

Denmark

Cardiac Catheterisation Laboratory improves traceability, workflow and reduces items in stock

Challenge

The hospital department had a non-standardised manual process for handling stock inventory. The process was time-consuming and increased the risk for human error. In addition, the department had limited visibility of inventory levels, leading to low turnover of inventory on shelves and significant waste.

Approach

To optimise the reordering process while freeing up more time for patients, the department implemented a system using GS1 standards for scanning the barcodes of existing items in stock and all newly purchased items. The manual reordering process was replaced with one that was automated with nurses scanning all items that were used. This automatically generated a reordering list. All staff nurses were trained in how to use the new system, old scanners were reconfigured until they worked perfectly and new scanners were purchased.



REGION H Rigshospitalet

The Cardiac Catheterisation Laboratory is a highly specialised

department at Rigshospitalet, Copenhagen, which performs 24 to 30 planned cardiac procedures a day as well as various emergency procedures on patients with cardiovascular problems. The department has nine operating rooms, making it one of the largest in northern Europe in this field of specialisation. Treatments include stent angioplasty and pacemaker implants. Most procedures are performed under local anaesthetic; many procedures leave an implant in the patient's body. The department has 50 permanently employed specialised nurses, dedicated technical staff and 20 to 30 staff physicians to ensure that patients get the best treatment possible.

For many years, the Cardiac Catheterisation Laboratory has been collaborating with one of its suppliers, Medtronic, a medical device manufacturer. To facilitate the use of its products by cardiology departments worldwide, Medtronic Integrated Health Solutions (IHS), offers multi-year partnerships with hospitals. Medtronic IHS is a division

of Medtronic, which focuses on the cooperation and development of partnerships with health organisations.



The main goal of Medtronic IHS is to help healthcare providers optimise costs and outcomes while driving higher value and patient satisfaction. In cooperation with medical institutions, IHS develops innovative services and solutions to improve efficiency, reduce costs, facilitate patients' access to different types of treatment and improve outcomes.

Pernille Preisler, Søren Boesgaard & Marianne Kjellow-Andersen

Need for better stock management

In 2015, Medtronic IHS offered to review the Cardiac Catheterisation Laboratory's procedures and measure various factors. The department received high scores for patient satisfaction, job satisfaction and IT. However, there was one area that clearly fell short: stock management. Medtronic IHS discovered a high level of waste and far too many products on shelves.

Goods were being reordered manually. Once an implant had been used, a nurse would attach a sticker to a piece of paper and give it to a secretary, who would then order the items in short supply. Nurses could also order the items themselves.

Based on the survey's results, the Cardiac Catheterisation Laboratory and Medtronic IHS embarked on a five-year collaboration in 2017, aimed at optimising the reordering process, while freeing up more time for treating and caring for patients.

"When we closed the door behind us in a procedure room, everything exuded professionalism. We provided excellent treatment, but everything around us was out of control."



Pernille Preisler
Managing Head Nurse,
Rigshospitalet

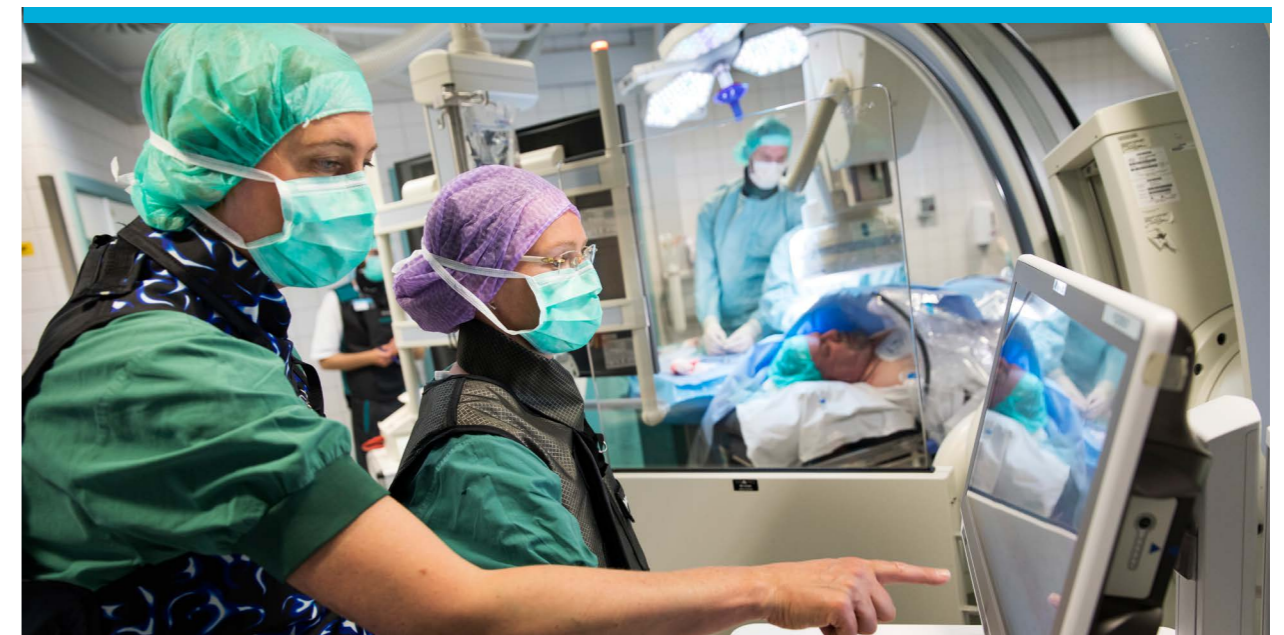


Figure 1: No cancellation of procedures due to out-of stock items.

Increased scanning and reduced waste

Medtronic IHS implemented a system for scanning barcodes of existing items in stock and all newly purchased items. By doing this, the staff knew exactly what items were in stock and which items would expire first. The manual reordering process was replaced by having the nurses scan all items that were used. This generated an automatic reordering list and enhanced traceability.

All staff nurses were trained in how to use the new system by Medtronic IHS' material management analysts, learning which package barcodes should be scanned (if there were more than one to choose from) and other routines.

Whenever new workflows are implemented, there is always a period of adjustment and training during which staff familiarise themselves

with and feel confident about using the workflows. This was also the case at the Cardiac Catheterisation Laboratory. The nurses had to get accustomed to leaving it up to others to manage the items in stock.

“In fact, we initially had to slightly increase the number of items in stock until the nurses were confident that there were enough items available so a procedure would never have to be cancelled due to out-of-stock items.”

Pernille Preisler
Managing Head Nurse,
Rigshospitalet

This was also why the nurses initially tended to overstock the shelves in the different procedure rooms.

“It took a little while before the statistics actually showed us that the number of items in stock had actually declined.”

“In addition, some items didn't have a barcode, and we didn't have enough scanners in the department, which slowed down the implementation of the new workflows.”

Pernille Preisler
Managing Head Nurse,
Rigshospitalet

Shortly after the project began, the hospital switched to a new IT system “Sundhedsplatformen” (electronic health records) with many network flaws that caused the scanners to slow down.

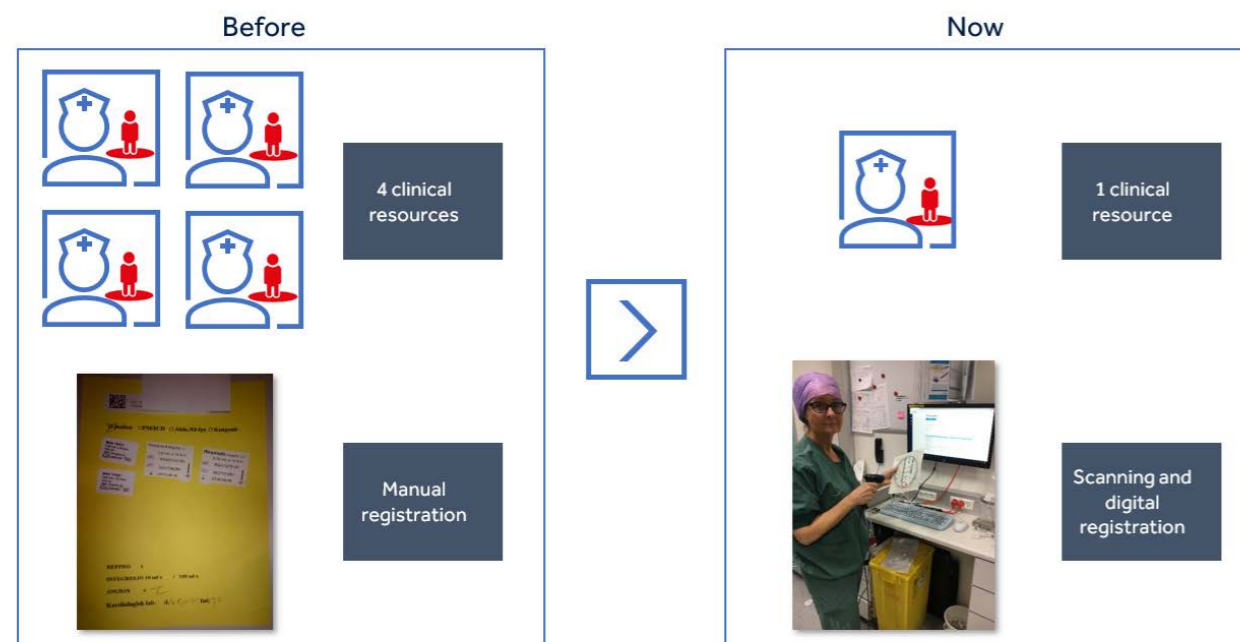


Figure 2: The new automated process has freed up three clinical resources to spend with patients.

New and updated scanners eased workflow

Management realised that the slow scanners were causing problems for the nurses. To comply with the nurses' wishes, the material management analysts reconfigured the old scanners until they worked perfectly and purchased new scanners for the department. At the same time, they redeployed the scanners exactly where the nurses needed them in the process.

When an item without a barcode was discovered, the package was collected to better understand which suppliers were not putting barcodes on their products. To maximise the number of items with functional barcodes, the department contacted the purchasers in the Capital Region and told them how important it was to emphasise the correct barcode necessity in tender requirements.

As a result, the department has seen an increase in the number of items with barcodes. Now, approximately 2,500 items have a scannable barcode, which in most instances includes a Global Trade Item Number® (GTIN®) and an expiry date.

During the five-year implementation period, the material management analysts from

Benefits of optimised workflows

Collaborating with Medtronic IHS has optimised the department's reordering workflows and traceability of the products. Now, nurses scan all the items they use during a procedure. Whenever an item is registered in the system as “used,” it is automatically placed on an electronic reordering list, which is then processed by the material management analysts. The time freed up by the automated process equates to three clinical resources redeployed to patient-related work.

Previously, the reordering process was manual and very time-consuming, with a high risk of human error. Now, the nurses reorder the items simply by scanning their barcodes, taking only a few seconds.

“This means that most items are registered in real time, giving nurses and physicians an overview of the items on the shelves. This has reduced waste in the department.”

Søren Boesgaard
Managing Chief Physician,
Rigshospitalet

“The department has also experienced how physicians are interested in monitoring the statistics to see which items are available, and which items should be used first to reduce the department's waste even more.”

Medtronic IHS were present every day at the department. They still help nurses whenever they run into problems when scanning the items. In special instances, the nurses can put an item's package in a plastic bag and give it to a material management analyst, who then scans the information into the system, keeping the system up-to-date at all times.

“For example, whenever an implant runs out during a relevant period, it gets added to a digital list that is jointly followed up on by the material management analysts and the relevant physicians who use the items. This is important especially if the implant has a specific size and is not used often. This way, the physician has time to find a patient who needs the implant.”

Marianne Kjellow-Andersen
Manager, Service Delivery
Medtronic Integrated Health Solutions

Since the collaboration began in 2017, the department has not cancelled any procedures due to a shortage of items. Nurses have gradually become so confident about using the system and the new workflows that they no longer feel the need to stock more items than necessary in the individual procedure rooms.

Conclusion

The partnership between Medtronic IHS and the Cardiac Catheterisation Laboratory has been enormously beneficial for the department by reducing the items in stock, enhancing traceability and improving workflows—all which have increased satisfaction among both nurses and doctors. Since expiry dates are monitored and products are used before the expiry date, patient safety is enhanced as well.

About the authors



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Qualified as a registered nurse in 1996 from Hvidovre Nursing School in Denmark. Pernille Preisler holds a degree in specialised business studies in staff development and is educated in management. She has worked at Rigshospitalet since 1999 and has been Managing Head Nurse at the Clinic for Cardiac Disease since 2016.



Søren Boesgaard MD
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Qualified as a registered physician in 1985, Søren Boesgaard specialised in the field of cardiology and became a registered cardiologist in 1998. Dr. Boesgaard works at Rigshospitalet and is Managing Chief Physician at the Clinic for Cardiac Disease.



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Marianne Kjellow-Andersen has a master's degree in Public Health from the University of Copenhagen. Since 2019, she has worked as a manager with Service Delivery of Integrated Health Solutions at Medtronic.

About the organisation

Located in Copenhagen, Denmark, **Rigshospitalet** is a university hospital highly specialised in treatment, research, development and education. The Cardiac Catheterisation Laboratory is one of the specialised departments at Rigshospitalet. The department performs 24 to 30 planned cardiac procedures a day, as well as a varying number of emergency procedures on patients with cardiovascular problems. The department is one of the largest in northern Europe in this field of specialisation and comprises nine operating rooms.

www.Rigshospitalet.dk

