

Automated medication distribution

Automation for greater drug safety

Thun Hospital is among the pioneers when it comes to automation and robotics in drug dispensing. Now it wants to go one step further. – by Edith Hufschmid Thurnherr

Since the construction of the new premises in 2013, the hospital pharmacy at Thun Hospital (Spital Simmental-Thun-Saenenland AG) has been in possession of a storage and dispensing robot, the Rowa Vmax®. Spital STS AG is one of the first hospitals to have acquired such a robot. Installation of the Rowa Vmax® enables optimization of activities such as the inventory management process. In addition to extra storage spaces for narcotics, flammable liquids, or drugs that need to be kept refrigerated, the robot accommodates all drugs that can be stored without special storage requirements. Ordered drugs are

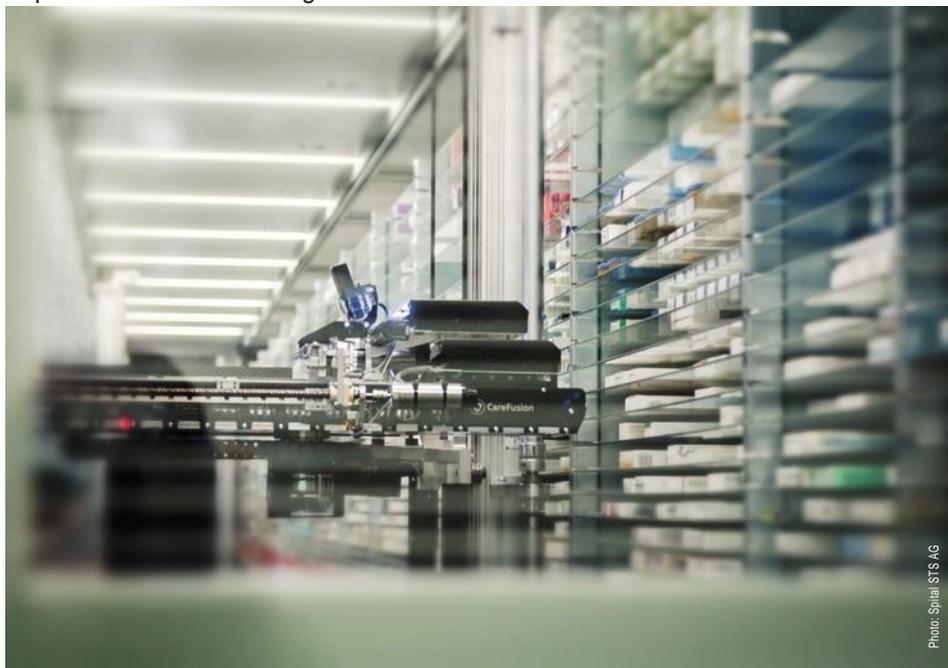
identified individually by scanning the barcode and manually placed on the conveyor belt. The next steps are automated: The robot uses two "grippers" to stow the drugs in the designated storage location on the shelves. The robot works in a similar manner when an order arrives from the station. The pharmaceutical assistant enters the order manually into the inventory management system, which sends the order to the Rowa robot. The robot arms then gather together the drugs which are removed from stock via a conveyor belt at the side and dispensed into a picking box.

Storage and dispensing robots are now widely used in community pharmacies. The automation of repetitive tasks enables staff to focus more on specialist issues. Moreover, the incorrect dispensing of medicines is minimized, thus providing a further step for greater drug safety. A dependency on technology providers could be considered a risk, but this issue arises in many areas nowadays.

Pioneering role in the automatic dispensing of drugs

Around 15 years ago, Thun Hospital had already installed the PYXIS automated medicine dispensing cabinet in their surgical department as part of a pilot project. Just one year later, the system had been implemented throughout the inpatient area.

The automated medicine dispensing cabinet is manually filled and replenished with drugs by the hospital pharmacy. The PYXIS system offers the possibility of using various cabinets, so that drugs requiring refrigeration, large-sized medicines, or the patient's own medications can be stored. These additional cabinets are likewise operated via the PYXIS stations. The nurse can call up the drugs prescribed by the doctor in the hospital information system directly on the medicine cabinet screen and specify the amount to be dispensed. Only the drawer that contains the particular drug opens. If the stock is low, the PYXIS station immediately sends a repeat order to the hospital pharmacy.



The Rowa Vmax® robot stows the drugs at the correct storage location on the shelves.

Another step forward

Thun Hospital is already planning its next step. In the future, with the new generation of PYXIS stations, the PYXIS medicine dispensing cabinet and the Rowa Vmax® robot will be able to communicate with one another and orders placed at the stations

will be transferred directly from PYXIS to the storage and dispensing robot. This could minimize the incorrect dispensing of medicines further and increase overall drug safety. At the same time, this will optimize the value-added and supply chain. ■

Optimizing the preparation of chemotherapies

The first automation in Switzerland capable of preparing chemotherapies was installed at the pharmacy of the Geneva University Hospitals (HUG) during the fall. It lends the process even greater efficiency, reliability and safety. - By Marie-Claire Chamot



Professor Pascal Bonnabry, Chief Pharmacist of the HUG.

The automaton does not replace humans:

"A robot does everything by itself, while an automaton only does one part of the operation," says Professor Pascal Bonnabry, Chief Pharmacist. In this case, the automaton takes over from the pharmaceutical assistants during the critical phase: once the material and products have been introduced into the insulator, a robotic arm collects the prescribed amounts of active ingredient and injects them into the infusion bags intended for the patients. The automaton is capable of producing ten bags per production cycle whilst managing up to six different products, which could eventually represent 30 to 50 bags a day.

Improved efficiency and reliability

"As the population ages, the number of chemotherapies prepared at the pharmacy of the HUG has doubled in ten years, from 10,000 to 20,000. Before requesting additional human resources, we need to optimize our operations", explains Professor Bonnabry. "Automation improves both the efficiency and reliability of the process, while increasing safety for patients and our pharmaceutical assistants who

have to handle highly toxic products. The main risks of errors that can arise during the selection or dosing of products are eliminated thanks to quality control cameras and automated weight verification. We are moving from a very safe system to an even safer system with increased working comfort. And in the event of a computer bug, the pharmaceutical assistants

can go back to using the manual system".

The team has remained the same: it has not been necessary to hire new pharmaceutical assistants or other professionals, and the team has been able to cope with the increased activity without dangerously accelerating the pace of work. Not all production has been transferred to the automaton yet, "but we are still rapidly developing," states the Chief Pharmacist.

Working towards new features

The HUG, which in 2011 were already the first hospitals in Switzerland to automate the global distribution of drugs, entered into a partnership with the provider of this automaton in order to advance research and development by testing new features. "This device is not yet capable of making syringes or infusers. It may be worth expanding the range of products that it is able to prepare," says Professor Bonnabry. The price of such an automaton is not an obstacle, even for a small hospital, he believes: "If the aim is to avoid increasing headcount, the return on investment is quick. And it's essential to take into account the safety of personnel in this high-risk activity." ■

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Increased safety

The pharmacy at Thun Hospital (Spital STS AG) has been in possession of a robot for storing drugs and preparing orders since 2013. In particular, its installation has optimized stock management. The robot accommodates all drugs that can be stored without

specific obligations. The automation of repetitive tasks enables staff to focus more on more specialist questions. In 2001, Thun Hospital had already installed an automated cabinet to serve its inpatient area. In the future, the two systems will be connected so that they can communicate with one another. The risks of errors will therefore be reduced further still and overall safety improved. ■

Efficiency and reliability

In 2011, the Geneva University Hospitals (HUG) were the first in Switzerland to automate the entire medicine distribution process. Last fall, they also installed an automated system that prepares chemotherapies – again the first to do so in Switzerland. This made it possible to meet the increased demand for consistent staffing levels. Professor Pascal Bonnabry is satisfied with the transfer of production: "Automation improves the efficiency and reliability of the process, while also increasing patient safety and the safety of our employees who work with toxic chemicals."