

East Kent Hospitals reaps benefits of tracking medical devices with active and passive RFID



East Kent Hospitals University NHS Foundation Trust (EKHUFT), one of the largest hospital trusts in England, has implemented RFID tracking of medical assets. The use of RFID has considerably reduced the time spent by clinical and engineering staff looking for devices, improved utilisation levels of equipment and increased patient safety.

EKHUFT serves a local population of over 750,000 people with five hospitals, including the three main sites: William Harvey, Queen Elizabeth the Queen Mother and Kent & Canterbury Hospital.

The challenge

In 2014, a newly appointed medical physics management team inherited multiple challenges. These included managing a large fleet of medical devices across the three sites, shrinking budgets, increasing patient numbers and the need to improve an inadequate CQC rating.

Andy Barrow, EME Services Manager at the time and now Head of Electronics, Medical Engineering and Radiology Maintenance, described the management of devices as “challenging, crippled by devices constantly being moved around and the inability to find equipment when needed for service”.

Clinical staff and technicians were wasting significant amounts of time looking for equipment and frequent

requests were made to purchase new equipment in order to ensure they could find devices when needed. Under and over device utilisation as well as poor maintenance performance were also causing problems.

The Solution

Following extensive research, the Trust chose to invest in the RFID Discovery system and simultaneously establish medical equipment libraries at the three main hospitals.

To date, across the Trust approximately 5,000 medical devices under the management of the medical equipment libraries have been fitted with an active RFID tag. This includes over 1,000 beds which have recently come under library management.

How does it work?

Medical devices are fitted with an active RFID tag which transmits a unique ID at regular intervals. To read the tags, a number of networked readers have been strategically placed at various locations across each hospital site. The clinical engineering team also uses mobile handheld readers to ensure complete coverage of the hospitals, and a schedule is in place to carry out scans so that location information is updated on a regular basis.

RFID Discovery has been fully integrated with East Kent's F2 asset management system from Infohealth to identify, which devices require action and to support risk management and compliance. This means medical device location data is made available directly into the asset database and asset data such as PPM dates and other alerts are fed back into RFID Discovery.

Benefits

Cost avoidance

Before the introduction of RFID Discovery, infusion pumps costing £1,500 each were regularly in short supply and staff were frequently requesting more pumps to be purchased. However, the device management data provided by the new system, showed that across the three sites there was an excess of 98 pumps. This surplus stock has now been temporarily removed from circulation and will be available to meet the growing demand, which means the Trust will not need to purchase infusion pumps for a considerable amount of time.

Improved device utilisation

Thanks to RFID tracking, bladder scanners are now shared between wards. Costing £6,000 each and only used for minutes at the time, this device is ideal for being managed by the library. ECG machines have also come under the management of the libraries, so fewer are needed overall.

Andy comments: "With a cost of £5,500 each, it's good to know how many ECG machines were actually needed when we had to replace old stock. We have also been able to reduce on-going maintenance as there are fewer to service."

Care Improvements

Improved inventory management is supporting the provision of care at East Kent Hospitals. For example, using RFID Discovery, the Trust has defined stock levels for key areas such as the dedicated buffer store in the A&E department. When stock levels exceed or drop below the specified thresholds, the system dashboard notifies the medical engineering team so corrective action can be taken and patient care delays avoided. Andy says: "This is a really useful feature for ensuring we have the right equipment in the right place at the right time."

CQC report

Three years ago, the CQC found a lot of issues surrounding the availability of suitable medical devices at EKHUFT: A number of infusion pumps were not clean and wards had to 'beg, borrow and steal' to ensure they could get hold of the required equipment.

Now with RFID supporting the equipment libraries, pumps are clean, in service and working. Improvements were evident in the latest CQC report which stated:

“Our observations and discussions with staff indicated that access to equipment was good. The introduction of an equipment library (including the use of RFID tags) has been of benefit.”

CQC Quality Report for East Kent Hospitals, November 2015

Key Benefits

- Reduced time spent looking for devices
- Providing confidence that devices are managed
- Ensuring the right equipment is in the right place at the right time
- Improved management of hired devices
- Removed surplus equipment from circulation
- Reduced need to purchase new devices

Andy Barrow,
Head of Electronics,
Medical Engineering and
Radiology Maintenance
East Kent Hospitals



Reporting

EKHUFT have designed their own reports based on data from RFID Discovery and their asset management database. Reports include those for managing high risk devices such as defibrillators, showing which devices are due for service soon, which are overdue and where were they were last seen by the system. This makes it much easier for technicians to prioritise workloads and locate equipment. Andy adds: "RFID Discovery has given us an unprecedented level of information and evidence surrounding our medical device management. It helps us demonstrate that we are actively managing devices and not just reacting to situations."

Audit trails

The system has also proved a great support for incident reporting, e.g. to capture if a device has been used in the wrong way, or damaged during use. Andy explains: "The head of a bladder scanner costs £1,600 and they often get broken. Now there is an audit trail showing where they were last used and therefore where they were damaged. This helps with cross charging repair costs to the correct area and identifying training needs to avoid future damage."

GSI Asset Labelling

Following the success of using active RFID, EKHUFT is now embarking on the process of labelling all their medical devices with GSI compliant asset labels incorporating passive RFID technology. Unlike active tags, which are used to track high value and high risk mobile devices, passive RFID tags have no battery and require an external source such as a passive RFID reader to trigger a signal transmission.

Clinical Engineering staff at each of EKHUFT's three hospital sites use a specifically designed RFID trolley fitted with a powerful UHF reader and three antennas. The trolley performs equipment searches as it is pushed around the hospital by a clinical technician. With a read range of typically up to eleven

metres it records the date, time and location where a passive tag has been detected. Data is then sent to the same central database used for devices tracked with active RFID tags, and likewise can be interrogated by clinical engineering staff. In addition, handheld scanners are used to audit smaller areas or to pinpoint a specific item on a ward or in another location.

Scan4Safety

Being able to uniquely identify each medical device with a GSI compliant asset label helps EKHUFT on their journey to Scan4Safety as it enables equipment to be scanned against a patient's wristband to record which particular device has been used for treatment.

Improved inventory management

The implementation of passive RFID will enable the trust to accurately and efficiently audit all medical devices. With all items tagged, EKHUFT will be able to carry out a full equipment audit in a matter of days, a process that would usually take many weeks or even months.

A clinical view on RFID

A comment from Dr. Tony Beaumont, Anaesthetic Consultant and Head of the Medical Devices Group at East Kent Hospitals

"The introduction of RFID tagging to our inventory of medical devices has allowed us to improve many aspects of equipment management.

Ward staff now spend less time finding equipment and more time actually using it for patient care. We have much greater assurance around documentation in such areas as decontamination, planned preventative maintenance, software updating, and locations of use. This has provided us with robust evidence to satisfy our regulators and provide evidence to support the expansion of equipment in certain areas.

Without RFID tracking the medical equipment libraries would not have been so effective. The nursing teams have great faith in the libraries and their use has been one of the success stories of our medical equipment management."





What's next?

With the benefits of RFID proven, an increasing number of devices at East Kent Hospital are coming under the management of the medical equipment library. One of the next projects will be to fit all wheelchairs, hoists and patient trolleys with active tags. Plans include to install a fixed reader in reception, where wheelchairs are most needed. The system could then send an alert to porters when more wheelchairs are required.

With an acute shortage of beds at the Trust, Andy is keen to implement better ways to ensure there are enough beds available or highlight that further beds need to be purchased to meet growing demands. To manage this process, Andy is using the new RFID Discovery dashboard to raise an alert if there are not enough or too many beds in one place.

Andy also sees a particular benefit from tagging foam mattresses, which have historically not been managed as well as they could have been: "Using passive tags will allow us to keep inventory up to date for each area, make it easier to get funding when new mattresses are needed and enable us to record the mattress age, history and a full maintenance record." He adds: "It will also allow staff to identify contaminated mattresses without touching them, which has huge benefits for infection control."

Why choose RFiD Discovery?

RFiD Discovery is the recognised brand name for radio frequency identification solutions from Paragon ID, a global leader in identification solutions. Used in a growing number of hospitals across the UK for over 12 years, RFiD

Discovery is the number one choice for active and passive RFID systems. Paragon ID is largest manufacturer of passive RFID labels in Europe and accredited to ISO 9001.



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Andy Barrow
 Head of Electronics, Medical Engineering
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