

## Potential Risks in The Preparation and Administration of Intravenous Drugs: A Literary Review of Integrated Actions for Pain Relief and Health Education

Riscos Potenciais no Processo de Preparo e Administração de Medicamentos por Via Intravenosa: Revisão Literária de Ações Integradas Para Alívio da Dor e Educação em Saúde

Riesgos Potenciales en el Proceso de Preparación y Administración de Medicamentos Por Vía Intravenosa: Revisión Literaria de Acciones Integradas Para Alivio del Dolor y Educación en Salud

*Sarah Miranda Rodrigues\**

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### ABSTRACT

**Objective:** The study's main purpose has been to analyze scientific articles on the world scenario about nursing interventions in the process of preparation and administration of intravenous drugs, risks inherent in professional practice and actions integrated with medical prescription. **Methods:** It is a research of literary nature that was carried out through the main databases of online indexed studies. For the development of this research, books related to the practice of intravenous therapy and current legislation were consulted. **Results:** This investigation describes the main urgent and emerging pathologies in the hospital service, nursing actions aimed at intravenous therapy and pain relief. **Conclusion:** Finally, it is needed to improve the instruments used to measure acute pain, because they have limitations in its implementation, either for evaluating the size of a single aspect or to be extensive in its application in the level of hospital care.

**Descriptors:** Nursing, Risks, Patient Safety, Acute Pain.

<sup>1</sup> Nursing Graduate by the *Centro Universitário de Barra Mansa*, MSc student enrolled in the Nursing Postgraduate Program at *UNIRIO*, Specialist's Degree in Nursing Nephrology by the *Universidade Gama Filho*, Specialist's Degree in Approach to Nursing Residency: Clinic and General Surgery by the *UNIRIO*, Physics Undergraduate by the *Universidade Federal do Rio de Janeiro*, Registered Nurse at the City Hall of *Itatiaia*, *Rio de Janeiro* State. *Universidade Federal do Estado do Rio de Janeiro (UNIRIO)*, Brazil.

## RESUMO

**Objetivo:** Objetivo do estudo consiste em analisar artigos científicos no cenário mundial acerca das intervenções de enfermagem no processo de preparo e administração de medicamentos por via venosa, riscos inerentes a prática profissional e ações integradas à prescrição médica. **Método:** pesquisa de natureza literária, realizada através dos principais bancos de dados online de pesquisas indexadas. Para desenvolvimento do estudo foram consultados livros relacionados à prática da terapia intravenosa e legislações vigentes. **Resultados:** descrição das principais patologias urgentes e emergentes no serviço hospitalar, ações de enfermagem voltadas para terapia intravenosa e alívio da dor. **Conclusão:** necessidade de aprimoramento dos instrumentos utilizados para mensurar a dor aguda, pois possuem limitações em sua implementação, seja por avaliar a dimensão de um único aspecto ou serem extensos em sua aplicação em nível de atendimento hospitalar.

**Descritores:** Enfermagem, Riscos, Segurança Do Paciente, Dor Aguda.

## RESUMEN

**Objetivo:** El objetivo del estudio consiste en analizar artículos científicos en el escenario mundial acerca de las intervenciones de enfermería en el proceso de preparación y administración de medicamentos por vía venosa, riesgos inherentes a la práctica profesional y acciones integradas a la prescripción médica. **Método:** investigación de naturaleza literaria, realizada a través de las principales bases de datos en línea de investigaciones indexadas. Para el desarrollo del estudio se consultó libros relacionados con la práctica de la terapia intravenosa y las legislaciones vigentes. **Resultados:** descripción de las principales patologías urgentes y emergentes en el servicio hospitalario, acciones de enfermería dirigidas a terapia intravenosa y alivio del dolor. **Conclusión:** necesidad de perfeccionamiento de los instrumentos utilizados para medir el dolor agudo, pues poseen limitaciones en su implementación, sea por evaluar la dimensión de un solo aspecto o ser extenso en su aplicación a nivel de atención hospitalaria.

**Descriptores:** Enfermería, Riesgos, Seguridad del Paciente, Dolor Agudo.

## INTRODUCTION

Venous hydration is a complex therapy, as it is an indispensable resource for volume replacement, continuous serum drug levels, administration of hypertonic solutions with pH extremes, as well as drugs that are not absorbed by the gastrointestinal tract or cannot be administered orally<sup>1</sup>.

The main solutions administered for electrolyte replacement are hypertonic or isotonic, which are defined by their osmolarity, characterized by the concentration of a solute dissolved in one liter of solution. The unit used to express the amount of these solutes in the solution is called osmol. Blood osmolarity ranges from 280 to 295mOsm/L, solutions with very different osmolarity from the blood may cause adverse reactions such as pain and phlebitis<sup>1</sup>.

The solutions used for venous hydration consist in the administration of fluid volume for a prolonged period, without intervals, intending to restore and maintain the hydroelectric balance, infusing medicines, administering parenteral nutrients, nutritional supplements and blood and blood products transfusion. The main complications related to continuous venous hydration are adsorption, hypervolemia, and extravasation of the drug to the sub-

cutaneous tissue. Continuous infusion is characterized when there is a large volume of solutions to be administered, on average from 500 to 1000ml. The infusion may be administered by gravity or with the aid of an electronic device<sup>1</sup>.

Thus, the pharmacological concept of dose refers to the amount of medicine that a patient must receive to modify their disease state. The relationship between the dose administered and the concentration of drug present in the systemic circulation, as well as at the site of action, depends on the multiple variables common to the whole pharmacodynamic and pharmacokinetic process: absorption, distribution, metabolism, protein binding, receptor actions, and elimination<sup>2</sup>.

For the administration of intravenous solutions, peripheral puncture of a venous vessel is performed, which is one of the main activities realized by nursing professionals, where 90% of hospitalized patients receive intravenous solutions and medications. The main risks related to intravenous therapy include phlebitis, where 27% to 70% of patients on intravenous therapy may develop some stage of phlebitis, infiltration, bruising, catheter insertion site infection, systemic infection, and adverse events related to drug administered<sup>1</sup>.

Research highlights that many adverse events are not reported by the nursing team, because the professional fears the reaction that will be suffered by the responsible nurses and co-workers<sup>3</sup>. It shows that, although they have advanced in the monitoring of medication error and the implementation of the occurrence records system, the reality found shows the need for more effective engagement<sup>4</sup>. However, there was a "64% adherence to the Safe Medication Administration category, with a significant sample of 511 nurses<sup>5</sup>".

Law No. 94,406/87, which regulates the professional practice of nursing, describes that "medication administration activity is a nurse's care activity and may be performed by nursing technicians and assistants, provided that under the direct supervision of the nurse<sup>6</sup>". Resolution RDC No. 45/2003, which provides for the technical regulation of good practice for the use of parenteral solutions in health services, sets out the criteria for the correct and safe use of parenteral solutions, highlighting the importance of participation and involvement of all professionals involved in the process, and revealing the need for qualification and ongoing training<sup>7</sup>.

In 1973, a group of North American nurses recognized the need to develop terminology to describe the most frequently occurring nursing care, beginning the process of systematizing nursing care, developing the taxonomy of nursing diagnoses, namely North American Nursing Association (NANDA)<sup>8</sup>.

The first list of nursing diagnoses was developed by assisting nurses, educators, researchers, and theorists, directing the classification of diagnoses in a taxonomy,

being NANDA the most used system in the world; translated into 17 languages, in 33 countries, including Brazil<sup>8</sup>.

The planning of nursing actions consists of establishing priorities for diagnoses; Nursing Outcomes Classification (NOC) to correct, minimize or prevent adverse events; and written record of nursing diagnoses, expected results, and prescriptions in an organized manner<sup>8</sup>.

The systematic use of the results allows clinical reasoning and decision making by nurses for the quality of health care. Even with measures and efforts to improve health care quality and patient safety, the results of nursing interventions have been largely neglected in professional practice. In this scenario, it is important to note that the definition of nursing interventions and outcomes allow these nomenclatures to be included in clinical nursing information systems and large databases used for systematic analysis<sup>9</sup>.

After the results, the Nursing Interventions Classification (NIC) is used, which allows demonstrating the importance of nursing actions on the health care system, standardizing and defining the knowledge base of nursing practice; facilitating the transmission of treatments to other nurses and providers, allows researchers to examine the effectiveness and cost of nursing care, helps administrators make more effective planning to meet team and equipment needs, and facilitates development and use of nursing information systems<sup>10</sup>.

In emergency sectors, care is characterized by rapid consultations and surveillance attitudes, and the growing demand for care is not only from the patient in need of intensive care, but also from those with a low complexity clinical state. The author also describes that nursing professionals often direct and articulate their care to the "time" factor, as the scenario requires agile action and mastery of technical procedures, given the immediate results imposed by urgency and emergency situations, and the excessive number of daily calls<sup>11</sup>.

Institutions can adopt participatory management in which front-line service professionals can act in an integrated manner with organizational leaders in building collective knowledge aimed at identifying the weaknesses of their systems and environments to devise new ways to solve the problems that permeate the safety of patients and professionals<sup>12</sup>.

Therefore, this study aims to analyze scientific articles in the world scenario about nursing interventions in the process of preparation and administration of intravenous drugs, risks inherent to professional practice and integrated actions to medical prescription. The study is justified because it considers that detecting risks in care makes it possible to determine fundamentals and proposing corrective and preventive improvements.

## METHODS

This is a research of literary nature, conducted through the main online databases of indexed searches. For the development of the study were consulted books related to the practice of intravenous therapy and current legislation. The research was guided by the understanding that education is directly related to the practice of nurses' professional practice in health organizations, where establishing a good relationship and interaction between professionals is an instrument that can help to avoid possible adverse events and minimize risks.

The inclusion and exclusion criteria of studies in literary search were established. The choice of keywords occurred by selecting the terms entered in the Health Sciences Descriptors (DeCS), using the following descriptors: "nursing", "risks", "patient safety", "pain". The following databases were consulted: Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS) [Latin American and Caribbean Literature in Health Sciences] and Literature and Retrieval System on Line (MEDLINE) through the Virtual Health Library, Municipal Health Secretariat of São Paulo Capital City, São Paulo State.

This research was performed during the academic activities of the professional master's degree course in Health and Technology in the Hospital Space at the *Universidade Federal do Rio de Janeiro (UFRJ)*. The search period comprised the years 2016 and 2017. The databases used the association of descriptors using the word "and". The association of nursing interventions with the terminology "acute pain" described by the North American Nursing Association (NANDA), an action integrated with a medical prescription, was used.

The following inclusion criteria were applied for the selection: articles published from 2000 to 2015, in Portuguese, English, and Spanish. The exclusion criteria employed were: articles of limited access; articles with cost to access the content of the scientific research, sample composed of pediatric patients. The selected articles were read in full and a form was used, containing the information: title, authors, main objective, type of methodology, sample, subjects, main results, and conclusions. Finally, a critical analysis that correspond to the evaluation of the studies and interpretation of the results was performed.

## RESULTS AND DISCUSSION

In practically every health institutions, nurses are responsible for administering drug therapy; teach the nursing team to use the medicines correctly and safely; have knowledge of the pharmacology of medicinal products administered; the legal implications involved in drug preparation and administration; safe preparation and administration techniques.<sup>12</sup>

This knowledge points to the importance of the performance of nurses with academic training content based on developing professional skills of the individual about

cautious care to the patient. Health excellence, whether public or private, is only achieved if the individual's education provides the thinking about the health disease phenomenon and the correct use and handling of tools aimed at quality care.

According to the National Policy of Urgency and Emergency that is outlined under the No. 2048/GM of 11/5/2002, needs and aspects can be punctuated as the observation of the high demand for services in this area in the last years, where it has been expressed by an increase in the number of accidents, urban violence and the insufficient structuring of the care network, contributing to the overload of urgency and emergency services. The search to organize a systematized process for the care of urgencies and emergencies, ensuring the reception, with qualified and resolute attention to the non-critical and critical patient, stabilization and adequate referral of the serious patients.<sup>13</sup>

In units that receive critically ill patients, polytherapy is justifiable because it allows obtaining the synergistic therapeutic effect, thus increasing the effectiveness of treatment or when used in the therapy of coexisting multiple diseases. However, such combinations can result in unwanted drug interactions, triggering various problems, with extremes being treatment failure and adverse reactions.<sup>14</sup>

Since 1860 when the professionalization of nursing practice began by Florence Nightingale, there was already a concern with the preparation, dosage, administration and undesirable effects of medication, but nursing was only assigned the administration of oral, rectal, subcutaneous solutions, inhaled, topical and gradually intramuscular. Only in the 1940s, with the advent of World War II and the emergence of numerous epidemics, that Ada Plumer in 1940 at Massachusetts General Hospital (United States) was the first nurse to evoke the practice of intravenous therapy for nurses<sup>1</sup>.

The responsibility involved in the procedure is beyond providing fluids or applying parenteral medications. This practice comprises complex and accurate patient information, interrelated attitudes, and up-to-date drug knowledge.<sup>1</sup>

In a study conducted to verify the clarity of data in medical prescriptions found that many do not meet the current standards in the country regarding the completeness and clarity of information. This was evident when acronyms and abbreviations were present in 96.3% of the prescriptions evaluated in the investigated hospitals. The presence of these data may make it difficult for the nursing team to understand the information, which is directly responsible for dose preparation and administration<sup>15</sup>. This study leads us to think and reflect on the importance of acting in a multi-professional conscious team.

As nursing acts in the last stage of the medication process, it has the opportunity to verify and avoid an error

that occurred in the initial stages, being one of the last barriers of prevention, for the safe practice of the medication administration process it is necessary to pay attention to the "labels with the name of the drug, dose, date and time it was prepared, drip rate, duration of infusion and the professional's signature."<sup>16</sup>

However, it is necessary to understand that the process does not only involve the nurse, but it is the responsibility of several professionals of the multidisciplinary team, starting with the prescription of medicines by the doctor, which is forwarded to the pharmacist for the dispensation of solutions or drugs, the prescription is subsequently forwarded to the inpatient unit so that nursing professionals prepare and administer the right dose to each patient<sup>1</sup>.

In this scenario, the error can occur at any stage of the medication system, namely: prescription, transcription, dispensing, preparation, administration, monitoring, and documentation. A medication error is any preventable event that may induce improper use of the medication. The adverse event is all damage to the individual resulting from the use of medication, but not all attributed to error<sup>17</sup>. The occurrence of errors in drug administration may lead to increased hospital stay, complications in the evolution of health, and the need for new diagnostic and therapeutic interventions.<sup>18</sup>

Based on the data obtained, we can consider that drug preparation and administration is a joint action of a multi-professional team, nursing acts in the final stage of the process being the last barrier to protect against adverse events.

Through medicine, it is currently possible to curb acute pain, suffering, and death, thanks to the performance of a team guided by knowledge and experience in caring. The experience concerning the subjects involved in care deserves "reflection and discussion which will contribute to an attitude of perceiving the voices of those who care and who is cared for in the hospital environment".<sup>19</sup>

Demand for health services is influenced by individual factors such as the profile of health needs, values, and personal preferences; epidemiological and sociodemographic factors, as well as access to these services, associated with their offer and quality of care<sup>20</sup>. Acute pain is the signal that leads the individual to go to health services to calm the event and seek the balance of the organism.

Pain symptomatology is one of the main reasons for seeking health care from the general population, it is very common in hospitals, as a consequence of trauma, inflammatory, infectious processes, burns, ischemia, among others<sup>22</sup>. For North American Nursing Association, acute pain is described in terms of such a "sudden or slow onset, of mild to intense, constant or recurrent pain, without an anticipated or foreseeable termination and lasting less than six months".<sup>21</sup>

The search usually occurs when pain is of acute etiolo-



gy, but many patients with chronic pain also seek hospital care, when it is acute, or even the discomfort caused by chronic pain. Acute pain appears as an alarm signal and denotes the presence of noxious stimuli and/or tissue injury and is of fundamental importance for the individual's physical integrity.<sup>22</sup>

Several studies indicate that pain, whether acute or chronic, at all levels of health care, is underdiagnosed, poorly evaluated and undertreated, and sometimes neglected<sup>22</sup>. Unrelieved acute pain can lead to elevated blood pressure, increased heart rate and breathing, among others, which can result in hypoventilation, increased cardiac work and decreased peripheral blood perfusion. Pain management, besides being humanitarian, is vital for immediate patient care, aiming at maintaining basic physiological functions and avoiding undesirable effects.<sup>23</sup>

Another interesting aspect refers to the very concept of pain that defines it as a subjective phenomenon and, as such, can only be indicated and quantified by the subject who feels it. In this sense, in a study to evaluate the concept of nurses and doctors of emergency service on pain and analgesia in trauma, nurses were more in agreement with the concept of pain concerning other professionals<sup>24</sup>.

Although pain assessment has a subjective component, we have tried to create instruments to standardize the follow-up of patient with symptoms, either by physical injuries or imaginary origin. Some instruments can be used in practice to objectively measure subjective data, these are indexes to quantify the intensity, its impact on the quality of life, and describe other pain characteristics. Instruments can measure data one-dimensionally, which is used to assess intensity and multidimensional to assess all clinical and sociodemographic aspects.<sup>25</sup>

As an example of a unidirectional instrument, we can highlight the numerical ordinal scales, which are easy to apply, since the human being has been in contact with numbers since their childhood. The importance is in data that are easily understood by people and that can express pain qualitatively, using mild, moderate and severe categories<sup>25</sup>. The boundary between each category is left at the discretion of the evaluated patient, showing a weakness in this methodology, as the people evaluated tend to choose the extremes of the scale, especially in hospitals.

The Visual Analogue Scale (VAS) consists of a 10 cm line that generally has the phrases "absence of pain and unbearable pain" as extremes. Despite the advantages already pointed out, the elderly and children sometimes find it difficult to use it due to the abstraction necessary for their comprehension. In this specific population, there are proposed instruments that use other visual aids such as drawings representing facial expressions<sup>25</sup>.

There are major limitations in implementing scales that transform qualitative variables (descriptors) into quantitative (indices). The unidirectional benefit scales are easy and quick to apply, but limit to a single aspect of

pain dimension and limit only to assess pain intensity at the present moment, disregarding other aspects<sup>25</sup>.

Multidirectional benefit scales assess verbal descriptors individually and, in their entirety, they have temporal units of pain; assesses the location on body diagram; It simply and objectively assesses the present pain intensity; however, it has a very long application time and some of the verbal descriptors are difficult for patient to understand<sup>25</sup>. Due to the particularities in the unidirectional and multidirectional scales, the examining professional should seek a consensus between the patient's immediate needs and future actions to be developed.

Both unidirectional and multidirectional questionnaires seek to generate quantitative indices based on qualitative data, whether it discriminative sensory, motivational affective, cognitive evaluative and miscellaneous. The transformation of qualitative variables into quantitative variables may be the subject of criticism and may not always reflect what is expected in a clinical evaluation. The predominant qualitative nature favors scientific studies and hinders its use in daily clinical practice<sup>25</sup>.

To describe possible nursing diagnoses reported in NANDA in patient classified according to Manchester protocol, level I and II of priority of care that presented conditions that required nursing interventions within 10 minutes or less, reveals in their results. The most common nursing diagnosis would be acute pain, where for level I presents 65% and for level II 80%.<sup>26</sup>

The Manchester protocol consists of an instrument structured by flowcharts that represent the main complaints made by those seeking emergency services. The patient can be classified into five different priority levels, ranging from emerging demands (priority level I) to non-urgent demands (priority level V)<sup>26</sup>. For each level, the target time is established for multi-professional care, based on the nurse's assessment.

External factors related to pain may present real and referred. Chest pain is the symptomatological expression of the most frequent cardiac disorder in hospital health services. Coronary Artery Disease progresses to acute myocardial infarction with a strong association with pain symptom. Another factor to be considered is the atypical presentations of the disease, this percentage of presentations for chest pain may hinder the interpretation of the professional in the initial assessment. The symptoms of infarction may be confused with gastrointestinal, muscular and respiratory symptoms, increasing the delay for rapid care and being associated with other symptoms<sup>27</sup>.

Chest pain suggestive of ischemia has been a major issue worldwide, as estimates confirm, for example, that about 5 to 10 percent of all emergency room visits in the United States annually are directed to this type. It is believed that in our country, millions of cases of chest pain are performed annually.<sup>28</sup>

The association of chest pain with a cardiac event

has been pointed out as a factor that leads the patient to seek health services. The nurse, when performing the risk classification, investigates risk factors and examines the possibility of non-cardiogenic pain origin, having this professional to list knowledge about the protocols to better conduct the patient from the arrival at the referral service.<sup>27</sup>

Chest pain may result from different conditions, including angina pectoris, pulmonary and gastrointestinal respiratory diseases, musculoskeletal problems, and psychiatric disorders. But pain can also present itself as noncardiac chest pain that usually comes to an end when the patient has recurrent and often debilitating chest pain that cannot be better explained by a heart problem or any other isolated cause. Chest pain without cardiac origin is common in the general population.<sup>29</sup>

In addition to experiencing poorer quality of life, patient with noncardiac chest pain tend to use health services more, to be more convinced that their pain has a cardiac origin (or to attribute their pain to a heart problem) and being dissatisfied with the treatment they receive.<sup>29</sup>

Another element to be observed in the assessment of acute pain in hospitals is the so-called oncological emergencies, which are little addressed in the Brazilian literature. Cancer represents the second cause of death in the world. In a study conducted from the literature review, it is described that the classification of cancer emergencies can be divided into cardiac involvement; infectious processes; metabolic changes; hematological changes; neurological disorders and respiratory emergencies.<sup>30</sup>

Neurological emergencies correspond to 53.3% being the most mentioned in the reviewed publications, followed by metabolic 46.6%, cardiac 46.6%, and hematologic 33.3%. Spinal cord compression represents 46.7%. Superior Vena Cava Syndrome appears in 40% of the publications, tumor lysis syndrome in 26.7% and cardiac tamponade in 20%. Hyponatremia, hypokalemia, hypoglycemia, and hyperammonemia are, in most of the articles analyzed, consequences of tumor lysis syndrome, being recognized as oncological emergencies and not as consequences.<sup>30</sup>

Among the main assessment and monitoring of acute pain as a nurse's intervention in oncological disorders, it is made by observing the location, type, duration, and intensity. Cardiac tamponade followed by superior vena cava syndrome; neurological impairment such as brain metastasis leading to spinal cord compression and increased intracranial pressure; Gastrointestinal and genitourinary tract obstruction lead to pain manifestations.<sup>30</sup>

## CONCLUSIONS

O risco pode ser definido como uma situação de incerteza em que uma decisão é tomada e cujas consequências dependem dos resultados de eventos futuros, com

probabilidades conhecidas. Com propósito de aumentar a segurança dos resultados o decisor baseia-se nas informações do passado, ou seja, na ocorrência histórica de um evento.<sup>31</sup>

A estratégia pode ser definida como um plano, padrão, posição, perspectiva ou truque. As estratégias podem ser percebidas pelas organizações, como planos para seu futuro, assim como padrões de seu passado. A ideia de posição refere-se à forma de situar a organização em seu ambiente.<sup>31</sup>

Portanto, os estudos apontam para a necessidade de aprimoramento dos instrumentos utilizados para mensurar a dor a guda, pois possuem limitações em sua implementação, seja por avaliar a dimensão de um único aspecto ou serem extenso em sua aplicação em nível de atendimento hospitalar.

## REFERENCES

- Malagutti, W.; Roehrs, H. *Terapia Intravenosa: Atualidades*. São Paulo: Martinari, 2012.
- Motta, MLS.; Vascelos, FM.; Lins, LER.; Andrade, ÍRC. Erros de dose relacionados a procedimentos de enfermagem na infusão endovenosa de antimicrobianos. *Cogitare Enfermagem*, Out/Dez; 14(4):653-9, 2009.
- Bohomol, E. Erro de medicação: importância da notificação no gerenciamento da segurança do paciente. *Revista Brasileira de Enfermagem*, Brasília, Jan/Fev, 60(16): 32-6, 2007.
- Toffoletto, MC.; Padilha, KG. Consequências de medicação em unidades de terapia intensiva e semi-intensiva. *Revista da Escola de Enfermagem Universidade de São Paulo (USP)*; 40(2):247-52, 2006.
- Abreu, CCF.; Rodrigues, MA.; Paixão, MPBA. Erros de medicação reportados pelos enfermeiros da prática clínica. *Revista de Enfermagem Referência*, III Série, nº 10 – Jul, pag. 63-68, 2013.
- Brasil. Conselho Regional de Enfermagem do Rio de Janeiro. Código de Ética e Legislação. Decreto n.º 94.406, de 8 de junho de 1987. Dispõe sobre o exercício da enfermagem e dá outras providências. Disponível no portal Cofen: [www.cofen.org.br](http://www.cofen.org.br) e portal Coren RJ: [www.coren-rj.org.br](http://www.coren-rj.org.br)
- Brasil. Agência Nacional de Vigilância Sanitária. Resolução RDC n.º 45, de 12 de março de 2003. Dispõe sobre o Regulamento Técnico de Boas Práticas de Utilização das Soluções Parenterais (SP) em Serviços de Saúde. Brasília (DF): MS; 2008. Disponível em: [http://www.anvisa.gov.br/legis/resol/2003/rdc/45\\_03rdc.htm](http://www.anvisa.gov.br/legis/resol/2003/rdc/45_03rdc.htm).
- Tannure, MC.; Gonçalves, AMP. *Sistematização da Assistência de enfermagem: Guia prático*. Editora: Guanabara Koogan; 2010.
- Moorhead, S.; Johnson, M.; Maas, ML.; Swanson, E. *Classificação dos resultados de enfermagem (NOC)*. Rio de Janeiro: Elsevier, 2010.
- Bulechek, G. M; Butcher, HK.; Dochterman, JM. *Classificação das intervenções de enfermagem (NIC)*. Rio de Janeiro: Elsevier, 2010.
- Oliveira, TR. *As faces da comunicação no cuidado da enfermeira militar em Unidade de Pronto Atendimento 24h (UPA 24H)*. Orientador: Prof.ª Sônia Mara Faria Simões. Dissertação (Mestrado Acadêmico em Ciências do Cuidado em Saúde) – Universidade Federal Fluminense – Niterói: [s.n.], 2010.
- Camerini, FG; Silva, LD.; Gonçalves, TG.; Lima, FM.; Thompson, ML.; PESSÓA, Sabrina Cruz Esteves.; SANTOS, Caroline Campos. Estratégias preventivas de eventos adversos com medicamentos potencialmente perigosos. *Jornal revista fundamental care online*. Jul./set. 5(3):142-152, 2013.
- Brasil, Ministério da Saúde. Portaria n.º 2.048/GM, de 05 de novembro de 2002. Brasília: Senado Federal 2002. Disponível em: [http://dtr2001.saude.gov.br/samu/legislacao/leg\\_2048.htm](http://dtr2001.saude.gov.br/samu/legislacao/leg_2048.htm)
- Lima, MF. *Formação em Preparação e Administração de Medicamentos*. Formação contínua. Farmácia Marques, 2008.
- Silva, LD.; Matos, GC.; Barreto, BG; Albuquerque, DC. *Apazamento de medicamentos por enfermeiros em prescrições*

- de hospital sentinela. *Texto Contexto Enfermagem*, Florianópolis, Jul-Set; 22(3): 722-30, 2013.
- 16 Gimenes, FRE.; Mota, MLS.; Teixeira, TCA.; Silva, AEBC.; Opitz, SP.; Cassiani, SHB. Segurança do paciente na terapêutica medicamentosa e a influência da prescrição médica nos erros de dose. *Revista Latino Americana de Enfermagem*, Nov/Dez 18(6):[07 telas], 2010.
- 17 Corbellini, VL.; Schilling; MCL.; Frantz, SF.; Godinho, TG.; Urbanetto, JS. Eventos adversos relacionados medicamentos: percepção de técnicos e auxiliares de enfermagem. *Rev. Bras. Enferm*; 64 (2): 241-247, Mar-Abr, 2011.
- 18 Pedreira, MLG.; Peterlini, MAS.; Harada, MJCS. Erros de medicação: aspectos relativos à prática do enfermeiro. 2. Ed. São Paulo: Atheneu; p. 123-48, 2006.
- 19 Brasil. Agência Nacional de Vigilância Sanitária. Assistência Segura: Uma Reflexão Teórica Aplicada à Prática. Série Segurança do Paciente e Qualidade em Serviço de Saúde. 1 ed. Brasília. DF. 2013.
- 20 Souza, SR. Cuidando das rosas que florescem no inverno luz e sombra na interação entre equipe de enfermagem e adolescentes com distúrbios onco-hematológico. Rio de Janeiro, UNIRIO, Centro de Ciências Biológicas e da Saúde. Fotocópia 99fl. Dissertação de Mestrado em enfermagem, 2001.
- 21 Oliveira, MM.; Andrade, SSCA.; Campos, MO.; Malta, DC. Fatores associados à procura de serviços de saúde entre escolares brasileiros: uma análise da Pesquisa Nacional de Saúde do Escolar (PeNSE), 2012. *Cad. Saúde Pública*, Rio de Janeiro, 31(8):1603-1614, ago, 2015.
- 22 Barreto, RF.; Gomes, CZL.; Silva, RM.; Signorelli, AAF.; Oliveira, LF.; Cavellani, CL.; Ribeiro, SBF. Avaliação de dor e do perfil epidemiológico, de pacientes atendidos no pronto-socorro de um hospital universitário. Jul-set;13(3):213-9. *Rev Dor*. São Paulo, 2012.
- 23 Nanda. Diagnósticos de enfermagem: definições e classificação. [NANDA Internacional] Porto Alegre: Artmed, 2013.
- 24 Calil, AMC.; Pimenta, AM. Importância da avaliação e padronização analgésica em serviços de emergência. 23(1):53-9. *Acta Paul Enferm*, 2010.
- 25 Martinez, JE.; Grassi, DC; Marques, LG. Análise da aplicabilidade de três instrumentos de avaliação de dor em distintas unidades de atendimento: ambulatório, enfermaria e urgência. 51(4):299-308. *Rev Bras Reumatol*, 2011.
- 26 Souza, CC.; Mata, LRF.; Carvalho, EC; Chianca, TCM. Diagnósticos de enfermagem em pacientes classificados nos níveis I e II de prioridade do Protocolo Manchester. 47(6):1318-24. *Rev Esc Enferm USP*, 2013. Disponível em: [www.ee.usp.br/reeusp/](http://www.ee.usp.br/reeusp/)
- 27 Gomes, ET.; Queiroga, AV.; Araujo, NR.; Bezerra, SMMS. Dor torácica na admissão em uma emergência cardiológica de referência. maio-jun; 15(3):508-15. *Rev Rene*, 2014.
- 28 Araújo, RD.; Marques, IR. Compreendendo o significado da dor torácica isquêmica de pacientes admitidos na sala de emergência. Nov-dez; 60(6): 676-80. *Rev Bras Enferm*, Brasília, 2007.
- 29 Fráguas, R.; Nobre, MRC.; Wajngarten, M.; Cardeal, MV.; Figueiró, JAB.; Iosifescu, DV.; Teixeira, MJ. Depressão maior em pacientes com dor torácica não cardíaca – Quem vai tratar? 36(3):83-7. *Rev Psiq Clín*, 2009.
- 30 Pignatari, SC.; Silveira, RCCP.; Carvalho, EC. Emergências Oncológicas: Assistência de Enfermagem proposta na Literatura. *Online Brazilian Journal of Nursing*, Vol 7, No. EERP-USP, Brasil: 2008.
- 31 Alvarenga, TK. A interferência da emoção na tomada de decisão de risco: um estudo experimental / Tamar Klein Alvarenga – 2011. 84 f. : il.; 30cm. Dissertação (Mestrado Profissional em Controladoria Empresarial) – Universidade Presbiteriana Mackenzie, São Paulo, 2012.
- 32 Mintzberg, H.; Quinn, JB. O processo da estratégia. 3ª. ed. Porto Alegre: Bookman, 2001.

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**\*Corresponding Author:**

Rua Sebastião Feliciano de Paula,18

Bananal, São Paulo, SP, Brasil

E-mail address: sarah\_miranda.ro@hotmail.com

Zip Code: 12.850-000

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