

# Netherlands

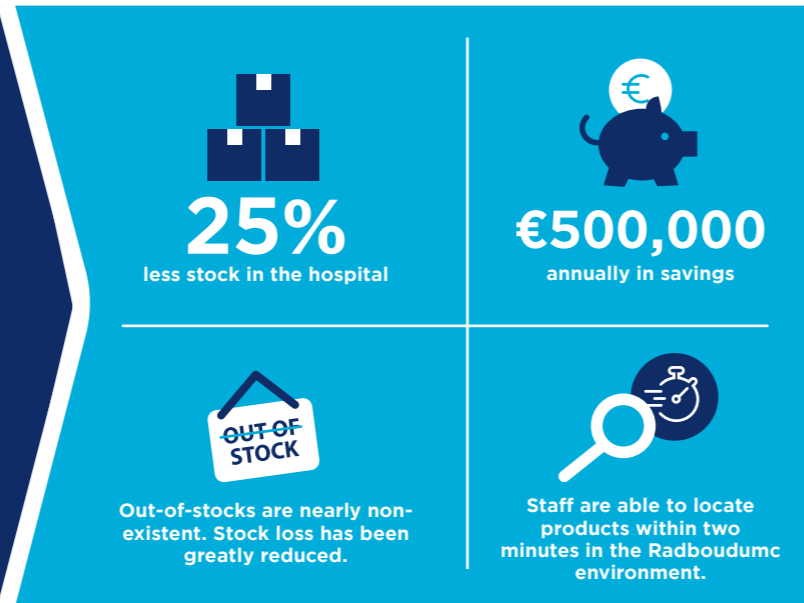
## Fewer bricks and more clicks result in optimal medical device inventory at Radboudumc

### Challenge

Radboud University Medical Centre (Radboudumc) wanted to eliminate out-of-stock situations for its operating theatres to ensure better patient care and outcomes. The hospital recognised that human behaviour would be a major challenge when implementing GS1 standards and the necessary change processes.

### Approach

Radboudumc designed optimal processes, secured systems and connected people, using GS1 standards to uniquely identify medical devices and share valuable data throughout its hospital—from receiving goods to patient use.



### Radboudumc

A situation of “being out-of-stock” is not an option in a hospital. If a crucial medical device is not available at the right time, this can make the difference between life and death. For the best care, more control over stock was needed at Radboud University Medical Centre. Today,

enabled by GS1 standards, the medical centre’s processes are optimally running, systems are correctly connected and people are working differently and better.

“Fewer bricks and less walls” means that people no longer work for just their own departments, but together. Everyone focuses on the goals of increasing efficiency in processes and safety of care, all while reducing costs.

### Processes conforming to standards

In 2015, Radboudumc did not yet have complete control when managing its stock levels. The various stock locations throughout the hospital were managed in different ways by healthcare professionals with no logistics background. Everyone managed the inventory as well as they could, often using manual processes and with systems that were not interconnected. The chance of an out-of-stock situation was highly probable.

Alex van der Putten, Head of Procurement & Supply Chain at Radboudumc, wanted to

improve inventory management for better patient care. He understood that the inventory management processes would need to be redesigned and supported by GS1 standards and integrated systems.

“At the beginning of the project, various barcode formats were in use,” says Mr. van der Putten. “This led to problems with scanning; sometimes, we had to enter item numbers manually. It was crucial to have a record about which implant was used in which patient.”

Alex van der Putten

Now, Radboudumc only accepts and uses GS1 barcodes—the GS1-128 barcode and two-dimensional (2D) GS1 DataMatrix. By using GS1 standards to uniquely identify medical devices, they can be easily scanned in the operating room, capturing valuable information for use throughout the hospital. Stock management

processes have also been revised to include scanning as an efficient way to safeguard medical supplies with GS1 standards. The information collected when scanning barcodes is also linked with the various systems and databases at Radboudumc.

### Fewer bricks, less walls

“There is no doubt that standards are needed in the future. There are three factors that shape the future in hospitals,” says Mr. van der Putten. “The first factor is ‘fewer bricks.’ Due to several factors, including reduced length of in-patient-stay, we see our hospitals literally shrink. We are working on a new construction in

Nijmegen, where we will ‘hand in’ 100,000 square meters. That means that the hospital will soon have a quarter less space—less space also for inventory.”

The “virtual walls” between departments have also been removed at Radboudumc. “Previously, each department had its own processes and methods,” continues Mr. van der Putten. “Now, we have one logistics organisation responsible for inventory management in the entire hospital. Before implementing GS1 standards, if an employee (responsible for stock in a specific department) went on holiday, additional inventory was sometimes stocked in that department in advance. This would lead to extra stock that would eventually expire. Now, there is uniformity in inventory management processes that are more efficient, resulting in less waste and fewer risks.”

*“We can implement beautiful processes, systems and standards, but it is ultimately people who have to work with them. That’s why agreements are needed.”*

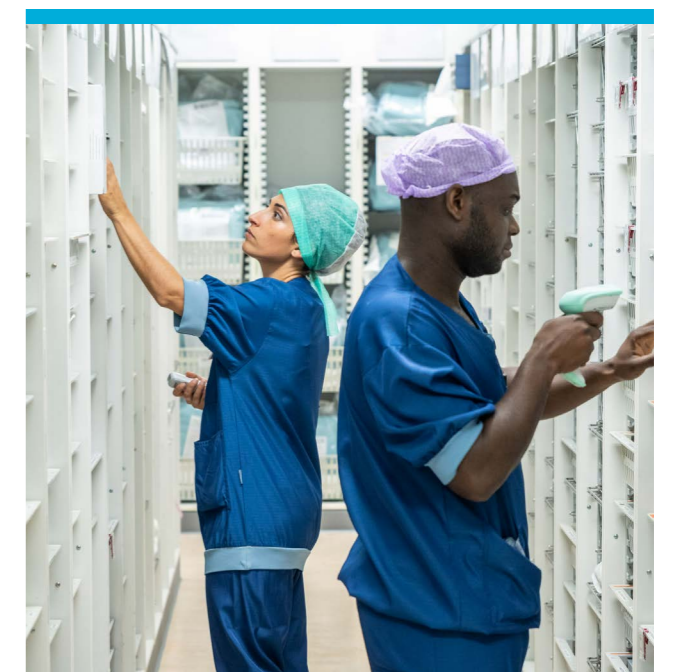
**Alex van der Putten**  
Head of Procurement & Supply Chain  
Radboudumc

### Growing assortment of medical devices

Another factor driving change in hospitals is the exponential increase in the amount of data. This is partly due to the growing types of medical devices.

“We used to have a certain set of medical devices and instruments that we could use for different treatments,” explains Mr. van der Putten. “Today, a certain procedure increasingly has its own specific set of medical devices and instruments. Moreover, the medical devices become obsolete faster. In the past, the useful life was perhaps five years, now sometimes only twelve months.”

As a result, data becomes outdated faster. By using GS1 standards and GS1-approved data pools, healthcare providers like Radboudumc can more readily update and control their medical device data and guarantee the quality of the data.



## Human behaviour

The third factor is the behaviour of people in hospitals. “We can implement beautiful processes, systems and standards, but it is ultimately people who have to work with them. That is why agreements are needed,” says Mr. van der Putten.

In the past, consumption of materials in Radboudumc’s operating rooms was only registered after treatment. The medical devices were prepared in advance for a planned procedure, but not yet deducted

from stock levels. Logistically, that was not efficient nor desirable since there was not a real-time view of what devices were available for procedures. Now, every physical movement of a medical device and other medical supplies is recorded in real time by barcode scanning. Barcodes are scanned in all steps of the process, on arrival in the store room, on picking for a procedure and before use in the operating room. Interoperability of the IT systems fully supports the real-time view.

## Paralysing syndromes

Mr. van der Putten also knows that human behaviour has a major influence on change processes. A pattern of behaviour that many organisations are familiar with is the “not

invented here” syndrome. “If people have not invented something themselves, they consider the solution as not being good enough,” explains Mr. van der Putten. “Logistics is a unique area of discipline in itself.”

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“The Six Sigma syndrome can also be paralysing. If a hospital strives for perfection, it will not get there. Choices must be made—what is facilitated in the process and what is not. Here at Radboudumc, we have chosen to support a realistic view of 95% process support and not feel pressured to achieve 100%.”

Many people are so busy with the daily activities and solving issues that participation in change processes could become secondary. However, the involvement of all disciplines is crucial for sustainable change, support and, ultimately, the success of the change process.

**Alex van der Putten**  
Head of Procurement & Supply Chain  
Radboudumc

## Becoming a hospital of the future... today

Radboudumc is working to achieve “hospital of the future” status. Work is underway to automatically link data with data pools, so that data from manufacturers is automatically deposited in the hospital’s enterprise resource planning (ERP) system.

In addition, work is being done to apply RFID (radio frequency identification) tags to all devices. The unique GS1 identifier is still crucial, but will now be encoded in the RFID chip, making automatic detection possible.

“And we would like to do more with the data we collect,” says Mr. van der Putten. “With our Bill of Materials—a type of ‘shopping list’ that we prepare with typically a large number of medical devices and instruments—it clearly shows some of these are ultimately not used during the procedure. By analysing the inventory data, we can provide targeted advice on the medical devices and instruments to be prepared per procedure. By having a clear view, this helps reduce potentially dangerous situations, increasing safety, decreasing waste and being much more efficient.”

*“By implementing GS1 standards, our hospital staff knows exactly where specific products are, identified by serial numbers and expiration dates—but, most importantly, they know exactly which patients received them.”*

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**Alex van der Putten**  
Head of Procurement & Supply Chain  
Radboudumc

Our GS1 standards-based processes have led to an estimated 25% reduction of inventory levels and a 25% reduction of waste (due to expiration).”

Since out-of-stock item situations are basically non-existent, patient safety has improved considerably. In case of a recall, Radboudumc knows exactly which implant has been used with which patient. “Scanning takes time but we save a lot of time elsewhere in the operation,” says Mr. van der Putten. “By scanning barcodes combined with the accurate recording of data in the patient’s file, for instance, retrieving data for a recall or for other purposes is very easy.”

By using the Global Data Synchronisation Network™ (GDSN®) to exchange medical device and other product data, Radboudumc readily complies with and is prepared to comply with healthcare regulations such as the Dutch Implant Registry (LIR) and the Medical Device Regulation (MDR).

Radboudumc clinical and administrative staff are spending less time on non-clinical tasks. For example, instead of looking for the model of a medical device, the scannable label based on GS1 standards makes this information readily available. “And now, automated processes for data entry and electronic medical records releases more time for physicians and nurses to focus on patients,” confirms Mr. van der Putten.

## Remarkable results

By using GS1 standards in its inventory management processes, Radboudumc has experienced remarkable results. Inventory levels have decreased over three years by more than 25% and the cost savings are significant at approximately €500,000 annually.

“Improvements in our processes have delivered tangible benefits,” says Mr. van der Putten. “We are realising lower emergency room costs since we are in total control of our inventory for emergency procedures. Costs are also lower since we are ordering the right quantities, at the right time . . . and we’re preventing waste.



About the author



**Alex van der Putten**  
Head of Procurement & Supply Chain  
Radboud University Medical Centre

Alex van der Putten is an experienced procurement and supply chain professional with a demonstrated history of working in the retail, convenience and hospital & health care industry.

He has worked since 2012 as Head of Procurement and Supply Chain for the University Medical Centre Radboudumc, in Nijmegen in the Netherlands. Radboudumc aims to be a pioneer in shaping a personalised, innovative, affordable and sustainable healthcare system for generations to come. Less “bricks”, the right use of data and different behaviour in procurement and supply chain are in his opinion crucial matters to make a significant next step.

About the organisation



**Radboud University Medical Centre**

(Radboudumc) in Nijmegen, the Netherlands is a university medical centre dedicated to three core activities: (tertiary) care, education and research. Care is organised in more than 50 care departments and several centres of expertise recognised by the Ministry of Health, Welfare and Sport. Radboudumc is also one of the major trauma centres in the Netherlands. The Radboudumc Health Academy coordinates, regulates and monitors all education in the Radboudumc. Scientific research is organised within three research institutes: Radboud Institute for Molecular Life Sciences, Radboud Institute for Health Sciences, and the Donders Center for Medical Neuroscience.

[www.radboudumc.nl/en](http://www.radboudumc.nl/en)