Reducing Medication Administration Errors in Nursing

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Introduction

According to a study conducted by Tariq and Scherbak (2019), every year approximately 7,000 to 9,000 people in the United States die as a result of a medication error.

Medication errors unfortunately can easily be a common occurrence if there are no systems in place to monitor and ensure that the medication being administered is done so correctly.

Concepts & Theoretical Models

According to research conducted by Galli (2017), Alton Memorial Hospital in Illinois reduced medication errors by using the DMAIC method.

The Six Sigma DMAIC method is an improvement process that can be utilized to reduce medication errors. The DMAIC method includes steps to define, measure, analyze, improve and control (Sullivan, 2018, p. 79).

Recommendations & Implementation Strategies

According to research by Miliard (2010), a study conducted at the Brigham and Women's Hospital in Boston, Massachusetts showed that after the implementation of BCMA and eMARs, there was a 41 percent reduction in medication errors regarding time and a 51 percent reduction in potential drug-related adverse reaction errors on 7,318 medication administrations.

In order to properly implement this strategy, healthcare systems would need to purchase an eMARs program that includes barcode technology. The average cost of an eMARs and barcoding systems is $40,000 for a 5-year period (Sakowski & Ketchel, 2013).

Recommendations & Implementation Strategies

According to research from the Institute for Safe Medicine Practices (2019), independent double checks can prevent up to 95 percent of medication errors prior to administration.

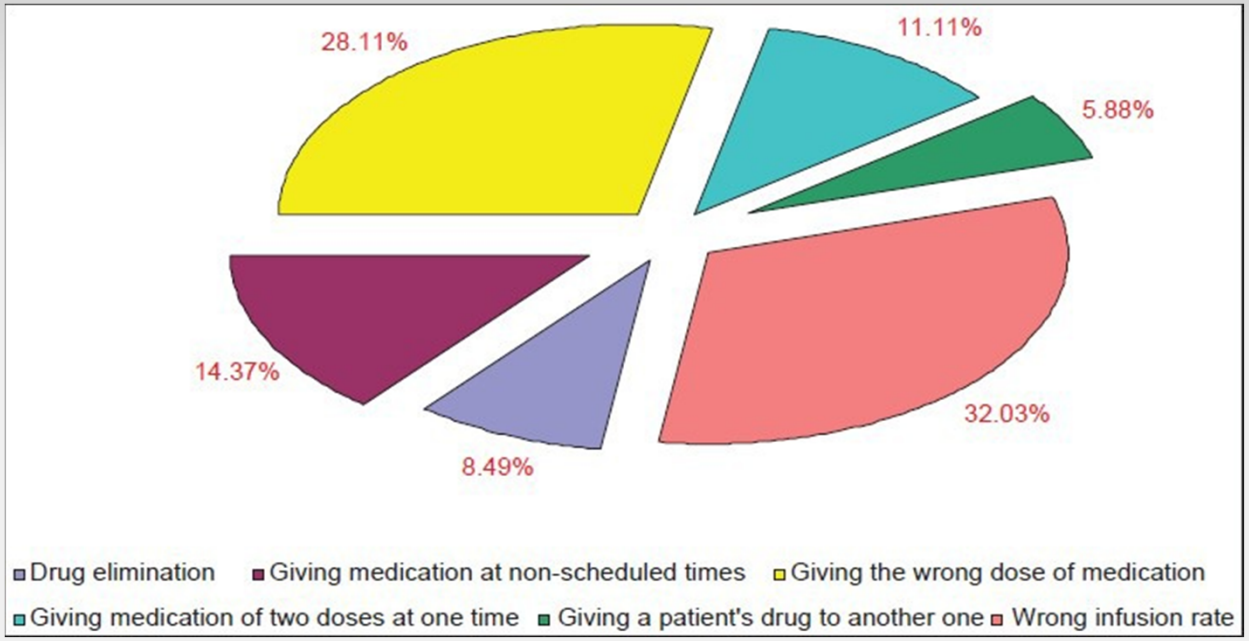
In order to properly implement this strategy, healthcare systems would need to institute a policy requiring nurses to perform independent double checks prior to administering any and all medications

Recommendations & Implementation Strategies

According to a study conducted with nurses in Iran, the most common cause for medication administration errors were due to the nurses' lack of pharmacologic knowledge (Cheragi, Manoocheri, Mohammadnejad, & Ehsani, 2013).

In order to properly implement this strategy, healthcare systems would need to provide mandatory continuing education courses specifically regarding medication administration and pharmacologic knowledge.

Frequency Distribution of Nursing Medication Errors



(Cheragi, Manoocheri, Mohammadnejad, & Ehsani, 2013)

Affecting the Incidence of Nursing Medication Errors

Factors affecting the incidence of medication errors	Number	Percentage
Large variety of drugs in the medicine cabinet	19	12.41
Using acronyms of names	62	40.52
Similar names with some other medications and drugs	52	33.98
Using some drugs in the rare cases	7	4.57
Different medicinal dosages	13	8.49

(Cheragi, Manoocheri, Mohammadnejad, & Ehsani, 2013)

Frequency Distribution of Managerial & Human Factors Affecting the Incidence of Nursing Medication Errors

Types of managerial and human factors	Number	Percentage
Too busy and tired from excessive work	20	13.07
Few number of nurses compared to the number of patients	38	24.83
Inadequate training of the staff	23	15.03
Lack of pharmacological knowledge	49	32.02
Incorrect medicinal calculations	9	5.88
Illegible data card	3	1.96
Illegible prescriptions	12	78.84

(Cheragi, Manoocheri, Mohammadnejad, & Ehsani, 2013)

Dissemination of Findings

Nurses will be required to attend:

- New Hire Training Programs
- In-Service Training Programs
- Continuing Education Courses
- Annual Online Training Modules

A quality improvement report, including the number of medication administration error incidents, will be available healthcare facility wide on a set basis.

Conclusion

Medication errors can be extremely detrimental to patients and can even result in death. Thankfully, medication administration errors can be significantly reduced and/or avoided if a proper strategy to reduce medication administration errors is implemented. To reduce the occurrence of medication administration errors in nursing, the use of electronic medication administration records and barcode technology should be used universally, nurses should perform independent double checks prior to medication administration, and continuing education courses should be required to ensure nurses' pharmacologic competencies. With these change strategies implemented, in order to target and reduce the incidences of medication administration errors, nurses will better provide safe patient care.

Technical Terms

Six Sigma: a set of tools and techniques for process improvement, primarily uses quantitative data (Sullivan, 2018).

DMAIC Method: is an improvement process that includes steps to define, measure, analyze, improve and control (Sullivan, 2018).

eMAR:The electronic Medication Administration Record - is a software designed to replace paper based (MARs) medication administration records (Hood, 2013).

Technical Terms

BCMA: Barcoded Medication Administration - is an inventory control system that uses barcodes to prevent human errors in the distribution of prescription medications at hospitals (Rouse, 2015).

5 Rights of Medication Administration:

Right Patient, Right Medication, Right Time, Right Dose, Right Route

ANNOTATED BIBLIOGRAPHIES

Annotated Bibliographies

Cheragi, Manoocheri, Mohammadnejad, & Ehsani, 2013

This was a cross-sectional study conducted in 2009 that used 237 randomly selected nurses who were working in an Iranian Hospital. According to this study, 64.55 percent of the nurses performed some type of medication error and 31.37 percent of the nurses reported a medication error near miss. The most common cause of these medication errors was attributed to a lack of pharmacological knowledge. This journal article was beneficial in validating the need for healthcare facilities to provide continuing education courses, specifically regarding medication administration and pharmacologic knowledge, in order to reduce the incidences of medication errors

Annotated Bibliographies

Galli, 2017

Galli's article describes how healthcare facilities utilizing the Six Sigma DMAIC method increased efficiency. The author gives examples of the implementation of Six Sigma in several healthcare facilities. Implementation of the Six Sigma DMAIC method aided in the reduction of medication errors, improvement of quality, and a reduction in costs. This journal article was beneficial in providing a theoretical improvement process model in order to reduce the incidences of medication errors.

Annotated Bibliographies

Institute for Safe Medication Practices, 2019

The Institute for Safe Medication Practices (ISMP) highlighted the importance of the proper use of manual independent double checks in relation to reducing medication errors. Research utilized in the article supports the use of the manual independent double checks ability to detect medication errors prior to them reaching the patient. ISMP explored common challenges that maybe used to discredit the implementation of this strategy such as inconsistent use, frequent misuse and the overuse of this strategy. This article is beneficial in validating that performing independent double checks will reduce the incidences of medication errors if used appropriately

Annotated Bibliographies

Miliard, 2010

Miliard discusses the effectiveness of the use of eMAR and barcoding technology systems from a study conducted by Brigham and Women's Hospital. The study supported the use of eMAR and barcode technology as it significantly reduced the occurrence of medication administration errors that could have potentially resulted in patient harm by 51 percent.

Annotated Bibliographies

Sakowski & Ketchel, 2013

This was a retrospective, observational study that showed the cost calculated from the hospital perspective, as well as, a cost-consequence analysis to estimate the cost per preventable adverse drug event averted. This study showed that by implementing barcode scanning the amount of medication errors were reduced. Furthermore, it reduced longer hospital stays and eliminated the need for further care and interventions to be performed as a result from adverse effects by the staff. Cost will include personnel monitoring for operations and utilization, following up on errors, and improvement. This article is beneficial in validating that implementing barcode administration scanning is extremely effective and potentially a cost saving tool for preventing consequences and costs related to medication errors.

Annotated Bibliographies

Tariq & Scherbak, 2019

This research article focuses on the leading causes of medication errors and ways to prevent them from transpiring. According to information gathered, the main cause of medication errors is when the physician is prescribing the medication. “Typical errors include the healthcare provider writing the wrong medication, wrong route or dose, or the wrong frequency” Tariq, R. A., & Scherbak, Y. (2019). Many health care providers are distracted when writing prescriptions, leaving it up to the nurse to catch the medication error before it gets to the patient. Research proved that using abbreviations, illegible handwriting, not considering the patient’s renal and liver function, age and weight can all lead to medication errors and potential adverse effects.

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