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Using Tabletop Liquid Unit Dose Packagers to Bar Code Oral Liquids

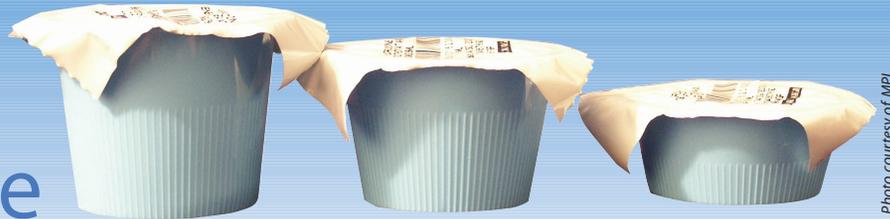


Photo courtesy of MPI

THE MANUAL PACKAGING AND BAR CODING OF UNIT DOSE oral solutions is time-intensive and requires multiple steps and a good deal of diligence on the part of the pharmacy staff member charged with the tasks. Fortunately, an automated solution is available: the tabletop liquid unit dose packager, which provides hospital pharmacies with increased efficiency, improved inventory management, and cost savings.

How It Works

A liquid unit dose packager works in conjunction with a nearby PC to fill and label individual doses of oral liquids. To begin the packaging process, a pharmacy staff member can either manually enter the drug information or scan the bulk bottle's bar code to call up that information from a preestablished drug information database. The PC then communicates with the packager to create the bar coded label for the individual doses to be packaged, detailing the drug name, dose, beyond-use date, and lot number. Users can preview the label information on the PC monitor to confirm its accuracy.

A peristaltic pump, like Baxa's Repeater Pump, issues liquid medications from a bulk bottle through a tube, which can vary in size to accommodate the medication's viscosity, into dose-appropriate cups dispensed from a tower in the packaging machine. The packager has an electronic eye that determines the presence

of a cup; if there is no cup, the machine will not dispense the medication, avoiding spillage waste and cleanup. The machine then tops and bar-code labels the filled cups with a printed film, heat-seals the film to the cups, and finally perforates the film between filled cups. Depending on the vendor technology, the machine either uses a conveyor belt (Fluidose from Medical Packaging Inc.) or a rotating carousel-like platform (Speedy Wet Cadet from Accu-Chart) to move the filled cups through the various stages of the labeling and sealing process.

Purchasing Considerations

Among the factors to consider when purchasing a liquid unit dose packaging machine is the overall cost of the machine and its consumables, such as the film and cups. Compare the initial cost of the machine and the ongoing costs of the consumables to:

- The cost of any prepackaged, unit dose oral liquids your pharmacy procures
- The cost of the consumables, including syringes and labels, involved with the manual filling of unit dose oral liquids
- The cost of the labor involved in the manual filling of oral doses

Because a liquid unit dose packaging machine automates, and thereby streamlines, the filling of oral liquid doses, its use presents a substantial opportunity for increased efficiency.

Nonetheless, a staff member should be present while the machine is running to ensure that the cup stock and bulk medication do not run out. That said, with the packager, a pharmacy technician can package, in about an hour, the same amount of oral doses he or she used to package in four or five hours. As such, the use of the technology can present the added benefit of increased staff satisfaction.

On the other hand, also consider the potential for waste that the machine and the oral cups present. With every batch of filled cups, there will be some wasted medication left in the pump's tubing, totaling 10 to 30 mLs. You may also need some amount of overfill in the cups, as some medications coat the side of the cups, whereas oral syringes will usually dispense the full dose upon administration. For expensive line items, factor this potential waste into your cost analysis.

After calculating the estimated cost savings and increased packaging efficiency associated with the machine, include that information with your capital request. Given the relatively low cost of the machine and the obvious potential for ROI, purchase approval may be received as quickly as within a few weeks.

Implementation and Usage

Liquid unit dose packagers are relatively easy to use, and staff members may require as little as two hours of training before they are able to fully operate the machine. When installing the machine, consider reinforcing the surface it will sit on, as its weight may cause some tables to sag. While you will no longer need to stock as many empty oral syringes, consider freeing up additional space for the storage of the machine's disposables.

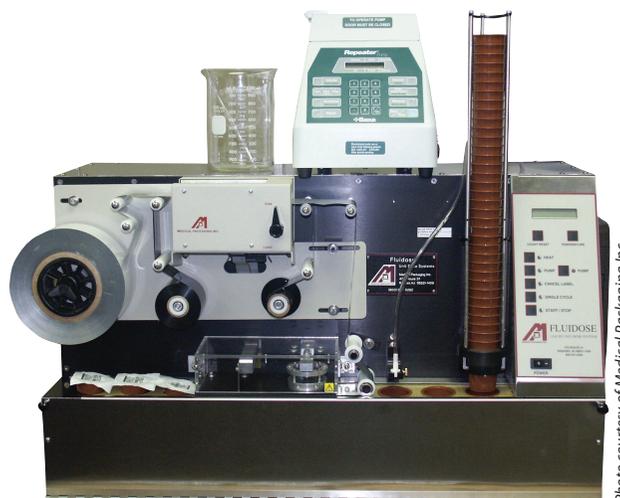
Furthermore, as with any change that effects medication administration, it is important to notify nurses of the implementation in advance. You may want to show them some sample cups, so they can familiarize themselves with what the cups look like and how they are opened.

Upon implementing a liquid unit dose packaging machine, you should use the machine's PC-driven software to create a database or library of packaged drugs. Be sure to back up that data on an external hard drive or network drive. From the database, you can run monthly or quarterly usage reports for drugs and disposables, allowing you to improve the management of both your inventory and your packaging technician's time. Also consider program-

ming the packager to use tall-man lettering on the labels, and think about using different colored cups for frequently confused medications to avoid "look-alike, sound-alike" errors.

QA/QC Considerations

Prior to packaging any batch of oral liquid doses, calibrate your peristaltic pump to make sure it is delivering the desired volume. Once a few doses are packaged, draw up the desired dose in an oral syringe to ensure that the full dose can be administered. If some overfill is necessary to ensure a complete dose, program the machine to deliver the extra fluid. Before releasing the doses from the pharmacy, verify that the bar code can be read by the scanners your nurses will use at the bedside.



Conclusion

Through the use of a liquid unit dose packaging machine, your pharmacy can achieve a notable increase in operational efficiency, improvement in inventory management, and a decrease in costs associated with oral liquid doses. With thoughtful planning and continuous diligence, your hospital pharmacy can reap the potential benefits provided by this technology. **PT&P**

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