

Pharma Company Releasing RFID-enabled OR Drugs

BY CLAIRE SWEDBERG

Fresenius Kabi has developed a system of tagging its anesthesia and analgesic products so they can be read using any standard UHF RFID reader, thereby providing visibility into when drugs are received at a hospital, stored in cabinets and removed for administration to patients.

Sep 20, 2020 Pharmaceutical company **Fresenius Kabi** is launching a portfolio of RFID-labeled medications. Medication-management company **IntelliGuard** will be the first company to read the RFID products. The RFID-tagged drugs, used in surgical rooms, are expected to be commercially released this month. The company's RFID-enabled labels are being applied to vials and syringes at Fresenius Kabi's manufacturing sites, so that hospital pharmacies can automatically read and manage data about each product they receive. Data will be captured at RFID-enabled pharmacy and anesthesia stations, such as those provided by IntelliGuard.



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By applying the tags at the point of manufacture, the firm is eliminating the need for its customers to apply them to the OR drugs as the goods are received, says Jeanne Sirovatka, Fresenius Kabi's director of continuous improvement for its three U.S. manufacturing sites. This, she says, reduces labor costs and the risk of errors. In the long term, Fresenius Kabi hopes to enable direct visibility and control of data regarding drugs at each touchpoint of a product's journey, from manufacturing to patient administration. The announcement signals a first for embedding drug information directly onto an RFID tag to eliminate the need for interfaces, according to pharmacist Gwen Volpe, Fresenius Kabi's medication technology director.

The medications being tagged are those commonly used in operating rooms: anesthetics and analgesics. Each drug will include a passive UHF RFID tag embedded into the label, with what the company calls its easy-identification "iRFID" logo printed on the front to indicate it can be interrogated via an RFID reader. The labels will be applied to both vials and syringes. Fresenius Kabi developed the technology in response to requests from customers using RFID solutions, such as IntelliGuard's cloud-based systems to track drugs at hospitals.

Several hospitals are attaching RFID tags to drugs as they are received so that they can better manage their inventory and minimize the risk of using expired medications. Currently, Volpe says, RFID drug-tracking is taking place at 10 percent of all hospitals, and the numbers are growing. "That's usually

for tighter inventory control, reduced waste, and increased efficiencies and effectiveness," she explains. With the new products, Volpe adds, "We are going to be doing the tagging for them." By applying labels at the point of manufacture, Fresenius Kabi can reduce the amount of labor and time hospitals are expending on attaching RFID tags.

With the new system, Sirovatka explains, the tags are applied during drug production, and every tag is read, written to and verified on the packaging line. The RFID labels are provided by Internet of Things (IoT) company eAgile. The tagging, writing and verification system, she says, was designed to avoid slowdowns on production lines, which is critical to Fresenius Kabi. eAgile produces the tags and embeds them into labels that come in a roll.

The packaging line takes each label roll and applies the labels in the same manner used for standard barcode labels. The eAgile readers and antennas perform the task of reading and verification, according to Gordon Krass, IntelliGuard's CEO. By applying tags at the point of manufacture, he says, the pharmaceutical company not only saves labor time and expense for the hospital, but also enables the tracking of goods throughout the supply chain.



Jeanne Sirovatka

"Fresenius Kabi is starting the process at the beginning of manufacturing," Krass states, "so everything after that point could become read points. This opens the opportunity for more granular, accurate information to secure the supply chain as well." That could ensure the brand's authenticity to make sure products aren't diverted in the supply chain, and that counterfeit goods are not introduced. The tags employ GS1's Electronic Product Code (EPC) standard, and both the EPC number and data about the drug are encoded on the tag, thus eliminating the need for access to a secured server. "With six billion scans of barcodes every day," he adds, "and everyone getting identical information, that's the same standards being applied to RFID."

The company is installing the RFID readers and writers at its manufacturing site in Sweden, as well as at three sites in the United States. At each location, the tags are tested, after which expiration dates, drug descriptions and other content are written to them. Each tag is then read again for verification; if the read fails, the vial or syringe will be rejected. Once data is written to the tag, Sirovatka says, it becomes independent. Anybody with an off-the-shelf GS1 UHF RFID reader can then access that information. "We made strategic decision to be agnostic when it comes to reading the information," Volpe states. "This just makes it much easier for any hospital system to access [it]."

RFID provides multiple benefits to which those using barcode labels lack access, the company claims. While standard pharmaceutical product labels come with printed content and a barcode, these can be difficult to read if there are many products on a shelf or in a cabinet with different orientations. By writing data to the tag, Krass says, the system can make that information accessible to any RFID-enabled cabinet, which contrasts with a solution requiring users to join a proprietary cloud-based system. "This is a truly interoperable global standard."

For users of IntelliGuard's technology, Krass notes, the tagging by Fresenius Kabi provides a more seamless process of receiving pharmaceuticals and bringing them into inventory. Users can simply place the tagged products inside the IntelliGuard cabinet or station. The data can then be read and IntelliGuard's enterprise software platform will decode it. "Our customers have been asking for this for years," he states.



Gwen Volpe

IntelliGuard sells pharmacy cabinets, anesthesia stations and other refrigerated or non-refrigerated units that can be used within different areas of a hospital. For its customers, Krass says, "We can create a full turnkey, end-to-end data solution." That, he explains, makes the capture of data automatic, both during the receipt of goods and in operating rooms if products are removed from the RFID-enabled cabinet for use with a patient.

Traditionally, Krass says, an OR could be compared to the Wild West in the days prior to RFID's widespread use, as data regarding drugs, including their use, expiration or disposal, was either tracked manually on paper or with barcodes, or it simply wasn't monitored at all. However, he adds, manual tracking is a distraction for healthcare providers focused on treating patients. "Anesthesiologists don't want to turn their back to a patient," Krass says. "With RFID, it's back to the way they want to practice. They log in, open drawers, take out what they need" and keep their focus on patients.

Regarding Fresenius Kabi's application of tags at the beginning of the supply chain, Krass says, "This is what I have always felt was the tipping point—the event that changes the trajectory of growth." Hospitals see a benefit to using RFID, he adds, though expansion has been thwarted by labor costs for hospitals and pharmacies. In the future, the companies expect to see distributors and logistics providers using the RFID tags as well, for the purposes of supply chain management and anticounterfeiting. Several distributors are already using IntelliGuard's cabinets, Krass says, adding, "That can provide security to the supply chain, with more read points of a label that can't be duplicated."

The tagging system's development has included building in-house software, Sirovatka says, as well as hardware customization from eAgile. The environment of pharmaceutical products is, by its nature, challenging for RFID. "Medication has different RFID-absorbing signal characteristics," she states. "We have, in partnership with eAgile, custom-designed the tags to be sure they can be read in anesthesia trays in multiple configurations." There is no control over how the drugs are placed in a tray or on a shelf, she notes, stating, "We have to be in a position where no matter how and where they put them in the cabinet, they can read it."



Gordon Krass

According to Krass, the tags are performing well in hospital environments, including around the presence of liquids and metallic materials. Ultimately, Volpe says, with the introduction of OR drug tagging, "We want to provide the medications that customers need. We're enhancing what's being offered today—and we're the first ones to embed this information into the tag."

Fresenius Kabi has 24 products with built-in RFID labels scheduled for launch by the end of 2021, Sirovatka reports. The initial plant to deploy RFID at its manufacturing site was in Sweden, and the company's three U.S. factories, located in North Carolina, New York and Illinois, are installing equipment as well.