



Improving safety and efficiency in Orthopaedics at University Hospitals Plymouth NHS Trust

University Hospitals Plymouth NHS Trust (UHPNT) is the largest hospital in the South West Peninsula, providing secondary care to a catchment population of 450,000 and specialist services to a wider peninsula population of almost two million. As one of six Scan4Safety demonstrator Trusts, UHPNT is working hard to improve safety and efficiency through the introduction of GS1 standards. With over 7,000 members of staff at UHPNT, it also works with a number of other hospitals to offer a range of specialist services including neurosurgery, cardiothoracic surgery and bone marrow transplant.

Problem

One of the issues that UHPNT had faced was ensuring that there were robust measures in place for the replenishment of stock. Although measures were thorough, these were manual and there were risks that some products may not have been reordered or available in time for when they were next needed.

Stickers from implants were placed onto a sheet of paper to make stores aware of which implants and products needed to be reordered. On rare occasions, stickers may fall off or the paper may have gone missing, meaning that products wouldn't be reordered, which could risk cancelled operations and therefore potentially patient safety.

In Orthopaedic stores at UHPNT, 57% of stock has just one item available straight away. This could potentially have led to cancelled operations if items were not reordered, or for the Trust to pay extra for it to be delivered the same day, which could be extremely costly.



Prior to starting to scan at the point of care, a stocktake was conducted to assess stock levels and review the situation. Some of the main issues that were highlighted included stock expiring on the shelf, inaccurate paper records and lengthy product recall processes.

In Orthopaedic theatres alone, 110 products were found to have expired at a value of £50,000. Similarly, a further £7,000 was due to expire within one month, £77,000 within three months and £144,000 within six months. Overall, products expiring within six months related to 11% of the total stock in Orthopaedics.

How did GS1 standards help?

GS1 standards for patients (GSRNs), products (GTINs) and locations (GLNs) are all now scanned at the point of care in theatres. This traces the patient to the product, and the exact location that the care was given. By electronically tracing products to patients, it allows those affected by a product recall to be identified much quicker than before, and reduces the amount of time that clinical staff spend locating recalled stock and identifying patients.

Through the use of inventory management system, Genesis, by scanning the GTINs on a product, it allows staff to monitor stock levels and which items need to be reordered. Similarly, it also allows staff to see which items are nearing their expiry dates.

The Trust has introduced Genesis which will reduce the amount of waste produced by the Trust as products nearing their expiry dates will be highlighted. By scanning the item at the consumption point, the technology provides an automated replenishment process that replaces the historic paper based processes and ensures that the correct product is ordered. By replacing some of the manual processes, it reduces the risk of human error (and potentially never events) by ensuring the correct items are in stock in time for each patient's procedure.

As well as this, when products are scanned, they are logged on to the system and ensure that the right patient can be tracked if a product recall occurs. The Trust also introduced handheld scanning devices, which enable staff to quickly and easily scan patients and products without complicating it too much or being too time consuming.



The overwhelming brief for this project is patient safety. Scanning products before surgery improves this by reducing the risk of human error and, due to automatic electronic stock replacement processes, reduces the likelihood of operations being cancelled. Staff morale has also been increased because people who are designed to care for patients can spend more time caring for patients, rather than on the reordering and re-equipping of stores"

Mark Brinsden,
Trauma and Orthopaedic Consultant at
University Hospitals Plymouth NHS Trust

The benefits

Through the use of GS1 standards in Genesis, UHPNT is now able to manage products more effectively using an automated replenishment process. This has had a significant impact on the costs they had been incurring every time a product expired or wasn't replenished. The products that would expire within six months has now been reduced to 4% of the total stock in Orthopaedics and £38,000 worth of expiring stock has now been returned to suppliers.

When the inventory management system was introduced, UHPNT wanted to ensure that it would capture the same information as the paper processes had. By running them side by side over the course of a month and cross-checking the information between the two, they were able to spot any discrepancies. It was found that the paper process had gaps, with 19 requisition forms missing over the space of a month. This equated to 36 implantable products which had not been recorded in the implant book either. Over the space of twelve months, this could have been as many as 432 products, and would have affected the replenishment of stock.

Within Orthopaedics this could have had serious implications as each stock-out has the potential to cancel a surgical procedure. Most operations in Orthopaedics use implants where they only keep one in stock at any one time, and cancelling a procedure costs around £1000 each time. If their 110 expired products and 432 non-replenished products are taken into account, this equates to £542,000 lost, not including lost income which can be as much as £3,000-4,000 per procedure.



The first thing we wanted to achieve through using Genesis was to address the visibility of our stock in theatres and on the wards.

Inaccurate understanding of our stock was hindering our purchasing decisions, overloading our limited space and taking up clinicians' time.

It could affect patient safety, because stock unavailability can lead to delayed or cancelled operations."

Pete Sewell,

**Head of Supply Chain and e-Procurement
at University Hospitals Plymouth
NHS Trust**

Another benefit for Plymouth has been in the improvement of product recall processes. A recent example was a product recall request from DePuy to remove a whole batch of products from the shelf and identify the patients who were affected. Using Genesis, this took just 42 minutes, with a staff cost of £9.59. Before, it would've taken nearly six hours with a staff cost of £83.61, which is not including the time it would take to identify each patient affected.

Since going live in Orthopaedics Theatres in August 2017, the Scan4Safety team were able to go live in a second area, Neurosurgery, in February 2018. Overall the Trust has been able to reduce stock levels within those two areas by £90,000, with a 7% total stock reduction. The team are now working with Cardiology and Plastics with a view to roll out to the remaining areas within the surgical care group.

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