

PHARMACY TECHNOLOGY

REPORT

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Packaging Up Solutions in Unit Dosing

By Al Heller

Hospital pharmacies packaging oral solids for unit dosing face a new challenge: complying with new guidelines to enhance worker safety.

Pharmacy staff relies heavily on oral solid packaging technologies to safely package unit doses, and barcode and label them for specific patients. Yet, the expanded National Institute for Occupational Safety and Health list of hazardous antineoplastic and non-antineoplastic drugs identified dozens that should no longer go through automated packagers due to potential toxicities and reproductive risk (goo.gl/n443M6).

Depending on the facility, this could cut into the usage and productivity of automated packagers. Andrea Wist, RPh, BScPhm, the director of pharmacy at Bluewater Health, a multisite 325-bed large community hospital in Sarnia and Petrolia, Ontario, which also has to comply with Canadian NAPRA (National Association of Pharmacy Regulatory Authorities) rules, said she hopes packaging technology continues to evolve to accommodate new regulations. “It is very cumbersome to package hazardous drugs manually outside the packager when manufacturers aren’t supplying the products in unit-dose form.”



Sheryl Davie, RPhT, replaces a canister post-fill at Bluewater Health's inpatient pharmacy.

Image courtesy of ARxIUM

Fortunately, there are some flexible systems that may help. Bluewater's ARxIUM FastPak Elite 520 packaging technology, for example, uses a detachable tablet adapter tray that uses a different set of hoppers for "riskier drugs that shouldn't be permanently kept in the machine," Ms. Wist said, noting, "We wear protective gear when using it, and we clean it after each individual use for more hazardous drugs."

For other inpatient pharmacy services, the FastPak packages 5,000 unit-dose medication pouches per day at speeds of up to 60 pouches per minute. The packager supports a medication delivery system to the McKesson AcuDose-Rx automatic dispensing cabinets (ADCs) and the 24-hour fill medication carts at each nursing unit, said Sheryl Davie, RPhT, a project coordinator at Bluewater.

The inpatient pharmacy has successfully interfaced its ARxIUM 520 packager with the Meditech pharmacy management system, ADCs and Swisslog BoxPicker drug storage and retrieval system. The ARxIUM 520 also interfaces with Kroll management software running Bluewater's specialty outpatient pharmacy, which serves a base of 72 patients with chronic mental health concerns.

A Selection of Oral Solid Unit-Dose Packager Manufacturers

Company	Website
ARxIUM	www.arxium.com
Drug Package Inc.	drugpackage.com
Euclid Medical Products	euclidmedicalproducts.com
Medical Packaging Inc.	www.medpak.com
Medicine-On-Time	www.medicineontime.com
Medi-Dose	www.medidose.com
Pentapack	www.pentapackna.com
Robotik Technology	www.robotiktechnology.uk
RxSafe	www.rxsafe.com
Talyst	www.talyst.com

Changing Bags on the Fly

Bluewater's outpatient pharmacy, which replaced an outside community pharmacy provider, opened in June 2017 using the smaller ARxIUM FastPak Elite 260 to do multidose packaging. It changes bag sizes on the fly to conform to the number of pills in a bag and save on bag costs. It also prints barcodes on medication pouches to save time, especially with narcotics, which arrive at the pharmacy in cards of 25 pills, but can be easily unit-dosed in the packager.

To maximize safety and productivity, Ms. Wist and her team blend best practices with safeguards embedded in the ARxIUM 520, such as radiofrequency identification canisters to prevent incorrect placement and subsequent incurred dispensing. All technicians using the packager are certified, and a dedicated automation technician is on staff to minimize downtime of all technology.

The pharmacy acquired a second unit to swap in if the first needs maintenance. "Technology is a useful tool, but you'll never have a flawless system. Human

safeguards are still necessary to prevent possible errors and keep the system sustainable,” Ms. Davie said.

As for next steps, Ms. Wist said she would like to expand the outpatient pharmacy to serve patients with other chronic conditions, and add a verifier to the ARxIUM 260 to ensure multidose accuracy by photographing pills, comparing them with a database, and retaining a visual record of each medication that it verifies.

Using 2 Stand-Alone Systems

At Lancaster General Hospital, a 533-bed nonprofit hospital in Lancaster, Pa., Ryan J. Breznak, BSP Pharm, RPh, the manager of pharmacy services, uses two stand-alone systems to package different kinds of unit doses. His method “adapts to changing availability of unit-dose presentations, manages various sized tablets and capsules, and serves nursing needs on demand, such as half-tablets in the exact form and dose they need at bedside.”

Lancaster also avoids cross-contamination and complies with new safety standards by unit-dosing hazardous, lower volume drugs, as well as patients’ own medications, separately from others. For these, the pharmacy uses the Medi-Dose System with its cold seal blister packs barcoded and labeled by MILT 4 software, which enables flexible label design, customizable workflows, electronic log reports and access to the National Drug Code database.

After Lancaster technicians scan and package medications, pharmacists validate the five rights and validate barcodes in the Epic electronic medication administration record system, Pyxis ADCs and Talyst carousel software. “The simplest technologies work best for us,” Mr. Breznak said. He added that the Medi-Dose System—used apart from a tabletop solution, Auto-Print by Medical Packaging Inc.—“saves our technicians about three to four hours per week on preventative maintenance and problem-resolution activities we had with canister packagers. Also, these unit-dose packages are a bit smaller than others, which makes it easier to stock our Pyxis ADCs.”

Mr. Breznak estimated the pharmacy packages 20% of the oral solids distributed to facilitate barcode bedside administration.

When Handmade Is Best

Another solution is to partner with vendors that offer packaging technologies that work in conjunction with some manual processes, according to Fred Massoomi Jr., PharmD, FASHP, the senior director of hospitals and health systems at Visante, in Omaha, Neb. He urged pharmacies to look to such manual processes, as well as “to be ready for unanticipated shortages of unit doses due to U.S. Pharmacopeial Convention General Chapter <800>, which mandates cleaning packagers between packaging of different drugs.”

Shortages also could be eased by adopting a mix of outsourcing and in-house packaging, experts noted. Hospitals that are part of an Integrated Delivery Network, for example, could aggregate unit-dose packaging in a central packaging/compounding pharmacy, just like injectables, under Section 503B and contract with packaging vendors.

The sources reported no relevant financial relationships other than their stated employment.

<https://www.pharmacytechnologyreport.com/Packaging--Supply-Chain/Article/03-18/Packaging-Up-Solutions-in-Unit-Dosing/47085>

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