

## The in-visibility of iatrogenesis in nursing in medication administration

*La in-visibility de la iatrogenesis en enfermería en la administración de medicamentos*

*A in-visibility da iatrogenia na enfermagem na administração de medicamentos*

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### Abstract

This research aims to identify the most frequent failures that occurred in the medication administration process according to the experience of the nursing team. It is a qualitative field research. The methodological design was carried out in 5 phases: Phase 1: authorization from the institution and, later, submission to the Research Ethics Committee; Phase 2: validation of the data collection instrument; Phase 3: presentation of the Informed Consent Form to the research subjects; Phase 4: data collection itself. A questionnaire containing 20 questions was used as an instrument; Phase 5: data analysis. The most common types of drug iatrogenesis were related to medication dosage. The adverse events cited that pointed out as the cause of inappropriate behavior on the part of the nursing team was negligence, as drugs not administered by the team, often who prepares is not the same who administers the medication. Among the causes for failures to occur are overload and lack of attention.

**Descriptors:** Medication Errors; Medication Administration; Nursing; Patient Safety.

### Resumen

Esta investigación tiene como objetivo identificar las fallas más frecuentes que ocurrieron en el proceso de administración de medicamentos según la experiencia del equipo de enfermería. Es una investigación de campo cualitativa. El diseño metodológico se realizó en 5 fases: Fase 1: autorización de la institución y, posteriormente, presentación al Comité de Ética en Investigación; Fase 2: validación del instrumento de recolección de datos; Fase 3: presentación del formulario de consentimiento informado a los sujetos de investigación; Fase 4: recopilación de datos en sí. Se utilizó como instrumento un cuestionario de 20 preguntas; Fase 5: análisis de datos. Los tipos más comunes de iatrogenesis farmacológica se relacionaron con la dosis de medicación. Los eventos adversos citados que señalaron como causa de la conducta inapropiada por parte del equipo de enfermería fue la negligencia, ya que los medicamentos no administrados por el equipo, muchas veces quien prepara no es el mismo que administra el medicamento. Entre las causas de las fallas se encuentran la sobrecarga y la falta de atención.

**Descriptores:** Errores de Medicación; Administración de Medicamentos; Enfermería; Seguridad del Paciente.

### Resumo

A presente pesquisa objetiva identificar as falhas mais frequentes ocorridas no processo da administração de medicamentos segundo a vivência da equipe de enfermagem. Trata-se de uma pesquisa de campo, qualitativa. O desenho metodológico foi executado em 5 fases: Fase 1: autorização da instituição e, posteriormente, submissão ao Comitê de Ética em Pesquisa; Fase 2: validação do instrumento de coleta de dados; Fase 3: apresentação do Termo de Consentimento Livre Esclarecido aos sujeitos da pesquisa; Fase 4: coleta de dados propriamente dita. Foi realizada utilizando-se como instrumento um questionário contendo 20 questões; Fase 5: análise dos dados. Os tipos de iatrogenia medicamentosa mais comuns foram em relação a dosagem de medicamentos. Os eventos adversos citados que apontaram como causa comportamento inadequado por parte da equipe de enfermagem foi a negligência, como medicamentos não administrados pela equipe, muitas vezes quem prepara não é o mesmo que administra o medicamento. Entre as causas para as falhas ocorrerem estão a sobrecarga e falta de atenção.

**Descritores:** Erros de Medicação; Administração de Medicamentos; Enfermagem; Segurança do Paciente.



## Introduction

The nursing team's main assignment is direct care for the patient, needing to have a broad view, technical, scientific, ethical, and legal knowledge about their work. We know that gathering all the knowledge mentioned above, we professionals are still not free to make mistakes. There are several ways to commit iatrogenesis during our assistance to the patient. After studies, readings, and previous bibliographic research, we found that the error in medication administration is among the adverse events that most occur with the patient, can leave sequelae or cause death.

The occurrence of iatrogenesis in health care causes harm to patients and increases the length of stay, mortality, and hospital cost, among other consequences. Authors<sup>1</sup> refer that no health professional is exempt from committing iatrogenesis, as this can result from several factors, such as, excessive workload and work hours, physical, emotional tiredness, lack of attention, lack of technique or lack of understanding of the prescription.

The work in all dimensions of nursing professionals' performance is extremely complex and intense, especially in direct patient care. It is in this context, that a professional error (iatrogeny) can have a decisive character between living and dying. There are several forms of iatrogenesis committed by nursing, and the most common and perhaps more serious, is related to the preparation and administration of medications, such as non-compliance with the 9-hit rule<sup>1</sup>.

Given the above, the Ministry of Health (MS), in 2013, instituted the National Patient Safety Program (PNSP), representing an advance as a public policy, recognizing that actions should be implemented and reviewed in all institutions in the country. One of the goals established by the PNSP focuses on adverse events in the medication administration process. In this sense, the "Safety protocol for prescribing, using and administering medications" was made available, to promote safe practices in the use of medications. health facilities in the country. Despite efforts and advances to change this scenario, it is not uncommon for the press to report the occurrence of errors in medication administration in several hospital institutions, alerting society to become aware that these errors can occur and should be discussed. Medication administration errors are still a major public health problem worldwide and are responsible for morbidity, hospitalizations, mortality and increased health costs<sup>2,3</sup>.

Thus, in 2017, the World Health Organization (WHO) launched the third global challenge for patient safety, with the goal of reducing by 50% the serious and preventable damage associated with medicines in all countries in the next five years. The Global Patient Safety Challenge on Medication Safety aims to address weaknesses in healthcare systems that lead to medication errors and the serious damage this can cause<sup>4</sup>.

However, due to the occurrence of medication errors, emphasis is often placed on education, but on punishment, remembering that this increases

underreporting, impairing the knowledge of its risk factors and thus enabling its repetition<sup>5</sup>. So, even if this context shows us a serious public health problem, still, this scenario can be even worse, and it is possible to be looking at just the tip of the iceberg.

This study becomes viable due to its academic and social relevance, being able to provide more knowledge in this area, helping nursing professionals and academics to look at the importance of this theme, and especially to highlight the main causes of errors made according to their reality, the visualization and awareness of these causes allows actions to be developed for their correction, acting directly in the focus of the problem in an educational way, since, professionals must perform their services within the highest quality standards and the principles of ethics / bioethics, taking into account he says that the responsibility for health care does not end with the technical act, but with the resolution of the health problem, both individually and collectively. From the collective point of view, it will contribute to the improvement of nursing care, directly reaching the public assisted by them. Thus, this study provides knowledge to professionals, guiding nursing care and contributes to actions aimed at patient safety.

Given the above, the objective was to identify the most frequent failures that occurred in the medication administration process according to the experience of the nursing team.

## Methodology

This is a qualitative, descriptive, and exploratory study that seeks to describe the most frequent failures that occurred in the medication administration process according to the experience of the nursing team.

The study was carried out with the nursing staff of a public cardiology reference hospital in the State of Santa Catarina - SC. The research subjects were nurses, technicians, and nursing assistants from the inpatient department of the institution who agreed to participate in the study and who routinely administered medication in the afternoon, day, and night. Inclusion criteria: professionals who have more than 6 months of experience. Exclusion criteria: professionals where contact was not possible; who were not interested in participating; and who were on vacation, leave or certificate during the data collection period.

The entry into the field was through the presentation of the completed project to the institution's nursing management, informing the aspects related to the research. The methodological design has 5 phases, 2 phases in the pre-collection of data as described below:

Phase 1 - Authorization for the development of the research was by means of a letter presented to the director of the institution in which the research was developed, with the purpose of analyzing and approving it, and afterwards, it went on to the opinion of the Ethics and Research Committee of the Instituto de Cardiology of Santa Catarina. After the respective approvals, we started the other subsequent methodological steps.



Phase 2 - To maintain a methodological rigor, it was defined that the minimum number of judges would be 3 and should always obey an odd number (in the case of a tie between disagreement on a given issue); The anonymity of the participants was another methodological criterion established in the whole validation process and they will also sign the informed consent form (ICF); For the selection of the judges, the inclusion and exclusion criteria were respected, as well as: having at least 3 years of practical experience as a nurse, being at least a specialist, having supervised the nursing team on the subject studied. As an exclusion criterion: the participant who did not return the instrument within the requested time would not be interested in participating in the research. The initial logistics of the study design was to make the selection of professionals via the lattes curriculum, however due to the pandemic that we are living in our country, and due to the overload of all nursing professionals, we chose to select these judges using the method by convenience sample, via curriculum lattes of teachers who are part of the staff of the institution where we study. In this way, they would better understand the possible deadlines to be met since most teachers are not at the forefront of the fight against COVID-19. The validation of the instrument took place in 2 stages, where the judges were invited via email. Regarding the profile of the judges who agreed to participate in the validation, we can observe: of the nurse judges, 6 were female and 1 male, the age ranged between 34 and 51 years, and the training time of the judges ranged from 4 to 17 years. Regarding the length of experience in nursing care, a variation of 4 to 15 years was observed. Regarding the degree, 4 had a doctorate, 1 master's degree and 2 specialization.

In the first stage, we sent the informed consent form and invitation letter, after acceptance, the data collection instrument previously prepared by the researchers containing 14 open questions was sent. Second stage, the evaluators issued judgments for each question presented according to the established evaluation criteria: objectivity, clarity and at the end of each question, the judges were able, through an open space, to suggest the exclusion of the question or changes if they deemed necessary. At this stage, the instrument was returned to the judges with all the changes and suggestions pointed out by each judge anonymously, that is, none of the judges were aware of who suggested such changes. This phase took place in April of this year, the validated instrument has 20 semi-open questions.

Data collection started only after authorization from the Research Ethics Committee and consisted of 3 phases as described below:

Phase 3 - This phase is characterized by the first contact with employees in the sector, it was composed due to the COVID-19 pandemic faced in Brazil, through a virtual invitation, after previous contact with the nursing manager, a link was made available inviting the potential subjects of the research, together with the IC; at this stage, the researchers were unable to present themselves to each study subject individually, as stated in the initial study design, due to the scenario already explained previously. In

this way, we invite you to participate in the study and clarify the nature of this, its justification, its objectives, the possible benefits and risks of it, the importance of each one's participation, the guarantee of anonymity, and finally that the data obtained will be used for scientific purposes.

Phase 4 - Data collection was performed using a semi-open questionnaire, prepared by the researchers, which, after validation, has 20 questions. The instrument was filled out by the research subjects at the time they were available, and one limitation of the study was that the subjects are at the forefront in the fight against COVID-19 with overworked professionals due to the numerous absences of nursing professionals with cases suspicious and confirmed, all of these are factors that influenced less adherence by professionals in being available to participate in the research. It is noteworthy that at any time the interviewee could give up the research.

Phase 5 - This phase consisted of collecting the questionnaires automatically, via Google Forms, after a programmed time to close the data collection. This phase occurred in the month of May of the present year, afterwards, the data analysis and interpretation were carried out.

After conducting the data collection, the information collected was analyzed qualitatively through data categorization. Since the phases of the organization of content analysis are different because they are organized around three aspects, which are pre-analytical, material exploration and treatment of results, which are subdivided into inference and interpretation<sup>6,7</sup>. The database was organized using a spreadsheet in the Microsoft Excel program. Subsequently, descriptive analyzes of the data were carried out and the results will be organized into categories. Data analysis occurred through the interpretation of the results found in the field research and supported theoretically by Minayo<sup>8</sup>.

The project was sent to the Research Ethics Committee of the Institute of Cardiology of Santa Catarina, developed in accordance with the ethical precepts determined in Resolution No. 466, of December 12, 2012, implemented by the National Health Council, which provides for tests and research carried out with human beings and the rights guaranteed to them, aiming to guarantee the rights and duties that concern the research participants, as well as the scientific community and the State, both individually and collectively. Project was approved on 03/30/2020 according to CAAE opinion: 30239420.3.0000.0113.

The research presented minimal risk, as it does not provide risks for physical and psychological integrity, and the risk of embarrassment by the nursing team must be considered when answering the items on the data collection form. With this in mind, we adopted measures to minimize the risk, data collection was individualized and the participants' confidentiality and anonymity were preserved. The data collection instruments were numbered, following a sequence according to the data collection and the name of the participant will be omitted. The research subjects were informed that the study would bring benefits, at a social and academic level, as it is a little studied topic and needs to be



further explored. At the professional level nursing would provide new knowledge and reinforce those already known, on the importance of providing adequate care, contributing with best practices in the safe administration of medicines.

## Results and Discussion

### Drug administration failure

We know that numerous failures can be committed by the nursing staff in the administration of medications in their daily lives and that numerous factors may be involved, among them, overload is something that the literature has been showing us. In this sense, when asked the participants if they felt overwhelmed daily at their workplace, the response was almost unanimous. When asked the participants about the causes they believe most influence the failure of medication administration, the responses were similar, as we can see below:

*“Work overload, double shift, low salary and attention deficit when preparing and managing”* (R2, R3, R4, R6, R7, R8, R9, R11).

*“Lack of servers, severity of patients, unpreparedness of the professional, prescription errors, scheduling errors and lack of attention and commitment”* (R1).

To compile this data better qualitatively, we use the Mentimeter tool in the word cloud mode, where the largest words appear when they are spoken more often.

**Figure 1.** Factors that lead to drug administration failures. São José, SC, Brazil, 2020



As we can see in the data presented, nursing is a category that asks for help, that is tired, stressed, overloaded and that all these factors may be causing the lack of attention when preparing and administering medications.

The workload in nursing has been causing occupational illnesses in the team, as well as the lack of human resources, the precarious conditions of structure, the lack of motivation. Nursing professionals spend a good part of their time in the workplace, so the type of bond and their remuneration can also bring mental health problems generating dissatisfaction that results in physical exhaustion and, consequently, work overload<sup>9</sup>.

In addition to the factors already mentioned that cause work overload, we can also mention a number of other factors that can affect the professional's life and are not directly linked to the place where I work, but rather to his life outside the work environment, such as: the environmental conditions in which you live, family, health, culture, leisure, education, social relationships, life goals, values, expectations, standards and concerns<sup>10</sup>.

Another factor to consider is that we are human and, although professionals try to leave personal problems outside the work environment, it is not always possible, this can also be a factor that contributes to these professionals being inattentive. We suggest that more research can be outlined to know what other possible factors lead to the professional's inattention during professional practice.

Considering the factors that can change the quality of life of professionals, the nursing category almost always needs more than one working relationship, that is, more than one employment relationship. This, due to the low remuneration, an aspect that is unfavorable for quality of life, which compels them to embrace the double work shifts at different times, working overtime, doubling shifts and often having sleep deprivation to handle all labor relations<sup>11</sup>.

Even at this particular time, when the country is facing the COVID-19 pandemic, nursing has gained prominence in Brazil and worldwide, gaining space in social media and news, due to the importance that the class represents in the front line to fight the virus, because our category is 24 hours with the patient providing essential care for life. With all this exposure, there was recognition, where many families went to the windows of their houses to clap for category, another factor highlighted was the association of the risk of infection faced by professionals on a daily basis to save lives as the heroes of real life. Certainly, this is an even more critical moment of overload where in many sectors, even with the goodwill of managers, it is far from having the correct number of professionals in the institutions.

### Consequences

When asked the participants if they had already been aware of any punishment from a colleague after confirming a failure in medication administration, most participants reported not knowing. Here is a point of doubt, do you not know why the cases are treated with discretion without fanfare or, why simply do not talk about what happened, do not report to superiors?

Thus, it is essential that the managers of the units identify the needs and weaknesses within the organizations' processes, so that they can adopt preventive measures. Knowing the extent of the problems is an important step towards improving patient safety<sup>12</sup>.

For this to happen, communication is essential, because if the failure committed is not reported, and those who are starting on duty may also commit the same failure, since some causes are related to prescription, scheduling, error in keeping medicines etc. . It is essential that there is reflection on the part of professionals and those responsible for the team, which is not about exposing the culprit for the failure, but exposing the failure in order to analyze and correct it, so that it does not occur again. Therefore, the shift change, can be a great opportunity for professionals to report the fault to the person in charge and together take the appropriate measures without causing further damage.

As for the reactions of colleagues in the face of a failure made by a member in the administration of



medication and if they react in the same way, the answers revealed:

*"Despair and fear of the possible consequences and consequences for the patient. I talk about the error and explain the need not to commit again"* (R2).

*"Fear of punishment is still part of a major flaw in the error communication process. I don't do the same thing because I understand the importance of communication"* (R3).

*"Nervousness and concern about what happened and the patient"* (R11).

*"The nurse is informed at the same time so that she can advise the doctor and monitor the patient"* (R10).

*"Many of the team are not concerned, my reaction is always to talk to the team member who failed in the administration, if he is in doubt when it comes to administering and has not asked anyone, or if he was not concentrated at the time of preparation, always trying to figure out why it failed"* (R9).

Through the statements obtained, we can observe some negative feelings that failures generate in the team, feelings of fear, concern, despair, nervousness, due to the consequences to the patient or because they are punished. Unfortunately, fear is a feeling that often leads professionals not to talk about failures, perhaps it is the main feeling. When asked the participants about the boss's reaction to a failure in medication administration, the participants reported that it occurs:

*"Conducting a conversation, notification on a functional sheet and also reviewing if you need any recycling regarding the procedure"* (R1, R9, R10).

*"The current leadership acts appropriately. Calling those responsible and looking for an alternative to improve and avoid mistakes. However, other managers have already acted inappropriately, causing embarrassment and revolt by the teams due to the conduct taken"* (R4).

*"I don't get involved in that. Between boss and colleague. But if it were me, I would like to talk. Dialogue is always the best solution between the manager and the employee"* (R6).

These statements make us think that the leadership is new to the sector and that it does not have a punitive attitude. However, it draws our attention that the simple fact of notification on the functional sheet or recycling regarding the procedure are "solutions centered on that professional" and that, depending on how it is conducted, can be considered by professionals as a form of exposure.

It is important to highlight that the notifications must be made through the National Health Surveillance System, reporting the adverse events occurred at the institution. There is a tool for this, but as we could see in the participants' speeches, nobody mentioned about the correct notification. What scares us, makes us worried, because we know that adverse events happen and with preference in their routines.

### Strategies to avoid nursing failures

The Standard Operating Procedure (SOP) is a document that establishes the roadmap for each task to be developed in the work environment. Considering its

importance, we questioned this issue in the participants' routine.

It was asked whether any document is available at the institution that guides safe practice in the administration of medications and whether employees have easy access. The majority said that:

*"Yes, we have SOP where we can clear our doubts and it's always within reach"* (R10).

Only 1 participant differed from the responses of the other participants:

*"I do not have access"* (R3).

When asked the participants to report what would be the document available at the institution that guides this safe practice, the participants responded:

*"There is SOP and K folder, both provide guidance on drug administration, dilution and stability of each one after dilution"* (R6).

Again, the same participant informed that he was unaware of the existence of such documents:

*"We don't have this material available yet"* (R3).

However, when asked the participants what material they use in case of doubts in the preparation of medications. The majority said that:

*"Teammate, Protocol, SOP"* (R7).

The participant who had informed that he is unaware of the existence of such documents reports consulting:

*"Teammate, Protocol, Internet"* (R3).

It is possible to observe that there is a divergence of information because the same participant who reports the absence of documents that guide the safe practice, informs that in case of doubts he uses the protocol available at the institution. Importantly, the lack of knowledge about these protocols results in nursing care with processes that are not 100% standardized.

The SOP is considered a current management tool and has been widely studied by nursing. The results of its use demonstrate that it is a modern tool that supports the nurse's decision-making, makes it possible to correct non-conformities, allows all workers to provide standardized care to the patient according to technical-scientific principles and, even, helps to resolve the distortions acquired in practice, also having an educational purpose<sup>13</sup>. Considering that the number of participants represents a sample of the total employees in this sector, and that it had a purpose of qualitative and not quantitative analysis, it is necessary to consider that in the total sample it is possible to have other employees who are also unaware of such documents. The adoption of care protocols can provide greater satisfaction for the nursing staff and for the patient, greater safety in carrying out the procedures and, consequently, greater safety for the patient, aiming to guarantee care free of undesirable variations in its final quality, as well as how to





It is evident the need perceived by the participants to have an educational support, there is an awareness reported by them of the importance of education as a fundamental tool for quality and error-free assistance. Continuing education is of great importance, as it improves daily health practices, transforms the work process, improves the quality of services, achieves equity in care, favoring the growth of health workers, which contributes to improving care to the subject-citizens of care.

Regarding the acquisition of knowledge, we questioned the participants how the necessary knowledge for the safe administration of medicines was acquired, the majority reported:

*"In daily practice and prolonged studies on some medications"* (R3).

*"In the technical course. In practice and with everyday life"* (R6).

*"In my training, in hospital manuals and in my daily routine"* (R7).

*"Academic and professional journey"* (R2).

*"Courses and routines day to day [...] studies etc [...]"* (R8).

Permanent education is the realization of the encounter between the world of formation and the world of work, where learning and teaching are incorporated into the daily life of organizations and work. Therefore, it is proposed that the qualification processes of health workers take as a reference the health needs of people and populations, sector management and social control in health and have as goals the transformation of professional practices and the organization itself of work and are structured based on the problematization of health sector performance and management. In this case, technical-scientific updating is only one aspect of the transformation of practices and not its central focus. Based on the previous answers, it was evident that the knowledge acquired by professionals derives from daily practice, technical and academic training.

### Final Considerations

Analyzing the results, became evident the importance that the nursing class has in the lives of individuals, for performing essential life care, especially around drug therapy. Among all the attributions that nursing has, which are innumerable, we can affirm that medication administration is one of the most responsible activities and that it is directly linked to the patient, and any failure in this process can result in adverse harm to the patient and serious consequences to the patient. professional. We must give visibility to this issue, we must talk about failures, to increasingly improve our services and provide quality care to our patients.

Nursing is a category that asks for help, that is tired, stressed, overloaded and that all these factors may be causing the lack of attention when preparing and administering medications. The work overload has been generating negative effects in the category, directly impacting the quality of care provided to the patient, often

leading to the abandonment of professional activities.

The adverse event identified as the cause of inappropriate behavior on the part of the nursing team was negligence, such as medications not administered by the team and distraction. Another result presented in the study is that often what you prepare is not the same as what you administer. We can observe some negative feelings that failures generate in the team, feelings of fear, concern, despair, nervousness, due to the consequences for the patient or for being punished. According to the data presented, 5 of the 11 participants have already committed some type of failure related to medication administration, although the majority reported the failure and one of the participants reported the psychological consequences suffered.

There is no standardization in the work process, as some participants are unaware of the existence of SOPs and protocols. Regarding the medications administered on a daily basis, it was found that the team does not know which drugs are considered potentially dangerous, as well as, not all the drugs mentioned, according to the participants' perception, include the category of potentially dangerous medication, generating risks of a practice insecure.

The survey showed that professionals do not receive periodic training or continuing education on the topic from the institution. This may have a direct impact on the assistance provided, since it has been shown that some professionals do not feel safe or totally safe in the performance of a routine activity, such as dilution and time of medication infusion. We believe that if the institution got closer, to get to know these weaknesses in the category more closely, and together with the professionals, to take measures to prevent failures, with a focus on patient safety, thus, we would have a decrease in cases of iatrogenesis. Such an approximation between the parties could bring positive points, such as the change in the weaknesses faced by the team that we mentioned throughout the work, as well as a special look at the category that often relinquishes its personal life, to carry out double, triple working hours for have a better living condition. We play a fundamental role in people's lives, we need to have this recognition, on the part of institutions, management, even patients. A professional with a good quality of personal life will have a direct impact on the quality of professional life, and vice versa. All of this will have a major impact on the quality of services provided, as well as a reduction in failures.

We also suggest that knowledge about the topic should come from the academy and be successively improved in professional life, since administering medications is a daily activity that can bring risks if it is performed inappropriately. To develop competence, it is necessary to acquire knowledge, skills and attitudes, this knowledge must be based on solid scientific evidence, as well as SOPs and other protocols, in a standardized manner in institutions, and disseminated in the professional's continuing education, as this is a fundamental pillar patient safety.



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