INTRODUCING AN ELECTRONIC BLOOD-TRACKING SYSTEM

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This article describes how a trust set up an electronic blood-tracking system that complies with new regulations, and records every stage of the transfusion process. The system has reduced the risk of staff error and improved patient safety. The initiative was a multidisciplinary project involving a range of specialties and the support of an external consumption-management company. It showed the benefits of effective teamworking in initiating change.

Before development of the new system, guidelines on traceability were primarily addressed using a paper-based method, with information then being added to the hospital’s TelePath system. This was time-consuming and, in the transfusion practitioner’s absence, traceability decreased.

AN ELECTRONIC SOLUTION

We did not have funds to purchase an existing electronic product. However, we had already worked with staff from MSoft, a consumption-management company, and they became involved in designing the new blood-tracking system. The trust agreed to finance development of a system to comply with regulations, reduce risks in transfusion procedures and improve patient safety.

We developed flow charts of the transfusion process, showing how the system needed to work and using recent national comparative audits to highlight areas for improvement.

The objective was to introduce into the wards handheld computers that contained the blood-transfusion programme. A main computer database would be accessible, auditable and maintain records for 30 years.

Multidisciplinary working was vital in developing the team, involving the staff from the information and technology department and blood bank along with staff from MSoft. Regular project meetings were essential and timelines for progress were adhered to.

INTRODUCING CHANGE

We introduced barcoded patient wristbands that computers could scan to check patient details, and installed 10 barcode printers in ward areas. All nursing staff were trained to use the system and can now access and print name bands for their wards or departments. Following implementation, an audit on wristbands showed excellent results. All ward and department areas were also barcoded to show where transfusions took place. Demonstrating the benefits of the new system helped to reduce any resistance to change among the staff involved in blood transfusions.

We used our knowledge and skills on the clinical aspects of hospital work and processes, taking into account the final information and evidence required but also thinking about what else we could do to improve patient care. Staff from MSoft used their knowledge of previous equipment tracking. Together we formulated a software solution that can be adapted to many clinical situations. The trust is now working on case-note tracking in a similar way.

The project has been running for 18 months. Following a successful pilot in the chemotherapy unit, we are rolling it out across the trust and implementing changes in transfusion practice by standardising procedures. The result is a transparent and evidence-based audit trail of the care provided for each patient, as well as clear improvements in nurse documentation following blood-transfusion training.

DEVELOPMENTS IN TRANSFUSION

Since May 2007 and the redesign of the transfusion training package, nursing staff are now trained and competency-tested on sample-taking, collection of blood and blood products, administration and patient care throughout the process. All staff involved in the transfusion process attend the blood bank and work through the collection programme. They are provided with an authorisation barcode when assessed as competent, which identifies them throughout the procedure so we now know which nurse is providing care.

Adding barcodes to transport boxes also enables us to confirm use and the transport method selected. This then shows how long it takes for blood to reach the ward or department, where it is scanned using the ward receipt programme. This confirms in the audit trail how long the blood has been...

IMPLICATIONS FOR PRACTICE

- A project team consisting of all the interlinking disciplines is vital for the success of this type of project.
- Staff need support and reassurance to accept change and move away from ritualistic practice. Fear and distrust of technology can also be a problem – particularly when staff face workload pressures. This can be overcome by demonstrating that the new system will save time and improve practice.
- Organised training is vital, as well as comprehensive reference materials for out-of-hours information.
- Training for all staff involved in the process must recognise the importance of each person’s role in the procedure and include them in all the necessary training and competencies.
- Support and feedback from patients can be valuable in developing new systems such as this one.
BACKGROUND

- Every year around three million blood components are prepared for transfusion in the UK (McClelland, 2002). While this process saves lives and improves quality of life, there are a number of associated risks. Every year patients die from adverse incidents in blood transfusions.
- Health authorities are required to comply with quality and safety standards on the collection, testing, processing, storage and distribution of human blood components (Office of Public Sector Information, 2005; European Parliament, 2002).
- Two aspects of the regulations impact on hospitals involved in blood transfusion: a complete audit trail of every blood component from donor to recipient must be kept for 30 years, and laboratories must report any adverse event or reaction to a transfusion (SHOT, 2004).

out of the refrigerator; nurses are aware that transfusion should start within 30 minutes of collection (British Committee for Standards in Haematology, 1999). The blood is taken to the patient’s bedside with supporting documentation to start the procedure – this should include the medical prescription.

The patient’s wristband is scanned, and nurses scan their own identification code and the blood. The patient details appear and confirm the blood to be used is correct for the patient concerned. If there are any discrepancies the programme will not proceed any further. Nursing staff then contact the blood bank or transfusion practitioner for advice. This has not only improved patients’ safety but also made them feel more involved and reassured as they can see their details confirmed on screen.

For the rest of the procedure, nursing staff enter information into the handheld computer as required. At the end of the process, nurses place the handhelds back into the docking cradle and synchronise the information with the main system server.

OTHER BENEFITS OF THE PROGRAMME

Other parts of the programme identify alerts that can be triggered. An example here would be after the first 15 minutes of the transfusion, when the handheld beeps and advises nursing staff that observations are now required for this patient. All this information is sent to an alert page on the main computer programme – alerts can be viewed by members of the pathology team who act on the information if necessary.

Training can also be recorded on the system and reminders or access dates set. For example, if training is annual then after 12 months the authorisation for a staff member will cease until retraining has occurred. Alternatively, by using the reporting tool we can request a list of staff members for whom authorisation of the system is due to expire.

ACHIEVING CHANGE

The transfusion practitioner continues to provide training. A simple reference guide for nursing staff is available in the blood bank on procedures for the collection and return of blood, and wards have a reference booklet on use of the handhelds and the transfusion process. This is in addition to support in the wards and departments during use.

The system was challenging to introduce – staff found some aspects of it difficult, as they had been familiar with a handwritten procedure. However, our work has already been recognised by other parts of the NHS. Over the past year we have had 20 visits from other trusts wanting to see the work in progress and the system’s flexibility.

For the hospital the project has been good value for money. It has used teams’ specialist knowledge as well as the support of an outside company with tracking expertise and an award-winning software engine. This approach has resulted in an effective team dynamic that has worked well. The solution will not only improve the service but also help to save lives.

Our project manager believes the most important factor has been the involvement of a specialist transfusion practitioner with a nursing background. Acceptance of the system would have been much harder to achieve without someone who can engage the ward staff effectively from a change-management perspective.

Having software based on up-to-date, web-based technologies fits well with other systems. This will allow seamless transfer of each transfusion process to electronic patient records. The reporting tools will make information relating to performance, patient safety and financial issues available in real time. The introduction of a wireless network will improve the system further, as all patient data will be sent to the audit trail as it occurs rather than having to be synchronised at the end of the programme.

REFERENCES


