As Seen In
November 2008 Vol. 5 No. 11
PHARMACY Purchasing & Products

Medical Packaging Inc.'s Fluidose

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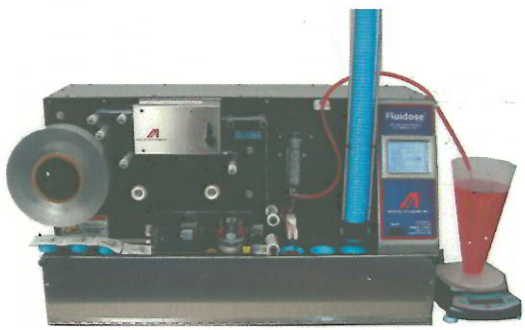
Memorial Regional Hospital, a 690-bed facility in Hollywood, Florida is five institutions under a single roof: A community hospital and Level I Trauma Center; a regional referral hospital specializing in cancer and cardiovascular care; a psychiatric hospital; a rehabilitation hospital; and a children's hospital.

In our move to universal bar coded medication charting, we have achieved significant milestones in patient safety, but we have also encountered new challenges. For example, many liquid medications are not available in unit dose packaging and those that are available often carry a hefty price premium. In addition, some of the barcodes are not readable by our IT system.

Because our pharmacy prepares up to 4,000 bar coded liquid unit dose products each month for the varied practices within Memorial Regional Hospital, manual repackaging and bar coding all liquid medications was not a feasible solution to our availability, cost, and compatibility challenges. Not only is manual repackaging and bar coding an expensive and labor-intensive process that requires significant training for pharmacy staff, but each manual step is also an opportunity for error.



Each Fluidose unit dose is linked to a specific lot number and the location of every unit dose is tracked from repackaging to administration.

Our solution was to automate the unit dose packaging and bar coding of our liquid medications. Since 2002, we have used the Fluidose system from Medical Packaging, Inc. (MPI). We also use the MPI oral solid repackaging system and the Talyst AutoPack oral packager.

How Fluidose Works

Fluidose is a countertop unit controlled by a standard Windows computer. Operation is menu-driven and can be learned by most pharmacy technicians in two hours or less. The unit includes a Baxa pump and heat transfer printer that can package 15 ml, 25 ml, and 35 ml cups and tall-man lettering is available. The repackaging process begins with a pharmacy staffer – usually a technician – either entering complete drug information manually or scanning the bar code on the bulk bottle to call up product information from an existing drug library. Either way, the user sees the drug name, generic name, manufacturer, NDC number, lot number, bulk bottle expiration date, unit dose beyond-use date, and other data linked to the bar code to be printed for each unit dose. The user confirms the accuracy of the label information on the computer monitor, enters the number of doses to be filled and starts the run. At the end of the run, the user turns off the pump and presses the single-cycle button until the cups with the drug are cleared.

Benefits of Automation

The unit routinely packages more than 100 doses per 30 minutes, including error checks. Disposables include dose cups, tubing sets, thermal transfer ribbon for bar coding, and thermal stock for the cup lid.

The rationale behind switching to a computerized, menu-driven program came down to cost savings and safety improvements. Even after allowing for the cost of disposables, the savings from repackaging can be significant compared to purchasing unit of use liquid doses. Automating unit dose fills also frees pharmacy staff time for other tasks.

Substituting automation for manual preparation eliminates a source of potential error. Label information is just as important in medication safety. Each Fluidose unit dose is linked to a specific lot number and the location of every unit dose is tracked from repackaging to administration. The combination of label information and location tracking helps pharmacy staffers in the event of a recall.

QA and QC Considerations

One reason liquid repackaging technology previously lagged behind oral solid repackaging is the variable viscosity of liquid medications. Where an oral syringe delivers essentially 100% of the medication fill, some amount of medication clings to the sides of a unit dose cup. Differences in viscosity affect the amount of residue remaining in the cup, thus requiring the fill of each medication to be fine-tuned.

For each new medication, the user manually fills a single cup with the required dosage, and then uses an oral syringe to check the actual amount of liquid available in the cup. The fill can be adjusted as needed to ensure the full dose is available.

Conclusion

With as many as 4,000 bar coded liquid unit dose products to prepare each month, our pharmacy needed a reliable and efficient automated unit dose packaging and bar coding solution. A computerized, menu-driven program such as Fluidose can provide a pharmacy with more efficient operations and inventory management, less expensive liquid unit doses, and overall safer medication use. ■

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