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Developing Top Quality Teams to Modernise IT Systems

The Case of Arras Hospital

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Pilot Project to Learn the Contours of Change

We started out with the belief that we had to take a long and sweeping rethink about how IT and new architecture could improve and optimise the organisation of a hospital and the delivery of healthcare.

The ambitious plan involved rebuilding parts of the hospital, refurbishing others, and completely replacing the legacy IT systems. A major undertaking in its own right, the IT overhaul did not seem financially viable without a parallel re-structuring of the organisation's internal processes and a change in its culture.

The new, 100-bed Aloïse Corbaz psychiatric wing (construction began in 2002 and finished in 2004) was chosen as the pilot site for the entire project. With the mission of ensuring that all investments did ultimately result in higher quality patient services, the hospital identified several objectives:

- î To reduce operational and administrative costs
- î To provide clinical staff such as doctors and nurses with effective tools for mobile working
- î To reduce the administrative burden of clinical staff in order to improve patient care
- î To use new technology to communicate with the entire medical community in the region, so improving patients' access to services and raising overall standards of care.

Two years later, the psychiatric ward has been deemed to have met these expectations. It works smoothly on the IT side, with its IP network, WiFi, etc.

New HIS

In 2002, it was also decided that the new Information Systems Manager at Arras Hospital would introduce a Health Information System (HIS). The aim was to enable the creation and centralised storage of electronic patient records, an important step towards automating processes and reducing the level of paperwork within the organisation. The hospital chose the Clinicom HIS application from Siemens Health Services and its partners. At present, 90% of the software has been deployed satisfactorily.

The Medical-Grade Network

Since 2001, the hospital had been seeking to achieve a number of technology-related goals that would contribute to its overall strategy of improving patient care.

- î To provide staff - and, ultimately, patients - with access to a converged platform that would carry voice, data and video applications.
- î To remove the IT silos that had built up within each department and instead, create a single, integrated environment for the entire hospital.
- î To ensure that the network offered the highest possible levels of performance, reliability and security. We selected Cisco Systems and a high quality integrator (NCS) because we were laying the foundation for a 'Cisco Medical-Grade Network' which is designed to:
- î Be resilient and responsive in a 24x7 environment in which 'mission critical' implies that lives are in the balance.

î Optimise responsiveness at the point of care to reduce the number of medical errors and improve clinical productivity.

î Use intelligence within the network to make the most vital information available when, where and for whom it is needed most.

î Enhance integration of applications and services to improve diagnostic capabilities, reduce time to treatment for patients, shorten billing cycles and create new revenue sources.

î Provide seamless communication independent of device or location. The hospital saw the principles behind the Medical-Grade Network as critical because they would support its over-arching goal of becoming completely patient-centric.

The complete IP-based infrastructure that has been installed throughout the hospital's 18 different sites offers a secure, high-performance and reliable platform for voice, data and video, with a backbone speed of 10 Gbps, which has since been upgraded to 20 Gbps and can quickly be scaled up further - as the organisation inevitably changes and grows.

IP Telephony and Wireless

We initially deployed IP telephony over the network in three departments: the psychiatric wing, the nurses' training institute, and the nurses' home.

Here, both wireline and wireless IP phones offer nurses flexible voice and data services. Staff in these departments are able to access patient records and other data while on the move, using a range of mobile devices such as wireless IP phones and Tablet PCs . After a positive assessment in 2006, telephony for the entire hospital is now over IP.

Given that the entire infrastructure is wireless enabled, wireless access to voice and data services is available throughout the new hospital since completion in February.

In the new hospital, patients' rooms have been equipped with services on a bedside terminal, among them digital television, IP telephone, video and Internet access, all of which will be delivered over the same network.

The security and reliability of our network are essential, particularly when WiFi terminals are being used. We are confident about the quality of this solution and, having selected an end-to-end system, also benefit from full hardware and software compatibility.

Paper-Free, Real-Time and Other Benefits

The introduction of IP telephony and wireless capabilities allows staff to view, enter or amend data directly, wherever they are. This mobile access has transformed the way in which staff work, often eliminating paperwork and duplication of effort.

For example, doctors on ward rounds in different units can change a patient's medication at the bedside using a Tablet PC, instead of writing out a new prescription. The details can then be sent to the pharmacy, where an automatic stock check ensures that new supplies are ordered as and when necessary.

Similarly, the results of blood tests, carried out when a patient arrives at the hospital, can later be viewed on a Tablet PC anywhere on the entire hospital campus, by any member of clinical staff who is treating the particular patient. We should also make mention of our new digital dictation (not speech recognition) capabilities.

This is used by almost all the physicians and has enabled a dramatic reduction in delays for accounts and medical letters - from more than 1 month to a few days. The network's high-speed performance is another huge benefit as it allows the transfer of large files (from the PACS for instance) - not only within the hospital campus but also among the wider health community in Arras.

Consequently, all health centres and the hospital have access to the same data, ensuring consistency, and healthcare professionals are able to update the centralised files quickly and easily. This holistic approach will also help reduce the errors that can arise from inaccurate or incomplete patient records.

Alongside, all GPs in our town can reach their patient's electronic medical record, in real time, through a secure Internet link.

The Productivity Impact

In Montreuil-sur-Mer, France, a similar re-organisation was implemented in the period 1995-2001 by the current general manager of Arras and this author. There, the hospital saw a sharp rise in productivity - by 40 per cent - in spite of a 10 per cent reduction in staff and a 20 per cent reduction in the number of beds. At the same time, the institution's medical and financial performance rose almost to the levels of those of private clinics.

At Arras Hospital, we are looking to achieve similar results within the next two years. We also believe this to be a feasible target.

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