One of the world's most advanced Sterile Processing Departments driven by T-DOC intelligence

Getinge's T-DOC sterile supply management solution is the operational backbone of the state-of-the-art Capital Region's SPD. T-DOC has resulted in consistently higher quality, optimized cross-hospital workflows, and improved working conditions for staff.

Trine Frederiksen, Program Manager at the Regional SPD, Capital Region, Denmark

"The key drivers were a desire for economies of scale and increased quality across many areas — instruments, employee skills, training and management style."

Home to 2 million people, the Copenhagen metropolitan area is a key population center in Scandinavia. The Capital Region of Denmark decided to merge their 7 individual central Sterile Processing Departments (SPDs) into one regional SPD.

It was clear that they needed a new technical solution — a technical solution on a scale rarely seen elsewhere in the world. Once fully rolled out, the new regional SPD will serve 33 surgical departments across the 7 hospitals in the region.

"We needed a documentation and surgical instrument traceability system that could ensure a coherent flow in the SPD, out to the operating rooms, and then back again. That wasn't available in all the region's SPDs at the time," explains Trine Frederiksen. "As the project evolved, the hospitals realized they also needed complete integration with a surgical scheduling system and a logistics system to track and trace which instruments go to which hospital," Trine continues.

It was important that the solution had a user-friendly interface, that it was available in the local language, and that the hospitals could provide input to help develop and customize it to meet future needs.

Getinge's sterile supply management solution, T-DOC, met all of these requirements. This began one of the largest SPD IT implementation projects in Getinge's history.

The Regional SPD consists of two new purpose-built and identical sterile processing, each with enough capacity to ensure service continuity via one center if the other is out of commission. One is at Rigshospitalet in Copenhagen, and the other is at Herlev Hospital, just outside of the capital city.

"In the beginning of this project, we realized it was really important that we had dedicated Getinge employees who were also detail oriented. We wanted dedicated staff to help us develop requested functionalities, and those were the same employees we've worked with throughout this project."

Types of Automation in the regional SPD:

Free-arm robots:	24
Automated guided vehicles:	4
Stock locations in high bay stock:	22,000

T-DOC driven automation

The two state-of-the-art sterile processing facilities rely on advanced robotics and automation, powered by T-DOC. The automatic sterile workflow allows the SPD technicians to focus on their most important tasks such as packing trays and case carts, conducting quality assurance, and ensuring continuity in production. Automation controlled by T-DOC intelligence handles the seamless movement of goods inside the SPD, lifting and maneuvering instrument sets.

Combining T-DOC with automation is easy with the user-friendly T-DOC interface
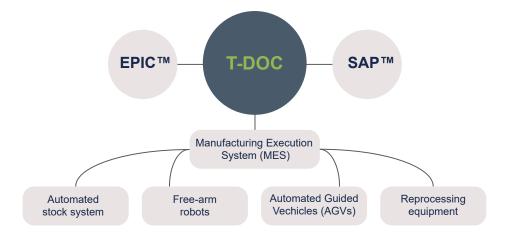

T-DOC driven AGV (Automated Guided Vehicle) transports instruments to and from washing and packing tables.

"Our robotics supplier handles case cart packing, and this is only possible thanks to integration with T-DOC. Essentially, T-DOC tells the robot: *Place this item in the middle, because it's ergonomically optimal to have a heavy tray at a good lifting height,*" Trine explains.

The high level of automation improves working conditions for staff and reduces strain injuries. It also means outcomes and quality are always consistent, no matter which employee is working. Where individual hospitals previously kept their own operating room instrument stocks, they now receive exactly the instruments they need in due time for each surgery, saving time, OR storage space, and money.

"T-DOC's integration with automation equipment means that an employee orders goods directly via a T-DOC panel at their washing and packing table. The panel is easy to use, and once the employee has processed the soiled or clean instruments, they send them on automatically. This removes a lot of heavy lifting for our staff. You can really tell that T-DOC has helped improve the working environment," Trine says.

Seamless compatibility with multiple solutions

"One of T-DOC's primary assets is its ability to interface with our range of hospital systems," says Trine. In addition to compatibility with reprocessing equipment and robotic solutions, T-DOC also interfaces with the surgery scheduling software, and also purchasing and logistics solutions. Staff can conveniently work across all these systems by using the T-DOC interface.

"The advantage of interfacing with T-DOC is that the employee only has one screen, and one structure to deal with," Trine says. "It's so much simpler to work from one single system. This also applies to training and learning, where employees need only to work through T-DOC," Trine continues.

"T-DOC displays live updates at all times so we can see what is being produced and what is being used in the operating rooms, which is important for SPD production. We now know when we can expect the instrument trays back in the SPD."

T-DOC's integration with SAP, the hospitals' material management system, further exemplifies the seamless user experience. "In T-DOC, we set minimum and maximum instrument inventory levels and orders are automatically placed in the purchasing system," Trine explains.

"We also integrate with Manufacturing Execution System (MES). MES is responsible for translating tasks from T-DOC into commands for the equipment," Trine further comments.

Optimized case cart delivery

When calculating and scheduling the delivery of sterile and soiled instruments to and from the hospitals, T-DOC considers the transport time and routes. T-DOC's flexibility streamlines the complex task of serving all surgical departments in all of the region's hospitals. "33 surgical departments is a lot and T-DOC helps us keep track of all our customer information and delivery locations," Trine says.

Goods are sent in patient specific case carts carrying instruments and other goods for each surgery to each operating room. Operating room staff scan the case cart barcode to easily register all its content and connect it to the patient, and no longer need to process individual instrument sets.

"T-DOC's support for dynamic preference lists on case carts is a unique strength," Trine highlights. "Users can specify case carts for specific surgery types but can also customize the preference lists to meet the specific needs of the individual hospital, surgeon, operating room, or patient." Trine continues.

If a surgeon has preferences for specific surgical instruments, T-DOC can be programmed to automatically match these requirements when placing orders.

"T-DOC helps us a lot with case cart deliveries," Trine says. "Once we've made the case cart compositions, we can add special preferences for the individual surgeon or surgical procedures," she continues.

T-DOC interfaces with our surgical planning, purchasing, warehousing, and logistics systems

"T-DOC informs the surgeon of the instrument delivery and also which surgery he or she is booked for. The OR nurses can then prepare and check which delivery is on its way to determine if an additional delivery is needed for the surgery."

Meeting hospital-specific requirements

"Another key factor in our selection of T-DOC is its scalability," Trine emphasizes. T-DOC can be adapted to fit sterile

supply workflows of different sizes, and can be configured to manage all or part of the workflow.

"For Capital Region of Denmark, this is a key advantage given the different sizes and needs of the 7 hospitals in the region," Trine highlights.

"The hospitals' surgical departments are quite individual, so it's very helpful that T-DOC can be set up individually. We have certain steps that are mandatory, for example, instrument scanning on arrival in the operating room. To a large extent, users are able to design the flow the way they want," Trine highlights.

This ease-of-use has helped overcome initial staff hesitation about using such an advanced solution. "There was some initial skepticism, but it was quickly reduced when it became clear how user-friendly T-DOC is." Trine acknowledges.

Capital Region hospitals in numbers
Expected once fully implemented

Surgical departments:	33
Operating rooms:	301
Surgical procedures/year:	200,000
Reprocessed containers/year:	416,000
Reprocessed trays/year:	1,340,000

SPD

T-DOC users:	60
T-DOC super users:	50

OR

T-DOC users (nurses):	625
T-DOC super users (nurses):	225 (6-10 per surgical dept.)
T-DOC super users (surgeons):	3-8 per surgical dept.

Trine has extensive experience in T-DOC dating back many years, and has seen the solution develop from a simple tracking system to a complete sterile supply management solution. "T-DOC has advanced enormously over the years into a solution that supports surgical planning, instrument purchasing, warehousing, and logistics — all the way to controlling when our trucks need to drive from one place to another," Trine says. "T-DOC's ability to calculate in relation to instrument amounts really helps us control the production in our SPD." Trine continues.

"Working with a leading supplier with a proven track record was a critical success factor for the entire project," Trine emphasizes. From the start, through completion and implementation of the project, Getinge specialists worked closely with Rigshospitalet, Herlev Hospital, and the 5 other hospitals involved in the project.

> "In a project of this magnitude, it's a huge asset to have experts on-hand who are ready to go the extra mile to help develop the right solution."

T-DOC functionalities and interfaces
Capital Region has a multi-site T-DOC license covering their 7 hospitals. It includes 478 production workstations with barcode readers and 143 administrative workstations for maintaining master data, ordering, reporting, and more.

T-DOC functionalities
T-DOC Case Cart Solution, PlanAssure, Operation Count, High Availability, Multimedia, Fast Track, and Repair.

T-DOC interfaces
T-DOC Operation, Material Management, Purchasing, Inventory, and Automation Interface.

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