



Better connections, better care:

Technology is key to improving efficiency and patient outcomes

The NHS has reached a watershed moment, advances in technology can play a part in improving efficiency and outcomes, some of which can be seen in the Scan4Safety directive.

With demand for healthcare services on the rise and NHS hospitals in financial crisis, the move to 24/7 working and the need for efficiency savings and improved patient safety are challenging the NHS even further. What part can technology play in helping the NHS deliver better outcomes and increased patient safety at lower cost?



Introduction

The National Health Service (NHS) is rarely out of the spotlight, whether it is House of Commons Select Committee meetings or stories of poor care appearing in the national press. Yet the challenges the NHS faces are not surprising given its scale. Its 1.6m workforce treats more than one million patients every 36 hours. In 2015, there were almost 10m operations, 22m visits to A&E, 16m hospital admissions and 82m outpatient visits¹.

As for finances, NHS net expenditure has increased from £64bn in 2003/04 to £113bn in 2014/15. Planned expenditure for 2015/16 is £116bn². The NHS net deficit for the 2014/15 financial year was £471m and latest figures from the King's Fund suggest this is a watershed moment for the NHS, with two thirds of NHS providers ending the year 2014/15 in deficit³. With rising costs, increasing expectations and a slowdown in funding, the NHS faces a funding gap of £30bn by 2020⁴.

One of the key focus areas for the NHS is patient safety, which can drive up costs when it goes wrong. This is one of the reasons behind Scan4Safety, a programme launched by the NHS aiming to demonstrate the benefits of GS1 and PEPPOL standards. The project is being delivered at six demonstrator sites, all of which have adopted both the GS1 and PEPPOL standards with the aim of improving everyday accuracy and efficiency within the NHS, and ultimately improving patient safety.

Advances in medicine and surgery, coupled with IT and technological innovations, represent a significant opportunity for the NHS to streamline processes, improve efficiencies and above all, make cost savings while maintaining an excellent standard of patient care.

In this eBook, we will explore these issues further, identifying potential ways in which the technology available to the healthcare sector today could help the NHS to improve outcomes and operate more efficiently.

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The challenge facing the NHS today

When the NHS was first established in 1948, it provided a very different service to the one it provides today. In many ways, it has become a victim of its own success. It has found ways to treat people suffering from diseases that, 65 years ago, would probably have been fatal.

People are living longer and when they do get ill, they become more frail and sick than ever before, needing ever more care and support. Around eight per cent of patients attending A&E departments are aged over 85. Research shows that older people tend to spend longer in A&E than younger people and are more likely to be admitted in a bid not to breach the four-hour target⁵.

Avoidable admissions inevitably have an impact on patient flow within the hospital. Older people are frail, vulnerable, and more likely to need community care, which means they are more likely to end up having delayed discharges from secondary care, causing bottlenecks within the system.

However, it is not just older people putting pressure on the system. Modern lifestyles see poor diets combined with inactivity creating a ticking time bomb of obesity. Being overweight brings with it more risk of diabetes, heart problems and some cancers, all of which add to the burden on the NHS.

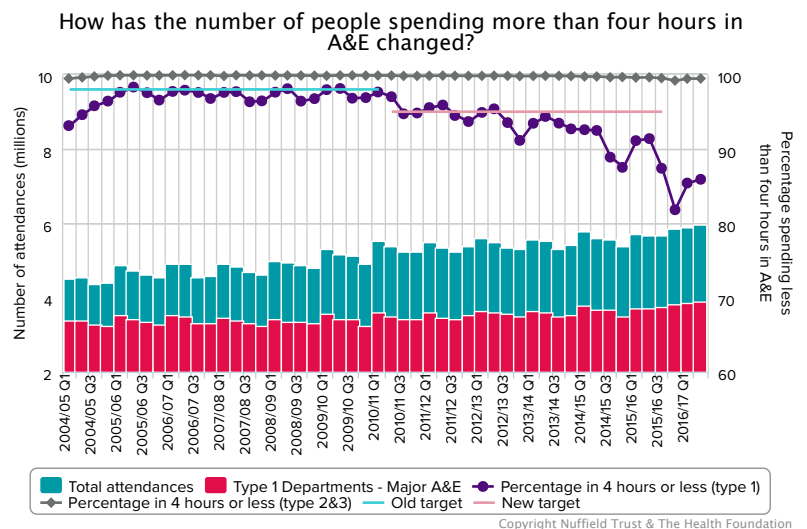
Today's generation relies on the NHS for more than just treatment of illness. Preventative advice and support, mental health care, maternity services, vaccination programmes, diagnostics and sexual health care are all within its remit.

Each year, 22m people visit A&E and urgent care departments across the UK. From January to March 2016, the proportion of people waiting longer than four hours reached its highest point for a decade⁶ with only 82% of patients being seen within the target four hours. This percentage has been gradually rising since April 2016 and in Q2 of 2016/2017 reached 86%, however that still puts it 9% below the target of 95%.

The reasons for this are complex. Patient flow impacts performance and so does the availability of good community care. Some visit A&E because they feel they cannot get a GP appointment soon enough. Others are confused about where they should be because signposting is not effective. There is also major pressure on GP services with 381m recorded GP appointments in 2015 alone.

Adding to these challenges is the fact that 20% of patients contract an unrelated infection while in hospital. This results in patients needing care for longer and puts the NHS under serious pressure to improve patient safety.

However, the technology available today can help the NHS to tackle these challenges. Something as simple as purchasing disinfectant ready devices can help stop the spread of infection and barcode technology can increase efficiency and accuracy, all of which help to reduce costs and improve patient safety.



Graph source: <http://www.qualitywatch.org.uk/indicator/ae-waiting-times>

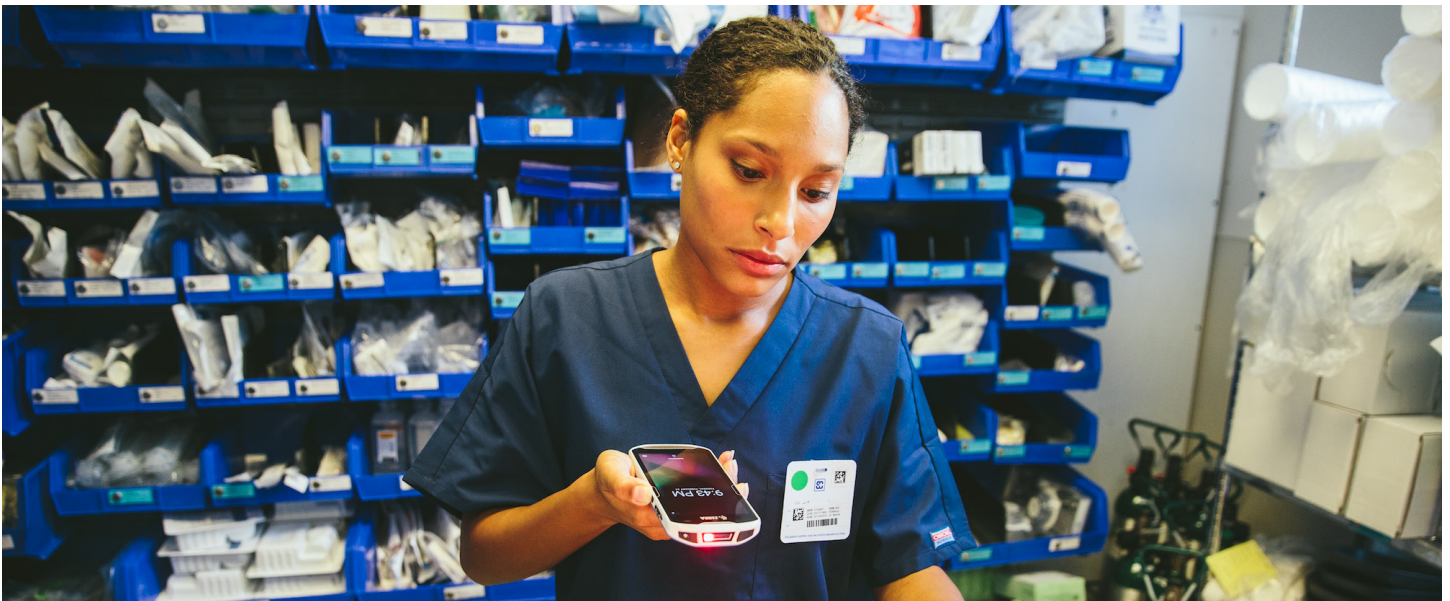
The need for change

Safety and staffing have become a major focus in recent years following the Francis Inquiry⁷, with trusts spending more on agency staff to ensure safe staffing levels. The rising cost of the supply chain and demands for improved patient outcomes also have an impact, with avoidable admissions and delayed discharges of care, causing extra pressure on finances.

Patient care and safety is the bottom line for the NHS. Its leaders must regain control over their finances, but not at the expense of patient care and experience. Commissioning better care for the patient with more joined up care, can dramatically improve patient outcomes and experience.

To remain sustainable the NHS must look beyond what it has always done and embrace joined up working between primary, secondary and community care, while also seriously considering the benefits that technology and innovation can bring in terms of accuracy, patient care and time and money saving.

More integrated working while at the same time taking advantage of the advances in medicine and surgery alongside IT and technological innovations must be the answer to making the NHS viable and bringing it into the 21st century.



What do we mean by joined up care?

Joined up care can transform the patient journey, not just by connecting primary, secondary and community services, but also engaging those on the periphery such as pharmacists, social workers and medicine storerooms.

Digital technology has to play a part in joining up care, ensuring that all care-givers have the same up-to-date information. It not only streamlines the process of healthcare provision, it ensures accurate information about the patient can be obtained quickly.

Data can be updated every time a patient has contact with any healthcare worker where protocols allow.

Having such data available also means trusts can monitor performance to help aid improvement. Technology improves visibility, which, in turn, improves outcomes.

What does increased visibility deliver for health organisations?

Increased visibility can give health organisations the ability to delve deeper into their systems and look more closely than ever before at patient care and the patient journey. It gives clinicians the opportunity to see where care can be improved, where the bottlenecks are in the journey and can greatly improve accuracy, especially in terms of drug administration.

WHAT DOES THIS LOOK LIKE?

Using digital records and barcoding to track a patient journey is one area where technology can play a part in helping the NHS to meet the challenges it faces. Barcoding plays a vital part in accuracy and time saving for clinicians. The health sector is now starting to see the [benefits of scanning technology](#) and for the need of a [standardised system and uniform barcoding](#) that are in line with GS1 and PEPPOL standards.

Barcode data can improve the treatment process from more accurate data capture and greater visibility across the supply chain – both at the point of dispensing and at the point of care.

Bedside scanning reduces mistakes, increases document accuracy and keeps costs down by reducing hospital stays and avoiding medication errors.

The Scan4Safety scheme has seen the implementation of barcode technology within six demonstrator sites. All equipment and medication are scanned to prevent drug errors, as are the patients to ensure the right drug or blood product goes to the right patient.

Patients using a smart phone or similar device can be reminded to take their medication and can scan the barcode to make sure they are following electronic instructions about how to take it.

Pharmacists can also scan the drug information against the patient's electronic record to ensure that they are on the right medication for their condition. Barcoding is also important when considering the Falsified Medicines Directive and drug administration, with around 20 per cent of drugs in circulation being counterfeit. Each individual pack of drugs will have a unique barcode on it. The barcode details the point of manufacture, who made it, in which country, the dose and use by date and safety sheet.

Barcodes can also help to ensure visibility of drugs when they arrive. Drugs can be tracked from the back door of the warehouse to surgery, to ensure the operation is matched with the drugs, thereby increasing accuracy and safer outcomes.



How can technology improve the sample collection process?

Sample collection errors are hard to fully eradicate within hospitals. Not only are wards extremely busy places, but the common process of using handwritten labels can cause serious problems. Illegible labels can mean patients or samples are misidentified, putting patient safety at risk and taking up valuable staff time.

The first step towards improving specimen collection is to establish a standardised system of patient identification and sample labelling. Staff can simply scan the patient's barcoded wristband to confirm his or her identity and the test required can be checked on the patient's EHR. Then, once the sample has been taken, a corresponding barcoded label can be printed and attached to the sample. When the sample reaches the lab, once again the barcode can be scanned to identify the patient, the tests can be carried out and the results can be added immediately to the patient's EHR.

Another issue is the process of labelling samples away from the bedside. For many hospitals, label printers are located in a central area so staff have to leave the bedside with the sample in order to label it. If a crisis then happens which diverts the attention of staff, the sample is left by the printer and potentially

confused with other samples. This is where mobile specimen collection becomes essential; staff who are equipped with compact mobile printers at the bedside can print labels and attach them to the sample immediately.

Utilising a system of barcoding and arming hospital staff with mobile scanners and printers has been proven to achieve 99% accuracy in specimen collection.



What makes technology the key to improving patient outcomes?

The use of technology can help to standardise care, ensure accuracy and give trusts the ability to review their performance using data gathered through the patient journey.

The Internet of Things (IoT) is revolutionising healthcare, bringing technologies together to provide patients with self-management solutions. For example, enabling dementia patients to stay in their own homes for longer, or to help diabetes patients manage their conditions with wearable devices linked to software.

The use of barcodes ensures medical staff can spend more time with their patients. All the information they need is on a patient wristband that can be scanned. They no longer have to spend time trying to locate patient notes, barcoded drug box or test results, and test results, or associating medicine administered to a patient. The information they are given is also more accurate.

RFID can reduce supply overstock, using a system of primary and secondary batches. With an RFID tag on the last batches

of primary stock, a member of staff can then place the tag on a wall-mounted reader board to create an automated request for replenishment. RFIDs can also track and trace prescription drugs⁹ and even assets within hospitals such as beds and key medical devices.

Mobile devices such as printers are capable of printing out barcode labels when needed without having to go back to an office to get them, thereby being more time-efficient. The use of tablets and smart phones can mean records can be updated on the move, and more time can be spent with the patient.

However, even without such devices, the simple use of electronic health records (EHRs) can improve patients' outcomes, simply by ensuring that anyone involved in their care can access patient notes at any time where protocols allow. The patient no longer has to keep repeating their story; all the information is already at hand.

The Scan4Safety Scheme

The NHS's Scan4Safety pilot is already proving the benefits of these types of solutions. The introduction of the GS1 and PEPPOL barcoding standards are helping hospitals to better identify patients, products and locations, leading to benefits such as increased patient safety and experience and improved operational efficiency.

The initial benefits the six demonstrator sites have seen are very promising, with over £7,000 of savings having already been made:

- Stock reduction/one off stock holiday – £233,000
- Reduction in wastage/obsolescence – £462,000
- Non-clinical pay efficiencies – £46,000

Based on these initial findings, it is estimated that for a typical NHS Hospital trust, the benefits could be:

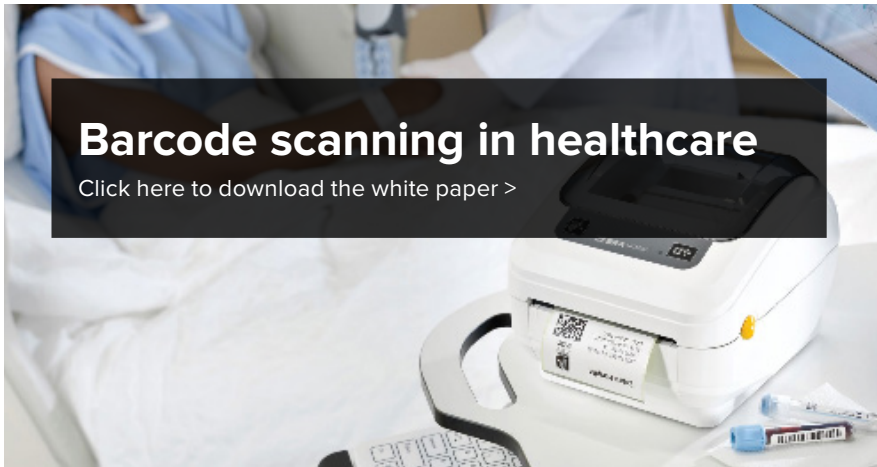
- Time release to patient care – equivalent to 16 band 5 nurses per trusts, that's 2,400 band 5 nurses across the NHS.
- A reduction of inventory averaging £1.5 million per trust, £216 million across the NHS.
- Ongoing operational efficiencies of £2.4 million per trust annually, that's £365 million across the NHS.¹⁰

It is time for a change within the NHS, the technology is out there to ensure every patient gets the journey and the treatment they deserve, through the most up-to-date, and efficient means possible. The Scan4Safety initiative is a huge step towards achieving improve patient safety and efficiency in the NHS.



EBOOK

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