



Healthcare providers

CAISM and Cristália partner together for increased patient safety, improved processes and reduced costs

The Women's Health Hospital – CAISM UNICAMP (CAISM) has always been concerned with the safety of patients. With this goal in mind, the hospital decided to improve the management of medicinal products. To help with this challenge, CAISM established a partnership with Cristália Produtos Químicos Farmacêuticos Ltda. (Cristália), a manufacturer of quality pharmaceutical products. Cristália enabled CAISM to make significant process improvements by using GS1 standards applied on the primary packaging of medicine. By scanning GS1 DataMatrix barcodes, CAISM can now automatically capture important data that identifies the item—specifically the Global Trade Item Number® (GTIN®), batch number and expiration date. The hospital can more effectively manage the hospital pharmacy resources, enabling internal traceability—from the receipt of medicinal products in stock to their administration at patients' bedsides.

*By Nice Maria Oliveira da Silva
and Paula F. Magalhaes de Souza*



A need for complete data

“Our hospital needed to administer medicine in individualised or unit-based doses,” says Nice Maria Oliveira da Silva, Clinical Pharmacist with CAISM. “We were concerned about patient safety and wanted to be able to trace all medicines within our hospital.”

The hospital needed to answer questions like:

- What patient took which drug?
- Which batch was it?
- What was the expiration date?
- Which manufacturer was it?

In case of a patient's adverse reaction, CAISM required the ability to quickly double-check the process associated with the administration of the medicine and investigate the situation thoroughly.

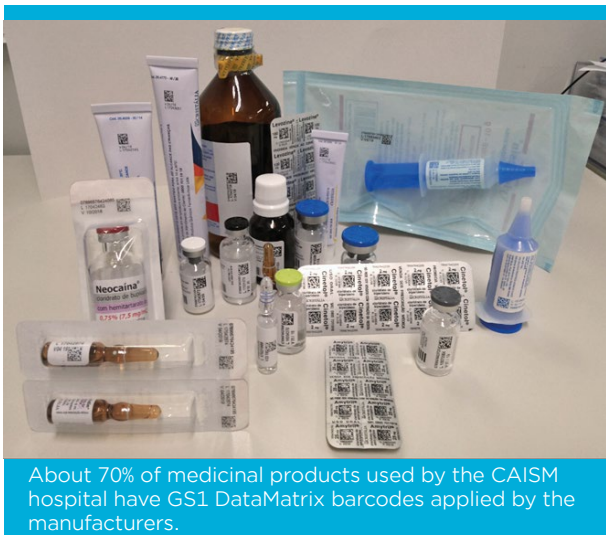
“Previous GS1 EAN-13 barcodes on medicines would only provide us with the product's identity, but not additional information for traceability,” explains Silva. “We needed complete information provided by the GS1 DataMatrix barcode—a GTIN, with the batch number and expiration date. So, we contacted Cristália and told them about our challenge.”

CAISM presented to Cristália its concerns about all the work performed within its hospital pharmacies and its goal to mitigate the risk of

error in preparing, dispensing and administering pharmaceuticals to patients.

“Most of our products are hospital drugs,” says Paula F. Magalhaes de Souza, Production Director from Cristália. “CAISM requested that we label our products with globally standardised codes for primary package-level identification that would enable the preparation, dispensing and administration processes in the hospital in an automated way.”

“Our partnership with GS1 Brazil was essential since they gave us all the information necessary to implement and validate the GS1 DataMatrix barcode,” advises Souza.



Automating processes

To develop a system and adapt that system to each production line was our major challenge,” says Souza from Cristália.

“Before partnering with Cristália, all medicines used were labelled with EAN-13 barcodes by the CAISM pharmacy team,” says Silva from CAISM. “So, our main challenge was to create a solution that could guarantee the safety of the patient and the hospital, from the receipt of the product to the dispensing of the medicinal product to the patient. It was a solution created practically from zero.”

Simultaneously, with the implementation of GS1 DataMatrix barcodes on primary packages by Cristália, the CAISM Pharmacy Service, in partnership with the hospital’s IT Service, developed software compatible with GS1 DataMatrix barcodes.

“It was now possible to implement our Electronic Hospital Dispensing System,” advises Silva. “As a result, the processes that involve the printing of medical prescriptions, collection of hospital admission copies, and the preparation and manual checking of primary packages have been optimised.”

“We have experienced major process and accuracy gains with medicinal products coming to our hospital with GS1 DataMatrix barcodes. We have been able to register them once in our system and, from that point forward, the system identifies the drug, the batch number and expiration date, and whether the medicinal product matches the prescription. All of this provides the patient with greater safety.”

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Major gains for patients and processes

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Additional benefits for CAISM include:

- ✓ **Optimisation of resources and time:** The hospital no longer needs to print extra copies of medical prescriptions nor does the Pharmacy Service team need to internally apply barcodes on medicines.

Furthermore, the hospital has enhanced the efficiency of its processes, including the preparation of drug products, traceability and dispensing. Now that prescribed medicines are viewed directly through the electronic dispensing system, as soon as the medical prescription is finalised, the preparation of medicinal products is performed by reading the GS1 DataMatrix barcodes. As a result, the hospital has streamlined these processes for significant savings of time and resources.

- ✓ **Increased patient safety:** When the GS1 DataMatrix barcode is scanned, the information encoded in the barcode is automatically checked against the medical prescription. If there is a difference, alerts are issued as a way of preventing errors. Also, since the drug is labelled by manufacturers (and not by the hospital), this helps minimise potential errors that may occur if the drug was repackaged and relabelled in the hospital.
- ✓ **Assisted risk management:** By scanning GS1 DataMatrix barcodes, the hospital has increased its agility when identifying batches that may have deviated from its quality standards and recalled by ANVISA, the Brazilian Health Regulatory Agency. CAISM has also gained traceability of each dose of a drug to each patient.
- ✓ **Reduced costs:** The identification of medicinal products by GS1 DataMatrix barcodes has sharply reduced the process of re-packing and re-identifying Cristália's products within CAISM, reducing costs associated with these processes, exposure of the product to the external environment and maintaining the product in its original package. Currently, out of 800,000 drug product items a year in solid, oral and injectable dosage forms, 70 percent or 560,000 units of medicinal products are being delivered with GS1 DataMatrix barcodes on manufacturers' packages. Therefore, CAISM's pharmacy no longer needs to apply barcodes for the vast majority of medicinal products used in the hospital. The hospital estimates a cost reduction of R\$15,000 and time savings of 945 hours per year.

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- ✓ **Improved processes:** CAISM has improved its stock management process with less human intervention in the process, and a reduction of contamination risk and errors in the administration of drug products to patients. In addition, there has been an automatic write-off in inventory and a reduction in inventory problems.
- ✓ **Traceability:** Using the GS1 DataMatrix barcode, it is possible now to track the flow of medicinal products within the hospital, automatically registering the drug when it is administered at the patient's bedside, the date and hour of administration, and the caregiver who performed the administration.

“For us, this has been a source of pride. It's an acknowledgment of our work, our strong partnership with our clients and hospitals and, above all, knowing that we're contributing to the safety in the dispensing and use of drugs with patients. That's our main reason to be happy.”

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“The hospital is now able to trace drugs to prevent medication errors. The next step is to engage new suppliers to adopt and apply GS1 DataMatrix barcodes on their products,” says Silva from CAISM.



As products are received by CAISM, GS1 barcodes are scanned to confirm receipt of the products in the hospital's inventory system.

About the Authors



Nice Maria Oliveira da Silva is a Clinical Pharmacist at CAISM. She has more than 20 years of experience in healthcare. In 1996, she graduated with a degree in Pharmacy from Universidade Metodista de Piracicaba, UNIMEP, in Brazil. In 2010, Nice Maria was awarded a post-graduate degree

with a Specialisation in Clinical Pharmacology from the Centro Universitário Herminio Ometto de Araras, Uiararas. In 2016, she received her Master's degree in Health Sciences from the Department of Tocoginecology, Faculty of Medical Sciences, State University of Campinas, Unicamp.



Paula F. Magalhaes de Souza is Deputy Production Director at Cristália Produtos Químicos Farmacêuticos Ltda. She has more than 18 years of experience in the pharmaceutical industry, in the departments of Quality and Industrial. Paula graduated as a

pharmacist-biochemist from UNESP Araraquara and later completed her post-graduate degree in Industrial Management (INPG), Finance and Controllershship (IPEP), and Management Development from Fundação Dom Cabral and an MBA in Project Management from FGV.

About the Women's Health Hospital – CAISM UNICAMP

Inaugurated in March 1986, the **Women's Health Hospital or CAISM** was consolidated for teaching, research and highly specialised assistance in supporting the health of women and newborns, as part of the Unified Health System. CAISM encompasses 42 municipalities and nearly 5 million people, not counting thousands of patients from other regions who seek treatment and care from the hospital each year. Conceived as a university hospital, the CAISM has established itself as a teaching hospital for students at varied levels, including technicians, undergraduate, postgraduate, residency, and specialised fields. The hospital receives students from the Faculty of Medical Sciences, Faculty of Nursing and Faculty of Pharmacy of UNICAMP, but also from many other public and private educational institutions throughout the metropolitan region of Campinas, including universities, colleges and technical schools.

www.caism.unicamp.br

About Cristália Produtos Químicos Farmacêuticos Ltda.

Cristália is a pioneer and leader in the hospital market in Biotechnology, Anesthetics and Narcoanalgesics, and medicines for pain. About 15 years ago, it developed research on new molecules and products. The company focuses on improving healthcare for Brazil's population through the innovation, development, production and distribution of quality pharmaceutical products. Today, Cristália has two plants that have already received from ANVISA the Certificate of Good Manufacturing Practices (CBPF) for biological pharmaceutical inputs. The Biotechnology Industrial Plant and the Anaerobic Bacteria Plant, installed in the Industrial Complex of Itapira (SP), are among the most modern in the world.

www.cristalia.com.br