

## Trends in Nursing Practices Versus Drug Administration

**Magda Carolina Cruz<sup>1</sup> and Blanca Elpidia Tovar Riveros<sup>2\*</sup>**

<sup>1</sup>Student VIII Semester of the Nursing Program, University Foundation of the Andean Area, Colombia

<sup>2</sup>Professor of the Nursing Program-University Foundation of the area Andina, Specialist in Critical Care Javeriana University, Master Education and University Teaching University of Colombia, PhD in Bioethics University El Bosque, Colombia

**\*Corresponding Author:** Blanca Elpidia Tovar Riveros, Professor of the Nursing Program-University Foundation of the area Andina, Specialist in Critical Care Javeriana University, Master Education and University Teaching University of Colombia, PhD in Bioethics University El Bosque, Colombia.

**Received:** June 18,2021; **Published:** September 06, 2021

### Abstract

The nursing professional plays an important role in the safety of the person under his/her care and specifically regarding the adequate supply of medications. For this reason, this research established the objective of determining trends in scientific research regarding the administration of medications by the nursing professional. To achieve the objective, we used the documentary research methodology with a qualitative and hermeneutical approach, carried out on 50 scientific documents in the area of nursing and health sciences from Latin America and Spain between 2003 and 2019. The documents reviewed They were selected in an Excel database and from there common criteria were established that allowed the establishment of analysis categories: a. Incident reporting protocols for medication administration; b. Knowledge and training of the professional for the safe administration of medications; c. Institutional standards and protocols for the safe administration of medications; d. Promotion of patient safety in the administration of medications and e. Distractions, errors and omissions in the administration of medications. Conclusions: errors in the administration of medications occurs when the health professional has distractors during the process of both the enlistment and the administration of medications such as: staff in charge, non-compliance with protocols established by the institution, excessive responsibility, fatigue and fatigue.

**Keywords:** Nursing; Medication Administration; Patient Safety

### Introduction

The nursing professional has a fundamental role in the provision of health services, because it is an important link between the medical staff and the person, as established in Law 911 of 2004 [1], considering nursing as an act of care, interdisciplinary, because it integrates medical knowledge, biological, social and human.

Thus, the orientation of the profession is defined in article 3 of the Act: "It is based on the communication and humanized interpersonal relationship between the nursing professional and the human being, the subject of care, the family or social group, in the different stages of life, health situation and the environment.

It implies a value judgment and a dynamic and participatory process to identify and prioritize needs and decide on the nursing care plan, with the purpose of promoting life, preventing disease, intervening in treatment, rehabilitation and palliative care in order to develop, as far as possible, individual and collective potentialities”.

In this sense, this work focused on care, conceived the activities of nursing to the attention to the people in terms of their needs, as well as to favor their well-being in order to improve or remedy the conditions of life and health [2]; therefore its function must be articulated in the field of health promotion, disease prevention, intervention, rehabilitation and recovery of health, pain relief, as well as the well-being and dignified life of individuals [3].

The practice of nursing in the different areas of professional practice has evolved and is associated with a higher life expectancy of the population. However, in the care field of intervention and recovery related to clinical care, the incorporation of technical and scientific devices has allowed the care spaces in health centers to be more accelerated and complex for the nursing professional [4], causing the performance of nursing professionals to develop many times under pressure, thereby compromising the safety of the person and the safety of the professional [5].

Although the purpose of health interventions is to benefit people, complex care conditions and hospital dynamics can lead to unsafe practices; therefore it is necessary to identify and manage these actions and determine which are the elements that contribute to the presence of an adverse event, thus minimizing the possibility that unsafe practices continue to develop [6]. Hence the importance of instructional packages or manuals of good practices in health, which in Colombia are advanced and managed by the Ministry of Health and Social Protection [7].

However, despite efforts to consolidate instructional packages, there are several factors associated with the occurrence of unsafe practices in health services.

In this regard, national and international organizations agree that medication error is one of the most important causes of deaths, injuries and foreseeable damage in health care systems worldwide [7]. For this reason, the World Health Organization establishes that safety in the administration of medicines should be one of the priority pillars in health care around the world [8], which leads to the need to reduce medication errors.

Medication error is defined as “any preventable incident that may cause harm to the person, or lead to inappropriate use of medicines, when they are under the control of health professionals or the consumer” [9]. Such incidents could be related to professional activity, procedures and medications, as well as the system in general. As for the different phases of the medication administration process, there may be failures in prescribing, communicating to the patient, in the labeling, when packaging, preparing, dispensing and distribution processes, and in the use of the drugs [10], which can cause serious harm, disability and even death to the person.

It is important to note that the administration of medications is the responsibility of the nursing professional, being that one of the commitments is to assume ethically and legally the consequences of an adverse event in terms of medication; therefore, they constitute a problem in their daily work [11]. These errors are often attributed to human factors such as fatigue, poor environmental conditions or shortages of health personnel; therefore, institutions in general, and nursing staff in particular, should be oriented to ensure the safety of the person, minimizing medication errors.

However, although interventions have been designed to address the frequency and impact of such errors, through protocols and instructional packages [7], it has been established that the main problems are that there is no globally approved protocol that proposes a common methodology for intervention by nursing staff in health institutions [12,13].

Thus, the high statistics on medication errors worldwide, as reported by the World Health Organization [14], coupled with the lack of approved protocols that are reliably followed by nursing staff, leads to the need to characterize the practices associated with medication errors and what is the role of the nursing professional in this situation. However, scientific production in nursing is scarce compared to other disciplines in the area of Health Sciences [15], which requires an exhaustive approach to this topic from different sources.

According to the above scenario, it is relevant to ask what is the trend in nursing practices in the administration of medications? therefore, a documentary research is made that aims to give an account of the state of the art of the scientific literature on the role played by the nursing professional in the administration of medicines, in order to specify the current trends in relation to this issue.

### Materials and Methods

#### Design

The study was based methodologically on documentary research with a qualitative and hermeneutic approach. This method consists of the review of documents from different sources and the subsequent organization and interpretation of the information according to the establishment of deductive categories [16]. This makes it possible to systematize the referents consulted on certain topics, according to the prevailing trends.

#### Inclusion criteria

In the process of collecting documentary information, documents in Spanish, Portuguese and English generated between 2003 and 2019 in Latin American countries were consulted, which were obtained through the Google Scholar search engine, and the Redalyc, Scielo, Latindex and Dialnet databases, university repositories and documents from international organizations, specifically, the World Health Organization. The reviews were carried out in indexed articles, reports and theses of bachelor's degree and specialization in nursing and related areas. Qualitative and quantitative research was considered.

The search procedure was structured as follows: The search was initiated through the keywords "medicines" and "nursing". From the initial search, a wide breadth of the topic was detected; therefore, the search was directed towards the safety guidelines in the administration of medicines. At this point, nursing staff were selected as the target population.

Once the interest has been defined to the safety of the administration of medicines in the person, the inquiry is oriented towards the intrahospital and ambulatory practices, and administration of medicines in the different pathologies as a subject of study. Subsequently, due to the relevant information obtained, the categories were expanded, also considering the safety of nurses and the incidence of situations in the context in the administration of medications.

#### Instrument for data collection

The collected material was recorded in a matrix for the analysis of the manuscripts, elaborated in Excel. According to the trends obtained in the Excel matrix, a debugging was carried out and descriptive tables were organized that allowed to systematize the data and later integrate it according to themes and common elements, which allowed the construction of categories of analysis.

### Results

Once the process of purging material was carried out, and excluding documents that did not refer to the nursing staff, a total of 50 documents on the topic of medication administration were obtained. By focusing the consultation on scientific production on the subject

in Latin America, it was possible to define that the majority of research aimed at nursing and medication administration during the period consulted (2003 - 2019) is located in Colombia with 38% of scientific production, followed by Spain with 22% and Mexico, with 12%. This makes it possible to consider the country's interest in the problem raised. It should also be noted that in scientific production, 6% of documents were obtained from international organizations, referring to the subject worldwide.

Country of origin	Number of Documents	%
Colombia	19	38
Mexico	6	12
Peru	4	8
Chile	1	2
Ecuador	1	2
Brazil	4	8
Cuba	1	2
Spain	11	22
International organizations	3	6
Total	50	100%

**Table 1:** Place of study.

**Source:** Authors.

When addressing the year of publication of the documents, it was found that the most productive year in terms of scientific research in the area was 2018 with 24% of the documents consulted. As can be seen in table 2, there is a growing trend of publications on the subject, which began in 2014, being also interesting to note that between 2003 and 2011, only 3 documents were presented of the total consulted, which represents 6% of scientific production on the subject in 7 consecutive years. These data indicate that the interest in research on the practice of medication administration by nursing professionals is relatively recent.

Year	N° Documents	%
2003	1	2
2009	1	2
2011	1	2
2012	2	4
2014	7	14
2015	7	14
2016	5	10
2017	9	18
2018	12	24
2019	5	10
Total	50	100

**Table 2:** Year of publication of documents.

**Source:** Authors.

We also reviewed the products or formats in which the research is presented, being able to identify that 52% comes from scientific articles in indexed journals, followed by undergraduate theses (20%) and thesis of specialization in areas of health (16%). This allows to point out that after the scientific articles, the theses generated in universities constitute an important source of knowledge in the subject under study.

Products	Frequency	%
Government Reports/International Organizations	2	4
Articles in indexed journals	26	52
Monograph	2	4
Bachelor's Thesis	10	20
Specialization Thesis	8	16
Master's thesis	2	4
Total documents	50	100%

**Table 3:** Origin of publications.

**Source:** Authors.

As for the topics addressed in the research, it could be observed in the revised documents that the prevailing theme refers to the determination of errors and distractions by nursing staff in the administration of medications, with 34% of the documents consulted, which seems to demonstrate that this factor seriously compromises patient safety. Secondly, with regard to the topics observed in the documents, it was obtained that 25% refers to establishing the degree of knowledge and training strategies for the safe administration of medicines, thus indicating the need to establish whether there is adequate information and what health institutions are doing for the training of personnel in this area.

Third, 18% of research focuses on establishing standards and protocols for the safe administration of medications, with an interest in reducing errors in administration through approved guidelines.

Topics	Frequency	%
Medication Administration Incident Notification Protocols	2	4
Knowledge and training of the professional for safe administration of medicines	14	28
Institutional standards and protocols for safe drug administration	9	18
Promoting patient safety in the administration of medicines	8	16
Distractions, errors and omissions in the administration of medications by the nursing professional	17	34
Total Documents Reviewed	50	100

**Table 4:** Topics in which the texts consulted are located.

**Source:** Authors.

According to the topics presented in table 4, the categories were established through which the results of the research consulted are put into dialogue and generate a position on the administration of medicines according to the revised trends.

### Discussion

The conduct of this review provides systematic information to support sustained actions against the World Health Organization's objectives of achieving a Medication without Harm [17]. That is why this discussion section presents the contributions from each trend obtained in the research reviewed.

#### Protocols for reporting incidents in the administration of medicines

The trends reviewed agree that one of the most frequent problems in health institutions has to do with errors by nurses in the administration of medications, which compromise patient safety [18].

This leads to the identification of the first category that emerges from the documentary review referring to the creation of a culture of the safety of health institutions, through the generation of notification protocols that must be related to the attitudes of professionals in compliance with them. Therefore, the research proposes previously to define "medication error" in order to generate an approved instrument for the practice of medication, which establishes the qualitative and quantitative steps to be met during the process that allow to minimize such situations [19].

Nursing professionals are the ones who notify in writing more incidents of medication, due to the responsibility they assume, in addition to being aware that declaring or reporting incidents helps to improve organizational management for patient safety, noting that outpatient services are usually more efficient in this regard than hospitalization units, which may be influenced by factors such as the critical or complex situation of the patients seen as well as the workload [20]. This research trend is associated with the need to establish a starting point for future interventions for patient safety culture.

#### Knowledge and training of the professional for safe administration of medicines

One of the categories that predominates in the revised documents is that referred to the training of nursing professionals in the administration of medications, in which the knowledge acquired to be developed during clinical practice is involved, resulting in safer care [21]. In this regard, trends explain that nursing professionals in their academic training must possess scientific, physiological, pharmacological, ethical and technical knowledge that allows them to adequately meet the expected criteria of quality in terms of safety. Therefore, it is necessary to recognize the shortcomings and prevention strategies in the administration of medicines in the clinical setting, and at the same time, generate adequate training to minimize these errors and/or face them adequately [22,23].

In a research aimed at identifying the knowledge of nursing professionals in the administration of medications, it was obtained that 72.7% had received previous training and considered having good knowledge about drug administration, allowing to recognize that although the degree of knowledge is significantly high, it is not enough to guarantee a safe practice [24].

However, the weaknesses of the nursing professional regarding the safe administration of medications may be related to the lack of adequate prevention strategies and training since undergraduate, in addition to the deficit of pharmacological knowledge [25]. Difficulties have been identified in nursing training for training on medications and their administration, where 57% have an ability to remember what they have studied at a regular level, with the subject of pharmacology being the one with the greatest difficulty in learning, 53.8% of the students.

It was also evidenced that 76.9% of fifth semester students do not have sufficient knowledge for the safe administration of medications, having shortcomings in the degree of learning, mechanisms of action adverse effects and drug interactions [26]. It has also been

found that the degree of knowledge of the term pharmacovigilance, as well as the knowledge in general and notification on the part of nurses in the field of Primary Care, is low [27].

For this reason, it is necessary to provide training and theoretical and practical updating in the field of pharmacology, which allows safe and safe professional activities for patients in terms of the administration of medicines [28,29].

Among the resources needed to train staff, the need to generate comprehensive information within the framework of patient safety is also considered, as recommended by WHO through the Curricular Guide on Patient Safety, which integrates the knowledge provided by different academic bodies in the field of health [30].

Trends point to the need for training to consider aspects such as management and management in nursing, which is associated not only with the proper administration of resources, but also with a greater commitment of the professional to the care of the person [31], thus allowing patient safety in terms of medicines to be a priority in the management of institutions.

### **Institutional standards and protocols for safe drug administration**

The revised research considers the creation of safe protocols as a resource to ensure safety in the administration of medicines [31]. Reviewed research indicates the absence of recognized practice protocols that are generally applied by nurses in the preparation of medications [32]. Therefore, it is proposed the need to agree on a standardized list of recommendations for the safe preparation of medicines [33,34]. Such standardized protocols should consider technologies, process combinations, and human interactions to reduce harm related to medication delivery [35].

In this sense, one of the strategies proposed for the elaboration of the protocols, is the realization of simulations in the administration of medicines, which allows that in the professional practice the students achieve solid bases in the area that allows them to learn the essentials and reduce the adverse effects in the administration of medicines [36]. On the other hand, although the protocols exist, in many cases they are breached by the nursing staff, showing that while 49% of nursing professionals in a study group are aware of the existence of a medication administration protocol, only 38% have real knowledge about the relevant procedures [37].

### **Promoting patient safety in the administration of medicines**

The World Health Organization proposes the goal of achieving a Medication without Harm [38], inviting institutions to generate plans to achieve this goal. For this reason, nursing services in different countries are aimed at achieving high levels of excellence in care, which is associated with risk-free and harm-free care for the patient, which are established as indicators of the quality of health services [39]. Within this category, it is pointed out that to promote patient safety it is necessary to establish and comply with a framework of action that reduces medication errors, since it is pointed out that this is the main cause of adverse events generated by unsafe practices in health institutions [40].

### **Distractions, errors and omissions in the administration of medications by the nursing professional**

In the documents studied, the predominant trend was that referred to nursing staff errors, which are reported as frequent [41], negatively affecting patient safety and the achievement of the goals set by health institutions and WHO. In 192 processes observed in a health center in Mexico, about 18 distractions are reported due to processes performed, the most frequent being: attention by other staff members and students in 34.9% of the staff, conversations in 32%, telephone calls, in 10.5%. All these distractions constitute 77.5% of the total of ten distractions evidenced [42]. Related to these errors, it is emphasized that the nursing professional should not delegate functions in the medication administration process [43].

More specifically, trends indicate that one of the most frequent errors relates to the preparation and administration of medications [44,45], specifically in hospitalized patients [46,47], without neglecting primary care [48]. In addition, shortcomings in the culture of reporting such adverse events are reported, affecting the climate for patient safety [49].

There are different difficulties that can arise in the process of administering medicines. A study conducted with nursing staff in a health institution in Colombia indicates that 72.2% of respondents believe that the cause of error is in the interpretation and transcription of the medical treatment sheet to the nursing treatment sheet. Regarding situations that increase the possibility of medication errors, 85.2% indicate that they are interruptions during treatment administration and 77.7% to last-minute treatment changes [50].

Dose omissions are also considered a frequent error [51], as well as events attributed to prescription preparation by medical personnel, such as “illegible handwriting, lack of administration schedule, use of unknown acronyms or abbreviations, and incomplete records” [52]. On the other hand, they are considered personal factors, related to the work of the staff. In a research carried out in Spain, it is indicated that stressors and fatigue represent 81.5% of the causes that contribute to medication error, followed by work overload in 77.7%. On the other hand, 79.6% of the interviewees reported having made some error in the process, with 35.2% associated with the “incorrect identification of the patient and the verification of the drug” [53].

### Conclusion

To answer, what is the trend in nursing practices versus medication administration? It is imperative to begin by recognizing the important role played by nursing professionals in the safety of the person under their care, it was established the importance of determining how scientific documents establish trends in the administration of medications.

The most important trend allowed to establish that in the work of the nursing staff the existence of adverse events related to the administration of medications is frequent, indicating the omission, distractions and failures in compliance with the protocols; this is due to personal factors such as interruptions, distractions, workload and stress, as well as factors related to medical prescription, such as illegible lettering, lack of schedules and abbreviations.

This may have an important relationship with two situations that were also identified through trends. First, in relation to the education and training of nurses, in which it was detected that it is necessary to increase training in pharmacology and pharmacovigilance, since even though there is knowledge in these areas, the studies reviewed show that these are not sufficient to face adverse events related to medication. Also, incorporate simulations as strategies that allow future professionals to face adverse situations.

Secondly, the implementation of standardized action protocols for the administration of medicines and for the notification of adverse events. According to the literature reviewed, the absence of recognized practice protocols that are generally applied in the preparation and application of medications by nursing staff was determined; these protocols must be based on the identification of errors and the mechanisms to avoid them. Related to the above, the protocols must consider the mechanisms of notification of adverse events, which, according to the articles consulted, do not have a wide diffusion, since these notification mechanisms constitute an important raw material for the protocols of action.

Finally, another important trend is generally aimed at achieving the objectives set by the World Health Organisation in terms of patient safety. In this sense, the findings obtained in this research process allow to contribute elements for the theoretical construction in nursing on the role of the nursing professional in medication errors and the shortcomings that are associated with these errors, in order to contribute to the development of safe systems and processes in the administration of medicines in health institutions [54].



For this reason, it is necessary to consider in professional practice the findings reported in order to improve the processes both in the formation and training of the professional, as well as in the protocols and standards of the institutions, both at the level of primary care and in hospitalization.

### Bibliography

1. Law 911 of 2004. By which provisions are issued in the matter of deontological responsibility for the exercise of the nursing profession in Colombia; the corresponding disciplinary regime is established and other provisions are issued". Official Journal 45.693 (2004).
2. Zárate-Grajales A., *et al.* "Adverse events in hospitalized people reported by nursing: a multicenter study in Mexico". *Sick. Univ* 14.4 (2017): 277-285.
3. Law 266 of 1996 regulating the nursing profession in Colombia and enacting other provisions". Official Journal 42.7105 (1996).
4. Castañeda Y. "Factors that influence the occurrence of errors in the administration of medications by nursing staff affecting patient safety. [Thesis of Specialization in Health Auditing]. Bogota. Santo Tomás University (2018).
5. Moran L and Yauri A. "Factors that lead to error in the administration of intravenous drugs by nursing inmates - Ayacucho Regional Hospital. [Bachelor's Thesis in Nursing] National University of San Cristóbal de Huamanga (2018).
6. Arango P. "Strengthening of safety processes in the use of medicines and safe practices in the institution providing services Medicarte Medellín 2016. I work to qualify for the title of specialist in health auditing. medellin. University of Antioquia (2016).
7. Ministry of Health and Social Protection. Improve safety in the use of medicines. Instructional packages. Technical guide "Good practices for patient safety in health care". Bogotá.
8. Organización Mundial de la Salud. Medication Safety in Transitions of Care. Ginebra (2019).
9. Otero López MJ., *et al.* "Medication errors: standardization of terminology and classification". *Hospital Pharmacy* 27.3 (2003): 137-149.
10. Castiblanco L and Silversmith D. "Institutional therapeutic form, for the administration of parenteral oncological drugs at the Santa Fé Foundation University Hospital in Bogotá-Hufsb. [Bachelor's Thesis in Pharmaceutical Chemistry]. Bogotá: Universidad de Ciencias Aplicadas y Ambientales (2016).
11. Aya P and Suárez U. "Perception of the factors related to the error in the administration of medicines in the hospitalization service of a Fourth Level Colombian institution". *Colombian Journal of Nursing* 9 (2015): 21-30.
12. Ponce G., *et al.* "Nursing professional competencies in the ministrations of high-risk medications in pediatrics". *Conamed Magazine* 21.3 (2016): 116-121.
13. Salinas M. "Interventions to Prevent Medication Errors in emergency department at University Hospital. [Report to obtain the Professional Title of Pharmaceutical Chemist]. 2014. Universidad de Chile (2014).
14. World Health Organization. Press release. WHO launches a global initiative to halve medication-related errors in five years (2017).
15. Ladrero I and Salvador J. "The scientific production in the area of Nursing in Web of Science". *Knowledge Nurse* 1.02 (2018): 11-23.
16. Calvo G., *et al.* "Educational research or pedagogical research? The case of the investigation in the Capital District. Magis". *International Journal of Research in Education* 1 (2008): 163-174.

17. World Health Organization. Curricular Guide on Patient Safety. Multiprofessional Edition. University of Salvador (2012).
18. Soares J., *et al.* "Technologies involved in the promotion of patient safety in the medication process: an integrative review". *Cogitare Enfermagem* 22.2 (2017): e45608.
19. Otero López MJ., *et al.* "Medication errors: standardization of terminology and classification". *Hospital Pharmacy* 27.3 (2003): 137-149.
20. Mir R., *et al.* "Attitudes towards the culture of patient safety in the hospital setting and correlated variables". *Health Gazette* 31.2 (2017): 145-149.
21. Tamayo F., *et al.* "Medication administration in adult intensive care units: a non-delegatable nursing care. [Thesis of Nursing Specialist in Adult Care in Critical Health Condition]. University of Antioquia. Medellin (2018).
22. Caro S., *et al.* "Knowledge related to aspects of medication administration in nursing practice in three hospitals in the Atlantic (Colombia). *Salud Uninorte* 30.3 (2014): 371-380.
23. Reyes R and Guerrero C. "Compliance with the administration of medicines carried out by nursing professionals in a Psychiatric Specialty Hospital of Guayaquil. 2018. [Work of degree prior to obtaining the degree of Bachelor of Nursing]. Catholic University of Santiago de Guayaquil (2018).
24. Carmona J., *et al.* "Analysis of knowledge about drug administration". *European Journal of Investigation in Health* 5.2 (2015): 233-241.
25. Martinez A. "Errors, influencing factors and prevention strategies against drugadministration. [Monograph to opt for the title of Nurse]. Universidad de Ciencias Aplicadas y Ambientales U.D.C.A. (2018).
26. Saavedra G and Tovar B. "Problematic in learning vs medication management and administration". *Science and Humanism in Health* 4.1 (2017): 15-22.
27. Vallelado M. "Role of nursing in the safety of medicines in primary care. [End of Degree Work in Nursing]. University of Valladolid (2015).
28. Balseiro L., *et al.* "The prescription of medicines by nursing graduates. Legal liability implications". *CONAMED Magazine* 22.3 (2017): 145-151.
29. Nogueira F., *et al.* "The care of nurses of an obstetric residence program under the scope of humanization". *Journal of Nursing* 11.5 (2017): 1882-1890.
30. World Health Organization. Curricular Guide on Patient Safety. Multiprofessional Edition. University of Salvador". San Salvador (2012).
31. Molina-Trinidad E M., *et al.* "System of distribution of drugs in unit doses and medication errors. Education And Health Scientific Bulletin Institute of Health Sciences Autonomous University of the State of Hidalgo 7.13 (2018): 131-135.
32. Ramos D and Soto V. "Identifying distractions in the medication administration process ensures safe practice". *Advances in Nursing* 32.1 (2014): 44-52.
33. World Health Organization Safety in Transitions of Care. Geneva (2019).
34. Martín A., *et al.* "Recommendations for the preparation of sterile medications in nursing units". *Hospital Pharmacy* 38.1 (2014): 57-64.

35. García A., *et al.* "Medication error and preventable adverse reactions due to the consumption of phytopharmaceuticals in Cuba". *Health horizon* 15 (2016): 83-90.
36. Barrera E., *et al.* "Patient safety protocol for the administration of medicines in the simulation center of the Cooperative University of Colombia bucaramanga headquarters". Cooperative University of Colombia. Bucaramanga (2015).
37. Torres D. "Compliance with the protocol of safe administration of medication by nursing professionals. Hospital San Luis de Otavalo. [Undergraduate Thesis in Nursing]". Technical University of the North. Ecuador (2018).
38. World Health Organization. Curricular Guide on Patient Safety". Multiprofessional Edition. University of Salvador (2012).
39. Pelliciotti J., *et al.* "Medication errors and health-related quality of life of nursing professionals in Intensive Care Units". *Revista Latino-Americana de Enfermagem* 18.6 (2010): 1062-1069.
40. From Santis A and Goyret A. "Medication errors: avoidable situations that affect the safety of patients". *Pharmacological Bulletin* 8.2 (2018).
41. Diaz Z. "Errors in the administration of medicines by students of the degree in Nursing of the Industrial University of Santander: Methodological Proposal. [Monograph of degree to opt for the title of Specialist in University Teaching]. Industrial University of Santander. Bucaramanga (2016).
42. Ramos D and Soto V. "Identifying distractions in the medication administration process ensures safe practice". *Advances in Nursing* 32.1 (2014): 44-52.
43. Arcila L and Naranjo L. "Medication administration in adult intensive care units: non-delegatable nursing care. [Thesis to qualify for the title of Nursing Specialist in Adult Care in Critical Health Condition]. University of Antioquia. Medellin (2018).
44. Guerrero G., *et al.* "Knowledge of nurses of medication doses in pediatric emergencies". *Clinical Nursing* 26.4 (2016): 213-219.
45. Córdoba M., *et al.* "Bibliometric analysis of articles on patient safety published in Colombian journals. Article No. 3. [Degree work]. Cooperative University of Colombia. Santa Marta (2018).
46. Franco E., *et al.* "Medication errors in nursing practice: an integrative review". *Global Nursing* 13.34 (2014): 330-337.
47. Díaz F and Villanueva S. "Effective strategies to prevent errors in the administration of medications in critical areas. [Academic Work to qualify for the Title of Specialist in Emergency and Disaster Nursing]. Norbert Wiener Private University. Peru (2018).
48. Prado P and da Silva M. "Nursing journals and medication administration: identification and categorization of publications from 1987 to 2008". *Latin American Journal of Nursing* 17.5 (2009).
49. Zárate-Grajales R A., *et al.* "Adverse events in hospitalized patients reported by nursing: a multicenter study in Mexico". *University Nursing* 14.4 (2017): 277-285.
50. Aya P and Suárez U. "Perception of the factors related to the error in the administration of medicines in the hospitalization service of a Fourth Level Colombian institution". *Colombian Journal of Nursing* 9 (2015): 21-30.
51. Magino J. "Critical review: omission of doses in medication administration in emergency nurses. [Academic Work to opt for the title of Second Professional Specialty of Nursing in Emergencies and Disasters]. Santo Toribio Catholic University of Mogrovejo. Peru (2019).
52. Castañeda Y. "Factors that influence the occurrence of errors in the administration of medications by nursing staff affecting patient safety. [Thesis of Specialization in Health Auditing]. Bogota. Santo Tomás University (2018).

53. Gonzalez L. "Identification of errors by Nursing in the process of drug administration in Hospitalization Units. [End of Degree Work in Nursing.] University of La Palma. Gran Canarias (2019).
54. Ramos D and Soto V. "Identifying distractions in the medication administration process ensures safe practice". *Advances in Nursing* 32.1 (2014): 44-52.

**Volume 10 Issue 10 October 2021**

**©All rights reserved by Magda Carolina Cruz  
and Blanca Elpidia Tovar Riveros.**