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Construction of nurses' competencies to implement a neonatal cardiac intensive care unit

ABSTRACT | Objective: To build the necessary professional competences of the nurse in the implementation of a Cardiac Neonatal ICU. Method: This is an Integrative Review study, using the descriptors Neonatal Intensive Care Unit; Pediatric; Child; Cardiology; Nurse; Nurse's Role; Professional Competencies, in Medline, LiLaCS and BDEF databases. It included primary and review studies that were available in their full version, in English, Portuguese, Spanish and French, excluding duplicates and articles unrelated to the topic. Results: subsidies were considered according to the selected articles, of which eleven competencies were built: to know the mission, vision, institutional values; to define the patient profile; to participate in the organization of the physical structure; composition of the multidisciplinary team; to predict services, provide materials and equipment; to manage costs; to establish patient and family care; to build indicators; to structure a unit with patient safety programs; to create assistance protocols. Conclusion: This study contributes to the practice of the nurse with subsidies for the implementation of a Cardiac Neonatal ICU through resources and management strategies.

Keywords: Nursing; Neonatal Intensive Care Units; Professional Competence.

RESUMEN | Objetivo: Desarrollar las habilidades profesionales necesarias del enfermero en la implementación de UCI Cardiológicas Neonatales. Método: Revisión integradora, usando los descriptores Unidad de Cuidados Intensivos Neonatales; Pediátrico; Infantil; Cardiología; Enfermero; Papel del enfermero; Habilidades profesionales, basadas en Medline, LILACS y BDEF. Incluyo artículos primarios, de revisión, completos, idiomas inglés, portugués, español y francés, excluyendo duplicados y no relacionados con el tema. Resultado: los subsidios se consideraron de acuerdo con los artículos seleccionados a partir de los cuales se construyeron once competencias: conocer la misión, la visión, los valores institucionales; definir el perfil del paciente; participar en la organización de la estructura física; composición del equipo multidisciplinario; predecir servicios, proporcionar materiales y equipos; gestionar los costos; establecer atención a pacientes y familiares; construir indicadores; estructurar una unidad con programas de seguridad al paciente; crear protocolos de asistencia. Conclusión: Este estudio contribuye a la práctica del enfermero con subsidios para la implementación de la UCI Cardiológica Neonatal a través de recursos y estrategias de gestión.

Palabras claves: Enfermería; Unidad de Cuidados Intensivos Neonatales; habilidad profesional.

RESUMO | Objetivo: Construir as competências profissionais necessárias do enfermeiro na implementação de UTI Neonatal Cardiológica. Método: Revisão integrativa, utilizando os descritores Unidade de Terapia Intensiva Neonatal; Pediátrica; Infantil; Cardiologia; Enfermeiro; Papel do Enfermeiro; Competências Profissionais, nas bases Medline, LiLaCS e BDEF. Incluiu artigos primários, de revisão, na íntegra, idiomas inglês, português, espanhol e francês, excluindo duplicadas e não relacionados ao tema. Resultado: foram considerados subsídios de acordo com os artigos selecionados dos quais onze competências foram construídas: conhecer a missão, visão, valores institucionais; definir o perfil de paciente; participar da organização da estrutura física; composição da equipe multiprofissional; prever serviços, prover materiais e equipamentos; gerenciar custos; estabelecer atendimento ao paciente e família; construir indicadores; estruturar unidade com programas de segurança ao paciente; criar protocolos assistenciais. Conclusão: Este estudo contribui para a prática do enfermeiro com subsídios para a implementação da UTI Neonatal Cardiológica por meio de recursos e estratégias de gestão.

Palavras-chaves: Enfermagem; Unidade de Terapia Intensiva Neonatal; Competência Profissional.

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INTRODUCTION

Early neonatal mortality represents about 60% to 70% of infant mortality, and 25% of deaths occur on the first day of life, with congenital heart diseases responsible for about 10% of infant deaths and 20% to 40% of deaths resulting malformations according to the National Assistance Plan for Children with Congenital Heart Disease. ⁽¹⁾

Each year, approximately 29,800 cardiac patients are born in Brazil - a cut of 1% for data on live births in 2014. Since

in only 20% of cases remission is spontaneous, it is estimated that 80% of the total (more 23,800 children) will need surgical intervention at some point in their development, half of which should be operated on in the first year of life.⁽²⁾

Faced with this demand from the neonatal cardiopathic population, the need to create Neonatal Cardiac Intensive Care Units for high complexity care in the cardiovascular area is justified, according to the National Assistance Plan for Children with Congenital Heart Disease, considering that in a survey of highly complex specialized care services, according to the data contained in the National Registry of Health Establishments of Brazil - CNES in 2020, among the 328,015 general hospitals listed in this register, only 568 were of highly complex hospitals at the state level, and 1556 in the state. municipal sphere.⁽³⁾

The nurse can be one of the professionals responsible for implementing the Neonatal ICU, as according to COFEN Resolution no. 509/2016, which updates the technical standard for Annotation of Technical Responsibility for the Nursing Service and defines the attributions of the nurse. Responsible Technician describes about the nurse's responsibility the planning, organization, direction, coordination, execution and evaluation of Nursing services, the who is granted by the Regional Nursing Council.

Through an important assignment of the nurse, we verified in the National Curricular Guidelines for the Undergraduate Nursing Courses in force, that the general skills to be achieved by the nurse are health care, decision making, communication, leadership, administration/management and Permanent Education.⁽⁴⁾

With a look focused on management competence, according to a study on the theme, the recent graduates manifest having sufficient knowledge, they consider themselves skilled and with favorable attitudes in the management area; however the graduates with greater work experien-



In this study, we chose to define professional competence because this concept involves the cognitive, technical, social and affective aspects present in a professional practice, showing what competence has to do with the set of interdependent knowledge, skills and attitudes necessary to complete a certain assignment.



ce, although they consider that they have sufficient knowledge, their skill is average and they report an unfavorable attitude towards the management.⁽⁵⁾

In this sense, literature on the structuring of a Neonatal Cardiac Intensive Care Unit service in Brazil was sought, and there was a shortage of literature as well as definitions of professional skills for implementing this service.

In this study, we chose to define professional competence because this concept involves the cognitive, technical, social and affective aspects present in a professional practice, showing what competence has to do with the set of interdependent knowledge, skills and attitudes necessary to complete a certain assignment. It is also possible to define it as "knowing how to act responsibly and recognized, which implies mobilizing, integrating, transferring knowledge, resources and skills, which add economic value to the organization and social value to the individual".^(6,7)

Thus, the realization of this study is justified by the lack of new structures in the Neonatal Cardiac ICU, the need for training skills for this structuring and the scarcity of literature that enables this construction. Thus, this study aimed to build the professional skills of nurses for the implementation of a Neonatal ICU.

METHODOLOGY

This is an integrative literature review, carried out from April to June 2019. To do so, six steps were followed: establishment of the research question, definition of the inclusion and exclusion criteria of the studies, categorization of the studies, evaluation review studies, interpretation of results and finally synthesis of knowledge.⁽⁸⁾

In the first stage, the theme was elaborated through the "PICO" strategy where the population P (nurse in the hospital context); I of intervention or area of interest (knowledge, attitudes, skills and practices); C for comparison between

intervention or group (not used) and O for outcome (the necessary professional skills) and the research question: "What are the professional skills needed by nurses to implement a Neonatal Cardiac Intensive Care Unit?".

An international virtual health library, PubMed, and the following MEDLINE, LILACS and BDEF databases were used through the keywords Professional Competence, Nurse and Nurse's Role, Neonatal Intensive Care Unit, Pediatric Intensive Care Units, Infant and Cardiology. The inclusion of the descriptor Pediatric Intensive Care Units was due to its inclusion of articles related to neonatology.

In the second stage, the inclusion criteria were established: primary and review articles available in full with reading of the title followed by the analysis of the abstract and free access, which specified questions relevant to the structure or organization of a Neonatal Intensive Care

Unit or Pediatric, using those described in Portuguese, English, Spanish and French. As exclusion criteria: duplicate publications and articles unrelated to the topic on the implementation of a Neonatal Cardiac Intensive Care service.

Pre-selected and selected articles were identified in the third and fourth stages, using an adapted script that included databases, publication titles, journals, year of publication, languages, objectives, types of study, the issues related to the topic and the classified evidence level. ⁽⁸⁻⁹⁾

For the analysis and synthesis of the selected studies, which are the fifth and sixth stage, a table structured and constructed by the authors was used in order to organize, analyze, and categorize the following information: name of the research; authors' names; language; kind of study; level of evidence and relevant issues with the theme. The selected studies were analyzed in double checks by spe-

cialists, who, after the selection and categorization through the search for knowledge, skills or constituent attitudes, built the professional competencies necessary for the implantation of a Cardiac Neonatal Intensive Unit.

RESULTS

About the total of 1,189 articles, 49 studies were selected and of these nine met the eligibility criteria. Of nine articles, four were published in Spain, one in France, three in the United States and one in Brazil, between 2010 and 2018, in international magazines.

Regarding the research design, seven studies were qualitative, and two quantitative articles. Regarding the type of study, we obtained seven descriptive studies, two of narrative review. As for the level of evidence, eight studies have level VI and one with level IV. The chart1 summarizes the results of the collection script.

Chart 1 – Distribution of articles identified in the research, according to title, journal, year, language, author, type of study, level of evidence and subject. Sao Paulo, SP, Brazil 2019.

TÍTULO/PERIÓDICO	ANO/IDIOMA	AUTOR	TIPO DE ESTUDO / NÍVEL DE EVIDENCIA	ASSUNTO
Informing Leadership Models: Nursing and Organizational Characteristics of Neonatal Intensive Care Units in Freestanding Children's Hospitals. Arch Cardiovasc Dis	2018 / francês	Toole CA; De Grazia M; Connor JÁ; Gauvreau K; Kuzdeba HB; Hickey PA.	IV / Descritivo	Equipamentos, material, profissionais, estrutura, atendimento multiprofissional e abordagem familiar.
Paediatric cardiac intensive care unit: current setting and organization in 2010. Dimens Crit Care Nurs	2010 / inglês	Fraisse A; Le Bel S; Mas B; Macrae D.	VI / Descritivo e Revisão	Atribuições do enfermeiro na UTI Neonatal.
A multinational survey on the infrastructural quality of paediatric intensive care units. Annals of intensive care	2018 / Inglês	Warneck, Gert, et al.	VI / Descritivo	Estrutura, material, equipamentos e recursos humanos.
Literature review of the impact of nurse practitioners in critical care services. Nursing in critical care	2011 / Inglês	FRY, M.	VI / Revisão da literatura	Assistência de Enfermagem.
.La Unidad de Cardiología Pediátrica del Hospital Infantil Universitario Miguel Servet de Zaragoza. Rev. esp. pediatr.	2015 / espanhol	Jiménez ML; López RM; Ayerza CA; Palanca Arias, D.	VI / Descritivo	Missão, visão e valores, perfil dos pacientes e estrutura física.
Unidad de Cuidados Intensivos Pediátricos en el Hospital Universitario Ramón y Cajal. en laño 2015. Rev. esp. pediatr.	2015 / espanhol	Martínez JLV; Macarrón CPC; Pérez AC; Toledo DF; Porras MS; R. Tapia Moreno.	VI / Descritivo	Estrutura física, profissionais, patologias, serviços prestados, segurança ao paciente, indicadores e protocolo operacional padrão.

Las Unidades de Cardiología Pediátrica y Cirugía Cardíaca Infantil del Hospital Universitario y Politécnico La Fé. Rev. esp. pediatr.	2014/ espanhol	Carrasco LF; Insa JI; Boni B.	VI / Descritivo	Indicadores.
Estudo comparativo do consumo e gasto com medicamentos em Unidades Pediátricas de Terapia Intensiva e Semi-intensiva Rev. paul. Pediatr	2012 / português	Zuliani, LL; Jericó, MC.	VI / Estudo descritivo, exploratório, retrospectivo, com abordagem quantitativa	Custos da unidade em relação material.
La Unidad de Neonatología del Hospital Universitario Miguel Servet en la actualidad. Nuevos retos/Neonatology Unit of the Hospital Universitario Miguel Servet at present: new challenges	2015 / espanhol	Gracia, SR, et al	VI / Descritivo	Missão, visão e valores, estrutura física e serviços oferecidos.

Fonte: Elaborado pelo próprio autor, 2019.

No specific literature was found on the professional skills of nurses in the implementation of a Neonatal Cardiac Intensive Care Unit, however some knowledge or skills were found in each selected article. Thus, with the consultation of Resolution RDC No. 50/2002, which provides for the Technical Regulation for planning, programming, elaboration and evaluation of physical projects of health care establishments and Ordinance No. 930/2012 that defines the guidelines and objectives for the organization of comprehensive and humanized care for seriously or potentially serious newborns and the criteria for classification and qualification of beds in the Neonatal Unit within the scope of the Unified Health System (SUS), guidance was obtained regarding the physical structure, equipment and human resources needed to plan care in a Neonatal Cardiological ICU.⁽¹¹⁻¹²⁾

DISCUSSION

The scarcity of literature on the implementation of units points to the need for nurses to pay attention to their private assignment in the planning, organization, coordination, execution and evaluation of nursing care services according to Article 11 of Law No. 7498 of 25 June 1986, known as the law of professional practice.

Regarding competences and according to the present review, the eleven professional competences were built, namely:

1. Know the mission, vision and values of the institution and the objective of implementing the unit.^(13,22,23)
2. Define the profile of the patient attended and the epidemiology of the pathologies attended.^(14,24)
3. Participate/Know the architecture and organization of the physical structure of the unit.^(15,11)
4. Define the professionals working in the sector.^(16,12,25)
5. Define the indirect and direct services offered by the unit.^(15,12)
6. Predict, provide, organize and control the materials and equipment available and necessary for the unit.^(17,11,26)
7. Establish the patient and family care process.^(18,27)
8. Identify the financial costs of equipment and materials.^(19,26)
9. Build quality and result indicators.^(20,28,29)
10. Structure the unit with patient safety programs.^(15,30)
11. Create care protocols, standard operating procedures and work instructions.^(21,31)

Knowing the mission, vision, values, of the institution's institution is fundamental to nursing practices and it is up to the nurse manager to propagate, build standards, regulations, regulations, operational procedures that are in line with the organization. Many institutions work with quality and certification programs, disseminating them to their employees, whether in the form of tables, banners, on the desktop of their computers, websites or other means.⁽²²⁻²³⁾

Knowledge of the profile of patients is essential to support the planning and implementation of care programs that best meet the needs of these cardiac patients, assisting in the daily distribution and training of nursing human resources for the care of each patient in the Neonatal Intensive Care Unit.⁽²⁴⁾

In order to implement the Neonatal Cardiac ICU in Brazil, the necessary skills are minimally related to knowing the RDC No. 50/2002. This stage is of great importance in structuring the project to create the neonatal unit, since errors in this stage can compromise the industry service flow.⁽¹¹⁾

Expanding the view of human resources in guiding the structuring of the project for the creation of the Neonatal Cardiological

ICU, nurses must have the competence to compose and propose the professionals working, seeking the best way to meet the needs of the patient, in a multidisciplinary and interdisciplinary way and the bedside, and knowing the flow of care. ^(12,25)

Regarding the management of material resources, the nurse must have the ability to organize the full functioning of the unit. The material will be present in all stages of care and the lack of any item may directly compromise any procedure to which the patient will be submitted. ⁽¹²⁾

Usually the nurse is responsible for the management of materials, human resources, and also financial resources, which are often scarce. With this reality, knowledge about cost management and allocative efficiency becomes very important. ⁽²⁵⁾

The nurse as a manager must also establish the process of patient and family care with the multidisciplinary team, one of the options being the Kangaroo Method, which is a perinatal care model focused on humanized care that brings together biopsychosocial intervention strategies, whose skin contact -the-skin, allows greater participation of parents and family in neonatal care. ⁽²⁷⁾

The use of indicators as an organizational tool provides quality and effectiveness of the management process, enabling careful evaluation, planning, goal setting, follow-up and continuous improvement conducts. ⁽²⁸⁾ The nurse manager must plan the operation of the unit, requiring knowledge, skill and attitude to perform such competence ⁽²⁹⁾. Indicators as an organizational tool show the need for continuous improvement of nursing processes, as human and technological resources are often renewed. ⁽²⁸⁾



The nurse manager must ensure the safety of assistance to hospitalized patients since they have a situation of fragility and vulnerability, as they do not have a fully formed immune system, so the first protective barrier is immature, associated with the fact that they are using numerous invasive devices , causing risks of errors.



The nurse manager must ensure the safety of assistance to hospitalized patients since they have a situation of fragility and vulnerability, as they do not have a fully formed immune system, so the first protective barrier is immature, associated with the fact that they are using numerous invasive devices , causing risks of errors. The assistance to these patients must be surrounded by care, attention and quality in care, since any mistake can have fatal consequences. ⁽³⁰⁾

The standardization of procedures is considered a modern management tool and has been widely discussed by nursing. The results of its use demonstrate that it is a strategy that supports the decision making by the nurse, provides the opportunity to correct non-conformities, favors that all professionals provide standardized care for the patient following the technical-scientific principles and , it also contributes to reduce the addictions acquired in practice, thus also having an educational purpose. ⁽³¹⁾

For the nurse manager of the Neonatal Cardiological ICU, it is also necessary to have the competence to create the unit's standard operating protocols and procedures, aiming at the quality and standardization of care by the work team. ⁽³¹⁾

CONCLUSION

The results emphasized eleven professional competencies necessary for the implantation of a neonatal cardiac ICU, which include knowing the mission, vision and institutional values; define the patient profile; participate in the organization of the physical structure; the composition of the multidisciplinary team; provide services, provide materials and equipment; manage costs; establish patient and family care processes;

build indicators; structure a unit with patient safety programs; create assistance and procedural protocols. These constructed competencies contribute to the nurse's practice with subsidies for the implementation of the Neonatal Cardiologi-

cal Unit through management resources and strategies.

As limitations in this integrative review study, there was a shortage of literature on the professional skills of nurses in the implementation of a Neonatal Cardiologi-

cal Unit, requiring its construction based on the knowledge and skills found. In the continuity, future studies must be carried out with a view to validating the professional skills constituted by expertise and clinical practice. 🌱

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