

Barcode Medication Administration (BCMA) at Maine Medical Center

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Maine Medical Center (MMC) is a 637 bed tertiary-care hospital in Portland, Maine with medical/surgical, oncology, cardiac, maternal/child, pediatric, psychiatric and special care inpatient units plus a 64 bed emergency room. VeriScan, Hospira's BCMA application, is part of MMC's strategic plan to improve the safe administration of medications by supporting the five rights of medication administration.

The project began with an upgrade of the wireless network in 2008. Development and testing occurred in 2009. Hospital-wide rollout began in January of 2010 with the Short Stay Unit. Three more units went live in March. Starting in May two units went live every two weeks, ending with the emergency room (ER) in November 2010. Users were trained in two-hour classes that covered operation of the Motorola MC55s (the wireless handheld devices used for BCMA) and BCMA workflow. A team of two RNs and seven nursing students provided 24/7 support and on-unit training during the two weeks following go-live. Reports were developed to track utilization: 95% of all medications are now given via BCMA.

Nurses and respiratory therapists at MMC administer approximately 60,000 medications per week and VeriScan generates about 1100 wrong medication alerts weekly. Audits of the data have revealed that some alerts are due to VeriScan's inflexibility in drug mapping (e.g., two 25-mg metoprolol tablets cannot be scanned when a 50 mg tab has been ordered) but the majority of alerts are valid. Examples of wrong medications scanned include heparin for patients without a current order, incorrect doses of warfarin and wrong forms of insulin (e.g. aspart for glargine).

MMC learned a lot about BCMA during this project. Some medications must still be charted in Sunrise Clinical Manager (SCM).

- VeriScan requires an order in SCM. It does not work for situations such as codes where verbal orders are given.
- Medications administered by others, such as meds given in the operating room, must be charted in SCM.
- VeriScan cannot handle the second half of a dose range order, e.g., the second Tylenol when 1 to 2 tablets are ordered.

Drug mapping inflexibility has presented problems for both pharmacy and nursing: users get invalid wrong medication alerts when substitutions must be made due to drug unavailability. Some solutions have created other issues. For example, the pharmacy eliminated morphine carpuplets in varying concentrations and went to 10 mg vials of morphine. The vials scan correctly but nurses must perform the extra step of wasting unused morphine. Barcode scanners attached to workstations would have worked better in some cases.

- The MC55 is a mobile computer with a built-in barcode scanner. Dedicated scanners read a wider range of images, such as the tiny barcodes on some medications.
- Infection control has been a challenge, especially when taking the MC55s into drug resistant organism (DRO) rooms.

Keeping the VeriScan database synchronized with SCM is an ongoing activity. An integrated database would have required less maintenance.