

# Healthcare On The Move: Four UK NHS Mobility Deployments

## Benefits of Mobility in Healthcare

The case studies show how healthcare customers have benefitted from managed mobility installations.

- Managing and securing an estate of corporate-owned iPads and employee-owned devices
- Enabling secure use of VitalPAC clinical system for bedside vital signs monitoring
- Supporting roll-out of mobile PACS viewer application
- Rapid set-up and provisioning of new devices
- Supporting policy-driven secure access to NHSmail on employee-owned devices
- Management of both corporate and employee-owned mobile devices at scale
- Supporting a range of efficiency-enhancing clinical and non-clinical apps, including meals management, remote image viewing and patient feedback
- Enabling wide use of Nervecentre mobile task management and observations software
- Supports more efficient, secure handling of board-level documents for directors

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## Introduction

Mobile computing solutions are delivering huge clinical and operational benefits to the NHS. They help frontline and administrative teams streamline their processes and are having a great impact on the way that clinicians and nursing staff provide better patient care and improve performance.

Just a few years ago, Computers on Wheels (or CoWs) were the mobile computing device of choice at many hospitals, giving staff bedside access to the clinical IT system. Now, the latest generation of smartphones and tablet computers are delivering tremendous benefits in productivity and responsiveness to patients' needs. For example, using a tablet-based clinical system app, staff can monitor and analyse patients' vital signs at the bedside, helping to better manage changes in an individual's condition. Other apps enable patients' X-rays and scans to be displayed and discussed wherever it suits the clinician; or enable more efficient collection and management of patients' meal requests, saving costs and reducing waste.

However, these benefits come hand-in-hand with several challenges:

- The need to control the use of those mobile devices, whether they are issued by the organisation, or are owned by employees;
- To secure the devices and data against loss or theft;
- To maintain compliance with internal and external security and confidentiality mandates, especially with respect to Patient Identifiable Data (PID);
- To simplify initial provisioning and on-going configuration – ensuring the users have immediate access to their data and apps, especially when devices are shared between users.

Finding the right balance between maintaining control, whilst making the most of the inherent efficiency and productivity benefits of mobile apps and devices, is the key challenge.

This report shows how the ICT teams of four NHS organisations are using MobileIron Enterprise Mobility Management (EMM) solutions to manage mobile device proliferation, including smartphones, tablets, mobile application usage, and demands from employees for greater mobility; and enabling user-driven innovation while maintaining security over their mobile estates.



The following case studies show:

- How NHS organisations are managing and securing a diverse range of both corporate- and employee-owned mobile devices with a single EMM solution;
- How these organisations are supporting user-driven innovation in deploying new clinical and non-clinical applications to improve patient care, and enhance productivity and operational efficiency;
- How the organisations are enabling policy-driven secure access to NHSmail and other key resources while maintaining data security and confidentiality.

### **Mobility Delivers Enhanced Patient Monitoring & Improves Outcomes: South Devon Healthcare NHS Foundation Trust**

South Devon Health Informatics Service provides cost-effective professional IT services to health organisations in South Devon. South Devon HIS now serves South Devon Healthcare NHS Foundation Trust, Torbay Care Trust and also offers IT services to Devon Partnership Trust and NHS Devon.

#### **Deploying new devices securely**

NHS trusts across the region, whilst already endorsing mobility in practice, wanted to open up the deployment of new devices and technology to clinicians and staff both on wards and in the community, for both clinical and administrative tasks. To do this, they needed a mobility management solution for those devices that would help to safeguard security and confidentiality of highly sensitive NHS data.

Having evaluated a range of mobile devices, from computers-on-wheels to laptops and PDAs, South Devon HIS concluded that Apple's iPad 2 tablet was the most practical choice for deployment across NHS sites. Staff felt the tablet's ergonomics and light weight were well suited to on-ward use; and the South Devon HIS team felt that Apple's approach to development and distribution of apps, and control over operating system updates offered security advantages compared with Android and Windows Mobile tablets.

By implementing MobileIron's EMM solution, the organisation was able to ensure security across its iPad estate (and other corporate-issued devices), allowing the IT team to track the devices in use and remotely wipe NHS data if necessary, while enabling staff to use the device's native features.

MobileIron's platform also opened up the possibility for South Devon HIS to introduce a BYOD policy at a future stage; with MobileIron deployed on devices before allowing them to connect to the NHS network, employees can potentially use their own personal devices to access NHSmail and internal data, and perform tasks remotely.

#### **Clinical apps improve patient care**

One of the notable advantages of the new iPad estate was the ability to run VitalPAC, a clinical system for monitoring and analysing patients' vital signs on tablets. The VitalPAC app supports staff in recording patient observations at the bedside, and also reminds staff to take observations at regular intervals. The tablet's ergonomics make this easier for staff, with simple factors such as the tablet's backlight enabling unobtrusive use during night-time without disturbing patients.

This enables any decline in patients' conditions to be identified early, helping to improve outcomes. It has also improved efficiency for staff, as observations can be recorded and reported on faster, leading to better governance. The ability to deliver automatic risk calculations and localisable error handling has also increased the accuracy of assessments.

The mobility and flexibility enabled by MobileIron has proved successful with frontline clinical and nursing staff, and the IT team at South Devon HIS. Future plans include deploying a Picture Archiving and Communications System (PACS) viewer on tablets, enabling X-ray and scan images to be accessed and viewed on the device's screen, which the HIS team is currently evaluating.

David Hayes, IT Operations Manager - South Devon Healthcare NHS Foundation Trust, commented: "Increasingly, we're realising that we need to provide an environment in which users are able to do all the things they want to do, but in a safe and secure manner. MobileIron allows us to do this. We have good engagement from our training department and there's a particular interest and enthusiasm for mobile devices that has meant we've started to produce best practice guides." South Devon HIS has also noted a wider increase in security awareness throughout the wider NHS staff community.

### Securing Data on Corporate Devices and Enabling BYOD: NHS Health and Social Care Information Centre (HSCIC), Leeds

NHS Health and Social Care Information Centre (HSCIC) is part of the Department of Health Informatics Directorate. Its role is to maintain and develop the NHS national IT infrastructure, which includes a number of national services and a range of national applications. HSCIC helps the NHS to deliver new computer services and applications to improve patient care and safety.

#### Improving security across corporate-issued devices

A review of mobile device usage within HSCIC highlighted users' needs for better functionality and increased levels of security across corporate-issued mobile devices. The organisation had previously offered Symbian devices to employees, but these were becoming increasingly outdated and unpopular, from both a performance and security perspective. The devices lacked native encryption, and only supported a limited range of applications.

As part of an overhaul of its internal mobile device estate, HSCIC wanted to move away from Symbian to newer generation mobile devices. The ability to support a wide range of new business applications on the phones was a key objective. Additionally, devices and their associated functionality had to remain cost-effective and, crucially, offer compatibility with NHSmail, the secure national email and directory service available to NHS staff in England and Scotland.

#### A richer user experience

HSCIC made the decision to deploy iPhone 4 devices across the organisation. The main driving factor for this was that, unlike Android devices, encryption is built-in to the iPhone 4 and can be remotely enabled by default, with no ability for the user to turn it off. As such, sensitive data would be encrypted on the device and only available for viewing after the phone is unlocked by the user, helping to reduce the risk of unauthorised access. This offered a key advantage when combined with the ability to support NHSmail, the NHS-wide email service. HSCIC felt this offered a more cost-effective option compared with alternatives, which would need additional security apps to be deployed at extra cost, to attain the same level of security.

MobileIron's flexible levels of security enable users to take advantage of the features of their corporate-issued iPhones, while enforcing policies to secure the data on the device and enabling remote wiping of HSCIC data if the phone is lost or stolen. It has also boosted efficiency in provisioning and deploying new devices for users: the HSCIC IT team is now able to configure a new device for a user in less than five minutes, including setting up access to NHSmail. The success of the initial mobile phone project has launched a series of further mobility projects within HSCIC, in particular securely deploying internal network resources to users and also extending the service to include iPad tablets.

### **Introducing a BYOD policy**

As part of the mobile estate upgrade, HSCIC was encouraged to embark on developing a BYOD policy for the organisation's staff. NHSmail supports many types of devices and a report was produced to see what devices were being used. It was found that many personal devices that are unencrypted or insufficiently protected were being used to connect to the service.

Rather than completely block the use of these personal devices, the IT team at HSCIC is now working with users and allowing them to connect to NHSmail using their own devices if they wish, providing that they install MobileIron's app to enable data and device management. To support this, the organisation is publishing a list of supported devices and operating systems.

Paul Smith at HSCIC said: "With MobileIron, we now have the capability of doing a lot more, such as allowing people to connect back into our network to access our corporate share-point or our intranet. We can leverage those capabilities and, in doing so, realise our mobility goals."

### **Deploying Catering, Feedback and X-Ray Apps: Yeovil District Hospital, Somerset UK**

Yeovil District Hospital is an NHS foundation trust hospital in Yeovil, Somerset. It provides acute care for a population of approximately 185,000 people across South Somerset, North and West Dorset and parts of Mendip. The Trust employs 2,200 staff over a large site that encompasses 345 beds and a private patients' wing.

During 2011, following an increase in the demand to use next generation devices to access information on-site, the Trust invested heavily in a new wireless network to guarantee 100% coverage. The new network enabled the use of mobile devices including laptops and iPads within hospital departments, and also offered free patient wireless for visitors.

### **Controlling BYOD**

The implementation of a new wireless network at Yeovil led to a sudden influx of devices –particularly iPads - connecting to the network. The devices, brought in primarily by senior members of staff, were largely unmanaged and posed a significant risk to data security. The IT team at Yeovil needed to implement an EMM solution, on a large scale, that would ensure sensitive data would be secured at all times. Yeovil needed to find a solution that provided security, device management and ultimately an application store front which would allow the organisation to fully embrace mobile devices, without the worry of data breaches.

With the popularity of mobile devices in the workplace set to increase, Yeovil were not only challenged from a security perspective; the organisation realised that they would need a method for managing the devices and optimising their usage for staff and patients by advocating and rolling out clinical applications.

Having looked at a range of solutions for mobility management, Yeovil decided to implement MobileIron's platform, based on the experience and recommendation of Musgrove Park Hospital who had earlier deployed the solution. MobileIron was selected for its favourable features and functionality; the system was quick and easy to deploy and, from a security perspective, met Yeovil's requirements.

### **BYOD: Adding Samsung Android**

With an EMM solution in place, enabling the implementation of policies including PIN and password protection, remote wipe and inventory checks, Yeovil were able to look into the provision of corporate-owned devices. The Trust made the decision to invest in iPads because of the device's popularity and

long-term upgrade path. Approximately 100 devices were deployed across the organisation.

User demand also saw Yeovil enabling BYOD within the organisation. The policy was initially opened up to IOS devices before being extended to include Samsung SAFE devices, which are enterprise-ready and popular amongst staff. Individuals were free to access the hospital's wireless network and internal email from their own devices, providing they complied with the organisation's mobile policy with MobileIron installed on the device.

### **Healthy benefits from mobility**

With mobility securely enabled for staff and patients, Yeovil is now benefiting from the use of several key applications, both medical and non-medical, which have significantly boosted efficiency and improved patient care.

Using tablets, Yeovil District Hospital has been able to transform ordering and catering of meals for patients. The traditional hospital system for patients choosing meal options involved distribution of hundreds of daily pre-printed menus, which patients would fill in manually and return to staff for scanning and collation of orders. As well as being unnecessarily labour-intensive for staff, this system is prone to orders being missed or incorrectly allocated. Yeovil deployed Menumate and Menumark, a solution that allows caterers to manage operations including stock-control and costings.

The Menumate app, installed on iPads that are taken to bedsides, presents patients with an easy-to-use menu selection process. Once completed, choices are submitted directly from the tablet to the hospital's catering department for fulfilment. For patients who are unable to make their own meal selections, Menumate contains an admin tool for staff to place orders on their behalf. As well as offering a fast and accurate method of ordering meals, the use of the Menumate application enabled YDH to make significant savings in food purchasing and wastage, as well as delivering a better service to patients.

### **Collecting patient feedback**

Using a Snap Survey application installed on Trust-owned iPads, YDH were able to compile department-specific surveys for patient completion. Clinicians could simply hand the device to a patient for them to fill in (for example, before and after a physiotherapy session), and results would be automatically updated on the clinical audit. From an NHS point of view, conducting surveys via iPads allows for rapid collection and collation of very specific data.

### **Easy viewing of X-rays and scans**

Following the installation of a new radiology system at YDH, the IT team is planning to introduce an associated iPad application, Carestream Vue Motion, to allow clinicians and physicians real-time, on-demand access to imaging results and patient data to provide more responsive patient care. It will also support generation of a QR code token for individual x-rays, which could be passed on to the patient. Once scanned into a personal mobile device, the QR code would enable a patient to view their own x-rays. QR codes can also be passed on to GPs to enable images to be quickly and easily transferred into a practice management system.

## **Mobility at the Nerve-centre of Patient Care: University Hospitals of Leicester NHS Trust**

Leicestershire Health Informatics Service (HIS) is a not-for-profit organisation that sits within the University Hospitals of Leicester NHS Trust. It provides IT products and services as well as governance, project management, training, change management and strategy for NHS organisations across Leicester, Leicestershire, Rutland and beyond.

### **Meeting the demand for BYOD**

During 2011, Leicestershire HIS saw a huge increase in the number of employees across its NHS sites, especially those at senior level, who wanted to use their own devices in the workplace. With a sizeable internal wireless network that encompasses 1200 wireless access points across three campuses (one of which is completely wireless, end-to-end), there was sufficient justification for the implementation of a BYOD policy.

With the safeguarding of data now a key concern, Leicestershire HIS consulted Cisco Systems who in turn recommended MobileIron for EMM, to help support and manage a BYOD programme and further deployment of corporate-owned devices.

### **Streamlining processes and cutting down on paperwork**

Following the implementation of MobileIron, Leicestershire HIS found that they were able to actively provision more devices for specific clinical applications and help streamline processes and improve service delivery. An early example of this saw the IT team set up 150 iPhones with MobileIron, all of which were to be used to run several aspects of Nervecentre mobile task management, handover and observations software, designed to allow hospitals to increase productivity and safely reduce costs in specific areas.

Running Nervecentre on corporate-issued iPhones allowed clinicians to better manage the allocation of activities and workflow to their teams, ensuring that urgent cases and requests receive priority treatment, as well as streamlining other processes such as patient referrals and data handover.

As David Rose at Leicestershire HIS, commented: "It's taken out a lot of paperwork and manual processes. We're able to actually cut down on the number of nurses and doctors needed out of hours, and it gives a much better service to the patients. Managing and securing this application has been made easy using MobileIron."

### **Board meeting app due**

Following the successful deployment of Nervecentre on its iPhone estate, the organisation has provisioned more devices to other departments such as Accident & Emergency where they are used purely for internal communications. A project is also being developed to introduce iPads for executives and non-executive staff to use at board meetings, to help in making substantial savings in printing, administration and associated distribution costs for documents relating to meetings.

Commenting on the overall use of mobility within the organisation, David Rose said: "iPads and iPhones are definitely worth our investment as they're actually increasing efficiency and helping to improve patient care. So far, they've been a great success."

## Conclusion

The key findings from the four case studies can be summarised as follows:

### Applications are key to driving efficiencies

Three of the four case studies highlight the use of specific applications to deliver significant benefits to patient care and well-being, by enabling better bedside care. This ranges from noting a patient's vital signs, to taking a patient's meal order. The ability to enter data just once, while the clinician or nurse is with the patient, has proven critical to delivering efficiency and productivity improvements. Furthermore, these organisations are exploring additional innovative apps that will further improve efficiency, such as the ability to remotely access x-rays and scans.

### Corporate mobility and BYOD must work in parallel

Two of the organisations featured here evolved their mobility management strategy organically over a number of years, based on their experience of managing estates of older mobile devices. The other two organisations needed to take a 'big bang' approach to mobility management, as a result of an influx of users taking advantage of newly-deployed, pervasive wireless networks. As a result, organisations are taking a common approach to securing and managing both corporate-owned and employee-owned devices. This involves auditing device usage, and insisting that employees' own devices are equipped with the organisation's enterprise mobility management solution before they can be used to process or store patient data and other sensitive material.

### Apple versus Android

Apple smartphones and tablets have been the preferred choice for both corporate-issued devices and BYOD schemes in each of the four organisations covered here. The reasons cited for this are improved security thanks to Apple's native encryption; and Apple's approach to development and distribution of apps from the AppStore, and control over operating system updates offered security advantages compared with Android and Windows Mobile tablets. However, organisations are also supporting selected Android mobile devices.

### Mobile management matters

Enterprise mobility management tools are the core of any mobile deployment programme. All of the case studies show that in order to realise strategic benefits of enterprise mobility, it is necessary to have the appropriate enterprise mobility management tools deployed with mobile device management, security, and application management functionality.

### About MobileIron

The leader in security and management for mobile apps, documents, and devices, MobileIron's mission is to enable global companies to become Mobile First organizations, embracing mobility as their primary IT platform in order to transform their businesses and increase their competitiveness. MobileIron provides the scalable architecture, rapid innovation, and best practices for global companies to transform into Mobile First organizations. Leading global companies use MobileIron as the foundation for their Mobile First initiatives, including 8 of the top 10 automotive manufacturers, 7 of the top 10 pharmaceutical companies, 5 of the top 10 banks, 5 of the top 10 law firms, and 4 of the top 10 retailers. For more information, please visit [www.mobileiron.com](http://www.mobileiron.com)

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