



KEY POINT SUMMARY

OBJECTIVES

This study's aim was to research the impact of bedside medication storage cabinets on staff frustration, staff efficiency, and willingness to recommend their use hospital-wide.

Impact of Medication Storage Cabinets on Efficient Delivery of Medication and Employee Frustration

Hull, T., Czirr, L., Wilson, M.
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Key Concepts/Context

Safe medication administration is essential to ensuring positive patient outcomes and is a priority in healthcare institutions. Recent innovations in technology and automation are designed to eliminate errors as well as move activities closer to the patient's bedside to improve nursing workflow. It has been postulated that moving medications and supplies closer to the point of care reduces nurses' traveling time and makes it easier to administer medication.

Methods

Researchers developed this study as a result of a 246-bed district hospital's Medication Safety Committee's request for a failure modes and effects analysis (FMEA) on medication processes in the progressive care unit (PCU). The hospital installed locked medication cabinets in each patient's room to compare the number of nurses' steps, trips to Pyxis, nursing frustration, and impact on pharmacy workflow.

The 10 medication cabinets were installed in the PCU, a 24-bed, step-down unit. Staff stocked the cabinets with patients' routine medications and supplies to administer them. Stored in Pyxis on the unit, both pre- and post-cabinet installation, were controlled substances, stat medications, and as-needed medications. The remaining 14 rooms without new cabinets continued to have all the patients' medications stored in the central Pyxis.

The study included a small convenience sample of registered nurses (RNs) (n = 16) and pharmacy technicians (n = 8) working in the PCU. The nurses were assigned exclusively to either patients with or without medication cabinets and wore an electronic pedometer. They also recorded the following data for their shift: (1) the



DESIGN IMPLICATIONS

While this study is small, it does provide good metrics for a larger study. Further, it is important as it attempts to isolate data to help make informed decisions during the design process, particularly as it relates to aspects of the physical environment that impact patient and staff outcomes.

number of steps taken during their entire shift, (2) level of frustration with the medication delivery process (ranging from 0 = no frustrations to 100 = most frustration imaginable, using a 100-mm Visual Analogue Scale), (3) room assignments, (4) how many times they accessed Pyxis, (5) how many times Pyxis was busy and they had to wait, and (6) how many times they had to communicate with pharmacy about missing medications.

Pharmacy technicians completed a log to provide information about the time in minutes needed to deliver medications, location and number of medication cabinets restocked, and feedback on the delivery process (ranging from 0 = no process problems to 100 = many process problems, using a 100-mm Visual Analogue Scale). All logs included an area for additional comments. At the end of the study, participants completed a separate survey providing general feedback on the cabinets. Nurses rated the following questions on a 7-point Likert scale with responses ranging from strongly disagree to strongly agree:

1. Were medications found in the medication cabinets when expected?
2. Were medications secured?
3. Were the medication cabinets more efficient than storage in the medication room Pyxis?
4. Would installing the medication cabinets on other units be recommended? Researchers developed this study as a result of a 246-bed district hospital's Medication Safety Committee's request for a failure modes and effects analysis (FMEA) on medication processes in the progressive care unit (PCU). The hospital installed locked medication cabinets in each patient's room to compare the number of nurses' steps, trips to Pyxis, nursing frustration, and impact on pharmacy workflow.

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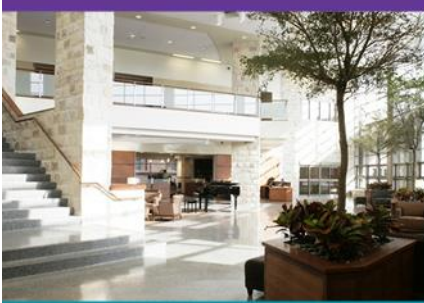
Findings

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Limitations

The authors note that the PCU was redesigned unexpectedly during the study, which added four patient rooms. This could have increased how many steps nurses took during their shift and pharmacy delivery time post-installation of cabinets. It was not feasible to separate steps recorded on the pedometer for retrieving medications from the steps needed to complete other nursing responsibilities for the entire shift. In addition, remodeling of other critical care units took place during the study and changed the flow and acuity of patients in the PCU. This might help explain some of the nurses' higher frustration scores. Additional study limitations included maintaining study integrity because of unit redesign, small sample size, broken or unreliable pedometers, and the inability to assign nurses exclusively to rooms with medication cabinets as planned. Researchers chose the Visual Analogue Scale because it had been used in other studies as a valid and reliable measure for frustration; however, the tools were not tested for use in this pilot study.