

PHARMACY Purchasing & Products

Liquid Unit Dose Packaging Machines A Sound Purchase for Health-System Pharmacies

By John Falkenholm, PharmD

Tabletop liquid unit dose packaging machines offer a great deal of flexibility in terms of the packaging of oral liquids, particularly when manufacturer shortages of unit dose products arise. Far faster than the manual unit dose packaging of oral liquids, these semi-automated devices allow pharmacy staff members to multi-task while batches of hundreds of doses are prepared. Furthermore, these easy-to-use and durable systems produce machine-readable bar codes and, therefore, effectively support bar coded medication administration (BCMA). What is more, these machines have a low cost of ownership, making them an affordable automation purchase for many pharmacies.

Associated Costs

Tabletop liquid unit dose packaging machines and their related software have a relatively low acquisition cost – typically under \$20,000 – that usually includes an initial stock of packaging supplies, such as cups, label stock, and print ribbon. The device your pharmacy selects may also require the use of a peristaltic pump, such as Baxa's Repeater pump, which must be calibrated to work in tandem with the packager.

When estimating the cost of ownership for a machine, also account for the ongoing cost of packaging supplies, based on your packaging volumes. Advocate Lutheran General Hospital estimates the cost per dose for our packaging materials is \$0.07, including the necessary tubing. Manufacturers of liquid unit dose packaging machines assert the tubing is reusable, and recommend washing it after a packaging run for use in the next run for that drug product. Advocate Lutheran General has opted to use a fresh tubing set for each packaging run we perform to avoid the risks associated with improper cleaning. It is important to note that, with each packaging run, up to 30 mL of liquid will be wasted in the tubing. If you are packaging a particularly high-cost line item, you may want to account for that wastage in your calculations.

In addition, it is prudent to budget for an annual maintenance contract from your vendor. Advocate Lutheran General's liquid unit dose packaging machine maintenance plan costs approximately \$1,500 per year, and covers any repairs we may require.

Labor Savings

The manual packaging of oral liquid medications is a very labor-intensive process. Automated liquid unit dose packaging machines can fill, heat-seal, and perforate individual doses within seconds. Furthermore, hospitals of a certain size already have a dedicated packaging technician, and these devices can maximize those technicians' time by cutting the labor needed for liquid

oral medication packaging in half. In addition, it takes just hours to train personnel to effectively operate these user-intuitive machines.

Liquid Unit Dose Inventory Management

In order to maximize workflow efficiency and ensure that medications are ready to dispense in unit dose as needed, be sure to

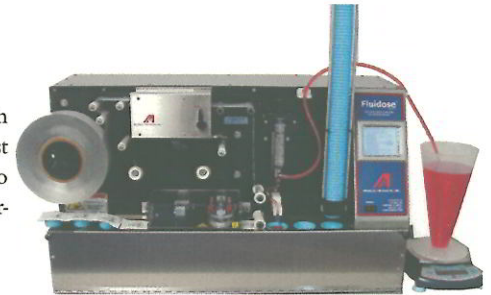
keep an adequate inventory of liquid unit dose medications in stock. Packaging volumes should keep up with the spikes and dips in medication use in your hospital. Furthermore, if a medication is in high demand and able to retain substantial beyond-use dating once packaged, it may be prudent to bulk up on your unit dose supply of it. Completing one large packaging run for that item will save you from using another tubing set to run a second batch when supplies run low, and can prevent your technicians from performing redundant tasks.

Cleaning and Maintenance Considerations

Liquid unit dose packaging machines require simple cleaning. In the event of drug product spills or splatters and between packaging runs, simply wipe the device with gauze and rubbing alcohol. These devices are relatively maintenance-free, so long as they are kept clean and used properly.

Return on Investment

All things considered, your hospital will likely be able to achieve a return on investment for the purchase of a liquid unit dose packaging machine within a few months' time, particularly if you already have a dedicated packaging technician on staff. The efficiency the machine will afford your pharmacy, in addition to its overall low cost of ownership, can make this purchase a very sound one for your facility. ■



Tabletop liquid unit dose packaging machines have a relatively low acquisition cost. However, when estimating the total cost of ownership for a machine, also account for the ongoing cost of packaging supplies.



John Falkenholm, PharmD, is the pharmacy manager of Advocate Lutheran General Hospital in Park Ridge, Illinois. He has worked for Lutheran General for the past 10 years and received his doctorate from the University of Illinois at Chicago College of Pharmacy.