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ORIGINAL ARTICLE

Breastfeeding supportive practices in European hospitals during the COVID-19 pandemic

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ABSTRACT

Introduction: During the first year of the COVID-19 pandemic, international recommendations and guidelines regarding breastfeeding-supportive hospital practices changed frequently. For example, some recommended separation of mothers and infants; others, feeding pumped milk instead of milk fed directly from the breast. Many recommendations were inconsistent or in direct conflict with each other. Guidance from UENPS (the Union of European Neonatal and Perinatal Societies) published in April 2020 recommended rooming in and direct breastfeeding where feasible, under strict measures of infection control, for women who were COVID-19 positive or under investigation for COVID-19.

Key findings: Our study assessed data from respondents from 124 hospitals in 22 nations, with over 1000 births per year, who completed a survey on practices during the COVID-19 epidemic, as they related to the World Health Organization (WHO) *Ten Steps to Successful Breastfeeding,* considered to be the gold standard for breastfeeding support. The survey was conducted in the fall of 2020/winter of 2021. Overall 88% of responding hospitals had managed COVID positive mothers, and 7% had treated over 50 birthing women with confirmed COVID-19. The biggest change to hospital policy related to visitation policies, with 38% of hospitals disallowing all visitors for birthing women, and 19% shortening the postpartum stay. Eight hospitals (6%) recommended formula feeding instead of breastfeeding for women who tested positive for COVID-19 or were under investigation, whereas 73% continued to recommend direct, exclusive breastfeeding, but with some form of protection such as a mask or hand sanitizer for the mother or cleaning the breast before the feed. While 6% of hospitals discontinued rooming in, 31% strengthened their rooming in policy (keeping mothers and their babies together in the same room) to protect infants against possible exposure to the virus elsewhere in the hospital . Overall, 72% of hospitals used their country's national guidelines when making policy, 31% used WHO guidelines and 22% UENPS/SIN guidelines. Many European hospitals relied on more than one accredited source.

Discussion: Our most concerning finding was that 6% of hospitals recommended formula feeding for COVID positive mothers, a measure that was later shown to be potentially harmful, as protection against the virus is transmitted through human milk. It is encouraging to note that a third of hospitals strengthened rooming in measures. Especially given the emergence of the highly transmissible Delta variant, the situation around postnatal care in maternity hospitals requires ongoing monitoring and may require proactive investment to regain pre-COVID era practices.

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Breastfeeding; rooming in; skin-to-skin contact; postnatal practices; COVID-19

Introduction

During the first year of the COVID-19 pandemic, international recommendations regarding breastfeeding-supportive hospital practices changed frequently [1–3]. On 13 March 2020, the World Health Organization (WHO) first released clinical management guidelines on COVID-19 that included recommendations on breastfeeding and postpartum practices for mothers and newborns during the hospital stay [3]. The WHO recommended direct breastfeeding, skin-to-skin

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contact, and rooming in; with additional guidance on appropriate hygiene measures and precautions to reduce risk of transmission of COVID-19 [3]. Professional organizations and national departments of health released guidelines and recommendations at different times, some prior to the WHO guidelines, and others afterwards. The US Centers for Disease Control and Prevention (CDC) released their first guidelines on COVID-19 and breastfeeding on 18 February 2020, and did not recommend direct breastfeeding, and recommended separating COVID positive mothers from their infants, whereas the guidance from the UK's Royal College of Obstetrics and Gynecology, released 26 March 2020, recommended keeping mother and infant together in the immediate postpartum period, and direct breastfeeding following precautions to prevent viral spread. Both CDC and RCOG went on to update their guidelines several times throughout the pandemic [4,5].

While guidelines recommending precautions such as wearing personal protective equipment (PPE), social distancing and screening women admitted to the maternity ward were of value, others, such as not feeding directly from the breast, or separation of mother and infant during the hospital stay, were not evidence-based and led to unsupportive hospital practices, sometimes with adverse outcomes for breastfeeding women and infants [6,7] whether or not they were COVID positive [8].

A review of international COVID-19 guidance for maternal and newborn care, assessing alignment with WHO recommendations, performed by the international collaborative Alive and Thrive, (https://www.aliveandthrive.org/en), found that there were "considerable inconsistencies" in recommendations from the 33 countries reviewed, and that none of the documents reviewed recommended all aspects of WHO guidance [9]. The review also found that the five most commonly cited guidelines were the "Chinese expert consensus on the perinatal and neonatal management for the prevention and control of the 2019 novel coronavirus infection," [10] guidance from the Centers for Disease Control and Prevention [5], guidance from the American College of Obstetricians and Gynecologists (ACOG) [11], guidance from the Royal College of Obstetrics and Gynecology [4], and WHO guidance [3].

In April 2020, The Union of European Neonatal and Perinatal Societies Guidance (UENPS), with the collaboration of the Italian Society of Neonatology (SIN) issued specific indications on postpartum care, particularly breastfeeding, in the light of COVID-19 [12]. UENPS has a mission of integrating and coordinating national scientific societies of the European Region in the perinatal and neonatal area, also developing recommendations and guidelines on specific clinical topics and monitoring clinical indicators. UENPS stated specifically that rooming in should be considered feasible, and direct breastfeeding advisable, under strict measures of infection control, if the mother was identified as COVID-19 positive or as a person under investigation for COVID-19 and was asymptomatic or paucisymptomatic at delivery; and, that if a COVID-19 mother were too sick to care for the newborn, the neonate should be managed separately and fed fresh expressed breast milk [12].

Within the context of these ever-changing guidelines, a Working Group of CHEER (the Center for Health Equity, Education, and Research at Boston University School of Medicine), UENPS and SIN conducted this study to assess breastfeeding-supportive practices in hospitals across Europe during the COVID-19 pandemic.

Materials and methods

The study team created a questionnaire for hospitals, based on the World Health Organization (WHO) *Ten Steps to Successful Breastfeeding,* considered to be the gold standard for breastfeeding supportive care. For example, the survey included questions about rooming in, where newborns remain with their mothers 24 h per day, and skin-to-skin (STS) contact at birth, where infants are placed on the mother's chest, unclothed, for at least the first hour of life. The WHO recommends both these practices to optimize breastfeeding success. The questions included multiple-choice, fill-in, and yes/no questions, and the questionnaire had been piloted in a similar study on hospitals across the state of Mississippi, USA (paper in process). Respondents were encouraged to include freeform comments to cover any material or issues that had not been included in the questionnaire.

The President of UENPS emailed the Presidents or Secretaries of all National Neonatal Societies in Europe, to request contact information for all the neonatal departments in their respective countries. For hospitals that responded, the study team then emailed a link to the survey to each neonatal department contact person. At the time the survey was distributed, some countries (e.g. Albania, Austria, Germany) were not members of UENPS: in these cases the survey was distributed to hospitals where the contact persons were known to the research team. Hospitals were

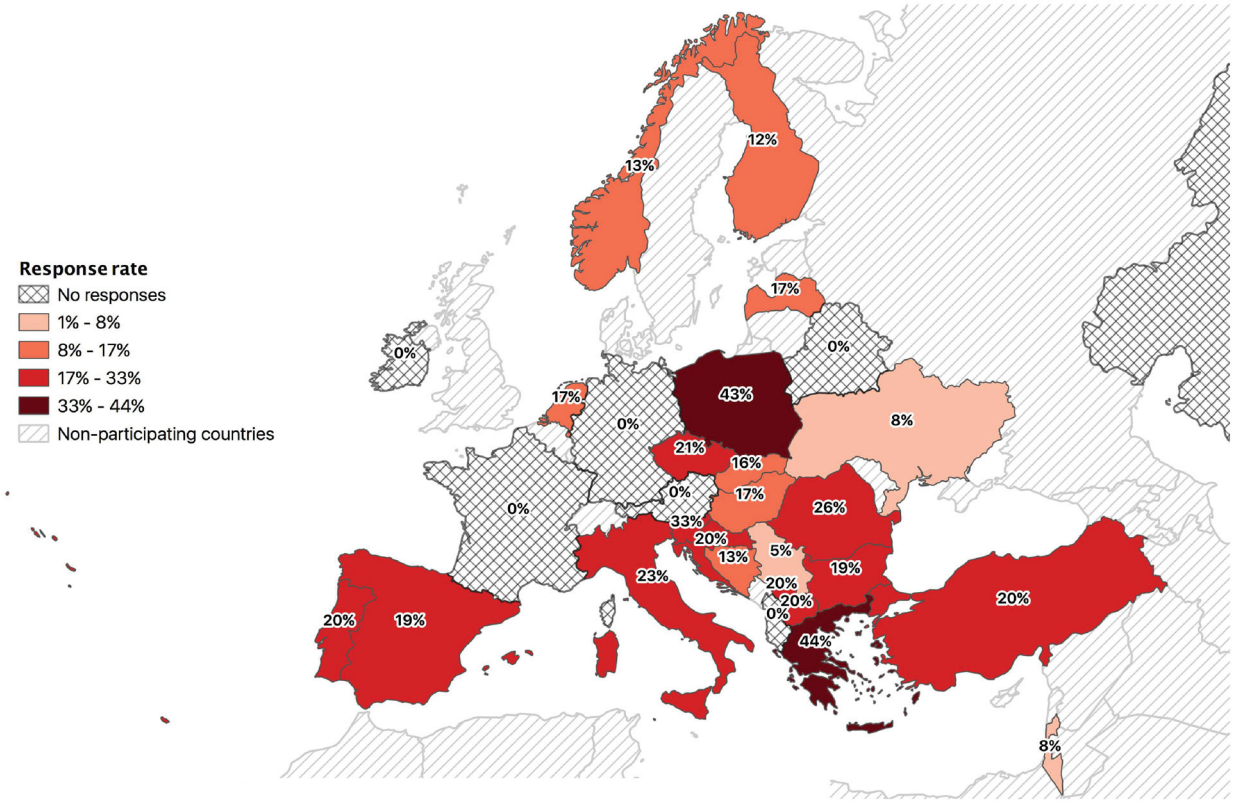

Figure 1. COVID-19 and hospital postnatal practices .

eligible to be surveyed if they had more than 1000 births per year, and if their national privacy guidelines allowed for surveying after requesting permission to engage.

The survey was distributed using Qualtrix™ and responses were anonymized and encrypted before analysis so that hospitals could not be identified. Data were returned automatically to the study team through the Qualtrix link. Participation was voluntary, and completion of the survey was considered as informed consent for the respondents' participation. A reminder was sent to non-responders every 2 weeks; after three reminders with no response, the participant was considered a non-responder. Results were analyzed in Excel™ using simple percentages.

Results

Between November 2020 and January 2021, the survey was distributed to 700 European birthing hospitals in 30 countries. Respondents from 124 hospitals in 22 nations completed the survey (Figures 1 and 2), 94% of whom were neonatologists and 6% were pediatricians.

Overall, 88% of responding hospitals had managed COVID positive mothers, and 80% of sites screened all birthing women for COVID-19, while 63% tested newborns. Nine hospitals (7%) had treated over 50 birthing women with confirmed COVID 19, and 28 hospitals (23%) had not treated any women with confirmed COVID-19, in some cases, because women who tested positive were referred out and their care managed by centralized facilities in the region (Table 1).

The biggest change to hospital practice related to visitation policies, with 38% of hospitals disallowing all visitors for birthing women, and 19% shortening the postpartum stay. With regard to infant feeding, for women who tested positive for COVID-19 or were under investigation, 8 hospitals (6%) recommended formula feeding instead of breastfeeding, whereas 90 hospitals (73%) continued to recommend direct, exclusive breastfeeding, but with some form of protection such as a mask or hand sanitizer for the mother or cleaning the breast before the feed.

Overall, 94% of hospitals stated that their normal policy was 24 h rooming in for mothers and babies, and 31% of hospitals stated that these policies were strengthened during COVID-19 to protect infants against possible exposure to the virus elsewhere in the hospital, but 6% of hospitals discontinued rooming in in response to the pandemic. Most hospitals adhered to their skin-to-skin policies (79%), while many added extra precautions such as mothers wearing masks (44%).

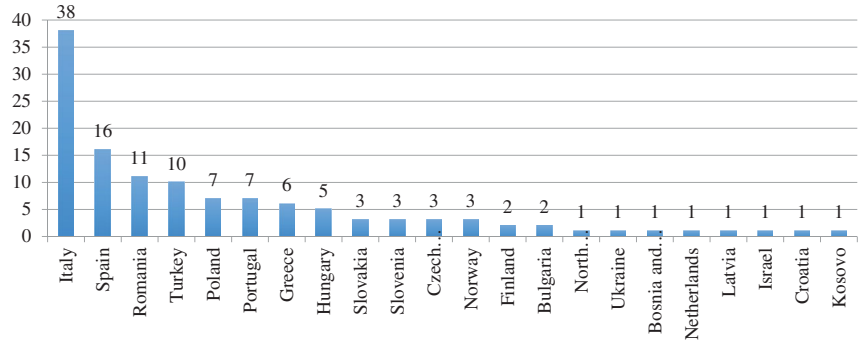

Figure 2. Hospitals that participated in the survey per country.

Table 1. COVID-19 Screening, Testing, and Cases.

Survey questions and responses	*n* (%)
Is your hospital screening pregnant women, or women who present to give birth, for COVID-19?	
Yes, screen all maternity care patients	99 (80)
No	19 (15)
Don't know	1 (1)
Other	5 (4)
Is your hospital testing pregnant women, or women who present to give birth for COVID-19?	
Yes, test all pregnant women	89 (72)
Yes, test pregnant women with positive risk factors and/or with symptoms such as fever, cough, etc.	28 (23)
No, not testing any maternity care patients at this time	3 (2)
Other	4 (3)
Does your hospital test newborns for COVID-19?	
Yes	78 (63)
No	46 (37)
If yes, how soon after birth are they tested?	
<2 h	20 (26)
3–24 h	38 (49)
25–48 h	15 (19)
>48 h	5 (6)
What is your hospital's approach for testing newborns for COVID-19?	
Test all newborns whose mothers test positive for COVID-19	49 (63)
Test all newborns whose mothers test positive for COVID-19 plus patients under investigation	24 (31)
Only test some newborns of mothers who are COVID-19 positive, such as those who are symptomatic and/or in the Special Care Nursery/ Neonatal Intensive Care Unit	3 (4)
Other	2 (3)
How many patients with confirmed COVID-19 given birth at your facility?	
None	28 (23)
<10	47 (38)
11–50	39 (31)
>50	9 (7)
Don't know	1 (1)

When creating COVID-related policy, 72% of European hospitals used national guidelines, 31% used WHO guidelines and 22% UENPS/SIN guidelines. Many hospitals used guidelines from more than one accredited source. All policy related results are summarized in Table 2.

In the free text comments section of the survey, several respondents noted and expressed concern about severe limitations on parental visits to babies in intensive care due to the pandemic, with some units forbidding all parental visits. Other frequent comments described how hospitals had created separate units for COVID positive mothers, and in some instances, all positive cases were referred out to centralized hospitals. Several stated that technology was used to help mothers remain in contact with family and friends, and that psychological support was needed and offered to mothers birthing alone. Many hospitals changed discharge and postpartum practices in response to COVID-19, with one noting that neonatal hearing screens were delayed until 4 weeks after discharge instead of being performed during the postpartum hospital stay.

Table 2. COVID-19 hospital policy changes.

Survey questions and responses	*n* (%)
During the COVID epidemic, what is or was your hospital's visitation policy for maternity care patients?	
No one except hospital staff can be with the mother	47 (38)
Only the father or partner can be with the mother, irrespective of whether they were tested or not for COVID-19	17 (14)
Only the father or partner can be with the mother, as long as they test negative for COVID-19	13 (10)
Only one support person can be with the mother (mother's choice, does not have to be the father/partner) irrespective of whether they were tested or not for COVID-19	22 (18)
Only one support person can be with the mother (mother's choice, does not have to be the father/partner) as long as they tested negative for COVID-10	17 (14)
Don't know	3 (2)
Other	5 (4)
How does your unit manage STS care in the first hour after birth for healthy mothers and babies during the COVID-19 pandemic?	
Do not practice STS	10 (8)
Adhere to our normal STS practices	43 (35)
Encourage STS along with new practices to prevent infection (e.g. mother in a mask)	54 (44)
Use a shared decision making approach to STS (case-by-case)	14 (11)
Don't know	1 (1)
Other	2 (2)
How does your unit manage or plan to manage STS care in the first hour after birth for women who are COVID+/under investigation who are asymptomatic or paucisymptomatic?	
Adhere to our normal STS practices	8 (6)
Encourage STS along with new practices to prevent infection (e.g. mother in a mask)	61 (49)
Use a shared decision making approach to STS (case-by-case)	20 (16)
Mothers may practice STS, although we counsel mothers against STS	2 (2)
Do not practice STS	27 (22)
Do not have a plan for STS for mothers who are COVID+/under investigation	3 (2)
Don't know	1 (1)
Other	2 (2)
Does your hospital routinely ensure that the baby is in the mother's room or with the mother 24 h a day ("rooming in")?	
Yes	116 (94)
No	8 (6)
If yes, did your hospital's rooming-in policy for healthy mothers and babies change during the COVID-19 pandemic?	
No, adhered to our normal rooming-in practices	70 (57)
Yes, discontinued this hospital practice	7 (6)
Yes, strengthened our rooming-in recommendations, to keep mothers and babies in the same room and limit the baby's risk of exposure to COVID-19 in the hospital	38 (31)
What is the usual location of newborn care for an infant born to a mother under investigation for COVID-19, given all the precautions needed (mask, minimum distance, curtain/barrier)?	
Separate rooms (rooming-in is not offered)	18 (15)
Same room for all mother/infant pairs under investigation for COVID-19	54 (44)
Same room, ONLY if a single patient room is available for mother/baby pair	26 (21)
Decision based on shared decision making (case-by-case)	24 (19)
Don't know	1 (1)
Other	1 (1)
What is the usual location of newborn care for an infant born to a confirmed COVID-19 mother at your hospital given all the precautions needed (mask, minimum distance, curtain/barrier)?	
Separate rooms (rooming-in is not offered)	24 (19)
Same room for all COVID-19 confirmed mothers	40 (32)
Same room for all mother/infant pairs under investigation for COVID-19, ONLY if a single patient room is available for mother/baby pair	30 (24)
Decision based on shared decision making (case-by-case)	18 (15)
Don't know	1 (1)
Other	11 (9)
Has your hospital changed the length of postpartum stay in response to COVID-19?	
Yes, longer length of stay	13 (10)
Yes, shorter length	24 (19)
No	85 (69)
Don't know	2 (2)
Has your hospital changed infants' follow-up after discharge because of COVID-19?	
Yes	31 (25)
No	89 (72)
Don't know	4 (3)
What is the feeding plan recommended for mothers who are COVID-19 positive, or under investigation in your unit?	
Direct, exclusive breastfeeding	13 (10)
Direct, exclusive breastfeeding, and advises mothers to wash their hands before breastfeeding and to wear a mask while breastfeeding	42 (34)
Direct, exclusive breastfeeding, and advises these mothers to wash their hands before breastfeeding, to wear a mask while breastfeeding, AND to clean the breast before breastfeeding	48 (39)
Feeding expressed breast milk instead of feeding the infant directly from the breast	8 (6)
Formula feeding	8 (6)
Other	5 (4)
What guidance did your hospital use to create your practice guidelines for COVID +/suspected patients? (Check all that apply)	

(*continued*)

Table 2. Continued.

Survey questions and responses	*n* (%)
WHO	40 (31)
UENPS	29 (22)
National Guidelines	94 (72)
Don't know	3 (2)
Other	10 (8)

Abbreviations: STS, skin-to-skin; WHO, World Health Organization; UENPS, Union of European Neonatal & Perinatal Societies.

Discussion

Our results represent a broad range of responses to breastfeeding-supportive policies across 22 nations and can be a useful tool to anticipate pandemic response with regard to breastfeeding going forward. Data provided dated from the second peak of the COVID pandemic (Autumn 2020 and Winter 2020–2021), possibly representing a set of postnatal practices stabilized after the initial sudden, abrupt organizational changes potentially impacting the mother–infant relationship. Even if this were the case, policies were still variable and not always consistent with recommendations or best practices [1], possibly due to the system inertia in hospitals [13,14].

Our most concerning finding was that 6% of hospitals recommended formula feeding for COVID positive mothers, which was not evidence based and shown to be an adverse health decision, as later studies demonstrated that SARS-CoV-2 eventually detectable in human milk is not replication-competent [15] and that antibodies to the virus were transmitted through the mother's milk [16]. It is encouraging to note that a third of hospitals strengthened rooming in measures, presumably appreciating the protecting value against infection advising women to adhere more stringently to this policy (as most hospitals stated it was already in place).

The length of postpartum stay has changed in a relevant percentage of European hospitals, mainly being shortened, possibly to reduce the coexisting time of new mothers in hospitals and the COVID-19 contagion risk. Nevertheless, a shortened length of stay of new mothers, if combined with a limited access to antenatal care, social isolation in the perinatal period [17] and simplified provision of postnatal care [18] might have affected the birthing experience of new mothers under COVID-19 [19] in terms of suboptimal moral support and practical help, particularly for breastfeeding.

Thus close monitoring of breastfeeding rates at hospital discharge and subsequently are needed and interventions to regain pre-pandemic practices are eventually requested.

Limitations of the study include that Italian hospitals are over-represented due to a particularly high response rate from that nation, presumably due to a well-established relationship between UENPS and SIN, and some nations were not represented, or under-represented, either because of privacy laws preventing survey outreach, or because no hospitals responded to the survey. Our outreach approach was not rigid, and was designed to capture as many institutions as possible, but because of the disparate response rates, findings may not be representative of Europe as a whole. Nonetheless, the picture of variability and inconsistency is reflective of guidance at the time [1], and we have no reason to believe that other nations would have reacted in a more predictable manner.

In conclusion, European hospitals differed in their interpretation of guidance around breastfeeding-supportive policies during the COVID pandemic, and some advised formula feeding although no national or international guidelines recommended discontinuation of breastfeeding. The situation around postnatal care in maternity hospitals requires ongoing monitoring and, in the future, will require proactive investment to regain pre-COVID practices.

Authors' contributions

AM, RD, LB and CM conceived the study. GV, CG and FM contributed to the design. GV, MHK and LB carried out the data collection and guaranteed data integrity. MHK performed statistical analyses. AM wrote the first draft and RD reviewed it. All authors approved the final version of the manuscript.

Disclosure statement

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