## PATIENT SAFETY IN A NEONATAL INTENSIVE CARE UNITS: INTEGRATIVE **REVIEW**

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#### **ABSTRACT**

Objective: to identify the scientific production, published from January 2008 to July 2019, about patient safety in a Neonatal Intensive Care Unit. Method: integrative review, where 24 articles were selected that met the objective and inclusion and exclusion criteria with the help of the EndNote® software. In these articles, we analyzed data regarding authorship, objectives, year of publication, method, results and level of evidence. Results: we drew up five categories to show the results: The professional and the patient safety; Communication and patient safety; Quality management and patient safety; Safety culture; and The family and the patient safety. Conclusion: the process of building and encouraging patient safety is similar in the national and international scenarios. The studies point out emerging efforts for the construction of safety culture, architected under quality and safety management strategies, improvement of working conditions and professional factors, as well as the insertion of the family as a qualifying factor for health care.

Keywords: Patient safety. Newborn. Intensive Care Units, Neonatal. Nursing.

#### INTRODUCTION

The issue of patient safety, which aims to reduce the risk of unnecessary harms associated with health care to an acceptable minimum, is priority questions the development of policies and strategies on the global agenda, implemented by the World Health Organization<sup>(1)</sup>.In the national scenario, patient safety is regulated by the Ordinance of the Ministry of Healthn° 529/2013, which institutes the National Patient Safety Program (PNSP, as per its Portuguese acronym) and proposes measures to reduce the occurrence of incidents in the health services, guiding strategies for the implementation of the patient safety culture<sup>(2)</sup>.

Iatrogenesis is present and often seems inevitable in environments of high complexity and with predominance of medical technology. In these environments, adverse event rates of care are substantially higher, resulting in permanent harms. Unfortunately, these can be classified as preventable in their majority.

Accordingly, it is necessary to understand the health care process aiming at identifying causes and preventing them<sup>(3)</sup>.

The organization of the work process in the Neonatal Intensive Care Unit (NICU) must be seen as primordial for the quality of the care provided, leading us during the identification of errors to focus on the cause, and not the causer, and having as an objective the qualification of care.In this setting, the Brazilian National Health Safety Agency highlights that, among the incidents that took place in hospital units, the majority are in hospitalization sectors and in intensive care units, totaling 28.86% of the notifications in the country between the years 2014 and 2018. Concerning the neonates, the iatrogenic effects notified account for 3.53% of the 255,562 cases reported<sup>(4)</sup>.

In the NICU, the patient safety culture must be associated with individual and collective factors, either in the way of thinking and acting or in the way of providing safe care, built as a team from the experiences and knowledge

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sharing for the safety of neonates<sup>(5)</sup>. This requires managers and professionals to be able to articulate with multiprofessional team members to provide quality care, focusing on patient safety. Based on these assumptions, we delimited as a guiding question: what has been published about patient safety in the Neonatal Intensive Care Unit in the last 10 years? With the objective of identifying the scientific production published between the years 2008 and 2019 on patient safety in a Neonatal Intensive Care Unit.

#### **METHODOLOGY**

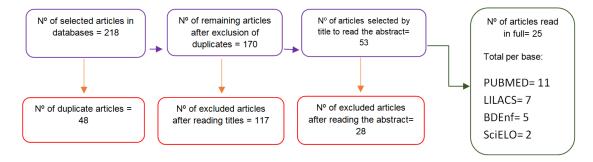
This is an integrative review that sought to identify the scientific production published from January 2008 to June 2019, on the patient safety in the Neonatal Intensive Care Unit. We accomplished the following steps for its preparation: establishment of the research hypothesis or question; sampling or literature search; categorization of studies; evaluation of studies included in the review; interpretation of results; and synthesis of the knowledge or presentation of the review<sup>(6)</sup>.

The search was held in the electronic databases: Latin American and Caribbean Health Sciences Literature (LILACS), *Base de Dados* 

de Enfermagem (BDENF), National Library of Medicine National of Health (PubMed) and the virtual Scientific Electronic Library Online (SciELO).Data were collected in July 2019 using the following Health Descriptors (Decs) and Medical Subject Headings (Mesh): Patient safety; Intensive care units, neonatal; Intensive care, neonatal; and Patient safety; Patient safeties; Intensive care units, neonatal; Intensive care, neonatal; Newborn intensive care units; Neonatal ICU, according to the specificities of each base. We used the OR and AND Boolean operators to build the following research blocks: Patient safety OR Patient safeties (block 1); Intensive care units, neonatal OR Intensive care, neonatal OR Newborn intensive care units ICU (block 2) and, finally, Block 1 AND Block 2.

For the selection of studies, we included research published in English, Portuguese and Spanish. We excluded the communication abstracts in congresses, news, letters to the editor and duplicate studies. For this purpose, we used the Endnote® software, which is a bibliography manager for the publication of scientific articles. We identified a total of 218 articles; after applying the inclusion and exclusion criteria, 25 articles were selected for analysis, according to Figure 1.

Figure 1. Flowchart for selection description of articles



For analysis of the 25 selected studies, we prepared a summary of the results found, as displayed in Table 1.

## RESULTS AND DISCUSSION

After reading the selected studies, they were distributed according to the information: author(s), year, objective, type of study (TS–Qualitative and/or Quantitative) and level of evidence (LE–level I to VII)<sup>(7)</sup>. Subsequently,

the results were categorized and interpreted<sup>(6)</sup>. Of the findings, 84% have an English version, 48% are in Portuguese and 24% in Spanish. Of these, 12 Brazilian, 9 American, 2 Spanish and 2 Palestinian productions.

After summarizing the results found in the articles, the following categories were formed: The professional and the patient safety; Communication and patient safety; Quality management and patient safety; Safety culture; and The family and the patient safety.

 Table 01. Selected articles

Nº	le 01. Selected articles Title	Author/Year	Objective	TS/LE
N	Title	Author/Tear	Objective	16/1515
5	Patient safety culture at neonatal intensive care units: perspectives of the nursing and medical team	Tomazoni A et al./ 2014	To check the evaluation of the patient safety culture, according to the position and working time of the nursing and medical teams in Neonatal Intensive Care Units.	Quantit./ VI
8	Impact of Resident Duty Hour Limits on Safety in the ICU: A National Survey of Pediatric and Neonatal Intensivists	Typpo KV <i>et al.</i> /2012	To understand how current or future regulatory changes may impact safety in academic pediatric and neonatal intensive care units.	Quantit./ III
9	Exposure to Leadership WalkRounds in neonatal intensive care units is associated with a better patient safety culture and less caregiver burnout	Sexton JB et al /2014	To evaluate the association between receiving feedback on actions taken as a result of "Walk Rounds". In addition to evaluations of the health worker about the patient safety culture and Burnout in 44 neonatal intensive care units (NICUs). Through active participation of the quality of management in the delivery room, structuring an improvement initiative.	Quantit./ VI
10	Burnout in the NICU setting and its relation to safety culture	Profit J et al /2014	(1) To test psychometric properties of a brief four-item burnout scale; (2) To provide benchmarking data of burnout and resilience of the neonatal intensive care unit in different units and types of caregivers; (3) To examine the relationship between the caregiver's burnout and the patient safety culture.	Quantit./ VI
11	Higher Quality of Care and Patient Safety Associated with Better NICU Work Environments.	Lake H <i>et al</i> /2016	To investigate the associations between the work environment of the NICU, the quality of care, the safety and the outcomes of patients.	Quantit./ VI
12	Comunicação e segurança do paciente na passagem de plantão em unidades de cuidados intensivos neonatais	GonçalvesMI, Rocha PK, Anders JC, Kusahara DM, Tomazoni A/2016	To identify factors related to patient safety regarding communication in the process of duty shift change of nursing teams.	Quant./ VI
13	Segurança do paciente e passagem de plantão em unidades de cuidados intensivos neonatais	Gonçalves MI et al. /2017	To identify how patient safety is contemplated in theduty shift change of nursing teams in neonatal intensive care units.	Quant./ VI
14	Competências profissionais do enfermeiro no gerenciamento dos eventos adversos em UTI neonatal [tese]	Rocha RM /2016	To map the skills of the nurse for the management of adverse events in the Neonatal ICU; to describe the activities developed by the nurses in the Neonatal ICU; to identify the adverse events that took place in the Neonatal ICU; to correlate the activities developed by the nurses in the Neonatal ICU related to the adverse events with the professional skills.	Qualit./ VI
15	Uso de ferramentas de gestão da qualidade com foco na segurança do paciente neonatal	Fioreti FCC <i>et al.</i> /2016	To analyze the use of quality management tools with a focus on patient safety.	Qualit./ VI
16	Cultura e clima organizacional para segurança do paciente em Unidades de Terapia Intensiva	Santiago THR, Turrini RNT /2015	To evaluate the perception of health professionals about the climate and safety culture of the patient in Intensive Care Units (ICU) and the relationship between the Hospital Surveyon Patient Safety Culture (HSOPSC) and the Safety Attitudes Questionnaire (SAQ) instruments.	Quantit./ VI
17	Evaluation of the patient safety culture in neonatal intensive care	Tomazoni A et al. /2015	To analyze the patient safety culture from the perspective of the nursing and medical teams in public hospitals located in Florianópolis.	Quantit./ VI
18	Avaliação da cultura de segurança do paciente em unidades de neonatologia na perspectiva da equipe multiprofissional [dissertação]	Notaro KAM /2017	To analyze the patient safety culture in three neonatology units of public hospitals from the perspective of the multiprofessional team.	Quant./ VI

To be continued

19	Cultura de segurança em unidades de terapia intensiva	Reis FFP et al. /2017	To evaluate the patient safety culture from the perspective of the healthcare team professionals.	Qualit./ VI
20	Safety Culture in Neonatal Intensive Care Units in the Gaza Strip, Palestine: A Need for Policy Change	Abu-El-Noor NI, Hamdan MA, Abu-El- Noor MK, Radwan AKS, Alshaer A. /2016	To evaluate the safety culture in neonatal intensive care units (NICUs) in hospitals in the Gaza Strip and to evaluate the safety culture in relation to the characteristics of caregivers.	Qualit./ VI
21	Comparing NICU teamwork and safety climate across two commonly used survey instruments	Profit J <i>et al</i> /2016	To evaluate the variation in safety and teamwork climate and in the neonatal intensive care unit environment and to compare the measurement of safety culture scales using two different instruments (Safety Attitudes Questionnaire (SAQ) and Hospital Survey on Patient Safety Culture (HSOPSC)).	Quantit./ VI
22	Validação de conteúdo dos checklists de segurança do paciente no cuidado de Enfermagem em Unidades de Terapia Intensiva Neonatal [dissertação]	Silva DCZ /2019	To validate the content of nursing care checklists based on the safety of the patient admitted to Neonatal Intensive Care Units at the times of admission, hospitalization and preparation for discharge.	Quant./ VII
23	Cultura de la seguridad del paciente en una unidad de cuidados intensivos neonatales [tese]	Soria EM /2012	To know the perception of errors in patient care, the positive (strengths) and negative (weaknesses) aspects of safety culture (SC) among physicians and nurses in neonatal ICU.	Quanti- qualit./ VI
24	Segurança do paciente na percepção da enfermagem e medicina em Unidades de Terapia Intensiva Neonatal	Tomazoni A <i>et al.</i> /2017	To describe the patient safety in the perception of nursing and medical professionals in Neonatal Intensive Care Units.	Qualit./ VI
25	Towards a safety culture in the neonatal unit: Six years experience	Ruiz MT et al /2015	The collective effort of an institution to direct its resources towards the objective of safety.	Quantit./ III
26	Measuring safety culture in Palestinian neonatal intensive care units using the Safety Attitudes Questionnaire	Hamdan M /2013	To measure the safety culture, to examine variations among Neonatal Intensive Care Units (NICUs) and to evaluate associations with the characteristics of the caregiver.	Quantit./ VI
28	Parents' perspectives on safety in neonatal intensive care: a mixed-methods study	LyndonA, <u>Jacobson</u> CH, <u>Fagan</u> KM, <u>Wisner</u> K, Franck LS. /2014	To describe how parents of babies in the NICU conceptualize patient safety and what kinds of concerns they have about safety.	Qualit./ VI
29	Segurança do paciente em unidade neonatal: preocupações e estratégias vivenciadas por pais	Rodrigues FA, Wegner W, Kantorski KJC, Pedro ENR /2018	To analyze how parents identify patient safety in a neonatal unit.	Qualit./ VI
30	Parents' Perspectives on Navigating the Work of Speaking Up in the NICU. AWHONN, the Association of Women's Health, Obstetric and Neonatal Nurses	Lyndon A, Wisner	To describe the perspectives of parents and the likelihood of expressing themselves on safety issues in the NICU and to identify barriers and facilitators for parents to express themselves.	Qualit./ VI
31	A participação da família na segurança do paciente em unidades neonatais na perspectiva do enfermeiro	Sousa FCP et al. /2017	To understand the influence of family participation on patient safety in neonatal units from the perspective of nurses.	Qualit./ VI
32	A Rounding system to enhance patient, parent, and neonatal nurse interactions and promote patient safety	Graci A /2013	To evaluate comfort rounds as an approach to meet the needs of patients and relatives in a Neonatal Intensive Care Unit (NICU).	Qualit./ VI

### **DISCUSSION OF RESULTS**

## Training and performance of the professional in light of the patient safety

In the world setting of patient safety, it is

imperative to reflect on the educational system and the model employed in undergraduate and residency courses in the areas of health sciences. It is also important to underline that the issue is directly influenced by factors related to professional practice, such as the workload and tiredness of the professional who provides the direct care<sup>(8)</sup>.

In this context, participants in a study point out that restructuring curricula and reducing residence hours did not improve the patient safety culture or decrease the error rate in this sector. On the contrary, by restricting the action of resident physicians, adverse events in the care provided by the professionals of the institution increased, who suffered from a higher workload<sup>(8)</sup>.

Leadership WalkRounds® is a technique used to improve the quality of care, where directors visit the sectors in order to observe and interact with employees while they perform the healthcare. This strategy aims to promote the cohesive work between management and care in order to identify and dissolve possible barriers to efficiency, quality or patient safety<sup>(8)</sup>. The management interaction does not take place with the same frequency in the NICU as in other units of a hospital, which exposes health workers to greater stress, thereby leading to the emergence of the Burnout syndrome<sup>(9)</sup>.

The high prevalence of Burnout among professionals working in NICUs, especially those in nursing, is significantly associated with the poor culture of safety rates, these being important indicators of the quality care<sup>(10)</sup>. With this, it is certain to reinforce that the quality of the work and its safety vary according to the institutional and organizational climate of the NICU. Therefore, there is a need for an environment that allows the team to develop discussion spaces for improvement in care, in order to work together with their managers to identify and correctly address gaps in the patient safety culture, since healthy work environments provide better results and less team illness<sup>(11)</sup>.

## Communication and patient safety

Communication is considered paramount for patient safety and can be written and/or verbal. Teams use it in theduty shift change to maintain continuity of care; however, it still shows fragilities and requires adjustments to ensure patient safety<sup>(12,13)</sup>.

Among the weaknesses is the segregated form with which it happens, often only among

professionals of the same educational formation. Accordingly, it becomes evident the need for changes in this scenario so that the care is organized in a multidisciplinary way to operate and articulate actions that ensure the quality of care and the reduction of adverse events<sup>(12,13)</sup>.

This moment must be valued by the team in order to reduce factors that interfere with the process, such as those related to the eligibility modality, of the the presence multidisciplinary teams, the interruptions, the parallel conversations, the delays and the early exits, the noise, the relevant information passed on, as well as the degree of training and the process of continuous updating. In this sense, technical and higher education schools can act by inserting in their curricula subjects focused patient safety, thereby stimulating multidisciplinary work<sup>(12)</sup>.

#### Quality management and patient safety

Quality management and adverse events in the NICU are rooted in the work of the nursing professional, who performs several actions that instrumentalize the quality of care, which requires specific abilities and skills for the management of adverse events. For this purpose, it is necessary to have a constant professional updating, thereby favoring the confrontation of this environment of high healthcare complexity<sup>(14)</sup>.

Accordingly, management tools focused on patient safety should be used continuously, subsidizing daily practices, aiming at improving results and ensuring safe care. In this context, it is necessary to have process management to analyze care, thereby enabling patient safety and a healthy working environment<sup>(15)</sup>.

Risk management, a key instrument in the efforts for quality and safe care, needs to be seen in an individualized way and directed to the particularities of each customer by means of systematized, resolutive and continuous preventive actions, with the protagonism of teamwork, adapting tools that facilitate this management, in particular audit and feedback<sup>(16)</sup>.

#### The safety culture

Studies prove that in pediatric NICUs, the patient culture and safety climate show better rates, thereby suggesting that the possibility of the affective relationship between professional and patient contributes to a safer care, even if not fully established<sup>(16-19)</sup>. As a proposal to improve these results, we can cite the investment of efforts in the use of the Safety Attitudes Questionnaire (SAQ) and the Hospital Survey on Patient Safety Culture HSOPSC<sup>(17-20,21)</sup>

These tools allow several opportunities in the search for improvement in the patient safety culture, although they show systematic differences that make their concomitant use impossible<sup>(21)</sup>. Although there are cultural particularities among countries. the organizational supervision and learning actions stand out as anchors for the implementation of the patient safety culture, having as pillars the incentive to adhere to the safety norms and the learning and promotion of change through communicated errors<sup>(17-20,21)</sup>.

Conversely, the formulation of strategies aimed at patient safety has several barriers, especially when talking about building an instrument to govern safe practice in the NICU. It is necessary to select priority activities and to express clear and objective guidelines in order to serve as a model for the construction of new safety tools, to direct assistance to risk prevention, to provide quality indicator data and to assist in the physical recording of information<sup>(22)</sup>.

There are local microcultures within organizations that serve to interpret them in a range of time in order to evaluate their processes, contexts and strategies for safe care (15-17-19-21). With the reinforcement of these tools, it is possible to evolve the process of communicating adverse events of care, thereby facilitating the reporting of information that corroborates the improvement of patient safety in health services (16-19,20).

Nevertheless, despite numerous investments for qualification, the safety culture is still fragile and the stimulus of notification by professionals may be strengthened, replacing the punitive system through the culture of learning<sup>(18-26)</sup>. Management and managerial

processes are also important factors for a solid construction of the safety culture in institutions. The implementation of discussion, reflection and learning environments, involving the leaders of the institutions and the health care professionals, is a means of ensuring safe care, as well as a transition to a more positive and proactive culture of patient safety, thereby understanding the body of professionals, management, patient and family in an equitable movement (5,17-26-27).

#### The family and the patient safety

For family members of neonates in the NICU, safety is seen as a combination of the joint actions of teams and parents, which can contribute to the monitoring and improvement of the physical, emotional and developmental conditions of their children<sup>(28)</sup>. Safe practices for medication and milk administration, infection control, apneic episodes or other respiratory problems, the physical comfort of the child and the potential consequences of treatments, lack of visitors and of control insufficient information are the main concerns of the parents(28,29).

Moreover, relatives also emphasize the quality and technical consistency of the team as a primordial factor for the maintenance of safe care, as well as the postural care and pain management provided by the team, having as a central focus the particular physiological needs of neonates, considering the safe development<sup>(28)</sup>.

The highly technological environment of the NICU interferes in the bond between the parents and the baby, and it is necessary to take a careful look at the emotional safety, especially of those relatives of neonates who remain hospitalized for a long period. In this context, the team is pointed out as a key factor for the bond, thereby favoring the possibility of effective paternity and maternity<sup>(29)</sup>.

Accordingly, the effective welcoming should be the mainstay of this complex relationship that is developed in the NICU, since it brings benefits to the neonate and his/her parents, thereby facilitating the adaptation of the family to this environment and consolidating the teamfamily-patient relationship, considering the degree of vulnerability of the patient in order to minimize the emotions and insecurities generated by the hospitalization<sup>(28-31)</sup>.

The continuity of care and health care practices, the communication of the team and the constant vigilance of neonates also stand out as constant concerns for the family, where the turnover of professionals in the team puts in check their ability, as well as their capacity to recognize the neonate as an individual, perceiving subtle changes in his/her clinical picture, which reflects in the insecurity of the family that tries to compensate these deficiencies by increasing its own vigil at the bedside, when possible (28).

Therefore, it is important that the team insert the parents in the decision making process, sharing realistic information that cover the clinical picture of the patient, in accessible and easy understand language, thereby reinforcing the effective communication (28-30-<sup>31)</sup>. This can be achieved by inserting the parents in the "rounds" of confrontation, where clinical cases are discussed and decisions are made for each patient with the presence of the team to share information and empower the relatives of patients. In addition, folders informative reminders directed to the relatives, welcoming and explanation of routines at the time of admission in the NICU, monitoring of comfort and maintenance of a safe and organized environment at the bedside in an

individualized way can be used(28-32).

#### **CONCLUSION**

In view of the above, we can understand how the process of building and encouraging patient safety takes place. It is possible to recognize a fair setting in the national and international scenarios in the search for the implementation of practices and improvements aiming at a safer care in the NICU.

We should underline the urgent need for cultural changes regarding both patient safety and professional training that consider the insertion of the family in baby care as an aid in the control and reduction of iatrogenic effects, as well as in the promotion of humanized care, to the detriment of the figure of punitive representativeness and extreme criticality to the health care practices that permeate the beliefs of health professionals in the present days.

We should highlight that there are still gaps and shortcomings regarding the issue of communication and patient safety. Considering the relevance of this topic for the construction of safe care, we believe that more studies should be carried out on the theme, so that it is possible to perform safe care with satisfactory cost-effectiveness to the health system, as well as to the Family, with a view to achieving the safe development of these patients.

## SEGURANÇA DO PACIENTE EM UNIDADE DE TERAPIA INTENSIVA NEONATAL: REVISÃO INTEGRATIVA

#### **RESUMO**

Objetivo: identificar a produção científica, publicada de janeiro de 2008 a julho de 2019, sobre a segurança do paciente em Unidade de Terapia Intensiva Neonatal. **Método:** revisão integrativa, na qual se selecionou 24 artigos que atendiam ao objetivo e aos critérios de inclusão e exclusão com o auxílio do *software* End Note®. Nesses artigos, analisaram-se os dados referentes à autoria, objetivos, ano de publicação, método, resultados e nível de evidência. **Resultados:** elaboraram-se cinco categorias para apresentar os resultados: O profissional e a segurança do paciente; Comunicação e segurança do paciente; Gestão de qualidade e segurança do paciente; Cultura de segurança; e A família e a segurança do paciente. **Conclusão:** o processo de construção e incentivo à segurança do paciente se dá de forma similar nos cenários nacional e internacional. Os estudos apontam esforços emergentes para a construção da cultura de segurança, arquitetados sob estratégias de gestão de qualidade e segurança, melhoria das condições de trabalho e fatores profissionais, bem como a inserção da família como fator qualificador da assistência.

Palavras-chave: Segurança do Paciente. Recém-Nascido. Unidade de Terapia Intensiva Neonatal. Enfermagem.

# SEGURIDAD DEL PACIENTE EN UNIDAD DE CUIDADOS INTENSIVOS NEONATALES: REVISIÓN INTEGRADORA

**RESUMEN** 

**Objetivo:** identificar la producción científica, publicada de enero de 2008 a julio de 2019, sobre la seguridad del paciente en Unidad de Cuidados Intensivos Neonatales. **Método:** revisión integradora, en la cual se seleccionó 24 artículos que cumplían el objetivo y los criterios de inclusión y exclusión con el auxilio de *software* EndNote®. En estos artículos, se analizaron los datos referentes a autoría, objetivos, año de publicación, método, resultados y nivel de evidencia. **Resultados:** se elaboraron cinco categorías para presentar los resultados: El profesional yla seguridad del paciente; Comunicación y seguridad del paciente; Gestión de calidad y seguridad del paciente; Cultura de seguridad; y La familia y la seguridad del paciente. **Conclusión:** el proceso de construcción y el fomento a la seguridad del paciente se presenta de forma similar en los escenarios nacional e internacional. Los estudios señalan esfuerzos emergentes para la construcción de la cultura de seguridad, desarrollados bajo estrategias de gestión de calidad y seguridad, mejoría de las condiciones de trabajo y factores profesionales, así como la inserción de la familia como factor calificador de la atención.

Palabras clave: Seguridad del Paciente. Recién Nacido. Unidad de Cuidados Intensivos Neonatales. Enfermería.

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