Tool about physical therapy practice in neonatal sensory motor stimulation: a Delphi study

Instrumento sobre a prática da fisioterapia na estimulação sensoriomotora neonatal: estudo Delphi

Tania Nodari [1]
Taís Beppler Martins [1]
Flávia Coelho [1]
Luciana Sayuri Sanada [1]
Silvana Alves Pereira [2]
Simone Nascimento Santos Ribeiro [3]
Dayane Montemezzo [1*]

[1] Universidade do Estado de Santa Catarina (UDESC), Florianópolis, SC, Brazil
[2] Universidade Federal do Rio Grande do Norte (UFRN), Natal, RN, Brazil
[3] Faculdade de Ciências Médicas de Minas Gerais, Belo Horizonte, MG, Brazil

Date of first submission: December 19, 2023
Last received: May 9, 2024
Accepted: July 23, 2024
Associate editor: Ana Paula Cunha Loureiro

***Correspondence:** dayane.montemezzo@udesc.br

Abstract

Introduction: Neonatal sensory motor stimulation (SMS) interventions are designed to enhance the neuropsychomotor and sensory development of newborns. Despite their potential benefits, the lack of standardized in SMS procedures among professionals highlights the need for a unified approach to improve outcomes. **Objective:** To develop an instrument for collecting information on neonatal SMS procedures used by Brazilian physiotherapists, including parameters for monitoring stress signs or self-regulation in newborns. **Methods:** Conducted research using the Delphi method with an online panel of experts in neonatal intensive therapy. The content covered 10 SMS techniques, cardiorespiratory parameters, and behavioral states. Consensus was evaluated through content validity calculations using a four-point Likert scale. Descriptive questions regarding the instrument's adequacy were analyzed using the Bardin's content analysis method. **Results:** Thirteen specialists participate via email. The development of the instrument required two rounds rounds of review. Agreement rates were 53-69% in the first round and of 83-100% in the second. The final version comprised 212 questions, covering all categories of SMS procedures (tactile, vestibular, olfactory/gustative, and visual). **Conclusion:** A comprehensive list of 221 questions across four SMS categories was developed. This instrument's clinical relevance lies in its ability to standardize and monitor SMS application, thereby promoting consistent and effective neonatal care.

Keywords: Delphi method. Newborn. Neonatal Intensive Care Unit. Physiotherapy. Sensory motor stimulation.

Resumo

Introdução: *A estimulação sensoriomotora neonatal (ESM) compõe intervenções que visam melhorar o desenvolvimento do recém-nascido. No entanto, a falta de padronização nos procedimentos de ESM destaca a necessidade de identificar as estratégias utilizadas.* ***Objetivo:*** *Desenvolver um instrumento de coleta de informações sobre os procedimentos de ESM realizados por fisioterapeutas brasileiros, incluindo parâmetros para monitorar sinais de estresse ou autorregulação no recém-nascido.* ***Métodos:*** *Trata-se de uma pesquisa online conduzida pelo método Delphi, com a participação de um painel de especialistas para avaliação do consenso. Para a construção do conteúdo foram consideradas dez técnicas de ESM, parâmetros cardiorrespiratórios, estado comportamental, entre outras variáveis. O consenso foi avaliado através do cálculo da validade de conteúdo por meio da taxa de concordância. Para as questões descritivas referentes à adequação do instrumento, as tendências de respostas e as respostas dissonantes foram sistematizadas pelo método de Bardin.* ***Resultados:*** *Treze especialistas participaram do estudo. A construção do instrumento demandou duas rodadas entre as categorias dos procedimentos de ESM, com taxas de concordância de 53-69% na primeira rodada e de 83-100% na segunda. A versão final foi construída com 212 questões e contemplou todas as categorias de procedimentos de ESM (tátil, vestibular, olfatória/gustativa e visual).* ***Conclusão:*** *Uma lista de 221 questões distribuídas em quatro categorias de procedimentos de ESM foi considerada relevante para atender um instrumento de coleta de informações sobre os procedimentos de ESM. A relevância clínica deste instrumento reside em sua capacidade de padronizar e monitorar a aplicação de ESM, permitindo uma abordagem mais consistente e eficaz para promover melhor cuidado neonatal.*

Palavras-chave: *Método Delphi. Recém-nascido. Unidades de Terapia Intensiva Neonatal. Fisioterapia. Estimulação sensoriomotora.*

Introduction

The Ministry of Health's Ordinance 930, issued in 2012, established guidelines and objectives for organiz-ing comprehensive and humanized newborn (NB) care. This ordinance underscores the crucial role of physiotherapists as integral members of Neonatal Intensive Care Unit (NICU) teams.[1] In recent years, physiotherapists have increasingly concentrated on sensory motor organization strategies,[2] environmental enrichment,[3] and stress reduction in daily care[4] through various sensory motor stimulation (SMS) protocols.[5]

SMS procedures include a range of interventions developed to organize the neuropsychomotor and sensory systems of NBs, who may be at risk for developmental challenges in sensory, motor, and neurological domains.[5-7] While the routine for these procedures evolves over time and varies culturally across Brazilian regions, their implementation demands both technical expertise and scientific knowledge. Moreover, unified strategies are essential to achieve potential short-term and long-term developmental outcomes.[8] In 2021, the first Brazilian physiotherapy recommendations for SMS of NBs and infants in NICUs were established providing physiotherapy professionals with specific, evidence-based guidelines. [5]

Currently, there is a challenge in standardizing various SMS procedures and their outcomes in NBs. Developing strategies to systematically track this information could significantly inform neonatal care practices by providing a solid foundation for SMS implementation. Creating an instrument to identify the SMS techniques applied by physiotherapists in NICUs, along with the parameters used to monitor stress indicators or self-regulation in NBs will facilitate team standardization, ultimately enhancing the quality of NB care.

In this context, the development of an instrument based on consensus among a group of experts, considering diverse perspectives on a subject within the same field, can be facilitated by the Delphi method.[9-11] This approach has proven to be a valuable asset in the research design phase due to its specificity, increasing the effectiveness of the instruments.[9,10] Typically conducted online, the Delphi method offers several advantages, including structured information flow, systematic feedback, cost-effectiveness, interactive engagement, and participant anonymity.[12]

Considering the scarcity of data on SMS procedures conducted by physiotherapists in Brazilian NICUs and the potential future impact of a guiding instrument's results on professional practice and neonatal physiotherapy care quality, this study sought to create an instrument for gathering information about neonatal SMS procedures performed by Brazilian physiotherapists. This instrument also includes parameters for monitoring stress indicators and self-regulation in NBs.

Methods

This research received approval by the Human Research Ethics Committee of Universidade do Estado de Santa Catarina (CAAEE 15263219.0.0000.0118), was conducted online through multiple rounds using the Delphi method.

During the instrument development phase, neonatal intensive care physiotherapy experts were consulted (Figure 1).

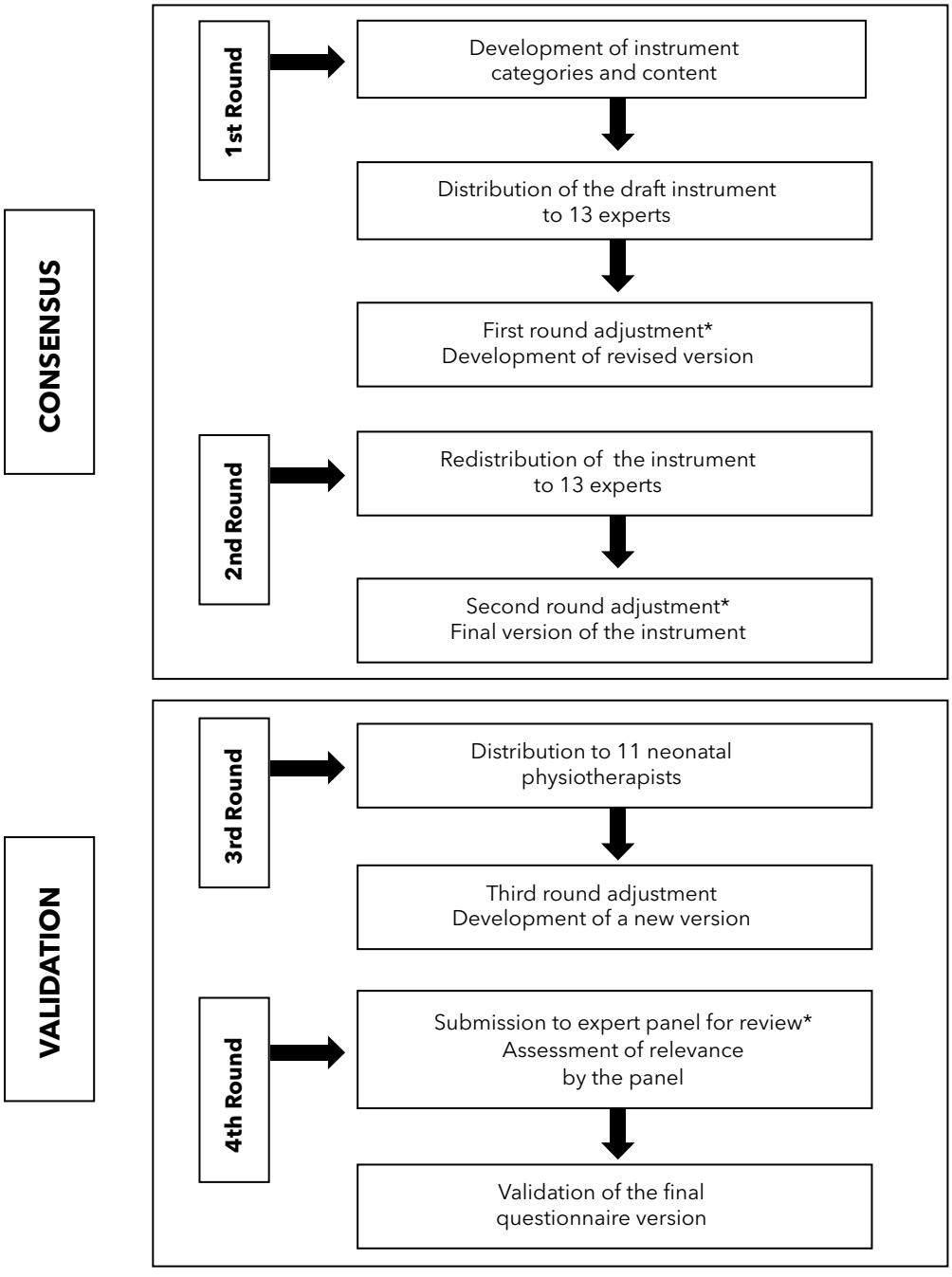

Figure 1 - Rounds of the Delphi method for developing the instrument.

Note: *Calculation of agreement rate.

Development of the instrument's content

The initial version of the instrument, including 228 questions with 221 of which were multiple-choice, was presented to the expert panel. The content for this first version was developed using the standard operating procedure (SOP) for neonatal SMS from Sofia Feldman Hospital (Hospital Sofia Feldman - HSF) in Belo Horizonte, Minas Gerais. This SOP was founded on scientific literature about SMS and the routine care practices in HSF's maternity and neonatal units, considering the high volume of NBs receiving care. HSF is recognized as one of the country's leading maternity hospitals, boasts the Baby-Friendly Hospital designation, and offers 41 intensive care beds alongside 45 intermediate care beds, including 30 conventional and 15 kangaroo care units.

Instrument consensus

To reach a consensus, two rounds of consultations were conducted with 13 expert physiotherapists specializing in NICU care from different regions of Brazil.[11] The experts were invited to participate in the study via email, and those who accepted received the instrument through Google Forms®.

Physiotherapists were instructed to assess the clarity and significance of the instrument's content in relation to clinical practice,[13] over a 15-day period. During each subsequent round, experts could contribute additional information and comment on any unaddressed content at the end of the instrument. The coordinator analyzed response patterns and divergent answers in all rounds, organizing them for further evaluation. The rounds concluded when a consensus of at least 70% was achieved for each category of SMS procedures, including tactile, vestibular, olfactory/gustatory, and visual stimulations.[8,14]

Data processing

Consensus was determined by calculating content validity using the agreement rate, applied through the formula: agreement % = (number of agreeing members/ total number of members) x 100. To evaluate the level of expert consensus, a four-point Likert scale was used, with items 1 (not at all clear) and 2 (somewhat unclear) considered as disagreement, while items 3 (clear) and 4 (very clear) were deemed agreement. For the descriptive items about the instrument's adequacy, responses were categorized as either adequate (agree) or inadequate (disagree).[15] Items scoring 1 or 2 were either revised or eliminated from the instrument. Response patterns and discrepancies were analyzed using Bardin's method.[16] For this analysis, data was organized into tables based on content similarity (Table 1).[16,17] Revised items were inserted into Microsoft Office Excel (Excel®, Natick-MA) and presented as absolute frequencies.

Results

Instrument development

All 13 physiotherapists initially invited to form the consensus panel agreed to participate. However, one withdrew during the second round, leaving 12 participants who completed both rounds and approved the final version of the instrument. This approved version includes 212 questions, categorized into four procedural categories: 105 tactile, 30 vestibular, 30 olfactory/gustatory, and 28 visual, along with 19 items on supplementary data (Appendix 1). The expert panel, composed entirely of women, included nine holding master's degrees. Ten of the experts practiced neonatal clinical work across four of Brazil's five geographical regions.

Instrument consensus

Table 1 includes the adjustments made to items reviewed through descriptive analysis using Bardin's method. During the information summary, three adjustments were made to address nomenclature discrepancies. The initial agreement rate was 69% in the first round, which improved to 83-100% across items in the second round (Table 2).

Discussion

The aim of this study was to develop an assessment instrument using the Delphi method to evaluate the practices of Brazilian physiotherapists in NICU SMS. The study involved two rounds of the Delphi method and three refinements to finalize the instrument, which was subsequently implemented. While some physiotherapy research has used this method,[18-20] to the best of our knowledge, this study is the first study in Brazil to detail the procedures applied by physiotherapists in NICUs.

Table 1 - Descriptive analysis of the reviewed items

Stimulation groups	Procedure	Summary of suggestion	Adjustments
Tactile	Soft touch	Address clinical condition	Item added
	Tactile and kinesthetic stimulation	Unify term	Unified term
Vestibular	Rock Gentle swing	Unify rock and gentle swing items	Item unified with gentle swing
Olfactory and gustatory	Cotton/gauze soaked in vanilla essence	Remove item Highlight multidisciplinary team	Item kept Team highlighted
Visual	Face to face with the physiotherapist	Add reactions related to the visual system	Including items related to the visual system
	Face to face with parents	Unify alert and active items	Unified alert and active items
	Black and white pattern cards	Unify face-to-face items	Unified face-to-face item
Multimodal	Combination of neonatal sensory motor stimulation procedures	Provide multi-sensor system response options and/or synchronous-active theory	Item kept open Avoiding memory bias
Instrument modification	_	Include ethical data Include descriptive items for the professional to report on topics not covered Define when to assess the newborn's reaction to the sensory motor stimulation procedure Remove early discharge item	Ethical data included Descriptive items included Newborn evaluation period during sensory motor stimulation application Removal of early discharge item

Table 2 - Expert physiotherapists' agreement rates per procedure in the first and second Delphi rounds

Stimulation groups	Procedure	1st Round (n = 13)	2nd Round (n = 12)
Tactile	Skin-to-skin contact or kangaroo position	9 (69)	11 (91)
	Soft touch	9 (69)	11 (91)
	Facilitated containment	8 (61)	11 (91)
	Tactile kinesthetic stimulation	9 (69)	11 (91)
	Hot tube or immersion bath	9 (69)	11 (91)
	Therapeutic massage	9 (69)	11 (91)
Vestibular	Hammock	9 (69)	11 (91)
	Rock	8 (61)	10 (83)
	Gentle swing	7 (53)	10 (83)
Olfactory and gustatory	Cotton/gauze in vanilla essence	8 (61)	12 (100)
	Glucose solution	9 (69)	11 (91)
Visual	Face to face with the physiotherapist	9 (69)	11 (91)
	Face to face with parents	9 (69)	11 (91)
	Black and white pattern cards	9 (69)	11 (91)

Note: Data presented in absolute frequency (relative frequency).

The Delphi method, originally developed in 1950,[21] was introduced to the scientific community in the 1980s and gained widespread, structured dissemination from the 2000s onward.[21,22] This method has emerged as a valuable tool in research development, owing to its specificity and ability to enhance the effectiveness of developed instruments.[9]

Research in physiotherapy using the Delphi method has produced instruments with diverse aims, including evaluating students' cardiorespiratory physiotherapy skills, quantifying client behavior in neonatal care practices, and assessing sleep promotion techniques in adult intensive care units.[18-20] Each study used an expert panel to gather opinions and established consensus through rigorous agreement analysis, supporting the methodology used in this study.

An essential aspect was the methodology outlined for reaching expert consensus. Given the lack of high-quality evidence to guide neonatal practices, efforts were made to develop clinical practice guidelines. The various rounds revealed that stakeholders have diverse priorities in neonatal care. Longo et al.´s study[23] appropriately incorporates parents of hospitalized NB into the expert panel. This inclusive approach is particularly significant when addressing infant and neonatal populations, as parents play a vital role in presenting desired and achieved outcomes. It exemplifies the biopsychosocial model highlighted by the International Classification of Functioning, Disability and Health, changing the focus of patient care away from a disease-centric approach and integrating environmental factors and, crucially, parental involvement throughout the care process, including this important aspect.[23]

Webbe et al.[24] gathered an assessment panel involving parents and healthcare professionals to develop a neonatal clinical practice guidance instrument. Despite differing interests among panel experts, the method enabled reaching consensus on key topics. While all mentioned studies examined outcomes related to physiotherapy care,[18-20,24] none specifically addressed neonatal SMS procedures or the various interventions aimed at optimizing neuropsychomotor development, guaranteeing NB stability and physiological regulation, and mitigating the effects of the NICU environment.[6,25,26]

An important Brazilian study compiled SMS recommendations for NBs and infants in ICUs. The research used a comprehensive literature review, incorporating 89 SMS articles and expert opinions from physiotherapists specialized in the field.[5] The authors classified SMS into two categories: unimodal stimulation (tactile, vestibular, auditory, olfactory, gustatory, and visual) and multimodal stimulation (tactile-kinesthetic, therapeutic massage, skin-to-skin contact, multisensory stimulation, and exercises/mobilization). This classification highlights the diversity of care practices and their efficacy in various aspects, such as weight gain, improved sucking reflexes and vital signs, as well as pain and stress management in NBs.[5]

In contrast to the initial Brazilian recommendation, this study opted to differentiate the techniques associated with neonatal SMS to identify the resources used by physiotherapists, irrespective of scientific evidence. The items chosen in the first round of the Delphi method for the instrument were derived from the SOP of a maternity hospital in southeastern Brazil, which participates in the Vermont Oxford Network database and serves as a reference for the Stork Network. Supporting this diversity of procedures intrinsic to care practices, the categories related to visual and olfactory/gustatory systems underwent the most significant changes in this study, ultimately achieving a 91% agreement rate after adjustments.

Using the instrument developed in this study, the aim is to monitor care practices related to neonatal SMS in NBs and infants.[5] Additionally, future research may benefit from administering this instrument to further explore the protocols for each category. While acknowledging this future progress, we recognize the instrument's length as a limitation. A document including 212 questions may require more time to complete; however, this comprehensive approach is essential to address all procedures in NICUs and capture several insights from the physiotherapist's perspective regarding applicability and effects on NBs.

Conclusion

A set of 221 questions, categorized into four procedure types, was deemed essential for developing an instrument to collect data on neonatal SMS practices among Brazilian physiotherapists. This clinical significance lies in its ability to standardize and monitor the implementation of neonatal SMS, facilitating a more uniform and efficient approach to improving neonatal care.

Acknowledgements

This work was carried out with the support and financial assistance of the Coordination for the Improvement of Higher Education Personnel (CAPES), a Brazilian Government entity focused on training human resources, and the National Council for Scientific and Technological Development (CNPq).

Authors' contributions

TN, SNSR, SAP, and DM conceived and designed the study, analyzed the data, and, in collaboration with LSS, TBM, and FC, interpreted the results. TN drafted the manuscript, which was reviewed and approved by all authors in its final form.

References

1. Brasil. Portaria nº 930, de 10 de maio de 2012. Define as diretrizes e objetivos para a organização da atenção integral e humanizada ao recém-nascido grave ou potencialmente grave e os critérios de classificação e habilitação de leitos de Unidade Neonatal noâmbito do Sistema Único de Saúde (SUS). Brasília: Diário Oficial da União; 2012. Link

2. Welch MG. Nurture in the neonatal intensive care unit. Acta Paediatr. 2016;105(7):730-1. DOI

3. Cheong JLY, Burnett AC, Treyvaud K, Spittle AJ. Early environment and long-term outcomes of preterm infants. J Neural Transm (Vienna). 2020;127(1):1-8. DOI

4. Spittle A, Treyvaud K. The role of early developmental intervention to influence neurobehavioral outcomes of children born preterm. Semin Perinatol. 2016;40(8):542-8. DOI

5. Johnston C, Stopiglia MS, Ribeiro SNS, Baez CSN, Pereira SA. First Brazilian recommendation on physiotherapy with sensory motor stimulation in newborns and infants in the intensive care unit. Rev Bras Ter Intensiva. 2021;33(1):12-30. DOI

6. Fucile S, Gisel EG. Sensorimotor interventions improve growth and motor function in preterm infants. Neonatal Netw. 2010;29(6):359-66. DOI

7. Jesus VR, Oliveira PMN, Azevedo VMGO. Effects of hammock positioning in behavioral status, vital signs, and pain in preterms: a case series study. Braz J Phys Ther. 2018;22(4):304-9. DOI

8. Khurana S, Kane AE, Brown SE, Tarver T, Dusing SC. Effect of neonatal therapy on the motor, cognitive, and behavioral development of infants born preterm: a systematic review. Dev Med Child Neurol. 2020;62(6):684-92. DOI

9. Niederberger M, Spranger J. Delphi technique in health sciences: a map. Front Public Health. 2020;8:457. DOI

10. Jorm AF. Using the Delphi expert consensus method in mental health research. Aust N Z J Psychiatry. 2015;49(10): 887-97. DOI

11. Banayan J, Blood A, Park YS, Shahul S, Scavone BM. A modified Delphi method to create a scoring system for assessing team performance during maternal cardiopulmonary arrest. Hypertens Pregnancy. 2015;34(3):314-31. DOI

12. Bacci SLLS, Johnston C, Hattori WT, Pereira JM, Azevedo VMGO. Mechanical ventilation weaning practices in neonatal and pediatric ICUS in Brazil: The weaning survey-Brazil. J Bras Pneumol. 2020;46(4):e2019005. DOI

13. Marques JBV, Freitas D. Método DELPHI: caracterização e potencialidades na pesquisa em educação. Pro-Posições. 2018;29(2):389-415. DOI

14. Taylor E. We agree, don't we? The Delphi method for health environments research. HERD. 2020;13(1):11-23. DOI

15. Alexandre NMC, Coluci MZO. Validade de conteúdo nos processos de construção e adaptação de instrumentos de medidas. Cienc Saude Coletiva. 2011;16(7):3061-8. DOI

16. Bardin L. Análise de conteúdo. São Paulo: Edições 70; 2011.

17. Fossa MIT. A cultura de devoção nas empresas familiares e visionárias – uma definição teórica e operacional [dissertation]. Porto Alegre: Universidade Federal do Rio Grande do Sul; 2003. Link

18. Roberts F, Cooper K. Development of a tool to assess core cardiorespiratory physiotherapy skills: a Delphi study. Physiother Theory Pract. 2022;38(9):1245-53. DOI

19. Ramos FJS, Taniguchi LU, Azevedo LCP. Practices for promoting sleep in intensive care units in Brazil: A national survey. Rev Bras Ter Intensiva. 2020;32(2):268-76. DOI

20. Elvén M, Hochwälder J, Dean E, Söderlund A. Development and initial evaluation of an instrument to assess physiotherapists' clinical reasoning focused on clients' behavior change. Physiother Theory Pract. 2018;34(5):367-83. DOI

21. Boulkedid R, Abdoul H, Loustau M, Sibony O, Alberti C. Using and reporting the Delphi method for selecting healthcare quality indicators: A systematic review. PLoS One. 2011;6(6):e20476. DOI

22. von der Gracht HA. Consensus measurement in Delphi studies. Review and implications for future quality assurance. Technol Forecast Soc Change. 2012;79(8):1525-36. DOI

23. Longo E, Galvão ERVP, Ferreira HNC, Lindquist ARR, Shikako-Thomas K. Knowledge translation in pediatric rehabilitation: expanding access to scientific knowledge. Braz J Phys Ther. 2017;21(6):389-90. DOI

24. Webbe JWH, Duffy JMN, Afonso E, Al-Muzaffar I, Brunton G, Greenough A, et al. Core outcomes in neonatology: development of a core outcome set for neonatal research. Arch Dis Child Fetal Neonatal Ed. 2019;105(4):425-31. DOI

25. Glass HC, Costarino AT, Stayer SA, Brett CM, Cladis F, Davis PJ. Outcomes for extremely premature infants. Anesth Analg. 2015;120(6):1337-51. DOI

26. Maciel HIA, Costa MF, Costa ACL, Marcatto JO, Manzo BF, Bueno M. Pharmacological and nonpharmacological measures of pain management and treatment among neonates. Rev Bras Ter Intensiva. 2019;31(1):21-6. DOI

Appendix 1 - Final Instrument Developed Using the Delphi Method

Procedures for Sensory Motor Stimulation Used by Physiotherapists in Neonatal Intensive Care Units (NICUs)

Part I

Enter your professional registration number (CREFITO): _____

What is your highest level of educational attainment?
( ) Undergraduate degree ( ) Master's degree ( ) Other. Please specify: _____
( ) Specialization ( ) Doctorate

Specialization
( ) Neonatal Intensive Care Unit
( ) Intermediate Care Unit
( ) Pediatric Intensive Care Unit – End of questionnaire
( ) Neonatal and Pediatric Intensive Care Unit

How long have you been working in Neonatal Physical Therapy?
( ) Less than 1 year ( ) 2 to 3 years ( ) 5 to 10 years
( ) 1 to 2 years ( ) 3 to 5 yearss ( ) More than 10 years

Which region is the hospital where you work?
( ) North ( ) Southeast ( ) Midwest
( ) South ( ) Northeast

What type of hospital do you work for?
( ) Public ( ) Private ( ) Non-profit

Is the hospital a Baby-Friendly Hospital (*Hospital Amigo da Criança*)?
( ) Yes ( ) No

Part II

Below are the sensory motor stimulation procedures are described below.
Please indicate which procedures are used in your service.

Tactile stimulation procedures:

A) PROCEDURE: *SKIN-TO-SKIN CONTACT OR KANGAROO POSITION*

1. Do you use *Skin-to-Skin Contact* or the *Kangaroo Position*?
( ) Yes - Continue answering
( ) No - Automatically move on to the next procedure

2. Are there any age criteria for using this procedure?
( ) Yes ( ) No ( ) I don´t know

2.1 If yes, what are the criteria?
Descriptive item: _____

3. How often do you use this procedure? (Specify the frequency, such as daily, weekly, or monthly, and the number of times per day or week)

	1x	2x	3x	4x	5x	6x	7x
Daily							
Weekly							
Monthly							

4. Have you received training or certification for using the *Skin-to-Skin Contact* or *Kangaroo Position*?
( ) No ( ) Yes. If yes, please specify: _____

4.1. If yes, what type of training? _____

5. Based on the following aspects, did the *Skin-to-Skin Contact* or *Kangaroo Position* induce any changes in the newborn during its application:

5.1. Cardiorespiratory aspects:
Heart rate (HR): ( ) Increased ( ) Remained stable ( ) Decreased
Respiratory rate (RR): ( ) Increased ( ) Remained stable ( ) Decreased
Oxygen saturation (SpO_2): ( ) Increased ( ) Remained stable ( ) Decreased

5.2. 5.2. In the Behavioral State Model (Brazelton, 1973):
Deep sleep: ( ) Present ( ) Not present
Active sleep: ( ) Present ( ) Not present
Drowsiness: ( ) Present ( ) Not present
Quiet alert: ( ) Present ( ) Not present
Active awakening: ( ) Present ( ) Not present
Intense crying: ( ) Present ( ) Not present

Did the newborn exhibit any other symptoms not listed above? If yes, please specify: _____

5.3 In your opinion, did the changes observed in the newborn after applying the ***Skin-to-Skin Contact*** or ***Kangaroo Position*** contribute to an improvement in their clinical condition? ( ) Yes ( ) No

B) PROCEDURE: *GENTLE TOUCH*

1. Do you use *Gentle Touch*?
( ) Yes - Continue answering
( ) No - Automatically move on to the next procedure

2. Are there any age criteria for using this procedure?
( ) Yes ( ) No ( ) I don´t know

2.1 If yes, what are the criteria?
Descriptive item: _____

3. How often do you use this procedure? (Specify the frequency, such as daily, weekly, or monthly, and the number of times per day or week)

	1x	2x	3x	4x	5x	6x	7x
Daily							
Weekly							
Monthly							

4. Have you received or certification for using the *Gentle Touch* procedure?
( ) No ( ) Yes. If yes, please specify: _____

5. Based on the following aspects, did the *Gentle Touch procedure induce any changes in the newborn during its application:*

5.1. Cardiorespiratory aspects:
HR: ( ) Increased ( ) Remained stable ( ) Decreased
RR: ( ) Increased ( ) Remained stable ( ) Decreased
SpO_2: ( ) Increased ( ) Remained stable ( ) Decreased

5.2 Behavioral State Model (Brazelton, 1973):
Deep sleep: ( ) Present ( ) Not present
Active sleep: ( ) Present ( ) Not present
Drowsiness: ( ) Present ( ) Not present
Quiet alert: ( ) Present ( ) Not present
Active awakening: ( ) Present ( ) Not present
Intense crying: ( ) Present ( ) Not present

Did the newborn exhibit any other symptom. If yes, please specify: _____

5.3 In your opinion, did the changes induced in the newborn by the ***Gentle Touch*** procedure contribute to an improvement in their clinical condition? ( ) Yes ( ) No

C) PROCEDURE: *FACILITATED CONTAINMENT*

1. Do you use *Facilitated Containment*?
( ) Yes - Continue answering
( ) No - Automatically move on to the next procedure

2. Are there any age criteria for using this procedure?
( ) Yes ( ) No ( ) I don´t know

2.1 If yes, what are the criteria?
Descriptive item: _____

3. How often is this procedure used? (Specify the frequency, such as daily, weekly, or monthly, and the number of times per day or week)

	1x	2x	3x	4x	5x	6x	7x
Daily							
Weekly							
Monthly							

4. Have you received training or certification on how to use the *Facilitated Containment* procedure?
( ) No ( ) Yes. If yes, please specify: _____

5. Based on the following aspects, did the *Facilitated Containment* procedure induce any changes in the newborn during its application:

5.1. Cardiorespiratory aspects:
HR: ( ) Increased ( ) Remained stable ( ) Decreased
RR: ( ) Increased ( ) Remained stable ( ) Decreased
SpO_2: ( ) Increased ( ) Remained stable ( ) Decreased

5.2. Behavioral State Model (Brazelton, 1973):
Deep sleep: ( ) Present ( ) Not present
Active sleep: ( ) Present ( ) Not present
Drowsiness: ( ) Present ( ) Not present
Quiet alert: ( ) Present ( ) Not present
Active awakening: ( ) Present ( ) Not present
Intense crying: ( ) Present ( ) Not present

Did the newborn exhibit any other symptoms? If yes, please specify: _____

5.3 In your opinion, did the changes induced in the newborn by applying the ***Facilitated Containment*** procedure contribute to an improvement in their clinical condition? ( ) Yes ( ) No

D) PROCEDURE: *TACTILE KINESTHETIC STIMULATION*

1. Do you use *Tactile Kinesthetic Stimulation*?
( ) Yes - Continue answering
( ) No - Automatically move on to the next procedure

2. Are there any age criteria for using this procedure?
( ) Yes ( ) No ( ) I don´t know

2.1 If yes, what are the criteria?
Descriptive item: _____

3. How often is this procedure used? (Specify the frequency, such as daily, weekly, or monthly, and the number of times per day or week)

	1x	2x	3x	4x	5x	6x	7x
Daily							
Weekly							
Monthly							

4. Have you received training or certification for using the *Tactile Kinesthetic Stimulation* procedure?
( ) No ( ) Yes. If yes, please specify: _____

5. Based on the following aspects, did the *Tactile Kinesthetic Stimulation* procedure induce any changes in the newborn during its application:

5.1. Cardiorespiratory aspects:
HR: ( ) Increased ( ) Remained stable ( ) Decreased
RR: ( ) Increased ( ) Remained stable ( ) Decreased
SpO_2: ( ) Increased ( ) Remained stable ( ) Decreased

5.2. Behavioral State Model (Brazelton, 1973):
Deep sleep: ( ) Present ( ) Not present
Active sleep: ( ) Present ( ) Not present
Drowsiness: ( ) Present ( ) Not present
Quiet alert: ( ) Present ( ) Not present
Active awakening: ( ) Present ( ) Not present
Intense crying: ( ) Present ( ) Not present

Did the newborn exhibit any other symptom? If yes, please specify: _____

5.3 In your opinion, did the changes induced in the newborn by the ***Tactile Kinesthetic Stimulation*** procedure contribute to an improvement in their clinical condition? ( ) Yes ( ) No

E) PROCEDURE: *HOT TUBE OR IMMERSION BATH*

1. Do you use *Hot Tube or Immersion Bath*?
( ) Yes - Continue answering
( ) No - Automatically move on to the next procedure

2. Are there any age criteria for using this procedure?
( ) Yes ( ) No ( ) I don´t know

2.1 If yes, what are the criteria?
Descriptive item: _____

3. How often is this procedure used? (Specify the frequency, such as daily, weekly, or monthly, and the number of times per day or week)

	1x	2x	3x	4x	5x	6x	7x
Daily							
Weekly							
Monthly							

4. Have you received training or certification for using the *Hot Tube or Immersion Bath* procedure?
( ) No ( ) Yes. If yes, please specify: _____

5) Based on the following aspects, did the *Hot Tube or Immersion Bath* procedure induce any changes in the newborn during its application:

5.1. Cardiorespiratory aspects:
HR: ( ) Increased ( ) Remained stable ( ) Decreased
RR: ( ) Increased ( ) Remained stable ( ) Decreased
SpO_2: ( ) Increased ( ) Remained stable ( ) Decreased

5.2. Behavioral State Model (Brazelton, 1973):
Deep sleep: ( ) Present ( ) Not present
Active sleep: ( ) Present ( ) Not present
Drowsiness: ( ) Present ( ) Not present
Quiet alert: ( ) Present ( ) Not present
Active awakening: ( ) Present ( ) Not present
Intense crying: ( ) Present ( ) Not present

Did the newborn exhibit any other symptom? If yes, please specify: _____

5.3 In your opinion, did the changes observed in the newborn after the ***Hot Tube or Immersion Bath*** procedure contribute to an improvement in their clinical condition? ( ) Yes ( ) No

F) PROCEDURE: *THERAPEUTIC MASSAGE*

1. Do you use *Therapeutic Massage*?
( ) Yes - Continue answering
( ) No - Automatically move on to the next procedure

2. Are there any age criteria for using this procedure?
( ) Yes ( ) No ( ) I don´t know

2.1 If yes, what are the criteria?
Descriptive item: _____

3. How often is this procedure used? (Specify the frequency, such as daily, weekly, or monthly, and the number of times per day or week)

	1x	2x	3x	4x	5x	6x	7x
Daily							
Weekly							
Monthly							

4. Have you received training or certification for using *Therapeutic Massage* procedure?
( ) No ( ) Yes. If yes, please specify: _____

5. Based on the following aspects, did the *Therapeutic Massage* procedure induce any changes in the newborn during its application:

5.1. Cardiorespiratory aspects:
HR: ( ) Increased ( ) Remained stable ( ) Decreased
RR: ( ) Increased ( ) Remained stable ( ) Decreased
SpO_2: ( ) Increased ( ) Remained stable ( ) Decreased

5.2. Behavioral State Model (Brazelton, 1973):
Deep sleep: ( ) Present ( ) Not present
Active sleep: ( ) Present ( ) Not present
Drowsiness: ( ) Present ( ) Not present
Quiet alert: ( ) Present ( ) Not present
Active awakening: ( ) Present ( ) Not present
Intense crying: ( ) Present ( ) Not present

Did the newborn exhibit any other symptom? If yes, please specify: _____

5.3 In your opinion, did the changes induced in the newborn by the ***Therapeutic Massage*** procedure contribute to an improvement in their clinical condition? ( ) Yes ( ) No

G) VESTIBULAR STIMULATION TECHNIQUES:

• Procedure: *Hammock*

1. Do you use *Hammock*?
( ) Yes - Continue answering
( ) No - Automatically move on to the next procedure

2. Are there any age criteria for using this procedure?
( ) Yes ( ) No ( ) I don´t know

2.1 If yes, what are the criteria?
Descriptive item: _____

3. How often is this procedure used? (Specify the frequency, such as daily, weekly, or monthly, and the number of times per day or week)

	1x	2x	3x	4x	5x	6x	7x
Daily							
Weekly							
Monthly							

4. Have you received training or certification for using the *Hammock* procedure?
( ) No ( ) Yes. If yes, please specify: _____

5. Based on the following aspects, did the *Hammock* procedure induce any changes in the newborn during its application:

5.1. Cardiorespiratory aspects:
HR: ( ) Increased ( ) Remained stable ( ) Decreased
RR: ( ) Increased ( ) Remained stable ( ) Decreased
SpO_2: ( ) Increased ( ) Remained stable ( ) Decreased

5.2. Behavioral State Model (Brazelton, 1973):
Deep sleep: ( ) Present ( ) Not present
Active sleep: ( ) Present ( ) Not present
Drowsiness: ( ) Present ( ) Not present
Quiet alert: ( ) Present ( ) Not present
Active awakening: ( ) Present ( ) Not present
Intense crying: ( ) Present ( ) Not present

Did the newborn exhibit any other symptom? If yes, please specify: _____

5.3 In your opinion, did the changes observed in the newborn after applying the ***Hammock*** procedure contribute to an improvement in their clinical condition? ( ) Yes ( ) No

• Procedure: *Rocking* or *Gentle Swaying*

1. Do you use *Rocking or Gentle Swaying*?
( ) Yes - Continue answering
( ) No - Automatically move on to the next procedure

2. Are there any age criteria for using this procedure?
( ) Yes ( ) No ( ) I don´t know

2.1 If yes, what are the criteria?
Descriptive item: _____

3. How often is this procedure used? (Specify the frequency, such as daily, weekly, or monthly, and the number of times per day or week)

	1x	2x	3x	4x	5x	6x	7x
Daily							
Weekly							
Monthly							

4. Have you received training or certification for using the *Rocking or Gentle Swayin*g procedures?
( ) No ( ) Yes. If yes, please specify: _____

5. Based on the following aspects, did the *Rocking or Gentle Swaying* technique induce any changes in the newborn during its application:

5.1. Cardiorespiratory aspects:
HR: ( ) Increased ( ) Remained stable ( ) Decreased
RR: ( ) Increased ( ) Remained stable ( ) Decreased
SpO_2: ( ) Increased ( ) Remained stable ( ) Decreased

5.2. Behavioral State Model (Brazelton, 1973):
Deep sleep: ( ) Present ( ) Not present
Active sleep: ( ) Present ( ) Not present
Drowsiness: ( ) Present ( ) Not present
Quiet alert: ( ) Present ( ) Not present
Active awakening: ( ) Present ( ) Not present
Intense crying: ( ) Present ( ) Not present

Did the newborn exhibit any other symptom? If yes, please specify _____

5.3 In your opinion, did the changes observed in the newborn after applying the ***Rocking or Gentle Swinging*** procedure contribute to an improvement in their clinical condition? ( ) Yes ( ) No

H) PROTOCOLS FOR OLFACTORY AND GUSTATORY STIMULATION:

• Procedure: *Breastfeeding*

1. Do you encourage *Breastfeeding*?
( ) Yes - Continue answering
( ) No - Question forwarded - Who offers breastfeeding guidance? - Automatically proceeds to the next step

2. Are there any age criteria for using this procedure?
( ) Yes ( ) No ( ) I don´t know

2.1 If yes, what are the criteria?
Descriptive item: _____

3. How often is this procedure used? (Specify the frequency, such as daily, weekly, or monthly, and the number of times per day or week)

	1x	2x	3x	4x	5x	6x	7x
Daily							
Weekly							
Monthly							

4. Have you received training or certification on how to follow the *Breastfeeding* procedure?
( ) No ( ) Yes. If yes, please specify: _____

5. Which of the following items do you recommend for *Breastfeeding*?
( ) Positioning
( ) Correct latch
( ) Breast care

( ) Procedures for milk extraction
( ) Other guidance. Please, specify: _____

• Procedure: *Cotton/Gauze Soaked in Vanilla Essence*

1. Do you use *Cotton/Gauze Soaked in Vanilla Essence*?
( ) Yes - continue answering
( ) No - Automatically move on to the next procedure

2. Are there any age criteria for using this procedure?
( ) Yes ( ) No ( ) I don´t know

2.1 If yes, what are the criteria?
Descriptive item: _____

3. How often do you use this procedure? (Specify the frequency, such as daily, weekly or monthly, and how many times a day or week)

	1x	2x	3x	4x	5x	6x	7x
Daily							
Weekly							
Monthly							

4. Have you received training or certification for using *Cotton/Gauze Soaked in Vanilla Essence*?
( ) No ( ) Yes. If yes, please specify: _____

5. Based on the following aspects, did th *Cotton/Gauze Soaked in Vanilla Essence* procedure induce any changes in the newborn:

5.1. Cardiorespiratory aspects:
HR: ( ) Increased ( ) Remained stable ( ) Decreased
RR: ( ) Increased ( ) Remained stable ( ) Decreased
SpO_2: ( ) Increased ( ) Remained stable ( ) Decreased

5.2. Behavioral State Model (Brazelton, 1973):
Deep sleep: ( ) Present ( ) Not present
Active sleep: ( ) Present ( ) Not present
Drowsiness: ( ) Present ( ) Not present
Quiet alert: ( ) Present ( ) Not present
Active awakening: ( ) Present ( ) Not present
Intense crying: ( ) Present ( ) Not present

Did the newborn exhibit any other symptom? If yes, please specify _____

5.3 In your opinion, did the changes observed in the newborn after applying ***Cotton/Gauze Soaked in Vanilla Essence*** procedure contribute to an improvement in their clinical condition? ( ) Yes ( ) No

I) PROCEDURE: *GLUCOSE SOLUTION*

1. Do you use *Glucose Solution*?
( ) Yes - Continue answering
( ) No - Automatically move on to the next procedure

2.) Are there any age criteria for using this procedure?
( ) Yes ( ) No ( ) I don´t know

2.1 If yes, what are the criteria?
Descriptive item: _____

3. How often is this procedure used? (Specify the frequency, such as daily, weekly, or monthly, and the number of times per day or week

	1x	2x	3x	4x	5x	6x	7x
Daily							
Weekly							
Monthly							

4. Have you received training or certification for using the *Glucose Solution* procedure?
( ) No ( ) Yes. If yes, please specify: _____

5. Based on the following aspects, did the application of *Glucose Solution* induce any changes in the newborn:

5.1. Cardiorespiratory aspects:
HR: ( ) Increased ( ) Remained stable ( ) Decreased
RR: ( ) Increased ( ) Remained stable ( ) Decreased
SpO_2: ( ) Increased ( ) Remained stable ( ) Decreased

5.2. Behavioral State Model (Brazelton, 1973):
Deep sleep: ( ) Present ( ) Not present
Active sleep: ( ) Present ( ) Not present
Drowsiness: ( ) Present ( ) Not present
Quiet alert: ( ) Present ( ) Not present
Active awakening: ( ) Present ( ) Not present
Intense crying: ( ) Present ( ) Not present

Did the newborn exhibit any other symptom? If yes, please specify _____

5.3 In your opinion, did the changes induced in the newborn by applying the ***Glucose Solution*** procedure contribute to an improvement in their clinical condition? ( ) Yes ( ) No

J) VISUAL STIMULATION PROCEDURES:

• Procedure: *Face to face*

1. Do you use *Face to Face*?
( ) Yes - Continue answering
( ) No - automatically move on to the next procedure

2. Are there any age criteria for using this procedure?
( ) Yes ( ) No ( ) I don´t know

2.1 If yes, what are the criteria?
Descriptive item: _____

3. How often is this procedure used? (Specify the frequency, such as daily, weekly, or monthly, and the number of times per day or week)

	1x	2x	3x	4x	5x	6x	7x
Daily							
Weekly							
Monthly							

4. Have you received training or certification on how to use the *Face to Face* procedure?
( ) No ( ) Yes. If yes, please specify: _____

5. Based on the aspects listed below, did the *Face to Face* procedure induce any changes in the newborn during its application:

5.1 This procedure helped the newborn to:
( ) Maintain visual focus
( ) Maintain visual tracking of the target object
( ) Display Focus
( ) Show Interest in Novelty or change
( ) Perform Movements
( ) Remain alert/calm
( ) Maintain attention

5.2. Behavioral State Model (Brazelton, 1973):
Deep sleep: ( ) Present ( ) Not present
Active sleep: ( ) Present ( ) Not present
Drowsiness: ( ) Present ( ) Not present
Quiet alert: ( ) Present ( ) Not present
Active awakening: ( ) Present ( ) Not present
Intense crying: ( ) Present ( ) Not present

Did the newborn exhibit any other symptom? If yes, please specify: _____

5.3 In your opinion, did the changes induced in the newborn by the application of the ***Face to Face*** procedure contribute to the improvement of their clinical condition? ( ) Yes ( ) No

B) Procedure: *Black and White Pattern Cards*

1. Do you use *Black and White Pattern Cards*?
( ) Yes - Continue answering
( ) No - Automatically move on to the next procedure

2. Are there any age criteria for using this procedure?
( ) Yes ( ) No ( ) I don´t know

2.1 If yes, what are the criteria?
Descriptive item: _____

3. How often is this procedure used? (Specify the frequency, such as daily, weekly, or monthly, and the number of times per day or week)

	1x	2x	3x	4x	5x	6x	7x
Daily							
Weekly							
Monthly							

4. Have you received training or certification on how to use of the *Black and White Pattern Cards* procedure?
( ) No ( ) Yes. If yes, please specify: _____

5. Based on the aspects listed below, did the *Black and White Pattern Cards* procedure induce any changes in the newborn during its application:

5.1 This procedure helped the newborn to:
( ) Maintain visual focus
( ) Maintain visual tracking of the target object
( ) Display Focus
( ) Show Interest in Novelty or change
( ) Perform Movements
( ) Remain alert/calm
( ) Maintain attention

5.2. Behavioral State Model (Brazelton, 1973):
Deep sleep: ( ) Present ( ) Not present
Active sleep: ( ) Present ( ) Not present
Drowsiness: ( ) Present ( ) Not present
Quiet alert: ( ) Present ( ) Not present
Active awakening: ( ) Present ( ) Not present
Intense crying: ( ) Present ( ) Not present

Did the newborn exhibit any other symptom? If yes, please specify: _____

5.3 In your opinion, did the changes observed in the newborn after applying the ***Black and White Pattern Cards*** procedure contribute to an improvement in their clinical condition? ( ) Yes ( ) No

Is multimodal stimulation performed as part of your service?
( ) Yes – Continue with the following questions
( ) No – Poceed to the next question

What combination of multimodal stimulation do you use?
Descriptive item _____

What effects are observed in the newborn?
Descriptive item _____

OTHER PROCEDURES

Do you use any other procedure not described above?
( ) Yes ( ) No

If yes, please specify and describe the procedure(s): _____