







REVIEW ARTICLE

Review of indicators of the Nursing Outcomes related to breastfeeding establishment

Revisão dos indicadores para os Resultados de Enfermagem relacionados ao estabelecimento da amamentação

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ABSTRACT

The objective of this study was to identify indicators of Nursing Outcomes related to “Breastfeeding Establishment” in the literature. This was an integrative literature review that included studies from LILACS, PUBMED, CINAHL, SCOPUS, Web of Science, BDENF and EMBASE databases, written in Portuguese, English and Spanish, and published from 2013 to 2017. The 43 studies that were identified address 17 of the 18 “Breastfeeding Establishment: Maternal” indicators, and 12 of the 13 “Breastfeeding Establishment: Infant” indicators. Four indicators could be included, according to the data analysis. Most of the indicators proposed by the Nursing Outcomes Classification presented support in the literature, although some of them need to be adjusted for more objective description of the aspects evaluated. Indicators can continuously guide breastfeeding assessment; they can also guide the assessment on intervention effectiveness and support the learning process of students and nurses.

Descriptors: Breast Feeding; Outcome Assessment; Nursing Process; Nursing.

RESUMO

O objetivo foi identificar na literatura os indicadores dos Resultados de Enfermagem relacionados ao “Estabelecimento da amamentação”. Revisão Integrativa da literatura, que abrangeu estudos das bases de dados LILACS, PUBMED, CINAHL, SCOPUS, Web of Science, BDENF e EMBASE, em Português, Inglês e Espanhol, publicados de 2013 a 2017. Identificados 43 estudos, que contemplaram 17 dos 18 indicadores do “Estabelecimento da amamentação: mãe” e 12 dos 13 indicadores do “Estabelecimento da amamentação: lactente”. Quatro indicadores poderiam ser incluídos, segundo a análise dos dados. A maioria dos indicadores propostos pela Classificação dos Resultados de Enfermagem apresentou suporte na literatura, embora alguns demandem ajustes para descrição mais objetiva dos aspectos avaliados. Indicadores podem orientar a avaliação da amamentação de forma contínua, bem como da efetividade das intervenções, além de tornarem o registro padronizado e poderem auxiliar o processo educativo de estudantes e enfermeiros.

Descritores: Aleitamento Materno; Avaliação de Resultados; Processo de Enfermagem; Enfermagem.

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INTRODUCTION

Breastfeeding has many benefits for babies and their mothers. Breast milk contributes to the child's neurocognitive development, protects against infectious processes and allergies, prevents chronic non-communicable diseases and favors the bond between mother and child. Women who exclusively breastfeed have less uterine bleeding in the postpartum period, less risk of obesity and other diseases such as breast cancer, ovarian cancer and osteoporosis⁽¹⁻³⁾.

Despite its many benefits, the prevalence of Exclusive Breastfeeding (EBF) of children aged zero to six months does not yet meet the recommendations of the World Health Organization (WHO)⁽⁴⁾. The establishment of breastfeeding in the first days of a child's life is a major challenge and one of the many causes of early weaning. Breastfeeding is not a purely instinctive act, so mothers need support to undergo this process^(5,6). Thus, there is a need for tools and strategies to assist health professionals in the evaluation of women and infants during this process. The Nursing Outcomes Classification (NOC) can be one of them.

The NOC may be used to assess the establishment of breastfeeding, from the perspectives of both mother and child, as it allows measuring the "state, behavior or perception of the individual, family or community over a continuum in response to a nursing intervention"⁽⁷⁾. This Nursing Classification is composed of Nursing Outcomes (NO) which, in turn, encompass a number or indicators. These indicators are used to determine the status of the individual, family, group or community in relation to the outcome to be measure. Thus, the outcomes of the NOC and its respective indicators can assist health professionals to assess breastfeeding establishment in mothers and babies, which leads to interventions that make this experience positive and reduce the chances of early weaning.

The present study focuses on two NO related to breastfeeding establishment, pursuant to the fifth edition of 2016. The first is "Breastfeeding Establishment: Maternal", defined as "maternal establishment of proper attachment of an infant to and sucking from the breast for nourishment during the first 3 weeks of breastfeeding", composed of 18 indicators⁽⁷⁾. The second is "Breastfeeding Establishment: Infant", which is defined as the "infant attachment to and sucking from the mother's breast for nourishment during the first 3 weeks of breastfeeding" and contains 13 indicators⁽⁷⁾. These NO remain unchanged in the sixth version, available in English and not yet published in Portuguese.

In view of the understanding that breastfeeding is a relevant strategy to promote the reduction of infant mortality and that the NOC is a valid instrument for nursing care assessment, this study sought to identify in the literature the indicators of Nursing Outcomes related to breastfeeding establishment, focusing on mother and baby.

METHOD

This is an Integrative Review (IR) carried out with the methodological approach proposed by Whittemore and Knafl⁽⁸⁾, following the steps: identification of the problem or theme (elaboration of the guiding question, establishment of descriptors and criteria for inclusion/exclusion of articles); sampling (selection of articles); categorization of studies; definition of the information to be extracted from the reviewed papers; analysis and discussion about the technologies used/developed; synthesis of the knowledge evidenced in the analyzed articles. The guiding question was: "What are the signs and characteristics of breastfeeding establishment, when considering babies and/or mothers?".

The initial database search was carried out from May to July 2017, complemented by additional searches between August and September 2017. Queries were applied on the databases: United States National Library of Medicine (PUBMED); Latin American and Caribbean Literature in Health Sciences (LILACS); Cumulative Index to Nursing and Allied Health Literature (CINAHL); SCOPUS; Web of Science; Brazilian Nursing Database (BDENF) and Excerpta Medica Database (EMBASE). The terms used in the searches, extracted from Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH), were: "breastfeeding", "weaning", "baby", "newborn", "mother", "establishing", "success", "failure", "obstacle" and "challenge", as well as their respective versions in Portuguese and Spanish. These terms were first researched independently and then in combination, with the help of a University of Iowa librarian (Iowa City, United States), who is a specialist in health sciences literature. Synonymous terms, suggested by EMBASE, were also searched.

The inclusion criteria were: articles, theses and dissertations on breastfeeding establishment for babies and mothers; articles on challenges and failures in breastfeeding establishment; articles written in Portuguese, English or Spanish and published from 2013 to 2017. The time period was limited to the last five years in order to contemplate the most updated references and new protocols regarding breastfeeding. Letters, editorials, case studies, pilot studies and systematic literature reviews were excluded. Systematic reviews were also excluded, as it is necessary to abstract concepts that identify the NOC indicators. The selection of articles followed Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) recommendations⁽⁹⁾ (Figure 1).

Two researchers, working independently, evaluated titles and abstracts of the articles according to the inclusion criteria. In case of disagreement about the inclusion of articles, a third researcher would be called upon to make the decision. Next, the data from the included studies were extracted and recorded in a form prepared by the authors, containing: identification, objectives, methodological data (type of study, sample characteristics), items referring to

the NO indicators related to breastfeeding establishment, conclusions and limitations of the research. The level of evidence of the studies was determined according to Melnyk and Fineout-Overholt^(10,11), the levels being: I – systematic review or meta-analysis of randomized controlled clinical trials or derived from clinical guidelines based on systematic reviews of randomized clinical controlled trials; II – at least one well-designed randomized controlled clinical trial; III – well-designed clinical trials without randomization; IV – well-designed cohort and case-control studies; V – descriptive and qualitative; VI – a single descriptive or qualitative study; VII – opinion of authorities and/or report of expert committees obtained. Two researchers determined the level of evidence of the studies after reading.

Following the survey of the content of the articles that were related to the NO indicators in question, a detailed reading of each indicator was carried out in order to identify correspondence with the data in the selected literature. Since the objective of the study was not configured, a simple content analysis was carried out, without addressing the methodological design.

RESULTS

The final sample included 43 studies, distributed in 40 scientific articles, two theses and a dissertation.

Most studies were written in English (n=37), followed by those written in Portuguese (n=5) and Spanish (n=1). Regarding the databases: 2 articles were indexed in BDEnf, 2 in LILACS, 3 in PUBMED, 8 in Web of Science, 13 in SCOPUS and 15 in CINAHL.

As for the year of publication, 7 were published in 2013, 9 in 2014, 11 in 2015, 10 in 2016 and 6 in 2017. The journals were from different areas of health science: 1 in psychology, 9 in nursing, 10 in medicine and 19 in interdisciplinary journals.

Considering the methodological design, 3 studies were cohort, 3 transversal, 4 longitudinal and 33 qualitative. Regarding the methodological approaches of these qualitative studies, 12 used Thematic Content Analysis; 2 used Ethnographic Analysis; 1, Phenomenology; 2 used Focus Groups; 1 used Constant Comparative Analysis; 1, Grounded Theory and 14 did not report the type of analysis applied. The strength of evidence in the studies was classified as level IV for cross-sectional and cohort studies, while qualitative studies scored as level VI⁽¹¹⁾.

As for the country where the studies were developed, seven were carried out in the United States; six in Brazil; six in England; two in Switzerland; two in Iran; two in Denmark and two in Austria. In addition, one study was identified for each of the following countries: Ireland, Jordan, Kenya, Zimbabwe, American Samoa, Singapore, France, Spain,

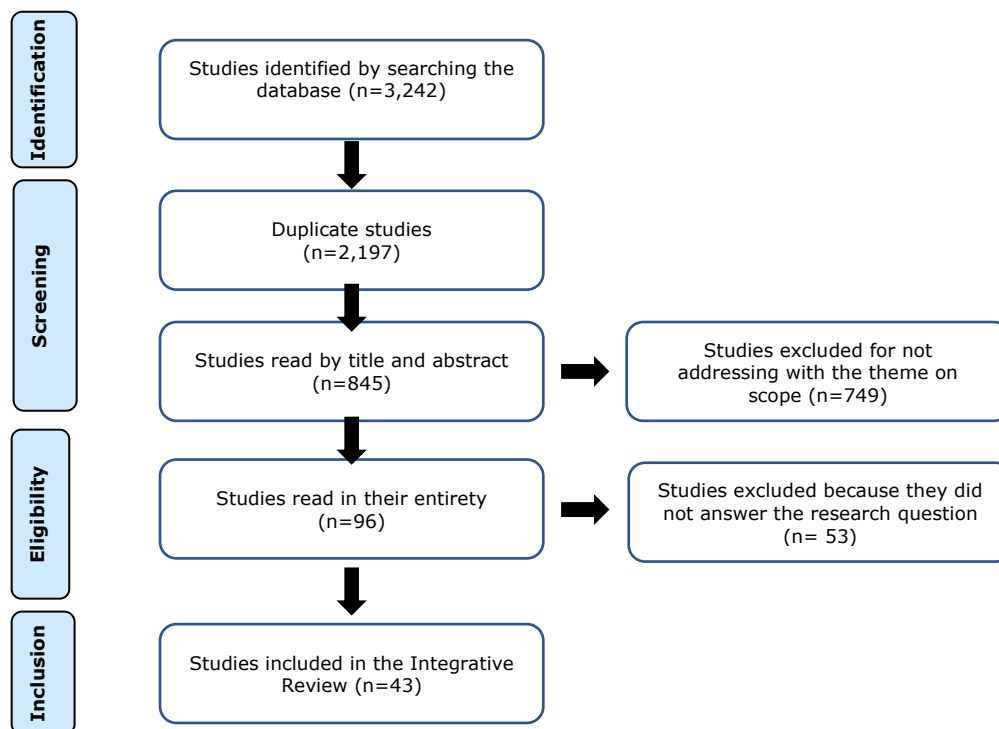


Figure 1. Flowchart of the process of identification, selection and inclusion of studies, based on PRISMA recommendation. Campinas, SP, Brazil, 2017.

Mexico, Finland, Sweden and Congo. These studies were carried out in different care contexts: maternity hospitals (n=11), basic health units (n=4), outpatient clinics (n=11), breastfeeding support groups (n=5), neonatal intensive care units (n=4) and the participants' home (n=4).

Of the 18 NO indicators for "Breastfeeding Establishment: Maternal" proposed by the NOC, 17 were identified; whereas for "Breastfeeding Establishment: Infant", the literature presented 12 of the 13 indicators (Table 1).

Considering what was presented by the articles, four indicators could be added to the NO related to breastfeeding establishment (Table 2).

Table 1. Frequency of Nursing Outcome indicators related to breastfeeding establishment, proposed by the Nursing Outcomes Classification, in the selected studies. Campinas, SP, Brazil, 2017.

Breastfeeding Establishment: Maternal (1001)	n=43
Milk ejection (let-down) reflex (100104)	28 ⁽¹²⁻⁴⁰⁾
Breast fullness prior to feeding (100103)	28 ⁽¹²⁻⁴⁰⁾
Satisfaction with breastfeeding process (100118)	20 ^(13-15,18,19,21,27-29,31,32,40-48)
Use of community support (100125)	20 ^(14-16,24,25,27,32-36,40,44,45,48-53)
Use of Family support (100124)	20 ^(14-16,24,25,27,32-36,40,44,45,48-53)
Avoidance of giving water to infant (100110)	15 ^(17-21,25,30-33,35,37,43,54,55)
Supplemental feedings (100122)	15 ^(17-21,25,30-33,35,37,43,54,55)
Comfort of position during nursing (100101)	16 ^(12-23,28,40,53,56)
Supports breast using "C" hold (cupping) (100102)	15 ^(12-23,40,48,53,56)
Recognition of infant swallowing (100106)	14 ^(17-21,25,30-33,35,37,43,54)
Recognition of early hunger cues (100113)	14 ^(17-21,25,30-33,35,37,43,54,55)
Techniques to prevent nipple tenderness (100121)	13 ^(17,21-24,26,28,32,35,40,48,53,56)
Avoidance of artificial nipple use with infant (100109)	11 ^(12,19,20,24,30,32,40,45,53-54,57)

Continue...

Table 1. Continuation.

Breastfeeding Establishment: Maternal (1001)	n=43
Fluid intake of mother (100120)	7 ^(30,33,39,40,44,50,54)
Pumping of breast (100123)	7 ^(27,32,39,41,48,50,57)
Safe storage of breastmilk (100115)	6 ^(27,32,39,41,48,50)
Response to infant's temperament (100112)	2 ^(18,31)
Suction broken before removing infant from breast (100107)	0
Breastfeeding Establishment: Infant (1000)	n=43
Proper alignment and latch on (100001)	13 ^(16,17,19,21,22,24,35,39,45,56,58-60)
Proper areolar grasp (100002)	13 ^(16,17,19,21,22,24,35,39,45,56,58-60)
Proper areolar compression (100003)	13 ^(16,17,19,21,22,24,35,39,45,56,58-60)
Infant contentment after feeding (100011)	10 ^(13,25,29,31,41-45,48,53)
Minimum of 8 feedings per day (100007)	7 ^(20,21,31,39,44,50,54)
Weight gain appropriate for age (100010)	7 ^(20,21,31,39,44,50,54)
Suck reflex (100014)	3 ^(44,59,60)
Audible swallow (100005)	3 ^(44,59,60)
Nursing minimum of 5-10 minutes per breast (100006)	3 ^(17,31,44)
Correct tongue placement (100013)	2 ^(59,60)
Loose, yellow, seedy stools per day appropriate for age (100009)	2 ^(61,60)
Urinations per day appropriate for age (100008)	2 ^(61,60)
Stop to burp infant at frequent intervals (100015)	0

Table 2. Possible indicators related to breastfeeding establishment, according to the results of the Integrative Review. Campinas, SP, Brazil, 2017.

New indicator	n=43
Perceived milk production	28 ⁽¹²⁻⁴⁰⁾
Mother and child interaction	17 ^(13-15,18,21,27-29,31,32,40,42-45,47,48)
Professional support perceived by mother	14 ^(14,15,21,22,24,30,40,41,46,48,49,53,54,60)
Skin-to-skin contact	7 ^(12,13,15,17,31)

DISCUSSION

Breastfeeding establishment is a complex process that is influenced by several factors, related to both mother and baby. Especially during the first weeks of breastfeeding, support and monitoring are important to reduce the risk of weaning^(61,62). In this regard the NOC, by proposing results of “Breastfeeding Establishment” that include the mother and the infant, contributes to a better assessment of breastfeeding through its indicators. Such indicators also guide interventions that will favor breastfeeding continuity.

“Breastfeeding Establishment: Maternal” and “Breastfeeding Establishment: Infant” are discussed in the following sections, from the perspective of their respective indicators.

Nursing Outcome “Breastfeeding Establishment: Maternal (1001)”

The indicator *Milk ejection (let-down) reflex* (100104) occurs when the baby is placed to suck. In addition to the baby’s physical stimulation on the breast, emotional attachment to the baby, stress and anxiety also influence the ejection of milk. In the studies analyzed, women reported small “bumps” or a sensation of pain, especially in the first feedings⁽¹²⁻⁴⁰⁾.

Breast fullness prior to feeding (100103) is a sensitive indicator and easy to assess by the woman herself, and guidance on perceptions about the volume of milk and aspect of the breast is important, especially in the first days. At the beginning of the puerperium, the woman may not notice full breasts, which can make her worried and fearful about milk production. In some studies, mothers reported that perceiving a full breast was an indication of the need to breastfeed the child⁽¹²⁻⁴⁰⁾. Throughout breastfeeding establishment, the woman learns more about this process and about herself, with the help of the team.

Satisfaction with breastfeeding process (100118) appeared in many articles mainly when the challenges of the first days were solved, the newborn being healthy and the milk sufficient to meet the demands. Another factor was the establishment of a routine and relationship with the infant. The association of

breastfeeding with practical, cost-free food was also identified as a factor of satisfaction^(29,31,41-43,45,48).

Satisfaction can be compromised when breastfeeding is associated with negative feelings such as stress, anxiety and sadness. What is triggered by the initial difficulties in breastfeeding establishment, such as fissure and pain in the nipples and the difficulty in grasping^(13,14,27,40,47). It was observed that women who received training and support on the breastfeeding process were more confident to face the initial barriers^(15,18,21,28,29,32,44). In clinical practice, it may be that evaluating satisfaction in this process is considered too subjective and is not implemented. However, this assumption should be revised because the nursing mother’s perceptions interfere with the process as a whole and, therefore, its recording is precious.

In the indicators *Use of community support* (100125) and *Use of family support* (100124), studies have shown that the social support network can influence women in the decision to breastfeed^(14,35,44,48,50). The opinion and support of family members, especially grandparents and partners, is relevant support to deal with any difficulties or discomforts that may arise. The lack of support from family members is a factor that negatively influences the practice and duration of breastfeeding^(14,16,24,25,33,40,51).

In addition to family support, some researchers reported the significant influence of breastfeeding support groups, led by nursing professionals and consultants. These groups allow the sharing of knowledge and experience among women about breastfeeding, greater freedom to ask questions, as well as encourage ways to overcome challenges^(32,34,36,45,49,51-53).

The indicator *Avoidance of giving water to infant* (100110) is relevant during breastfeeding establishment, since the provision of water or other fluids reduces the opportunity for the child to receive the nutrients it needs, as well as making the breast less stimulated by suction, which reduces the production of milk. In the included studies, it was found that mothers offered babies fluids due to the belief that the child is thirsty or that teas help to relieve abdominal cramps^(17-21,25,30-33,35,37,43,54,55). The WHO recommends the introduction of fluids for the child only after six months of life, during which the child receives only breast milk, and states that it is not necessary to combine this milk with water or any other liquid^(63,64).

In addition to the early and unnecessary introduction of fluids, some studies have highlighted the fact that mothers introduced food before six months of life, which is related to the indicator *Supplemental Feedings* (100122). The reasons that led to early introduction were: mother considering that the milk was not enough to meet the baby’s caloric demands, medical prescription and return to work^(20,25,30,31,37,43,54,55).

In some studies, health professionals have also encouraged the use of milk formulas to assist in infant weight gain or as a primary source of nutrition^(21,53). These data show the

relevance of strengthening strategies for the promotion and protection of breastfeeding with women, families and professionals, in addition to labor and institutional support for working mothers who breastfeed^(18,21,31,35,37,43).

The early introduction of food and the indiscriminate use of artificial formulas increase the chance of weaning and expose the child to diseases. The use of artificial formulas should only be indicated by a health professional when the child needs significant weight gain, there is a low flow of breast milk and mothers who have diseases or use medications that contraindicate the provision of breast milk^(65,66).

The indicator *Comfort of position during nursing (100101)* describes the assessment, both of the child's maintenance of the breast, as well as maternal comfort in this process. The studies described that the sitting positions with the baby in the lap or in reverse, as well as lying with the baby on its side in the bed, were the most used by mothers^(12,23,28,40,53,56). This indicator does not assume a specific position as the most suitable, but one that promotes comfort during breastfeeding.

Supports breast using "C" hold (cupping) (100102) is a relevant indicator as it assesses a strategy for breast support, which favors the areola being more accessible so that the baby can achieve the proper grasp. In several studies, mothers often held the breast with fingers arranged in the form of scissors or tweezers, which blocks the flow of milk, in addition to making it difficult to grasp^(12-23,28,40,53,56).

Recognition of infant swallowing (100106) is a very useful indicator, especially in premature infants, as perceiving swallowing is related to the fact that the reflexes that promote coordination between sucking, swallowing and breathing are present and noticeable. In addition, in the studies, women reported that they heard the child swallowing very audibly and associated the sound with a good amount of milk in the mouth^(19-21,25,30-33,35,43,54).

In regard to the indicator *Recognition of early hunger cues (100113)*, the literature shows that crying was the signal most perceived by mothers, however, this is a late sign^(19,20,30,33,43,54). Before crying, the child shows other early signs of hunger such as alertness and irritation, it also has a search reflex, puts its hands and fingers in its mouth and makes sucking movements^(17,18,20,21,25,31,32,35,37,55). Recognition of early hunger cues leads women to feed their children, even if they do not cry.

The indicator *Techniques to prevent nipple tenderness (100121)* is a behavior presented by the mother that measures what she can and has done to soften sensitivity and prevent nipple injuries. Nipple injuries are one of the main difficulties faced in this process, leading to women's dissatisfaction and early weaning^(17,28,35,53). Superficial or deep nipple injuries are very common, pain with or without injury and difficulty in grasping the nipple-areolar region by the baby, especially when the nipples are inverted or flat; or even when the breast is offered turgid^(22,32,40).

The articles also mentioned some strategies to prevent sensitivity and injuries: proper positioning and breast support by the mother^(24,26,32,40,48,56); care to keep nipples dry⁽⁴⁰⁾; avoid using products that remove the natural protection of the nipple⁽²⁶⁾; expressing breast milk before offering it to the baby, if the nipple-areola region is rigid^(32,40,53); and insertion of the index or little finger in the corner of the infant's mouth during suction, in case it is necessary to interrupt breastfeeding⁽²⁴⁾. The use of protectors is a controversial issue, as it can cause skin adhesion and smothering of the region.

There are also controversies about the use of intermediate silicone nipples as an aid in breastfeeding establishment, in the case of women with inverted nipples or nipple fissures. In addition, studies indicate that it may be difficult to interrupt the use of these devices by women^(55,56). Thus, there is insufficient evidence on whether they can actually be beneficial for breastfeeding⁽⁶⁷⁾.

Of the studies analyzed, the indicator *Avoidance of artificial nipple use with infant (100109)* appeared in 11 studies. The literature points out that the use of artificial nipples is related to early weaning and the use of artificial formulas. The main reasons for using artificial nipples, were: nipple injury; breast engorgement; mastitis; return to work; belief that breast milk does not have adequate nutritional properties and low flow of breast milk^(12,19,24,30,32,40,45,54,57).

Fluid intake of mother (100120) assesses the maintenance of maternal hydration during breastfeeding⁽⁴⁴⁾. In addition to fluid intake, the importance of a balanced and healthy diet is highlighted and also recognized by mothers^(30,33,39,40,44,50,54).

The indicator *Pumping of breast (100123)* refers to the extraction of milk from the breasts, manually or with the use of an extraction pump, when the breasts are engorged or to facilitate the baby's grasp^(27,57). The extraction of milk also helps to maintain or increase milk production, when the breast is not receiving adequate stimulus through effective suction^(39,41,50). Regarding the technique of extracting milk, the studies reported that the participants received guidance only after delivery and many were unaware of the technique or the need to perform it^(27,32,39-41,48,50).

It is noteworthy that the use of extracting pumps has been encouraged by health professionals in order to empty the breast, especially when the mother needs to return to work or studies^(40,50). However, the research did not report how women performed *Safe storage of breast milk (100115)*, mentioning only the reasons that led them to do so: hospitalization of newborns, need to be absent and return to work^(27,32,39,41,48,50). This indicator is also relevant to ensure that adequate milk, free of contaminants and not out of date, is offered to infants.

Response to infant's temperature (100112) was identified as one of the challenges in the first weeks of life. It can be difficult for mothers to differentiate between crying related to pain, hunger or discomfort, as well as responding

appropriately to their child's needs. These limitations in maternal responses decrease around the second week of life, when mother and child establish a routine, know each other better and strengthen their bond^(18,31). Therefore, the continuous support of the health team can support mothers in this learning process.

None of the articles discussed the indicator *Suction broken before removing infant from breast (100107)*. It can be considered that this indicator is already covered by the *Techniques to prevent nipple tenderness (100121)*, considering the strategy mentioned above, with the use of the index finger or the little finger, to interrupt the baby's suction without causing nipple injury. However, there is no description in the literature consulted.

Nursing Outcome "Breastfeeding Establishment: Infant (1000)"

The indicators *Proper alignment and latch on (100001)* and *Proper areolar grasp (100002)*, refer to essential aspects of successful breastfeeding. The literature points out that inadequate alignment and grasp can make feeding inefficient^(16,17,19,21,22,24,35,39,45,56,58-60), and there are reports of discomfort and nipple pain in mothers. Moreover, the baby needs to make an excessive effort to breastfeed which, especially for premature infants, affects weight gain^(16,21,24,45). However, these two indicators seem to overlap since, although the alignment interferes with the grasp, it can be evaluated separately from it. Furthermore, the baby's alignment is not maintained by the baby itself but rather by the mother, which leads to considering the possibility of an indicator that describes the alignment being part of the NO of the mother and not of the infant. Finally, the review of these indicators is important because *Proper areolar grasp (100002)* repeats the grasp issue, already addressed in the *Proper alignment and latch on (100001)* indicator.

Proper areolar compression (100003) is an indicator related to the baby's ability to suck, which is reflected in woman's comfort in this process. Studies indicate that the woman notices if the baby, instead of sucking the nipple-areola complex, bites it or does not latch on it in a sustained way^(16,17,19,21,22,24,35,39,45,56,58-60).

Another key indicator in this process is *Infant contentment after feeding (100011)*, which can be perceived by the following signs: the child decreases suction and releases the breast spontaneously; it does not present a search reflex when stimulated; remains relaxed and can begin to fall sleep after breastfeeding. The authors point out that mothers feel more confident upon baby's contentment, thus reducing the chance of early weaning, as well as the offering of artificial formulas^(13,25,29,31,41-45,48,53).

The indicators *Minimum of 8 feedings per day (100007)* and *Weight gain appropriate for age (100010)* appeared in

seven papers^(20,21,31,39,44,50,54). In the mothers' perception, the number of feedings was related to the child's weight gain. However, frequent but ineffective feedings limit weight gain. Sleeping children may also experience weight gain problems. Therefore, there is a need for an individualized assessment to understand what is happening with each binomial⁽³¹⁾.

The indicators *Suck reflex (100014)* and *Audible swallow (100005)* refer to observable signs that allow nurses to assess the baby's ability to extract milk from the breast and coordinate sucking, swallowing and breathing. These indicators appeared in only three studies^(44,59,60). In preterm or hypoxia babies, it may be difficult to coordinate these events.

As for the indicator *Nursing a minimum of 5–10 minutes per breast (100006)*, although addressed in three studies^(17,31,44), there is no agreement as to the exact time that the baby should remain on the breast. The recommendation of the WHO and the Ministry of Health is for breastfeeding to occur upon demand, without determining the time. Thus, the time of breastfeeding can be quite variable throughout the day and change according to the baby's age, especially if it is premature^(2,64). Thus, this indicator requires careful reevaluation, since the time on each breast is not a determining factor, but rather the flow of breast milk, maturity and activity level of the baby, as well as the time of day.

The indicator *Proper tongue placement (100013)* was observed in studies^(59,60) with ultrasound images that showed that, when the baby performs compression of the areola, the tongue is positioned below the nipple. Compression and proper tongue positioning protect the nipple from friction, preventing injury.

The indicator *Loose, yellow, seedy stools per day appropriate for age (100009)* appeared in two articles^(61,60). The baby's feces change during the first days, going from dark and viscous green to loose, yellow and seedy, from the seventh day of life. The breastfed child can evacuate daily or go up to seven days without evacuating, as long as there is no abdominal distention^(3,69).

The indicator *Urinations per day appropriate for age (100008)* is widely used to evaluate if breast milk intake is adequate. Urinary elimination at least six times a day, with clear and diluted urine, is a relevant sign^(3,69).

The indicator *Stop to burp infant at frequent intervals (100015)* seems to describe the need for the mother to stop offering milk to stimulate eructation. Although it is desirable that the mother is able to perform such a maneuver for the expelling of air, in order to make the baby more comfortable and reduce the risk of regurgitation^(3,69), it does not seem to be an indicator relevant to clinical practice, especially to assess breastfeeding establishment. This indicator was not found in the articles of this integrative review. Thus, it would be interesting to have it reviewed or removed from the NO in question.

Proposal for new indicators based on the Integrative Review

In addition to the indicators already proposed by the NOC for the two NOs studied, this IR made it possible to suggest four new indicators for the NO focused on the mother. The indicator *Perceived milk production* appeared in several studies. They discussed woman's perception of the presence or absence of colostrum/milk, influencing her certainty regarding baby's nutrition. Thus, this indicator is extremely sensitive in assessing breastfeeding establishment in regard to the woman's confidence in her own milk production to nourish her child⁽¹²⁻⁴⁰⁾. The indicator is clinically useful in the planning of nursing interventions.

The indicator *Professional support perceived by the mother* was mentioned by 14 studies^(14,15,21,22,24,30,40,41,46,48,49,53,54,60) as a relevant factor for breastfeeding establishment. Studies have shown that women who recognized this support were more confident in continuing to breastfeed, even though they had difficulties early in the puerperium. *Mother and child interaction*^(14,15,21,22,24,30,40,41,46,48-49,53,54,60) and *Skin-to-skin contact*^(12,13,15,17,31) have also been described in the literature as factors that favored breastfeeding establishment. Thus, we suggest submitting the contents of these indicators to clinical validation and analysis for their inclusion in the NOC.

It is extremely important to increase the use and study of the NOC in maternal-infant nursing care to describe the outcomes related to breastfeeding, since it deals with substantial events of nurses' clinical practice and can render visibility to the outcomes obtained through nursing interventions.

CONCLUSIONS

Almost all the indicators proposed by the NOC for "Breastfeeding Establishment: Maternal" and "Breastfeeding Establishment: Infant" were found to be supported in the literature, according to the 43 studies included. The study allowed identifying four indicators that could be added to the NO "Breastfeeding Establishment: Maternal", as they contribute to achieving this outcome, namely: *Professional support perceived by mother*; *Mother and child interaction*; *Perceive milk production and Skin-to-skin contact*.

The most frequent "Breastfeeding Establishment: Maternal" indicators found in the studies were: *Breast fullness prior to feeding (100103)*, *Milk ejection (let-down) reflex (100104)*, *Use of family support (100124)*, *Use of community support (100125)* and *Satisfaction with breastfeeding process(100118)*. The indicator *Suction broken before removing infant from breast (100107)* was not identified in the literature.

As for the "Breastfeeding Establishment: Infant" indicators, the most present were: *Proper alignment and latch on (100001)*, *Proper areolar grasp (100002)*, *Proper areolar compression (100003)* and *Correct tongue placement (100013)*. The indicator *Stop to burp*

infant at frequent intervals (100015) was not covered by the studies and its removal from the NO is suggested.

A limitation of the study was related to the searches, which were only carried out in Portuguese, English and Spanish, without retrieving publications in other languages that could enrich the discussion of the studied NO indicators.

NO indicators can guide assessment on an ongoing basis, providing a standard for such assessment as well as for its recording. In addition, the use of these NOs can be useful in the educational process of students and nurses on how to assess aspects related to the nursing mother and the baby in the process of breastfeeding establishment.

REFERENCES

1. Victora CG, Bahl R, Barros AJ, França GV, Horton S, Krasevec J, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *Lancet*. 2016 Jan 30;387(10017):475-90. [https://doi.org/10.1016/S0140-6736\(15\)01024-7](https://doi.org/10.1016/S0140-6736(15)01024-7).
2. Mosca F, Gianni ML. Human milk: composition and health benefits. *Pediatr Med Chir*. 2017;39(2):47-52. <https://doi.org/10.4081/pmc.2017.155>.
3. Binns C, Lee M, Low WY. The long-term public health benefits of breastfeeding. *Asia Pac J Public Health*. 2016 Jan;28(1):7-14. <https://doi.org/10.1177/1010539515624964>.
4. Venancio SI, Escuder MML, Saldiva SRDM, Giugliani ERJ. Breastfeeding practice in the Brazilian capital cities and the Federal District: current status and advances. *J Pediatr*. 2010; 86(4):317-24. <https://doi.org/10.1590/S0021-75572010000400012>.
5. Entwistle F. Breastfeeding and relationship building: turning evidence into practice. *Pract Midwife*. 2015;18(2):29-31.
6. Lawrence RA. Breastfeeding barriers revisited. *Breastfeed Med*. 2014;9(1):1-2. <https://doi.org/10.1089/bfm.2014.9997>.
7. Moorhead S, Johnson M, Maas M, Swanson E. *Classificação dos Resultados de Enfermagem: mensuração dos resultados em saúde*. 5. ed. Rio de Janeiro: Elsevier; 2016.
8. Whittemore R, Knaff K. The integrative review: updated methodology. *J Adv Nurs*. 2005;52(5):546-53. <https://doi.org/10.1111/j.1365-2648.2005.03621.x>.
9. Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med* [Internet]. 2009 jul [access at: May 4, 2018];6(7):e1000097. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2707599/pdf/pmed.1000097.pdf>. <https://doi.org/10.1371/journal.pmed.1000097>.

10. Ursi ES, Gavão CM. Perioperative prevention of skin injury: an integrative literature review. *Rev Latino-Am Enfermagem* [Internet]. 2006 Feb [access at: May 3, 2018];14(1):124-31. Available at: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692006000100017&lng=en. <https://doi.org/10.1590/S0104-11692006000100017>.
11. Melnyk BM, Fineout-Overholt E. Evidence based practice in nursing & healthcare: a guide to best practice. Philadelphia: Lippincot Williams & Wilkins; 2011.
12. Keely A, Lawton J, Swanson V, Denison FC. Barriers to breast-feeding in obese women: a qualitative exploration. *Midwifery*. 2015;31(5):532-9. <https://doi.org/10.1016/j.midw.2015.02.001>.
13. Brown A, Arnott B. Breastfeeding duration and early parenting behaviour: the importance of an infant-led, responsive style. *PLoS One*. 2014;9(2):e83893. <https://doi.org/10.1371/journal.pone.0083893>.
14. Brown A. Maternal trait personality and breastfeeding duration: the importance of confidence and social support. *J Adv Nurs* [Internet]. 2014 Mar [access at: May 2, 2018];70(3):587-98. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4114133/pdf/jan-70-587.pdf>. <https://doi.org/10.1111/jan.12219>
15. Heidari Z, Keshvari M, Kohan S. Breastfeeding promotion, challenges and barriers: a qualitative research. *Int J Pediatr* [Internet]. 2016 [access at: June 2, 2018];4(5):1687-95. Available at: http://ijp.mums.ac.ir/article_6733_ed213ead5e864bb1d0729a3265017cf7.pdf. <https://doi.org/10.22038/IJP.2016.6733>.
16. Oliveira CS, Iocca FA, Carrijo MLR, Garcia RATM. Breastfeeding and complications that contribute to early weaning. *Rev Gaúcha Enferm* [Internet]. 2015 [access at: July 8, 2018];36(spe):16-23. Available at: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S193-17015050016&lng=en. <http://dx.doi.org/10.1590/1983-1447.2015.esp.56766>.
17. Talbert AW, Ngari M, Tsofa B, Mramba L, Mumbo E, Berkley JA, et al. "When you give birth you will not be without your mother" A mixed methods study of advice on breastfeeding for first-time mothers in rural coastal Kenya. *Int Breastfeed J* [Internet]. 2016 Apr 26 [access at: July 8, 2018];11:10. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4845378/pdf/13006_2016_Article_69.pdf. <http://dx.doi.org/10.1186/s13006-016-0069-6>.
18. Zahra S, Monireh A, Easa M, Susan P. Successful breastfeeding mothers' experiences of the difficulties of exclusive breastfeeding. *Acta Medica Mediterranea* [Internet]. 2015. [access at: July 8, 2018];31(7):1479-87. Available at: <http://www.actamedicamediterranea.com/archive/2015/special-issue-1/successful-breastfeeding-mothers-experiences-of-the-difficulties-of-exclusive-breastfeeding/pdf>.
19. Abuidhail J, Al-Modallal H, Yousif R, Almresi N. Exclusive breast feeding (EBF) in Jordan: prevalence, duration, practices, and barriers. *Midwifery*. 2014 Mar;30(3):331-7. <https://doi.org/10.1016/j.midw.2013.01.005>.
20. Flaherman VJ, Beiler JS, Cabana MD, Paul IM. Relationship of newborn weight loss to milk supply concern and anxiety: the impact on breastfeeding duration. *Matern Child Nutr*. 2016 Jul;12(3):463-72. <https://doi.org/10.1111/mcn.12171>.
21. Kronborg H, Foverskov E, Nilsson I, Maastrup R. Why do mothers use nipple shields and how does this influence duration of exclusive breastfeeding? *Matern Child Nutr*. 2017 Jan;13(1):e12251. <https://doi.org/10.1111/mcn.12251>.
22. Teich AS, Barnett J, Bonuck K. Women's perceptions of breastfeeding barriers in early postpartum period: a qualitative analysis nested in two randomized controlled trials. *Breastfeed Med* [Internet]. 2014 Jan–Feb [access at: July 8, 2018];9(1):9-15. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3903167/pdf/bfm.2013.0063.pdf>. <http://dx.doi.org/10.1089/bfm.2013.0063>.
23. Moreira GC. Aleitamento materno exclusivo: no vivido das nutrizes de recém-nascidos internados em Unidade de Terapia Intensiva [dissertação]. Goiânia: Pontifícia Universidade Católica de Goiás; 2013. [access at: June 12, 2018]. Available at: <http://tede2.pucgoias.edu.br:8080/handle/tede/2925>.
24. Amaral LJX, Azevedo IC, Cruz GKP, Carvalho DPSRP, Sales SS, Ferreira Júnior MA. Fatores que influenciam na interrupção do aleitamento materno exclusivo em nutrizes. *Rev Gaúcha Enferm* [Internet]. 2015 [access at: June 2, 2018];36(spe):127-34. Available at: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S19314472015000500127&lng=en. <https://doi.org/10.1590/1983-1447.2015.esp.56676>.
25. Ikonen R, Aho AL, Kaunonen M. Validity and reliability of breastfeeding advice and coping with breastfeeding instruments. *Neonatal Netw*. 2014;33(6):322-8. <https://doi.org/10.1891/0730-0832.33.6.322>.
26. McClellan HL, Hepworth AR, Garbin CP, Rowan MK, Deacon J, Hartmann PE, et al. Nipple pain during breastfeeding with or without visible trauma. *J Hum Lact*. 2012 Nov;28(4):511-21. <https://doi.org/10.1177/0890334412444464>.

27. Felice JP, Geraghty SR, Quaglieri CW, Yamada R, Wong AJ, Rasmussen KM. "Breastfeeding" without baby: a longitudinal, qualitative investigation of how mothers perceive, feel about, and practice human milk expression. *Matern Child Nutr.* 2017 Jul;13(3):e12426. <https://doi.org/10.1111/mcn.12426>.
28. Palmér L, Carlsson G, Brunt D, Nyström M. Existential security is a necessary condition for continued breastfeeding despite severe initial difficulties: a lifeworld hermeneutical study. *Int Breastfeed J* [Internet]. 2015 May 5 [access at: June 2, 2018];10:17. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4425864/pdf/13006_2015_Article_42.pdf. <https://doi.org/10.1186/s13006-015-0042-9>.
29. Rempel LA, Rempel JK, Moore KCJ. Relationships between types of father breastfeeding support and breastfeeding outcomes. *Matern Child Nutr.* 2017 Jul;13(3):e12337. <https://doi.org/10.1111/mcn.12337>.
30. Burns J, Emerson JA, Amundson K, Doocy S, Caulfield LE, Klemm RDW. A qualitative analysis of barriers and facilitators to optimal breastfeeding and complementary feeding practices in South Kivu, Democratic Republic of Congo. *Food Nutr Bull.* 2016 Jun;37(2):119-31. <https://doi.org/10.1177/0379572116637947>.
31. Galipeau R, Dumas L, Lepage M. Perception of not having enough milk and actual milk production of first-time breastfeeding mothers: is there a difference? *Breastfeed Med.* 2017 May;12(4):210-217. <https://doi.org/10.1089/bfm.2016.0183>.
32. Hawley NL, Rosen RK, Strait EA, Raffucci G, Holmdahl I, Freeman JR, et al. Mothers' attitudes and beliefs about infant feeding highlight barriers to exclusive breastfeeding in American Samoa. *Women Birth.* 2015 Sep;28(3):e80-6. <https://doi.org/10.1016/j.wombi.2015.04.002>.
33. Nduna T, Marais D, Wyk B. An explorative qualitative study of experiences and challenges to exclusive breastfeeding among mothers in Rural Zimbabwe. *ICAN: Infant, Child, & Adolescent Nutrition* [Internet]. 2015 [access at: June 2, 2018];7(2):69-76. Available at: <http://journals.sagepub.com/doi/pdf/10.1177/1941406414568562>. <https://doi.org/10.1177/1941406414568562>.
34. Bennett AE, McCartney D, Kearney JM. Views of fathers in Ireland on the experience and challenges of having a breast-feeding partner. *Midwifery.* 2016 Sep;40:169-76. <https://doi.org/10.1016/j.midw.2016.07.004>.
35. Groleau D, Sigouin C, D'Souza NA. Power to negotiate spatial barriers to breastfeeding in a western context: when motherhood meets poverty. *Health Place.* 2013 Nov;24:250-9. <https://doi.org/10.1016/j.healthplace.2013.08.011>.
36. Pallotti P. Young mothers' negotiations of infant feeding. A qualitative study with ethnographic methods [tese]. Western Bank: Universidade de Sheffield; 2016. [access at: May 22, 2018]. Available at: <http://etheses.whiterose.ac.uk/15751/>.
37. Tjale AA. Weaning practices of mothers/childminders whose babies are between the ages of six to nine months attending clinics in the inner city in Johannesburg [dissertação]. Johannesburg: Universidade de Witwatersrand; 2000. [access at: June 2, 2018]. Available at: <http://mobile.wiredspace.wits.ac.za/bitstream/handle/10539/14408/Tjale%20A%20A%202000-001.pdf?sequence=1&isAllowed=y>.
38. Alkhizi LM. Promoting breastfeeding in Saudi Arabia [tese]. San Diego: Universidade Estadual de San Diego; 2016. [access at: May 24, 2018]. Available at: <https://digitallibrary.sdsu.edu/islandora/object/sdsu%3A1496>.
39. Schoch D. Determinants of breastfeeding readiness in premature infants [dissertação]. Chester: Universidade de Widener; 2014. [access at: June 11, 2018]. Available at: <https://search.proquest.com/openview/534e6edf4b58161708f5810456e53151/1?pq-origsite=gscholar&cbl=18750&diss=y>.
40. Isichei MN. A descriptive qualitative interview: successful breastfeeding experience of teenage first-time mothers [dissertação]. Pomona: Western University of Health Sciences; 2015. [access at: May 21, 2018]. Available at: <https://search.proquest.com/openview/88cd5636ec8be50cf90ec624ba204eaa/1?pqorigsite=gscholar&cbl=18750&diss=y>.
41. Amando AR, Tavares AK, Oliveira AKP, Fernandes FECV, Sena CRS, Melo RA. Percepção de mães sobre o processo de amamentação de recém-nascidos prematuros na unidade neonatal. *Rev Baiana Enferm* [Internet]. 2016 [access at: May 22, 2018];30(4):1-11. Available at: <https://portalseer.ufba.br/index.php/enfermagem/article/view/17134>. <http://dx.doi.org/10.18471/rbe.v30i4.17134>.
42. Edwards R, Peterson WE, Noel-Weiss J, Shearer Fortier C. Factors influencing the breastfeeding practices of young mothers living in a maternity shelter: a qualitative study. *J Hum Lact.* 2017 May;33(2):359-67. <https://doi.org/10.1177/0890334416681496>.
43. Lööf-Johanson M, Foldevi M, Rudebeck CE. Breastfeeding as a specific value in women's lives: the experiences and decisions of breastfeeding women. *Breastfeed Med.* 2013 Feb;8(1):38-44. <https://doi.org/10.1089/bfm.2012.0008>.

44. Ware JL, Webb L, Fau - Levy M, Levy M. Barriers to breastfeeding in the african american population of Shelby County, Tennessee. *Breastfeed Med*. 2014 Oct;9(8):385-92. <https://doi.org/10.1089/bfm.2014.0006>.
45. Choo PJ, Ryan K. A qualitative study exploring first time mothers' experiences of breastfeeding in Singapore. *Proceedings of Singapore Healthcare* [Internet]. 2016 [access at: June 2, 2018];25(1):5-12. Available at: <http://journals.sagepub.com/doi/pdf/10.1177/2010105815615992>. <https://doi.org/10.1177/2010105815615992>.
46. Silva CMS, De Bortoli CFC, Massafra GI, Silverio M, Bisognin P, Prates LA. Sentimentos e vivências maternas associadas ao processo de amamentação. *Rev Enferm UFPE on line* [Internet]. 2015 [access at: June 2, 2018];9(8):9343-51. Available at: <https://periodicos.ufpe.br/revistas/revistaenfermagem/article/viewFile/10739/11845>. <https://doi.org/10.5205/reuol.6812-75590-1>.
47. Shepherd L, Walbey C, Lovell B. The role of social-cognitive and emotional factors on exclusive breastfeeding duration. *J Hum Lact*. 2017 Aug;33(3):606-13. <https://doi.org/10.1177/0890334417708187>.
48. Beattie-Fairchild C. Overcoming barriers to improve breastfeeding self-efficacy in older adolescent mothers [dissertação]. Minneapolis: Walden University; 2013. [access at: May 24, 2018]. Available at: <https://eric.ed.gov/?id=ED552537>.
49. González-Pascual J, Ruiz-López M, Saiz-Navarro E, Moreno-Preciado M. Exploring barriers to breastfeeding among chinese mothers living in Madrid, Spain. *J Immigr Minor Health*. 2017 Feb;19(1):74-9. <https://doi.org/10.1007/s10903-015-0303-0>.
50. Froehlich J, Donovan A, Ravlin E, Fortier A, North J, Bloch MK. Daily routines of breastfeeding mothers. *Work*. 2015;50(3):433-42. <https://doi.org/10.3233/WOR-141954>.
51. Cisco J. Support for breastfeeding mothers and determinants of long-term breastfeeding in the United States [dissertação]. Columbia: Universidade de Missouri; 2015. [access at: June 2, 2018]. Available at: <https://mospace.umsystem.edu/xmlui/bitstream/handle/10355/48681/research.pdf?sequence=2&isAllowed=y>.
52. Khasawneh W. Breastfeeding practices, facilitators, and barriers among immigrant muslim arab women living in a metropolitan area of the Southwest of United States [dissertação]. Tucson: Universidade do Estado do Arizona; 2017. [access at: June 2, 2018]. Available at: https://repository.asu.edu/attachments/186294/content/Khasawneh_asu_0010E_16811.pdf.
53. Santos AG. O aleitamento materno na prematuridade tardia [dissertação]. Porto Alegre: Universidade Federal do Rio Grande do Sul; 2014. [access at: June 2, 2018]. Available at: http://www.teses.usp.br/index.php?option=com_jumi&fileid=20&Itemid=96&lang=pt-br.
54. Melo LM, Machado MMTM, Leite AJM, Rolim KMC. Prematuro: experiência materna durante amamentação em unidade de terapia intensiva neonatal e pós-alta. *Rev RENE* [Internet]. 2013 [access at: May 22, 2018];14(3):512-20. Available at: <http://www.periodicos.ufc.br/rene/article/view/3423/2662>.
55. Kronborg H, Harder I, Hall EOC. First time mothers' experiences of breastfeeding their newborn. *Sex Reprod Health*. 2015;6(2):82-7. <https://doi.org/10.1016/j.srhc.2014.08.004>.
56. Ekström A, Abrahamsson H, Eriksson RM, Mårtensson BL. Women's use of nipple shields – their influence on breastfeeding duration after a process-oriented education for health professionals. *Breastfeed Med*. 2014 Nov;9(9):458-66. <https://doi.org/10.1089/bfm.2014.0026>.
57. Buechner AG, McBride T, Shah PS. Breastfeeding the critically ill newborn: Barriers and supportive practices. In: Cassidy TM. *Breastfeeding: Global Practices, Challenges, Maternal and Infant Health Outcomes*: Nova Science Publishers; 2013. p. 37-60.
58. Rendón-Macías ME, Villasis-Keever MA, del Carmen Martínez-García M. Validation of a clinical nutritional sucking scale. *Rev Med Inst Mex Seguro Soc* [Internet]. 2016 [access at: May 4, 2018] May–June;54(3):318-26. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/27100977>.
59. Sakalidis VS, Williams TM, Garbin CP, Hepworth AR, Hartmann PE, Paech MJ, et al. Ultrasound imaging of infant sucking dynamics during the establishment of lactation. *J J Hum Lact*. 2013 May;29(2):205-13. <https://doi.org/10.1177/0890334412452933>.
60. Burton P, Deng J, McDonald D, Fewtrell MS. Real-time 3D ultrasound imaging of infant tongue movements during breast-feeding. *Early Hum Dev*. 2013 Sep;89(9):635-41. <https://doi.org/10.1016/j.earlhumdev.2013.04.009>.
61. Courdent M, Beghin L, Akre J, Turck D. Infrequent stools in exclusively breastfeed infants. *Breastfeed Med*. 2014 Nov;9(9):442-5. <https://doi.org/10.1089/bfm.2014.0050>.
62. Edwards G, Abdulali J, Kumar RR. Meeting the challenge: implementing the Baby Friendly Hospital initiative in a culturally diverse country. *Pract Midwife*. 2011;14(6):12-6.
63. Brown CRL, Dodds L, Legge A, Bryanton J, Semenic S. Factors influencing the reasons why mothers stop breastfeeding. *Can J Public Health*. 2014;105(3):e179-e85. <https://doi.org/10.17269/cjph.105.4244>.

64. Souza EFC, Fernandes RÁQ. Breastfeeding self-efficacy: a cohort study. *Acta Paul Enferm* [Internet]. 2014 Oct [access at: Oct 7, 2018];27(5):465-470. Available at: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-21002014000500012&lng=en. <https://doi.org/10.1590/1982-0194201400076>.
65. World Health Organization. WHO recommendations on postnatal care of the mother and newborn. Geneva: World Health Organization; 2013. 63 p. [access at: July 30, 2020]. Available at: http://apps.who.int/iris/bitstream/handle/10665/97603/9789241506649_eng.pdf?sequence=1.
66. Sankar MJ, Sinha B, Chowdhury R, Bhandari N, Taneja S, Martinez J, et al. Optimal breastfeeding practices and infant and child mortality: a systematic review and meta-analysis. *Acta Paediatr*. 2015;104(S467):3-13. <https://doi.org/10.1111/apa.13147>.
67. Strong G. Barriers to breastfeeding during the neonatal period. *J Neonatal Nurs*. 2013;19(4):134-8. <https://doi.org/10.1016/j.jnn.2013.04.005>.
68. Chow S, Chow R, Popovic M, Lam H, Merrick J, Ventegodt S, et al. The use of nipple shields: a review. *Front Public Health*. 2015;3(236). <https://doi.org/10.3389/fpubh.2015.00236>.
69. Carvalho M, Gomes CF. Amamentação: bases científicas. 4. ed. São Paulo: Guanabara Koogan; 2016. ISBN: 978-8527730747.
70. Morton J, Hall JY, Pessl M. Five steps to improve bedside breastfeeding care. *Nurs womens health*. 2013;17(6):478-88. <https://doi.org/10.1111/1751-486X.12076>.

