

VALIDATION OF A CHECKLIST FOR RESPONSIBLE HOSPITAL DISCHARGE IN A NEONATAL INTENSIVE CARE UNIT

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ABSTRACT

Objective: to create and validate a checklist for responsible hospital discharge processes in a neonatal intensive care unit.

Method: a methodological study conducted from March to June 2022, in four phases: 1) Selection of topics relevant to the health of newborns discharged from the intensive care unit; 2) Elaboration of the first version of the checklist; 3) Content validation with expert judges by applying the Content Validity Index (CVI), accepting values > 0.8 per item; and 4) Correction and reformulation of the final version. The assessment instrument was structured by means of a Likert-type scale. The validation process was performed in electronic and printed means by approaching the evaluators within the neonatal unit, totaling 16 participants. Descriptive statistics was used for data analysis.

Results: the checklist was validated with an overall Content Validity Index of 0.87. Analyzing the items individually, the following Content Validity Index values were found: 0.92 in the objectives, 0.89 for language, 0.84 for the content, 0.79 for relevance, 0.90 for layout, 0.94 for motivation and 0.88 for culture.

Conclusion: the checklist presented favorable Content Validity Index values in the vast majority of the evaluation criteria, with the exception of relevance. However, it is noted that it can be implemented and tends to contribute to a responsible discharge process.

DESCRIPTORS: Validation studies. Neonatal nursing. Patient care continuity. Discharge planning. Premature newborn.

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VALIDAÇÃO DE UM CHECKLIST PARA ALTA HOSPITALAR RESPONSÁVEL EM UNIDADE DE TERAPIA INTENSIVA NEONATAL

RESUMO

Objetivo: construir e validar um *checklist* para o processo de alta hospitalar responsável em uma unidade de terapia intensiva neonatal.

Método: estudo metodológico realizado no período de março a junho de 2022 em quatro etapas: 1) seleção de temas relevantes à saúde do neonato egresso da unidade de terapia intensiva; 2) construção da primeira versão do *checklist*; 3) validação de conteúdo com juízes especialistas mediante à aplicação do Índice de Validade de Conteúdo, aceitando-se o valor de > 0,8 por item; 4) correção e reformulação da versão final. O instrumento para avaliação foi estruturado por meio de uma escala, tipo Likert. A validação foi realizada por meio eletrônico e impresso com abordagem pelos juízes dentro da unidade neonatal, totalizando 16 participantes. Para análise dos dados utilizou-se a estatística descritiva.

Resultados: o *checklist* foi validado com IVC geral de 0,87. Analisando-se os itens individualmente foi encontrado o Índice de Validade de Conteúdo de 0,92 nos objetivos, 0,89 para linguagem, 0,84 para o conteúdo, 0,79 para a relevância, 0,90 para o layout, 0,94 para a motivação e 0,88 para a cultura.

Conclusão: o *checklist* apresentou Índice de Validade de Conteúdo favorável na grande maioria dos critérios de avaliação, com exceção apenas da relevância. Entretanto, destaca-se que o mesmo pode ser implementado e tende a contribuir para um processo de alta responsável.

DESCRITORES: Estudos de validação. Enfermagem neonatal. Continuidade da assistência ao paciente. Planejamento da alta. Recém-nascido prematuro.

VALIDACIÓN DE UNA LISTA DE VERIFICACIÓN PARA EL ALTA HOSPITALARIA RESPONSABLE EN UNA UNIDAD DE CUIDADOS INTENSIVOS NEONATALES

RESUMEN

Objetivo: elaborar y validar una lista de verificación para el proceso de alta hospitalaria responsable en una unidad de cuidados intensivos neonatales.

Método: estudio metodológico realizado de marzo a junio de 2022 en cuatro etapas: 1) Selección de temas relevantes a la salud de neonatos que reciben el alta de una unidad de cuidados intensivos; 2) Elaboración de la primera versión de la lista de verificación; 3) Validación del contenido con jueces especialistas aplicando el Índice de Validez de Contenido (IVC), aceptándose valores > 0,8 por ítem; y 4) Corrección y reformulación de la versión final. El instrumento para la evaluación se estructuró por medio de una escala tipo Likert. La validación se realizó por medios electrónico e impreso acercándose a los jueces dentro de la unidad neonatal, totalizando 16 participantes. Para el análisis de los datos se utilizó estadística descriptiva.

Resultados: la lista de verificación se validó con un Índice de Validez de Contenido general de 0,87. Cuando se analizaron los ítems individualmente se encontraron los siguientes valores de IVC: 0,92 en los objetivos; 0,89 para el lenguaje; 0,84 para el contenido; 0,79 para la relevancia; 0,90 para el diseño; 0,94 para la motivación; y 0,88 para la cultura.

Conclusión: la lista de verificación obtuvo un Índice de Validez de Contenido favorable en la amplia mayoría de los criterios de evaluación, con la única excepción del aspecto de la relevancia. Sin embargo, se destaca que puede ser implementado y tiende a contribuir a un proceso de alta hospitalaria responsable.

DESCRITORES: Estudios de validación. Enfermería neonatal. Continuidad de la asistencia al paciente. Planificación del alta hospitalaria. Recién nacido prematuro.

INTRODUCTION

All infants born before the 37th gestational week are considered premature newborns. In Brazil, nearly 11.5% of all live births are included in this classification, making it the tenth country in the world ranking, a fact which shows that prematurity is still a constant in terms of neonatal and perinatal health¹⁻².

Premature gestational age at birth associated with low weight, long hospitalization periods and clinical complications resulting from this period, may contribute to the onset of cognitive, motor and language limitations in the future, not to mention the risk of complications and early readmissions immediately after discharge home. In this context, good quality monitoring during hospitalization is necessary, as well as a clear and effective discharge process, in the sense of family and/or parental instrumentalization, for the care of premature newborns discharged from the Neonatal Intensive Care Unit (NICU)³⁻⁵.

Since 2008, the American Academy of Pediatrics (AAP) advocates the importance of a hospital discharge policy for high-risk newborns. This statement contains the need for periodic assessments to verify the health challenges related to this population group, as well as recommendations regarding the caregivers' needs, guaranteeing access to health services and the influence of post-discharge on newborns' health⁶.

The hospital discharge transition process, also called "responsible discharge", is understood as transitional care and should be carried out through guidelines to patients and family members about treatment continuity, in order to reinforce autonomy and provide self-care⁷.

This definition extends to the premature population, as the Brazilian Society of Pediatrics (*Sociedade Brasileira de Pediatria*, SBP) considers the following criteria for the discharge of premature infants: verify that the parents and/or caregivers are trained and have the knowledge and ability to feed the newborn; provide basic and preventive care; know how to administer medications; detect warning signs and symptoms of diseases; completion of the discharge plan by the caregivers/parents or legal guardians; and taking steps to ensure that the needs related to home-based care are properly met⁸.

It becomes necessary to use an instrument for responsible hospital discharge regarding the care of premature newborns⁸ in order to standardize the guidelines passed on to parents and family members. In view of the above and considering the need for responsible and specific discharge planning for the neonatal population, the current study aimed at elaborating and validating a checklist for responsible hospital discharge in a neonatal intensive care unit.

METHOD

This is a methodological study developed through the elaboration and content validation of an instrument for responsible hospital discharge in the neonatal intensive care context. The creation and validation process took place between March and June 2022, following this systematic sequence: 1) Selection of topics relevant to the health of newborns discharged from the intensive care unit based on diverse scientific evidence collected through an integrative review; 2) Elaboration of the first version of the instrument; 3) Content validation with expert judges by applying the Content Validity Index, accepting values > 0.8 per item⁹; and 4) Correction and reformulation of the final version to be applied in the unit.

To prepare the instrument, called Neonatal Discharge Process, items necessary for the follow-up of newborns, especially premature ones, and which are recommended by the Brazilian Society of Pediatrics⁸⁻¹⁰, were chosen, together with an integrative review conducted according to

the recommendations set forth in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)¹¹ carried out in the PubMed and *Biblioteca Virtual em Saúde* (BVS) databases, using the following descriptors: *planejamento de alta* AND *enfermagem neonatal* AND *recém-nascido* for BVS and *patient discharge* AND *neonatal nursing* AND *newborn* for PubMed.

The review enabled the selection of the following topics: nutrition, disease prevention, warning signs, choking maneuver, hygiene, sleep, vaccination and outpatient monitoring after discharge. In addition to the search in the literature, the instrument was built based on the experience of the main researcher who was part of the project entitled “A support network for the premature family”¹², whose objective is precisely to include the family in the hospitalization experience of premature infants from the admission moment to medical and nursing discharge.

It was decided to divide the checklist into columns that indicate whether the family members and/or legal guardians were “guided”, “supervised” or were “able” to perform certain care measures on their own. It is nurses’ responsibility to perform such role and assist in filling-in of the checklist. The instrument was created by a group of nurses that are authors of this study.

Considering that hospital discharge begins at the admission moment, ideally, these nurses should approach the family first, guiding relatively simple items such as hand washing and, at each meeting with the family during the hospitalization period, the instrument is applied until all items have been guided and performed in the unit, until the child’s family members and/or legal guardians become capable. Despite being an activity focused on the figure of nurses, it is emphasized that monitoring the checklist and the guidance supported by such figure are also duties that should be passed on to nursing technicians.

The expert judges were selected by searching the Lattes curriculum platform according to their performance area and professional experience in the newborn care context. The email contacts were obtained by searching the web pages of the teaching institutions to which the evaluators were linked. In order to invite them in person, it was decided to invite professionals who worked in the NICU of a university hospital from northwestern Paraná, with approximately 30 years of experience in the care of premature newborns.

The unit has six beds for intensive care and four beds for semi-intensive care and receives infants up to 28 days old; it has two nurses per shift and four nursing technicians, in addition to an on-duty physician, a Pediatrics resident, a medical intern, a physiotherapist and a speech therapist who serves other sectors within the same hospital.

The following inclusion criteria were listed: professors of undergraduate Nursing courses with at least a master’s degree, and nurses and physicians who work in a neonatal intensive care unit. At first it was decided that other professionals, including the medical, physiotherapy and speech therapy areas, would take part in the checklist evaluation process, considering that responsible hospital discharge is a multiprofessional process and that it should be carried out together. However, adherence was null despite having made the invitation.

The invitation to participate in the study was carried out in two ways: sent via email together with the invitation letter formalizing the research objectives, the free and informed consent form, the instrument for data collection and the discharge checklist to be assessed. At the same time, the documents were printed and delivered to the neonatal unit under study for the professionals who would not be able to access the survey electronically. The instrument for evaluating the checklist consisted of the characterization of the expert judges with diverse information regarding age, schooling, time of experience in the area and main experiences and familiarity with the theme, followed by the evaluation of the instrument’s content.

Content validation consisted of a list of items that should be verified and which were subdivided as follows: objectives, content, language, relevance, layout, motivation and culture. Such items were evaluated following an ordinal Likert-type scale, containing agreement items from 1 to 4, where 1 (Inadequate), 2 (Partially adequate), 3 (Adequate) and 4 (Totally adequate). The last item dealt with general comments and/or suggestions, and the judges were able to express their opinion on points that had not been addressed in the instrument^{9,13}.

For the quantitative analysis, the Content Validity Index (CVI) was used, which manages to measure the proportion of judges who agree on certain aspects of the instrument, considering CVI values from 0.8 per item as acceptable. To reach this value, the answers selected as “Totally adequate” and “Adequate” by each judge in each completed instrument were added up, and this value was subsequently divided by the total number of answers (CVI: Value of the sum corresponding to agreement of the items / Total number of item answers)⁹.

The Delphi technique¹⁴ was not used for the validation stage, as it recommends carrying out from two to four evaluation rounds with the judges in order to reach consensus among them. As the checklist presented a positive response in its first evaluation, with a favorable overall CVI, it was decided not to assess it again.

The statistical analysis was performed in a descriptive manner, presenting the results in table format. All participants signed the Informed Consent Form (ICF) and the study was approved by the Permanent Ethics Committee in Research with Human Beings of *Universidade Estadual de Maringá*.

RESULTS

The instrument built to be used in print consisted in its first version of 17 items that were described in the form of guidance, followed by these columns: guided, supervised and able to perform such care measures. At first, the objective of the instrument was for nurses to start the responsible discharge process early and for care instrumentalization to occur continuously during the hospitalization period. The first version of the instrument can be seen below (Chart 1):

Chart 1 – Neonatal Discharge Checklist, Maringá-PR, 2022.

NEONATAL DISCHARGE CHECKLIST			
Newborn identification:	Date of birth:	Discharge date:	
Family members instructed on the discharge process:			
DISCHARGE PROCESS			
Discharge guidelines	Guided	Assisted	Able
Breastfeeding (latch and suction, breast care).			
Avoid use of artificial nipples (silicone pacifier and mid-piece).			
Offering expressed milk or infant formula in an open cup or bottle (newborn positioning during and after feedings).			
Newborn's bath (water temperature, suitable place, where to start).			
Hygiene and diaper exchange (necessary materials, how to do it, main care measures to be observed).			

Chart 1 – Cont.

NEONATAL DISCHARGE CHECKLIST			
Newborn identification:	Date of birth:	Discharge date:	
Family members instructed on the discharge process:			
DISCHARGE PROCESS			
Discharge guidelines	Guided	Assisted	Able
Urinary and bowel eliminations (frequency, color, volume. Indicate that the expected is 6 urine diapers/day and that, if the newborn is exclusively receiving breast milk, it can go up to 1 week without bowel movements).			
Administration of medications or multivitamins.			
Care with the newborn's temperature and clothes.			
Identification of warning signs: cyanosis, pallor, bleeding, food refusal, hypotonia ("wet and unresponsive newborn").			
Exposure to the sun: until 10 am or after 4 pm.			
Newborn's sleep: sleep on its back, especially in the same environment as the mother until the sixth month of life.			
Screening tests: chest, ear, heart.			
Return visits with specialists if necessary.			
Return visits to the hospital outpatient service for monitoring.			
Maintain follow-up in the reference Basic Health Unit.			
Vaccination booklet: weight, growth, developmental milestones and vaccines.			
Support visits and network			
Process applied by:	Date:		

After its elaboration, invitations were sent to 40 judges, including nurses, physicians, physiotherapists, speech therapists and nursing technicians, who also have a degree in Nursing. Of these, 16 took part in the study: all nurses aged between 29 and 61 years old and with a mean of 44. Their experience time in the area varied between seven and 41 years, with a mean of 18. Seven judges are MScs, eight are PhDs and one is a Post-PhD. Regarding the performance area, nine work in children's health and seven in the neonatal ICU, 11 are professors and the main answers when asked about other topics with which they were familiar were the following: transitional care (4), discharge protocol (2), breastfeeding (12), and hospitalization and rehospitalization (3).

The validation purpose was for the professionals to evaluate the instrument so that it could circulate safely in the scientific environment and become an important tool during the responsible neonatal discharge process. The instrument was validated with an overall CVI of 0.87. Analyzing the items individually, the following CVI values were found: 0.92 in the objectives, 0.84 for the content, 0.79 for relevance, 0.90 for layout, 0.94 for motivation and 0.88 for culture. Table 1 shows the specific CVI values for each item:

Table 1 – CVI corresponding to the Neonatal Discharge checklist instrument, Maringá-PR, 2022.

	Totally adequate	Adequate	Partially adequate	Inadequate	CVI
Objectives					0.92
The objectives are consistent with the target population's needs.	9	8	0	0	1.00
The instrument assists in the care to be provided to premature newborns that will be discharged from the hospital and their families.	8	8	1	0	0.94
The instrument can circulate in the scientific community of the area.	7	7	3	0	0.82
The instrument can promote behavioral and attitudinal changes in the family members in relation to care of the newborn.	9	6	2	0	0.88
Content					0.84
The instrument is appropriate to assist in the care of the premature newborn that will be discharged from the hospital.	8	7	2	0	0.88
The instrument is clear and objective.	6	7	4	0	0.76
The instrument is scientifically correct.	7	5	3	2	0.70
The instrument has a logical sequence.	8	7	2	0	0.88
The instrument highlights the importance of care.	7	8	2	0	0.88
The instrument's title and subtitle are pertinent.	7	9	1	0	0.94
Language					0.89
All the information presented is clear and understandable, considering the target audience experience level.	5	10	2	0	0.88
The writing style corresponds to the target audience level of knowledge.	8	8	1	0	0.94
All the information is well structured in terms of spelling.	7	9	1	0	0.94
The writing style used is appealing.	5	9	2	0	0.82
Relevance					0.79
The topics presented describe key aspects that should be reinforced in the care of premature newborns that will be discharged from the hospital environment.	8	6	3	0	0.82
The instrument contributes diverse knowledge that encourages the care to be provided to premature newborns discharged from the hospital environment.	7	8	2	0	0.88
The instrument addresses the necessary subject matters for the care of discharged premature newborns in their homes.	5	7	5	0	0.70
The instrument is adequate and can be used as a tool to promote health education in the family caregivers of premature newborns.	8	5	4	0	0.76

Table 1 – Cont.

	Totally adequate	Adequate	Partially adequate	Inadequate	CVI
Layout					0.90
Presentation of the instrument is appealing and well-organized.	2	13	2	0	0.88
The content is presented with fonts of suitable size.	6	9	2	0	0.88
The type of font used eases reading of the material.	7	10	0	0	1.00
The colors are suitable and ease reading.	5	10	2	0	0.88
The information layout is adequate.	6	8	3	0	0.82
The instrument is adequate in terms of length.	6	10	1	0	0.94
Motivation					0.94
The instrument's content generates interest for its application.	7	9	1	0	0.94
The content is motivating and encourages researchers to continue applying it.	7	9	1	0	0.94
Culture					0.88
The material is appropriate to the sociocultural level of the proposed target audience.	7	8	2	0	0.88

*CVI: Content Validity Index.

The main modifications listed by the judges were related to what should be specifically instructed, so that anyone who used the instrument for instrumentalization would do so in the same way. In this context, for each item of the instrument, a column was added referring to what should be instructed followed by a check to be carried out by the nursing professionals during the discharge process, as previously thought in the first version. The instrument that was formalized (in the Portuguese language) after implementing the suggestions listed by the judges can be seen in Suplementar Material:

It is worth noting that, of all the items evaluated, only relevance reached a CVI of 0.79, although still close to the recommended (0.80), a fact that does not preclude using the instrument in academic and health care settings.

DISCUSSION

The existence of instruments that guide teams in order to systematize the discharge process is essential to organize work and make it flow continuously, considering that all professionals involved in dehospitalization are able to instruct families, so that the objective is focused on turning caregivers into the protagonists of care, following the previously proposed recommendations, along with the development of an evaluative and evolutionary process¹⁵.

By using a specific tool for planning discharge, as team leaders, nurses are able to visualize this moment as something continuous throughout the hospitalization and systematize it, just as they do with the application of the Nursing Process¹⁶.

It is important to highlight that, after the advent of the COVID-19 pandemic, the population of the neonatal ICU underwent certain changes. If in the beginning the units mostly received infants born prematurely, during 2020 to 2021, a good part of the newborns who required intensive

hospitalization immediately after delivery were classified as late preterm, or full-term¹⁷. It is not exactly known how long this profile will remain; however, the instrument created and validated for the neonatal discharge process can be applied to older newborns, as the guidelines proposed can be replicated in this group.

A study carried out with parents of newborns hospitalized in a neonatal ICU proved that preparation for discharge begins at the admission moment since, although there is an intense desire to take the child home, the feelings that most prevail are that of fear and dread when that moment happens. The objective of intensive care is not merely to send a healthy infant home, but to send it to a qualified, safe and prepared family, involving guidance, welcoming and support, and should not be limited to the performance of tasks 24 hours before dehospitalization^{18,19}.

When parents of preterm newborns are asked questions after their children are discharged from hospital, the ones that emerge are similar and involve topics related to breastfeeding, hygiene, health warning signs and health problems, in addition to emotional and practical issues in newborn care. At that moment, simple tasks become complicated, reinforcing that the hospital-home transition should occur safely, smoothly and in a context of continuity, so as to empower and strengthen the families in care. In view of that, instruments for health education and training of parents and caregivers are necessary²⁰.

Using instruments both for the responsible discharge process and for other situations involving hospitalized children's health is fundamental for the development of a good care routine and for the patients' own safety²¹. The checklist that was prepared presents in its final version not only the main precautions to be trained/instructed, but it mainly indicates the way to guide. It is inferred that, as it is a process, many of the recommendations should be reviewed and trained again, justifying the three columns named as guided, assisted and able.

The use of tools that assist in the development of children's health promotion and at the same time provide subsidies for health professionals, articulating the family's needs with the necessary guidelines for these newborns, can contribute to the application of a Nursing Process based on diverse scientific evidence, in addition to contributing to continuing and permanent education²²⁻²³.

Although the CVI related to relevance presented a slightly lower value than recommended, when the number of judges who evaluated the checklist exceeds six, an individual evaluation rate of not less than 0.79 can be considered, as well as a global rate of not less than 0.80⁹. The instrument in question was evaluated by 16 judges; therefore, it has sufficient support to be used in the practice and guarantee an effective discharge process.

One of the study limitations is the fact that the instrument has not yet been applied in the care practice to assess long-term results. It is inferred that this process will be necessary at some point in order to prove, from the perspective both of the professionals who work in the unit and of the families themselves, its relevance and importance in newborns' quality of life after dehospitalization.

Another limitation is the need for the checklist to be validated by a multiprofessional team for it to be based on recommendations related to safe dehospitalization, adding knowledge from different areas in favor of newborns' well-being. Also in this context, there is the fact that the professionals have not yet been trained on how to use the checklist and that this should occur in a systematic way, covering all employees of the unit and not only the Nursing team in order to become a care routine. Difficulties related to staffing are known, especially in the figure of nurses, but discharge planning needs to be seen as a priority, as well as other demands related to survival of hospitalized newborns.

CONCLUSION

The checklist that was elaborated and validated, entitled Neonatal Discharge Process, presented a global CVI of 0.87 and was favorable in the vast majority of the evaluation criteria, with the exception of relevance. The instrument can be implemented in care environments and tends to contribute to the development of responsible discharge processes. It should be noted that its use should begin at the admission moment, especially when the parents are welcomed at the unit, in order to initiate the discharge process that will take place throughout the newborn's hospitalization period.

Although the checklist has not yet been used in the practice, it was elaborated in consonance with the main guidelines recommended by official bodies regarding neonatal care and can be an important tool in the systematization of Nursing discharge.

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NOTES

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CONTRIBUTION OF AUTHORITY

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Data collection: Uema RTB.

Data analysis and interpretation: Uema RTB, Radovanovic CAT.

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