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PATIENT SAFETY NETWORK

Cups of Error

May 1, 2006
Blegen MA, Pepper GA. Cups of Error. PSNet [internet]. 2006.
https://psnet.ahrq.gov/web-mm/cups-error

The Case

An 87-year-old man was 5 days postoperative from a decompressive laminectomy. Although he suffered from dementia, he remained alert and oriented with only mild short-term memory loss. During his stay at a rehabilitation unit, a nursing student administered a “cup” of medications that included clopidogrel (Plavix), carbidopa-levodopa (Sinemet), prednisone, rivastigmine tartrate (Exelon), and risperidone (Risperdal). Unfortunately, this cup of medications belonged to another patient on the unit. As a result, the patient became drowsy with mild nausea and hypotension, but the symptoms resolved within 24 hours without further event. After learning about the error, the family requested no further care from any nursing students.

On this particular unit, nursing students receive supervision from a senior nursing instructor. The unit's policy required that only the instructors access Pyxis (an automated drug dispensing system) when administering medications. In this case, the instructor attempted to save time by having the eight nursing students prepare their medications from Pyxis at the same time; after preparation, the instructor reviewed each student's understanding of the medication(s) and preparation accuracy. After this process was completed, the students left each of their patients' medication(s) in a “cup” on the counter in the medication room. When the time came to administer the medication(s), the student in this case picked up the wrong cup of medications for her patient.

The error was discovered when a different student expecting to give the above medications reviewed the ones in her cup and discovered the wrong medications—also a near miss for her patient.

The Commentary

Individual vigilance in medication administration is a critical, but fallible, mechanism to ensure safety and prevent errors. The student who discovered the error and prevented a second one demonstrated proper vigilance in rechecking the medications before administration. The student involved in the actual error did not. However, rather than applauding one student and reprimanding the other (one can only imagine how devastated that student already was after the error; it is hard to believe that a further reprimand would make a material difference in her future conduct), this case should raise the question of why any of the

students failed to recheck their medications and, further, why the instructor created this unsafe situation.

Established guidelines consistently recommend that medications be prepared for one patient at a time and administered immediately.(1-4) Furthermore, these guidelines state that drug labels be read three times: when reaching for or preparing the medication, immediately prior to administering the medication, and when discarding the container or replacing it in storage. To follow these guidelines carefully, the medication administration record (MAR) should be taken by the nurse to the bedside, and medications should remain in the unit-dose–labeled containers until administration. There, the nurse can confirm the patient's identity (ensuring that it matches the name on the medication label) and the specific medication name, dose, formulation, and scheduled time against the MAR just prior to administration. Finally, recommendations suggest that the nurse should vocalize both the name and the indication of each medication to the patient at the time of administration. This practice would provide an opportunity for informed and cognitively intact patients to recognize a discrepancy and bring it to the nurse's attention. Why were these standards not followed in the case presented? Drawing on our research and experience in teaching and in practice, we present a few explanations.

In this case, battling the time constraints of daily nursing work, the instructor substituted an efficient approach for a safe one (in which she supervised the medication preparation for all of her students at one time). This instructor likely believed that her students understood both the need for vigilance and their responsibility to recheck the medications at the time of administration. Additional problems might have arisen when all of the patients' medications were sitting open and unobserved. The instructor's decision to allow this unsafe situation is problematic from several perspectives. Most obviously, it led to the medication error. Second, the situation role modeled that it is acceptable to ignore recommended safe practices—working around accepted protocols in the pursuit of efficiency—to newcomers to the profession.

In addition to usual daily time constraints, the instructor had been placed in a particularly difficult position. Ideally, the instructor would be free to observe each student as they prepared the medications immediately prior to administration. With eight students, such individual observation would likely come at the expense of supervising other crucial and potentially harmful aspects of patient care. The traditional organization of nursing clinical instruction dictates close one-on-one supervision of beginning students. The reasons for this are understandable, but ways to facilitate efficiency and safety in that context are needed. Lower student-to-faculty ratios are expensive, and the costs of nursing education are known to be higher than other undergraduate training programs. Under current funding constraints, nursing schools have difficulty maintaining the lower ratios. Regulations of nursing education in most states require a lower ratio for students in their initial clinical experiences. To control the costs of clinical education and meet the requirements, schools arrange for direct supervision of students in a preceptor format, using the staff nurses in the hospital. As the workload of staff nurses has increased in recent years, however, they are reluctant to accept the responsibility for supervising nursing students in addition to their other responsibilities. As the shortage in both nursing faculty and hospital nursing staff intensifies, this problem may become intractable.

Excluding students from directly accessing automated medication-dispensing devices, such as Pyxis, is common in training settings. To promote safety and efficiency, the staff nurse or instructor may create a workaround for systems designed to ensure safety, thereby creating new potential safety issues. The

situation exposes a fundamental tension in training: the decision to not allow students to access automated medication-dispensing devices (possibly made in the name of safety, although it sometimes has more pedestrian roots, such as the logistical difficulties in obtaining Pyxis codes for students) leads to students completing nursing school without the experience of individually selecting medications from these devices. Whether the reason for the exclusion is safety or convenience, we suggest that now is the time to create a shared culture of safety between academic institutions and clinical training sites that balances the problems of allowing students to access the dispensing devices with the benefit of doing so. Because automatic dispensing devices constitute a unique risk in medication administration (as evidenced by the 9,000 errors reported in the 2003 USP annual report [5]), nursing schools and clinical training sites need to design training systems that allow students to develop essential competencies. Moreover, bypassing this important component of medication administration is counterproductive, because health care institutions will have to provide training and supervision to new graduates upon their employment.

As seen in this case, the inadvertent mix-up of unlabeled medication cups represents an understandable and almost predictable event—a veritable accident waiting to happen. Prevention of human errors involves creating systems that place barriers in the way of errors. One of the most important elements of a safe system is a culture that values checking and double checking of important processes, notwithstanding the inefficiency of those steps. Health care providers in positions of authority (instructors, managers, supervisors, attending physicians) ultimately establish the culture in which care is provided. When providers in these positions do not carefully and visibly follow standards, one cannot expect staff members to perform differently. Students, in particular, are unlikely to object or correct their instructors and other people in positions of authority, a point emphasized in previous Agency for Healthcare Research and Quality (AHRQ) WebM&M discussions.(6,7) Professors often speak and act with such high levels of confidence that students conclude any suspicions they might have about the accuracy of statements and actions must be wrong. Creating a culture in which trainees and junior providers remain vigilant to errors and feel comfortable raising any concerns is exactly what teachers, supervisors, and others in authority must do.

If the instructor in this case had established a culture in which students felt comfortable and were expected to speak out when they observed an unsafe practice, this error may have instead been a near miss. After speaking out, the student could have been rewarded for making a “good catch,” instead of having to complete an incident report and go home to wonder whether she had the ability to succeed in a health care profession.

Take-Home Points

To promote safety as new trainees carry out patient care procedures, schools and health care facilities must promote a safety climate by

- Emphasizing the importance of checking and double checking, and recognizing the importance of redundancies in preventing human error;
- Collaborating in providing a practice environment that promotes student learning and patient safety simultaneously;

- Accepting that excellent student learning is a shared responsibility and is a sound investment for quality and safety of patient care in the future; and
- Modeling the best practices for protecting patients from error, even when these practices are not the most efficient.

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This project was funded under contract number 75Q80119C00004 from the Agency for Healthcare Research and Quality (AHRQ), U.S. Department of Health and Human Services. The authors are solely responsible for this report's contents, findings, and conclusions, which do not necessarily represent the views of AHRQ. Readers should not interpret any statement in this report as an official position of AHRQ or of the U.S. Department of Health and Human Services. None of the authors has any affiliation or financial involvement that conflicts with the material presented in this report. View AHRQ Disclaimers