Revista de Enfermagem UFPE On Line
ISSN: 1981-8963

J Nurs UFPE on line.
2021;15:e245310
DOI: 10.5205/1981-8963.2021.245310
https://periodicos.ufpe.br/revistas/revistaenfermagem

CUIDADO DE ENFERMAGEM SEGURO: PROCESSO DE MEDICAÇÃO EM TERAPIA INTENSIVA

SAFE NURSING CARE: MEDICATION PROCESS IN INTENSIVE CARE

ATENCIÓN DE ENFERMERÍA SEGURA: PROCESO DE MEDICACIÓN EN CUIDADOS INTENSIVOS

Louise Maria Lopes Ribeiro[1], Mikaelle Fernandes Marques[2], Lidyane Parente Arruda[3], Larissa Cunha Alves[4], Késia Marques Moraes[5]

ABSTRACT

Objective: to highlight the intervening factors for the safety of nursing care during the medication process in intensive care units. ***Method:*** descriptive study with a qualitative approach. The research was conducted in the Adult Intensive Care Unit of a Teaching Hospital in the northern region of the state of Ceará, with seven professionals, four nursing technicians and three nurses. ***Results:*** we identified that the electronic prescription, the operating system used in the hospital and abbreviations are factors related to the prescription that hinders the medication process. The physical structure was highlighted as a factor that interferes with dilution, while the flow of the institution interferes with nursing care. ***Conclusion:*** health services that want to offer safe care to their patients should focus their strategies on medication because it is the most common form of health care intervention and the most common cause of adverse events, many of them avoidable.

Descriptors: Patient Safety; Nursing Care; Intensive Care Units; Adverse Events; Medication Errors; Medication Systems in the Hospital.

RESUMO

Objetivo: evidenciar os fatores intervenientes para a segurança do cuidado de enfermagem durante o processo de medicação em unidade de terapia intensiva. ***Método:*** estudo descritivo de abordagem qualitativa. Realizou-se a pesquisa na Unidade de Terapia Intensiva Adulto, de um Hospital de Ensino da região norte do estado do Ceará, com sete profissionais, sendo estes quatro técnicas de

enfermagem e três enfermeiras. ***Resultados:*** identificou-se que a prescrição eletrônica, o sistema operacional utilizado no hospital e as abreviações são fatores relacionados à prescrição que dificulta o processo de medicação. A estrutura física foi evidenciada como fator que interfere na diluição, enquanto que o fluxo da instituição interfere nos cuidados de enfermagem. ***Conclusão:*** os serviços de saúde que queiram oferecer uma assistência segura para seus pacientes devem focar suas estratégias na medicação por ser a forma mais comum de intervenção do cuidado à saúde e a causa mais comum de eventos adversos, sendo muitos deles evitáveis.

Descritores: Segurança do Paciente; Cuidados de Enfermagem; Unidades de Terapia Intensiva; Eventos Adversos; Erros de Medicação; Sistemas de Medicação no Hospital.

RESUMEN

Objetivo: señalar los factores que intervienen en la seguridad de la atención de enfermería durante el proceso de medicación en las unidades de cuidados intensivos. ***Método:*** estudio descriptivo con enfoque cualitativo. La investigación se realizó en la Unidad de Cuidados Intensivos de Adultos de un Hospital Escuela de la región norte del estado de Ceará, con siete profesionales, cuatro técnicos de enfermería y tres enfermeros. ***Resultados:*** se identificó que la prescripción electrónica, el sistema operacional utilizado en el hospital y las abreviaturas son factores relacionados con la prescripción que dificultan el proceso de medicación. La estructura física se señaló como un factor que interfiere con la dilución, mientras que el flujo de la institución interfiere con la atención de enfermería. ***Conclusión:*** los servicios sanitarios que quieran ofrecer una atención segura a sus pacientes deben centrar sus estrategias en la medicación, ya que es la forma más común de intervención sanitaria y la causa más frecuente de eventos adversos, muchos de los cuales son prevenibles.

Descriptores: Seguridad del Paciente; Atención de Enfermería; Unidades de Cuidados Intensivos; Eventos Adversos; Errores de Medicación; Sistemas de Medicación en el Hospital.

Descritores: apresentar seis(6) descritores extraídos do DeCS: http://decs.bvs.br

[1,3,4,5]INTA University Center – UNINTA, Ceará (CE), Brazil.[1] https://orcid.org/0000-0002-9900-3062 [3] https://orcid.org/0000-0002-5218-1259 [4] https://orcid.org/0000-0001-6173-7549 [5] https://orcid.org/0000-0002-3225-9020

[2]Federal University of Ceará, Ceará (CE), Brazil. [2] https://orcid.org/0000-0002-3250-7880

How to cite this article
Ribeiro LML, Marques MF, Arruda LP, Alves LC, Moraes KM. Cuidado de enfermagem seguro: processo de medicação em terapia intensiva. J Nurs UFPE on line. 2021;15:e245310 DOI: https://doi.org/10.5205/1981-8963.2021.245310

*Article extracted from (monograph) Safe process of prescription, preparation and administration of medications. Higher Institute of Applied Theology/INTA, 2018.

INTRODUCTION

Safe and quality care for patients is a topic that has become well known in the world with the publication *To err is human*[1] and in Brazil with the creation of the National Patient Safety Program (PNSP, as per its Portuguese acronym)[2], in 2013. The PNSP has six goals to be implemented to ensure patient safety, where the third goal is to improve safety in the prescription, use and administration of medications.

Although the process of prescribing, preparing and administering medications is an essential care to reestablish the patient's health, it is considered a challenge when it comes to establishing a safe practice, because adverse events can happen at any stage of this process, so as to generate harm to patients[3].

Adverse events associated with the medication process constitute a frequent reality in intensive care units[4] and are considered a serious public health problem, because, besides being responsible for increased morbidity and mortality among patients, these events also cause unnecessary costs to health systems[5].

Therefore, identifying and understanding the factors that result in medication errors in ICUs and the frequency with which they happen, in order to program strategies to reduce and prevent them, is of fundamental importance for health systems and services to design strategies to reduce avoidable deaths and injuries.

In view of the need, the quality of nursing care in Intensive Care Units (ICUs) starts from the need to ensure patient safety, since the occurrence of an adverse event negatively interferes with the expected outcome, and may compromise the patient's life, the confidence in the team and entail an increase in the costs related to his/her care[6].

It is worth underlining that the care provided by the nursing team consists of providing care free of carelessness, imprudence and negligence. Among the most highlighted attributions of these professionals, medication administration, when performed without the proper accuracy, can cause

errors and bring serious consequences to patients, professionals and health care institutions[7]. It is necessary that the nursing team members are aware and careful to prevent such incidents.

In this context, considering the importance of quality care, patient safety and the prevention of adverse events, especially in the medication process, it is important to produce studies on this topic, in such a way as to provide the academic and the health care environments with subsidies for safer daily practices that do not cause harm to the patients' health.

Recognizing the intervening factors for nursing care during the medication process in intensive care units is of fundamental importance, as it enables health professionals, managers and administrators of health systems and services to recognize the paths taken during health care. Accordingly, a process of continuous quality improvement is possible, thus ensuring the minimization of adverse events to patients.

We should emphasize the importance and need for further research on the topic, so that there is a more detailed view in different scenarios, as well as the formulation and implementation of strategies that can further improve the reality of the Intensive Care Units around Brazil and the world, reducing avoidable deaths and injuries. This review was not guided by conflicts of interest.

OBJECTIVE

To highlight the intervening factors for the safety of nursing care during the medication process in the intensive care unit.

METHOD

This is a descriptive study with a qualitative approach. Seven professionals were involved in the research, being four nursing technicians and three nurses. The research included professionals from the nursing team who had worked for at least two months in the research sector, and those who were on vacation were excluded.

The research was conducted in the Adult Intensive Care Unit of a Teaching Hospital in the Northern Region of the state of Ceará. This study is an excerpt from an end-of-course paper in nursing, and there was no link between the researchers and the professionals of the unit. At first, there was a meeting with the nursing coordination of the unit to explain about the research. At that moment, we presented the objective of the research and the method that would be used for data collection, as well as all ethical behaviors. Nevertheless, the coordination and the researchers agreed

to schedule the days and shifts in which the data collection would happen. When entering the sector, the professionals were approached, and then we explained about the research, presented the consent form and talked about the ethical precepts, so that they chose to participate or not to participate in the research.

Data were collected from September to November 2018 using the following methods: systematic observation and semi-structured interview. The observations took place systematically, at least two hours and at most four hours a day, and then the data were recorded in a field diary, totaling fifty hours.

The observation script consisted in understanding the medication dispensing process, observing if the name of the medication was checked according to the medical prescription, if, before dilution, the dose in the prescription was checked; we observed if the medications were diluted and administered at the correct time, if, before administration, the name of the patient on the identification bracelet was checked, if the professional observed possible allergies of the patient; we observed if the patient was informed about the medication before administration; we observed if there was adequate dripping, if the hands were cleaned before administration, if the record was correct; we also observed if there was surveillance after administration to identify possible adverse reactions, and if the patient was involved in his/her medication care.

Concomitantly with the systematic observation process, semi-structured interviews were conducted, which were recorded on an iPhone cell phone. The objectives and methodology were presented to the nursing team professionals. Those who agreed to participate in the research signed the Free and Informed Consent Form. The interviews took place in the waiting room of the sector itself, for better comfort and privacy, and happened on dates and times that were in accordance with the participants' availability.

The questions used in the interview were as follows: "Are there any limitations to the medication process in your unit? If so, which ones?"; "According to the limitations, please make suggestions for the correct medication process"; "Is there any potential for the medication process in your unit? If so, which ones?"; "How do you consider the medication process in the hospital environment to be correct?" The interviews were transcribed right after their completion, in order to facilitate the analysis of the collected data.

Data analysis took place with content analysis through content exploration in three phases, which were: 1st - pre-analysis; 2nd - exploration of the material; and 3rd - treatment of the results, inference and interpretation.[8]

In the pre-analysis, the first phase, the objectives were to systematize the initial ideas put forward by the theoretical framework and establish indicators for the interpretation of the collected information. In this phase, we performed a general reading of the material chosen for the analysis. In the second phase, the material was explored, which consists of the construction of the coding operations, considering the text clippings in a record unit, the definition of counting rules, as well as the classification and aggregation of information in symbolic or thematic categories. In the third phase, the results were treated, inferred and interpreted, which consisted of capturing the manifest and latent contents contained in all the collected material (interviews and observation)[8].

We complied with the ethical aspects present in the Resolution of the National Health Council nº 466/12. According to Portuguese expressions, we used the terms “Tec. Enf.” for nursing technicians and “Enf.” for nursing professionals, as a strategy for maintaining the participants’ confidentiality. In order to identify systematic observation, we used the acronym OBS. SIST., in line with its Portuguese expression, followed by date and time.

This study was approved by the Research Ethics Committee, under Opinion nº 2.496.425 and CAAE: 76383417.6.0000.8133.

RESULTS

The analysis of the interviews allowed the identification of two categories: Characterization of the study participants and the Intervening factors for nursing care during the medication process in the intensive care unit.

Characterization of the study participants

Seven nursing professionals took part in the research, being four nursing technicians and three nurses. The participants are female and are in the age group between 26 to 53 years old. It is registered that the professionals have between 2 and 22 years of experience in the health sector.

Intervening factors for nursing care during the medication process in the intensive care unit

Considering the importance of the intervening factors of nursing care during the medication process, it is necessary to highlight that the information emerged in the research is related to the prescription, preparation and administration of medications.

- Medication prescription:

During data collection, we identified that the electronic prescription, data contained in it and the operating system used in the hospital, are factors related to the prescription stage that interfere with the nursing care in the intensive care unit.

A computerized system is used for standardized electronic prescription, performed by the on-duty physician in the sector, thus reducing the risk of misinterpretation of the prescription. As reported by the participant:

“[...] the advantage it has is that the prescriptions are standardized and this helps a lot.” (Tec. Enf. 02).

“Doctors hold the prescription on a computerized system” (OBS. SIST. Day: 11/14/2018 - Time: 10:30 a.m.).

In addition, it is worth noting that some data contained in the prescription generate doubts among professionals, especially those related to the abbreviation of words, and this can cause possible errors in the medication process.

“The medical prescription being scanned and printed is one of the qualities; but even so we have to be very careful, because there is always the risk of a mistake, especially because once in a while an abbreviation appears and we are in doubt.” (Tec. Enf. 01).

Nevertheless, the need for a more complete computerized information system was noted and mentioned by the participants, such as, for example, alerts about significant drug interactions, allergies and information relevant to the safety of the medication process.

“[...] a suggestion would be to insert a new electronic prescription system, with more information, such as, for example, important drug interactions, allergies, medication presentation and other important information that interfere with medication administration.” (Enf. 01).

“In my opinion, I would suggest the implantation of a new system or an update of the one that already exists, since there is still some information missing in the prescriptions and that directly interfere with the administration of the medications.” (Enf. 03).

- Medication preparation:

During the data collection process, we identified that the physical structure and storage of medications are factors that interfere with the stage of preparing medications in the ICU.

In the physical structure, it was emphasized that the size of the space is insufficient to ensure comfort for professionals during the preparation of medications, and that it is very close to the sink, which may undermine the procedure. According to the testimonials below:

“The place where the medications are diluted is a very small space and is very close to the sink.” (Tec. Enf. 01).

“The place is not very well suited, because it is close to the sink.” (Tec. Enf. 03).

In addition, we noticed that the physical structure negatively influences the storage of medications in the sector, because, during systematic observation, we noticed that the drugs are

stored in bags identified in an open cabinet. Furthermore, medications may not contain labels to identify them, facilitating the occurrence of adverse events.

“Drugs are ordered for 24 hours, if the doctor changes something, so it is requested at the pharmacy.” (Tec. Enf. 03).

“[...] all drugs are ordered at the pharmacy and are stored in the ICU itself.” (Enf. 01).

“Drugs stored in bags per patient in an open cabinet”. (OBS. SIST. Day 11/08/2018 - Time: 2h45 p.m.).

- Medication administration:

During data collection, we found that the organization of the workflow and the route of medication administration are factors that interfere with the stage of medication administration, and that they are involved in nursing care in the intensive care unit.

The way activities are distributed within the service contributes to the medication administration process, according to the statements below:

“[...] each professional having a division of patients is even better to memorize the medication and decreases the risks of making an error.” (Tec. Enf. 01).

“What helps here in the ICU is that it is a more organized place and we are able to do the procedures without haste and more calmly.” (Tec. Enf. 02).

"[...] another positive point is the division of patients among professionals, thus making it a more flexible demand for each one." (Enf. 03).

“Regarding the nursing workflow for medication administration, each technical professional is responsible for two beds and there are two nurses, one on-call and the other coordinator.” (OBS. SIST. Day 11/12/2018 - Time: 9:16 a.m.).

Regarding the medication administration in the ICU, one of the participants mentioned as a limitation the route of administration in the patient. The interviewees reported that the peripheral access is a difficulty, since most of the time the patient is edematous and the venous access is frequently lost, thus hindering an effective administration and increasing the likelihood of adverse events, as exposed in the statements below.

“[...] in relation to the route of administration, when patients have peripheral venous access, because of the severity in which they are, they lose access very easily and this ends up making it difficult to administer the medications.” (Tec. Enf. 02).

“One of the difficulties we have is when the patient is very edematous, making venipuncture more difficult in these patients [...]” (Tec. Enf. 04).

DISCUSSION

The predominance of the female gender in nursing can be justified by the history of its development as a profession in Brazil, when charitable sisters took over the direction of hospital services and nursing actions in the country began to be shaped by the spirit of female religiosity[9].

With regard to the time of activity in nursing, we observed that the majority, about 90% of the participants, have been working for more than five years. In a study that sought to evaluate the patient safety culture, it was found that professionals with less than six months of activity presented a more positive perception of the work environment, when compared to older professionals, who have a better understanding of the individual and collective competencies that determine the commitment and the style of the institution regarding safety issues[10].

In the present study, we identified that medication prescriptions are electronic, as recommended by the Safety Protocol on the prescription, use and administration of medications[11] as a way to improve their readability. Electronic medical prescriptions favor the safety of medications, because they are better structured, more readable, so that a lot of information can be provided to the prescriber, in addition to allowing the error to be corrected at the time of typing, without making mistakes or scribbles[12,13].

Regarding the abbreviation of words in the medical prescription, the Brazilian Ministry of Health says that problems in the readability of the prescription can compromise the communication between the prescriber and the patient and between the prescriber and other health professionals, generating important medication errors, mainly the exchange of medications with similar names. It is indicated that drugs are prescribed without the use of abbreviations, as their use increases the chance of a medication error[2].

It is worth underlining that physicians must take responsibility for the quality of their prescriptions, as a strategy to prevent avoidable medication errors. In light of this, a study[14] points out that the readability of the drug prescription improves with the use of capital letters. Therefore, it is recommended that the use of capital letters becomes routine practice in drug prescriptions with a view to improving patient safety.

Another aspect that deserves to be highlighted is the implementation of the electronic prescription operating system, since it is considered a way to modernize, simplify and make the medication system safer, since it eliminates the possibility of non-readability, reducing errors and promoting greater safety for the following phases of the medication process[15].

Regarding patient safety during medication use, it is necessary to emphasize drug interactions in the ICU, because studies[16,17] show that the frequency of potential drug interactions in prescriptions in this environment is high; therefore, ICU professionals must pay attention to drug interactions, especially the major ones, since they can bring several complications to patients.

It is believed that professionals working in ICU should consider drug interactions as a high potential factor for the occurrence of adverse events, since a survey[16] that analyzed severe potential drug interactions in maternal ICU identified that 95.1% of patients were exposed to at least one potential drug interaction, with 91.7% of them involved with moderate potential drug interactions and 33.9% with severe interactions, so that the main drugs associated with the most severe drug interactions were magnesium sulfate, metoclopramide, propranolol and diazepam.

Thus, in addition to the safe medical prescription, another intervening factor to ensure the safety of nursing care is the physical structure, which has an influence on the preparation of medications, after all, the work environment directly interferes with the process of preparing and administering medications.

In this context, it is worth underlining that the physical structure of the various environments that make up a hospital should focus on meeting three prerequisites: functional, technical, and psychosocial.[18] Thus, providing and maintaining an organized environment are factors that undoubtedly facilitate work processes, enhance the performance of tasks and, especially, cooperate with the provision of safer care.

However, during the medication administration process, it is certified that the storage of medications can be associated with a limitation, since it is a physical structure of the service.

The storage itself is the step that aims to ensure the quality and safe storage of medications in healthcare organizations. Thus, some safe practices for the storage of medications and pharmaceutical inputs are as follows: there must be specific areas for receipt and storage of medications and raw materials; there must be well-distributed lighting that allows a good view of the items and their respective identification; keep in a safe place the high-cost drugs with rigorous control, recommending a daily check per sample[19].

The Institute for Safe Medication Practices - ISMP[20] describes some strategies to prevent errors involving potentially dangerous drugs that may include standardizing prescribing; adopting safety measures for their identification and storage, such as auxiliary labels and tags; adapting to their safe dispensing and preparation; implementing a clinical decision support system with automated alerts; limiting access to these drugs; and making information about these drugs widely available to professionals and patients.

In view of this, with regard to the organization of the work process in the unit, through systematic observation and interviews, we found that professionals point it out as a potential during care.

In its scope of action, nursing adopts choices of managerial conception, staff dimensioning, use of materials and technologies, types of work division and power relations[21]. In this sense, the management dimension in nursing encompasses the organization and management of care and administrative processes, which constitute the fundamental work of nurses.

Accordingly, the dimensioning of human resources is a managerial activity/skill of nurses, in view of meeting the needs of the clientele in the search for better quality care. In this way, the distribution of tasks in the service is an important assignment for nurses, and it must be done in such a way that it helps the whole team, and not just one more difficulty to be faced[22].

However, regarding the medication administration step, we observed that the route of administration is sometimes a limitation found during this step. Central venous catheterization plays an important role in the treatment of critically ill patients, patients who require total parenteral nutrition, antibiotic therapy, chemotherapy and hemodialysis, in addition to sick people with difficult peripheral venous access[23].

Thus, intensive care units (ICUs) are highly qualified for the care and treatment of life-threatening patients, using invasive therapies, procedures and devices such as the central venous catheter (CVC). CVC is one of the most used in the ICU environment and plays an important role, especially those that are in critical condition, since it allows the hemodynamic monitoring of the patient, the infusion of vasoactive drugs, antibiotics and total parenteral nutrition[24].

Therefore, medication administration is one of the activities of greatest responsibility of the multidisciplinary and complex team; therefore, the search for scientific knowledge, focused on this theme, shows great importance, since it maximizes the use of various principles that underlie the professional action, promoting the necessary safety for the patient[25].

CONCLUSION

Through this study, we identified that the intervening factors for the safety of nursing care in the medication process are: electronic prescription, data contained in the prescription and abbreviations, operating system of prescription, physical structure of the sector, storage of medications, organization of the process of work and route of peripheral administration in critically ill patients.

Given the above, the phases of the medication process need special attention as nursing care, since, during the study, some difficulties were encountered, among them the great resistance of professionals not to join the research participation, thus justifying the small sample size.

Based on this context, the proposal is that changes be made with regard to patient safety in relation to medication, starting mainly with the incentive for professionals to participate in research, that there is an understanding of the importance of developing studies and that these contribute directly to safer and more effective care.

Therefore, health services that want to offer safe care to their patients should focus their strategies on medication, as it is the most common form of health care intervention and the most common cause of adverse events, many of them avoidable. A safe medication system will help professionals to prevent errors, through measures that facilitate the action of medicating, thus contributing to less harm to patients and, consequently, less spending to the public sector, since an adverse event can lead to longer hospitalizations.

More research in the area of patient safety is important, more precisely in the context of the medication administration process, since it is one of the main, if not the main, cause of errors and avoidable harm in nursing practice.

CONTRIBUTIONS

We inform that all authors contributed equally in the conception of the research project, data collection, analysis and discussion, as well as in the writing and critical review of the content with intellectual contribution and approval of the final version of the study.

CONFLICTS OF INTEREST

Nothing to declare

REFERENCES

1. Kohn L, Corrigan J, Donaldson M, editors. To Err Is Human: Building a Safer Health System. Washington (DC): National Academies Press; 2001

2. Brasil. Portaria nº 529 de 01 de abril de 2013. Institui o Programa Nacional de Segurança do Paciente (PNSP). Diário Oficial da União, Brasília, 01 abri. 2013. [Acesso em 2020 fev 19]. Available from: http://bvsms.saude.gov.br/bvs/saudelegis/gm/2013/prt0529_01_04_2013.html

3. Rodriguez EOL, Silva LSL, Menezes MO, Oliveira JKA. Assistência segura ao paciente no preparo e administração de medicamentos. Rev Gaúcha Enferm. 2017;38(4):e2017-0029. [Acesso em 2020 fev 11]. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1983-14472017000400408

4. Pimenta SF, Milhorini CR, Silva LF. Erros relacionados à medicação nas Unidades de Terapia Intensiva: revisão integrativa. REAS/EJCH, Vol. Sup.27, e931, 2019. [Acesso em 2020 fev 17]. Available from: https://acervomais.com.br/index.php/saude/article/view/931

5. Sousa LAO, Fonteles MMF, Monteiro MP, Mengue SS, Bertoldi AD, Pizzol TSD, Tavares NUL, et al. Prevalência e características dos eventos adversos a medicamentos no Brasil. Cad. Saúde Pública 2018; 34(4):e00040017. [Acesso em 2020 fev 17]. Available from: http://www.scielo.br/pdf/csp/v34n4/1678-4464-csp-34-04-e00040017.pdf. DOI: 10.1590/0102-311X00040017

6. Lobão WM, Menezes IG. Atitude dos enfermeiros e predisposição da ocorrência de eventos adversos em unidade de terapia intensiva. Rev enferm UFPE on line., Recife, 11(Supl. 5):1971-9, maio., 2017. [Acesso em 2020 fev 15]. Available from: https://pesquisa.bvsalud.org/portal/resource/pt/bde-31492. DOI: 10.5205/reuol.9302-81402-1-RV.1105sup201701.

7. Duarte SCM, Stipp MAC, Cardoso MMVN et al. Segurança do paciente: compreendendo o erro humano na assistência de enfermagem em terapia intensiva. Rev. esc. enferm. USP vol.52 São Paulo 2018 Epub 20-Dez-2018. [Acesso em 2020 fev 15]. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0080-62342018000100487&lng=pt&nrm=iso&tlng=pt

8. Minayo MCS. Pesquisa social: teoria, método e criatividade. 29. ed. Petrópolis, RJ: Vozes, 2010.

9. Lombardi MR, Campos VP. A enfermagem no brasil e os contornos de gênero, raça/cor e classe social na formação do campo profissional. Revista da ABET, v. 17, n. 1, Janeiro a Junho de 2018. [Acesso em 2020 abr 28]. Available from: https://periodicos.ufpb.br/ojs/index.php/abet/article/view/41162/20622

10. Carvalho REFL, Arruda LP, Nascimento NKP, Sampaio RL, Cavalcante MLSN, Costa ACP. Avaliação da cultura de segurança em hospitais públicos no Brasil. Rev. Latino-Am. Enfermagem 2017;25:e2849. [Acesso em 2019 Dez 10]. Available from:

http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692017000100310&lng=en&nrm=iso&tlng=pt

11. Ministério da Saúde (BR). Documento de Referência do Programa Nacional de Segurança do paciente. Ministério da Saúde, Fundação Oswaldo Cruz, Agência Nacional de Vigilância Sanitária. Brasília: Ministério da Saúde; 2014. [Acesso em 2019 dez 11]. Available from: http://bvsms.saude.gov.br/bvs/publicacoes/documento_referencia_programa_nacional_seguranca.pdf

12. Volpe CRG, Melo EMM, Aguiar LB, Pinho DLM, Stival MM. Risk factors for medication errors in the electronic and manual prescription. Rev. Latino-Am. Enfermagem. 2016;24:e2742. [Acesso em 2020 fev 13]; Available from: http://www.scielo.br/pdf/rlae/v24/pt_0104-1169-rlae-24-02742.pdf. DOI: http://dx.doi.org/ 10.1590/1518-8345.0305.2742

13. Franklin BD, Puaar SJ. What is the impact of introducing inpatient electronic prescribing on prescribing errors? A naturalistic stepped wedge study in an English teaching hospital. Health Informatics Journal. [Internet]. 2019. [Acesso em 09 out 2019]. Available from: https://journals.sagepub.com/doi/full/10.1177/1460458219833112

14. Santos PRA, Rocha FLR, Sampaio CSJC. Ações para segurança na prescrição, uso e administração de medicamentos em unidades de pronto atendimento. Rev. Gaúcha Enferm. vol.40 no.spe Porto Alegre 2019 Epub Apr 29, 2019. [Acesso em 2019 dez 29]. Available from: http://www.scielo.br/scielo.php?pid=S1983-14472019000200423&script=sci_arttext

15. Silva BK, Silva JS, Gobbo AF F, Miasso AI. Erros de medicação: condutas e propostas de prevenção na perspectiva da equipe de enfermagem. Revista Eletrônica de Enfermagem, v. 09, n. 03. 2017. [Acesso em 2019 nov 12]. Available from: http://www.fen.ufg.br/revista/v9/n3/v9n3a11htm

16. Silva JS, Damasceno RS. Avaliação das interações medicamentosas potenciais no âmbito da UTI adulta. Id on Line Rev. Mult. Psic. V.11, N. 39. 2017. [Acesso em 2018 out 10]. Available from: https://idonline.emnuvens.com.br/id/article/view/981

17. Moreira MB, Mesquita MGR, Stipp MAC, Paes GO. Potenciais interações de medicamentos intravenosos em terapia intensiva. Rev. esc. enferm. USP vol.51 São Paulo 2017 Epub July 20, 2017. [Acesso em 2019 out 10]. Available from: http://www.scielo.br/scielo.php?pid=S0080-62342017000100432&script=sci_arttext&tlng=pt

18. Pereira FGF, Caetano JA, Ataíde MBC, Silva RL, Néri EDR, Carvalho GCN. Environmental variables and errors in the preparation and administration of medicines. Rev Bras Enferm [Internet]. 2018;71(3):1046-54. [Acesso em 2019 nov 16]. Available from: http://www.scielo.br/pdf/reben/v71n3/pt_0034-7167-reben-71-03-1046.pdf

19. Pinto VB. Armazenamento e distribuição: o medicamento também merece cuidados. Uso racional de medicamentos: fundamentação em condutas terapêuticas e nos macroprocessos da assistência farmacêutica. V. 1, n 12, Brasília. 2016.

20. Instituto para Práticas Seguras no Uso de Medicamentos – ISMP. Medicamentos potencialmente perigosos de uso hospitalar - lista atualizada 2019 [INTERNET]. 2019 [Acesso em 2019 nov 09]. Available from: https://www.ismp-brasil.org/site/wp-content/uploads/2019/02/615-boletim-ismp-fevereiro-2019.pdf

21. Lanzillotti LS, Seta MH, Andrade CLT, Junior WVM. Eventos adversos e outros incidentes na unidade de terapia intensiva neonatal. Rev Ciencia & Saude Coletiva, 20(3):937-946, 2015. [Acesso em 2020 fev 17]. Available from: http://www.scielo.br/scielo.php?pid=S1413-81232015000300937&script=sci_arttext&tlng=pt

22. RODRIGUES, R. A. P.; MISHIMA, S. M. Aprender para cuidar em enfermagem: situações específicas de aprendizagem. Ribeirão Preto: USP/EERP, 2015. [Acesso em 2019 out 19]. Available from: http://www.eerp.usp.br/ebooks/aprenderparacuidar/pdf/5medicamentos2.pdf

23. Perin DC, Erdmann AL, Higash GDC, Sasso GTMD. Evidências de cuidado para prevenção de infecção de corrente sanguínea relacionada a cateter venoso central: revisão sistemática. Rev. Latino-Am. Enfermagem 2016;24:e2787. [Acesso em 2019 nov 04]. Available from: http://www.scielo.br/pdf/rlae/v24/pt_0104-1169-rlae-24-02787.pdf

24. Fortunatti CFP. Impacto de dois bundles na infecção relacionada a cateter central em pacientes críticos. Rev. Latino-Am. Enfermagem vol.25 Ribeirão Preto 2017 Epub Dec 04, 2017. [Acesso em 2019 nov 20]. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692017000100394&lng=en&nrm=iso&tlng=pt

25. Praxedes MFS, Telles Filho PCP, Miasso AI, Júnior ACP. Administração de medicamentos: identificação e análise das necessidades educacionais de enfermeiros. Rev enferm UFPE on line., Recife, 9(1):76-83, jan., 2015. [Acesso em 2020 jan 23]. Available from: https://periodicos.ufpe.br/revistas/revistaenfermagem/article/view/10309/10982

Correspondence address

Mikaelle Fernandes Marques

E-mail: enfmikaellef@gmail.com

Submissão: 04/29/2020

Aceito: 05/13/2021