Computerized systems reduce psychiatric drug errors

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Coupling an electronic prescription drug ordering system with a computerized method for reporting adverse events can dramatically reduce the number of medication errors in a hospital's psychiatric unit, suggests new Johns Hopkins research.

"Medication errors are a leading cause of adverse events in hospitals," says study leader Geetha Jayaram, M.D., M.B.A., an associate professor of psychiatry and behavioral sciences at the Johns Hopkins University School of Medicine. "With the use of electronic ordering, training of personnel and standardized information technology systems, it is possible to eliminate dangerous medication errors."

The findings, published in the March issue of *The Journal of Psychiatric Practice,* outline how the 88-bed psychiatric unit at The Johns Hopkins Hospital in Baltimore went from a medication error rate of 27.89 per 1,000 patient days in 2003 to 3.43 per 1,000 patient days in 2007, a highly significant rate reduction.

Jayaram noted that during the study period, there were no medication errors that caused death or serious, permanent harm. Medication errors, which can be lethal, are known to be caused by illegible handwriting, misinterpretation of orders, fatigue on the part of medical personnel, pharmacy dispensing errors and administration mistakes. A pharmacy may misread what a physician has written or give the wrong medication or the wrong drug dose to a patient.

"Having something typed eliminates bad writing — and most errors — immediately," she says. "It's a good reason for going electronic."

The computer program used in the psychiatric department, and hospital-wide at Johns Hopkins, also includes integrated decision support for drug dosage selection, drug allergy alerts, drug interactions, patient identifiers and monitoring — things that can be lost with a manual system that relies on layers of human beings to ensure the correct decisions are made, Jayaram says. The more the number of steps involved in the process, the greater the likelihood of mistakes.

At the same time that the drug ordering system was put in place, Hopkins instituted the use of the Patient Safety Net error reporting system. The hospital-wide Patient Safety Net (PSN) is an online, Web-based reporting tool that is accessible to all caregivers, regardless of discipline. Whenever a mistake is made, big or small, it is to be reported on the PSN. This system allows for follow up, corrective action and the ability to learn from common mistakes. It also categorizes unsafe conditions and near-miss events, and this can aid in future improvements. Near misses are more likely to be readily reported by frontline staff.

Another key to the success of both of these programs, Jayaram says, is the creation of a "culture of safety" throughout the psychiatry department. This is done through annual safety training, reporting of all adverse events as they occur and feedback that focuses not by blaming or shaming, but on how to prevent an error from happening again through education and corrective action.

One advantage in a psychiatric department, she says, is that medication mistakes involving psychotropic drugs are rarely deadly. But psychiatric patients also take other kinds of medication — insulin, blood thinners and others that can be lethal if given in the wrong doses or in the wrong

combination. In a psychiatric department, some nonpsychotropic medications are considered high-risk and, as a precaution, two nurses must check them off before they are administered, Jayaram says.

Jayaram says that even with computerized backstops, complacency is the enemy of safe care. Errors can still slip through in ways no one has thought of yet, she says, so the system is constantly evolving.

"You have to be vigilant for new problems that might come up," she says.

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