ORIGINAL ARTICLE

Use of a quality indicator to base a professional nursing qualification program*

USO DE INDICADOR DE QUALIDADE PARA FUNDAMENTAR PROGRAMA DE CAPACITAÇÃO DE PROFISSIONAIS DE ENFERMAGEM

USO DE INDICADOR DE CALIDAD PARA FUNDAMENTAR EL PROGRAMA DE CAPACITACIÓN DE ENFERMERÍA

Lilian Mara Rondello Nepomuceno[1] , Paulina Kurcgant[2]

ABSTRACT

Descriptive-exploratory study, aiming to propose a program of qualification for the nursing staff, based on an indicator of healthcare quality related to the newborn's skin integrity during a given period of hospital internment. Data from 121 newborns, collected during their stays at a neonatal unit of a university hospital according to the acquired skin injuries, associated risk factors and injury records in files of the nursing assistance system. 230 skin injuries were identified, with the most frequent types being ecchymosis, perineal erythemas, moniliasis, and, in lower amounts, infiltrations, bruises, erosion, fissures, excoriations, abscesses and impetigo. The results served as the base for the elaboration of a qualification program supported on the principles of the collective planning and development of technical-scientific, ethical-political and socio-educational competences. The development of this study made it evident that it is important to apply indicators of quality as one of the tools to evaluate the management of healthcare provision.

KEY WORDS

Nursing care.
Inservice training.
Quality indicators, health care.
Neonatal nursing.

RESUMO

Trata-se de um estudo descritivo-exploratório, com o objetivo de propor um programa de capacitação para o pessoal de enfermagem, tendo por base um indicador de qualidade da assistência de enfermagem relacionado à manutenção da integridade da pele do RN, durante um determinado período de internação hospitalar. Foram analisados os dados referentes a 121 RN durante o período de internação na Unidade Neonatal de um hospital universitário, segundo as lesões de pele adquiridas, fatores de risco associados e registro das lesões em impressos do sistema de assistência de enfermagem. Foram identificadas 230 lesões de pele, sendo os tipos mais freqüentes equimose, eritema perineal, monilíase e, em menor número, infiltração, hematoma, erosão, fissura, escoriação, abcesso e impetigo. Os resultados fundamentaram a elaboração de um programa de capacitação apoiado nos princípios do planejamento coletivo e no desenvolvimento de competências técnico-científicas, ético-políticas e sócio-educativas. O desenvolvimento deste estudo evidenciou a importância da aplicação de indicadores de qualidade como uma das ferramentas para a avaliação do gerenciamento da assistência dos serviços prestados.

DESCRITORES

Cuidados de enfermagem.
Capacitação em serviço.
Indicadores de qualidade em assistência à saúde.
Enfermagem neonatal.

RESUMEN

Se trata de un estudio descriptivo-exploratorio, con el objetivo de proponer un programa de capacitación sobre la asistencia para el personal de enfermería, teniendo como indicador de calidad el mantenimiento de la integridad de la piel del RN hospitalizado en un determinado periodo. Fueron analizados los datos de 121 RN durante su internación en la Unidad Neonatal de un hospital universitario, según lesiones de piel adquiridas, factores de riesgo asociados y registro impreso de las lesiones en el sistema de asistencia de enfermería. Fueron identificados 230 lesiones de piel, siendo los tipos más frecuentes equimosis, eritema perineal, moniliasis y en menor número, infiltración, hematoma, erosión, fisura, escoriación, absceso e impétigo. Los resultados fundamentaron la elaboración de un programa de capacitación apoyado en los principios de planificación colectiva y en el desarrollo de competencias técnico-científicas, ético-políticas y socio-educativas. El desarrollo de este estudio evidenció la importancia de aplicar indicadores de calidad como una herramienta para evaluar el gerenciamiento de la asistencia de los servicios ofrecidos.

DESCRIPTORES

Atención de enfermería.
Capacitación en servicio.
Indicadores de la calidad de la atención de salud.
Enfermería neonatal.

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[1]Nurse at Neonatal unit of University Hospital at University of São Paulo. São Paulo, SP, Brazil. lirondello@yahoo.com.br [2]PhD., Free Lecturer of the Nursing Management Department at School of Nursing, University of São Paulo, (EEUSP). São Paulo, SP, Brazil. pkurcg@usp.br

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INTRODUCTION

Concerns about quality have been present in the history of humanity, and its concept has evolved historically, associated to the political, economic and cultural progress of each time[1]. In the perspective of modern quality thinking, this concept became known as part of the management function and an essential element for the survival of organizations in modern markets, which are highly competitive.

Likewise, the development of the quality concept applied to healthcare services had an similar evolution, incorporating new elements with the historical movement of society and organizations.

Therefore, the concept of healthcare quality assurance refers to the elaboration of strategies for both quality assessment and the implementation of clinical norms and standards through local or national programs[2].

For scholars, the concept of quality is attributed to obtaining more benefits and reducing risks for the patients. Healthcare service assessment is based on three large components related to service structure, processes and results of the healthcare delivered to the population[3].

In this sense, these concepts have supported the elaboration of instruments aiming to evaluate the quality of the services provided, which are also applicable to quality management in this area.

Instruments to assess healthcare and nursing service quality can be divided in internal instruments, such as: Medical and Nursing Auditing Commissions, Commissions of Prevention and Control of Hospital Infection, Research Review Board, Continuous Education Commission, Commission of Material Resources Management, Commission of Risk Management and User Assessment Commissions; or external instruments, such as Hospital Accreditation[4].

Among these instruments, quality indicators are indispensable for the evaluation of work processes, both in planning and in organization, coordination/direction and evaluation of the activities developed[5].

The indicator is a variable, characteristic or attribute of a structure, process or result that is capable of synthesizing, representing or conferring higher relevance to what is intended to be assessed, therefore being valid in a specific context[6].

Therefore, quality assessment indicators, expressed as figures or not, are obtained from information systems and used to improve the performed activities or measure the degree of risk of an event or health problem, with a view to attributing value to data or aspects of reality that need to be known and, with this knowledge, intervene in order to reach objectives[7].

The use of indicators in healthcare environments makes it easier to cope with the future, in addition to making services comparable in the intra- and extra-hospital contexts[5].

Therefore, in the healthcare sector, quality policies have generated constant concerns with the improvement of care provided to the patients, demanding higher investments in the qualification of workers.

This qualification needs to focus on the integral development of the human being and the fulfillment of the necessities identified in a specific work reality.

Developing people and improving healthcare benefits both workers and patients, considering their rights as citizens and contributing to improve these people's quality of life.

Regarding healthcare for women and newborns, the high rates of maternal and neonatal mortality are preoccupying factors for professionals who are aware of their responsibility in the provision of quality care. In this sense, the need for nursing professionals to develop healthcare actions with knowledge, skills and competence can be verified[8].

The development of the quality concept applied to healthcare services had an evolution, incorporating new elements with the historical movement of society and organizations.

Therefore, the specificity of nursing healthcare in neonatal units demands well-prepared professionals to quickly identify problems and perform the necessary interventions. One of the aspects that needs to be considered in this healthcare is the maintenance of the newborn's skin integrity.

The skin is an organ capable of executing several functions, paramountly serving as a barrier that protects the internal structures of the organism from the action of external agents, preventing the loss of water and other substances, and also posing an obstacle to ultraviolet radiation through melanin. The other functions of the skin are: immune protection by the dermis components; thermo-regulation by sudoresis, constriction and dilation of the cutaneous vessels; perception through the nervous network and sebaceous secretion. It is also important to prevent water loss, has anti-microbial properties and contains the precursors of vitamin D[9].

In the face of the anatomic and physiological specificities of the neonates' skin, which make them susceptible to the development of skin injuries, maintaining its integrity is something special, since it preserves the protective functions and lowers the risk of infections as a consequence of hospitalization.

Thus, skin integrity maintenance in hospitalized patients is an aspect of the history of healthcare that contributes with positive results for the patient. In 1994, the American Nurses Association started to consider skin integrity as a quality assurance indicator for nursing healthcare[10].

Care for the newborn's skin represents a factor of concern for nursing team members, since healthy skin is a bar-

rier against external environmental agents and protects the internal structures of the organism, and is also an indicator of hospitalization problems, such as infections and other metabolic disorders.

Therefore, the nurse needs to know the characteristics of the neonate's tegumentary system, using careful assessment, identifying the risks inherent to the newborn's particularities and the risks associated to the therapy, to direct the nursing healthcare provided.

Considering the constant necessity of professional development to attain excellence in healthcare delivery, elucidating the factors associated to newborn skin maintenance by applying indicators will support the elaboration and execution of qualification programs.

Therefore, the goal of this study was to propose a qualification program for the nursing staff, supported by a nursing healthcare quality indicator related to the maintenance of the newborn's skin, during a given hospitalization period.

METHOD

The exploratory-descriptive study, with a qualitative approach, based on prospective data collection, was developed in the Neonatal Unit of University Hospital of University of São Paulo (HU-USP).

The HU-USP nursing department adopts the Nursing Care System - *Sistema de Assistência de Enfermagem (SAE)* – implanted in 1981, according to Horta's theoretical models (Basic Human Needs Theory, 1979) and Orem's concepts (Self-care deficit Theory, 1985), which aim at humanized, individualized, evidence-based and quality healthcare[11].

Therefore, the Maternal-Child Nursing Division at HU-USP, together with other related units, established healthcare standards and criteria intending to assure the quality of the healthcare provided[12]. These standards, nowadays, have been modified through the implementation of the Nursing Diagnosis, in an attempt to make them more adequate to the needs of the population and improve the quality of the nursing healthcare provided.

At the HU-USP Neonatal Unit, care for the newborn's skin is performed according to pre-established standards and criteria. The main types of care are related to specific procedures like bathing, bandaging the navel, perineal hygiene, exam collection and monitoring the vital signs. Besides, this care can also be related to the prescribed therapy, such as phototherapy, medication, among others.

Therefore, when a newborn is admitted at the Neonatal Unit, the nurse starts care by evaluating the newborn's condition carefully. After this evaluation, the nurse elaborates nursing healthcare proposals, according to the SAE adopted by the institution. During the hospitalization period, the Nursing Diagnosis, Prescription and Evolution and the healthcare provided by the team are reviewed daily, after a physical exam and careful observation of the newborn's condition.

Therefore, for the identification of the skin injuries acquired during their hospital stay, the population of this study consisted of 121 (100%) newborns admitted to the Neonatal Unit, from January to May 2006, who met the following inclusion criteria:

- Being hospitalized for at least 24 hours;
- Having total skin integrity at the moment of admission;
- Being at most 28 days old at the moment of admission;
- Not presenting serious malformations that affected skin integrity;

Data collection was performed after the research project was approved by the Ethics Committee of HU-USP, according to Resolution 196/96 of the National Health Council.

An instrument was created for data collection, focusing on the characterization of the population and the identification of the skin injuries acquired, containing two parts.

Part I contained the biological data of the newborn: newborn's registry, date and time of birth, gender, weight classification and gestational age, referring unit, total hospital stay and presence of skin injuries acquired during hospitalization.

Part II referred to data related to the skin injuries acquired during hospitalization and the associated risk factors, such as: type of skin injury, day in the RN's life when the injury appeared, location of the injury, presence (or not) of data related to the neonate's skin injuries in the Nursing Diagnosis/Evolution/Prescription brochure, risk factors associated to the developed injury and related to the therapy used, use of adhesives, intravenous medication and the wrist oxymeter sensor.

Data collection was performed daily by the researcher in the Neonatal Unit, from January to May 2006, starting with the inclusion criteria of the newborn in the study at the moment of admission. After this stage, Part I of the instrument was filled out, with data collected from the registries Newborn's Record and Nursing Notes.

Part II of the instrument was filled out daily, after the detailed physical exam of the newborn and the verification of the registries of Medical Prescription, Nursing Notes and the Nursing Diagnosis/Evolution/Prescription brochure.

The results found were stored in an Excel 2003 spreadsheet to be processed later, and to be presented as tables and charts, in absolute figures and percentile indexes. Tables were edited in Word 2003 software and submitted to statistical analysis.

These results were the basis for the elaboration of a qualification proposal for the nursing staff at the studied unit.

RESULTS AND DISCUSSION

In order to characterize the studied population, data were collected about gender, weight classification and gestational age, referring unit, days of hospitalization, medical admission diagnostic and presence of skin injury acquired during hospitalization.

Of the 121 (100%) newborns studied, 73 (60.3%) were male and 48 (39.7%) were female.

Table 1 presents the data about the classification of neonates according to the variables weight and gestational age. This classification orients the neonates' control and predicts mortality risks, being considered pre-requisites for the definition of normalcy.

Table 1 – Distribution of the newborns in the Neonatal Unit according to the classification of weight and gestational age. HU-USP - São Paulo - 2006

Classification of weight and gestational age	N	%
RNT-AIG – Infant term Appropriate for Gestational Age (AGA)	83	68.6
RNT-PIG – Infant term Small for Gestational Age (SGA)	13	10.8
RNT-GIG – Infant term Large for Gestational Age (LGA)	8	6.6
RNPT-AIG – Infant preterm Appropriate for Gestational Age (AGA)	16	13.2
RNPT-PIG – Infant term Small for Gestational Age (SGA)	1	0.8
Total	**121**	**100.0**

Table 1 shows that most newborns, 83 (68.6%), were classified as RNT-AIG, 13 (10.8%) as RNT-GIG and 8 (6.6%) as RNT-PIG, therefore constituting a population with low risk of developing problems related to physical maturity.

Among the preterms, 16 (13.2%) were classified as RNPT-AIG and only 1 (0.8%) as RNPT-GIG.

Table 2 – Distribution of the newborns in the Neonatal Unit according to referring institution, HU-USP – São Paulo, 2006

Referral	N	%
Obstetric Center	67	55.4
Rooming-in	31	25.6
Child Emergency Service	13	10.8
Outpatient Unit	5	4.1
Intensive Care Unit	5	4.1
Total	**121**	**100.0**

According to Table 2, most of the studied neonates, 67 (55.4%), were referred by the Obstetric Center, probably because they presented adaptation problems to extra-uterine life.

The main medical and hospitalization diagnoses were: Early Respiratory Discomfort, Risk of Infection and Neonatal Jaundice.

The 121 studied newborns resulted in 732 patients/day. Among them, 94 (77%) neonates developed some type of injury during their hospital stay, with a total of 230 skin injuries.

Thus, the incidence rate of these events was 0.314 injury per patient-day, averaging 1.9 injury/newborn, characterizing a population with a high risk of developing skin problems while in hospital.

Table 3 – Distribution of the types of skin injuries acquired by the newborns during hospitalization at the Neonatal Unit, HU-USP - São Paulo - 2006

Type of injury	N	%
Ecchymosis	117	50.9
Perineal erythema	66	28.7
Moniliasis	19	8.3
Infiltration	8	3.5
Bruises	7	3.0
Erosion	5	2.2
Fissures	4	1.7
Excoriation	2	0.9
Abscesses	1	0.4
Bullous injuries - impetigo	1	0.4
Total	**230**	**100.0**

Of the 230 injuries acquired during hospitalization, 117 (50.9%) were ecchymoses, 66 (28.6%) were perineal erythemas and 19 (8.3%) were moniliases. The same newborn could have developed more than one type of injury.

It is worth noting that significant environmental and behavioral factors can affect the structure and functioning of the skin after birth. These factors include changes in the environmental temperature, alterations in drying and humidity of the skin surface and intermittent contact with the friction of clothes, blankets and diapers[13].

Hence, injuries like erosions and fissures could have been caused by the physiological drying of the neonate's skin, and occurred less frequently.

Therefore, hospitalization exposes the newborn to other factors related to the environment, the care provided, the diagnosis investigation and drug therapy.

Most injuries appeared in the first three days after admission, suggesting the need to establish quick interventions to

prevent these occurrences. In Figure 1, the hospitalization days were compared between neonates without skin injuries and those who acquired some injury during their hospitalization.

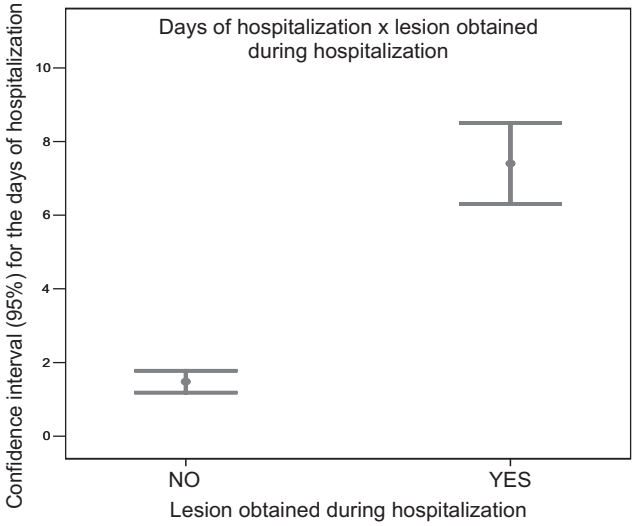

Figure 1 – Distribution of the number of hospitalization days and the presence of acquired injuries per newborn in the Neonatal Unit, HU-USP – São Paulo, 2006

Figure 1 shows that the newborns who developed the most frequent types of skin injury stayed in hospital longer than those who did not.

The first injuries appeared mostly in the upper limbs, and were associated to injuries like ecchymoses, bruises and infiltrations, possibly because they were the first location choices for collecting blood samples and introducing intravenous therapy devices.

When comparing the presence of injuries with the registries of these data in SAE records, it was observed that nurses reported injuries like ecchymoses, perineal erythemas and moniliases.

Excoriation, erosion, fissures and bruises were not recorded in the SAE at the moment of data collection, but identified by the researcher in the physical exam, suggesting that this process is mechanized, or that these professionals need qualification for the early identification of these injuries.

Table 4 – Distribution of the skin injuries acquired by the newborns during their hospitalization at the Neonatal Unit according to the associated risk factors, HU-USP, São Paulo – 2006

Injury type	Risk Factors									
	Adhesives				IV Therapy				Oxymeter	
	YES		NO		YES		NO		NO	
	N	%	N	%	N	%	N	%	N	%
Ecchymosis			117	100.0%	99	84.6%	18	15.4%	117	100.0%
Perineal erythema			66	100.0%	51	77.3%	15	22.7%	66	100.0%
Moniliasis			19	100.0%	18	94.7%	1	5.3%	19	100.0%
Infiltration			8	100.0%	8	100.0%			8	100.0%
Bruises			7	100.0%	6	85.7%			7	100.0%
Fissures			4	100.0%			4	100.0%	4	100.0%
Erosion	3	60.0%	2	40.0%	1	20.0%	4	80.0%	5	100.0%
Excoriation	1	50.0%	1	50.0%	2	100.0%			2	100.0%
Abscesses			1	100.0%			1	100.0%	1	100.0%
Bullous injuries impetigo			1	100%			1	100.0%	1	100.0%

According with Table 4, regarding the risk factors, the following items were considered:

- Use of adhesives associated to injuries like erosion and excoriation, probably due do the difficulty to remove them.

- Intravenous therapy associated with most of the identified injuries, such as ecchymosis, infiltrations, bruises, erosion and cutaneous eruptions in the regions covered by the diapers;

- The use of oxymeter sensors presented no relation with the injuries found.

Therefore, the findings of this study suggest that maintaining the newborn's skin integrity during hospitalization can prevent the occurrence of adverse effects of the therapies, reducing the risks of iatrogenic occurrences as a result of the healthcare provided.

The studied variables are concrete data that support the need to propose a qualification program for the nursing staff, in order to qualify nurses, nursing technicians and auxiliaries to achieve excellence in nursing service quality.

Therefore, the theoretical basis of this Program is supported on the elaboration principles of a collective planning, and on the development of technical-scientific, so-

cial-educational and ethical-political competences in the nursing team.

For this elaboration, the qualification of multiplying agents was defined as a participant strategy. In turn, these agents would multiply their experiences through workshops with the members of the nursing team who work at that unit.

A study performed in hospitalization units of a private hospital in São Paulo presented a qualification program for recently-hired nurses based on the development of competences, highlighting positive results after its implantation, since it is a constructive way of perceiving the other and developing cooperation and solidarity in the nursing team[14].

Then, aiming to facilitate the implantation process of the Program, five moments were considered in its elaboration: First: Situational Diagnosis; Second: Definition of Goals according to the competences; Third: Elaboration of the Program and Definition of Strategies; Fourth: Implementation and Fifth: Evaluation.

For the situational diagnosis, the result of the characterization of skin injuries acquired by the newborns during the hospitalization period at the neonatal unit was the first stage, demanding a large discussion about these findings with the members of the nursing team. It happened in a participative way, encouraging critical reflections on reality.

It is worth noting that research has been considered an important instrument for aid, validation of common practices and the critical transformation of daily routine, due to the possibility of directing the necessary changes[15].

Hence, according to participative management hypotheses, the involved professionals should be encouraged to participate in the search for alternative solutions, contributing by sharing experiences for personal, professional and collective growth, permitting the transformation of reality.

After this stage, the real qualification necessities of the team related to the results of this quality indicator can be identified, thus permitting the definition of the goals to be achieved, which constitutes the second moment.

Preliminarily, the program's general goal was to develop technical-scientific, ethical-political and socio-educational nursing competences, aiming for the qualification of the team and improvement of the nursing healthcare quality provided at the Neonatal Unit.

The specific objectives were:

According to the technical-scientific competences:

- Getting to know the Anatomy and Physiology of the term and preterm newborn's skin;
- Identifying the risk factors for skin injuries;
- Identifying skin injuries early;
- Getting to know the necessary interventions in view of risk or the identified injuries;
- Getting to know the forms to assess the quality of the healthcare provided.

According to the socio-educational competences:

- Making the nursing team aware of the importance of maintaining skin integrity;
- Reviewing the established standards and criteria for nursing care;
- Promoting situations of reflection that encourage the team to improve the quality of the healthcare provided;

According to the ethical-political competences:

- Developing the capacity to critically analyze the healthcare provided;
- Reorganizing the institutional standards, criteria and conditions established for the maintenance of the newborn's skin integrity;
- Elaborating educational policies for staff qualification, focused on the necessities studied at this unit.

For the elaboration of the program and the definition of the work strategies, it is important to note that these strategies need to promote the effective participation of the team members, allowing for a critical reflection of reality in order to promote its transformation, believing that it is built through interaction with the environment[16].

The human resources development process has been facilitated by the action of multiplying agents as a work strategy. Thus, professionals of a given area are responsible for training and developing the team in that area. The multiplying agent belongs to the group, which favors the exchange of information, encouraging cooperation and motivation among the members and making the whole process easier[17-18].

Hence, one nurse from each shift can be selected, and they will act as multiplying agents for the nursing team, coordinating a group of nurses interested in developing that theme. These professionals will be qualified for the execution of the program and will be responsible for training and developing the nursing technicians and auxiliaries in their work shifts.

Then, workshops can be developed for the multiplying agents to act and coordinate the workers during their work shift, aiming for the identification of the problems related to the proposed theme, which benefits the implementation of the proposal.

The workshops can include courses, lectures and seminars at the institution for the theoretical development of the theme. These activities can be held at the Neonatal Unit itself, with groups of four or five members each, thus making it easier to interact and share experiences.

During the fourth moment, the implantation of the program will occur after its approved by peers and higher instances of the institution. This stage can contribute to the

development of competences related to newborn skin integrity maintenance, using participative strategies that favor critical thinking about the experienced reality.

Finally, the pertinence of the proposed contents will be evaluated at the moment of evaluation, along with the adequacy of the strategies and the teaching resources adopted. It should also include the evaluation of the results, verifying the cost-benefit of the investment[18].

Therefore, efficient and continuous records and controls are needed, which will serve as parameters for the measurement of costs and the evaluation of the future performance of the program participants, with the goal of showing the impact of this training and, consequently, the benefits of further investments[19].

The quantification of the variables related to the quality indicator *neonate's skin integrity* could serve as a parameter for the evaluation of the Qualification Program, thus establishing the measurement of possible changes in the nursing quality standards of the healthcare provided, building historical series for the surveillance of this indicator.

Therefore, an instrument should be elaborated, which will make it possible to evaluate the obtained investments and achieved results through the systematic registry of data.

CONCLUSIONS

The execution of this study allowed for the identification of the real qualification necessities of the nursing team related to maintaining the newborns' skin integrity during their stay at the Neonatal Unit, so that a qualification program could be elaborated for the nursing staff.

An incidence rate of 0.314 injuries per patient/day, with an average of 1.9 injuries/newborn was identified, characterizing a population at high risk of developing skin problems during the hospitalization period. This situation shows that there is a need for more investment in the preparation of the nursing professionals, aiming to minimize the occurrence of these events.

It is believed that investing in the qualification of the nursing team according to the technical-scientific, ethical-political and socio-educational nursing competences can contribute to reduce the rate of this quality indicator, guaranteeing improved standards and criteria of newborn healthcare at the Neonatal unit of HU-USP, benefiting both the patient and the nursing team.

It should also be noted that new studies will be able to validate the effectiveness of the elaborated proposal in the future, comparing the results of this quality indicator through the elaboration of historical series, in addition to quantifying and identifying different qualification necessities.

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Correspondence addressed to: Lilian Mara Rondello Nepomuceno
Rua Jamanari, 15 - Vila Andrade
CEP 05716-140 - São Paulo, SP, Brazil