RFID Gaining Traction: New ASHP Report

By Gina Shaw

Radiofrequency identification (RFID) technology is gaining momentum as an increasingly important component of medication management in hospitals and health systems, with about 40% of participants in a recent survey reporting that their institution has adopted some form of RFID.

The survey, part of a new ASHP Foundation report on the challenges and opportunities for pharmacy to leverage RFID technology in medication-use systems, also found that 31% of respondents are interested in exploring RFID, and 16% are evaluating the technology but have not yet committed or made a vendor selection (Figure).

There are many potential applications of RFID in pharmacy. "The tracking of medications with an RFID tag can improve many steps in the medication review and distribution process," noted the ASHP report. In the survey, about 75% of respondents who had already implemented RFID were using it within their pharmacies. Other common areas of use were pharmacy-supported functions in the emergency department, anesthesia areas, ICUs and ORs.
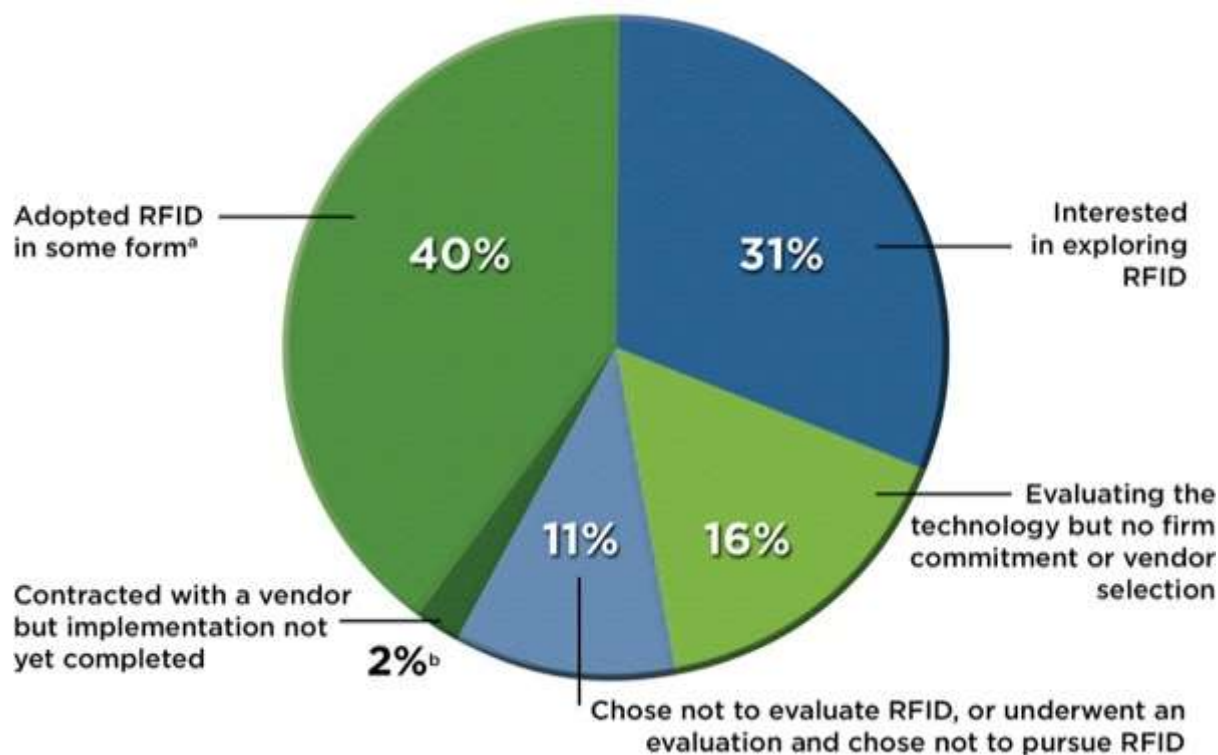
Figure. RFID uptake.
[a] About 75% of respondents who implemented RFID were using it within their pharmacies.
[b] Approximate
RFID, radiofrequency identification
Source: ASHP Foundation (bit.ly/3wjoevN (http://bit.ly/3wjoevN)).

Code trays and boxes are the most common area where RFID technology is being used, with 84% of current users reporting such use. "However, use in kits [65%] and anesthesia trays [57%] continues to grow," said David Aguero, PharmD, the director of medication systems and informatics at St. Jude Children's Research Hospital, in Memphis, Tenn., and a member of the report's advisory committee, speaking during an ASHP webinar. (Both the report and the webinar are available for free at bit.ly/3wjoevN.) But other areas, including temperature-sensitive medications, hazardous drugs, patient-specific medications and ambulatory medication adherence, represent "novel uses to get important information for patient care," Dr. Aguero said.

Health systems evaluating a possible RFID pharmacy deployment should consider the following:

Staffing and training needs. "RFID is not going to completely displace the staff that are supporting this part of medication use, but it is going to change when you need to staff different components of the process," Dr. Aguero said. As for training, this is an important consideration inside the pharmacy and among end users. "They need to know how their workflows will change, and how they need to consume and return medications," he said.

Vendor support. This is critical during implementation and long-term use. "It may be that you don't have the project support in-house to get this technology implemented, and the vendor can support you there," he said. "When it comes to repackaging and tagging individual medication units of use, rely on the vendor where you can."

Analytics capabilities. "These are extremely important in terms of optimizing the system after deployment," Dr. Aguero said.

Tag-specific considerations. "The adhesive quality, the cost structure and active versus passive tags—these factors can have huge implications for implementation," he said. "If you're implementing active tags for a real-time location strategy, then you're going to need an adhesive that will stay on a pneumatic tube or infusion pump for years at a time. In passive RFID in medication repackaging, you still cannot have the tag come away from the medication, but you do not expect it to stay on for years at a time." Ensuring that tags stay where they are placed "is especially true with products that require specific temperature-sensitive storage like refrigeration or freezers."

Pretagged 503B medications. "This is a game changer for pharmacy," he said. "The ability to get specific medications repackaged [from manufacturers and/or distributors] has safety and efficiency implications. The cost of performing this activity has been prohibitive but is quickly coming down, and manufacturers are starting to provide some of these medications pretagged."

Set firm goals. The goals of your RFID project will determine its scope and drive decisions. Inventory management, for example, was cited by the majority (73%) of respondents to the ASHP survey as one of their top two reasons for considering RFID, with reinforced safety, process standardization and recall management also being important factors.

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UIC Pilots RFID in the OR

The University of Illinois at Chicago (UIC) began implementing RFID tagging in its pharmacy about four years ago, beginning with a pilot in the OR. "We have several different trays and kits and boxes in our OR setting, so we started with the main anesthesia tray, which has the highest use and highest turnover," Matthew Gimbar, PharmD, UIC's associate director of hospital pharmacy operations, told *Pharmacy Practice News*. "That tray has 75 individual items, and each time it was turned over, we'd have the technician sifting through each item, looking for use, looking for expiration dates, and then we'd have the pharmacist doing the same thing. Now, the pharmacists on the front end verify and tag the product, and then the turnover is completely tech-driven, freeing up an enormous amount of pharmacist time."

UIC pharmacy technician Veronica Flores removes an RFID-tagged anesthesia tray from the scanning station in the OR satellite pharmacy for distribution.

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Having that extra time "has allowed us to expand our controlled substance reconciliation and drug diversion surveillance program," Dr. Gimbar said. He added that UIC has since expanded RFID use to other kits and specialty trays in the OR setting.

The RFID system is popular with technicians as well. "They like having more consistency in their day-to-day routine, and using the data from RFID helps us structure the technicians' work each day," Dr. Gimbar said. "For example, on Wednesday, which is our late start day in the OR, we can do more of our product tagging. We typically tag a week's worth of supplies on any given day. We now have the tagging down to a science, and it's ingrained into the workflow. Then on Mondays, a pharmacy student reviews the data on how much drug we're using in the trays per week, and we analyze that data for usage and turnover."

Next on the list for adding RFID are code trays and crash carts, a step that's planned for summer or fall 2022. "Once we do that, we will be able to add another scanning station in the central pharmacy and incorporate all the pharmacists and technicians into using that," Dr. Gimbar said.

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When a new ambulatory surgery center opens across from the main hospital in September 2022, RFID will also be incorporated into a standardized procedural tray. "Instead of a drawer with 20 to 30 different drugs, we'll have a drawer with one RFID-checked tray," Dr.

Gimbar said. "With rapid turnover of 15 to 20 minutes between cases in ambulatory surgery, we don't want pharmacy throwing that pace off."

Emory Starts From Scratch

Tony Scott, PharmD, the director of pharmacy services at Emory University Hospital, in Atlanta, is starting from scratch with RFID, leveraging his experience with the technology from his previous position as an assistant director of pharmacy operations at University of Chicago Medicine, where RFID had been implemented in adult procedural areas since 2017-2018. "We found that it improved our efficiency significantly, as well as reducing filling errors," he said. "In addition, when there was a recall, we were easily able to pull all of the affected medications because we knew immediately exactly where they were."

At Emory, Dr. Scott plans to start with anesthesia trays. "Our general OR volume includes up to 100 cases per day, so that's a pretty big footprint on our main campus and represents a good launching point for us," he said. "The OR uses a lot of high-dollar medications, so being able to streamline their utilization and potentially eliminate waste is always a good thing."

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However, other institutions may not select the OR as the site to pilot RFID technology. "It's important to take time to look at your resources and do a risk-cost-benefit analysis," Dr. Scott said. "For sites with smaller OR volumes, you may want to instead target code carts or other things within the main pharmacy, depending on utilization. Other institutions may want to do all trays and kits within the pharmacy space, whether procedural or nonprocedural. You need to break down not just the financial impact but also how to operationalize the technology. Pre-implementation planning is key, because if you don't set up successfully, you negate some of the benefits."

Vendors can help with these analyses, Dr. Gimbar said. "They're the content expert, and they're not trying to pull the wool over your eyes. With our vendor, all we paid for was the tags and they did a great job preparing us for go live. For example, they recommended that we identify a good mix of key pharmacists and technicians who work in the appropriate areas and pull them out of the regular schedule so that they could help with the initial tagging oversight and rollout."

Staff Preparation Is Key

For Emory's implementation planning, Dr. Scott has particularly focused on preparing pharmacy staff. "Initially, there is going to be more work for them involved with tagging these drugs and separating inventory by tagged and non-tagged," he said. "In the long run, we will have more pretagged drugs coming in, but for now there will be that shift in their

work, and they need to understand its importance to patient safety. We can also point to the fact that in Illinois, we were able to free up pharmacists for other clinical activities, and that was a nice win for them."

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"It's essential to educate and engage your staff before the RFID gets to your front door," Dr. Gimbar agreed. "Get them excited about how it will affect their day-to-day and the promise of a better workflow. There will be temporary growing pains, but you'll get it down to a science."

The sources reported no relevant financial disclosures.

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