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# Medication Cabinets in Patients' Rooms: Impact on Nurses' Satisfaction of Medication Administration, Medication Charge Accuracy, and Errors (Published 2013)

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# Medication Cabinets in Patients' Rooms: Impact on Nurses' Satisfaction of Medication Administration, Medication Charge Accuracy, and Errors.

(Published 2013)

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## Background

Medication administration consumes up to 40% of nurses' time (Armitage & Knapman, 2003). Nurses are responsible for 26-38% of medication errors in hospitalized patients (Leape et al., 2002; Bates 2007). Distractions and interruptions during medication administration can impact patient safety (Hull & Wilson, 2010). The location of medication rooms may affect the accessibility of medications, efficacy and safety. Considering the lay-out of Medical-Surgical Units of West Kendall Baptist Hospital (WKBH), the nurses are likely to experience frequent interruptions in workflow possibly compromising patient's safety. To ensure safe medication handling as well as help nurses in this high-risk process and increase nurses' time spent with patient as a patient-family centered institution, the installation of medication cabinets inside patients' rooms was initiated in WKBH.



## Purpose

The authors of this study hypothesized that with the installation of medication cabinets in the patients' rooms, nurses' satisfaction with the medication administration process will increase without significant impact on charge accuracy.

The specific purposes are:

- (1) measure nurses' satisfaction on the medication administration process before and after the installation of cabinets using a modified Medication Administration System-Nurses Assessment of Satisfaction (MAS-NAS).
- (2) determine if the installation of medication cabinets in patients' rooms impacts medication charge accuracy.

## Methods

- Data was collected from the target convenience sample of roughly 80 direct patient care nurses who work in two Medical Surgical Units at WKBH. The modified MAS-NAS Scale was used to compare nurses' perceptions of medication administration efficacy, safety, and access before and after installation of the medication cabinets.
- Data gathering was done during Unit Staff Meetings of two Medical Surgical Units using the modified MAS-NAS Scale. Data were collected before installation of the medication cabinets in patients' rooms and approximately 2 months after installation and implementation of the medication cabinets.
- Medication charge accuracy data were collected 1 month before installation and 6 months after installation of all medication cabinets in the two units. Medication error data (number of medication errors) were obtained from the hospital's risk management staff. This included 6 months before installation and 6 months after implementation of the medication cabinets.

**Table 1: Demographics of direct patient care nurses in Pre and Post installation of medication cabinets groups.**

Variable	Pre-Installation (n=25)	Post-Installation (n=20)
<b>Gender</b>	Female 95.7%(22) Male 4.3%(1)	Female 88.9%(15) Male 11.1%(2)
<b>Age</b>	34.27±8.51	32.29±7.43
<b>Highest RN degree</b>	AS/AD 41.7%(10) BS/BSN 50%(12) MS/MSN 4.2%(1)	AS/AD 33.3%(6) BS/BSN 61.1%(11) Diploma 5.6%(1)
<b>Years as RN</b>	3.50 (2.15, 9.50)	3.50(2.75, 7.0)
<b>Hours worked per week</b>	37.13±4.23	38.76±6.46
<b>Shift</b>	7A-7P 50%(12) 7P-7A 45.8%(11) 7A-7P & 7P-7A 4.2%(1)	7A-7P 55.6%(10) 7P-7A 44.4%(8)

**Table 2: MAS-NAS subscale comparison between Pre and Post installation of medication cabinets.**

Scale/Subscale	Pre-Installation	Post-Installation
Access (6 items)	2.0 (1.58, 2.92)	2.17 (1.5, 2.5)
Efficiency (7 items)	1.86 (1.29, 2.57)	1.71 (1.32, 2.0)
Safety (8 items)	1.68 (1.22, 2.28)	1.63 (1.38, 2.06)
MAS-NAS total (21 items)	1.88 (1.43, 2.61)	1.76 (1.48, 2.33)

## Outcomes

The total sample of 75 direct patient care nurses included 39 from the pre-installation of medication cabinets and 36 from the post-installation of medication cabinets. This resulted in a response rate of 64% for the pre-installation and 56% for the post-installation of medication cabinets. Demographic data is illustrated in Table 1. Although there was no statistically significant difference in the 3 subgroups (access, efficiency, or safety), Table 3 shows direct patient care nurses were more satisfied with the medication cabinets where a score of 1 is strongly agree and 2 is moderately agree. In addition, there was a statistically significant difference between pre and post installation in regards to having supplies readily available for administration (p=.046). Charge accuracy data before and after cabinet installation did not show a statistically significant difference (z=1.33, p=0.1828). Medication errors 6 months before and 6 months after medication cabinet installation did not show a statistically significant difference (t(10)=0.031, p=0.976).

**Table 3: Direct patient care nurses' satisfaction comparison.**

Comparing now (using medication cabinets in patients' rooms) with before, please respond to the following 7 statements.	
It is easier to do all the checking steps needed during the medication administration process.	2.0 (1.0, 2.0)
This is a safer system for patients.	2.0 (1.0, 2.0)
With the new system it is easier to access information I need to administer medications.	2.0 (1.0, 2.0)
I am more satisfied with this new medication administration system than with the previous one.	1.5 (1.0, 2.0)
I have more time to spend with patients.	2.0 (1.0, 2.3)
Medication cabinets in patients' rooms have made the medication administration process more efficient for me.	2.0 (1.0, 3.0)
Medications are more readily available when I need them for patients.	2.0 (1.0, 2.0)

## Discussion

The results of this study may be used in supporting practice change. This research provides information that may assist in the future development and implementation of systems that will maximize the benefits rather than introduce more errors into the current medication administration system. Future research might be conducted on patients' perception of medication administration.

