



## CASE STUDY

## University College London Hospitals

Alan Stewart profiles a UK hospital trust that is leading the way with its implementation of wireless networks

**“The key to embedding IT into healthcare is to make it as unobtrusive and invisible as possible to the user”**

Colin Jervis, University College London Hospitals

For doctors and nurses at University College London Hospitals, paper records could soon become a thing of the past. The UCLH National Health Service (NHS) Trust is using what it believes is the UK's largest single wireless network to link 7,000 users in its eight hospitals in central London, which include the recently opened flagship University College Hospital.

The wireless network has been installed principally to assist UCLH in moving to a completely paperless electronic patient record (EPR) system over the next few years. Doctors and nurses will be able to gain access to patient information while on the move anywhere within the hospitals, from bedside to operating theatre.

“The key to embedding IT into healthcare is to make it as unobtrusive and eventually as invisible as possible to the user,” says Colin Jervis, interim director of IT at UCLH. “Wireless techniques, supported by the network that we've installed here, could help to make that vision real.”

The wireless network consists of three mobility controllers, which manage traffic and security and over 300 centrally managed access points from Aruba Networks, a US communications company. “The switches are all in one location,” explains Bob Vickers, head of UK sales at Aruba, “and the access points are sprinkled around throughout the different hospitals, [which are] linked together via a metropolitan area network.”

The UK government has stipulated that all hospitals' patient records are to be electronic by 2010, as part of its drive to broaden choice and make the NHS more patient-focused. UCLH decided to implement its EPR system well in advance of the government deadline, however, because it wanted its hospitals to have the best possible IT systems at the earliest opportunity.

The trust expects the system to revolutionise the way it delivers healthcare, with a single electronic patient record replacing the many paper- and computer-based systems currently in use. The hope is that this will bring about an end to lost notes, illegible handwriting and delayed test results, thereby improving the standard of care received by patients.

The EPR software chosen by the trust is the Carecast system from IDX, a US medical software and services company. Mr Jervis describes how UCLH went through a very thorough procurement process, evaluating many options and alternatives.

Since then, the Carecast system has also been selected for roll-out across the rest of London as part of the NHS National Programme for IT. The system had also been intended for implementation in hospitals in the south of England NHS area. Earlier this year, however, Fujitsu

Services, the lead contractor for that area, replaced Carecast with the Millennium EPR system from Cerner, another US healthcare software and services company.

UCLH is implementing the Carecast system in phases, the first of which began a week after the new hospital opened and covers patient administration and bed management. Among other things, this lets hospital staff register patients and control their admission, transfer and discharge. “In addition, we went live with the maternity [sub]system, and also one that supports activities in the accident and emergency department,” says Mr Jervis. “That first phase is still bedding in, but doing very well.”

The second phase of the project will provide more support for doctors, supporting their nursing care plans and allowing them to view electronic records. Doctors will also be able to request and view test results, such as x-ray images, online, as well as record diagnoses and treatment. Mr Jervis expects Carecast's second phase to become fully operational over a period of about a year to 18 months, depending on the success of the implementation.

Because so much sensitive information is contained in patient medical records, security is a key issue for UCLH. “Wireless is not very security-friendly,” admits Mr Vickers. “It breaks all of [the rules of security], because it's in the air, people can get access from [anywhere], and it doesn't necessarily have to be inside a building. Security and wireless are not seen as being good bedfellows.”

He stresses, however, that Aruba's wireless security was one of the principal factors that influenced its selection by UCLH. “The network was chosen very carefully to meet the trust's specific requirements, and the Aruba servers were used because of their state-of-the-art security features,” explains Mr Jervis.

The wireless network protects patient information by means of a centralised multi-layered security strategy. Any user or device attempting to connect to the system has to be authenticated before being allowed on to the network. In addition, all encryption is implemented centrally rather than at individual access points.

“Confidentiality and security are a major concern of wireless implementations in healthcare,” says Mr Jervis. “[Our systems] have a series of different levels, so users can be given access to deeper or shallower amounts of information.”

In addition, he points out that the wireless network can also support voice over internet protocol (VoIP) telephony, a feature that UCLH intends to make use of in the future. All in all, the data and voice systems should represent a radical departure from the old days of paper records and scrawled doctors' handwriting.