Barcode Scanning of Medications: The Journey to Safety with Wireless Devices

Stephanie Altavilla, MSMI, RN, HACP, Sara Gibbons MSN, RN-BC, CPN

Boston Children's Hospital, Boston, Massachusetts

Introduction:

Barcode Medication Administration (BCMA) has been shown to decrease medication errors at the point of administration[1]. Barcoding is an important tool in the medication safety toolkit along with Computerized Provider Order Entry (CPOE), drug-drug, drug-allergy checking and full integration of medication smart pumps-allowing the order to flow to the pump for programming and the documentation to flow back to the Electronic Medical Record (EMR).

Methods:

At Boston Children's Hospital, barcode scanners were implemented initially for breast milk checking and then soon after the same scanners were used for medication administration. We used a first generation barcode scanner that was tethered to the computer on wheels in every patient room. After 4 years of use, we re-evaluated the devices with extensive testing and feedback from staff nurses and chose to swap out wired scanners with wireless scanners. We piloted three types of scanners (two wired and one wireless) on six units- two ICUs, two inpatient units, one oncology unit and one procedure unit. Using a simple survey tool, 61% of the staff chose the wireless scanner as the preferred device.

Results:

After the initial implementation of BCMA we saw about a 50% decrease in serious medication errors and we have been able to maintain a sustained decrease in medication errors. The new wireless scanners have increased staff satisfaction with the technology since there is no longer the need to bring the whole workstation on wheels to the bedside-they can bring just the scanner. Staff has also reported the new scanners are faster and easier to use.

Discussion:

There have been many lessons learned throughout our implementation and optimization of BCMA. Best practices include: expectations of nurse leaders that staff barcode every med, every time; pharmacy staff needs to test every new product for "scannability" before it is put into circulation; all medications need to be labeled (including those taken from an automated dispensing system in liquid form); barcoding does not negate the need to inspect medication for volume, color, etc.; slow initial implementation allows for identification and mitigation of work arounds as well as one on one training and follow up; and unit and person level reports work to increase compliance. Staff input into devices that will be used at the bed side is crucial in determining what fits in the workflow. Now that the infrastructure is laid with wireless barcode scanners, we will be able to start scanning smart pumps to connect the pump to the Electronic Medical Record and have the order flow seamlessly to the pump and the data flow back to the chart.

References:

1. Poon, E.G., et al.: Effect of Bar-Code Technology on the Safety of Medication Administration. The New England Journal of Medicine 362:1698-1707, May 6, 2010.