

# Educational strategy for newborn assistance in the birth room in the COVID-19 pandemic

**RESUMO** | Objetivo: desenvolver e validar folder educativo com recomendações sobre a assistência ao recém-nascido na sala de parto no contexto da covid-19. Métodos: estudo metodológico com construção de folder educativo e validação de conteúdo por 22 juízes experts. Os critérios de inclusão foram: profissional da saúde com experiência na assistência, pesquisa ou docência, com foco na saúde obstétrica/neonatal. Utilizou-se as questões adaptadas do Índice de Validação de Conteúdo Educacional, sendo considerado válido o item com Índice de Validação de Conteúdo e teste binomial maior que 0,8. O estudo foi aprovado pelo Comitê de Ética em Pesquisa, sob parecer nº 4.688.121. Resultados: o folder aborda recomendações sobre a assistência ao recém-nascido na sala de parto durante a pandemia de covid-19. Foi verificada concordância superior a 80% em todos os itens avaliados pelos juízes. Conclusão: o folder mostrou-se válido quanto ao seu conteúdo e constitui recurso tecnológico relevante para a prática assistencial.

**Descritores:** Estudo de validação; Recém-nascido; SARS-CoV-2; Salas de parto; Educação em Saúde.

**ABSTRACT** | Objective: to develop and validate the educational folder on newborn care in the context of covid-19. Methods: methodological study with the construction of an educational folder and content validation by 2 expert judges. Inclusion criteria were: health professional with experience in care, research or teaching, with a focus on obstetric/neonatal health. It was used as questions adapted from the Educational Content Validation Index, being considered valid the item with Content Validation Index and binomial test greater than 0.8. The study was approved by the Research Ethics Committee, under opinion No. 4,688,121. Results: the delivery addressed on the assistance to the newborn in the room during the covid-19 pandemic. It was an agreement greater than 80% in all items evaluated by the judges. Conclusion: the folder proved to be valid in terms of its content and constitutes a relevant technological resource for care practice.

**Keywords:** Validation study; Newborn; SARS-CoV-2; Delivery rooms; Health education

**RESUMEN** | Objetivo: elaborar y validar una carpeta educativa con recomendaciones sobre el cuidado del recién nacido en sala de partos en el contexto del covid-19. Métodos: estudio metodológico con construcción de carpeta educativa y validación de contenido por 22 jueces expertos. Los criterios de inclusión fueron: profesional de la salud con experiencia asistencial, investigadora o docente, con enfoque en salud obstétrica/neonatal. Se utilizaron preguntas adaptadas del Índice de Validación de Contenido Educativo, y se consideró válido el ítem con Índice de Validación de Contenido y prueba binomial superior a 0,8. El estudio fue aprobado por el Comité de Ética en Investigación, bajo el dictamen nº 4.688.121. Resultados: la carpeta aborda recomendaciones sobre el cuidado del recién nacido en la sala de partos durante la pandemia de covid-19. Se verificó una concordancia superior al 80% en todos los ítems evaluados por los jueces. Conclusión: la carpeta demostró ser válida en cuanto a su contenido y constituye un recurso tecnológico relevante para la práctica del cuidado.

**Palabras claves:** Estudio de validación; Recién-nacido; SARS-CoV-2; Salas de parto; Educación para la salud

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## INTRODUCTION

At the end of 2019, a disease caused by a new strain of coronavirus was identified in the city of Wuhan, China and quickly spread through Europe, the United States and Latin America, affecting more than 26 countries around the world. Public health was the segment that had the greatest impact due to the emergence of the virus, which led to an urgent search for an effective treatment and the development of new therapies, such as vaccines and antiviral drugs.<sup>1-3</sup>

Infection with the new coronavirus (SARS-CoV-2) is a disease that is transmitted by close contact with infected people through droplets of saliva, coughing, sneezing or touching contaminated surfaces. This disease, named by the World Health Organization (WHO) as COVID-19, can cause from mild symptoms to severe acute respiratory syndrome. Some groups are more vulnerable to infection and negative outcomes, including the elderly, people with chronic diseases and pregnant women.<sup>4</sup>

In pregnant women, the infection can be aggravated due to greater sensitivity to hypoxia and changes in the immunity mechanism, associated with this is the difficulty of accessing obstetric services during the pandemic and the scarcity of technological resources for the intensive care of infected pregnant women.<sup>5</sup> This situation, in addition to interfering with the general condition of the pregnant woman, can lead to a poor prognosis for the newborn (NB) and cause changes in maternal and child care in the context of the pandemic.<sup>6-7</sup>

Currently, vertical transmission by SARS-CoV-2 is uncommon. However, there is evidence that placental and fetal infection can occur. Placentas from infected patients show inflammatory, vascular and thrombotic changes, which can lead to maternal and neonatal adverse events caused by the inflammatory nature of the infection.<sup>8</sup>

Thus, postnatal or horizontal trans-

mission presents itself as the main form of acquisition of the virus by the NB, and this is aggravated when the mother is suspected or confirmed for COVID-19, in which there may be contact with droplets or contaminated biological material.<sup>9-11</sup>

In the context of the delivery room, care for the NB is differentiated in mothers without clinical signs for COVID-19 and suspected or confirmed for the infection, with the aim of maintaining maternal and neonatal health, in addition to the protection of health professionals who are providing care.<sup>11-12</sup> Therefore, the analysis of the main recommendations becomes necessary for managers and care teams to understand the scientific evidence available for safe neonatal care.<sup>13-14</sup>

In view of the emergence of SARS-CoV-2 infection, where many topics of neonatal care still need to be studied and disseminated to health professionals, Strategies must be planned and implemented to contribute to the apprehension of the knowledge produced and the empowerment of the health team.

Thus, in order to intervene in the lack of knowledge about care for the NB in the delivery room, it is necessary to invest in health education to address the issue. The educational process in health is used as an instrument for disseminating knowledge and promoting health, for which it is pertinent to use technological resources that facilitate and contribute to learning.<sup>15</sup>

Among these resources, printed educational technologies are a viable alternative for information and awareness of health professionals and the population in general, while providing subsidies for the dissemination of health and providing verbal guidance that assists in daily decision-making.<sup>16-17</sup>

In view of the above, for the purpose of carrying out this study, the following guiding question was drawn: the visual educational technology, with the main recommendations for assistance to the newborn in the delivery room in the context of the COVID-19 pandemic, has con-

tent validity, as assessed by expert judges?

The objective was to develop and validate an educational folder with recommendations on newborn care in the delivery room in the context of COVID-19.

## METHODS

Methodological research, with a quantitative approach, with the construction and validation of the content of an educational folder aimed at health professionals with recommendations on assistance to the NB in the delivery room in the context of COVID-19, carried out from October to December 2021.

In the first stage of technology development, a scope review was carried out, conducted in accordance with the JBI methodology, with the objective of identifying scientific evidence and recommendations on the subject published in the databases: Medical Literature Analysis and Retrieval System Online (MEDLINE) via PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Web of Science, via the Main Collection, Scopus and Latin American and Caribbean Literature on Health Sciences (LILACS), consulted by the Virtual Health Library (BVS), accessed through the CAPES portal. The descriptors used to carry out the search were recém-nascido ("infant, newborn"), assistência na sala de parto ("delivery room assistance") and pandemia de COVID-19 ("coronavirus infections"), identified in the Medical Subject Headings (MeSH), title CINAHL and in the Descriptors in Health Sciences (DeCS), combined using Boolean operators "AND" and "OR".<sup>11</sup> After the article selection process, nine studies were included for full text analysis (Figure 1).

With the help of a graphic designer, the art was elaborated with the creation of figures by vectorization and their refinement in the Corel Draw X7 program, in relation to the formatting, configuration and layout of the material. It is important to highlight that the selection of the professional was based on his experience in

the construction of educational materials.

After the production of the material by a specialized design and communication company, under the supervision of the researcher, the content was validated by selected expert judges. After the validation, the adaptations suggested by the professionals were carried out, which dealt with the reformulation of the text in some sentences and the inclusion of information to make the content more understandable.

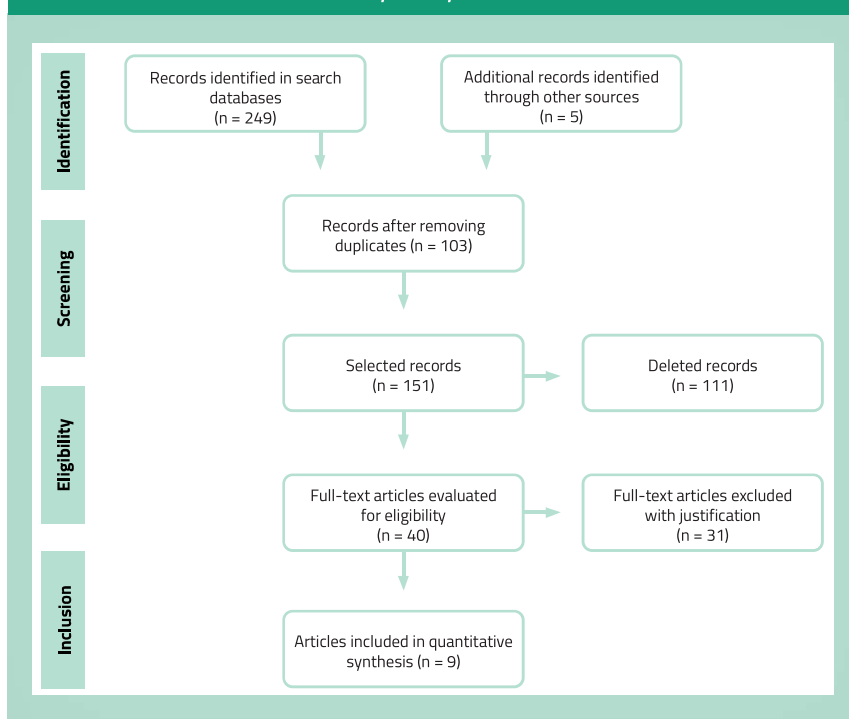
To select the judges, a sample calculation was performed using the formula for finite population:  $n = \frac{Z^2 \cdot P(1-P)}{e^2}$ , in which “Za (confidence level) was set at 95%; “P” (proportion of experts who agree with the item) was set at 85%; and “e” (expected difference) was 1518, totaling a sample of 22 participants.

For the recruitment of content judges, “snowball” sampling was used, in which initial participants indicate new participants. The selection of experts took place through the search and analysis of the curricula available on the Curriculum Lattes Platform, according to pre-established criteria, in which each specialist should have a minimum score of five points.<sup>19</sup> The inclusion criteria for defining the participants were: being a health professional with experience in care, research or teaching, with a focus on obstetric/neonatal health. The exclusion criterion was incomplete and/or incorrect completion of the collection instrument.

After the searches, 100 expert judges were identified and contacted by email (via Google form), in which they received an invitation letter to participate in the research, Informed Consent Form (ICF), questionnaire for professional characterization, educational technology and electronic form for validation, containing the Educational Content Validation Instrument (ECVI). A period of 15 days was stipulated for evaluation of the content and completion of the instrument.

The ECVI is an instrument that was built and validated by a research group at the Federal University of Ceará and

Figure 1 - Flowchart of the review studies selection process, PRISMA-ScR, Teresina, PI, Brazil, 2022



Source: prepared by the authors (2022)

contains 18 questions about objective, structure/presentation and relevance.<sup>20</sup> At this stage, the first 22 participants who answered the form were included.

Data were analyzed using R software, version 3.1.1. The Content Validity Index (CVI) was used for validation analysis through the following indices: I-CVI (Item-level Content Validity Index) – number of judges who partially and fully agree with the item and S-CVI/AVE (Scale-Level Content Validity Index, Average Calculation Method) – proportion of instrument items that the judges partially and fully agree with. Items that obtain agreement rates greater than or equal to 80% (0.8)<sup>21</sup> will be considered valid. The binomial test was used to verify the proportion of agreement, being statistically significant when equal to or greater than 0.822, with a significance level of 5%.

The study complied with Resolution No. 466/12 and was approved by the Research Ethics Committee of the Federal

University of Piauí, registered under Opinion No. 4,688,121.

## RESULTS

The educational folder addresses current recommendations on care for NBs in the delivery room according to the following topics: staff, personal protective equipment (PPE), materials and place of care for the NB, umbilical cord clamping, skin-to-skin contact and breastfeeding, with an emphasis on SARS-CoV-2 infection prevention and control measures. The educational information of the material is passed on through illustrations that portray moments of care for the mother and child binomial in the delivery room, as seen in Figure 2, in order to facilitate understanding.

Content validation was performed by 22 judges, of which 21 (95.5%) were female, with a mean age of 35.6 years. Regarding academic training, 21 (95.5%)



were nurses, one (4.5%) was a doctor. Two (9.1%) of the judges were postdocs, five (22.7%) were doctors, 11 (50%) had a master's degree and four (18.2%) had a specialization, 20 (90.9%) had experience in the assistance service and 18 (81.8%) in teaching in the area of neonatology.

In validating the content of the educational material, there was a minimum agreement of 95% on all items referring to objectives, structure/presentation and relevance. The suggested modifications were related to sentence adjustments and replacement of terms in order to make the text more understandable for the target audience.

Of the 16 items evaluated in the content validation, 15 had unanimous agreement (I-CVI = 1.0), there was agreement by all the judges on relevant aspects, such as the suitability of the material for the teaching-learning process, encouraging behavior change, correct information and encouraging learning. In addition, all items presented statistics above 80% in the binomial test, being considered valid (Table 1).

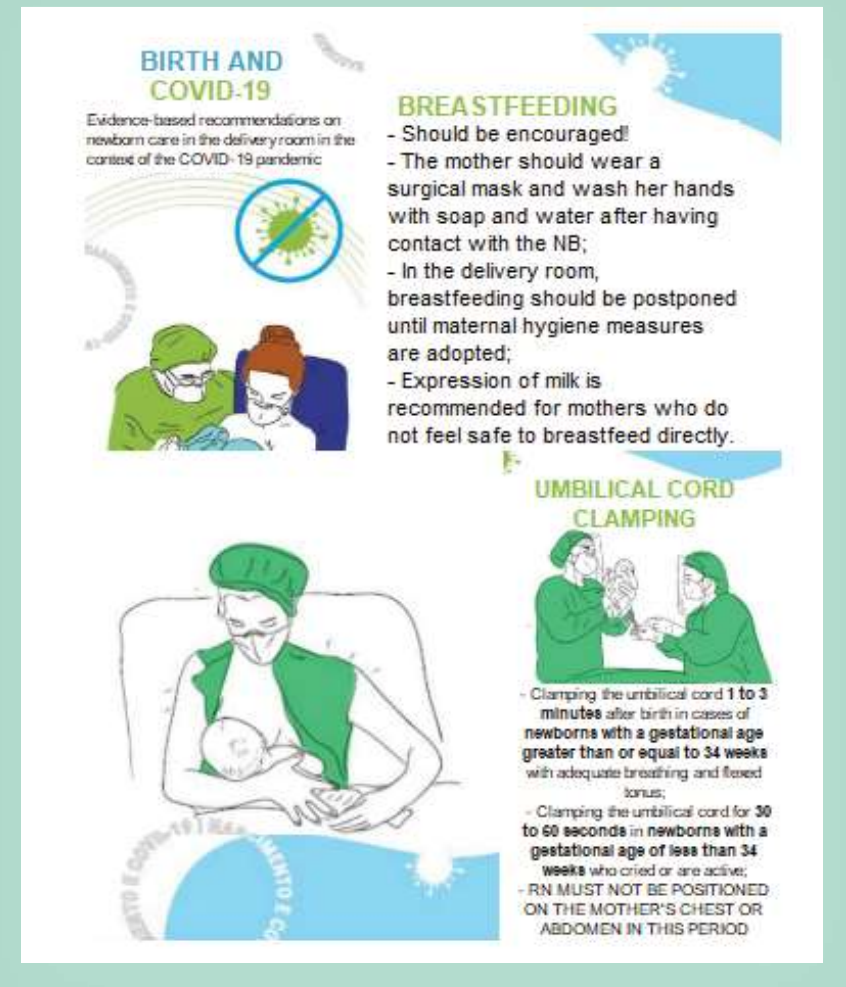
Regarding the S-CVI/AVE, it was 1.0 for the 21 judges who agreed with all items, and 0.94 for the judge who disagreed with only one item, so the S-CVI (average SCVI/AVE) was 0.99.

## DISCUSSION

The current COVID-19 pandemic has generated numerous impacts for obstetric and neonatal health care with changes in the form of care and uncertainties regarding the clinical management of infection during pregnancy and birth. In this scenario, maternal and child health care services are essential for the creation of prevention and clinical management strategies, therefore, it is essential that health professionals who work in care are updated and trained with the main scientific evidence on the subject.

The construction of health technologies proves to be an effective tool in the

**Figure 2 – Some pages from the educational folder "Birth and COVID-19". Teresina, PI, Brazil, 2022.**



Source: prepared by the authors (2022)

**Table 1 - Judges' agreement regarding the objectives, structure/presentation and relevance of the educational folder. Teresina, PI, Brazil, 2022.**

Items	Totally agree	Disagree	I-CVI*	p**
	n (%)	n (%)		
<b>OBJECTIVES</b>				
1. Contemplate the theme	20 (91,0)	2 (9,0)	1	1
2. Suitable for teaching and learning	16 (72,7)	6 (27,3)	1	1
3. Clarifies doubts about the topic	16 (72,7)	6 (27,3)	1	1
4. Provides reflection on the topic	20 (91,0)	2 (9,0)	1	1
5. Encourages behavior change	20 (91,0)	2 (9,0)	1	1
<b>STRUCTURE/ PRESENTATION</b>				
6. Language suitable for the target audience	17(77,3)	4 (18,2)	0,95	0,97



teaching-learning process, in addition to providing a reliable theoretical basis for patient care in a safe and assertive way. The development of methodological studies in the context of the COVID-19 pandemic is shown as an alternative to reduce the knowledge gap on infection in several areas of knowledge.<sup>7,23</sup>

In the context of birth and care in the delivery room for the NB of a mother with clinical signs and/or confirmed for SARS-CoV-2 infection, the educational folder managed to group the main axes of neonatal care that during the pandemic were sources of divergence among health professionals. In this sense, the construction of the folder is an instrument capable of improving knowledge and stimulating autonomy, for that it needs to have clear and understandable language for the target audience, in addition to containing expressive information on the subject.<sup>11</sup>

Regarding the objectives of the topics covered in the "Birth and COVID-19" folder, the aim is to highlight information sequenced from actions that take place in the delivery room during reception/assistance to the NB through updated evidence and care during the pandemic, in order to act in the prevention of horizontal transmission of the infection to the neonate.

Thus, by understanding the moment of birth as an important scenario for measures to prevent and control COVID-19, the contents covered focus on maintaining the health of the NB and the safety of the assistant team by bringing recommendations about the appropriate Personal Protective Equipment (PPE's), materials and place of care for the NB, time for clamping the umbilical cord, skin-to-skin contact, breastfeeding and respiratory assistance. These items are already widely studied in national and international sources, however, with the pandemic, the practice has presented changes that must be adopted according to the presence of infection and maternal clinical status.<sup>23</sup>

Regarding the structure and organization, the folder presents the division of the

7. Appropriate language for the material type	19 (86,4)	3 (13,6)	1	1
8. Language is about interaction/involvement	19 (86,4)	3 (13,6)	1	1
9. Correct and objective information	19 (86,4)	3 (13,6)	1	1
10. Enlightening and necessary information	17 (77,3)	5 (22,7)	1	1
11. Ideas exposed logically	21 (95,5)	1 (4,5)	1	1
12. The theme is current	22 (100)	0 (0,0)	1	1
13. Proper text size	17 (77,3)	5 (22,7)	1	1
<b>RELEVANCE</b>				
14. Stimulates learning	22 (100)	0 (0,0)	1	1
15. Contributes to knowledge	21 (95,5)	1 (4,5)	1	1
16. Awakens interest in the topic	22 (100)	0 (0,0)	1	1

\* Item-level Content Validity Index  
\*\* Binomial Test  
Source: prepared by the authors (2022)

axes of attention into topics to facilitate the organization and understanding by health professionals, in addition, it had the use of illustrations built with the help of a specialized graphic design, with the objective of strengthening the theoretical content and stimulating reading, these factors were identified as positive for the organization of the material in the validation of the judges. The selection of illustrations and the type of material composes the set of knowledge and procedures necessary for the development of educational technologies.<sup>17</sup>

Regarding the relevance, as it is an emerging infection that requires studies to understand the available scientific evidence - especially with regard to neonatal care, the theme stands out as a priority in view of the high rates of obstetric morbidity and mortality due to SARS-CoV-2 infection, which can lead to negative health outcomes for the NB, which determines the need for educational interventions and technologies to prevent disease transmission and promote safe and up-to-date care.<sup>23</sup> Thus, the importance for the area of health knowledge was unanimously recognized by content judges.

The modifications suggested by the judges were about reformulating some sentences and replacing some terms to improve the understanding of the content. Such suggestions for adjustments

were also found in a study that validated a checklist for disinfecting ambulances in the context of the COVID-19 pandemic.<sup>24</sup> It is noteworthy that the text adjustments suggested by the evaluators in the process of construction and validation of the educational folder, contribute to the material being judged as understandable and relevant when evaluated by the target audience, in addition to providing reliability to be used in practice.

Thus, the results showed high acceptability values in all items evaluated, similarly to the validation study of an educational booklet for nurses on pressure injuries. Similarly, both studies aimed at the construction of illustrated technology in order to assist in the acquisition of knowledge and standardization of guidelines.<sup>25</sup>

As a limitation, educational material, although its items were considered valid, with a minimum agreement of 95% of the expert judges, was not sent again to the experts after the changes were made.

## CONCLUSION

The proposed objective was achieved, given that the folder entitled "Birth and COVID-19" was built through the selection of content in the main sources of data on the subject. In addition, the material was considered valid by experts



in terms of content (objective, structure/ presentation and relevance), since the I-CVI was greater than 0.8, the S-CVI of 0.99 and the binomial test confirmed the agreement statistically greater than 80%.

Thus, the use of the folder as a tech-

nological resource is an assertive option for disseminating knowledge to health professionals, to the point that it provides a secure theoretical basis for the care of the newborn in the delivery room in the context of the COVID-19 pandemic.

In addition, it will favor, in practice, the adoption of actions based on safe and current scientific evidence, contributing to the reduction of the risk of infection of the newborn and health professionals by SARS-CoV-2.

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