

# Integration with robot drug dispenser



Case story about maximum safety in prescribing and administering drugs

# Optimising processes with robot drug dispenser and Columna



## **Maximum safety in prescribing and administering drugs, via the integration of a robot drug dispenser into the Columna clinical information system.**

Safety is the top priority at the Aarhus University Hospital in Skejby – not just for prescribing medication, but also for the correct administration of the drugs. To further enhance its safety performance in this area, the hospital has now introduced a robot drug dispenser.

Skejby Hospital is one of Denmark's most highly specialised healthcare institutions, with modern buildings, state-of-the-art technology and highly qualified staff. This hospital is a long-standing user of the Medication module in the Columna clinical information system from Systematic. This specialist module handles a comprehensive range of medication processes, extending from both simple and complex prescriptions and prescription records administration to fluids accounting and patient information on the drugs prescribed.

With the Medication module, a patient's medication details only have to be entered once. This eliminates the kinds of errors that inevitably result from manual transfers of information between doctors' and nurses, journals and medication charts.

To enhance patient safety still further, a few years ago the hospital decided to pilot the use of a robot drug dispenser. Just as the Columna Medication software module reduces errors on the prescription side, the use of this robot ensures maximum safety when it comes to the actual dispensing of the drugs.

## **The right dose of the right pill, at the right time**

The robot drug dispenser is integrated with the Medication module. This means the data from the doctor's prescription is sent to the robot located in the hospital dispensary. The robot then packs and delivers the prescribed medicine to the ward in unit dose packs. When it is time for the patient to take his or her medicine, the nurse scans the barcode on the patient's arm-band and then the individual pack with a PDA that has the Columna Medication module installed. This enables Columna to check for a correct match between the patient, the product, and the dose, time and administration route.

The hospital's evaluation of the combined use of the Columna Medication module and the robot drug dispenser shows that two-thirds of all prescriptions can currently be packed by the robot unit. The remainder are types of drugs that cannot be delivered in such packs, including injectable drugs and eye drops.



*When administering a patient's medication, the nurse scans the patient's arm-band and the drug pack with a PDA, on which the Columna Medication module has been installed. Columna checks for a correct match between the patient details and the doctor's prescription in terms of the drug, time and administration route. In this way, Columna creates maximum safety for the medication process.*



**Henny Jørgensen, hospital pharmacist:**

'Increased patient safety was the objective when we started using the robot drug dispenser, and as expected there have not been any errors with the automatic drug preparation process. There are also clearly going to be cost savings – from nurses spending less time having to measure out patients' medication, for example.

At the moment the robot is working in four wards, packing the drugs the ward carries in its standard medication range. This creates a managed drug selection process, and also ensures cost savings, since low price is one of the selection criteria for the products carried in the dispensary's range – which are also those available to the robot. If a doctor prescribes a drug outside the fixed range, dispensary staff substitute the standard product from within the range, which can then be packed by the robot. This means savings on the medications budget, and also on nurse time spent preparing and pouring drugs to give to their patients. And above all, this is a safer system for our patients.

We have also had good results with pre-packed treatment kits – for pain relief, for example. Doctors can define one or more standard pain management packs for the ward to keep on hand. The packs are not customised for individual patients, so the robot can work on these at times when things are less hectic. These packs are also used by some of our day surgery wards. If the patient is being discharged after an operation and the doctor has prescribed pain pack 2, for example, the drugs are instantly available, rather than the staff having to spend time sorting out the individual products required.'



**Ane Hansen, nurse:**

'Using the robot drug dispenser with Columna enables us to work more safely, for both preparing and administering medication doses to our patients. Under the old system, surveys in our ward showed that a nurse was typically interrupted four or five times while measuring out doses of medicine for a patient, which made it harder to concentrate. Now two-thirds of the drugs we give our patients come in the form of pre-packed deliveries. This means we can focus on the other third – such as IV medication – that cannot be processed by the robot.

Using the PDA also makes the process of administering the drugs safer. In spite of all the care we take, we are only human, and mistakes can sometimes happen. So it's great to have a system that warns you when something isn't quite right. The PDA beeps if the patient details do not match the information on the pack of drugs you are about to administer, or if the medicine is being given at the wrong time.

Our patients are very impressed with the system, and it's great to have an exact answer ready when a patient asks exactly what you are giving them. Previously that might not be so easy if there were, say, 15 different pills in the glass. Now all the information is right there on the pack, along with instructions on things like whether to crush the tablets in your mouth or swallow them whole.'



**Carsten Schade Larsen, consultant:**

'The medical practitioners here have been using the Columna Medication module for our prescriptions for some years now, which has forced us to be careful when entering the data – everything has to be absolutely clear. An even more disciplined approach is required now that the module has been connected up to the robot drug dispenser, and this automatically makes the process safer. And as a 'fringe benefit' from the introduction of the robot we get significant savings on medication costs. The system helps us prescribe products from the robot's standard range, which are usually the cheapest versions of the respective drugs.'

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#### **About Systematic**

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We provide cost-effective clinical information systems and performance evaluation systems to healthcare customers both in Denmark and abroad.

Systematic is certified as a CMMI Level 5 company.

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