By Robert Begliomini, PharmD

Swisslog PillPick

An academic community hospital, Lehigh Valley Hospital and Health Network (LVHHN) includes three facilities, two in Allentown and one in Bethlehem, Pennsylvania. Recognized by *US News & World Report* as one of America's best hospitals and named among *Fortune*'s 2008 list of the "100 Best Companies to Work For," LVHHN operates a level-one trauma center and is a regional referral center for cancer care, open-heart surgery, and kidney and pancreas transplants. With a total of 900 beds, LVHHN has fully implemented bar coded medication administration, EMAR, and CPOE. A pharmacy staff of over 130 members fills nine million physician orders per year. In July 2005, we implemented Swisslog's PillPick, an automated unit dose packaging, storage, and dispensing system, in the pharmacy department of the 200-bed Lehigh Valley Hospital-Muhlenberg in Bethlehem to meet the needs of our growing health system.

System Selection

We selected PillPick based on its safety features and ability to multitask. The robot is able to store, bar code, package, and dispense oral solids, unit dose vials, ampoules, cups and syringes. Additionally, PillPick is not one-size-fits-all; its modular configuration allowed us to develop a solution that met our facility's medication capacity requirements and space constraints. To ensure a smooth implementation, we involved the Swisslog team, LVHHN pharmacy staff, information services (IS), and our nursing department in the plan. The IS team was able to address necessary interface issues, and both pharmacy and nursing formatted a label that addressed the patient safety needs LVHHN required.

How It Works

Through the interface with our GE hospital information system, PillPick is able to complete our 24-hour cart cassette fill, as well as dispense first doses. PillPick contains a centralized storage unit, called a DrugNest, and on either side of the DrugNest is a robot. Once our technicians configure a medication canister in the AutoBox loader, a pharmacist verifies the canister and seals it. The PillPicker and AutoPhial units – which automate the packaging of oral solids and unit dose vials, ampoules, cups, and syringes, respectively – then bar code and package and/or overwrap the medications, which the robots then store in the DrugNest. Prior to dispensing, one of two robots binds each patient's doses on what is called a PickRing, a flexible plastic ring that holds an individual patient's medications in alphabetical order. A card attached to the PickRing specifies each drug, as well as the patient's name and room number and other pertinent information.

The system is able to perform multiple tasks at once: We can use one side of the robot to perform our 24-hour cart fill, which takes approximately 4.5 hours, while the other side of the robot packages and picks first doses. We have the ability to perform both of those time-intensive tasks simultaneously – a significant gain in workflow efficiency, as well as a significant reduction in manually picked doses, for the pharmacy department. In addition, PillPick's two-sided configuration allows us to continue operations even when one side of the robot experiences unexpected or planned downtime.

System Benefits

Patient safety is our first and foremost concern. PillPick is highly accurate and provides our nurses with the bar coded medications they scan to verify the "five rights" at the bedside. In this way, PillPick is an important part of our efforts to establish a safe medication-use system.

As indicated earlier, PillPick also provides a number of workflow efficiencies. In addition to streamlining packaging and dispensing processes, PillPick has improved our first-dose order turnaround time in the following way: Physician orders are available immediately for pharmacist verification through LVHHN's CPOE system. Once a pharmacist verifies an order, it is sent directly to PillPick for picking and dispensing via an interface with our pharmacy information system. Once PillPick dispenses the dose, we can quickly route it to the appropriate nursing unit using our pneumatic tube system.

Pharmacists' involvement with the packaging and dispensing processes is minimal – they need only verify the PillPick canisters as they are filled by our technicians. They are then able to spend more time on the nursing units performing patient care rounds. In this way, our use of automated equipment has positively impacted staff morale and retention. Furthermore, automation such as PillPick also serves as an effective recruitment tool. Prospective employees' interest in positions at LVHHN increases when they learn of our deployment of advanced patient safety technologies like PillPick.

Conclusion

When implementing automation, it is important to remember that every hospital pharmacy is different and has its own needs. It is then paramount to do the necessary homework to best determine solutions to those needs and select the best piece of automation. Site visits are an important aspect of the selection process; watch other pharmacies in action as they work with the equipment under consideration for purchase. Remember: The robot must work within your medication-use system. If a dispensing robot is your choice of automation, it must be able to adapt to your desired workflow. Be sure to work closely with your selected vendor to ensure they understand your needs and develop solutions to meet them. ■

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