By Rory E. Phillips, RPh

Increasing Scanning Compliance at the Point of Care

Southern Ohio Medical Center (SOMC), in Portsmouth, Ohio, is a 225-bed medical/surgical hospital with the pharmacy processing approximately 110,000 inpatient orders each month. To improve patient safety in our organization, we reviewed the options for automating medication management processes and decided to implement smart pumps first because our highest risk for patient harm lies with intravenous infusions. We chose to follow that implementation with an investment in bar code medication administration (BCMA) with the goal of catching errors during medication administration. Our rationale was that if we focused on perfecting our prescribing or dispensing processes first, our patients would still be at risk from any errors made downstream. That said, we are planning to begin implementing CPOE in the third quarter of this year.

Implementation

Our BCMA implementation began in mid-2008 with pharmacy, nursing, and respiratory therapy working together as development partners. Deployment occurred one unit at a time and took just under one year to complete. Our current projects include possible deployment of BCMA in the outpatient surgery unit, surgery, and PACU.

Before we moved to automation, pharmacy would generate a paper MAR,

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and the night shift nurse was expected to compare the previous day's MAR to the next day's MAR to determine if pharmacy had made any errors. The unit clerk was responsible for transcribing orders, which were checked by nursing. Not only was this process inefficient and unpopular with nursing, errors were rarely identified. This process was eliminated with the deployment of eMAR, giving the nursing staff real-time access to medication order changes made by pharmacy. Nursing now verifies any order change once and there is no need to address it again for the remainder of the patient stay.

Using the bi-directional eMAR interface, nursing can access controlled substances and other items from the automated dispensing cabinets (ADCs) for immediate patient need without pharmacy review. These items auto-populate on the eMAR and in the pharmacy system. During administration the nurse scans the drug's bar code, which verifies that the drug administered matches the item removed from the ADC. When patient transfers are entered in the hospital information system, this data interfaces with the eMAR allowing the nurse on the new unit to begin caring for the patient immediately.

Along with the benefits we have enjoyed from the implementation of BCMA, we also have encountered several challenges. When we implemented the laptops on wheels for nursing and respiratory therapy, the increase in traffic strained our wireless network, requiring additional nodes to be added to address the trouble spots. We also had to overcome some staff reluctance to adopting new technology. We attacked this challenge by assigning each employee an e-mail address and rerouting much of the departmental and organization-wide communications through e-mail or the intranet. For example, access to preprinted order sets is available now only through the intranet. This forced staff to perform many sim-
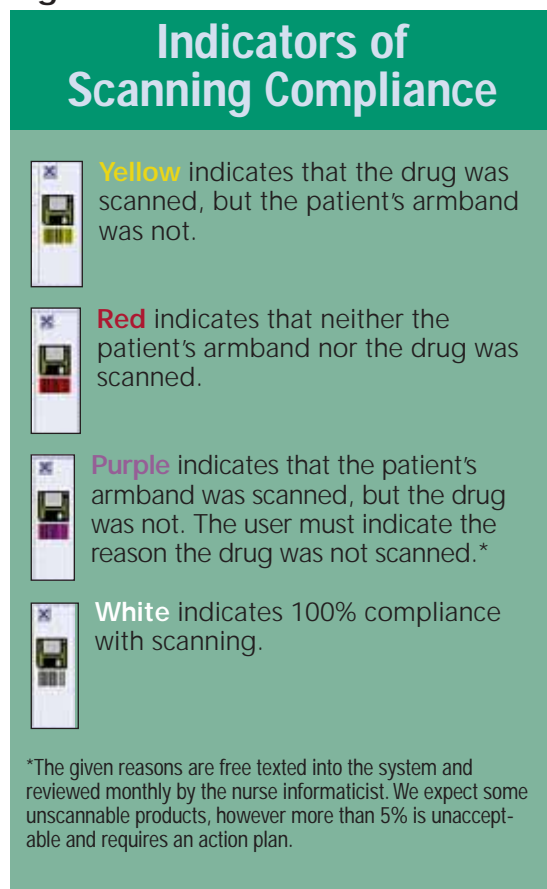
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ple daily tasks on the computer prior to implementing BCMA. We also designed the software to mirror the appearance of our old paper forms in many ways, making it easier for the nurses to learn and minimizing the disruptions to their workflow.

Achieving Success through Accountability

In our experience, the key to achieving patient safety is accountability. We have struggled for years with changing incorrect smart pump practices because issues cannot be linked to an individual user. Our goal was to avoid repeating this problem with BCMA. Early in the process, nursing was established nursing as the owner of the BCMA system. We have a part-time nurse informaticist who is responsible for unit training and ongoing support. In addition, we identified a super-user on each nursing unit to help field issues at the unit level.

Our nurse informaticist generates reports from the system that drill down to the nursing unit level as well as to the individual nurse. Scanning compliance is monitored weekly and if a unit falls below 95%, the nurse manager receives individual reports on each staff member with advice on how to initiate improvements. Each unit is held accountable for compliance on their unit dashboard. Each individual is also held accountable; should an employee fall below 95% with scanning compliance, they receive a report with suggestions for improvement. The employee is then required to submit a personal action plan (PAP) to their nurse manager. After implementing the PAP approach, medica-

Figure 1.

Indicators of Scanning Compliance

Yellow indicates that the drug was scanned, but the patient's armband was not.

Red indicates that neither the patient's armband nor the drug was scanned.

Purple indicates that the patient's armband was scanned, but the drug was not. The user must indicate the reason the drug was not scanned.*

White indicates 100% compliance with scanning.

*The given reasons are free texted into the system and reviewed monthly by the nurse informaticist. We expect some unscannable products, however more than 5% is unacceptable and requires an action plan.

tions given early or late decreased from 4,929 in August '09 to 579 in December '09. With this attention to compliance, we have been able to sustain 96% scanning compliance facility-wide.

Alerts

Given the many system alerts that are available with a BCMA system, it is important to customize them to meet the specific needs of your organization. For example we chose to have allergy alerts display only upon the first administration of a drug by the nurse. If the nurse chooses to override the alert, the reason for continuing administration must be documented. Subsequent administrations to the same patient by the same nurse will not result in an allergy alert. However, each successive nurse administering the drug to the patient must respond to the allergy alert upon first administration.

Additional warnings such as drug-drug interactions, drug-food interactions, drug class duplications, etc. are addressed by pharmacy; the nurse is not notified in an attempt to reduce alert fatigue.

Pain Management Compliance

Because of the importance of pain control to patients and regulatory agencies, it is critical that compliance to pain management procedures is documented. Our standard practice is to document the patient's pain level immediately prior to and one hour after a pain medication dose is administered to them.

When administering a pain medication, the nurse must enter the patient's pain level in the system. The nurse then receives an alert 45 minutes after administration of the dose with a reminder to reassess the patient's pain level. If a response is not logged in a timely manner, all nurses on the unit receive the alert. Reports are available to identify unit-specific and nurse-specific compliance levels. Dashboards are populated and the non-compliant staff members are required to develop their individual action plans and submit them to their managers. In addition, both nursing and respiratory therapists see alerts at the time of administration if there is a problem with their process (See Figure 1).

Conclusion

The core measures we use to monitor the success of our BCMA system are bar code scanning compliance, timely medication administration, and pain documentation compliance. Because our previous paper process required self-reporting of errors (resulting in a low reporting rate), we are unable to compare medication error rates pre- and post- BCMA. However, the automated reporting in our BCMA system has resulted in a significant increase in error reports. As a result, we now collect much better data about errors that can be categorized and addressed systematically. ■

Rory Phillips, RPh, has served as the director of pharmacy services at Southern Ohio Medical Center in Portsmouth, Ohio since 1988. He has been involved in instituting many new services including hospice and employee pharmacy, BPOC, and 340B. Rory currently serves on the Prime Vendor Program National Advisory Council.

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