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## Software Strategies

### New technology catches mistakes on camera

*Pharmacist can check techs remotely*

As hospital pharmacies grow and their volumes increase, it becomes essential to consider new technology that will enhance efficiency and improve safety.

The 300-bed Flagler Hospital of St. Augustine, FL, has incorporated a new software technology to meet these goals and to provide a way of tracking precisely how pharmacy technicians are performing their tasks.

"I first saw this IntelliFlow technology when I went to a mid-year conference," says **Toni Covato**, RPh, MS, director of pharmacy at Flagler Hospital. "I was excited about it because we didn't have a way of tracking access and to go back

and be 100% certain who prepared something."

When there's a problem in the pharmacy, it's often difficult to find out where the mistake occurred.

"If you have

a problem, you want to be able to go back and investigate," Covato says.

Hospital pharmacies have a heightened sensitivity to medication errors these days because of the recent high profile cases involving heparin overdoses, including the cases involving infants, says **Dennis Tribble**, PharmD, chief pharmacy officer and chief technology officer of ForHealth Technologies of Daytona Beach, FL. ForHealth Technologies markets the IntelliFlow software, as well as similar hospital software called IntelliFill IV and IntelliFill Chemo.

"What these incidents are bringing home is we're seeing a system architected to handle a relatively low volume of medicines for a relatively small patient population in their 60s and 70s that hasn't changed functionally in the last 30-40 years," **Tribble** says.

"The result is that system is beginning to be stressed as baby boomers age and the demand for product increases," **Tribble** adds. "We could argue the methods and systems set in place years ago are being stretched to the limit, and very good and competent people are being pushed into situations where errors are inevitable."

Human errors are inevitable, he notes.

"If your hospital is producing 10 medical errors a month then it's probably because it's designed to do that," **Tribble** says. "If, for the sake of argument, there's a 1% error rate, which most of us would say is pretty good, then on the average day in a 350-bed hospital's pharmacy, there are several errors."

So the point is that the errors are not the result of incompetent pharmacy staff, but the result of system and process problems, he adds.

#### Summary points

- Hospitals today have greater volumes, greater potential for medication errors.
- Pharmacies need new software technology to track the processes.
- Florida hospital finds intranet-tracking through pictures saves pharmacists' time.

The solution is to incorporate new systems and processes in the hospital pharmacy, making use of new technologies that reduce the potential for human errors.

Flagler Hospital's adoption in March, 2008, of new software that provides a fully integrated workflow manager for IV rooms has been doing precisely that.

"We've had a whole process change for pharmacy technicians because they have to take pictures of all the steps they take," Covato says.

The new technology includes the use of cameras and foot pedal shutters to provide digital pictures that can be checked remotely by hospital pharmacists from any computer connected to the hospital's intranet.

"We don't have to have a pharmacist sit in the IV room all day long to check IVs," Covato says. "They can go into the computer while at the work station and check remotely."

The digital pictures also improve checks and balances.

"We can go back to the pictures if the nurse says, 'I sent an order an hour ago, where is it?' to see where the product is in the process," Covato says.

One of the challenges in adopting the new technology was in training staff how to use it correctly, she notes.

"The information technology (IT) helped us initially to train our staff, especially the super users, the people who could work faster," Covato says. "Supervisors ended up training the rest of the staff."

The initial training wasn't time-consuming, but there was a need for follow-up training as technicians had difficulty taking pictures in the optimal way, she says.

"It's a matter of getting everyone to do it the same way," Covato explains. "Some people handle the drug first and some people handle the solution first, and some people were taking too many pictures."

The pharmacist didn't need 20 pictures of the same image, so supervisors had to work with the staff to create standards for when to take the pictures, Covato says.

"We have them set the product under the camera, tap the foot pedal, and go on to the next one," she says. "It shows the lot number, expiration date, and how much solution they add to the product and how much is taken out."

At first, this process added a little time to the technician's tasks, but as they became more comfortable with the new system, they returned to the same efficiency as before, Covato adds.

The software also provides other process improvement and safety measures, including these:

- Label processor and local database cache server that accounts for every dose, continually updates and sorts doses, provides integrated formulary alerts to doses of high-risk or short effectiveness drugs, automatic sorting, and a continual server back-up;

- Situation board that continually updates with a complete view of the IV room workload, provides view of backlog of doses, reminds staff when the next dose is due, and reminds staff of remaining time to compound doses with short effective periods;

- Permits pharmacist to check workstation from anywhere on the hospital's intranet and continuously updates the full audit trail for each dose prepared;

- Pharmacy tech workstation that has a touch-screen user interface, integrated barcode scanning system, automatic calculation of dose amounts, on-demand printing of dose labels, verification and audit trail of dose measurements, digital imaging and bar code verification, and makes all completed doses immediately available at the pharmacist workstation.

"With IVs, the system takes every dose that needs to be prepared from the pharmacy, and it knows what is supposed to go into that and what bar code in each injectable drug means," Tribble says.

"It tells someone when they grab the wrong item, and it calculates the dose for them," Tribble says. "It gives them the volume in milliliters, and then it captures pictures of the process so if we have to look at it for any reason, we can do that."

The pictures improve the pharmacist's ability to check the work because they can be viewed repeatedly and are three to five times life-size, he adds.

For Flagler Hospital, the new technology has enabled pharmacists to check technician's work without having to leave their work station, Covato says.

"Before, a pharmacist would get out of his seat, go into the back and check everything,

doing this at certain times of the day," she explains. "Now pharmacists don't have to physically go back there because they can see the whole process on their computer screen — so it's a big time saver for the pharmacists."

Pharmacists also save time by being able to check on where medication is in the process without having to make a phone call, Covato says.

But it's the quality assurance and safety aspects of the new software that matter the most, she notes.

"You have a visual documented record of what happened," Covato says.

"You have different people working in the IV room, and things get mixed up, labels are switched, and mistakes might be missed at any point in the process," Covato explains. "This is a way for a pharmacist to go back through the process, flip through pictures, and see exactly what each person did." ■