

“The impact of coronavirus outbreak on breastfeeding guidelines among Brazilian hospitals and maternity services: a cross-sectional study”

Walusa Assad Gonçalves-Ferri (✉ walusa@fmrp.usp.br)

University of São Paulo <https://orcid.org/0000-0002-7174-0044>

Fábia Martins Pereira-Cellini

Ribeirao Preto University: Universidade de Ribeirao Preto

Kelly Pereira Coca

Universidade Federal de Sao Paulo <https://orcid.org/0000-0002-3604-852X>

Davi Casale Aragon

Ribeirao Preto University: Universidade de Ribeirao Preto

Paulo de Jesus Hartmann Nader

Universidade Luterana do Brasil

João Cesar Lyra

Universidade Estadual Paulista Julio de Mesquita Filho Faculdade de Medicina Campus de Botucatu

Maryneia Silva do Vale

Universidade Federal do Maranhão: Universidade Federal do Maranhao

Sérgio Tadeu Martins Marba

Universidade Estadual de Campinas

Katiaci Janice Chaves Araujo

Hospital Aliança: Hospital Alianca

Laura de Fátima Afonso Dias

Maternidade Lilia Neves

Daniela Marques de Lima Mota Ferreira

Universidade Federal de Uberlandia

Gislayne Souza Nieto

Hospital Santa Brígida

Lêni Marcia Anchieta

Universidade Federal de Minas Gerais

Rita de Cássia Silveira

Universidade Federal do Rio Grande do Sul

Marta David Rocha de Moura

Hospital Materno Infantil de Brasilia

Valdenise Martins L. Tuma Calil

Universidade de São Paulo Instituto da Criança: Universidade de Sao Paulo Instituto da Crianca

Viviane Christina Cortez Moraes

Maternidade Perinatal Laranjeiras

João Henrique Carvalho Leme de Almeida

Instituto Nacional de Saúde da Mulher, da Criança e do Adolescente Fernandes Figueira

Maurício Magalhães

Hospital Central da Santa Casa de Misericórdia de Sao Paulo: Irmandade da Santa Casa de Misericordia de Sao Paulo

Thaise Cristina Brancher Soncini

Hospital Maternidade Carmela Dutra

Juliane Barleta Javorsky

Universidade de Sao Paulo Hospital das Clinicas da Faculdade de Medicina de Ribeirao Preto

Érica Lobato Acaui Ribeiro

Faculdade de Medicina de Marília - Unidade Materno Infantil

Rodrigo Ferreira

Universidade do Estado do Amazonas

Louise Dantas Cavalcante de Almeida

Maternidade Climatério de Oliveira- UBFA

Rosângela Garbers

Maternidade Nossa Senhora de Fátima

Gabriella Maset da Silva Faria

Faculdade de Medicina de São José do Rio Preto: Faculdade de Medicina de Sao Jose do Rio Preto

Anelise Roosch

Universidade de Sao Paulo Faculdade de Medicina de Ribeirao Preto

Ana Ruth Antunes de Mesquita

Universidade de Sao Paulo Faculdade de Medicina de Ribeirao Preto

Rebecca Meirelles de Oliveira Pinto

Universidade de Sao Paulo Faculdade de Medicina de Ribeirao Preto

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Abstract

Background: Recommended by the World Health Organization, exclusive breastfeeding is a safe source of nutrition available for children in most humanitarian emergencies, as in the current pandemic caused by the severe acute respiratory syndrome coronavirus 2. Despite the Brazilian national Guideline protecting breastfeeding practice, there are many concerns about protecting babies from their infected mothers. This study aimed to analyze how the Brazilian hospitals and maternity services promote and support mothers suspected or diagnosed with coronavirus disease (COVID-19).

Methods: This is a descriptive cross-sectional and multicenter study collecting data from 24 Brazilian hospitals and maternity services from March to July 2020. Representatives of the institutions completed a questionnaire based on acts to promote and support breastfeeding, Baby-Friendly Hospital Initiative, and Brazil's federal law recommendations.

Results: The results showed that in delivery rooms, 98.5% of the services prohibited immediate and uninterrupted skin-to-skin contact and companions for the mother and did not support mothers to initiate breastfeeding in the first hour. In rooming-in, 98.5% of the services allowed breastfeeding and recommend care for babies following the respiratory hygiene practices to prevent transmission of COVID-19 and whether companions are forbidden (83.3%). Hospital discharge was mostly early (79.1%); the guidelines were not individualized. Additionally, a lack of support was noticed from the health community network in the home environment (83.3%). Hospital and home breast pumping were allowed (87.5%), but breast milk donation was not accepted (95.8%).

Conclusions: In Brazil, the hospitals are not able to approach recommendations to protect, promote, and support breastfeeding properly during the COVID-19 outbreak. The scientific community needs to discuss how to improve maternal and baby care services to protect breastfeeding in the current pandemic.

Background

The coronavirus disease (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a major public health concern and has led to thousands of deaths worldwide. On July 29, 2020, Brazil registered 2,483,191 infected people by SARS-CoV-2 and a mortality rate of 42.1 per 100,000 inhabitants [1,2].

Despite the recommendations for the practice of breastfeeding, protective measures, and even the temporary separation between mother and child during the transmission phase of the infection, may not be effective to prevent the transmission of SARS-CoV-2, due to the potentially high number of asymptomatic infected women who are not tested for COVID-19. Nevertheless, COVID-19 fatality among neonates and the infection during breastfeeding seems to be lower [3-5]. Although it cannot be excluded that an infant exposed to SARS-CoV-2 may develop COVID-19 and respiratory failure, the reported neonatal cases to date are generally mild with a favorable evolution [5,6].

Breastfeeding improves both the mother and the infant's health and has a positive social and economic impact [7-10]. Based on current scientific knowledge, we cannot consider that breast milk from a mother with COVID-19 is a transmission vehicle [4, 11-14]. The guidelines for the management of the mother-infant dyad exposed to SARS-CoV-2 recommend a complex hospital organization and protective measures of infection for neonates during breastfeeding contact; however, there are few references on promoting and supporting this practice in the pandemic [15-27].

Since breastfeeding has an essential impact on the country's socio-economic organization, Brazil has robust policies to promote this practice. The measures to promote and support breastfeeding recommended by Brazilian public health policies are encouraged and implemented in maternal and infant care services [25-27].

However, when we consider the mother-infant dyad suspected or diagnosed with COVID-19, there is diversity in recommendations early in the pandemic and a lack of information on how Brazilian hospitals have prepared themselves to maintain the practices of supporting breastfeeding amid the pandemic. This study aimed to analyze how Brazilian hospitals and maternity services promote and support breastfeeding to mothers suspected or diagnosed with COVID-19.

Methods

Design

A descriptive, cross-sectional, and multicenter study was conducted from March to July 2020. The study was approved by the Research Ethics Committee of the Medicine School in Ribeirão Preto, University of São Paulo, Brazil (CAAE: 31357320.9.1001.5440 - 4.066.741/2020) and the Brazilian hospitals and maternal services.

Participants

Thirty university hospitals or centers related to research, education, and extension in pediatric care were offered participation from different regions of the country, represented by the local coordinate services. The hospitals that did not answer or refused to participate were excluded from the study. The invitation to participate was addressed to the referral hospitals in care for covid-19 in each Brazilian region.

Questionnaire development, data collection and analysis

We prepared a structured questionnaire based on the guidelines from the Baby-Friendly Hospital Initiative (BFHI). In addition, we included information about the Federal Law No. 11,108, of April 7, 2005, Companion Law, which states that Brazilian National Health Systems (SUS), whether owned or affiliated, are obliged to allow pregnant women the right to be accompanied throughout the labor, delivery, and postpartum period. The companion may be the baby's father, the current partner, the mother, a friend, or another person of her choice.

We sent a structured questionnaire to the hospitals' coordinators electronically, conducted from March 1 to July 25, 2020. The affirmative answer is related to the guidelines' recommendation and the negative response with the non-recommendation (NR/ there was no guidelines' recommendation) or recommended against (RA/ contra-indicated) for the COVID-19 dyad.

Data were analyzed by using descriptive statistics.

Measurements

We investigated the degree to which the institutions recommended breastfeeding support measures in their own or individual institutional guidelines.

The recommendations in the delivery room, rooming-in practice, and home environment were evaluated. The frequencies were recorded as whether the breastfeeding support recommendations were in the guidelines to (yes) or whether the recommendations were not in the guidelines to (no), in accordance with the local guidelines for the management and breastfeeding promotion of the mother-infant dyad exposed to SARS-CoV-2, based on national public health programs, specially the BFHI [15-27].

Delivery Room

The variables evaluated regarding breastfeeding promotion were skin-to-skin contact, breastfeeding in the first hour, presence of companions, personal protective equipment (PPE) for the patient, neonatal baths, and other recommendations to avoid the infection by SARS-CoV-2.

Rooming-In

The variables evaluated were the following: shared decision with the family about breastfeeding, responsive feeding, individual room, dyad separation, presence of companion, hygienic and distancing measures, psychological support, family and pregnant medical orientation, and hospital discharge in 24 to 48 hours.

The hygiene measurements included mother's usage of a surgical mask, hand washing before manipulation, mother's face washing before breastfeeding, breast cleansing before breastfeeding, and changing clothes or wearing an apron when breastfeeding. Regarding distancing guidelines, we considered the recommendation that the baby should be placed in the crib at least 2 meters from the mother during periods of non-breastfeeding.

Home Environment Recommendations

The variables evaluated were the following: recommendations on promoting breastfeeding, response feeding, comforting techniques (cramps and crying), neonatal care delegation, mixed feeding, hygiene and distancing measures, guidance material, home visit, telemedicine, primary reference health service support, newborn screening in the hospital, and psychological call center.

Hygiene measurements were divided into hygiene before breastfeeding and before the adjusting the baby. Regarding distancing measurements, the dyad should remain in a separate room and distance between siblings was taken in consideration, in addition to the recommendation that there should be at least 2 meters of distance between the mother and the baby during periods of non-breastfeeding.

Breast Pumping and Human Milk Donation Recommendations

The recommendations evaluated were related to hospital pumping, bedside pumping, home pumping, usage of mother's fresh breastmilk, pasteurization, relactation, cup feeding, and permission to donate milk. The relactation technique was characterized by the neonatal feeding with milk expressed by the mother, administered by tube attached to the nipple, during breastfeeding.

National and International Guidelines

All variables observed were related to the Brazilian societies and some international guideline recommendations available in the literature: the Brazilian Society of Pediatrics (SBP) , Brazilian Network of Human Milk Banks (rBLH) , World Health Organization (WHO), Center for Disease Control and Prevention (CDC), United Nations Children's Fund (UNICEF), Royal College of Obstetricians and Gynaecologists (RCOG), Society of Italian Neonatology (SIN) endorsed by Union of European Neonatal and Perinatal Societies (UENPS) and Academy of Breastfeeding Medicine (ABM) [15-27]. The international guidelines were consulted in July 2019. We used the international recommendations existing in this period because it was when Brazilian hospitals developed their recommendations.

Results

Twenty-four hospitals, distributed across four Brazilian regions, participated by answering the questionnaire: 13 hospitals from the Southeast, six from the South, one from the Midwest, one from the North and three from Northeast. All the hospitals performed maternal screening through real-time reverse transcription polymerase chain reaction (RT-PCR) on mothers with symptoms of COVID, and 18 (75%) performed the newborn screening RT-PCR before discharge. Among the 24 hospitals, 12 (50%) were BFHI certificated by the Ministry of Health, and only two (8.3%) did not have a local guideline for the management of the mother-infant dyad exposed to SARS-CoV-2. Twenty of the services evaluated are public university hospitals. The practices adopted in delivery rooms are described in **Table 1**.

Most of the hospitals did not recommend the actions to promote breastfeeding in the delivery room, did not perform skin-to-skin contact (79.1%), and did not encourage breastfeeding in the first hour after birth (87.5%).

Distancing and breastfeeding recommendations were carried out in all hospitals. Only one hospital (4.1%) recommended the dyad separation. The decision to breastfeed was shared with the mother in 75%

of the evaluated hospitals, however a companion was forbidden in the majority of the centers (83.3%; **Table 2**)

Among hygiene measures, washing hands and the use of masks were recommended, but other body surfaces (mother's face, breasts) that would be in contact with the neonate and may be possibly infected were not specified. Psychological support was available in almost all the hospitals, but one. Hospital discharge was recommended in 24 to 48 hours, only one center extended the dyad stay (> 48 hours), before the COVID pandemic, the Brazilian recommendations were neonatal discharge > 48 hours.

The international guidelines do not detail the home environment recommendations. All hospitals evaluated in this study recommend maintaining breastfeeding and distancing by at least 2 meters in home environment. However, guidance on the management of current challenges of the first 15 days after birth, such as neonatal crying and support from the health network were less frequently mentioned in guidelines. (**Table 3**)

Home environment support and encouragement for the dyad was variable, telemedicine and newborn screening before discharge was offered in 45.8% of the centers, and home visits were performed only by 16.6% of the centers.

Table 4 shows that hospital breast pumping was allowed (87.5%), so was fresh mother's breast milk supply for the neonates (87.5%); however this complement was not offered by relactation technic (95.8%) and the human milk donation was widely forbidden (95.8%). Relactation where mothers had not been able to breastfeed because of severe illness was almost universally absent, and human milk donation was widely recommended against; nevertheless, the mothers evaluated in our study were in rooming-in with mild symptoms of COVID-19.

Discussion

This study evaluated at least one referral hospital in each Brazilian region committed to promoting breastfeeding, and 50% of the services evaluated have a BFHI certification.

Regardless of the importance of breastfeeding, the guidelines evaluated do not ensure and protect breastfeeding practices.

The possibility of maternal-fetal virus transmission leading to infection in the neonatal period was observed in other respiratory diseases before the current pandemic [28]. However, the literature on COVID-19 is still limited, and the available data has not observed significant infection rates among neonates born from mothers who tested positive for COVID-19; when it occurred, clinical manifestations were generally mild [1-6, 11-14].

Despite the evidence on transmission during breastfeeding and due to the major concern about SARS-CoV-2 dissemination, the guidelines recommend restrictive measures related to breastfeeding, discrediting the benefits [15-27].

Breastfeeding and its socio-economic impact

Undoubtedly, breastfeeding has an impact not only in maternal-infant health, but socio-economically. The WHO highlights the need for public policies for breastfeeding maintenance, as it can prevent 82,300 infant deaths per year worldwide. Nevertheless, even with intense campaigns and publications on the benefits of breastfeeding, only approximately 37% of the children are breastfed until 6 months of age worldwide, showing the need for investments in this area [29-31].

The absence of breastfeeding has a negative impact in countries worldwide. In developing societies, which are even more impoverished by the economic crisis triggered by the pandemic, with rising unemployment and falling Gross Domestic Product (GDP); this impact is likely to be greater [32]. Adding to that, total annual global economic losses related to non-breastfeeding are estimated to be between US \$ 257 billion and US \$ 341 billion, or between 0.37% and 0.70% of the global GDP [8].

Despite the data related to breastfeeding, strategies for protecting this valuable practice during the pandemic have not been adequately developed [15-27]. Although the currently available guidelines discuss prevention of mother-to-child transmission, they do not consider the possibility of weaning the baby and do not foresee actions to minimize the discontinuity of breastfeeding. Countries have prepared themselves to prevent the spread of COVID-19, however the principle of “first do no harm,” as mentioned by Alison Stuebe in a recent editorial, was not taken seriously [33].

We emphasize that, since COVID-19 is unlike other viral diseases, such as AIDS, in which breastfeeding is contraindicated due to the chronic condition of the disease, actions to prevent the transmission of SARS-CoV-2 must be performed within 14 days after birth. However, lack of support during this period combined with maternal anxiety about the disease may cause irreversible consequences on the success of breastfeeding [34-35].

The vast majority developed their own guidelines (75%) and this is probably because Brazil is a continental country with different cultures, requiring adaptation of the recommendations available in the medical literature to their own reality.

Implications of recommendations:

Delivery Room

By evaluating the recommendations of the protocols for the delivery room, we noticed that most hospitals did not recommend measures to promote breastfeeding for exposed dyads, with a high rate of non-

recommendation of skin-to-skin contact (79.1%) and breastfeeding in the first hour after birth (87.5%).

These recommendations in the delivery room may lead to dyad detachment, with possible impairment of breastfeeding and consequent intense maternal stress, directly related to weaning. It also causes the baby's stress, with a possible worsening of the adaptation performance for extrauterine life [36]. The concern regarding contamination in the delivery room is related to the active phase of normal delivery, where the mother can disperse droplets. However, pregnant women wear masks according to the guidelines, reducing the spread of particles [37].

We also consider the prohibition of labor companionship as a questionable measure, possibly attributed to prevent crowding in the delivery room. However, the maternal anxiety of being without a partner can be much more harmful, since several publications reinforce the relevance of the father or the presence of a companion in the entire process, from birth to breastfeeding [38-41].

There are few guidelines on bathing the neonate, as recommended for other viral conditions. The SARS-CoV-2 may be transmitted through feces, and this measure perhaps should be considered, although bathing is associated with neonatal stress. Only SBP recommends individualizing the bathing after birth [40,41].

Rooming-in

In rooming-in, only one hospital did not allow breastfeeding and separated the dyad. This is not recommended, since separation can compromise support, increase maternal stress, discourage breastfeeding, and increase the consumption of PPE [35,42].

Hand washing (95.8%) and the use of a surgical mask for breastfeeding (95.8%) was widely recommended in our sample, as well as maintaining a 2-meter distance between mother and child (95.8%), possibly making the immediate postpartum period more exhausting, especially when the woman is likely to be in pain.

However, even with restrictions that require more effort from the puerperal woman, most services did not allow a companion room (95.8%), and a family member could be a facilitator of breastfeeding. Responsive feeding, changing diapers, and bathing demand constant hygiene from the puerperal women and being alone would probably make the correct execution of the protection measures more unlikely and, again, contribute to maternal tiredness and anxiety. Mental health during the pandemic is already a concern of health agencies, and services must plan measures to prevent worsening of mental health [41].

Additionally, the permission of a companion for the dyad could facilitate the health education of a member of the family support network, who would be adequately trained to provide help during the period of isolation at home, avoiding contamination and encouraging breastfeeding, since the support is fundamental to its success [41].

Shared decision about breastfeeding with the family was adopted in 75% of the hospitals, however the protocols were not individualized. When adopting the same recommendation for all mothers, they did not consider the role of breastfeeding in that family and did not assess the dyad's socio-economic situation.

The dyad's assessment considering a bio-psycho-social approach would possibly avoid the implementation of useless measures in a hospital environment, since these recommendations cannot be followed in the home environment, especially in developing countries where several people inhabit places with insufficient hygiene conditions [31,43].

Another interesting aspect is related to surface cleaning. Mothers with COVID-19, due to the common symptoms—coughing, sneezing, and scratching their faces—can increase the chance of having their face, clothes, and breasts potentially contaminated. However, there are no specific recommendations for cleaning these surfaces.

Breastfeeding support and guidance on breastfeeding with COVID-19 were offered in most of the services evaluated; however, in 79.1% of Brazilian hospitals, discharge took place between 24 and 48 hours, a period when breastfeeding is often not yet well established, mainly in primiparous mothers or those with breastfeeding-related anxieties. Additionally, guidance for mothers and family members were more specific to prevent infection than to promote and support breastfeeding [15-27,30,46,47].

Home Environment

Regarding the home environment, the guidelines are standardized: all of them allow breastfeeding with hygiene measures. However, the recommendations are vague on how to proceed when the newborn is crying, with only 45.8% of the evaluated guidelines guiding how the mother should manage the crying of the newborn during the isolation period. The guidance on how to console the neonate should be seriously considered since crying is referred to as one of the leading causes of early weaning, and adequate management can alleviate maternal-fetal stress [30-35].

The prescription of artificial milk and guidance for neonatal care to be executed by other people was performed in approximately 20% of the evaluated hospitals, measures that can lead to weaning, and the lack of bond between child and mother. Concerning siblings, 62.5% of services recommended that children be separated from the dyad, a situation that probably would not be possible in socially vulnerable families, and possibly contribute to maternal anxiety [30,35,41,42].

Another significant difficulty observed is the support from the primary care health service. Home visits were conducted by only 16.6% of the services; telemedicine was used by 45.8% and psychological care by telemedicine, was only used 37.5%. The lack of recommendations for adequate home support is worrying, since this type of measure would be fundamental for the promotion of breastfeeding [44].

Despite the recommendations to avoid follow-up in primary care units, 79% of participating hospitals did not offer the possibility to return to the referral health service if necessary, recommending the primary care unit if there is a problem with the dyad.

In an attempt to contribute to the dyad isolation, 45.8% of hospitals performed the neonatal screening in a hospital environment. Probably, when this possibility is not offered, there will be possible delays in the diagnosis of neonatal diseases.

Breast Pumping and Human Milk Donation

Regarding the handling and donation of human milk, we noticed guidance for breast pumping in a hospital environment (87.5%), although these mothers cannot be milk donors during the isolation period, probably due to the concerns of contamination [45].

Most hospitals recommended that fresh mother's breast milk must be offered to the newborn (87.5%), preferably by the cup (75%). Only 8.3% of hospitals allowed relactation, possibly not providing the stimulus to lactation through neonatal suction during the complementary feeding practices [46].

Concerning limitations of the study, we evaluated only the most important Brazilian hospitals; therefore, it perhaps cannot represent the Brazilian reality in its entirety. We also analyzed the guidelines on the COVID-19 outbreak, and it does not mean the measures are executed in these participating hospitals.

Lack of breastfeeding knowledge is significant, and so are the concerns regarding the pandemic's impact on breastfeeding. Among the international protocols evaluated (WHO, CDC, UNICEF, RCOG, UENPS, and ABM) and national agencies (SBP and rBLH), we observed that the recommendations with the highest agreement between them are those related to preventing infection by SARS-CoV-2 of the newborn. Nevertheless, there is no guidance on supporting breastfeeding in pandemic situations or how to continue implementing the actions recommended by breastfeeding protection policies [15-27].

Therefore, to investigate the management of breastfeeding in the dyads exposed to SARS-CoV-2, we prepared a prospective multicenter study, with the 24 Brazilian hospitals evaluated in this study (BRACOVID Project). The purposes are to assess the impact of the COVID-19 guidelines on breastfeeding rates, evaluate maternal mental health, analyze the feasibility of implementing the proposed hygiene measures in the home environment, and the clinical evolution of breastfed neonate born of mothers with COVID-19. A part of this study is still being carried out at the moment, and the final data collection will be completed by September 2020.

The disagreement between international guidelines and the impact of this fact has been discussed in the scientific community. [48-50] The absence of recommendations on breastfeeding support during the pandemic led to difficulties in developing standards among hospitals in different regions of Brazil and other countries worldwide. The lack of a global discussion on supporting and protecting breastfeeding

during the pandemic can generate incalculable damage to maternal and child health, leading to psychological, social, and economic costs, especially in the most vulnerable populations.

Conclusion

We conclude that the evaluated guidelines are not able to support the required actions to encourage breastfeeding, as recommended by well-known protecting policies.

Regarding COVID-19 and breastfeeding, an important question remains—what are the repercussions for the lack of support and promotion of breastfeeding in the COVID-19 era? It is reasonable to consider that if protective measures and incentives for breastfeeding are not taken into consideration during this time, the effects of the pandemic will reflect on children's health for decades.

The dyad exposed to SARS-CoV-2 has an increased risk of early weaning and a situation of extreme anxiety. Therefore, we understand that our role as neonatologists and other health professionals involved in this process is to encourage breastfeeding, to recognize the risk of early weaning, and to plan practical support actions.

It is essential that the scientific community discuss and look for effective ways to promote breastfeeding, not only allowing it but also looking for ways to guarantee its practice. Protocols for the containment of COVID-19 must be realistic and adequate, designed to prevent neonatal infection and with special attention in promoting and supporting breastfeeding during the pandemic.

Abbreviations

PPE: Personal Protective Equipment; WHO: World Health Organization; CDC: Center for Disease Control and Prevention; UNICEF: United Nations Children's Fund; RCGO: Royal College of Obstetricians and Gynaecologists; UENPS: Union of European Neonatal and Perinatal Societies; ABM: Academy of Breastfeeding Medicine; SBP: Brazilian Society of Pediatrics; rBLH: Brazilian Network of Human Milk Banks.

Declarations

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Authors' contributions

Walusa A. Gonçalves-Ferri and Fábía P. Martins-Celini, F.P. coordinated and designed the study, wrote and revised the manuscript. All other authors obtained the data and revised the manuscript.

All authors read and approved the final manuscript.

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Ethics approval and consent to participate

The study was approved by the Research Ethics Committee of the Medicine School in Ribeirão Preto, University of São Paulo, Brazil (CAAE: 31357320.9.1001.5440 - 4.066.741/2020) and from the Brazilian hospitals and maternal services.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

All authors have declared no potential conflicts of interest regarding the research.

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Tables

Table 1 Recommendations in delivery room for the management of the mother-infant dyad exposed to SARS-CoV-2

Recommendations	Brazilian hospitals guidelines (n=24)		Available recommendations in Brazilian and international literature [15-27]
	Yes (%)	No (RA/NR - %)	
Skin-to-skin contact	5 (20.3)	19 (79.1)/RA	RCOG, WHO, UNICEF allow; SBP does not recommend; ABM and CDC suggest separation.
Breastfeeding in the delivery room (first hour)	3(12.5)	21 (87.5)/RA	ABM, CDC, SBP, UENPS do not specify; RCOG considers mother's choice; WHO and UNICEF allow.
Companion in the delivery room	11 (45.8)	13(54.1)/RA	SBP recommends healthy adult, RCOG recommends for mother's mental health; CDC suggests virtual companion; ABM, CDC, UNICEF, WHO, UENPS and SBP do not specify.
PPE to mother	5(20.3)	19(79.1)/NR	All guidelines recommend.
Neonatal bath	11(45.8)	13(54.1)/NR	SBP recommends an individualized bath routine; RCOG, ABM, CDC, WHO, UNICEF and UENPS do not specify.

RA/Recommended against; NR/ There was no description of the recommendation in guidelines. Brazilian Society of Pediatrics (SBP) , Brazilian Network of Human Milk Banks (rBLH) , World Health Organization (WHO), Center for Disease Control and Prevention

(CDC), United Nations Children’s Fund (UNICEF), Royal College of Obstetricians and Gynaecologists (RCOG), Union of European Neonatal and Perinatal Societies (UENPS) and Academy of Breastfeeding Medicine (ABM).

Table 2 Recommendations in rooming-in for the management of the mother-infant dyad exposed to SARS-CoV-2

Recommendations	Brazilian hospitals guidelines (n=24)		Available recommendations in Brazilian and international literature [15-27]
	Yes (%)	No (RA/NR-%)	
Shared decision	18(75.0)	6(25.0)/NR	RCOG, CDC and ABM encourage shared decision; WHO suggests the dialog but reinforces the need of speaking about the benefits on breastfeeding; UNICEF, UENPS and SBP do not specify.
Feeding on demand	23(95.8)	1(4.1)/NR	None of the guidelines specifies.
Individual room to dyad	15(62.5)	9(37.5)/NR	rBLH and UENPS recommend individual room; RCOG and ABM offers as an option; WHO and UNICEF do not specify; CDC recommends separation.
Dyad separation	1(4.1)	23(95.8)/RA	UNICEF, RCOG and WHO do not recommend; CDC recommends; UENPS advises against separation, allows only if mother is symptomatic or the hospital logistics forbids it; SBP and ABM do not specify.
Companion room	4(16.6)	20(83.3)/RA	CDC limits visits and suggests rules; UENPS and rBLH suspend visits; SBP, RGCO and ABM suggest healthy adult to help; WHO and UNICEF do not specify.
Use of mask	23(95.8)	1(4.1)/NR	RCOG, ABM, UNICEF, CDC, UENPS and SBP recommend.
Washing hands	23(95.8)	1(4.1)/NR	RCOG, ABM, SBP, WHO, UNICEF, CDC and UENPS recommend.

Washing the face	4(16.6)	20(83.3)/NR	WHO, CDC, RCOG, SBP, ABM, UNICEF and UENPS do not specify.
Cleaning the breast	7(29.1)	17(70.8)/NR	WHO, CDC, RCOG, SBP, ABM and UENPS do not specify; UNICEF recommends if mother is coughing.
Changing the clothes	2 (8.3)	22(91.6)/NR	WHO, UNICEF, CDC, RCOG, SBP, ABM and UENPS do not specify.
2 meter distance	24(100)	0(0)/RA	ABM, CDC, UENPS and rBLH recommend distance; WHO suggests precaution, however keeping mothers and infants together day and night. RCOG, UNICEF does not specify.
Psychological support	23(95.8)	1(4.1)/NR	ABM, SBP, UNICEF, WHO and UENPS do not specify; CDC and RCOG recommend.
Home Environment Recommendations for the mother	24(100)	0(0)/NR	ABM and SBP do not specify; rBLH recommends if mother is insecure; WHO, RCOG, CDC, UNICEF and UENPS recommend.
Home Environment Recommendations for the family	18(75)	6(25)/NR	ABM, WHO, UNICEF, UENPS and SBP do not specify; RCOG and CDC recommend.
Hospital discharge (24-48h)	19(79.1)	5(20.8)/RA	UENPS recommends discharge in 48h, if hospital is crowded; if it is not, it recommends 1 week in the hospital to repeat the swab test; WHO, CDC, RCOG ABM, SBP and UNICEF do not specify.

RA/Recommended against; NR/ There was no description of the recommendation in guidelines. Brazilian Society of Pediatrics (SBP) , Brazilian Network of Human Milk Banks (rBLH) , World Health Organization (WHO), Center for Disease Control and Prevention (CDC), United Nations Children’s Fund (UNICEF), Royal College of Obstetricians and

Gynaecologists (RCOG), Union of European Neonatal and Perinatal Societies (UENPS) and Academy of Breastfeeding Medicine (ABM).

Table 3 Recommendations in home environment for the management of the mother-infant dyad exposed to SARS-CoV-2

Recommendations	Brazilian hospitals guidelines (n=24)		Available recommendations in Brazilian and international literature [15-27]
	Yes (%)	No (RA/NR-%)	
Breastfeeding	24 (100)	0 (0)/RA	UENPS, WHO and UNICEF clearly stand in favor; rBLH, SBP, ABM, RCOG and CDC recommend if the mother desires.
Feeding on demand	24 (100)	0 (0)/NR	WHO, RCOG, ABM, SBP, CDC, UNICEF and UENPS do not specify.
Comforting techniques (tummy cramps and crying)	11 (45.8)	13 (54.1)/NR	WHO, UNICEF, CDC, RCOG, ABM, SBP and UENPS do not specify.
Other person's neonatal care (not mother's care)	16 (66.6)	8 (33.3)/NR	CDC, ABM and SPB recommend; RCOG, WHO, UNICEF and UENPS do not specify.
Artificial feeding	6 (25)	18 (75)/RA	RCOG, ABM, SBP and CDC do not specify; UENPS clearly discourages and recommends expressed fresh mother's milk; WHO, UNICEF suggests infant formula if breast milk is not possible.
Hygiene measures	24 (100)	0 (0)/RA	WHO, UNICEF, CDC, RCOG, ABM, UENPS, SBP and rBLH allow alcohol gel before handling.
2m distance	24 (100)	0 (00)/RA	ABM, UENPS, SBP and CDC recommend; RCOG, WHO and UNICEF do not specify.
Separate rooms	4 (16.6)	20 (83.3)/NR	Recommendation not specified for home environment; UENPS, SBP, RCOG, WHO and UNICEF do not specify; ABM recommends as an option; CDC recommends.

Distance between siblings	15 (62.5)	9 (37.5)/NR	WHO, UNICEF, CDC, RCOG, SBP, ABM and UENPS do not specify.
Actions to support breastfeeding	11 (45.8)	13 (54.1)/NR	WHO, UNICEF, UENPS, ABM and SBP do not specify; rBLH recommends suspending educational groups on breastfeeding; RCOG and CDC recommend.
Home visit	4 (16.6)	20 (83.3)/RA	RCOG, ABM , SBP, CDC, WHO and UNICEF do not specify; UENPS discourages.
Telemedicine	11 (45.8)	13 (54.1)/NR	WHO, RCOG, CDC and UENPS encourage; ABM does not specify; rBLH recommends for breastfeeding support and encouragement; UNICEF do not specify.
Reference center to medical evaluation.	5 (20.8)	19 (79.1)/NR	UENPS recommends return with 7 days, 14 days and 28 days after discharge; WHO, UNICEF, CDC, RCOG, ABM and SBP do not specify.
Newborn screening in the hospital	11 (45.8)	13 (54.1)/NR	WHO, CDC, RCOG, ABM, SBP, UNICEF and UENPS do not specify.
Psychological call center	9 (37.5)	15 (62.5)/NR	ABM, WHO, UNICEF SBP and UENPS do not specify; CDC and RCOG recommend.

RA/Recommended against; NR/ There was no description of the recommendation in guidelines. Brazilian Society of Pediatrics (SBP) , Brazilian Network of Human Milk Banks (rBLH) , World Health Organization (WHO), Center for Disease Control and Prevention (CDC), United Nations Children’s Fund (UNICEF), Royal College of Obstetricians and Gynaecologists (RCOG), Union of European Neonatal and Perinatal Societies (UENPS) and Academy of Breastfeeding Medicine (ABM).

Table 4 Recommendations on breastfeeding and human milk handling for the mother-infant dyad exposed to SARS-CoV-2

Recommendations	Brazilian hospitals guidelines (n=24)		Available recommendations in Brazilian and international literature [15-27]
	Yes (%)	No (RA/NR-%)	
Hospital pumping	21(87.5)	3(12.5)/RA	RCOG, WHO, UNICEF, UENPS, SBP, rBLH, ABM and CDC allow.
Bedside pumping	19(79.1)	5(20.8)/RA	RCOG, WHO, UNICEF, UENPS, SBP, rBLH, ABM and CDC do not specify.
Fresh mother's breast milk	21(87.5)	3 (12.5)	WHO, UNICEF, RCOG, SBP, ABM and CDC suggest as a breastfeeding alternative; UENPS does not recommend if mother is symptomatic; rBLH allows expressing, but for patients in neonatal units the milk must be pasteurized and the milk from mothers in intensive care units must be thrown away.
Relactation	2(8.3)	23(95.8)/NR	UNICEF, ABM, SBP, CDC UENPS and RCOG do not specify. WHO recommends.
Cup feeding	18(75)	6(25)/NR	WHO, UNICEF, ABM, SBP, CDC and UENPS recommend cup or spoon feeding; RCOG does not specify.
Pasteurization	4(16.6)	20(83.3)/RA	UENPS discourages, even for preterm babies; SBP and rBLH recommend that for patients in neonatal units the milk must be pasteurized; RCOG, ABM, CDC, WHO and UNICEF do not specify.
Donation permission	2(8.3)	23(95.8)/RA	SBP and rBLH don't allow that these women are donors up to 15 days after the onset of symptoms; ABM, RCOG, WHO, and UNICEF do not specify; CDC forbids.
Home pumping	11(45.8)	13(54.1)/RA	WHO, CDC, UNICEF, RCOG, ABM, rBLH and UENPS allow.

RA/Recommended against; NR/ There was no description of the recommendation in guidelines. Brazilian Society of Pediatrics (SBP) , Brazilian Network of Human Milk Banks (rBLH) , World Health Organization (WHO), Center for Disease Control and Prevention (CDC), United Nations Children’s Fund (UNICEF), Royal College of Obstetricians and Gynaecologists (RCOG), Union of European Neonatal and Perinatal Societies (UENPS) and Academy of Breastfeeding Medicine (ABM).