

Medication
administration record
system for patient
safety nursing essay



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The quality of patient care and safety is one of the most significant aspects of health care sector. Nursing and medical professionals face increased need of using information technology in day to day operations with an overall aim of improving the quality of care by increasing patient safety. Today many studies show high number of medication administration error According to Stoppler 2006 “ Approximately 1. 3 million people are injured annually in the United States following so-called “ medication errors”. Internationally health care facilities are struggling hard to increase patient safety via safe medication administration. Russo, 2007 stated that, current paper based medication administration record (MAR) is an inefficient process with no decisive workflow, that places needless stress on nursing staff and lead to illegible entries can resulted in medication administration errors. Therefore, to maintain the quality of drug dose administration and to prevent medication administration errors, eMAR is found to be important. Few studies suggested that eMAR is a bedside medication administration recording tool providing new levels of recording medication administration activities by dropping error rates and making the administration of medications safer for patients.

Literature Review:

eMAR allows nurses to manage medication administration efficiently as it has the potential to make the administration of medication safer for the patients by reducing error rates (Westbrook, 2007). A study by Mekhjian et al (2002) found that manual medication administration charting resulted in a transcription error rate of 11. 3 percent whereas transcription errors were completely eliminated via eMAR. Therefore, an electronic medication order

entry and administration system can improve care by reducing adverse events (Wu, Laporte & Ungar 2006). In addition, Physician Order Entry (POE) combined with eMAR eliminated all physician and nursing transcription errors and provided the framework for improvements in patient safety (Mekhjian et. al 2002). Thus the accurate administration of medication requires the completion of four mutually supporting steps i. e. order placement in POE by the physician, transcription, verification and dispensing via POE by pharmacy and administration via eMAR by the nurse (Mekjjian et. al, 2002). The combination of electronic prescribing with automated dispensing, bar coded patient identification and eMAR is workable and would significantly reduce prescribing and administration errors (Franklin et. al. 2007). Literature supports that the most common errors reported were administering drugs at the wrong time or neglecting to administer drugs at all. According to Thomsen & Schroeder (2004) “ Wrong time error – administration of a dose more than 30 minutes before or after it is due”. Further added that “ missing dose error in which a patient’s dose was accidentally skipped”. Bates & Cullen (1995) suggested that 78% of errors leading to drug errors are due to inadequate information management system of eMAR”. eMAR system in a hospital assures patient safety and reduces medication administration error (Brady, 2008). Furthermore, eMAR has gained a foothold in inpatient settings to support medication administration safety. It prevents paper records prone to being lost, incomplete, or misread. A study suggested that upto 38% of inpatient medication errors occur at the administration stage (Henry et. al, 2007)

Purpose:

The purpose of this study is to investigate the effectiveness of Electronic Medication Administration Record System verses Manual Medication Administration System for patient safety at the Aga Khan University Hospital.

Objectives of the study

To compare the effectiveness of electronic drug administration verses manual for drug administration error, missing dose error and wrong time error

To identify the reduction in printing cost by implementing eMAR.

To identify factors that can contribute to delays administration time

Methodology:**Study Design:**

A quantitative analytic study design to observe change via practical implementation and compare pre and post implementation outcome. To evaluate and collect data, medication nurses will be observed in adult medical and surgical units (general ward setting) to identify any differences in the prescribed dosage time and actual drug administration time. To observe medication nurse for miss dose and administration error

Study Setting

The data will be collected from the Medical and Surgical Units of the Aga Khan University Hospital Pakistan.

Study Duration

Benchmark data will be collected before eMAR implementation (pre-eMAR) from July 15, 2009 to August 15, 2009 and after eMAR implementation (post-eMAR) from September 15, 2009 to October September 30, 2009.

Sample size:

The study will be conducted at tertiary care university hospital for 6 months duration. A sample size of 273 patients in each group will help achieve 80% power at 5% significance level using a two-sided equivalence test of proportions when the effectiveness of eMAR method reduce the serious medication error rate and delay ordering time of the drug, the maximum allowable difference between these proportions is 55%.

Inclusion Criteria

RNs performing medication administration in identified clinical settings. These nurses must be certified for medication administration from the department of Nursing Education Services.

Exclusion Criteria

Clinical Nurse Instructors, Head Nurses, School of Nursing faculties, nursing students and nursing education service Instructors.

Data Collection

Data will be collected via direct observation method through ward round during routine medication administration time. Medication nurses of the 2 nursing units of tertiary care university hospital will be observed each day according to the standard criteria of drug administration to evaluate the

accuracy in preventing wrong time error. Therefore nurses will be observed in general ward to identify any differences in the prescribed dosage time and actual drug administration time. Accurate time recording will examine the differences in manual and online system.

Statistical Analysis:

A classification scheme will be developed to classify the types of medication errors and their severity, Medication error will be classified by their potential severity, to compare the effectiveness of manual drug administration and eMAR using the Chi-square test or Fisher exact test where appropriate. For contrasts of continuous variables, one-way analysis of variance, and Independent sample t-test will be used to assess the difference of means.

All analyses will be conducted using the Statistical Package for Social Science (SPSS) version 16. 0

Ethical Consideration

Ethical approval will be obtained from the Ethical Review Committee (ERC) of the Aga Khan University Hospital. Confidentiality of study subjects will be maintained by keeping their names anonymous.

Implication of the Study

Findings of the study will determine the factors contributing towards wrong time error and delays in medication administration.

Identify the benefits of eMAR and accuracy of the data and cost reduction via eMAR.

The health care practices among health care management, pharmacy and therapeutic committee will likely be improved.

Recommendations will be made to the higher management and the information system department to utilize the study findings in future implementation of electronic system activities.

Dissemination

The findings of the study will be disseminated to all health care team members through publication and presentations in seminars and conferences.