Medication Administration Process Redesign

Problem/Opportunity

Medication administration errors on an in-patient unit had caused a number of "near miss" events. Documentation of medication administration was only about 75% correct. Nurses found the process and equipment to be frustrating to use.

Gap Analysis

The process had numerous barriers to success and safety:
- All medications for the unit were stored in a central medication room. The room was small and had a door with a keypad lock. There was a single EMR terminal and a single Pyxis medication dispenser in the room. That meant that nurses had to queue up to get medications out of the system.
- Most patient supplies were stored in the medication room and dispensed through a supply Pyxis. That added to congestion in the room and required a separate biometric log in, looking up the patient, and several keystrokes to remove even low-value supplies.
- Nurses had to walk long distances to give medications to patients at the end of the hall.
- EMR documentation computers were scattered through the department. Many of the portable "computers on wheels" had dead batteries or functional issues. Nurses were supposed to wheel the computers into the patient rooms to document the medication administration, but a door threshold in each room made it difficult to wheel the top-heavy computers into the room without tipping them over.
- Given those frustrations, nurses usually returned to the main unit desk to do document the medications given. There was a long walk back to the unit desk, and nurses were frequently interrupted. They often forgot to document or documented incompletely. Incomplete documentation resulted in a number of double dosing medication errors.
- Refrigerated medications like antibiotic IV bags were put in the refrigerator in no particular order. That resulted in two near miss events where the correct drug was given to the wrong patient.

Lean Sigma Approach

With problem solving help from SigmaMed Solutions, the nursing team, IT, and facilities came up with a number of problem solutions:
- We reviewed the regulations for securing controlled substances. As long as the drugs were in a Pyxis dispensing machine, there was no need for a locked door. The keypad lock on the central medication room was removed, and facilities changed the door to a "close only on fire alarm door".
- We removed about 2/3 of the supply Pxyis machine and put low value items like water cups, disposable bedpans, and wound care items in a simple shelf and bin system. We also did a 5S reorganization of the central medication room.
- We added 2 satellite Pyxis medication dispensers in strategic spots down the hall. We also added the shelf and bin system for the low value items next to the Pxyis to save nurse walking time.
- We made minor upgrades to the wireless network and gave the nurses laptops that they could take to the patient rooms. There was no etrra cost for the laptops because they were purchased at the time of the EMR installation—they just wouldn't work well with the old wireless network. We also added a shelf next to each bed so that there was a convenient place to put the laptop and medications.

- We reorganized the medication refrigerator so that there was a bin for each patient with a temporary label.   Pharmacy put the right IV bags in the right bin.

Results

We monitored the results for six months. For very modest investment, improvements were dramatic:

- No medication "near misses" or sentinel events.
- Documentation correctness went up to over 90%.   Still not good enough, but a good foundation to do a second round of process improvement.
- Nurses saved an estimated ½ hour per day per nurse from reduced queuing in the central med room and reduced walking back to the med room.

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