

MEDICATION ERROR: CONCEPTIONS AND BEHAVIORS OF THE NURSING TEAM MEMBERS

Erro de medicação: concepções e conduta da equipe de enfermagem

Error de medicación: concepciones y conducta del equipo de enfermería

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ABSTRACT

Objective: to understand the concepts and lead the nursing team in the face of medication errors in the medical clinic. **Method:** a qualitative, descriptive study carried out in a teaching hospital. Two nurses and seventeen nursing technicians from the medical clinic were interviewed. Data collection took place through interviews and non-participant observation, analyzed by the content analysis technique. **Results:** a team recognizes aspects that cause an error: manual and illegible prescription, work overload, lack of attention and professional training, large number of people circulating and interruptions at work. Flaws were identified at all stages of drug administration and strategies for improving the process. **Conclusion:** as strategies and improvements in the medication process, as permanent education and identification labels for drugs used in daily professional practice with the inclusion of all professionals involved.

Descriptors: Patient safety; Medication errors; Nursing team; Health Evaluation.

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RESUMO

Objetivo: compreender concepções e condutas da equipe de enfermagem frente ao erro de medicação na clínica médica. **Método:** estudo de abordagem qualitativa, descritivo, realizado em um hospital de ensino. Foram entrevistados dois enfermeiros e dezesseis técnicos de enfermagem da clínica médica. A coleta de dados se deu por meio de entrevistas e observação não participante, analisados pela técnica de análise de conteúdo. **Resultados:** a equipe reconhece aspectos que acentuam a ocorrência do erro: prescrição manual e ilegível, sobrecarga de trabalho, falta de atenção e capacitação profissional, grande número de pessoas circulando e interrupções no trabalho. Foram identificadas falhas em todas as etapas de administração de medicamentos e estratégias para a melhoria no processo. **Conclusão:** as estratégias e melhorias no processo de medicação como educação permanente e etiquetas de identificação de drogas precisam ser aplicadas no cotidiano da prática profissional com a inclusão de todos profissionais envolvidos.

Descritores: Segurança do paciente; Erros de medicação; Equipe de enfermagem; Avaliação em saúde.

RESUMEM

Objetivo: comprender los conceptos y liderar al equipo de enfermería ante los errores de medicación en la clínica médica. **Método:** estudio cualitativo y descriptivo realizado en un hospital universitario. Se entrevistó a dos enfermeras y diecisiete técnicos de enfermería de la clínica médica. La recolección de datos se realizó mediante entrevistas y observación no participante, analizados por la técnica de análisis de contenido. **Resultados:** un equipo reconoce aspectos que causan un error: prescripción manual e ilegible, sobrecarga de trabajo, falta de atención y capacitación profesional, gran cantidad de personas circulando e interrupciones en el trabajo. Se identificaron fallas en todas las etapas de la administración de drogas y estrategias para mejorar el proceso. **Conclusión:** como estrategias y mejoras en el proceso de medicación, como etiquetas permanentes de educación e identificación de medicamentos utilizados en la práctica profesional diaria con la inclusión de todos los profesionales involucrados.

Descriptorios: Seguridad del paciente; Errores de medicación; Grupo de enfermeira; Evaluación en salud.

INTRODUCTION

The concern with patient safety is a theme of growing relevance among researchers from all over the world, being of extreme importance for the quality of health care.¹ Health care provides many benefits to the patient, but mistakes may cause harm to the patient. Therefore, care should be rethought so that it could be safe.

These damages, classified as Adverse Events (AEs), are incidents arising from health care resulting in disabilities or permanent or temporary injuries, which increases the length of hospital stay and may even cause a death unrelated to the underlying disease.²⁻³

The occurrence of AEs is considered a serious patient safety problem worldwide.³ This is a worrying issue, which gained prominence after the publication of the report of the Institute of Medicine of the United States of America in November 1999 titled *To Err is Human: building a safer health system*. This report brought about a discussion on the need to rethink health care practices, highlighting the occurrence of 44,000 to

98,000 deaths each year due to AEs. Among them, 7,000 cases were related to medication errors.⁴⁻⁵

Medication errors are any avoidable events that may cause or induce the inappropriate use of medication or harm to the patient while the medication is under the control of the health care worker, patient or consumer.⁶

These types of errors occur frequently and are classified as preventable AEs.⁷ Estimates suggest that between 7.5% and 10.4% of hospitalized patients suffer damage due to medication in developed countries.⁸ In Portugal, an AE rate of 11.1% was found after evaluating 1669 medical records. This rate is associated with surgical procedures (27%), medication errors (18.3%), and hospital-acquired infections (12.2%).⁹

In Brazil, a study conducted with 1,103 patients revealed an AE rate of 7.6% associated with surgery (32.3%), non-surgical procedures (29.2%), diagnostic error (15.3%), obstetric care (6.15%), the system (6.15%), and medication error (4.6%).³ Another study, whose purpose was to analyze 551 medical records to determine the rate of medication errors in a hospital institution, showed that 43.7% of medical errors occurred in intensive care units, followed by 25% in recovery rooms and 25% in the surgical centers.¹⁰

It should be noted that administering medications is a complex and multidisciplinary process, whose common goal is to provide quality assistance for patient safety.¹¹ This process involves different stages proposed by the World Health Organization (WHO): prescription, transcription, distribution, preparation, administration, and monitoring. Failure to carry out these stages can result in errors, bringing risks to patients and causing damage to their health. Furthermore, it can compromise the multiprofessional team, the quality of care, and patient safety.^{9,12,13}

In this sense, health care workers, especially members of the nursing team, are susceptible to bring about AEs. However, this study emphasizes nursing because it is the team that performs several invasive interventions and stays longer with the patient.¹⁴

In view of the above, it is of utmost importance to rethink health care including medication administration so that it is practiced with quality in order to reduce the occurrence of AEs. Consequently, the safety of those who seek health care services could be ensured.

Based on the assumption that the safe practice of medication administration is related to the understanding of errors and how they can occur, the guiding questions of this study were “does the nursing team members have knowledge of medication error?” and “what contributes to medication error?”

Bearing in mind the aforesaid, the present study is justified by the relevance of the subject. Moreover, many studies on patient safety related to medication have been carried out primarily in emergency and emergency units.¹⁵ Few studies have been carried out in medical clinics, and it is necessary to expand research in this area.

The study's goal was to understand the nursing team members' conceptions and behaviors in the face of medication errors occurring in medical clinics.

METHODS

This is a descriptive-exploratory study with a qualitative approach. Qualitative studies are concerned with understanding a given social group considering its set of meanings and assuming a sense and meaning of what needs to be revealed.¹⁶

The study was conducted in a teaching hospital located in the *Zona da Mata Mineira* region, *Minas Gerais* State, Brazil. The institution was chosen because of the researcher's experience in the medical clinic sector, which was gained during practical classes as a nursing undergraduate student. She also gained experience while carrying out an extension project of the Infection Control Commission from the hospital, which allowed the understanding of the medical clinic environment and observation of high dynamism and a great number of medications to be administered during the work shifts.

This hospital has 115 beds and provides hospital care for users of the *Sistema Único de Saúde (SUS)* [Brazilian Unified Health System] and private sector, as well as users having health insurance. The medical clinic has 27 beds exclusively for *SUS* users. The clinic treats patients with various comorbidities in different levels of complexity by administering medications multiple times. Two nurses on duty in the day shift worked in the clinic. Only one nurse on duty in the night shift was responsible for the entire hospital, except patients requiring primary or intensive care. Moreover, 18 nurse technicians on duty in the night shift worked in the clinic. All of them followed a 12-hour shift pattern with a resting time of 36 hours. The participants were personally approached within the institution and invited to participate in the research.

The study participants were two nurses and 17 nurse technicians, who were working in the institution. One nurse technician refused to participate in the study. The nursing team members of the medical clinic were intentionally chosen because they were directly involved in the process of administering medications. It is worth noting that the pharmacist was responsible for storing and distributing the medications and, consequently, not involved with this process.

Data collection was performed from July to October 2016 through semi-structured interviews with non-participating observation. A pilot test was conducted with three nurse technicians and a nurse from another department, but the obtained data were not included in this study. The interviews addressed what a medication error is, whether the participants had ever experienced such error, what is done when a medication error occurs in the department, and what are its implications for patient safety. The interviews lasted 20 minutes on average and the observation lasted 40 hours. The statements were recorded after obtaining the participants' authorization and they were transcribed in full later.

During the non-participating observation, the researcher's impressions were recorded in a field diary¹⁶ until the objective

of this study was achieved. Data collection took place during the period of scheduling and conducting the interviews. The researcher remained at the data collection site before and after the interviews, recording aspects related to the health team members' behavior, communication and work dynamics in the departments visited, as well as the assistance and admission of patients by the nursing team.

In order to maintain the participants' anonymity, the participants were labeled using letters referring to the occupation ("N" for Nurses and "NT" for Nurse Technicians) followed by numbers indicating the order of the interviews.

To achieve the deepest interpretation of the phenomenon, the data collected were submitted to content analysis and thematic analysis, which represents a set of communication analysis techniques aimed at gaining knowledge related to these messages.¹⁶⁻¹⁷ The thematic analysis was carried out in three stages. The first stage is pre-analysis, also known as "fast reading", in which exhaustive reading and data organization were performed. The second stage is comprised of material exploration, coding, and data processing to generate thematic categories. Conclusively, the third stage is the treatment of results, in which the raw data are interpreted in light of the literature to highlight the obtained information.

Three categories emerged from the analysis: "nursing team members' conceptions of medication error"; "aspects that increase the occurrence of errors"; and "strategies to improve the process of administering medications".

This study complied with the ethical aspects addressed by the Resolution No. 466/12 from the National Health Council, and approved by the research ethics committee of the study hospital and the research ethics committee of the *Universidade Federal de Viçosa* under the *Certificado de Apresentação para Apreciação Ética (CAAE)* [Certificate of Presentation for Ethical Appreciation] No. 53457515.7.0000.5153.

RESULTS

All the study participants were within the age group from 23 to 53 years old. Considering the total participants, 17 were women and 2 were men. Furthermore, 10.5% of the participants had 2 years of professional practice; 26.3% had up to 10 years, and 63.2% had >10 years. Considering the period of employment: 42.1% of the participants had up to 2 years of service, 26.3% up to 10 years and 31.5% more than 10 years of service, characterizing a majority of recent professionals. Additionally, 36.8% of the professionals signed an employment contract.

Nursing team members' conceptions of medication error

The participants reported medication errors and their effects on patient safety. Administration, route, and/or medication errors were described as can be seen in the following statements:

Medication error... A medication error is to administer the wrong medication, the doctor asks you to do it like this, but you do it differently. (NT4)

It could be changing the patient's medication or its route. (NT6)

Not administering the medication at the right time and paying attention to not change the patient's medication, it has to be done very carefully, for me this is it. (NT8)

The error would be to change the medication, for example, to change the oral medication to a venous one, it is to change medication routes, that would be it. (NT9)

When asked about the implications of medication error for patient safety, the participants reported understanding the error associated with medication allergy, the patient's condition, and even the risk of death:

So, if you administer the medication and to an allergic patient, it may harm him/her. If at least the medication is correct and you perform an extra dosage, then it can harm the patient a little, but not that much. (T1)

It can lead to serious consequences, including death. In cases that I have heard about, it was supposed to administer medication in pill form, for example, tube-fed patients receiving medicine through the access route instead of the tube, understand? There are cases I have heard of, but I have not seen them. (NT9)

What about prescribing a medicine for high blood pressure for a person without the disease? The patient may have a problem. (NT10)

Maybe the patient is allergic to a certain medication and you administer it, it is dangerous and may result in death. (NT7)

Aspects that increase the occurrence of errors

Aspects that increase the occurrence of errors were observed in the work environment. The participants reported illegible prescriptions, workload, high complexity in the department, poor professional training, lack of attention due to side talks, and disturbances due to a large number of undergraduate students, interns, and residents. Some aspects were highlighted by the participants:

Depending on the doctor's prescription, illegible handwriting makes the employees at the pharmacy send the wrong medication, the nurse technician thinks that it is the right medication and administer it, which is an error because it was the wrong medication. (NT3)

Because of the number of employees, I think so many patients, the workload ends up making it careless, which should not happen. (N1)

It's a tight schedule here. Sometimes you're hospitalized, there's the delay in administering medications, and that favors it. There are days that we are caring for 4-6 patients and it is bad, only caring for two patients is good, in the clinic you have to change diapers, they are complex patients, tracheostomized patients, there is the serum, antibiotics, changes here, changes there. They're more complex patients, then it causes workload. Seventy or eighty percent of them are complex patients. (NT10)

Thus, sometimes people are not very qualified to be in their current position. (NT8)

Lack of attention is one of the main ones. Because if you're not thinking, because you don't take care of just one patient, you take care of five, six, you take care of 10 when the colleague is absent. So, you have to pay a lot of attention, if you don't, you do something really wrong. (NT2)

I think it's a bit like that, side talks among the colleagues, joking, especially when putting the medication aside, I think you should talk less, remain silent longer, and respect the medication schedule. (NT5)

So, all of a sudden, what can happen is because here we have a lot of undergraduate students. So, one speaks something, another speaks something else, then this disturbance may favor it. But that is not what it is going to be, you have to pay attention to what the doctor tells you. So, it can be this disturbance. (NT1)

It was observed and confirmed by the statements that the medications were dispensed all at once in the pharmacy for 24-hour assistance. There was a concern about the manual prescription and illegible handwriting performed by physicians:

We take the prescription, make the schedule, make the appointment and take it to the pharmacy. At the pharmacy, we take the medications, check them, put them in containers, then put them aside along with the time to administer them and keep the schedule for later use, from the other shift. Then we'll prepare the schedule, take the medication, let's suppose, if it's injectable we'll prepare the medication and administer it to the patient, then discard it. (NT6)

We take the prescription, ask for the medication, take it to the pharmacy, wait for the medications to be put aside at the pharmacy, I receive the medication in the department, I put the medications aside according to my schedule for administering them, I put the access routes and the other medications are put in the patients' recipients for another

technician to take, which would happen during the night shift. Then when I go to prepare the medication, washing my hands, I put the medications aside and I take them on the tray, separately, for each patient, with the right access route on every label. (NT3).

The doctors' handwriting doesn't help one bit. And if you don't understand and think it's a medication then it is also dispensed at the pharmacy, if you're new and don't know anything about medication then you administer the medication. As they say, we are the only ones to be blamed for any error. (NT17)

Medications were dispensed at the pharmacy during the day shift and it was observed that there was no control over the unused ones. These medications were not returned to the pharmacy; instead, they became available at the nursing post, generating costs to the department, risks during the administration of medication, and medication misuse. In addition, the nursing professionals on duty in the day shift checked the medications and kept the ones for use during the night shift. Thus, if an error occurs in this process, the workers on duty in the night shift will deal with it.

Dosage errors were found because medications with the wrong dosage were dispensed in the pharmacy. Furthermore, it was evidenced that the employees did not pay much attention while preparing medications:

The problem we have in the department is the wrong dosage because the right medication dosage is not provided in the pharmacy, for example, is 50 mg, but the patient takes 25 mg, so this pill has to be divided. So, an employee on duty giving one whole pill and other giving half of it happens a lot, you know? It happens a lot among the patients here. (N1)

The observation allowed the identification of errors such as schedule error, dosage omission, wrong dosage and lack of providing the patients with guidance on their medication therapy. The nurse technicians prepared the medications at the beginning of their work shift, and it remained prepared for hours until the moment of administering it, which may interfere with therapeutic efficacy. It was also observed the lack of employing aseptic techniques while preparing the medication. For instance, they did not perform hand sanitization with a 70% alcohol solution, nor sterilize trays and ampoules. Additionally, they used the same needle to prepare different medications. It was found that the medications were prepared at the nursing station, which was also used to provide patients and family members with guidance, change shifts, and communicate with the team members.

Strategies to improve the process of administering medications

The data analysis made it possible to identify continuing education, use of medication labels, and notification of AEs as strategies for improving patient safety.

The nurses referred to continuing education was a way for the nursing team members to constantly receive formal training:

We always receive training, every month we receive training, we study with them, you know? During the meetings, we always talk about the subject, the identification, we're mainly harping on about it now, trying to adhere to this behavior, so there's no problem. But we always talk about it, but unfortunately, something still happens. (N1)

We always receive continuing education in the department, so that everyone can be instructed on errors. (NT1)

According to the study results, the nurse was responsible for ensuring that continuing education was provided for his/her team. This was done monthly according to the workers' needs. The nurse called the team members on pre-established days through the evaluation of performed activities. Continuing education sessions lasted up to 30 minutes so as not to delay other activities. Furthermore, it featured discussions among the team members.

Regarding the process of administering medications, the use of identification labels was seen as a standard strategy to reduce the occurrence of errors. It was observed the use of red labels for high-alert medications and white labels for others:

It is now up to us to put them aside here, in the medication cart, which is the emergency cart, the highly dangerous medicines. They are all identified with red tape at the bottom of the box so that we could pay attention in cases of cardiac arrest, mainly because it is very fast. It has to be done with a lot of precision, and very fast, so now everything is identified in red for us to pay attention to it. (N1)

Now it's easier, I used to put the bed number and the time for administering the medicine. Now there are labels, we identify the patient's name, the bed, and the medication. (NT5)

Through observation, it was evident that although the workers had access to and knowledge of these labels, many did not use them. Instead, they used tape to identify the patient, bed, and time and route of medication administration. Notifying AEs using the institution's print material or verbally reporting them to the nurse was another improvement strategy pointed out by the participants in the face of medication error:

There is an adverse event sheet and we notify errors, we find out who made them, by checking the prescription, we get to know who administered this medication and talk to this employee. (NT1)

When a medication error occurs, it is communicated to the nurse, then the doctor is informed. You just need to contact them. When the person who committed a medication error is warned, he/she signs the logbook. (NT3)

It was possible to observe that the hospital still did not have a computer system for making prescriptions, as well as for dispensing and distributing medications. Because of this, the workers resorted to performing these actions manually. The distribution system was operational during the 24-hour assistance and the pharmacist did not participate in this process. The nursing team was responsible for requesting medications and administering them, as well as for the administration schedule.

DISCUSSION

The study findings showed that the participants considered medication error as professional misconduct that can lead to serious consequences for patients. In line with the literature, medication error may stem from professional practice, prescription, packaging and labels, failure to dispense medications, distribution, and administration.^{6,11-12}

The medication errors pointed out by the participants, such as the omission of dose, improper dose, wrong concentration, wrong medication, formulation of the wrong dose, wrong technique, wrong route of administration, wrong speed, wrong duration, wrong time, wrong patient, wrong monitoring, and administration of deteriorated medications, are also described in other studies.^{7,13-14,18-19}

It is important to emphasize that the nursing team performs the final stage of the medication administration process in the hospital environment, and their members' actions may prevent the occurrence of errors. Therefore, these workers should know all types of errors that may occur, identify them and establish ways to avoid them, thus positively impacting on patient safety.^{6,13}

Professionals should be responsible for gaining up-to-date knowledge on the subject so that they can safely provide care without any damage, allowing improvements in the patients' quality and safety.

The study participants recognized aspects that could potentially lead to the occurrence of errors, such as illegible prescriptions, manual prescription systems, work overload, lack of attention and professional training, a large number of people moving and interruptions during the process of administering medications.

Recognizing incidents, other occurrences, and the aspects that worsen errors is related to the professionals' culture,

belief and knowledge of the problem since some of them have difficulty in perceiving errors.^{20,21}

Concerning the illegible prescriptions, one study pointed out that prescriptions are still made manually in most hospitals and often the nursing team has difficulty in understanding what is prescribed.²² A study carried out in Brazil found that 43.8% of nursing professionals considered the physicians' handwriting illegible or difficult to read, being one of the four most frequent causes of error. This may increase the occurrence of errors in subsequent stages.²²

According to the results, the medical clinic was viewed as a place that requires more attention due to the high workload. Patients having different levels of complexity and using several medications are treated in this department. Studies have shown that medication errors can occur due to lack of training and knowledge by professionals, occupational stress, workload, and the multidisciplinary team's failure to communicate.^{13,14,19} Studies pointed out that many professionals worked double shifts, making them perform unsafe procedures due to the combination of tiredness and sleep deprivation.^{13,14,19} Additionally, it should be noted that the allocation of human resources to the nursing team's is a priority because it interferes with the process of providing care.²⁰

The statements showed that the nurse technicians prepared the medication administration schedules according to the prescriptions, but these professionals are not pharmacists. The nurse is responsible for preparing these schedules, making it possible not only to prevent medication interactions but also ensure a contextualized and scientific practice.¹¹

Regarding the dispensing of medications, studies recommend the use of a single-dose medication distribution system and bar codes for identifying patients and medications so as to avoid errors. Also, intravenous medications should be prepared by the pharmacist for the same purpose.^{11,13,18,19} Single doses are a way to minimize errors because they allow the pharmacist to participate more in the medication process, thus providing greater safety for he/she and the patient.¹¹

Certain aspects, such as dispensing different doses different from the prescription or making a schedule that requires patients to take medications while undergoing other procedures, constitute a medication error. A study addressing the types of errors during the preparation and administration of medications pointed out that dose errors (24.3%), time (22.9%) and unauthorized medications (13.5%) were most predominant.²³ It is worth noting that the errors identified in the department were not only related to factors intrinsic to the nursing team but also factors associated with medication distribution in the pharmacy. Therefore, the institution must implement strategies that enable a safer and more efficient environment for assistance so that medication therapy can be safely performed.

Studies revealed that, besides being a medication error, handling medications inadequately can decrease microbiological safety and therapeutic efficacy.⁷

Therefore, it is emphasized the role of the institution's management in the process, considering that AEs related to medication are preventable and managers should adopt strategies to minimize their occurrence.

The health care institution must allow health care workers to acquire more knowledge, seeking an integrated and systematized performance for the team. In this sense, all professionals should be involved, including the nursing team. Continuing education is a tool that allows workers to deepen the knowledge acquired during undergraduate courses, strengthening the knowledge produced in the work process, and facilitating the development of autonomy, the teaching-learning process, and its association with reality.¹¹ Educational measures, even the simplest ones, are low-cost and capable of raising awareness among the workers,¹⁸ helping to prevent medication errors.

Using labels to identify medications during their preparation may also help to prevent medication errors^{11,13,18,19} since it allows the identification of the medication, dose, route, time, patient, and right record, promoting safer assistance.

High-alert medications, also called potentially dangerous medications, have a greater risk for harm if errors occur while administering them. Such errors lead to serious consequences for patients. Therefore, using labels, double-checking, and limiting access to these medications are viewed as recommendations for greater safety.²⁴

Furthermore, notifying AEs is an essential tool for the control of medication error, since it allows the knowledge of existing deficiencies, as well as the rate of errors.^{11,13,18,19} However, studies showed that it is necessary to decrease the number of underreported cases.^{11,13} A study revealed that 45.6% of 983 nurses confirmed that they omitted errors for fear of triggering a reaction from managers and colleagues.¹⁸ It should be noted that workers are still punished when they commit errors according to the NT3's statements. This participant pointed out the workers sign the logbook, which can lead to underreporting and make it difficult for them to learn from errors.

Errors are often seen as individual human errors^{12,20}, which has contributed to the underreporting. Therefore, health care institutions should consider not only human beings but also working conditions, structural aspects, and the complexity of activities as contributing factors to error. So, these institutions should implement security policies and educational measures focused on errors so that the system and work process could be improved.^{12-13,18}

Some recommendations for avoiding medication errors are as follows: computerization of the system (prescription, dispensing, and distribution of medications); use of bar codes in administrative processes and for identifying customers; systems for monitoring and reporting AEs; implementation of a single-dose distribution system; implementation of a system for preparing intravenous medications in the pharmacy; coordination among pharmacy workers, physicians, and

nurses; review of prescriptions by pharmacists; and dispelling any doubts about medication.^{11,13,18,19}

Hence, there are several strategies to minimize the occurrence of medication errors, improving professional practice and hospitalized patients' safety. Nevertheless, they need to be implemented in daily professional practice.

CONCLUSIONS

This study was important to understand medication errors, as well as the nursing team members' behavior and its association with patient safety. It is important to discuss the problem of hospital care, especially in medical clinics, given the hospitalized patients' level of complexity and the use of various medications.

Some elements interfere with the medication process in medical clinics, such as workload, workers' lack of attention, disturbances due to the large number of people moving within the department, poor professional training, illegible prescription, wrong dispensing in the pharmacy, dispensing of medications for 24 hours and punishments for notifying AEs.

The study highlights the need to implement effective and dynamic measures in the medication process in order to improve work and the patient's safety by reducing the occurrence of AEs. It is also highlighted the participation of all professionals involved in the process of administering medications: physicians, nurses, nurse technicians, and pharmacists. All of them share the same professional responsibility.

The study also identified some strategies for make the process of administering medications safer, such as providing continuing education, using labels and notifying AEs. Addressing a single local reality is one limitation of this study. Therefore, new studies should be conducted to further generalize these findings.

REFERENCES

1. Reis CT, Martins M, Laguardia J. A segurança do paciente como dimensão da qualidade do cuidado de saúde: um olhar sobre a literatura. *Ciênc. saúde coletiva*. 2013; 18(7):2029-36. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-81232013000700018&lng=en. <http://dx.doi.org/10.1590/S1413-81232013000700018>.
2. World Health Organization (WHO). A World Alliance for Safer Health Care. More Than Words: Conceptual Framework for the International Classification for Patient Safety. Version 1.1. Final Technical Report. Geneva (Switzerland). 2009. Available from: http://www.who.int/patientsafety/taxonomy/icps_full_report.pdf
3. Mendes W, Pavão ALB, Martins M, Moura MLO, Travassos C. Características de eventos adversos evitáveis em hospitais do Rio de Janeiro. *Rev Assoc Med Bras*. 2013; 59(5):421-28. Available from: <https://www.arca.fiocruz.br/handle/icict/9638>
4. Institute of Medicine. To err is human: building a safer health system. *Shaping The Future For Health*; 1999. Available from: <http://www.nationalacademies.org/hmd/~/media/Files/Report%20Files/1999/To-Err-is-Human/To%20Err%20is%20Human%201999%20report%20brief.pdf>

5. Rigobello MCG, Carvalho REFL, Cassiani SHB, Galon T, Capucho HC, Deus NN. Clima de segurança do paciente: percepção dos profissionais de enfermagem. *Acta Paul Enferm.* 2012; 25(5):728-35. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-21002012000500013&lng=en. <http://dx.doi.org/10.1590/S0103-21002012000500013>.
6. National Coordinating Council for Medication Error Reporting and Prevention. Taxonomy of medication errors; 2001. Available from: <http://www.nccmerp.org/sites/default/files/taxonomy2001-07-31.pdf>
7. Camerini FG, Silva LD. Segurança do paciente: análise do preparo de medicação intravenosa em hospital da rede sentinela. *Texto contexto-enferm.* 2011; 20(1):41-9. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-07072011000100005&lng=en. <http://dx.doi.org/10.1590/S0104-07072011000100005>.
8. Jha AK, Prasopa-Plaizier N, Larizgoitia I, Bates DW. Patient safety research: an overview of the global evidence. *Qual Saf Health Care.* 2016; 19(1):42-7. Available from: <http://qualitysafety.bmj.com/content/19/1/42.full.pdf?sid=21c3da55-6972-41d6-b5a1-065201d75c10>
9. Sousa P, Uva AS, Serranheira F, Nunes C, Leite ES. Estimating the incidence of adverse events in Portuguese hospitals: a contribution to improving quality and patient safety. *BMC Health Services Research.* 2014; 14(311). Available from: <http://www.biomedcentral.com/1472-6963/14/311>
10. Roque KE, Melo ECP. Adaptação dos critérios de avaliação de eventos adversos a medicamentos para uso em um hospital público no Estado do Rio de Janeiro. *Rev. bras. Epidemiol.* 2010; 13(4): 607-19. Available from: <http://www.scielo.br/pdf/rbepid/v13n4/06.pdf>
11. Franco JN, Ribeiro G, D'Innocenzo M, Barros BPA. Percepção da equipe de enfermagem sobre fatores causais de erros na administração de medicamentos. *Rev bras enferm* 2010 dez ; 63(6): 927-32. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672010000600009&lng=en. <http://dx.doi.org/10.1590/S0034-71672010000600009>.
12. Oliveira RM, Leitão IMTA, Silva LMS, Figueiredo SV, Sampaio RL, Gondim MM. Estratégias para promover segurança do paciente: da identificação dos riscos às práticas baseadas em evidências. *Esc. Anna Nery.* 2014; 18(1):122-9. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1414-81452014000100122&lng=en. <http://dx.doi.org/10.5935/1414-8145.20140018>.
13. Yamamoto MS; Peterlini MAS; Bohomol E. Notificação espontânea de erros de medicação em hospital universitário pediátrico. *Acta paul. Enferm.* 2011; 24(6):766-71. Available from: <http://www.scielo.br/pdf/ape/v24n6/a06v24n6.pdf>
14. Nunes FDO, Barros LAA, Azevedo RM, Paiva SS. Segurança do paciente: como a enfermagem vem contribuindo para a questão? *J. res. fundam. care. Online.* 2014; 6(2):841-7. Available from: <http://www.index-f.com/pesquisa/2014/r6-841.php>
15. Hillin E, Hicks RW. Medication errors from an emergency room setting: safety solutions for nurses. *Crit Care Nurs Clin North Am.* 2010; 22:191-6. Available from: <https://www.sciencedirect.com/science/article/pii/S0899588510000183?via%3Dihub>
16. Minayo MCS. O desafio do conhecimento: pesquisa qualitativa em saúde. São Paulo: Editora Hucitec; 2010.
17. Bardin L. Análise de conteúdo. Lisboa: Edições 70, 2011.
18. Silva LD, Passos RS, Carvalho MF. Características e evidências da produção científica de enfermeiros sobre erros de medicação no ambiente hospitalar. *Rev Rene.* 2012; 13(2):480-91. Available from: <http://www.periodicos.ufc.br/rene/article/viewFile/3957/3129>
19. Rocha FSR, Lima CA, Torres MR, Gonçalves EPF. Tipos e causas de erros no processo de medicação na prática assistencial da equipe de enfermagem. *Revista Unimontes Científica.* 2015; 17(1):2236-52. Available from: <file:///C:/Users/Usuario/Downloads/358-565-1-PB.pdf>
20. Duarte SDCM, Stipp MAC, Silva MM, Oliveira FT. Eventos adversos e segurança na assistência de enfermagem. *Rev Bras Enferm.* 2015; 68(1):144-54. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672015000100144&lng=en. <http://dx.doi.org/10.1590/0034-7167.2015680120p>.
21. Sammer CE, Lykens K, Singh KP, Mains D, Lackan NA. What is patient safety culture? A review of the literature. *J Nurs Scholarsh.* 2010; 42(2):156-65. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/20618600>
22. Bohomol E, Ramos LH. Erro de medicação: importância da notificação no gerenciamento da segurança do paciente. *Rev Bras Enferm.* 2007; 60(1):32-6. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672007000100006&lng=en. <http://dx.doi.org/10.1590/S0034-71672007000100006>.
23. Teixeira TC, de Cassiani SH. Root cause analysis: evaluation of medication errors at a university hospital]. *Rev Esc Enferm USP.* 2010; 44(1): 139-46. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0080-62342010000100020&lng=en. <http://dx.doi.org/10.1590/S0080-62342010000100020>.
24. Instituto para Práticas Seguras no Uso de Medicamentos. Medicamentos potencialmente perigosos de uso hospitalar e ambulatorial, listas atualizadas 2015. *Boletim ISPM.* 2015; 4(3):1-8. Available from: <http://www.ismp-brasil.org/site/wp-content/uploads/2015/12/V4N3.pdf>

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