Introduction

Medication administration is a routine but important part of nursig practice, which requires special skills, technique and knowledge in ordr to attend to patients. Medication errors can cause serious problems in nursing practice and expose patients to preventable threats. Whena medication error occurs, nurses' performance is undermined more that of any other health care professional. Therefore, it is often the nurses who are held responsible. This may be because nurses often carry ot medication orders and with this comes greater responsibility, as they are in charge of both the medications and the patients' safety ***(Mrayyan, Shishani & Al-Faouri, 2007).***

Medication administration is seen as a crucial role for nurses they are the primary healthcare providers, along with other healthcare professionals. Medication administration is an integral part of the nurse' duties, consuming up to 40% of their time when nursing the patients. Ths role is considered a high risk procedure, as it requires high levels of concentration and skill, particularly in those settings which deliver criticl care, which, according to published research, higher rates of MAE's.

The nurses play an essential role in medication administration (MA) They are participants in the preparation and administration of medication through The Rights of medication administration, which are: giving the right medication in the right dose at the right time via the right route to the right patient with the right documentation the right to have access to drug information the right to have policies on safe medication administration the right to administer medications safely and to identify problems in the system; and the right to stop, think when administering medications. ***(Madegowda, Hill, & Anderson, 2007)***.

The accurate administration of drugs depends not only on the nurses' knowledge and skills in drug dosage calculation, but also on nurses' knowledge of pharmacology in order to examine the relevance of prescribed drugs and dosages. This serves as a useful framework for standard operating procedures. The nurse also ensures that clients are adequately prepared to administer their medication. Because up to 60% of medication errors may be committed by registered nurses. ***(Madegowda, Hill, & Anderson, 2007)***.

administering a medication requires client consent. A notation in the nursing notes of the client's co-operation may be

sufficient to indicate implied consent. Invasive techniques such as an injection may require verbal consent. Agencies require policies and procedures that address consents specific to their area of service. Registered nurses have professional and ethical responsibilities to ensure clients are informed and competent to give consent. They must also recognize that persons have the right to refuse or withdraw consent for care or treatment at any time the relationship between a registered nurse and client is based on the recognition that clients are able to make decisions about their own life. ***(Canadian Nurses Association, 2009)***

Accurate medication administration depends not only on the nurses' knowledge and skills in drug dosage calculation, but also on the nurses' knowledge of pharmacology in order to examine the relevance of prescribed drugs and dosages. Other factors may influence the nurses' administration of drugs. One of the most important is the physicians' responsibility in prescribing drugs. Swedish statutory regulations state that physicians must prescribe drug dosages in writing on a medicine card. Prescriptions, signed by a qualified physician, must follow these regulations, in order for the nurse to administer the required drugs. This means that when the physician has completed his written prescriptions, the nurse does not have to make any calculations before administration of the drugs. ***(Savage, I. 2009).***

Significance of the study:

The Institute of Medicine (2006) reported that, Medication errors are among the most common medical errors, harming at least 1.5 million people every year. Also any medication error caused patient fatal mistake. And in Egypt, there is no statistical data regarding the incidence of medication errors. But some studies were carried out in Egypt ***(EL-Magd.,2002)*** on 200 nurses in ***Assiut university hospital*** reported that: Medical intensive care unit had(14.0%)of errors in the transcriptions phase, (99.0%) of errors were in the documentation phase,(94.9%) were in medication storage and (87.9%) of errors in medication administration in general surgery also, the study of ***(Mousa,2000)*** at ***EL-Manial university hospital*** reported that: Giving medication in wrong times reached (91.7%) during morning shift, incorrect I.V. medication rate (21.7%) and omission of medication (35.0%) during night shift. In order to this causes the study will be conducted**.** Medication errors "represent a major sector in patient safety" that needs special attention due to its direct &high impact on patients often posing dangerous consequences and increase costs in hospitals through increased length of stay, patient disability, death and affect the quality of health care.

Aim of study

This study aims to assess quality care related to medication administrationIn the two study settings through:

1- Determine nurse's knowledge regarding to medication administration.

2-Assess nurse's performance regarding to medication administration.

3-Auditing nurse's documentation regarding to medication administration.

4- Comparing the level of quality care related to medication administration in two study settings.

Research questions:-

1-To what extent dose a nurse have adequate level of knowledge in relation to medication administration?

2-Whate is the level of nurses 'performance related to medication administration?

Review of Literature

Medications are substances that are taken into (or applied to) the body for the purpose of prevention, treatment, relief of symptoms, or cure. Administration of medications that have been ordered and prescribed by a person licensed to do. This includes both prescription and over-the counter medications. The doctor's signed, dated order or prescription provides instructions for preparation and administration of the medication ***(Potter, & Perry,. 2009).***

Medication" is a substance used in diagnosis, treatment, cure, relief or prevention of health alteration**.** Medication administration is a complex multistep process that encompasses prescribing, transcribing, dispensing, and administering drugs and monitoring patient response. An error can happen at any step. Although many errors arise at the prescribing stage, some are intercepted by pharmacists, nurses, or other staff. Administration errors account for 26% to 32% of total medication errors and nurses administer most medication unfortunately, most administration errors aren't intercepted. Recent technological advances have focused on reducing errors during administration**.*(Albert,2009)***

The administration of medications

It is dispensing or giving the correct dose of prescribed or over-the-counter medication at the correct time and via the correct route. Medication administration is one of the most important skills that a nurse or any healthcare professionals will learn legal, ethical, and practical stand points. Medication administration is highly complex procedure it requires a wide range of knowledge, ,analytical skills professional judgment and clinical expertise (***Pamela, Terri,. 2010)***

Medication administration is carried out in collaboration with the client. It is necessary to talk to clients or caregivers to ascertain that they understand the use of the medication and any special precautions or observations that might be indicated. Competent medication administration requires the ability to assess the appropriateness of the medication for a particular client. Evaluation of the appropriateness of a medication requires knowledge of the actions, interactions, side effects (including allergic reactions), usual dose, route and approved use, basic pharmacokinetics of the drug and the client's response to it ***(Griffith,& Jordan,2010)***

Medication administration is often viewed as a routine and basic nursing task. In reality, it reflects a complex interaction of

a large number of specific decision and actions. While medication administration errors are frequently associated with nursing actions, it is important to recognize that actual administration of a drug is the last step in a long and complicated process involving a number of different physicians, pharmacists, nurses, clerical and technical staff. ***(Moss,rina,2008).***

Medication administration process

Medication ordering

Most medications are prescribed as "direct orders" for a specific client by a prescriber. An order is considered valid if documented, dated and signed, on a prescription form, or in a client's clinical record. Once a medication has been dispensed to a specific client, the dispensing label may also serve as a dated record of the order for the purpose of administration until the appropriate order is received. Pharmacists may produce computerized re-order lists of prescribed medications clients are taking.Once the prescriber reviews and signs this lists, they are considered valid orders. (***(ISMP, 2011)***

Medication orders should be written in full without using abbreviations to reduce the risk of error. There are times when registered nurses, physicians, pharmacists, or other regulated health professionals with knowledge of pharmacology need to

communicate with one another about specific prescriptions for medications. A registered nurse may communicate a physician's order to another registered nurse, consult with a pharmacist about physicians' orders or accept physicians' orders from a pharmacist. It is not appropriate for clerical staff or unregulated care providers to take verbal or written medication orders from a prescriber ***(Kowalak,., Hughes,., & Mills,. (2008)***

Transcribing is the act of transferring a medication order from the original prescription to the current medication administration record/prescription sheet. This activity should be directed by local health service provider policy which must stipulate required systems in order to minimize the risk of error. Transcribed orders should be signed and dated by the transcribing nurse and Co-signed by the prescribing doctor or registered nurse prescriber within a designated timeframe. If a nurse or midwife is unclear about a transcribed prescription/order she or he should verify or confirm the prescription with the prescriber or pharmacist before administering the medication to the patient/service user. The practice of transcribing should be the subject of auditing. (***Koczmara, Jelincic & Perri,2010)***

It may be necessary to review related drug information, research, agency policies and consult with nursing colleagues or other health care professionals, such as a pharmacist. She has a professional responsibility to question a medication order that is not clear or consistent with therapeutic outcomes prior to administration. Contact the prescriber to discuss the concern and rationale for the concern. Discuss with the appropriate nursing authority or medical authority in the facility if the concern remains unresolved. ***(ISMP,2011)***

The nurse accepting a verbal or telephone order repeat the order to the medical practitioner for verification. A record of the verbal or telephone order should be documented in the appropriate section of the patient's/service-user's medical chart/notes. This should include the date and time of order recipient, the prescriber's full name and her/his confirmation of the order. The justification and rationale for accepting a verbal or telephone medication order also be documented by the nurse involved to establish the clinical judgment exercised in the emergency situation. ***(American Association of Colleges of Nursing, 2009)***

Verbal orders are those given by the prescriber face-to-face. registered nurses should avoid accepting verbal orders

when the prescriber is present and can document his or her own orders. Verbal orders are acceptable in emergent or urgent situations such as a code or trauma situation when it is difficult for the prescriber to document. Telephone orders (verbal orders received via the telephone) can be more error-prone than written orders due to a number of variables such as misinterpretation of spoken language, background noise, disruptions and the potential for error with drug names that sound alike. Telephone orders should be limited to those situations in which direction for client care is required and the prescriber is not present. The prescriber is accountable for documenting and signing his or her telephone and verbal orders in a timely manner. Registered nurses are not responsible for ensuring such orders are signed. fax is a copy of the original order. ***(American Association of Colleges of Nursing, 2009)***

Faxed orders are legally acceptable and become part of the client health care record. Faxed orders that are verifiable, written, dated and signed by the prescriber are preferable to telephone or verbal orders as there is less chance of misunderstanding the spoken order and therefore less chance of error. Safe practice when receiving faxed orders include examining the fax carefully to determine if it is legible. If clarity

of the order is compromised the registered nurse should contact the prescriber to have the order clarified before dispensing. (***Koczmara, Jelincic, & Perri,2010)***

Registered nurses require knowledge of the client and the medication before accepting telephone orders. The nurse is recording information received verbally or by telephone accurately, repeating the order to the prescriber for verification, and for assessing the appropriateness of the medication for the client. Document verbal or telephone orders and include faxed orders on the client record. Follow agency policies related to verbal, telephone, and faxed orders. She ensure there is a written clinical protocol before implementation. Advocate for clinical protocols when none are available and client care is compromised. Collaborate with other health professionals in developing and evaluating clinical protocols. Obtain the necessary educational requirements prior to implementation of the protocol. Evaluate client outcomes of the clinical protocol including medications. the nurse should also verify the order with the prescriber if the order is not clear. Apply professional judgment when transcribing orders to determine an administration schedule that maximizes the therapeutic effect of

the drug, supports client choice and complies with agency policy. ***(Chevalier, MacKinnon, Parker &, 2009)***

Electronic medication order entry systems are being implemented in practice settings. They allow the prescriber to enter medication orders directly into the system and eliminate transcription errors related to illegible writing, incomplete orders or misunderstandings resulting from verbal and telephone orders. Agency policies need to determine the appropriateness of verbal, telephone and faxed orders and indicate under what circumstances they are appropriate, who may take them and how and where they should be documented. ***(Alberta,2009)***

Medication Dispensing

Nurses do not fill prescriptions and are not a substitute for a pharmacist. They may dispense medications when it is in the best interest of the client, such as when it is difficult for the client to access a pharmacy. When dispensing, consider the type and amount of medication, your client's needs and pharmacist availability. Only dispense medications to clients under your care. The nurse must hand the medication directly to the client or their delegate. Dispense medication in packaging appropriate for her client. The label must be legible and include: client's name, drug name,

dosage, route and (where appropriate) strength, directions for use, quantity dispensed, date dispensed, her initials and the agency name, address and telephone number, and any other information appropriate/specific to the medication. ***(Fang, Bednash, 2011)***

It is important to educate the client about the drug's purpose, dosing schedule, expected benefits and possible side-effects, proper storage, any special instructions and written information provided. When the drug were dispensed, record on the client and as record client name, address, phone number, birth date and gender, allergies and adverse reactions (when available), date, medication name, strength, dose and quantity dispensed, length of therapy, any instructions to client should be documented ***(WHO 2007)***

Medication Distributing

Dispensing medications includes the selection, preparation and transfer of a medication to client or his/her representative for administration. Pharmacists are authorized to dispense medications in physicians and dentists are also authorized to dispense medications under certain conditions. In certain areas of the province and in certain practice settings registered nurses can distribute medications as described in. The guidelines are very specific about the requirements and conditions necessary for a registered nurse***.(Canadian Nurses Association,2009)***

Practice settings must identify who is delegating the authority to the registered nurse and the process and guidelines for distributing specific medications. Only registered nurses with a signed transfer of medical function as per agency policy may dispense medications in this manner. There is an overlap between activities related to dispensing a drug and activities related to administering a drug. Assessing the appropriateness of a drug, selection of the drug, appropriate health teaching and providing drug information to a client occurs in dispensing and administering a medication. Activities that fall within