Product Spotlight

By Alfred A. Feroli, MS, RPh

SmartPak

Samson Medical Technologies, L.L.C.

Because the Samson SmartPak is a closed system, we believed we could reduce our contamination risk.

LOCATED IN LANCASTER, PENNSYLVANIA, LANCASTER GENERAL HOSPITAL, a 563-bed, not-for-profit, acute-care hospital, has achieved Magnet Hospital designation, received a 2005 HealthGrades Distinguished Hospital Award for Patient Safety, was named one of "America's Best 50 Hospitals" for five service lines by *U.S. News & World Reports*, and has been awarded a 2005 ASHP Best Practices Award. Our inpatient pharmacy department operates a 24-hour inpatient pharmacy, seven days a week, offering both centralized and decentralized pharmacy services. Our intravenous admixture service (IVAS) is centralized in our main dispensing pharmacy, and according to USP Chapter <797> criteria, we are a high-risk compounding facility. As such, product safety is our primary goal. We

Photo courtesy of Samson Medical Technoloies, LLC

are also a high-volume compounding facility, with over 300,000 intravenous doses prepared annually. So cost control and process efficiency are also important considerations for us.

Previously, we had elected to utilize syringe pumps as our primary delivery system for IV antibiotics, because we found this to be a more cost-effective method for the preparation and administration of IV antibiotics when compared to mini-bag preparations. While cost effective, batch syringe preparations did present us with some challenges, most notably the time needed to reconstitute multiple pharmacy bulk bottles of products such as cefazolin, nafcillin, and cefoxitin. In addition, the manipulations of the reconstituted products were also time consuming. Depending on the product, we would use one of two processes, either:

- reconstitute and transfer multiple bottles into an empty sterile IV bag (a process also known as pooling) for withdrawal into syringes, or
- reconstitute and withdraw the appropriate amount of reconstituted drug directly from an individual bottle into syringes.

While all of the products are prepared in an ISO Class 5 environment, the risk of contamination or breach of protocol is always present, particularly when multiple manipulations are involved in the preparation of a final product.

Samson Medical Technologies has introduced a line of antibiotics specifically for institutions and compounding pharmacies that have a need for larger quantities of bulk drugs than are currently available. Samson's SmartPaks are bulk quantities (75 g to 300 g) of sterile antibiotic powder contained in two empty, sterile bags capable of holding the total reconstituted volume (up to 3,000 mL, depending upon the product). The inner bag is in direct contact with the drug product, and the outer bag protects the inner bag from light, moisture, and oxidation.

We decided to introduce the cefazolin 100 g SmartPak in our IVAS. Using Samson's SmartPak instead of 10-g bottles, our goals were to save staff time and reduce our number of manual manipulations. Additionally, because the Samson SmartPak is a closed system, we believed we could reduce our contamination risk. In addition to these advantages, we also considered the reputation of Samson Medical Technologies as part of our decision-making process. The company's founder, Marvin Samson, was also founder of Elkins-Sinn, Inc. and Marsam Pharmaceuticals, and has long been an innovator in the pharmaceutical industry.

Currently available in SmartPaks:

- Cefazolin 100 g
- Cefazolin 300 g
- Cefuroxime 75 g
- Cefuroxime 225 g
- Cefoxitin 100 g
- Nafcillin 200 g
- Ceftriaxone 100 g

Our new process is now much simpler. Working in an ISO Class 5 environment to fill our syringes, we remove the outer bag and connect the SmartPak to a peristaltic pump with a spiked tube. We add the appropriate diluent to the SmartPak, circulating it until the SmartPak powder is completely dissolved. We then reset the pump to fill our syringes.

Although we did not conduct a scientific study, we did obtain favorable reports from our compounding staff, in terms of SmartPak's ease of use and efficiency compared to the use of bulk bottles. The benefits we have realized from using the SmartPaks are:

- Reduced time for batching products
- Reduced manipulations in reconstitution and syringe filling
- Adaptability to either syringe or mini-bag delivery systems
- Compatibility with either automated or manual-fill methods
- Competitive pricing

Currently, we utilize the cefazolin and cefoxitin SmartPaks for our IV-syringe batching processes and will also use the ceftriaxone 100 g SmartPak, which was recently introduced to the marketplace. Overall, the use of the SmartPak system has positively impacted our compounding operation and we expect that it will continue to do so. P&P

The recipient of a BS and an MS in pharmacy administration from the Massachusetts College of Pharmacy and Allied Health Sciences, Fred Feroli current serves as the pharmacy operations manager at Lancaster General Hospital in Lancaster, Pennsylvania. Prior to his current appointment, Feroli served as a senior pharmacist at the Faulkner Hospital in Jamaica Plains, Massachusetts, and as the IV admixture services and home IV supervisor at Williamsport Hospital (now Susquehanna Health System) in Williamsport, Pennsylvania.

Where to find it:

Samson Medical Technoloies, LLC ..... **Circle reader service number 26** or visit www.samsonmt.com.

Product Spotlight

By Bill Maguire, RPh

Automated Dispensing Equipment

from medDISPENSE

EVERY DAY, HOSPITALS WITHOUT 24-HOUR PHARMACIES FACE A DILEMMA: They need to ensure that no one enters the pharmacy after hours, while still providing their nursing staff with 24-hour access to medications. At Regency Hospital Company, a nationwide provider of long-term acute care (LTAC) hospital services, we have addressed this problem with the use of automated dispensing cabinets from medDISPENSE.

The use of automation for dispensing medications is not new. Many large facilities have had systems in place for years. However, the use of such devices in specialty facilities and LTAC hospitals has been somewhat limited due to the high cost of most systems on the market. Regency Hospital Company was an early customer of medDISPENSE, and over the years, we have found it to be an affordable system that meets the daily demands of our busy hospitals.

Finally, a balance between pharmacy's need for control and nursing's need for access and safety was found.

Regency's 17 hospitals are designed to provide acute care to medically complex patients for a longer period of time than traditional hospitals are designed to provide. LTAC hospitals are essentially ICUs that offer intensive therapies through a multi-disciplinary team, and as such, our patients are very ill and are typically on a large number of medications.

Regency started its initial use of medDISPENSE equipment at our very first hospital in Florence, South Carolina. After implementing the technology in 2003, we saw immediate and dramatic results from both clinical and financial perspectives. Automation improved the control of medications, medication safety, and inventory management, and provided both a charge-interface profile and a patient profile. In addition, the nursing department had round-the-clock monitored access to controlled medications, first doses, and emergency medications. Finally, a balance between pharmacy's need for control and nursing's need for access and safety was found.

Based on this proven success, medDISPENSE equipment is now "standard issue" at every Regency hospital. Regency took the automated dispensing model one step further by eliminating cart fill. This distribution method saves the pharmacy time, streamlines inventory-management duties, and gives nursing access to practically all in-stock medications via the automated dispensing cabinets. We have found the best set up for a typical unit at a Regency hospital to be a 72-drawer medDISPENSE Base 72 paired with a 45-drawer Auxiliary Combo Tower and a Supply Tower for larger items, such as IV bags. These three components comprise our dispensing workstation. Each drawer in the Base 72 holds up to six different medications, or one controlled medication for increased security, so the capacity for a typical medDISPENSE workstation at Regency easily exceeds 425 line items.

We did have to make some spot-implementation workflow adjustments related to nurses pulling their morning medications earlier than anticipated and the increased demand for time on the automated dispensing cabinets. When eliminating a cart-fill-based distribution system, it is important that pharmacy and nursing work closely together to ensure a successful transition during the practice change. Once we established our new routine, we found the new approach worked well for us.

Our medDISPENSE equipment and our CPSI pharmacy management software communicate and exchange data via a profile interface. By selecting a patient's name on the touch screen, nurses can view all of the medications prescribed to that patient that have been reviewed and approved for dispensing by pharmacy. From this list, the nurse selects all the medications needed for the medication pass. The nurse then presses "Drawer Open," causing only one drawer to open at a time, thus ensuring that the nurse picks the correct medication and decreasing the chance for a wrong drug error. Finally, all charges for dispensed drugs are transmitted from the dispensing cabinets to our pharmacy management system, eliminating the need for manual billing.

Over time, medDISPENSE automated dispensing devices have lowered our inventory costs, reduced medication errors, increased productivity, and reduced risk. Moreover, their equipment is reliable and affordable—important factors to consider when analyzing capital expenditures and issues we pay close attention to at Regency. When deciding if dispensing automation is right for your facility, ask your colleagues about their experiences with the devices. If you were to ask both our pharmacy and nursing staff if we would be willing to give up our medDISPENSE machines and go back to the old way of doing things, the answer would be a resounding "no." P&P

The corporate director of pharmacy at Regency Hospital Company, Bill Maguire, RPh, is a 1981 graduate of Northeastern University School of Pharmacy.

Photo courtesy of medDISPENSE

Using medDISPENSE cabinets, Regency nurses have 24-hour access to patient medications.

Where to find it:

medDISPENSE ..... **Circle reader service #25**
or visit www.med-dispense.com.