

# PHARMACY

## Purchasing & Products

### Product Spotlight

By Brian O'Neal, MS, PharmD

## SP Central Telepharmacy

**T**he University of Kansas Hospital is a 550-bed tertiary and quaternary care hospital located near the Kansas-Missouri state line.

Founded in 1906 as the primary teaching hospital for the University of Kansas Medical Center, the current hospital facility opened in 1979 and a sixth floor was added in 2003 to accommodate increasing patient demand. The University of Kansas Cancer Center opened in August 2007 to support additional patient access to cutting edge cancer care. In FY08, the hospital serviced 22,430 inpatients and nearly 300,000 outpatients.

On weekdays, the inpatient pharmacy runs 22 daytime pharmacist shifts, with another six shifts in the evening, including clinical pharmacist shifts. For IV admixture preparation, we have two pharmacists who each spend four hours in the area—the equivalent of having one full-time pharmacist.



Photo courtesy of ScriptPro LLC

tamination and employee exposure to chemotherapy. Our concern with chemotherapy exposure stemmed from the standing practice of bringing the contents used for preparation (eg, empty vials and syringes) out of the chemotherapy preparation area into the anteroom for checking. Although the items were double-bagged by the technician, the risk of contamination remained. Ideally, those products should never leave the chemotherapy preparation area.

To our knowledge, a product that would meet our needs did not exist at the time we engaged with ScriptPro. We were familiar with ScriptPro and its telepharmacy technology, so we met with the company to discuss a new application for its hardware and software. Prior to this meeting, ScriptPro's system had been designed for use in outpatient retail settings. We worked with ScriptPro to redesign its

system for use in a sterile product admixture setting.

### Covering Critical Risk

The initial objective of employing a telepharmacy program was to find a way to increase the presence of the pharmacist at a critical risk point during the preparation process, while making the most efficient use of our clinical pharmacy staff. The risk point we focused on involved drawing up the correct quantity of a chemotherapeutic medication and injecting it into a secondary container, such as a fluid bag. As we worked on a plan to meet this objective, we developed additional goals, including incorporation of bar code technology to reduce the risk of selecting the wrong chemotherapeutic medication, and improvement to the readability of chemotherapy vial labels that use an extremely small font. We also wanted to find a way to reduce the potential for surface con-

### Bringing a Custom System Onboard

The first step in the system implementation process was to develop an interface between the hospital's pharmacy information system and the ScriptPro telepharmacy system. We needed an interface so that chemotherapy orders could be queued in the telepharmacy system for processing, allowing the technician to link the digital pictures to a patient name, patient demographics, and specifics of the medication order. We chose to use a printer-based interface to avoid investing time and money in development of a full-scale interface. The printer-based interface uses a device that recognizes and captures orders as they pass from the pharmacy information system to the label printer. We configured the device so that it would identify and capture orders where the word "CYTOTOXIC" was present on

the top line of our label, indicating an order for a chemotherapeutic medication. These orders—containing the drug name, concentration, quantity, and patient information—would be sent to the Pending Work List in the telepharmacy system. We reviewed ScriptPro's hardware specifications and inquired as to whether its integrated bar code scanner could be incorporated into the chemo preparation process. The ability to verify the bar code of the correct drug vial at the point of preparation would bring great value to the project. Working with software developers, a method was devised whereby the drug name and concentration (identified through the printer interface) could be tied to a list of national drug codes (NDCs) within the system's medication database. Given that the product was initially designed for the outpatient pharmacy setting, most of the medications used in chemotherapy preparation were not in the database. However, we were able to add them to the system in less than a week.

### Working With the System

Though bringing this system on board did not enable us to reduce our staff levels, it has enabled us to make better use of the pharmacists that we have by allowing them to check products remotely at their convenience, thereby eliminating the need for a pharmacist to be physically present at the time of compounding. Most importantly, this process adds a safeguard to our chemotherapy preparation process. We can now replicate the impact of having a pharmacist present at the point of admixture by having them review all admixture steps retrospectively.

### Compounding Steps

Following order review and order entry, our chemotherapy preparation process begins with a pharmacist performing a "vial check" (ie, a check of the medication vials against the work label). This is the first step toward ensuring the correct medication has been selected. The technician then takes the product into the biological safety cabinet, where they select the appropriate patient from the Pending Work List—a queue of patient orders that have been sent from the pharmacy information system. The technician then scans the bar code on the vial. Assuming a positive bar code match, the technician proceeds to

take a picture of the work label, followed by pictures of any vials, diluents, and/or fluids to be used, and lastly, the syringe (prior to injection into the bag) along with the vial. The pharmacist then views all images as a part of the final product checking process.

Including the imaging process does make for a longer drug preparation process, although it is still less than one minute per preparation. The verification process has changed significantly as the pharmacist can view images of products used in the preparation process as if he or she is looking over the technician's shoulder. This system allows for a pharmacist to verify that the correct product was used and the correct quantity of medication was added to the secondary container.

### Maintenance and Reception

The system requires ongoing updates of new medications to the database, as well as standard maintenance of bar codes to ensure the products being prepared are going to scan correctly at the point of administration. We have also been working closely with ScriptPro to fine tune our interface, with discussion about the potential for moving to a full-fledged HL7-based interface from our pharmacy information system.

Despite the additional time needed for imaging, ScriptPro's telepharmacy verification system has been well received by all the pharmacy staff. Pharmacists now can be more certain that the product they are checking has been made correctly. ■



*Brian O'Neal, MS, PharmD, graduated from the University of Kansas with a PharmD in 1998. In 2000, he received his MS in hospital pharmacy from Ohio State University in Columbus. While finishing graduate work, he completed a two-year administrative residency at the Ohio State University Medical Center. Brian began his career at the University of Kansas Hospital as inpatient pharmacy operations manager and was promoted to assistant director of pharmacy in February 2003. His primary areas of responsibility include pharmacy financial management, purchasing, and inpatient operations. His administrative interests include drug utilization benchmarking, cost reduction, budgeting, 340B compliance, and controlled substance diversion detection.*

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