Teaching Patient Safety With a Functional Electronic Medication Record

A profusion of valuable technology is available to provide nursing students with realistic training of fundamental nursing skills. Use of simulation technology to provide medication administration training has been demonstrated to improve safety in the adult and pediatric clinical settings (Pauly-O'Neill, 2009; Sears, Goldsworthy, & Goodman, 2010).

In 2012, the Division of Nursing at Bob Jones University incorporated barcode technology, including a functional electronic medication administration record* (eMAR), into the on-campus nursing laboratory. Forty-six sophomore nursing students were taught how to safely give medications when using barcode technology. The students were instructed to practice the five rights of medication administration, and the correct patient identification process was emphasized. This emphasis assisted students to meet the Joint Commission's top national patient safety goal to identify patients correctly (The Joint Commission, 2012).

The use of the functional eMAR also allowed the students to practice expanding the traditional five rights to seven rights (i.e., right reason, right documentation). External resources linked to the eMAR provided the opportunity for students to review medication information that was unfamiliar to them. Students completed their medication practice by charting the medication they administered in the laboratory setting.

In addition to increasing patient safety through simulating correct nursing practice, the Division of Nursing anticipated that barcode technology training would also prepare students to administer medications at a quicker pace.

A private company, who chooses to remain anonymous, provided the eMAR program. All other costs associated with the implementation of this project were funded by the university.

Laboratory Set-Up

The nursing faculty selected and downloaded the functional eMAR to their laptop computers and developed a database using patient names and birthdates obtained through online randomized name and date generators. Names of simulated medication already on hand were added to the database, along with appropriate medical diagnoses. Wired barcode scanners with USB plug-ins were obtained through a local vendor. Patient identification and medication information was provided to the vendor of the scanners who then generated barcode labels for identification bands used on static manikins and bags containing medication. The barcode information was then entered into each simulated patient's eMAR. The labeled medications were placed in bins on rolling carts, with space reserved for a laptop computer.

Student Practice

Students downloaded the eMAR program onto their personal computers, which they brought to the nursing laboratory. After observing a laboratory demonstration of medication administration using the available technology, the students participated in 1 hour of supervised practice. Laboratory instructors provided the voice of the static manikin as part of the patient identification process. Additional practice scenarios, medications, and scanners were available in the laboratory for individual practice before the students' scheduled competency evaluations.

Reactions and Results

No institutional review board approval was necessary for assessing the results of this training because anonymous, voluntary feedback is part of the usual educational practice of the university. While responding to a cross-sectional, open-ended questionnaire, students were quick to state that the use of barcode scanners and eMAR in the laboratory made their practice not only "cool" but they also indicated that the barcodes "look official" and that eMAR was "logical" and user

friendly. The students also appreciated the opportunity to have their initial practice of administering medications with barcode technology on a manikin rather than a real patient.

When transitioning to the actual clinical area, students found they remembered what patient and medication information they should look for on the computer, even though the hospital eMAR was based on a different program. Their prior practice using the scanners helped them to "know what to expect." Some students reported that it was "natural" to scan bracelets and to ask for additional patient information due to their on-campus practice. Both students and faculty found that the laboratory experience resulted in safe medication administration in the clinical setting and "helped to speed up the process" of medication administration.

Research conducted by another educational institution to train undergraduate nursing students in documentation and medication administration using a fully functional electronic medical record, which included an eMAR, noted similar findings related to efficiency (Lucas, 2010).

References

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