

## Medication room in Intensive: minimizing errors and making effective care practice - Case Report

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### ABSTRACT

**Objective:** The aim of this study was to report through systematic action deployment and implementation of medication room in the Intensive Care Unit of a hospital large public in the city of Rio de Janeiro, Brazil. **Methods:** This is an experience report, the graduate student as coordinator of the intensive care unit. **Results:** We describe the steps for the preparation of this proposal, discussing difficulties and skills in the execution of this service. **Identified the following needs:** set the location for the making of the medication room; define updated manual, rules and routines, select and train human resources; involve the other members of the nursing staff and multidisciplinary and evaluate the impact on care.

**Keywords:** Medication Systems, Hospital; Nursing Assessment; Intensive Care Units

### INTRODUCTION

In hospitals, the Intensive Care Units are areas of concentration of diagnostic and therapeutic technologies, that enable members of multidisciplinary teams, promptly intervene with patients. Even covering a number of attributes that contribute to the demystification of this unit is still a sector for patients in the final stages of life and no chance of recovery, we sought strategic solutions in order to be able to make this drive every day over a secure and free of adverse events.

The transformation of the scenario in the relentless pursuit of quality in health care and professional skills, servicing highly complex, has brought benefits and advantages to the patient such as: ensuring and maintaining safety and excellence in care, the adoption of policies, procedures, routines and care protocols that guarantee the establishment of the best and most appropriate standard of care, performance specialized and individualized care according to the profile of the institution, uniformity and inter-relationship between the members, upgrading of technological devices with effective safety and alarm with a view to aligning the strategic management, operational and tactical (Alves and Feldman, 2011)

The strategic management of people in hospitals, it is essential to ensure sufficient human resources, trained and competent to reach, maintaining quality of care and development activities legally provided by the nursing staff (Inoue et al., 2008)

With the advent of the era of globalization, there has been an overhaul regarding the operational part in intensive care units requiring up due to these transformations records of the results of procedures, therapies and behaviors performed, the need to create a system that would enable the quantification and qualification of such information. With an eye toward strategic planning, set up the goals to be achieved, however, it was necessary to know the existing reality through accurate. For this it was necessary to the creation and development of an instrument, practical and unified goal that this information, allowing their individual and contextual analysis - indicators. (Cheregatti and Amarin, 2010)

Any quality process instituted in the hospital should be effective, efficient and possessing effectiveness. The verification is done by comparing patients' expectations with the results. To perform this measurement is necessary to

analyze the results using specific indicators for each process that can be qualitative or quantitative. Data are collected and analyzed in accordance with quality tools and results are documented. Identified the lines, dissatisfactions or inadequacies, these are classified according to the importance and priority, determining corrective actions for the implementation process and implementation of routines can be effective. (Knobell, 2006)

Study of human errors in healthcare has taken prominence in the media, should be encouraged because of the repercussions daily constatemente we see and hear in the news. Health professionals, particularly nurses, are related to such errors with shame, fear and punishment, and associate them to inattention, insufficient training and motivation, so when they do occur there is a tendency in hiding them. Still, when this event appears, all attention is focused on the discovery of the culprit, losing the chance to know him better in its significance and take steps to treat it, has as main objective to prevent recurrence. (Rosa; Perini, 2003)

Relying on this statement, we note that despite these events nursing services are seeking to achieve levels of excellence in care, aiming to provide services free of risk and harm to the patient. Adverse events have been considered important outcome indicators of quality of health services and how this assistance is being provided. Although undesirable, these events are constantly observed in healthcare practice, with frequent those related to medication errors ( Pelliciotti ; Kimura , 2010)

Drug therapy is the use of drugs to prevent or treat disease and its manifestations. Can save lives, improve quality of life and bring other benefits and advantages, as well as adverse effects.

Adverse effects and the inability to achieve therapeutic effects may occur with correct use, but are more likely to misuse. In the current scenario in Intensive Care Units, the nurse has an important role in the safe and effective use of medicines. (Abrams, 2006)

In this vein, we can say that pharmacotherapy is one of many responsibilities in patient care. To succeed in this assignment, the nurse must have knowledge of pharmacology - drugs and their effects on the body , physiology - normal body functions , and pathophysiology - changes in mental and physical functions caused by diseases , and should be able to use all steps the nursing process Contextualizing the experience

The hospital is located in the municipality of Rio de Janeiro and its physical structure is composed of eleven floors and the third floor is the Intensive Care Unit.

This unit consists of three blocks: the Intensive Care Unit - 1, consists of 14 beds, Intensive Care Unit - 2 , 11 beds and Semi Intensive , nine beds . The three blocks have the following provision : nursing station , bathrooms for patients , room clean and dirty utensils - purge, room supplies and equipment storage ; medication room that is common to all ICU and waiting room visitors .

Human resources are one of the biggest challenges in the management of the organization of a sector and the nursing staff has the scale of work, 24 hours weekly and is comprised of : Intensive Care Unit - 1 , two nurses and seven practical nursing unit Intensive - 2 , two nurses and five nursing technicians and Semi Intensive , one nurse and three technicians nursing medication room , nursing three technicians and a nurse and a pharmacist diarist , distribution of supplies and material care of the purge , a technician for distinct functions . Each sector has a nursing routine.

Coordination is composed of two nurses and a nurse coordinators responsible for the medication room.

## The problem

The safe and accurate administration of medications is one of the responsibilities of professional nursing. The nurse is responsible for the understanding of the effects of a drug and monitoring the patient's response.

Drug therapy in the intensive care unit passes through several stages: prescribing, transcribing prescription, drug screening, your submission to the bedside and finally his administration. Errors can occur during any phase of the use of medication, may be due to human error or any of the steps as described below:

- Prescription errors : incorrect selection of a drug , dose , route of administration , duration of therapy, thinners inappropriate , improper speed of administration, wrong concentration of medication , inadequate guidance for use and prescriptions that are answered incorrectly due to illegibility of the letter .

- Missed dose: occurs when a dose is administered.
- Wrong Time management: administration is carried out of the acceptable range for the institution.
- Time is wrong counter medications: the drug is administered without prescription or administered to another patient.
- Improper doses: occur when doses higher or lower than those prescribed are administered.
- Preparation wrong: the addition of a diluent is subject to preparation errors.
- Errors administration technique: failure in reading the medication dose, do not identify the medication prepared, control drip intravascular solution.
- Drugs deteriorated: the monitoring of expiration dates of drugs and checking the packaging recommended.

Deployment and Implementation

The medication room project started in October/2008, and the implementation of the project in January, 2010 and the

medication room was accomplished in the month of May/2010.

### **Living Medication**

It is a closed sector, regardless, that was created to make the provisions and administration of medications safe and effective, minimizing errors to improve the quality of care provided to clients and be guaranteed of pharmacotherapy prescribed.

### **Goal**

The physical space within the Intensive Care Unit was inappropriate for the preparation of medication, as employees who were scheduled for this activity competed the same space with physicians, nurses, nursing, nutrition. Anyway, all those who needed to use the sink to make washing hands frequently were interrupted, and the side conversations, making these employees desfocus attention on the process and the preparation of medication. Patients admitted to the ICU receive a number of diverse medications, considering the severity of the clinical picture of each patient, generating plenty that were stored in the sector. These in turn were caused by a change in the treatment plan for death and hospital discharge.

### **Selection of Nursing Staff**

Wondered at first if sector employees enjoyed working with medications, while their responses were signaled by a list, identifying them by name and registration number .

After selection, the staff received training professional knowledge relating to the preparation and administration of medication , emphasis on development of technical skills , routines and rules on the functioning of the medication room , covering the following objectives : to provide a suitable environment for employees preparation of drugs , supervise and evaluate the nursing staff , performing the application of individualized medication ; review the original requests before providing medicines; continuously improve the quality and use of inputs, check and review the dose calculation and confirm patient identification before each preparation and administration of medication .

### **Physical structure of the medication room**

The medication room has a single entry and exit , central air conditioners , fluorescent lights , a refrigerator , a sink with faucet, two smooth surface countertops , cabinets and one specific to psychotropic drugs , with lock and gavetários to store medications such as , tablets , vials, ampoules .

### **Operational Execution in the medication room**

The nurse collects prescriptions and with the pharmacist, receiving duplicate medical prescriptions, analyze the pharmacotherapeutic profile of the patient.

The nurse routine, along with the technical nursing medication room, makes the preparation of the labels of medications prescribed, stating the following information: name of patient, bed, medication name, date, time and route of administration of the drug and signature who prepared. These medications are separated in bags - non sterile surgical grade, individualized per patient. The aprazamento is the responsibility of the nurse on duty or routine.

The delivery of these medications is dispensed in the industry with an hour in advance and are transported in plastic boxes with lid closed. The nurse on duty checks if the medications are prepared according to the prescription, signs a map and only after receipt of the administrative and technical checks on prescription.

The nurse 's routine medication room has the following duties : Perform daily visit for all beds , checking the validity of catheters and microfix observing the due date , as established routine , according to Commission rules Infection Control Hospitalar - CCIH instituted in the Intensive Care Unit ; make reading the temperature of the refrigerator daily, at the beginning of the workday , noting it in the proper form of control; coordinate the established routine of medication room ; give psychotropics each 12-hour shift work and recorded in printed form ; ensure compliance with bio safety regulations , and proper use of appropriate personal protective equipment when handling and dispensing the medications, according to the National Health Surveillance Agency - ANVISA.

### **Care cooler medication room**

The care cooler medication room assignments are both nurses and nursing technicians, who are crowded in the

medication room, as well as the pharmacist.

The freezer is put ice packs ( gelox ) in a vertical position on the second shelf in the center is placed a thermometer measuring the maximum and minimum temperature set in the vertical position , maintaining the temperature from +2 ° C to +8 ° C, are taken every plastic drawers and supports that exist inside the refrigerator and the door .

Place the drawer 12 is filled with water bottles dye that contribute to the slow rise of temperature inside the refrigerator. This procedure is of vital importance to maintain the temperature of the refrigerator between +2 ° C and +8 ° C, for when there is a power failure or defect in the refrigerator. Is determined to ban keeping medications in the refrigerator as opening the refrigerator door, no loss of temperature, is still determined to clean the fridge every Wednesday, in the fortnight conducted by professional services under the general supervision of nurse. Upon cleaning, medications are stored in coolers with gelox. The medications are held only on shelves within the cooler.

## Preparation of Medications

During the preparation of medications, nursing professionals must take great care to avoid errors, ensuring the maximum that the patient receives the correct medication. He wipes the bench with 70% alcohol and use safety equipment for individual protection - cap, mask, goggles and glove procedure before robe, hand washing is performed.

The room was made to provide adequate lighting so that no distraction in the selection , preparation and dispensing , not being allowed the use of audio equipment as radio and television , in order that this professional focus at work, avoiding distracted by parallel activities and interruptions that may give chances to make mistakes .

Read and check the label on the medicine: to pick up the bottle, vial or envelope of the drug; before putting it in the container for dispensing and discard the vial, ampoule or envelope, the windows are discarded in descarpack and envelopes, dumps stored in the room .

Identify the product prepared with the patient's name, bed number, name of drug, route of administration and time; observe the appearance and characteristics to be forwarded to the central pharmacy of the hospital; leave the site preparation medication clean and organized.

## Administration of medication

Drug administration is the responsibility of the nursing team that acts directly on the Intensive Care Unit, as aprazamento performed by the nurse on duty and / or routine. The receipt of medications is done by nurses in the sector and conferred with the nurse technician who prepared the dilution of the drug. With the requirements at hand, make sure cautiously, patient, medication, dose, time and route of administration , thus releasing it for his administration .

It is checked for integrity of packaging and visually inspected the medicine. The time set in the aprazamento prescription , the member of the nursing staff takes medication to the bottom along with the prescription , again gives the label attached to the packaging , providing data relevant to the identification of the patient , medication , dose, time and route administration and then performs the administration. In case of any disagreement information, interrupts the process and inform the nurse of the unit, recording the order book and occurrences.

## Preparation and conditioning of medications

### a) Oral medications

Materials needed: tray, disposable cups; tape for identification; accessory equipment such as syringes, gauze, eye dropper and water for dilution if necessary.

Care for the preparation of drugs administered orally, activity description: Hand wash, label the container with the patient's name, bed number, drug and dose.

As for the liquid medication, it is recommended to mix the contents of the bottle before it spilled in graduated container (syringe or cup), holding it with the label facing up, to avoid the drug accidentally drips. The time to spill the contents of the bottle, holding it at eye level with the cup, facilitates the visualization of the desired dose. The syrups should be administered neat.

You should always be careful to clean up the edge with gauze glasses medicines before storing it.

### b) Drug intravenously

Materials needed : tray or bowl rim ; syringes of various sizes according to the drug ; needles , cotton , 70% alcohol , medicine , ampoule , vial .

Important factors: administration of parenteral medication requires prior preparation and aseptic technique with the

guidelines set out below are intended to ensure greater security and to avoid contamination.

### Steps in the process

- Wash hands , put the Protective Equipment ; identify the material with adhesive tape , which must include the patient name, bed number , drug, dose and route of administration ;
  - When selecting medications, observe the expiry date, the appearance of the solution or powder and integrity of the bottle;
  - Ensure that all medication is contained in the body of the ampoule, since often the narrowing of the neck causes the drug is retained;
  - Observe the integrity of enclosures that protect the syringe and needle, put the needle on the syringe carefully to avoid contaminating the piston, the inner part of the body and its tip;
  - Perform disinfection of the vial with an alcohol swab to 70 % , highlighting the bottleneck, in the case of vial, lift the metal cover and to disinfect the rubber;
  - Protect your fingers with cotton soaked in 70% alcohol at the time of breaking the bulb or removing the metal cover of the vial; For suction of the drug ampoule or vial, hold it with two fingers of one hand , keeping the other hand free to hold , with the syringe , the aspiration of the solution .
  - In case of the vial, vacuum diluent, introducing it into the vial and let the internal pressure force to move the air within the syringe. Homogenizing lyophilized powder with the diluent without shaking and vacuuming. To aspirate medications multiple dose vial, injecting a volume of air equivalent to the solution and then vacuum it.
  - The procedure for the introduction of air into the syringe into the vial aims to increase the internal pressure thereof easily removing the product, considering that the fluids move from an area of higher pressure to lower pressure, so to sniff the drug, keeping the vial upside down.
  - After removal of the drug, removing the air and the syringe with the needle upwards. It is recommended to slightly pull the plunger to remove the solution from the needle in order to prevent its splash when the air removal.
  - The needle should be protected with guard and syringe plunger with the enclosure itself.
  - All infusions should be identified, recording the patient's name, drug name, dosage, time and date of preparation. No infusion should remain more than 24 hours prepared, shall in such cases carry replacement.
  - The catheters should be identified in the proximal end of the adaptation ramps taps, specifying the drug / infusion that matches.
  - All microfix used to administer antibiotics should be changed to 16:00 the call chain, sent to the sector with the same antibiotics diluted and should be identified with labels already standardized.
- comments

From the point of view of the Management and Coordination of Nursing Intensive Care Unit and the multidisciplinary team, since the implementation of medication preparation room, we obtained several positive and decrease in adverse events, eliminating wasted medication, reduced inventory and errors in the preparation, handling and administration of medicines. Advocating with the unit dose and continuous monitoring of the validity of each medication, there was surveillance by nurses as the strict control, following biosafety standards in the preparation of medications.

### CONCLUSION

It appears that although we are in search of quality in service, some errors may occur in the administration of medications. This fact, unquestioned, because human errors occur independent of the person.

However , through the relentless pursuit for quality of care provided to patients , working from the ethical and legal principles that support the profession , bringing to the category accountability, continuous supervision of the professional nurse in medication administration process , we note that such events have been and may be further reduced furthermore, our intention is to eradicate them from our unit .

This bias, we understand that the administration of medications is a major nursing responsibilities and that errors can cause harmful effects such lethal or incapacitating the patient. With the opening of the medication room, we can carry out the optimization of the nursing service, reducing the waste of inputs and medicines, eliminating flaws in the preparation of drugs and distribution of unit dose for each patient.

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