean that to become accepted, the technology is likely to have to be multi-functional for other procedures requiring patient identification and known to be prone to error. This could produce benefits not only in transfusion practice, but for many other clinical processes including drug administration.

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Reference
1. Turner CL, Casbard A, Murphy MF. Barcode technology: its role in increasing the safety of transfusion. *Transfusion*, 2003; **43**: 1200-9.
2. Murphy MF, JDS Kay. Barcode identification for transfusion safety. *Current Opinion in Hematology*, 2004; **11**: 334-338.

The Repository for Information on the Blood Supply (RIBS) Project

The Blood Stocks Management Scheme (BSMS) collects information from hospitals on various aspects of their red cell and platelet inventory. Currently participating hospitals access VANESA (the BSMS data management system) through the BSMS website and manually input this information on a daily basis.

The BSMS is keen to make data entry for hospitals as simple as possible and to this end is progressing electronic data interchange (EDI). Hospitals will be able to sign up to send their data via EDI rather than manually.

The proposed method is for the BSMS to pick up a data file, generated by the hospital blood transfusion laboratory's computer system, from the hospital network via a File Transfer Protocol service. Data from these files will then be extracted in the required format and transferred to VANESA.

The BSMS has been working with blood transfusion software companies for the last eighteen months and they have committed to this project by writing and agreeing the file structure, which will contain all the essential BSMS data elements. The BSMS asked for the addition of the donation number and a field for the age and gender of the patient. The file structure was presented to the Standing Advisory Committee on IT who requested an additional free field for possible future use.

The addition of the unit number, and patient age and gender are seen as a positive step towards being able to follow through a unit of blood from donation to fate, either transfusion or wastage.

A project group has been set up and the BSMS and NBS software developers are the principle members of the group. We will shortly identify three software companies to work on the pilot, together with about nine hospitals who are supplied by these companies. It is anticipated that the pilot will be completed by summer 2005. We will then hopefully be in a position to offer roll out to hospitals that would like to use the system.

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What's Happening With EDI?

For a number of years there has been discussion about the transfer of information from the NBS to hospitals via Electronic Data Interchange (EDI). These discussions have focussed on the transfer of information held currently on the despatch notes which accompany each delivery of blood and components from the NBS. It would improve the efficiency and safety of the receipt of these donations in transfusion laboratories if the information on the despatch note could be sent electronically and downloaded onto hospital systems. In this way it would be possible for hospitals to:

- Check they have received the correct donations
- Rely less on the manual input of critical information from the front of the pack such as blood group and expiry dates
- Use information which is not held currently on the blood pack label, such as unconfirmed phenotype information, which would assist in the selection of units for some patients

Such transfers of data would form a key part of the "Holy Grail" of an electronic connection between the donor and the patient. However, achieving this has taken longer than anticipated. Using a "Red Book" standard, developed by the Standing Advisory Committee on Information Technology, the NBS has been sending a message on every unit delivered to a small number of hospitals to a secure website since the late 1990's. However, although these hospitals have found this information to be useful, none of them has been able to download the information into their IT systems. Hopefully, this is about to change.

When asked to write software for EDI, IT suppliers have sometimes commented that they are not sure what hospitals want and to what standards and procedures hospitals will be working. A working group of NBS and hospital staff have written a short protocol outlining the suggested steps to be taken when receiving units of blood in the laboratory. This was written some time ago but was not issued as some changes needed to be made to the SACIT protocol. This has now been achieved.

Closer links have been made with IT suppliers through the BSMS and it is planned that this will result in clearer information being available to hospitals to support the development of these links. The BSMS are also developing the RIBS system, details of which are included elsewhere in this edition.

At the moment, a pilot is underway at the Oxford Radcliffe Hospitals, in conjunction with Olympus and iSoft to create a donor-patient link. Results so far are encouraging and a download of the NBS despatch note message has been successful.

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Electronic Messaging Of Results From Clinical Laboratories And The NBS Web Browser

Initiatives such as the NHS Connect Programme and the Pathology Messaging Implementation Project (PMIP) have been introduced in order to increase the uptake of electronic communications within and between NHS healthcare establishments. Despite the obvious advantages of these transfers, one of the difficulties that has slowed progress is the question of EDI standards.

Because different computer systems store data in different ways, standards are used to define the conventions for the format, content and coding of a message. Within healthcare disciplines, a number of standards have been used, one of which is that developed by the Standing Advisory Committee for IT (SACIT) of the UK Blood Services for blood component dispatch information. The SACIT standard is the only one to have detailed data definitions for blood transfusion data. The lack of uniformity of standards currently causes real difficulties for organisations such as the NBS, whose 'customers' use a very wide variety of computer systems.

The 'web browser' application created by the NBS provides a partial solution to this problem. It allows Red Cell Immunohaematology (RCI) results, currently stored in an APEX database, to be accessed remotely. The APEX application is accessible through the NHS Information Authority 'Open Exeter' system for password authentication.

All that is needed to get information on RCI results is a computer with internet access using Internet Explorer 5, 5.5 or 6, and the relevant authorisation from a Caldicott guardian that the requester is a member of NHS staff with a legitimate reason for access.

The browser allows the user to view results from all NBS records including antibody information, microbiology information and comments.

Although the web browser is not a complete EDI solution, it offers distinct advantages for NHS users. The importance of historical records has been highlighted in recent SHOT reports, and the recent BCSH guidelines for compatibility procedures highlight the potential for a web browser to alert the clinician or laboratory to clinically significant antibodies[1]. In this respect the web browser is an enormously powerful tool, because its search facility interrogates the entire APEX database built up by referrals to the NBS or antenatal screening by the NBS over many years.

Anyone interested in learning more about the web browser should contact their local Hospital Liaison Manager.

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1 BCSH. (2004) Guidelines for compatibility procedures in blood transfusion laboratories. *Transfusion Medicine*, **14**, 59-73.

Update on Radio Frequency Identification (RFID)

RFID enables all partners in a supply chain to track and trace products in real-time and manage stock more efficiently. RFID could enable the research and development of new and innovative, healthcare services.

What is RFID?

A basic RFID system consist of three components:

- Antenna
- Decoder (transceiver)
- RF tag which electronically holds information (transponder)

The antenna sends radio signals to the RF tag and is able to either write information to it or read information from it. Antennas may surround a door so that they can receive tag information from persons or items passing through the door. The antenna produces an electromagnetic field which, in the case of a doorway, can always read any RF tag that passes through the doorway. In other cases where continuous scanning is not required the field may be switched on and off.

Devices containing both an antenna and decoder are known as readers, these can be manufactured either as handheld or fixed devices. The reader decodes the information in the tag. RFID tags are classified as active or passive. Active RFID tags run on an internal battery and data can be read, written or edited. The memory size of the tag is chosen to suit its purpose. Passive RFID tags hold information which cannot be modified and use power from the reader (no battery required). Passive tags are lighter, cheaper and have a long life. Ranges are limited however and a powerful reader is required.

Advantages and disadvantages of using RFID

A big advantage is that tags can be read through conditions where barcodes would fail, such as ice and dirt. Another big advantage is the speed at which they can be automatically read. However, privacy remains a major concern for RFID since it is possible that anyone with a reader could find out the details of information held on a tag. Work on standards for RFID is essential to progress the technology and research is needed into the effects RFID equipment may have on other devices e.g. pacemakers and cell phones.

RFID and Healthcare

Bar coding and RFID are complementary and people may wait for RFID and not implement bar coding. About 3% of US hospitals have some form of RFID, one leading example is St Mary's Hospital, Richmond, Virginia where 12,000 pieces of mobile medical equipment from wheelchairs to portable heart monitors were tagged with RFID badges and tracked via antennas in hospital ceilings linked to a computer server. Previously some staff had spent 25-33% of their time searching for equipment losing 10% of the inventory annually. Also In the USA automated control of pharmacies using RFID to identify drugs on trays has been piloted and RFID tags have been injected into the skin of the upper arm to identify patients – e.g. patients with Alzheimer's or complex medical histories who attend a number of hospitals. Smartbands have been developed for patients, doctors and nurses so that they can be tracked around the hospital and appropriate access to 'private' areas allowed or disallowed. Closer to home in the UK , Brighton and Hove University Hospitals NHS Trust have developed an equipment library (pumps, pulse oximeters, heart and blood pressure monitors); Mid Yorkshire Hospitals NHS Trust use it for tracking patient case notes and Portsmouth NHS Trust tag, track and manage blood sampling and testing.

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RFID in the USA

In the University Hospital in Georgetown, RFID is being used in a pilot project in the haematology outpatient clinic. This pilot is a progression from a system that scanned the bar code on the patient's wristband comparing it to the information on the blood bag, which became flawed when problems were encountered with the reading of crumpled or stained wristbands. A new system was developed which eliminated the wristband problem by incorporating a 'read only' RFID chip holding the patient's information. This 'smart' wristband acts as a portable, dynamic database carrying patient information to be used and updated during a patient's stay. An RFID chipped compatibility label is also placed on the compatible blood bag in the lab and a bedside scanner, which scans the chip and the bar code, reads both the blood bag and the patient's 'smart' wristband. Any mismatches are identified on a PC monitor and a warning is sounded. No errors have been reported since the start of the pilot.

At the Massachusetts General Hospital an RFID system is being developed with the intent to reduce or eliminate mistransfusion in the Operating Room (OR). The OR table has been redesigned to incorporate an RFID reader. An RFID chip is included on the patient's wristband as at Georgetown. When the patient is wheeled into the OR and placed on the table the reader on the table reads the signal from the wristband of the patient thereby positively identifying the patient. This ensures the right patient is on the right operating table and does not receive inappropriate surgery. When the patient leaves the operating table their details are automatically logged out. The system also ensures that if the patient requires a blood transfusion they receive the correct blood. An RFID chipped compatibility label is placed on the compatible blood bag in the laboratory. When the unit is issued to the patient in the OR the chip on the blood bag label is identified by a scanner, which reads the details of the intended recipient. If the details do not match, a warning is sounded alerting the staff to a mismatch.

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The system is 'neat' as the chip in the blood bag label is automatically read by the scanner and does not require the OR attendant or nurse to physically hold the bag to the scanner, thus eliminating the potential for human error.

Both systems are in pilot phases, their progress and development will be awaited with interest.

Acknowledgement – thanks to Dr Sunny Dzik, co-Director of Transfusion, Massachusetts General Hospital for his help in compiling this report.

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"Fridge Based Blood Tracking" – How To Be A Success

The Serious Hazards of Transfusion (SHOT) reporting scheme has consistently highlighted in its annual reports that errors occurring at the time of blood collection are a major contribution to incorrect blood component being transfused (ICBT).[1]

The Chief Medical Officer's IT working group have evaluated the success of "fridge tracking" systems and sent a questionnaire to all users of commercial fridge tracking systems followed by a telephone questionnaire to some responders.

Current BCSH guidelines clearly outline the necessary steps to be taken when removing blood from an issue fridge, either in transferring to a satellite fridge or for transfusion to the patient.[2] In many hospitals in the UK this is performed using paper records and is reliant upon the paperwork being accurately completed.

In some of those questioned (where more than 1 fridge was linked) potential problems were identified. Prospective users may find the following helpful when considering installation of such equipment.

Planning:

- Appoint a project manager
  - Ensure adequate time is available to support the project
  - Provides focus
  - Dedicated task
  - Accepts responsibility
- Involved "user" group
  - All relevant personnel responsibility for the tracking system network
  - Inclusiveness
  - Ownership
  - Brainstorming
  - Identify potential issues at an early stage
- I.T. department involvement essential
  - Suggest project supervisor be a named individual with time set aside for the project
  - Commitment to all stages of installation and implementation so they are fully conversant with system
  - Consider reliability of hospital networking system
  - Can current server cope / Separate server needed
  - Interface to LIMS
- Plan estates requirements
  - Electrical points
  - Network points
  - Security issues
- Interface to LIMS
  - Cost issues
  - Download of patient information

Implementation
Hardware installation:

- Test the system thoroughly by challenging with different scenarios
- Education and training - do not underestimate the time needed to undertake this thoroughly and consider:-
  - Who will deliver the training (24hrs)?
  - Who will be trained within the lab including problem solving?
  - Who you will need to train outside the laboratory – nurses, porters, ODPs, health care support workers etc?
  - Education around the "30 minute" rule
  - Policies / maintaining expertise

Going live:

- Plan the date and time
  - Ensure availability of "troubleshooting" personnel
- Communicate with all involved

Fridge tracking can be a powerful tool in aiding compliance to the guidelines and in auditing this important step in the transfusion process. When used properly it can ensure blood components are maintained in a controlled environment and avoid the collection of date expired units. The CMO's IT Working Group recognise there is a need for a full evaluation of these systems: it is possible that the BSMS will help to progress this piece of work.

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Be prepared for an initial increase in blood wastage but remember, this may just be an indicator of what current practice is, uncovered by the installation of the system. The management tool supplied can be used to create reports of user activity and identify their training needs: for example personnel who use the system infrequently and will therefore need update training, or users who make repeated errors.

If used correctly and appropriately these systems can help rather than hinder the provision of quality systems.

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Reference
1. SHOT, Annual Report of Serious Hazards of Transfusion. 2003: Manchester.
2. Murphy, M.F., et al., The administration of blood and blood components and the management of transfused patients. Transfusion Medicine, 1999(9): p. 227-238.

Report On Blood Stakeholders Workshop

Blood workshop

Five initiatives to reduce error during bedside checking of blood transfusions were identified at a recent joint workshop between Serious Hazards of Transfusion (SHOT), the National Patient Safety Agency (NPSA) and the National Blood Transfusion Committee (NBTC). The Blood Safety Stakeholder Workshop was held at the Royal College of Pathologists in December 2004, with the aim of reducing the incidence of ABO mismatched transfusion by identifying effective solutions to wrong blood events at the bedside. The expert panel considered fifteen presentations and have identified those to be taken forward on a national basis.

The abstracts presented by NHS staff described excellent local improvements in patient identification and bedside checking to support the 'right patient receiving the right blood'. The presentations included a variety of technological and non-technological solutions. A summary was also provided of work undertaken at the National Comparative Audit of Blood Transfusion Regional Seminars in which staff were asked to identify ways in which they believed blood safety could be improved.

SHOT data show that ABO incompatibility is the most important and high profile error occurring in blood transfusion, with the greatest number of incidents occurring during bedside checking. SHOT data show that between 1996 and 2003 five patients died directly as a result of being given ABO incompatible blood and seven are thought probably or possibly to have done so. Twenty others given the wrong blood died for reasons unconnected with the transfusion. Forty nine patients have also suffered major morbidity due to ABO incompatibility.[1]

The initiatives which are to be taken forward are:

BARCODE TECHNOLOGY

Barcode technology involving hand held computers is being used in selected departments to improve safety in sample collection, compatibility testing and blood administration.

'TAG AND LABEL' WITH BARCODES

This system introduces a simple forced checking procedure into blood administration and reduces the numbers of forms used. The recent introduction of a bedside barcode checker into this process could also improve patient safety.

RED LABEL SYSTEM

This is a non technological, economical solution to improving blood safety through the use of a unique set of numbered labels used each time a patient is bled for transfusion. The system forces an additional bedside check to be made to ensure the right blood is being given to the right patient.

PHOTO IDENTIFICATION FOR TRANSFUSION DEPENDENT PATIENTS

Transfusion dependent patients (e.g. those with thalassaemia) were recognised as being a specific group of people who could benefit from an alternative means of identification other than the standard wristband such as a photo card.

STRUCTURED APPROACH TO EDUCATION

A strong theme throughout the workshop was the need for education to underpin all blood safety initiatives. An approach to a structured education package that was presented at the workshop was identified as a model that could be shared as best practice.

NPSA publication

The NPSA, one of the partners in this initiative, is concerned about blood safety as part of its wider work on developing solutions to help ensure that patients are matched with the care intended for them. In December 2004 the NPSA published a report *Right patient - right care* which emphasises the importance of manual checking and technologies being used together to help ensure that patients are better matched with care - including getting the right blood transfusions.

Right patient – right care summarises studies commissioned by the NPSA on mismatching. It highlights the areas where technological advances can be harnessed. The studies found that there is no single solution to improve patient matching. In some instances a mix of technologies will be appropriate. The report emphasises that checking with technologies validates or confirms checks, rather than taking away responsibility for manual checks by NHS staff.

The application of technology in the health service is likely to change over time with developing technology and changes in public acceptance. The report and related research studies will help to focus the health service on new technological developments and improve manual checking processes. It is vital that the health service works with technology manufacturers to develop solutions which are tailor-made for health service settings.

Right patient – right care points to significant opportunities to enhance patient safety by working with the National Programme for IT (NPfIT) to ensure

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that new technologies such as barcoding, radio frequency tagging and biometrics, such as fingerprinting, are compatible with it both nationally and locally. There are many examples of technology being used in imaginative ways, for example in matching patients and blood samples using barcodes, checking patients' identities in operating theatres or allowing patients secure access to their notes in a GP surgery by using fingerprints. But this work has shown that improving manual checking procedures is also a priority to prevent errors that can lead to serious patient harm.

The NPSA is currently working on safer patient identification such as ensuring that wrist bands are worn and that there are appropriate checking procedures. The British Committee for Standards in Haematology (BCSH) guidelines on the administration of blood, the standards on which hospitals base their protocols for blood administration, state that it is essential that any patient having a blood transfusion has an identification wristband in place. A recent national comparative audit of blood transfusion found that 90% of patients receiving a blood transfusion were wearing wristbands. However, of the 10% who weren't, 10% were also unconscious and 23% of these unconscious patients were also nursed in single rooms and would not be readily observed.[2]

More information on blood and other mismatching initiatives

SHOT, the NPSA and the NBTC will support the five initiatives identified at the workshop and monitor how they are taken forward. The process to evaluate the impact of each initiative on blood and patient mismatching is currently under discussion. Further information will be communicated through future issues of Blood Matters.

The NPSA will continue with its wider work on reducing and where possible eliminating mismatching in healthcare. It will communicate with the whole health service and other interested parties such as the healthcare industry when ways of avoiding mismatching errors are developed further. This wider work will contribute to and benefit from information coming from the five initiatives on blood safety.

The NPSA are also continuing to monitor advances in dealing with mismatching in healthcare and would be interested to hear from anyone developing initiatives or solutions. We will share information and also promote exchanges between interested parties. Those wishing to contribute should email: *rightpatient_rightcare@npsa.nhs.uk*

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Reference
1 Serious Hazards of Transfusion Organisation. Annual report 2001-2002, 2002-2003, Serious hazards of transfusion. Manchester: SHOT, 2003.
2. National Comparative Audit of Blood Transfusion, Comparative Report for Blood Transfusion in England, 2003.

Results Of Questionnaire Surveys On The Implementation Of The Health Service Circular 2002/009 'Better Blood Transfusion – Appropriate Use Of Blood'

Background

An audit in 2001 of the implementation of the HSC 1998/224 *Better Blood Transfusion* showed that most hospitals had established Hospital Transfusion Committees (HTCs), participated in the SHOT scheme, and had protocols for the administration of blood.[1] However, there was evidence of poor provision of training for clinical staff and patient information, few protocols for the appropriate use of blood, few audits of transfusion practice, and limited use of autologous transfusion.

A second UK CMOs' Seminar on blood transfusion *'Better Blood Transfusion'* was held in October 2001 with the objective of setting the agenda for NHS transfusion services, focusing on:-

- Providing better information to patients
- Avoiding unnecessary transfusion
- Making transfusion safer
- Ensuring 'Better Blood Transfusion' is an integral part of NHS care

The Health Service Circular *'Better Blood Transfusion – Appropriate Use of Blood'* (HSC 2002/009) was issued in July 2002, detailing the actions required of NHS Trusts, the NBS and clinicians to improve transfusion practice. It included an action plan and an ongoing programme for *Better Blood Transfusion* to be implemented in each Trust by April 2003.

The National Blood Transfusion Committee (NBTC) agreed that a questionnaire survey should be carried out to determine progress in the implementation of the recommendations in HSC 2002/009. It was distributed in April 2003 to hospital haematologists in charge of blood transfusion. There was a disappointing response rate (47%), and evidence for incomplete compliance with the action plan. The survey was repeated in April 2004 to assess whether further progress had been made.

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Results (see Table)

160/169 (95%) NHS Trusts sent returns in 2004. This was a marked improvement on the response rate to the 2003 questionnaire.

The questionnaire was completed by different groups of staff in NHS hospitals, including haematologists (51%), transfusion practitioners (28%), and transfusion laboratory managers or biomedical scientists (18%).

The results indicate progress in the implementation of *Better Blood Transfusion* between 2001 and 2004:-

- An increase in Hospital Transfusion Committees
- An increase in CPA accreditation
- An increase in the number of staff who have received transfusion training
- An increase in Transfusion Practitioners
- An increase in the development of protocols for the appropriate use of blood
- An increase in transfusion audit activity
- An increase in the number of Trusts indicating that patient information is provided to patients attending pre-assessment clinics
- Some increase in the use of intra-operative cell salvage, but <10% of Trusts salvage >200 units/year

However, the results also indicate a need for progress in the following areas:-

- Training of staff
- The development of Hospital Transfusion Teams including one or more Transfusion Practitioners and a Lead Consultant for Transfusion
- Further work on the development of protocols for the appropriate use of blood
- The provision of information to patients
- Peri-operative cell salvage

There was evidence of regional variation in the responses to most of the questions, particularly in the development of and support for Hospital Transfusion Teams, training, regional audit activity, the development of protocols for the use of blood, and the use of cell salvage.

Conclusions

- There has been progress in the implementation of some but not all of the recommendations in the action plan of the HSC 2002/009 Better Blood Transfusion - Appropriate Use of Blood
- The detailed results have been provided to individual Trusts and to Regional Transfusion Committees in a format to allow comparison with other Trusts and Regions. This information should be used to plan further local and regional initiatives to implement the Better Blood Transfusion action plan and improve transfusion practice.

Reference
1. Murphy et al. *Survey of the implementation of the recommendations in the Health Services Circular 1998/224 'Better Blood Transfusion'*. Transfusion Medicine, 2003, 13, 121-125).

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Diary Dates 2005

- 4-7 May, International Society for Cell Therapy - 11th Annual Meeting, Vancouver, Canada. *Website: www.celltherapy.org*
- 4-6 May, 4th World Congress on Tissue Banking, Rio de Janeiro, Brazil. *Website: www.alabat.net*
- 11-12 May, BBTS Apheresis and Blood Collection SIG Meetings, Birmingham. *Contact: carol.mitchell@nbs.nhs.uk*
- 11-12 May, Joint Meeting of BBTS Hospital Based Transfusion Practice SIG & SPOT, Newcastle. *Contact: jonathan.wallis@tfh.nuth.northy.nhs.uk*
- 26-27 May, IPFA and PEI 12th NAT Workshop on 'Surveillance and Screening of Blood Borne Pathogens', Bethesda, USA. *Website: www.ipfa.nl*
- 2-5 June, 10th Congress of the European Hematology Association, Stockholm, Sweden. *Website: www.ehaweb.org*
- 2-6 July, 15th ISBT Regional European Congress, Athens, Greece. Contact: Eurocongress Conference Management, tel: +31 20 6793411; fax: +31 20 6737306 or *Website: www.isbt-web.org/congresses/*
- 6-12 August, International Society on Thrombosis & Haemostasis XXth Congresses, Sydney, Australia. *Website: www.isth2005.com*
- 13 September, 6th National Blood Service Annual Clinical Audit Conference: 'Making and Managing Change', University of Derby. *Contact: barbara.stearn@nbs.nhs.uk*
- 15-18 October, AABB Annual Meeting, Seattle, USA. *Website: www.aabb.org/Professionals/Professional_Development/Annual_Meeting/annual_mtg.htm*
- 1-4 December, BBTS 23rd Annual Scientific Meeting, Telford. *Website: www.bbts.org.uk*
- 3-6 December 2005, 47th Annual Meeting of American Society of Hematology, New Orleans, USA. *Contact: ash@hematology.org. Website: www.hematology.org*
- 8-11 December, 14th International Conference of the European Association of Tissue Banks, Florence, Italy. *Website: www.eatb.de or Contact: eatb@eatb.de*

Progress in the implementation of "Better Blood Transfusion" between 2001 and 2004

	2001	2003	2004
Completion of the questionnaire	220/320 (69%)	122/259 (47%)	160/169 (95%)
Participation in SHOT	96%	100%	99%
Presence of an HTC	91%	98%	99%
CPA accreditation	73%	87%	91%
% staff trained (if known):- Phlebotomists Porters Nurses Medical staff	 79% 47% 78% 34%	 97% 75% 52% 53%	 97% 80% 73% 60%
Transfusion Nurse or equivalent Lead Consultant for Transfusion	14% -	50% 74%	68% 83%
Protocols for the transfusion process	98%	97%	98%
Protocols for the use of blood:- Surgical blood order schedule Red cell transfusion Over-anticoagulation	 67% 34% 35%	 87% 44% (critical care) 34% (surgical) 73%	 92% 46% (critical care) 39% (surgical) 76%
Hospitals carrying out transfusion audit	79%	National – 92% Regional – 66% Local – 79%	National – 89% Regional – 74% Local – 89%
Patient information	50% of hospitals indicated they provided written information, but only 8% of hospitals estimated that >50% of transfused patients received it	52% of hospitals indicated it was offered to surgical patients attending pre-assessment clinics	80% of hospitals indicated it was offered to surgical patients attending pre-assessment clinics

Patient Information

Please see below a summary of the patient information leaflets currently available from the National Blood Service.

Leaflet	Order Code	Available from	Order quantity	Contact details
Receiving a blood transfusion – English	LC188P	Hospital Liaison Administration Office All NBS Issues depts.	Packs of 25	01865 440042/43 Use local issues number
Receiving a blood transfusion – Welsh	LC202B	Hospital Liaison Administration Office Issues department - Liverpool	Boxes of 240	01865 440042/43 0151 5518820
Information for patients needing irradiated blood - English	LC039B	Hospital Liaison Administration Office All NBS Issues depts.	Boxes of 350	01865 440042/43 Use local issues number
Information for patients needing irradiated blood - Welsh	LC107B	Hospital Liaison Administration Office Issues department - Liverpool	Boxes 500	01865 440042/43 0151 5518820
Receiving a plasma transfusion – English	LC201P	Hospital Liaison Administration Office All NBS Issues depts.	Packs of 25	01865 440042/43 Use local issues number
Receiving a plasma transfusion - Welsh	LC206B	Hospital Liaison Administration Office Issues department - Liverpool	Packs of 25	01865 440042/43 0151 5518820
Blood group and red cell antibodies in pregnancy – English	LC234P	Hospital Liaison Administration Office National Call Centre	Packs of 25	01865 440042/43 0845 7 711 711
Blood group and red cell antibodies in pregnancy - Welsh	LC242P	Hospital Liaison Administration Office National Call Centre	Packs of 25	01865 440042/43 0845 7 711 711

All leaflets are available to download from the NBS hospital website *www.blood.co.uk/hospitals*. The text of the leaflet 'Receiving A Blood Transfusion' is also available to download in other languages. Small quantities of all leaflets can also be obtained from members of your local Hospital Liaison team.

Copies of the new information leaflets for children receiving a blood transfusion are currently being distributed to hospitals. There are three new leaflets:

- A parents' guide to children receiving a blood transfusion
- Amazing You – suitable for younger children
- Voyages on the Microsub Discovery – suitable for older children

The results of an audit of the 'Receiving A Blood Transfusion' patient information leaflet are currently being analysed. This audit has been undertaken on behalf of the Appropriate Use of Blood Group. The effectiveness of the leaflet in informing patients about transfusion and recommendations for distribution of the leaflet will be reported. A summary of the audit will be published in the next edition of Blood Matters.

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CPD Questionnaire

Q1 **Better Blood Transfusion – Appropriate Use of Blood (HSC 2002/009): Since the above was published there has been**

a) A decrease in transfusion audit activity
b) A considerable increase in the use of intra-operative cell salvage
c) There was a high response to a survey in 2003
d) An increase in the number of Transfusion Practitioners

Q2 **Since the above was published, there has been satisfactory progress**

a) With uptake of peri-operative cell salvage
b) With development of protocols for the appropriate use of blood
c) With the provision of information to patients
d) With participation in SHOT so as not to require a need for further progress.

Q3 **Right Patient – right care**

a) All hospital inpatients can be positively identified by a wristband
b) 99% of patients receiving a blood transfusion were wearing a wristband
c) 1% of patients receiving a blood transfusion were not wearing a wristband and were unconscious
d) All unconscious patients receiving a blood transfusion could be readily observed

Q4 **Right Patient – right care: between 1996 and 2003**

a) There have been no deaths as a result of being given ABO incompatible blood
b) There has only been one death as a result of being given ABO incompatible blood
c) There have been five deaths directly as a result of being given ABO compatible blood
d) Less than twenty patients have suffered major morbidity due to ABO incompatibility

Q5 **Electronic Data Interchange**

a) Has been fully available since 1990
b) Has been available in a limited fashion for a limited number of hospitals since the 1990s
c) A pilot has yet to be started
d) Some hospitals have been able to download into their IT systems, information on delivered units since the 1990's

Q6 **Radio Frequency Identification (RFID)**

a) Consist of an Antenna, Decoder (transceiver) with a radio frequency (RF) tag (transponder)
b) Radio frequency (RF) tags are not very robust and often fail if covered in dirt or ice
c) Has never before been used in the NHS
d) Readers (antenna and decoder together) do not require a power supply

Q7 **Barcode patient identification system: when piloted on a day-case haematology unit**

a) Demonstrated excellent patient identification in a first base-line audit
b) Did not demonstrate an improvement in correct patient identification
c) Produced an improvement from 11. 8 % to 100% in the correct verbal patient identification
d) Only produced a slight improvement in the correct verbal patient identification

Q8 **'Web Browser' application created by the NBS**

a) Requires all IT systems to store data in the same way
b) Only requires readily available programmes, such as Internet Explorer 5
c) Only updated weekly with Red Cell Immunohaematology (RCI) results
d) Cannot be searched and does not provide historical records

Q9 **Repository for Information on the Blood Supply (RIBS) project: FTP is**

a) Floppy to Programme
b) File Transfer Protocol
c) Form to Programme
d) Filing Transport Programme

Q10 **Dictionary of Medicines and Devices (dm+d)**

a) Is integrated with SNOMED clinical terms
b) Will not include blood or blood products
c) Will not be able to support prescribing
d) Will involve a format different from ISBT 128 product nomenclature