



ORIGINAL ARTICLE

QUALITY AND SAFETY IN PEDIATRIC CARE
QUALIDADE E SEGURANÇA DA ASSISTÊNCIA EM PEDIATRIA
CALIDAD Y SEGURIDAD DE LA ASISTENCIA EN PEDIATRÍA

Juliana Ferreira Condeixa da Costa¹, Luane Santiago Gomes da Silva², Ângela Maria La Cava³

ABSTRACT

Objective: to identify the structure used by the health professionals of the Neonatal and Pediatric Intensive Care Units for the management of good practices related to intravenous therapy. **Method:** this is a qualitative, descriptive study. For the production of data, non-participant observation was used, supported by the observation sheet. **Results:** it was verified at the end of the observation that the institution studied presents non-conformities in relation to the main legislation governing the management of good practices in intravenous therapy, among them: the preparation of parenteral solutions by nursing technicians; the absence of a prior assessment of incompatibilities and drug interactions by the pharmacist prior to the preparation of medications; the absence of a manual of norms and technical routines for the choice of venous accesses and the non-accomplishment of the orientation stage contained in the nine successes for the safe administration of medicines. **Conclusion:** it was concluded that the entire process involving intravenous therapy in this unit presents nonconformities in relation to what is currently advocated, compromising patient safety. **Descriptors:** Patient Safety; Pediatrics; Neonatology; Intravenous Administration; Evidence-Based Nursing; Critical Care.

RESUMO

Objetivo: identificar a estrutura utilizada pelos profissionais de saúde das Unidades de Terapia Intensiva Neonatal e Pediátrica para o manejo das boas práticas relacionadas à terapia intravenosa. **Método:** trata-se de estudo qualitativo, descritivo. Utilizou-se, para a produção de dados, a observação não participante, com suporte da ficha de observação. **Resultados:** verificou-se, ao final da observação, que a instituição pesquisada apresenta não conformidades em relação às principais legislações que regem o manejo de boas práticas em terapia intravenosa, entre elas: o preparo de soluções parenterais por técnicos de Enfermagem; a não existência de uma avaliação prévia de incompatibilidades e interações medicamentosas por parte do farmacêutico, antes do preparo de medicações; a não existência de um manual de normas e rotinas técnicas para a escolha de acessos venosos e a não realização da etapa de orientação contida nos nove acertos para a administração segura de medicamentos. **Conclusão:** concluiu-se que todo o processo que envolve a terapia intravenosa nesta unidade apresenta não conformidades em relação ao que é preconizado atualmente, comprometendo a segurança do paciente. **Descritores:** Segurança do Paciente; Pediatria; Neonatologia; Administração Intravenosa; Enfermagem Baseada em Evidências; Cuidados Críticos.

RESUMEN

Objetivo: identificar la estructura utilizada por los profesionales de salud de las Unidades de Terapia Intensiva Neonatal y Pediátrica para el manejo de las buenas prácticas relacionadas con la terapia intravenosa. **Método:** se trata de un estudio cualitativo, descriptivo. Se utilizó, para la producción de datos, la observación no participante, con soporte de la ficha de observación. **Resultados:** se verificó, al final de la observación, que la institución investigada presenta no conformidades en relación a las principales legislaciones que rigen el manejo de buenas prácticas en terapia intravenosa, entre ellas: la preparación de soluciones parenterales por técnicos de Enfermería; la no existencia de una evaluación previa de incompatibilidades e interacciones medicamentosas por parte del farmacéutico, antes de la preparación de medicamentos; la no existencia de un manual de normas y rutinas técnicas para la elección de accesos venosos y la no realización de la etapa de orientación contenida en los nueve aciertos para la administración segura de medicamentos. **Conclusión:** se concluyó que todo el proceso que involucra la terapia intravenosa en esta unidad presenta no conformidades en relación a lo que es preconizado actualmente, comprometiendo la seguridad del paciente. **Descriptor:** Patient Safety; Pediatrics; Neonatology; Administration, Intravenous; Evidence-Based Nursing; Critical Care.

^{1,2}Federal University of the State of Rio de Janeiro/UNIRIO. Rio de Janeiro (RJ), Brazil. ORCID: <https://orcid.org/0000-0003-2458-4357> ORCID: <https://orcid.org/0000-0003-4101-0427> ³University of Rio de Janeiro/UNIRIO. Rio de Janeiro (RJ), Brazil. ORCID: <https://orcid.org/0000-0003-4173-8557>

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INTRODUCTION

The interest in the study was pointed out through daily observations in the field of in-service training of the Residency in Medical-Surgical Clinic, in the Neonatal and Pediatric Intensive Care Units, given the importance of Nursing in the intravenous therapy process, in the quest for quality and safety in neonatal and pediatric customer service.

It is understood that the Nursing professional is an actor in this process, noting that the nurse is responsible, according to COFEN, Law 7,498/86, for all Nursing activities, being responsible for the direct care of patients serious risk factors for life and Nursing care of greater technical complexity and requiring scientifically based knowledge and the ability to make immediate decisions. It is considered the Guide for the Preparation, Administration and Monitoring of Medicines of COREN-SP (2017) for the description of the steps of prescription, dispensing, preparation, administration and monitoring as the essential phases for the management of good practices related to drug therapy.¹

Quality in health services is understood in two dimensions: technical performance and the application of knowledge, in order to bring benefits and minimize risks to patients, and the personal relationship with the patient. It is known, according to Donabedian's conception, that for the adoption of safe and quality care, an item that should be emphasized is the structure of the health units, with respect to the physical, financial, organizational and directly and indirectly interfere with care.²

The intravenous therapy process is characterized as multidisciplinary, but in its execution, the functions of the pediatric nurse present continuous and challenging advances,

related mainly to the different methods and periods of administration, to the forms and agents used for the dilution and the problems related to drug incompatibility.³

It is observed that the intravenous therapy process is complex, dynamic and exposed to risks and can lead to errors and omissions, affecting the quality of care and the safety of those receiving the medication, therefore, protocols should be continuously monitored.⁴

It is observed that, in the case of children and newborns, the risk of infection is inversely proportional to age; in relation to invasive procedures, one must take into account the aggravating factors for the infection, such as decreased immune defense, low weight, prolonged hospitalization and changes in bacterial flora, characterized by bacterial colonization of the hospital environment.⁵

The World Alliance for Patient Safety was created in 2004 by the World Health Organization (WHO), which aims to organize concepts and definitions of patient safety and propose measures to reduce risks and adverse events, which represent a major cause of morbidity and mortality in health systems. It is pointed out that this alliance has awakened the conscience and political commitment of countries in the field of health, leading to the creation of public policies for patient safety.⁶

It is also emphasized, in the context of public policies for patient safety, in 2010, ANVISA's creation of Resolution No. 07/2010, which establishes the minimum criteria for the operation of Intensive Care Units and brings definitions of topics important to patient safety, which are listed in Figure 1.⁷

Item 1 - Provides for the minimum criteria for the operation of Intensive Care Units and adopts definitions common to all Intensive Care Units, such as organization, physical infrastructure, human and care resources, work processes, patient transportation, risk management and reporting of adverse events, prevention and control of healthcare-related infections.

Regarding the composition of the Nursing team in Neonatal and Pediatric ICU

Item 2- Care Nurse: At least one for every eight beds or fraction at each shift. Nursing Technician: at least one for every two beds, in each shift, in addition to one to support the care service.

Figure 1. Management in intravenous therapy - actions recommended by ANVISA.

In order to contribute to the qualification of health care, the National Patient Safety Program (NPSP) was instituted in 2013, through Administrative Rule No. 529. The Safety Protocol on Prescription, Use and Administration of Medicines was also created in 2013 as an integral

part of the National Patient Safety Program, aiming to promote safe practices in the use of medicines in health facilities, contributing to the reduction of adverse events, as described in Table 2.⁸

Protocol on safety in prescription, distribution and administration of medicines
For safe prescription
Item 1 - Correct identification of the patient, with full name, address and date of birth; complete identification of the prescriber, with name, professional registration and signature; complete identification of the institution, with name, address and telephone; identification of the date of prescription; readability on all prescription data; abbreviations should not be used; the name of medicines must be standardized using the common Brazilian name or, in its absence, the international common denomination; the use of the metric system for the expression of doses, nomenclatures such as spoon, ampoule and bottle are prohibited; allergies must have a prominent place in the prescription; Injectable drugs, when prescribed, should contain information on diluents, rate and time of infusion; modifications to the current or current prescription must be made on the first and second routes.
For secure distribution
Item 2 - The institution shall develop a safe dispensing system, including the selection, standardization, acquisition, receipt, storage, fractionation and safe identification of medicinal products.
For safe administration
Item 3 - The right nine should be considered - right patient, right medication, right dose, right path, right time, right record, right orientation, right form, and right answer.

Figure 2. Management in intravenous therapy - actions recommended by ANVISA.

According to the Guide to Drug Preparation, Administration and Monitoring,¹ the issue of safe drug-related care has been central to the issue of patient safety in view of the high potential for

risk, frequency, the severity and recurrence of damage to the patient.¹

It is seen that other legislation brings recommendations related to good practices in IVT, arranged in figure 4.⁹

RDC nº 45/2003
Regarding infrastructure
Item 1 - Storage areas should be protected against the entry of dust, insects, rodents and other animals.
Item 2 - Areas must have smooth, cracked, non-particle surfaces, floors, walls and ceilings that are easily washable and resistant to sanitizers.
Item 3 - Lighting and ventilation should be sufficient so that the temperature and humidity do not deteriorate the medicines and health products and facilitate the activities carried out. Products must be protected from sunlight.
Item 4 - The rooms must be equipped with washbasins/sinks with faucets without hand control and in sufficient numbers, with soap, antiseptic and hand drying.
Regarding preparation
Item 5 - Responsibility for preparing parenteral solutions may be an individual or joint activity of the nurse and pharmacist.
Item 6 - Written and available procedures should be in place to guide the preparation.
Item 7 - The preparation should follow the medical prescription, preceded by the careful evaluation by the pharmacist of the physico-chemical compatibility and of drug interaction that may occur between the components.
Item 8 - In the case of large-volume parenteral solutions, the labels should be identified with name, bed, chart number, name of the product, description of the components added in the solution, volume and infusion rate, route of administration, date and time of preparation and identification of who prepared.
Item 9 - In small volume parenteral solutions, labels should contain the patient's full name, room/bed, name of medication, dosage, schedule and route of administration and identification of who prepared.
Item 10 - The needles, intravenous catheters, scalpels, syringes, equipment and accessories (filters, lids, etc.) used in the preparation should be for single use and discarded in an appropriate container.
Item 11 - Medication should be inspected prior to administration for identification, package integrity, coloring, presence of foreign bodies and validity.
Regarding the venous accesses
Item 12 - Every central venous catheter and PICC should have their position confirmed before use.
Item 13 - The nurse should participate in the choice of central venous access in consonance with the physician in charge.
Item 14 - The Nursing and Physical Therapy coordinators should be specialists in Intensive Care or in another specialty related to the assistance to the severe patient, specific to the modality of action (Pediatric or Neonatal).
Item 15 - There should be a manual of standards and technical routines.

Figure 3. Intravenous therapy management - actions recommended by legislation.⁹

It should be noted that the articles of ethics include the following considerations related to the prescription process: it is prohibited to administer drugs without knowing the action of the drug and certification of the risk; it is prohibited to prescribe drugs and perform surgical procedure, except in cases provided for by law and in an emergency; it is forbidden to enforce prescriptions of any kind that jeopardize the safety of persons; it is forbidden to perform the prescription of medication and therapy in which the signature and

the registration number of the professional, except urgency and emergency, are not included; the Nursing professional may refuse to perform prescription medication and therapy in case of error or illegibility, and it is prohibited to provide complete and reliable verbal and written information necessary to ensure continuity of care.¹⁰

It is considered that the use of medicines in the hospital encompasses a system of organization and management, not being solely the responsibility of

the pharmacy service, but also of the managers and health professionals, according to the structure and human resources of the hospital. It is necessary that the health professionals involved understand the need and the priority of the continuous system of improvements in the quality and safety of the use of medicines.¹¹

In an international study carried out in a public hospital, there was a correlation between the organizational culture and the culture of reporting errors resulting from medical care, administration of wrong medications, amount and dose of the drug.¹² It refers to the reflection on the implications in the risk of death and in the quality of life of the patient, in the increase of the hospital cost, as well as in the ethical and legal aspects that involve the professional practice.

In another study carried out in Brazil, the highest number of notifications for professional factors, such as carelessness, noncompliance with norms, violation of routines, reckless behavior, and conversations at inappropriate moments, such as, for example, during the preparation of medicines, among professionals in the work environment.¹³

The aim of this study is to analyze the structure used by health professionals in Neonatal and Pediatric Intensive Care Units for the management of good practices related to intravenous therapy, aiming at quality and safety.

OBJECTIVE

- To identify the structure used by the health professionals of Neonatal and Pediatric Intensive Care Units for the management of good practices related to intravenous therapy.

METHOD

It is known that descriptive research aims at discovering and observing existing phenomena, present situations and events, trying to describe, classify, compare, interpret and evaluate them. The study was developed in the Neonatal and Pediatric Intensive Care Units of a federal hospital in the city of Rio de Janeiro. This institution is inserted in the practices of the Unified Health System (UHS) and in the field of practice of undergraduates and post-graduates. It is a large hospital, considered a reference for several cities in the region. It is known that it has emergency pediatric and neonatal care, hospitalization in infirmary and Pediatric and Neonatal Intensive Care Units.¹⁴

As participants of the study, the professionals of the Nursing team and the medical team were selected, as well as pharmacists, in the referred Units of Neonatal and Pediatric Intensive Care Units. Inclusion criteria are that they are directly and/or indirectly involved in the prescription, preparation and administration of intravenous

therapy and that they work during the daytime period. The health professionals who work in the units sporadically and in a period of time less than a month were excluded from the study.

To obtain the data, the non-participant observation and an observation sheet were used to obtain the standardization.¹⁴ It should be emphasized that the observation sheet contains items referring to the physical, organizational and human resources of the Neonatal and Pediatric Intensive Care Units, characteristics of the facilities for performing the intravenous therapy stages, medication prescriptions, support equipment and other materials used.

The observation was strictly observed by the researchers, at all day shifts. Data were analyzed based on the contraposition between the information obtained during the observational period and the actions advocated in the most diverse legislation dealing with the subject, such as DRC No. 45, the Safety Protocol on the Prescription, Use and Administration of Medicines - ANVISA/2013, Resolution No. 7 of February 24, 2010 - ANVISA and COFEN Law 7,498/86. Through the use of such legislation, the definition of criteria to characterize the items addressed as compliant or non-conforming was made possible, taking into consideration the recommended actions.

The ethical aspects of research with human beings, listed in Resolution of the National Health Council 466/12, were approved, and approved by the Research Ethics Committee of UNIRIO under the CAAE: 20605513.8.0000.5285.

RESULTS

The observation was held from August 1 to 31, 2017, from Monday to Wednesday, and on Fridays, at the Neonatal and Pediatric Intensive Care Units of a large federal hospital in the city of Rio de Janeiro. It is pointed out that, in order to obtain results, the observation was made in accordance with the items on the observation sheet, divided into physical, organizational and human resources, characteristics of the facilities for the accomplishment of the intravenous therapy stages, and drug prescriptions.

The division of physical space between the Neonatal and Pediatric Intensive Care Units is observed, the first being constituted by 13 active incubators and the second one formed by four active cribs. It is known that the health team is formed by a day-care nurse, responsible for the management of the sector and trained for PICC passage achievements, by two or three nurses on call for the neonatal unit, and a nurse on call for the pediatric unit. Six nursing teams are divided between the day and night shifts, with a day and night team for every 24 hours, adding up to 12 hours in each working day.

It is pointed out that each team contains approximately seven Nursing technicians

responsible for direct care and one who is only responsible for the preparation of medications, both in the Neonatal ICU and the Pediatric ICU. It is also worth noting that two day-care nursing techniques take 12x36 hours of relay and are responsible for the maintenance of materials and other inputs in the sector. The medical team is composed by a medical staff on call, directly responsible for the medical assistance of the sector and two other resident doctors. It should be noted that medical professionals and physiotherapists are responsible for both the Neonatal ICU and the Pediatric ICU; already the clinical pharmacists of the institution are not exclusive to the Neonatal and Pediatric Intensive Care Units, providing assistance to all the hospitalization units of the institution.

It is defined that the local infrastructure for the preparation of medicines has a broad environment, divided into two parts - one for storing medicines (including psychotropic drugs, which are stored in a special box with a padlock) and supplies for the preparation of drugs.

It can be observed that the other environment is the direct drug handling room, containing a bench attached to the medicine handling area, marble, and a manually operated lever; the washbasin also has liquid soap and paper suitable for drying hands and a storage refrigerator.

The equipment room is intended for the storage of supported infusion pumps, which are standardized, being connected to the power source and waiting for use. According to DRC No. 45 of 2003, the environment in question complies with the storage areas protected against the entry of dust, insects, rodents and other animals. The inner surfaces of the rooms are found to contain walls, door, ceiling and floor, which are in compliance with smooth and cracked surfaces, which prevent particle entrapment, facilitate washing and are resistant to sanitizers.

It was recorded that the activities related to the prescription and administration of medications performed in the morning consisted of rounds by the medical team, to discuss the clinical conduct and the subsequent making of a new medical prescription, valid for 24 hours, until the making of a new prescription.

It is observed that, until the end of the round of each day, the Nursing team is based on the prescription of the previous day to continue the pharmacological treatment to the children and, when a new medical prescription is released, the nurse confronts the two prescriptions, in order to verify possible changes, such as suspension, additions, modification of dosages and routes of administration of medicines previously prescribed.

After this process, the medication is separated by means of identification tapes, containing the patient's name, the name of the medicine, the

route of administration, the dose of the medication and the time at which it is to be administered; From this, the identification tapes are delivered to the Nursing technician responsible for preparing the medications throughout the shift. It is added that the Nursing technician receives the tapes, organizes them by schedule, and proceeds with the preparation of the environment, and then initiates the manipulation of the medications.

During this process, hand hygiene, dressing with surgical masks and procedure gloves, cleaning the workbench, removal of gloves after cleaning the workbench, and opening of sterile field and material, such as syringes, needles and protractors. It is emphasized that each professional manipulates the medications in the order that he deems correct.

It was observed during the observation that most professionals prepare the drugs by administration, starting with the oral medications that are handled in a pharmacy located outside the hospital environment, where the medications that commonly present in the form of tablets are fractionated for pediatric doses and dispensed as oral solution.

These medications are conditioned in glass bottles and stored in a refrigerator that is unique to medicines with an expiration date and term of use determined by industry protocol. It is noted that the responsible technician aspires the prescribed dosage and keeps the syringe in its original packaging with identification, until the administration time.

It has been noted that intravenous drugs are, in most cases, prepared afterwards. After the first reconstitution with distilled water, physiological solution or glycosylated solution, the antibiotics are stored, depending on the manufacturer's indication, in an exclusive refrigerator or in drawers separated from the medications intended for administration by other routes. It is recorded that they have a period of 24 to 14 days to be used, depending on the stability period of each one, according to the therapeutic guide of the institution, which is in a visible place, containing the diluents for reconstitution, the term of stability, redilution, and incompatibilities to be observed at the time of preparation of antibiotics.

In the morning and in the afternoon, the Nursing technician in charge of the preparation of the medications is responsible for the distribution of the medication at each time per patient, and the other Nursing technicians responsible for the direct care are responsible for performing the checks, patient before administration.

DISCUSSION

Figure 1 shows the recommendations of the main legislations, ordinances, protocols and DRCs

regarding safety in the prescription, use, administration and storage of medicines with the

practices performed in said hospital.

DRC N 45	Regarding infrastructure
	Item 1 - in accordance
	Item 2 - in accordance
	Item 3 - in accordance
	Item 4 - in accordance
	Item 5 - not in accordance
	Item 6 - in accordance
	Item 7 - not in accordance
	Item 8 - not in accordance
	Item 9 - not in accordance
	Item 10 - in accordance
	Item 11 - in accordance
	Item 12 - in accordance
	Item 13 - in accordance
	Item 14 - in accordance
Item 15 - not in accordance	
Anvisa reslution n 07/2010	Item único - in accordance
Protocol on safety in the prescription, distribution and administration of medicines (Anvisa/2013)	Item 1 - not in accordance
	Item 2 - in accordance
	Item 3 - in accordance

Figure 4. Conformity of the Institution in Relation to the Recommendations of Legislation.

The following non-conformities related to DRC nº 45/2003 are listed:

Recomendation- it is indicated that the responsibility for the preparation of the parenteral solutions can be an individual or joint activity of the nurse and the pharmacist;

Comment - it is observed that, in this institution, the preparation of the parenteral solutions is incumbent on the professional nursing technician. It is emphasized that DRC Recommendation 45/2003 is due to the fact that the actions of the hospital pharmacist and the nurse converge, since the first one has the responsibility of establishing written procedures for the preparation of parenteral solutions for fractionation, dilution or additions of other drugs, in order to avoid changes in drug mixtures; the nurse is the professional trained to ensure that this complex and risk-taking activity is performed with the utmost rigor and a judicious look at the medications for their physical integrity, color, presence of particles, foreign bodies and shelf life, besides the aspects related to the prevention and control of infection, such as adequate paramentation and antisepsis during the preparation;

Recomendation - it is suggested that the preparation should follow the medical prescription, preceded by the careful evaluation by the pharmacist of the physico-chemical compatibility and of the drug interaction that may occur between the components;

Comment - it is recorded in said institution that the medical prescription is not preceded by a rigorous evaluation by the pharmacist of the physico-chemical compatibility and the drug interaction. This issue is associated with the great demand and responsibility of a single pharmacist

in checking the prescriptions of all the hospitalization units, including the Neonatal and Pediatric ICUs;

Recomendation - When it comes to large-volume parenteral solutions, labels should be identified with name, bed, chart number, product name, description of the components added in the solution, volume and speed of infusion, the route of administration, the date and time of preparation and the identification of who prepared;

Comment - it is verified that the labels are prepared by the nurses and contain data such as the full name, bed, chart number, name of the product, volume and infusion rate and route of administration. It should be noted, however, that they do not contain information on the date and time of preparation or the identification of the professional who did it, as recommended by the DRC;

Recomendation - it is pointed out in small-volume parenteral solutions that the labels should contain the patient's full name, room/bed, name of medications, dosage, schedule and route of administration and identification of who prepared;

Comment - it is observed, as well as in the recommendation for large volume parenteral solutions, that small volume parenteral solutions contain labels with full name, bed, chart number, product name, description of the components added in the solution, the volume and the rate of infusion, the route of administration, however, do not present the date and time of the preparation or the identification of who prepared;

Recomendation- it is suggested the creation of a manual of norms and technical routines for the choice of venous accesses;

Comment - it is verified that, in the institution, there is no manual of norms and technical routines that standardize the choice of the venous accesses, as recommended. It is noteworthy that, after emphasizing the application of international goals for patient safety, the bed is no longer accepted as an identifier in hospitals.

The nonconformities related to the Safety Protocol in the prescription, distribution and administration of medicines are pointed out - ANVISA/2013:

Recomendation - it is defined that changes in current or current prescription must be made in the first and second routes;

Comment - it was registered that the changes in the current or current prescription are written to the pen, not being issued a new digital prescription containing the addition or suspension of medications;

Recomendation - nine right hits - right patient, right drug, right dose, right turn, right time, right registration, right orientation, right form, right answer;

Comment - it can be noticed that the correct orientation step for those responsible for newborns and hospitalized children is not performed in the institution, resulting in a weaker team-responsible link and generating possible doubts regarding the therapeutics used.

CONCLUSION

It is concluded that the objectives of the study were reached and the results showed that the structure that involves the intravenous therapy in this unit presents nonconformities in relation to what is currently advocated, compromising patient safety. Several professionals involved in intravenous therapy are identified, allowing a greater index of errors, from the storage to the administration of the medication. It is emphasized that properly prepared drug therapy prevents the length of hospital stay and therefore reduces hospital costs by maximizing drug therapy and patient quality of life.

Through the enrichment of the theoretical and practical knowledge reached in this study, it was possible to reflect on the organization and management of intravenous therapy management, allowing the analysis and deepening of the practices in the Neonatal and Pediatric Intensive Care Units.

The results are expected to support decision-making and planning of actions for the continuous improvement of the quality and safety of medication use, and to foster new research and evidence that contribute to a safe care practice for hospitalized children.

REFERENCES

1. Conselho Regional de Enfermagem - São Paulo. Uso seguro de medicamentos: guia para preparo, administração e monitoramento [Internet]. São Paulo. Coren-SP;2017 [cited 2018 June 15]. Available from: <https://portal.coren-sp.gov.br/sites/default/files/uso-seguro-medicamentos.pdf>
2. Donabedian A. The Quality of Medical Care. *Science*. 1978 May;200(4344):856-64. PMID: 417400
3. Flores AC, Castro Y Vásquez JAP, Arreola MS. Eficacia de la práctica de Enfermería el la Terapia de Infusión Intravenosa. *Rev CONAMED* [Internet]. 2015 [cited 2018 Aug 15];20(Suppl 1):527-34. Available from: <http://www.medigraphic.com/pdfs/conamed/con-2015/cons151e.pdf>
4. Peterlini MAS. Órfãos de Terapia Medicamentosa: a Administração de Medicamentos por Via Intravenosa em Crianças Hospitalizadas [thesis] [Internet]. São Paulo: Universidade Federal de São Paulo;2003 [cited 2018 June 15]. Available from: <http://repositorio.unifesp.br/handle/11600/1651>
5. Ministério da Saúde (BR), Agência Nacional de Vigilância Sanitária. *Pediatria: prevenção e controle de infecção hospitalar* [Internet]. Brasília: Ministério da Saúde;2006 [cited 2018 Aug 12]. Available from: http://www.anvisa.gov.br/servicosaude/manuais/manual_pediatria.pdf
6. Ministério da Saúde (BR), Agência Nacional de Vigilância Sanitária. *Segurança do Paciente e Qualidade Assistencial em Serviços de Saúde. Boletim Informativo* [Internet]. 2011 Jan/July [cited 2018 June 15]; Available from: <http://portal.anvisa.gov.br/documents/33852/272031/Boletim+Seguran%C3%A7a+do+Paciente+e+Qualidade+em+Servi%C3%A7os+de+Sa%C3%BAde+n%C2%BA+01+Jan-Jul+de+2011/aa36fe6e-f5d5-46ae-9eb6-e93af520fafc>
7. Ministério da Saúde (BR), Resolução nº 07, de 24 de fevereiro de 2010. Dispõe sobre os requisitos mínimos para funcionamento de Unidades de Terapia Intensiva e dá outras providências [Internet]. Brasília: Ministério da Saúde;2010 [cited 2018 June 15]. Available from: http://bvsmms.saude.gov.br/bvs/saudelegis/anvisa/2010/res0007_24_02_2010.html acessado em: 11/12/2017
8. Ministério da Saúde (BR), Agência Nacional de Vigilância Sanitária (BR). *Protocolo de segurança na prescrição, uso e administração de medicamentos* [Internet]. Brasília: Ministério da Saúde;2013 [cited 2018 July 15]. Available from: <https://www20.anvisa.gov.br/segurancadopaciente/index.php/publicacoes/item/seguranca-na-prescricao-uso-e-administracao-de-medicamentos>

9. Ministério da Saúde (BR), Gabinete do Ministro. Resolução RDC nº 45, de 12 de março de 2003. Dispõe sobre o Regulamento Técnico de Boas Práticas de Utilização das Soluções Parenterais [Internet]. Brasília: Ministério da Saúde;2003 [cited 2018 June 15]. Available from: http://bvsmis.saude.gov.br/bvs/saudelegis/anvisa/2003/rdc0045_12_03_2003.html
10. Conselho Federal de Enfermagem. Resolução nº311, de 8 fevereiro de 2007: código de Ética do Profissional de Enfermagem [Internet]. Brasília: COFEN;2007 [cited 2018 June 15]. Available from: http://novo.portalcofen.gov.br/wp-content/uploads/2012/03/resolucao_311_anexo.pdf
11. Joint Commission International. JCI Accreditation Standards for Hospitals 6th Edition. Oak Brook: JCI; 2017.
12. Jafree SR, Zakar R, Zakar MZ, Fischer F. Nurse perceptions of organizational culture and its association with the culture of error reporting: a case of public sector hospitals in Pakistan. BMC Health Serv Res. 2016 Jan;16:3. Doi: [10.1186/s12913-015-1252-y](https://doi.org/10.1186/s12913-015-1252-y)
13. Bica TFS, Wegner W, Gerhardt LM, Predebon CM, Pedro ENR, Breigeiron MK. Characteristics of patient safety incidents notified in a pediatric intensive care unit. J Nurs UFPE on line. 2017 Oct;11(Suppl 10):4206-16. Doi. <https://doi.org/10.5205/1981-8963-v11i10a231184p4206-4216-2017>
14. Martins Junior, J Como escrever trabalhos de conclusão de curso: instruções para planejar e montar, desenvolver, concluir, redigir e apresentar trabalhos monográficos e artigos. 7th ed. Petrópolis: Vozes; 2011.

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Corresponding

Luane Santiago Gomes da Silva

Email: luane.sgs@gmail.com

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