Research Paper

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Adherence to Safe Practices of Medication Administration Among Nurses

Nursing

KEYWORDS : safe practices, medication error, medication accuracy, medication safety, nurses adherence behavior.

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ABSTRACT

Medication safety is important because Medication Errors (MEs) are the most common type of medical error and are associated with considerable health care expenses. A medication error is defined as 'any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient or consumer'.(NCCMERP 2012).Medication errors occurs in all settings and may or may not cause an adverse drug event (ADE). Estimates of the incidence of MEs vary between 5% and 25% of all medication administrations. Nurses are in a key position to identify, intercept and correct errors before they affect patients. Ensuring patient safety and high quality delivery of care is paramount for nurses in today's healthcare system.

OBJECTIVES

1. To examine the nurse adherence to safe practices during Medication Administration,

2. To examine the prevalence of Medication Administration errors .

3. To explore the factors influencing the adherence to safe practices of medication administration.

MATERIALS AND METHODS:A descriptive cross-sectional study was conducted to examine the safe practices of medication administration by using observation check list in the selected hospital at Nellore district.199 patients from general, medical, surgical, ortho, pediatric ,psychiatric wards and intensive care units were included for the study and 57 nurses were observed to assess the adherence to safe practices. Results: All the nurses 57 (100%) belong to 21-30 yrs years of age, majority of them- 45 (78.90%) were BSc nurses and most of them -36 (63.2%) had less than 1 yr of experience. Regarding the pts majority of them- 117(58.8%) were males, most of them -140(70.4%) were admitted for medical treatment and most of them 101(51.3%) received one dose of medication.

With regard to Safe practices -199(100%) times medication was compared with MAR, 169(85%) times minimized distraction during medication administration,189(95%) times ensured medication is labeled throughout the process from preparation to administration, 98(49.2%) times Checked two forms of patient identification prior to administration of medication,75(36.7) explained medication to patient or family and 186(93.5%) documented MA immediately after completion. Regarding the prevalence of medication error 172 (86.4%) no error and 27 (13.7%) wrong time error was found. Conclusion: adherence to safe practices minimizes the medication error and distraction is common deviation found among nurses.

INTRODUCTION:

Medication safety is important because medication errors (MEs) are the most common type of medical error and are associated with considerable health care expenses..Medication errors occur in all settings and may or may not cause an adverse drug event (ADE). Estimates of the incidence of MEs vary between 5% and 25% of all medication administrations.

Nurses are in a key position to identify, intercept and correct errors before they affect patients. Nurse spend one third of their time on medication-related activities. They are subject to a range of practices and procedures, which are dictated through legal, management and medical requirements to ensure safe medication administration. Among the vast number of responsibilities that nurses face throughout the workday, the greatest of these responsibilities is medication administration. Safe and thorough medication administration is crucial because any mistakes, accidents, or omissions can result in negative consequences for the patient and the nurse. **(Popescu, Currey, & Botti, 2011).**

As defined by the **National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP)**, "a medication error refers to any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient, or consumer**" (NCCMERP, 2012)**.

Medication errors harm 1.5 million people and kill several thousand annually in the United States. These errors also cost the nation billions of dollars, lead to unintended extended hospital stays, and severely tarnish the population's trust in the health care system **(Kim & Bates, 2013)**.

Many things contribute to nurses and other health care providers making medication errors. Most of these factors stem from breakdowns in the complex and chaotic system that molds today's health care institution. However, in response to these systematic failures there are measures that may be implemented to prevent medication errors and provide safe, high quality patient care.

The Institute of Medicine's (IOM) first Quality Chasm report, *To Err Is Human: Building a Safer Health System*, stated that medication-related errors (a subset of medical error) were a significant cause of morbidity and mortality; they accounted "for one out of every 131 outpatient deaths, and one out of 854 inpatient deaths"). Building on this work and previous IOM reports, the IOM put forth a report in 2007 on medication safety, *Preventing Medication Errors*. This report emphasized the importance of severely reducing medication errors, improving communication with patients, continually monitoring for errors, and improving and standardizing medication labeling and drug-related information.

Ensuring patient safety and high quality delivery of care is paramount for nurses in today's healthcare system. Unfortunately, the integrity of the healthcare profession is being compromised due to errors occurring during the medication administration process. Medication errors are responsible for harming millions of people, killing thousands, and costing the nation billions of dollars in healthcare costs. Following national and organizational safety policies can prevent the vast majority of these medication administration errors from occurring.

However, there are several risk factors that inhibit nurses from following these guidelines accurately and providing the best patient care possible. Some of the risk factors include workplace distractions, ineffective communication, large patient loads, insufficient knowledge of medications, and exhaustion. In response to these risk factors, there are several interventions that may be implemented to combat the occurrence of medication administration errors.

Although there have many preventive measures been implemented, MAE still occurs. Human factor is the one accounting for cause of MAE. In one review study, human behavior adher-

ence to implement medication administration is the area we need to study .Another review studies also addressed on nurses' poor calculation competency, poor adherence to protocols, poor knowledge of medications and complacency those are acted as key causes in MAE . It has been raised awareness about knowledge and behavior among nurses regarding medication safety. The five rights (5 R's) of medication administration were developed for use by nurses to intensify safety measures during the dangerous practice of administering medications to patients. However, medication administration is no longer solely the 5 R's, but a process of many interconnected individuals including the patient **(Macdonald, 2010).**

Popescu, Currey,and Botti (2011) state "well-educated patients can act as the final safety net in the medication process when nurses encourage patient participation in care." Inspiring patient-centered care has the potential to significantly lower medication errors and greatly increase patient safety **(Macdonald, 2010).**

In nursing, distractions in the workplace are inevitable. The health care profession is unpredictable and chaotic and nurses must be prepared to assist team members and patients at a moment's notice. **(Fore et al.,2013).**

. Organizations should also set limits to hours worked per shift, hours worked per week, and to the number of patients a nurse may care for at one time. A happy, healthy, and positive workforce can have major implications to patient safety and the reduction in medication errors.

OBJECTIVES

1. To examine the nurse adherence to safe practices during Medication Administration,
2. To examine the prevalence of Medication Administration errors.
3. To explore the factors influencing the adherence to safe practices of medication administration.

MATERIALS AND METHODS: A descriptive cross-sectional study was conducted to examine the safe practices of medication administration by using observation check list in the selected hospital at Nellore district Andhra Pradesh.199 drug doses were observed for patients from general, medical, surgical, o intensive care units were included for the rtho, pediatric ,psychiatric wards and study and 57 nurses were observed to assess the adherence to safe practices.

Setting :Selected hospital, Nellore district.

Sample size-199 patients from general, medical, surgical, ortho, pediatric, psychiatric wards and intensive care units were included for the study and 57 nurses were observed to assess the adherence to safe practices.

To determine MA accuracy, the observer compared medication orders in the patient's record with observed medications administered by using the observation check list to assess the adherence during safe practices and the 10 possible outcomes on types of error was classified.

1. No error observed.

2.**Unauthorized drug error**: Administration of a dose never ordered for that patient.

3. **Wrong dose error:** Any dose of a drug (excluding an injectable drug) that contained the wrong number of dosage units (such as tablets) or is, in the judgment of the observer, more than 17% greater or less than the correct dosage.

4. **Wrong form error:** The administration of a drug dose in a different form than ordered by the prescriber when prescriber wrote for a specific dosage form.

5**. Wrong route error:** Medication administered to a patient using a different route than ordered.

6. **Wrong technique error**: Using an inappropriate procedure or improper technique in administration of a drug. Focus is on technique violations that can alter drug effect.

7. **Extra dose error:** Any dose given in excess of the total number of times authorized by physician order.

8. **Omission error:**

(a) Failure to give an ordered dose that appears on the MAR by the time the next

dose is due. Patient refusals or drugs appropriately withheld are not considered omissions.

(b) Order found in the medical record that does not appear on the MAR.

9. Wrong time error: Administration of a dose more than 60 min before or after scheduled administration time. If food is involved in the order, the dose should be given within 30 min of scheduled time.

10**.Drug not available error:** Administration of a dose more than 60 min after scheduled administration time due to non availability of the medication.

RESULTS:

Fig no.1. Distribution of nurses based on age

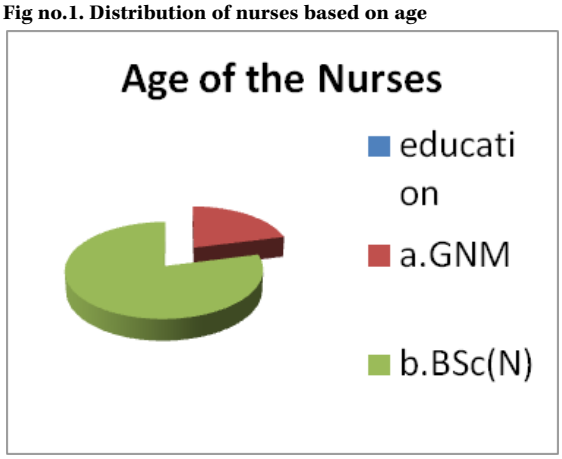

Fig No.2.Distribution of nurses based on EXPERIENCE

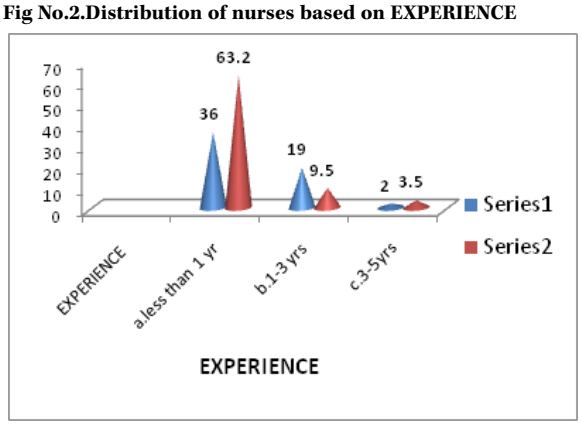

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Fig No. 3. Distribution of nurses based on AREA OF WORK

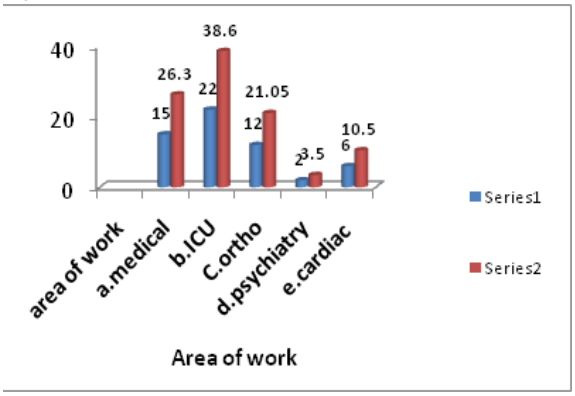


Fig No.4.Distribution based on GENDER OF PATIENTS

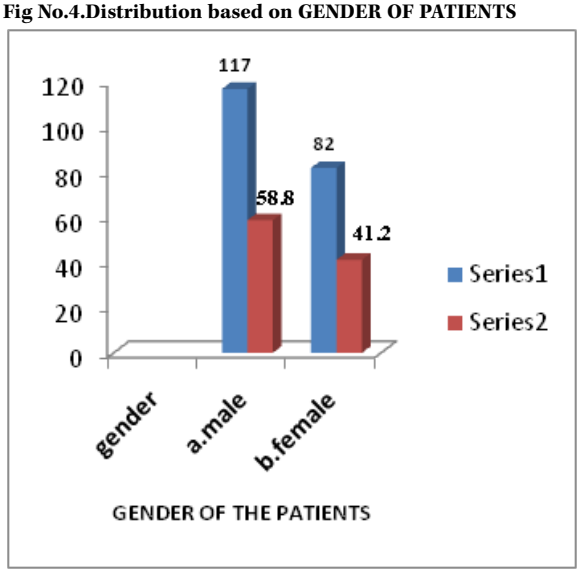
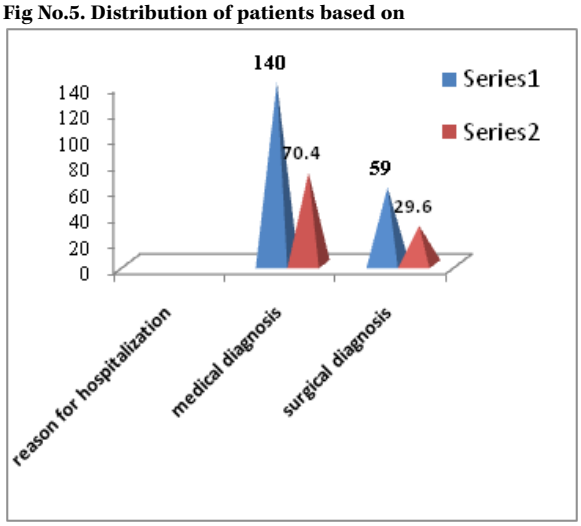
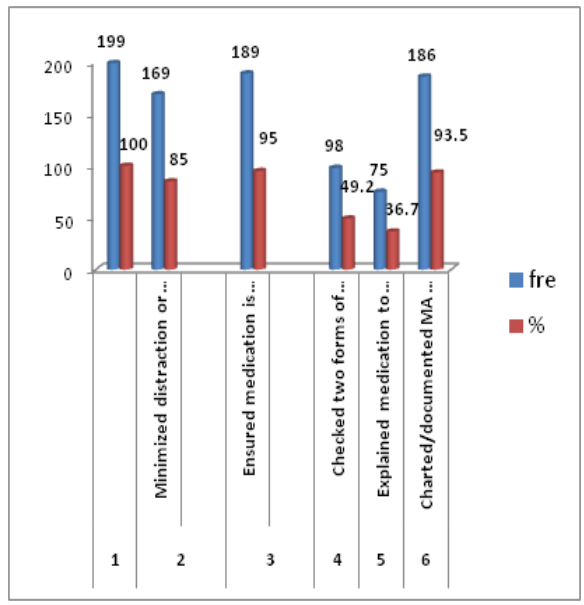


Fig No.5. Distribution of patients based on



REASON FOR HOSPITALIZATION

Fig No.6. Percentage distribution of safe practices of MA.



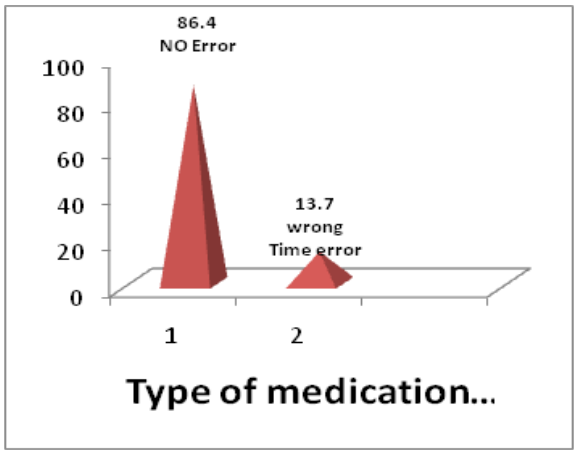
Tab.no.1,Frequency and percentage distribution based on safe practice deviation.

S.N	Safe practice deviation type-observed	f	%
1	Not compared with MAR	-	-
2	Nurse distracted/interrupted	30	15.07
3	Not labeled throughout process	10	5.02
4	Two forms of id not checked	98	49.2
5	Not explained to patient	124	62.3
6	Not documented immediately after administratiton	13	6.53

S.N	Safety practices	f	%
1	Compared medication with MA record (MAR)	199	100
2	Minimized distraction or interruption during medication preparation or administration,	169	85
3	Ensured medication is labeled throughout the process from preparation to administration,	189	95
4	Checked two forms of patient identification prior to administration of medication,	98	49.2
5	Explained medication to patient or family as appropriate	75	36.7
6	Charted/documented MA immediately after completion	186	93.5

Tab.no2, Frequency and distribution based on safe practices of medication administration

Fig No.7. Percentage distribution of type of error..



DISCUSSION

Sample characters

All the nurses 57 (100%) belong to 21-30 yrs years of age, majority of them- 45 (78.90%) were BSc nurses and most of them -36 (63.2%) had less than 1 yr of experience.

Regarding the pts majority of them- 117(58.8%) were males, most of them -140(70.4%) were admitted for medical treatment and most of them 101(51.3%) received one dose of medication.

Findings related to safe practices of medication administration among nurses.

Tab.no.2,shows the findings of the study revealed that among199 drug administration procedures 100%(199) times the nurses compared medication with Medication Administration Card, 165 times (85%)minimized distractions /interruptions during medication administration. of the 199 MA procedures ,185 times (95%) the nurses ensured medication is labeled through out the process from preparation to administration,98 times (49.2%) the nurses checked two forms of identification before medication administration,75 times(36.7%) explained regarding the medication to patient or family and 186 times (93.5%)the nurses documented MA immediately after completion.

Medication administration (MA) is a complex activity. Time and work studies and field observations have found that MA consumes 27–40% of nurses' time (**Armitage & Knapman,2003; Elganzouri, Standish,&Androwich, 2009; Keohane et al., 2008).**

These medication administration errors (MAEs) occur when one or more of the seven rights of medication administration (right patient, right drug, right dose, right time, right route, right reason and right documentation) are violated **(Wakefield et al. 1999, Pape 2003).** The medication administration process is error-prone because of the many environmental and workload issues encountered by nurses **(Pape 2001, Mayo & Duncan 2004, Tang et al. 2007, Armutlu et al. 2008, Brady et al. 2009).**However, nurses are in a key position to identify, intercept and correct errors before they affect patients **(Henneman et al. 2010).**

Tab.no 1,shows the Findings related to deviation from safe practices of medication administration shows that 5.07% were distracted/interrupted during MA,5.02% not maintained label throughout the process ,49.2% did not check two forms of ID,62.3% did not explain the medication to the patient or the family AND 6.53% it was not documented immediately after the completion.

Fore et al., 2013. Distractions during important activities such as medication administration increase the chance for careless mistakes and medication errors. **(Fore et al., 2013) shows that** Two inexpensive, simple interventions that should be implemented to decrease unimportant distractions during medication administration are orange medication administration vests and 'Do Not Disturb' signs. Wearing the orange vests and placing 'Do Not Disturb' signs on the medication cart during medication administration illustrates the importance of the nurse's activities to colleagues and therefore minimizes distractions and maximizes concentration .

(Macdonald, 2010) The practice of fully involving patients in their care has only recently been implemented, but proves to be an important measure in reducing errors. When nurses build therapeutic relationships with patients and provide extensive education on medications, patients will have a better understanding of medications therapeutic actions and potential side effects .

Other factors that contribute to the risk for nurses to commit medication administration errors are insufficient knowledge of medications, inaccurate documentation, calculation errors, and exhaustion **(Popescu et al., 2011).**

Findings related to Prevalence of medication error.

With regard to prevalence, **fig.no.7** shows that prevalence of medication error was 13.7% and the type of medication error was wrong time error. The reason for wrong time error was non availability of the drug in time.

WTMAE is becoming great threat to patient's safety, leading to severe harm, fatal consequences including death. It is the second largest category of medication error reported worldwide as per National Patient Safety Agency report 2007.

Retrospective chart audits (2007) by **Fitzhenry et al** in the Adult critical care units showed that prevalence of wrong time error was 16.9%

RECOMMENDATIONS FOR FURTHER RESEARCH

1. The similar study can be conducted with large sample size in acute care settings.
2. A Study can be conducted on effectiveness of intervention minimize distraction during medication administration among nurse
3. A comparative study can be done on prevalence of medication administration errors in critical care units and other units.

RECOMMENDATIONS

1. Enforcement of on-time documentation policy to reduce errors
2. Close monitoring and dissemination of on-time and medication administration record to relevant stakeholders
3. Encourage staff to report medication administration error in a structured format for proper categorization of causes
4. Encourage staff to minimize distraction during medication administration.
5. Improve medication dispensation process
6. Improve nurse-patient ratio and ensure good working environment

CONCLUSION

Risk of MAEs is inherent in medication administration, and if not properly managed, incidents will happen. Incidents will jeopardize nurses' work performance, influence the patient safety and sustainability of the relationship between nurses and patients. Adherence to safe practices minimizes the medication error and distraction is common deviation found among nurses and majority of them did not explain about the drug to the patient or family.

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