### Background

- Early studies quantified the extent to which errors occur at each of the stages of the medication-use process; one of the most troubling steps in the process is the administration phase, when 26% to 38% of the errors occur.1
- Further, it has been described that errors at the administration phase are likely to occur after the patient is passed to the pharmacist. 1
- A recent published study by Eric Poon and his colleagues at Brigham and Women’s Hospital demonstrated a 41.4% relative reduction in medication administration errors using BCMA system. 2
- Knowing that a systematic process has been put into place to ensure patients are getting the right medication, at the right time, in the right dose, and by the right route has resulted in more positive survey results from staff, patients and patient families.3

### New workflows • New software • New devices

- Training
  - Hands on user education performed either in a classroom setting or in a hospital room with real medications (when possible.) The goal was to create a simulated environment so nurses and respiratory therapists felt comfortable with the new process prior to using BCMA on a real patient.
  - The didactic portion of the training included a strong emphasis on workflow changes and adapted quickly; through careful barcode and order management, problems were resolved to streamline the process with patient care.
  - Information Services managed hardware ordering, configuration and logistics; process and workflow education was provided to all roles. End user support teams at each hospital were provided with configuration and troubleshooting materials to allow ownership and ongoing maintenance to be readily accepted by each participating hospital.

## Lessons learned

- Site visits of hospitals with the same EHR and similar hardware gave insight into workflow, potential challenges, and solutions. Based on site visits we:
  - Selected bar code scanners without handles so they could be carried easily.
  - Kept providers and hospital leadership ‘in-the-loop’ regarding the new process for medication administration.
  - Set the expectation that medication administration will take longer initially.
  - Bar code scanning does not replace the need to do your usual safety checks.
  - Must still identify the patient using two unique identifiers.
  - Verbally engage the patient regarding medications to be administered and any education needed.
  - Anticipate workarounds; especially when barcodes are available un-affixed to medication or patient wristbands.
  - Review patient banding policy and create unique patient wristband barcodes if possible.

### Resources


### Contact

Terese Kornet, MSN, RN
Director of Nursing Systems
Teres.Kornet@uphs.upenn.edu

Sean Sarles, BA, BS, RN, CCRN, CPhT
Nursing Informatics Coordinator
Sean.Sarles@uphs.upenn.edu

### Bar Code Medication Administration (BCMA)

- \( \text{BCMA} \)
- \( \text{EHR} \)
- \( \text{Medication Administration} \)
- \( \text{Bar Code} \)
- \( \text{Medication} \)
- \( \text{Administer} \)
- \( \text{Scan} \)
- \( \text{Complete} \)
- \( \text{Reduction in Medication Errors} \)