

Intervention Strategy for the Development of Specific Competencies in the Care of the Pathological Neonate

Elsa Martínez Sariol¹, Lilia Ramírez Córdova², Rosa Maria Nunez³, Ousman Cham⁴,
Beatrice Nkolika Ezenwa⁴

¹Research and Academic Postgraduate Department, University of Medical Sciences, Santiago de Cuba, Cuba

²Paediatric University Hospital, University of Medical Sciences, Santiago de Cuba, Cuba

³Maternity University Hospital, Santiago de Cuba, Cuba

⁴Edward Francis Small Teaching Hospital, Banjul, The Gambia

Email address:

dmartinezsariol@gmail.com (Elsa Martínez Sariol)

To cite this article:

Elsa Martínez Sariol, Lilia Ramírez Córdova, Rosa Maria Nunez, Ousman Cham, Beatrice Nkolika Ezenwa. Intervention Strategy for the Development of Specific Competencies in the Care of the Pathological Neonate. *American Journal of Pediatrics*.

Vol. 9, No. 1, 2023, pp. 47-54. doi: 10.11648/j.ajp.20230901.16

Received: February 27, 2023; **Accepted:** March 16, 2023; **Published:** March 31, 2023

Abstract: *Introduction:* Neonatology experts affirm that neonatal complications are closely related to the performance of nurses, in such a sense the factual reasons that motivate the present study denoted a high incidence of complications in neonates assisted at the NICU of the National Hospital "Edward Francis Small Teaching Hospital in The Gambia in the period of julio-diciembre 2021, revealed an increase in complications and the number of neonatal deaths. The solution of this assignment has as *objective:* Implement an intervention strategy for the development of specific competencies in the care of the pathological newborn that contributes to the prevention of complications and impacts on the quality of life of the child population in The Gambia. The intervention strategy implemented is based on the philosophical, sociological, psychological and epistemological ones that, from their contextualization, improvement the *development* of competencies in the care of the pathological neonate in 26 nurses who participated in the study. As a *result* of the implementation, it was possible to verify the level of promotion of the competencies to an average of 4.03, which corresponds to high levels of development and its impact on neonatal morbidity and mortality in the NICU. *Conclusions:* the intervention Strategy is the theoretical methodological concretion that from the scientific point of view emanates from the work in the training of personnel competencies in the NICU, is in correspondence with the social demands and the requirements of the Health System in the Cuban medical mission. The Gambia.

Keywords: Nursing Professionals, Specific Competencies, Newly Newborns, Neonatal Intensive Care Units

1. Introduction

The advance of Cuban medical collaboration at a global level requires increasingly trained personnel both in the sphere of knowledge and skills to be able to address the roles of the profession. In permanent development and interventions for the preparation of Nursing human resources, it is an option for planning training programs in pursuit of improving the quality of care and teaching services that are provided from medical cooperation in various nations of the world. [1]

Training for work is a mixture of education, work experience and specific training acquired throughout life, hence the skills are defined and built in social practice. They

are a joint task between leaders, workers and educators who are linked in the world of work and training and are understood by the knowledge, skills and values associated with a certain area of human endeavor. [2]

One of the most important challenges in the field of neonatology is comprehensive care for newborns with some pathological condition, since their affected needs demand higher levels of care. Pathological neonates or with any clinical condition such as prematurity, low birth weight among other conditions that are exposed to the adverse hospital environment, become more vulnerable to incidences of co-morbidities that in the short, medium, and long term have an impact on clinical evolution and subsequent

psychomotor development. [3]

The physiological condition of the pathological neonate constitute intrinsic risks that, from a clinical point of view, have repercussions on the evolution, if the use of invasive maneuvers is added to this, such as vascular access, deep aspirations and other extrinsic elements, the risks of complications. 4 Neonatology experts affirm that neonatal complications are closely related to the performance of nurses, since they are the personnel who most frequently participate in risky neonatal manipulation. [2, 4, 5]

The factual reasons that motivate the present study are denoted in a high incidence of complications in neonates assisted in the neonatology service of the National Hospital "Edward Francis Small Teaching Hospital of The Gambia, revealed in an increase in hospital stay, as well as the number of neonatal deaths in the service respectively. The solution of this professional assignment has as objective: Implement an intervention strategy for the development of specific competencies in the care of the pathological neonate that contributes to the prevention of complications and impacts on the quality of life of the child population in The Gambia.

The variables used for the evaluation of the strategy in the context where it is investigated were; low birth weight, neonatal sepsis, development of complications and neonatal death.

Bioethical aspects:

Taking into account the requirements of Medical Bioethics and as stated in the Declaration of Helsinki on research in human beings, coordination was carried out with the management of the center, ethical aspects were taken into account, taking care not to divulge private information of the investigation, The investigation included the requirements to provide the governing documents of the service such as medical records for the benefit of care and preserving their rights. The head of the research team provided the director of the Institution with a broad explanation of the actions and possibilities that facilitate the results of the research.

2. Development

From the perspective of health services, competencies encompass the cognitive aspects of the clinic and others necessary for proper performance. Only if the development of competencies in the nursing staff working in these services is supported by a solid scientific justification, the errors in their performance will be fewer. [6]

The specific professional competencies in critical newborn care were identified in 20174 from the perspective of the improvement of nurses in Neonatal Intensive Care Units (NICU) anywhere in the world, which justifies their contextualization in The Gambia; where nurses play a development role by carrying out independent actions, however the necessary levels of competence are not harmonized for the integration of care that harmonizes the biological, psychological and social aspects with greater success in clinical evolution and prevention of complications.

These foundations justify the implementation of a scientifically proven and validated strategy in care practice in

NICUs in Cuba, [1, 7] in which its results impacted the skill levels of nurses. For this context, the NICU in The Gambia is defined by the author as: *System of personalized actions with a scientific nature that enable the transformation of the subject's professional performance, linked to the development of specific professional skills in the care of the pathological neonate from the permanent performance training; which favors its humanist-clinical-ethical character from professional practice to neonatal quality of life in The Gambia.*

The Strategy that is implemented is based on the philosophical, sociological, psychological and epistemological foundations that support it and will give it scientific consistency in healthcare practice. Logical thinking for the understanding of transformative actions that contributes to enhance learning in the development of competencies for the care of the pathological newborn is the basis of philosophical references. [8] The sociological foundations show the transformation and are the basis for psychologically providing to the professional, the necessary tools to raise their levels of competences in pursuit of the quality of life of the neonates assisted. [1, 8, 9, 10]

The strategy implemented from the previous foundations acquires a contextual character; since it takes into account the problems identified in the diagnosis carried out and its design is based on the existing potential to project transformative actions that allow the development of competences in a dynamic way, mediated by the development of themes, which are proposed according to the environment of performance.

Stages of the strategy: Stage I. Simplification of competencies and diagnosis. Stage II. Implementation and Stage III. Final assessment.

3. Results

3.1. Stage I Simplification and Diagnosis

Objective: Simplify the competencies and carry out a diagnosis of the level of development of the competencies of the nurses who participate in the study.

Procedures:

- 1) Promote the exchange of experiences between researchers and managers in the services in order to unify criteria to simplify the competencies in critical newborn care described in the scientific literature and contextualize them to the research context.
- 2) Carry out the diagnosis of the current situation of the problem investigated based on the methods described (Observation in the services and retrospective descriptive study).

During the exchange with the Heads of wards, service doctors and managers, an analysis of the competencies described in the scientific literature was carried out from the experts carried out by Martínez SE 2017. [4] and they are described according to the characteristics of the service for their development:

Specific competences for the care of the pathological neonate.

- 1) Organize the reception according to the needs with emphasis on the aspects of thermoregulation and the clinical signs of hemodynamic alterations and states of asphyxia to determine the conduct to follow.
- 2) Masters procedures and precautions for venous approaches, as well as the administration of solutions and medications through different routes and their adverse reactions.
- 3) Applies non-pharmacological techniques to relieve pain in the newborn and early stimulation that support neonatal neurological rehabilitation.
- 4) Applies the principles of asepsis and antisepsis that allow it to comply with clinical-hygienic-epidemiological standards to prevent complications from sepsis with a humanistic ethical approach.

For the diagnosis made, an observation guide was applied before and after by those that emanate from the four

competencies that are contextualized for their development (Table 5 and Table 6).

The observation guide that is applied includes the indicators of each competence contained in the variable: level of development of the specific competences in care for the pathological neonate, broken down into four fundamental dimensions to be assessed for the diagnosis of the state of development before and after the intervention strategy has been implemented to develop the competencies described for this context. Defined as the Clinical Dimension, the Procedural Dimension, the Scientific Update Dimension and the Axiological Dimension.

To obtain an assessment of the state of development of the competencies that comes from the result of the dimensions, the observation guide and the study that is declared through the following decision table are triangulated, which allows a final assessment of the variable that emanates from the dimensions.

Tabla 1. *Tabla de decisión para la triangulación de los resultados.*

Level of development of the variable for observation in services		
High	Half	Low
Average of the index of all dimensions between 4.0 – 5	Average of the index of all dimensions between 3.0 – 3.99	Average of the index of all dimensions between 2.0 – 2.99
Nivel de desarrollo de la variable para el análisis comparativo de la morbilidad		
High	Half	Low
Average of the index of all dimensions between 25-50% = 4.0– 5	Average of the index of all dimensions between 50-75% = 3.0-3.99	Average of the index of all dimensions between 75-100 = 2.99

Characterization of the Sample

For the observational study, a sample of 26 nurses from the National Teaching Hospital "Edward Francis Small Teaching Hospital" in Banjul The Gambia, who work in the NICU, was taken. The selection was made intentionally by meeting the following inclusion criteria: having at least two years of work experience, working in the units participating in the study and actively working in the care of pathological

neonates during the research period.

In this way, 26 nurses were selected for the study, representing the female sex by 65.3%, while the predominant age group is the group of 34-45 years with a 36.6% representation. Regarding the work experience in the NICU, 50% of the nurses are between one and two years old while only 23.7% have more than 5 years of experience in caring for these patients (Table 2 and Table 3).

Table 2. *Distribution of the sample in correspondence with age and sex.*

Sex	Age groups (Years)						Total	%
	24-34	%	35-44	%	45 +	%		
Female Male	7	41,1	7	41,1	3	17,6	17	65,3
Female Male	6	66,6	2	22,2	1	11,1	9	34,6
Total	13	32,9	9	34,6	4	15,3	26	100

Table 3. *Distribution of the sample in correspondence with the years of experience working with the critical neonate.*

Years of experience	No	%
1-2 Years	7	26,9
2-5 Years	13	50
5 and +	6	23,7
Total	26	100

Table 4. *Results of the assessment of the competences through the observation in the service before the implementation of the strategy.*

Dimensions	Weighted Means
Clinical dimension	2.96
Procedural dimension	3.92
Scientific update dimension	2.78
Axiological dimension	2.90
Variable	3.14

Source: Results of the triangulation of the dimensions using the observation guide.

Table 5. Results of the observation before the implementation of the strategy.

Dimensions	Indicators	Results			
		G (5)	R (4)	B (3)	Average
1. Clinical dimension 2.96	a) Provide room temperature in a thermal environment of 24-26°C, drying and wrapping with dry and warm cloths.	14	10	4	2.54
	Guarantees vascular access through the fastest route for diagnostic tests and medication administration	16	14	6	2.45
	Connect to the heart rate monitor and adjust the oxygen concentration until the desired saturation is achieved	14	9	3	2.14
	d) Permeabilizes airways, aspirates secretions adequately.	20	7	2	3.82
	e) Diagnose signs of hypoxia, asphyxia, respiratory distress, cyanotic coloration and ruddiness	15	7	3	3.61
	f) Continuously monitor vital parameters and watch for signs of accidents during ventilation	10	9	3	3.54
2. Procedural dimension 2.90	a) Prepares material and instruments necessary for vascular approaches and accesses	9	6	3	2.61
	b) Prepare solutions and medications to be administered Ensure antidotes for adverse reactions	13	5	2	3.49
	c) Selects the appropriate vessel for vascular access, fixes properly, eliminates limb restraints and splints, and prevents skin trauma	12	8	2	3.02
	d) Administer the medication slowly to avoid infusion boluses and extravasation	13	5	0	2.05
3. Dimension scientific update 2.78	f) Complies with the principles of asepsis and antisepsis during vascular access	10	6	3	3.83
	a) Level of mastery of the care processes in the care of the critical newborn	12	6	2	3.21
	b) Level of scientific updating of advances in neonatal care	8	7	7	2.56
4. Axiological dimension 3.92	a) Group venipunctures to reduce trauma and pain	16	3	1	2.42
	b) Provides adequate position in supine, prone and lateral decubitus, to promote self-regulation, self-relaxation and promote neurobehavioral development.	16	1	4	2.67
	c) Provides an affective environment and personalized treatment to the neonate with professional conduct and dynamics of action consistent with the state of severity.	11	7	3	2.45
	d) Guarantees maternal and family rapprochement or, failing that, as a "mother" nurse.	10	6	5	2.46
	Total final evaluation	3.14			

G: Good R: Regular B: Bad

Table 6. Results of the observation after the implementation of the strategy.

Dimensions	Indicators	Results			
		G (5)	R (4)	B (3)	Average
1. Clinical dimension 2.96	a) Provide room temperature in a thermal environment of 24-26°C, drying and wrapping with dry and warm cloths.	6	15	7	2.54
	Guarantees vascular access through the fastest route for diagnostic tests and medication administration	11	12	13	2.45
	Connect to the heart rate monitor and adjust the oxygen concentration until the desired saturation is achieved	7	12	9	2.14
	d) Permeabilizes airways, aspirates secretions adequately.	7	12	9	3.82
	e) Diagnose signs of hypoxia, asphyxia, respiratory distress, cyanotic coloration and ruddiness	8	11	6	3.61
	f) Continuously monitor vital parameters and watch for signs of accidents during ventilation	7	9	6	3.54
2. Procedural dimension 2.90	a) Prepares material and instruments necessary for vascular approaches and accesses	6	9	3	2.61
	b) Prepare solutions and medications to be administered Ensure antidotes for adverse reactions	8	7	5	3.49
	c) Selects the appropriate vessel for vascular access, fixes properly, eliminates limb restraints and splints, and prevents skin trauma	7	8	6	3.02
	d) Administer the medication slowly to avoid infusion boluses and extravasation	6	7	5	2.05
3. Dimension scientific update 2.78	f) Complies with the principles of asepsis and antisepsis during vascular access	7	6	6	3.83
	a) Level of mastery of the care processes in the care of the critical newborn	7	8	5	3.21
	b) Level of scientific updating of advances in neonatal care	4	7	11	2.56
4. Axiological dimension 3.92	a) Group venipunctures to reduce trauma and pain	6	8	6	2.42
	b) Provides adequate position in supine, prone and lateral decubitus, to promote self-regulation, self-relaxation and promote neurobehavioral development.	6	11	4	2.67
	c) Provides an affective environment and personalized treatment to the neonate with professional conduct and dynamics of action consistent with the state of severity.	7	6	5	2.45
	d) Guarantees maternal and family rapprochement or, failing that, as a "mother" nurse.	4	6	7	2.46
	Total final evaluation	4.03			

The procedural dimension reaches a higher level of average development with a weighted average of 3.92 while the clinical, scientific and axiological dimensions do not exceed the low level of development, as a final result of the assessment it is observed that the nurses found themselves at a medium level of development with an average of 3.14 corroborated by applying the observation guide by the

researchers of this work and observing the integration processes of the fundamentals and work methods, the specific techniques and procedures used in the care of the pathological neonate.

Studies show that knowledge of the clinic is closely linked to competent development before the patient; the organization of the care process and the harmonization of

knowledge and personality qualities will depend on the clinical findings that are identified for consistent, timely and efficient action. in order to avoid loss of stability or clinical deterioration. [11]

Likewise, the scientific updating of nurses contributes to solving problems, rediscovering knowledge, mastering the Care Process and using it for the benefit of newborn care in the context where research is carried out, on the other hand, all these dimensions that are revealed in the levels of competencies will be the key to integrating attitudes, aptitudes and values that become the human behavior of the professional and provide individualized attention to the pathological neonate in an affective environment, as well as promote solidarity, humanism and respect for family members. [12, 13]

Based on these results, we proceed to the second stage of the intervention strategy as follows:

3.2. Stage II. Implementation

Objective: To implement the intervention strategy for the care of the pathological neonate in the NICU of the National Hospital "Edward Francis Small Teaching Hospital" The Gambia.

Procedures:

- 1) Sensitize staff for cooperation in training actions for the development of skills.
- 2) Organize training actions taking into account the diagnosis made.

Of these activities, the following are required:

- 1) Sensitization to the staff of the importance of competencies in the care of the critical newborn for the prevention of complications, long stay and death.
- 2) Teaching visits that lead to reflection and scientific

debate on the clinical aspects of the critical neonate.

- 3) Group dynamics indistinctly in the services in order to achieve motivation and collective learning based on rediscovering knowledge and modes of action.
- 4) Lectures with themes related to the care of the critical neonate and actions for efficient care procedures.
- 5) Carrying out demonstrative techniques of care procedures for the critical neonate that demonstrate the level of competence in their realization.
- 6) Use of audiovisual teaching-learning media with the demonstration of methods for the search and scientific updating of personnel.
- 7) Organize the material resources available based on the performance of procedures for the critical neonate.

3.3. Stage III. Final Assessment

Evaluation of the results of the Strategy from its implementation in practice.

The evaluation of the strategy is carried out through the evaluation of the performance by the initial observation guide and a brief comparative retrospective descriptive study of the first and second semester of the year 2022 to compare and associate the results to the four dimensions that describe the variable level of development of competencies established by the decision table.

Neonates with birth weight less than 1500g constitute a special group of patients in neonatal units; they require differentiated care due to the incidence of co-morbidities that are reasons for major complications and death. [1, 8, 9]

In the context being investigated, the results do not move away from this approach, so the relationship of low weight with the appearance of complications and death is shown below.

Table 7. Assessment of the results of the development of competencies related to attention to low weight before and after implementing the strategy.

	Low birth weight			complications				Deceaseds	
	T	LBW	%	WithC	%	Without C	%	T	%
1st semester									
Total	1132	786	69,4	573	72,9	213	27,0	165	28,7
2nd Semester									
Total	1283	881	68,6	304	34,5	577	65,4	75	24,6

As shown in table 7; In the first semester of 2022, 68.6% of the neonates assisted were low birth weight, 72.9% developed complications related to low birth weight, and 28.7% of the neonates who suffered complications died. When analyzing the semester that is compared after the implementation of the strategy, the number of complications decreases to 34.5% and deaths from complications to 24.6%, respectively, compared to the previous semester. Results that demonstrate from the objective or subjective problems of morbidity the relationship that exists between the levels of care and the development of complications.

There are enough studies that are related to the improvement of neonatal unit professionals with the attention provided to low birth weight and that for their development they must correspond to the demands of each place and

structural conditions, for which countries must take into account its own context in order to reduce the complications associated with this entity and revert them in an adequate quality of clinical evolution and in favorable indicators of neonatal mortality. [6, 8]

The present comparative analysis denotes improvements in the quality of care for low birth weight in correspondence with the appearance of neonatal complications and death, in this same order are neonatal sepsis and the capacity of human resources to provide actions with high levels of competencies in order to mitigate the systemic affectations and super-added complications and the results of this study show the relationship between the appearance of complications and deaths from this cause in the comparative analysis before and after the strategy was implemented. As presented below.

Table 8. Assessment of the results of the development of competencies related to the management of sepsis before and after implementing the strategy.

	Total admissions	Neonatal Sepsis		added complications		Deceaseds	
		No	%	WC	%	T	%
1st semester							
Total	1132	402	35,5	252	62,6	216	85,7
2nd Semester							
Total	1283	641	49,9	260	40,5	115	44,2

The analysis and interpretation of the results as shows in table 8 that 49.9% of the morbidity is related to neonatal sepsis, in the first semester of the year before the strategy was implemented, 62% of neonates suffered additional complications to sepsis while and 85% died from these causes. After implementing the strategy, the rate of complications decreases by 40.5% and the number of deaths decreases in the same way to 44.2% compared to the previous semester.

Nosocomial infections in newborns are a consequence of the acquisition of bacteria and pathogenic germs and are one of the main causes of morbidity and mortality in the neonatal period. These have peculiar characteristics, both due to the immunological conditions of neonates and their contagion mechanisms that are highly associated with the appearance of complications. [13]

It is corroborated that complications added to critical states endanger the evolution of neonates and this is closely related to the performance of those who participate in care processes. [14] They represent a growing challenge in neonatal units, a problem that is always present and that the training of personnel in pursuit of their competencies is of great value for the development and results of neonatal health services.

Table 9. Results of assessment of the competencies through the observational comparative study after the implementation of the strategy. (Table 9).

Dimensions	Initial observation	Final results
Clinical dimension	2.96	4.11
Procedural dimension	3.92	4.22
Scientific update dimension	2.78	3.74
Axiological dimension	2.90	4.07
Variable	3.14	4.03

The final assessment of the intervention strategy as show in table 9 as levels of promotion in the development of competencies according to the decision table established for this research. The change from a level of 3.14 of weighted average that corresponds to medium levels of development to a 4.03 of average that corresponds to high levels of development is observed.

In this context, it is considered that the actions of the strategy have a positive influence on the development of good practices in neonatal care. The results in the improvement of care from the point of view of competent practices at the discretion of the researchers, the declared dimensions are made to correspond in their entirety with the care of low birth weight and neonatal sepsis for the sake of preventing complications based on clinical knowledge. to detect the findings and intervene in a timely manner, as well as the procedures that are carried out for the clinical

therapeutic care of the critical neonate.

In the same way, the scientific update to increase the knowledge of the novelties of science in terms of care for the newborn is a dimension of great value that must be taken into consideration to improve the axiological elements that the professional who works with the patient must possess. sensitive critical neonate in any performance context.

International reports from developed countries and developing areas relate the survival of low birth weight newborns, sepsis among other neonatal conditions that ruin the life of the newborn with the logistical infrastructure and competent levels of development of human resources that in they get involved. [15] Our results coincide with what was expressed in the studies of evaluation and certification of competences, although due to their particularities and methods used to make an assessment as close as possible to the context that is investigated, safeguarding ethics and the principles of solidarity. With this sister nation, we worked for the sake of being part of its results and not of an evaluative vision of them.

4. Conclusions

Intervention strategy for the development of specific competencies in the care of the critical neonate, is the methodological theoretical concretion that from the scientific point of view emanates from the work in the training of competencies of the NICU staff, is in correspondence with the social demands and the requirements of the Health System in the medical mission in The Gambia. It contributes to the solution of the identified problem and its actions have an impact on the levels of competences reached in neonatal care, reflected in the transformation of the subject and the satisfactory results in the behavior of neonatal morbidity and deaths after implementation.

5. Recommendations

Generalize the application of the Strategy in all regions of The Gambia, with the purpose of promoting the increasing development of the levels of training of human resources in the context of medical collaboration abroad in other areas of key results.

Disseminate the study to the directors of the Ministry of Health as an important tool for the development of competencies in neonatal care services and make its results visible in journals of scientific impact of the various international databases.

Orcid

Dr. Cs. Elsa Martinez Sariol: <https://orcid.org/0000-0002-8847-3843>

Dr. Lilia Ramírez Córdova: <https://orcid.org/0009-0009-9335-4230>

MSc. Rosa Maria Nunez: <https://orcid.org/0000-0002-8128-7415>

Ousman Cham: <https://orcid.org/0009-0003-2886-2331>

Beatrice Nkolika Ezenwa: <https://orcid.org/0000-0001-7437-3211>

Conflicts of Interest

No conflicts of interest have been declared between the authors.

Contribution of the Authors

Authors:

- 1) Elsa Martínez Sariol: conceptualization and design of the research, search for information, data collection, analysis and interpretation of the results, writing of the original draft, proofreading and editing of the final document, visualization (20%).
- 2) Dr. Lilia Lisset Ramírez Córdova: data collection, bibliographic collection, information gathering, document review (20%).
- 3) MSc. Rosa María Núñez: data collection, bibliographic collection, information gathering, document review (20%).
- 4) Osman Chan: data collection, bibliographic collection, information gathering, document review (20%).
- 5) Beatrice Nkolika Ezenwa: data collection, bibliographic collection, information gathering, document review (20%).

References

- [1] Martínez SE. Estrategia de superación profesional para el desarrollo de competencias específicas en la atención al neonato crítico. La Habana 2019. Repositorio de Tesis de Ciencias Biomédicas y de la Salud. Disponible en: <http://tesis.sld.cu/index.php?P=3DFullRecord&ID=3D712&ReturnText=3DSearch+R=results&ReturnTo=3Dindex.php%3FP%3DAdvancedSearch%26Q%3DY%26FK%3DElsa%2Bmartinez%2Bsariol%26RP%3D5%26SR%3D0%26ST%3DQuick>
- [2] Martínez E, Sagaró NM, Urbina O, Travieso N, Martínez I. Validación de competencias específicas de los profesionales de enfermería en la atención al neonato en estado crítico. MEDISAN [Internet]. 2018 [citado 22 Ener 2022]; 22 (3): 298. Disponible en: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1029-3019201800030001
- [3] Maradiaga, Dora Leticia Caracterización de recién nacidos con asfixia neonatal, ingresados a sala de neonatología en el Hospital Básico Gabriela Alvarado, Danlí, El Paraíso, Honduras, 2020. Maestría thesis, CIES UNAN Managua. Disponible en: <http://repositorio.unan.edu.ni/id/eprint/12511>
- [4] Martínez Sariol E, Travieso Ramos N, Sagaró del Campo NM, Urbina Laza O, Martínez Ramírez I. Identificación de las competencias específicas de los profesionales de enfermería en la atención al neonato en estado grave. MEDISAN. 2018 [citado 2 Nov 2017]; 22 (2). Disponible en: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1029-30192018000200009
- [5] Rodríguez N, Massó E, Fernández V, Rodríguez N, Villalón Y, Jorge J. *Rev. urug. enferm*; 17 (1): 1-13, jun. 2022. Disponible en: <https://pesquisa.bvsalud.org/portal/resource/es/biblio-1363018>
- [6] Miranda DN. Competencias profesionales del personal de enfermería en la atención de la madre y el recién nacido: estudio comparativo en los servicios de Neonatología y Obstetricia. *Salud Cienc. Tecnol.* [Internet]. 23 de junio de 2022 [citado 23 de febrero de 2023]; 2: 48. Disponible en: <https://revista.saludcyt.ar/ojs/index.php/sct/article/view/48>
- [7] Martínez Sariol E, Urbina Laza O, Travieso Ramos N. Evaluación de competencias específicas de profesionales de enfermería en la atención al neonato crítico. *Rev Cubana Enferm* [Internet]. 2019 [citado 23 Dic 2019]; 35 (4): [aprox. 0 p.]. Disponible en: <http://revenfermeria.sld.cu/index.php/enf/article/view/2801>
- [8] Rodríguez Rubio N, Massó Batancour E, Fernández Rodríguez VI, Rodríguez Rubio N, Villalón Raymond Y, Jorge Socorro J. Identificación de competencias específicas de enfermería para el cuidado del recién nacido en recuperación nutricional, Hospital "Eusebio Hernández Pérez". 2020. RUE [Internet]. 18 de marzo de 2022 [citado 23 de febrero de 2023]; 17 (1): e2022v17n1a10. Disponible en: <https://rue.fenf.edu.uy/index.php/rue/article/view/343>
- [9] Detección, referencia oportuna y pautas de egreso hospitalario del recién nacido de término. Guía de Práctica Clínica: Evidencias y Recomendaciones. México, CENETEC; 2020 [fecha de consulta]. Disponible en: <http://www.cenetec-difusion.com/CMGPC/GPC-SS-226-20/ER.pdf>
- [10] Martínez-Sariol E, Travieso-Ramos N, Buquet-Borges K, Vergara-Vera I, Viacaba-Palacios M, Martínez-Ramírez I. Estrategia de superación para desarrollar competencias en la atención de enfermería al neonato crítico. *Educación Médica Superior* [Internet]. 2020 [citado 1 Jun 2022]; 34 (3) Disponible en: <http://www.ems.sld.cu/index.php/ems/article/view/1894>
- [11] Huarachi Mamani, Nelly. Conocimiento del personal de enfermería, en el manejo y cuidados del catéter percutáneo en la Unidad de Cuidados Intensivos Neonatales. Repositorio Institucional Universidad de San Andrés. Disponible en: <http://repositorio.umsa.bo/xmlui/handle/123456789/25992>
- [12] G. Jourdain, U. Simeoni, D. Schlembach, A. Bernloehr, I. Cetin, M. Gente, *et al.* European Standards of Care for Newborn Health: Neonatal transport (2018) [consultado 28 Sept 2020]. Disponible en: <https://newborn-health-standards.org>
- [13] Vieira G. Matías. La Iniciativa de Humanización de Cuidados Neonatales. *Rev. chil. pediatr.* [Internet]. 2003 Mar [citado 2023 Mar 27]; 74 (2): 197-205. Disponible en: http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0370-41062003000200009&lng=es. <http://dx.doi.org/10.4067/S0370-41062003000200009>
- [14] Veizaga Arias, Judith. Factores de riesgo de enterocolitis necrotizante en recién nacidos, Unidad de Cuidados Intensivos Neonatales – Hospital Villa Dolores, Repositorio Institucional Universidad de San Andrés Disponible en: <https://repositorio.umsa.bo/handle/123456789/27071?show=full>

- [15] Helenius K, Longford N, Lehtonen L, Modi N, Gale C. Association of early postnatal transfer and birth outside a tertiary hospital with mortality and severe brain injury in extremely preterm infants: observational cohort study with propensity score matching *BMJ* 2019; 367: 15678 doi: 10.1136/bmj.15678.