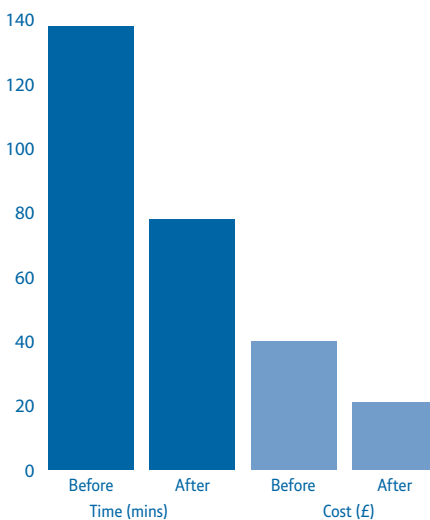


Wireless enablement of OLYMPUS osΨris BloodTrack application suite assures safer transfusions and cuts costs

BloodTrack Suite Benefits



Cost efficiency benefits can be seen throughout the transfusion process. (NB: these analyses are based on estimated activity timings)

BT is assisting a pioneering Oxford hospital to achieve end-to-end electronic control of blood administration in order to virtually eliminate the possibility of errors and free up staff time for better patient care

Executive summary

Blood transfusion is a complex process subject to possible error. A new EU blood directive requires full traceability of blood from the donor right through to the recipient. Correct patient identification is key. To prevent mistakes the John Radcliffe Hospital has developed a failsafe system that controls the process from end-to-end.

The John Radcliffe solution is based on applications developed by OLYMPUS osΨris, using two-dimensional barcoded labels and handheld computers with built-in scanners and printers to ensure patient safety by electronic matching. BT is extending the wireless system under a risk-sharing managed service contract.

The system is self-funding. Savings in blood usage will easily match the £2 million five-year costs. At the same time, the system's inbuilt checks enable one nurse to administer a transfusion instead of two, releasing the time of 15 nurses for direct patient care rather than administration. The system has given the hospital a lead in complying with the EU blood directive.

“Blood transfusion is a complex process and therefore subject to possible error. Patient identification is key to ensuring that patients receive the right blood. There is a new EU blood directive requiring full traceability of blood from the donor right through to the recipient.”

Professor Mike Murphy
Consultant Haematologist
John Radcliffe Hospital

Case study

John Radcliffe Hospital

“The BloodTrack system is costing £2 million over five years. We estimate that we’ll save at least that amount. So the system will pay for itself. Moreover, the time savings equate to 15 extra nurses diverted to direct patient care rather than administration. That benefit is valued at another £500,000 per annum.”

Simon Wombwell
Deputy Finance Director
John Radcliffe Hospital

Marketplace

The John Radcliffe Hospital is part of the Oxford Radcliffe Hospitals Trust, one of the largest teaching trusts in the UK. With more than 600 beds, it is the biggest of the Trust’s four hospitals and is the main accident and emergency unit for Oxfordshire. In 2005 the Trust handled more than 500,000 outpatients, 125,000 emergencies and 84,000 surgical cases.

Business opportunity

From 1996 to 2003, incorrect blood component use made up three-quarters of all official reports of serious incidents associated with the transfusion process, causing 13 deaths and 75 cases of serious ill effects. Professor Mike Murphy, Consultant Haematologist at John Radcliffe Hospital, explains: “Blood transfusion is a complex process and therefore subject to possible error. Patient identification is key to ensuring that patients receive the right blood. There is a new EU blood directive requiring full traceability of blood from the donor right through to the recipient.”

BT solution

John Radcliffe Hospital decided to trial the OLYMPUS osΨris BloodTrack application suite, deploying the BloodTrack SafeTX and BloodTrack Courier modules. BloodTrack SafeTX uses a two-dimensional barcode on patient wristbands, on blood samples taken from patients, and on blood units for transfusion. BloodTrack Courier manages bloodstocks by controlling access rights to storage areas and physical transport between buildings.

The easy-to-use BloodTrack SafeTX process employs a handheld computer incorporating a scanner. An attached portable printer enables the instant creation of barcoded labels for blood samples. Automated software prompts ensure a consistent protocol all the way from the refrigerators where blood is stored right to the patient’s bedside. A trial was launched in the intensive care unit (ICU) where rapid and urgent blood transfusions sometimes using multiple blood products are often required.

The next step was to look at how the technology could be enhanced, both to add clinically helpful features and to improve the processing and availability of transfusion data. BT proposed a Cisco-based wireless infrastructure that would build on the established use of handheld scanners.

Professor Mike Murphy says: “There are two important early applications of the wireless link: to download data from the handheld unit directly into the blood transfusion computer; and to enable real time blood count information from pathology to the handheld unit, providing strong decision support for clinicians at the bedside.”

Case study

John Radcliffe Hospital

Results

The benefits of John Radcliffe's transfusion system will stretch from the clinical front line to the back office budget, and it has given the hospital a lead in complying with the EU blood directive. Professor Mike Murphy says: "The main benefit is in terms of patient safety, by minimising the risk of the patient being transfused with the wrong blood." The number of blood transfusion process steps is reduced from 26 to 17, and the number of staff involved is reduced from two to one. If incompatibility is detected an audible alert is sounded. The transfusion can't continue.

Amanda Davies, a Senior ICU Nurse, explains: "The BloodTrack system helps to provide better patient care, because you can use the handheld computer at the bedside to check the process. Previously, we had to use two nurses to conduct a transfusion but now we only need one."

The BT wireless network is being expanded to cover the whole of John Radcliffe Hospital as well as the Trust's Churchill and Horton sites, so that the benefits of the BloodTrack system can be achieved on a Trust-wide basis. Under a managed service contract, the BloodTrack implementation risk is being shared and, in the unlikely event that full benefits do not materialise, the financial pain will be borne equally. The contract is calibrated: the cost to the hospital ramps up in parallel with the growing annual savings over the five-year contract term.

Simon Wombwell, Deputy Finance Director at John Radcliffe, concludes: "We now transfuse less blood, because the system is checking what we're doing. The BloodTrack system is costing £2 million over five years. We know that we'll save at least that amount. So the system will pay for itself. Moreover, the time savings equate to 15 extra nurses diverted to direct patient care rather than administration. That benefit is valued at another £500,000 per annum."

Main BT products and services

- Cisco-based wireless network comprising four Cisco 1000 Series lightweight access points within a Cisco Structured Wireless Aware Network (SWAN) with a 4400 Series Wireless LAN centralised controller
- BT Professional Services including specialist engineering skills and comprehensive project management

Why BT?

- Understanding of the healthcare clinical and business environment, through in-depth involvement in NHS and private projects at national and local level
- Flexible contract terms with risk sharing and annual running costs calibrated to savings as they grow
- Track record in installation and maintenance of wireless networks, and expert assistance with system development

Case study

John Radcliffe Hospital

Technology blueprint

A BT managed wireless network platform using Cisco technology will provide a centralised, scalable solution built on Cisco 1000 series lightweight access points. Operating on 802.11 protocol it will utilise centralised controllers and a dedicated management platform within a Cisco Structured Wireless Aware Network (SWAN). It can automatically locate Cisco wireless LAN controllers over any Layer 2 or Layer 3 infrastructure.

The Olympus osΨris BloodTrack suite consists of two modules: BloodTrack Courier, which electronically controls and tracks the movement of blood products in and out of hospital refrigerators; and BloodTrack SafeTX – a point-of-care, protocol-driven system to ensure the right blood products are given to the right patients. Employing two-dimensional barcodes attached to both the patient and the appropriate blood product, along with handheld computers incorporating a scanner and a printer, the Olympus osΨris BloodTrack suite provides end-to-end control and safety.

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Offices worldwide

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