

DoseEdge™ Pharmacy Workflow Manager

By Dennis Killian, PharmD, PhD

Peninsula Regional Medical Center (PRMC) in Salisbury, Maryland is the region's largest tertiary care facility with 358 acute care beds, 30 transitional care beds, and 28 newborn beds. Over the last several years we have faced a series of challenges in our satellite oncology pharmacy (Richard A. Henson Cancer Institute) related to the preparation of compounded sterile products (CSPs). Until recently, technicians used the "syringe pullback method" for verification, meaning they filled a syringe, injected it into an IV bag, and then pulled the syringe back to the fill line for the pharmacist to verify later. Using this method became more troublesome when the US Pharmacopeia's Chapter <797> changed the rules regarding sterile compounding and the way hospital pharmacists are required to check technicians' work. Simultaneously, PRMC's oncology department experienced significant growth with the pharmacy seeing a three-fold increase in workload. As a result, our technicians were tasked with preparing multiple CSPs at the same time, and the subsequent backups resulted in significant delays in delivering medications to patients.

We knew we needed to make a change in how we were managing our CSP preparation process and invest in technology to help us. After a careful evaluation of our needs, our pharmacy department director, operations coordinator, and COO determined that Baxa's DoseEdge solution best fit our criteria. Essentially, DoseEdge is a cleanroom workflow dose management system that, among other things, allows staff pharmacists to remotely verify the preparation of CSPs. We were unable to find another available solution that offers the array of features available in DoseEdge, and so approval for the installation was swift. Through the use of Six Sigma and LEAN principles championed by our Performance Improvement department, we determined DoseEdge would improve quality assurance. We also realized it would help eliminate waste by minimizing batch processes, which allows for just-in-time processing of sterile preparations and thereby prevents products from being returned.

Implementation and Workflow Adjustments

Fortunately, the implementation process went smoothly and we did not experience any significant setbacks. Once the equipment arrived, a Baxa representative was onsite to install and help set up the integration with our pharmacy information system. No physical changes to the facility were needed and the equipment meshed seamlessly with our existing wireless network. Though workflow adjustments were required, Baxa representatives were available to train everyone and make the pharmacy staff feel comfortable using the system. Technicians had to acclimate to using a computer in the cleanroom, working the foot pedal that operated the camera, and positioning products when taking a picture; DoseEdge provided step-by-step instructions. While change can be difficult in any environment, these adjustments were easier than some others we have experienced, and it was not long before our team realized the benefits of better workflow management.



Features and Safeguards

The combination of features and safeguards DoseEdge offers are strikingly effective. DoseEdge improves admixture safety by introducing checkpoints at every stage of the preparation process. Its cleanroom workflow dose management system allows pharmacists to log in, order, and remotely verify the preparation of CSPs. In the pharmacy, DoseEdge software calculates the right amount of each ingredient for preparation. The order then appears in an electronic queue. As technicians assemble the ingredients they scan bar codes on the medications to ensure the right drug is being used. If the wrong drug is scanned, DoseEdge software halts the process and will not allow technicians to proceed until the proper drug is scanned. In addition, photographic images of the products and syringe draws are stored so that pharmacists can track the process at each stage of preparation.

At PRMC, DoseEdge has increased pharmacist practice efficiency. It saves our pharmacists from having to constantly gown up and enter the cleanroom for verifications, thus freeing them to perform other clinical duties. From a safety standpoint, the bar coding process ensures the correct products are being used. We can review the history of a product for a long period of time after preparation, if required. Prior to this, if a desired therapeutic response was not achieved, (e.g., blood sugar did not drop according to insulin infusion rate, or blood pressure did not change according to vasopressor infusion rate) we had to send the preparation to an external laboratory for analysis. Using DoseEdge also has revolutionized how we track sterile compounding records. Prior to the implementation of this technology, if we had a sterile preparation error—either real or perceived—we could not determine if a compounding error was made. Based on the profoundly positive results we have seen from using DoseEdge in our satellite oncology pharmacy, we are considering implementing the system in our main pharmacy as well. ■

Dr. Dennis Killian currently serves as director of pharmacy services at Peninsula Regional Medical Center where he has been employed since 2005. Dr. Killian also serves as an associate professor at the University of Maryland Eastern Shore School of Pharmacy.