Learning needs of family physicians, pediatricians and obstetricians to support breastfeeding and inform physician education

Krista Baerg, Juliet Smith-Fehr, Joshua Marko, Amanda Loewy, Jill Blaser Farrukh and Tonia Olson

Article abstract

Background: Physicians require breastfeeding education appropriate to their roles. The aim of this survey was to determine physician learning needs and to inform development of breastfeeding education for physicians.

Methods: A cross sectional survey was distributed to family physicians, pediatricians and obstetricians in a tertiary institution. Importance of knowledge to practice and confidence to manage was assessed for 18 learning topics proposed by a multi-specialty physician working group. Descriptive statistics, ANOVA and tests for equality of variances were calculated. Mean values of importance to practice and confidence to manage for each topic suggested learning priorities.

Results: The study group included 75 physicians. The most important topics were “informed choice when supporting newborn feeding,” “analgesics, antidepressants and other medications while breastfeeding” and “community resources for breastfeeding support.” Confidence to manage was lowest for “latch assessment,” “what mom can do during pregnancy to promote milk production,” and “risk factors for delayed lactogenesis.” Preferred learning formats were 15-minute online modules and grand rounds.

Conclusions: Physicians acknowledged the importance of all topics but report lowest confidence to manage latch assessment, prenatal interventions to support lactogenesis and management of delayed lactogenesis. Participants placed relatively low importance on learning about latch assessment despite the central nature of this skill in supporting early breastfeeding.
Learning needs of family physicians, pediatrics, and obstetricians to support breastfeeding and inform physician education

Les besoins d’apprentissage des médecins de famille et des médecins spécialistes en pédiatrie et en obstétrique pour les outiller à soutenir l’allaitement et pour mieux orienter leur formation

Krista Baerg,1 Juliet Smith-Fehr,2 Joshua Marko,3 Amanda Loewy,4 Jill Blaser Farrukh,4 Tonia Olson2
1Department of Pediatrics, University of Saskatchewan, Saskatchewan, Canada; 2Healthy & Home Program, Saskatchewan Health Authority, Saskatchewan, Canada; 3Population Health, Saskatchewan Health Authority, Saskatchewan, Canada; 4Department of Academic Family Medicine, University of Saskatchewan, Saskatchewan, Canada

Correspondence to: Dr. Krista Baerg, 103 Hospital Drive, Saskatoon, SK, S7N 0W8; email: dr.kbaerg@usask.ca
Published ahead of issue: September 29, 2021; published: December 29, 2021. CMEJ 2021, 12(6) Available at http://www.cmej.ca

© 2021 Baerg, Smith-Fehr, Marko, Loewy, Blaser Farrukh, Olson; licensee Synergies Partners

Abstract

Background: Physicians require breastfeeding education appropriate to their roles. The aim of this survey was to determine physician learning needs and to inform development of breastfeeding education for physicians.

Methods: A cross sectional survey was distributed to family physicians, pediatricians and obstetricians in a tertiary institution. Importance of knowledge to practice and confidence to manage was assessed for 18 learning topics proposed by a multi-specialty physician working group. Descriptive statistics, ANOVA and tests for equality of variances were calculated. Mean values of importance to practice and confidence to manage for each topic suggested learning priorities.

Results: The study group included 75 physicians. The most important topics were “informed choice when supporting newborn feeding,” “analgesics, antidepressants and other medications while breastfeeding” and “community resources for breastfeeding support.” Confidence to manage was lowest for “latch assessment,” “what mom can do during pregnancy to promote milk production,” and “risk factors for delayed lactogenesis.” Preferred learning formats were 15-minute online modules and grand rounds.

Conclusions: Physicians acknowledged the importance of all topics but report lowest confidence to manage latch assessment, prenatal interventions to support lactogenesis and management of delayed lactogenesis. Participants placed relatively low importance on learning about latch assessment despite the central nature of this skill in supporting early breastfeeding.

Résumé

Contexte : Les médecins ont besoin d’une formation sur l’allaitement adaptée à leur rôle. L’objectif de cette enquête était de contribuer à l’élaboration d’une telle formation en déterminant les besoins d’apprentissage des médecins dans ce domaine.

Méthodes : Une enquête transversale a été réalisée auprès des médecins de famille, des pédiatres et des obstétriciens dans un établissement tertiaire. L’importance des connaissances pour la pratique et de la confiance envers la prise en charge a été évaluée pour 18 sujets d’apprentissage proposés par un groupe de travail de médecins de diverses spécialités. On a effectué des statistiques descriptives, une analyse de la variance et des tests de l’égalité des variances. Les valeurs moyennes de l’importance pour la pratique et de la confiance dans la prise en charge pour chaque sujet indiquent les priorités d’apprentissage.

Résultats : Le groupe d’étude comprenait 75 médecins. Les sujets les plus importants étaient « le choix éclairé concernant l’alimentation du nouveau-né », « la prise d’analgésiques, d’antidépresseurs et d’autres médicaments pendant l’allaitement » et « les ressources communautaires de soutien à l’allaitement ». La confiance dans la prise en charge était la plus faible en ce qui concerne « l’évaluation de la prise du sein », « ce que la mère peut faire pendant la grossesse pour favoriser la production de lait » et « les facteurs de risque associés au retard de la lactogenèse ». Les formats d’apprentissage préférés étaient les modules de 15 minutes et les séances plénières.

Conclusions : Les médecins reconnaissent l’importance de tous les sujets mais ils se disent moins confiants dans leur capacité à évaluer la prise du sein, de faire les interventions prénatales pour favoriser la lactogenèse et de prendre en charge la lactogenèse retardée. Les participants ont accordé relativement peu d’importance à l’apprentissage de l’évaluation de la prise du sein, malgré l’importance de cette compétence pour soutenir le démarrage précoce de l’allaitement.

55
Introduction
Breastfeeding can considerably improve a child’s lifelong health, while reducing costs to families and the healthcare system. Family physicians, pediatricians and obstetricians are uniquely positioned to support breastfeeding. However, marketing of breast-milk substitutes, inadequate support for breastfeeding and misperceptions about infant feeding remain significant barriers to breastfeeding initiation and continuation. The Baby-Friendly Hospital Initiative (BFHI) is a global strategy to protect, promote, and support breastfeeding, a global trend of increased breastfeeding initiation, duration and exclusivity is associated. In Canada, the BFHI is called the Baby-Friendly Initiative (BFI), recognizing the continuum of care from hospital to home. BFI designated institutions must adhere to The Ten Steps to Successful Breastfeeding and the WHO Code. BFI practices are endorsed by leading health professional organizations; however, a Canadian study of family physicians and pediatricians shows breastfeeding knowledge, confidence, beliefs, and attitudes are suboptimal.

All physicians require education appropriate to their role. Assessment of current knowledge and identification of gaps is recommended. Previous gap analysis to assess learning needs of practicing family physicians, pediatricians and obstetricians on labor and delivery, pediatric and neonatal units in an American center revealed lack of comfort supporting skin-to-skin holding, breast milk expression and management of common breastfeeding challenges. However, little is known about specialist differences in knowledge and confidence to manage breastfeeding issues or specific learning needs of Canadian family physicians, pediatricians and obstetricians for breastfeeding education. In order to inform physician education on breastfeeding, we designed a survey to assess importance of 18 potential learning topics to medical practice, physician confidence to manage the related child and maternal presentations, and preferred education delivery modes.

Methods
Study design
A BFI Physician Working Group (PWG) comprised of physician representatives from family medicine, pediatrics and obstetrics, supported by a BFI coordinator and lactation consultant, considered the BFI Ten Steps to Successful Breastfeeding and the WHO Code, Canadian BFI Outcome Indicators for Hospitals and Community Health Services, and common child and maternal health presentations in their practices. The PWG considered practice opportunities to support breastfeeding mothers and babies during the prenatal, intrapartum and perinatal periods up to the first 6 months. Using a multi-specialty physician lens, 18 potential physician learning topics to address common breastfeeding concerns that arise in medical practice were identified. A cross sectional survey study design was used for this 11-item survey. Participation was voluntary and anonymous.

Setting
The tertiary care center in Saskatoon, Canada has a birth rate of approximately 5,700 per year, serves a population in excess of 300,000 and is a referral center for high-risk pregnancies and newborns. In our geographic catchment area, exclusive breastfeeding rates are less than 50% at two months. In our center, lactation consultants and speech language pathologists support breastfeeding in inpatient, ambulatory and community follow-up program settings.

Sampling method
We distributed the electronic survey to all family physicians, pediatricians and obstetricians who admit mothers or babies to the maternal care center, pediatrics unit and neonatal and pediatric intensive care units in our tertiary center. This included 143 physicians: 67 family physicians, 57 pediatricians (general pediatricians, pediatric subspecialists, and neonatologists), and 19 obstetricians.

Study protocol
The survey was open from January 5 to 30, 2018 with one reminder to participate emailed two weeks after the first invitation to participate. The survey data was collected for program development and/or evaluation in the ordinary course of organizational operation and deemed exempt from research ethics board approval (Beh. ID 2400).

Outcome measures
Demographic data gathered included age, gender, specialty, practice pattern, and location. Participants rated importance of knowledge and confidence to manage the 18 topics. In response to the question, “To better understand your personal learning needs, please rank the importance of knowledge on the following topics to your practice,” physicians were asked to rate each topic on a scale of 4 (Very Important), 3 (Important), 2 (Not Important) or 1 (Not Applicable). In response to the question, “Please rank your confidence in management of the following,” physicians were asked to rate each topic on
a scale of 4 (Can Manage Very Well), 3 (Manageable), 2 (Not Able to Manage Well) or 1 (Not Applicable). Participants identified other learning needs by open text. Participants were surveyed for preferred modes of learning: workshop, online modules, and grand rounds.

**Data analysis**

Descriptive statistics were compiled and subgroup analysis undertaken by discipline: family practice, pediatrics and obstetrics. The mean values of importance and confidence to manage were calculated. Not applicable responses were not included in the calculation of mean scores. To analyze statistically significant differences between specialties at the 95% level, ANOVA was completed for both importance and confidence to manage scores. Given the sample size, we assume normal distribution by the Central Limit Theorem. Equality of variance tests were conducted with ANOVA and satisfied in all nearly all cases; where there was no equality of variance, Welch test was utilized. P-values less than .05 show there is a significant difference in mean scores between disciplines.

**Results**

There were 75 completed surveys for a response rate of 52%. By specialty, the response rates were family physicians (63%; 42/67), pediatricians (39%; 22/57), and obstetricians (47%; 9/19). Participant characteristics and preferred modes of learning are presented in Table 1.

Breastfeeding knowledge and confidence

All topics ranked at least a mean of three for importance of knowledge to their practice. “Informed choice when supporting newborn feeding” (mean=3.68, S.D.=0.47), “analgesics, antidepressants and other medications while breastfeeding” (mean=3.63, S.D.=0.52) and “community resources for breastfeeding support” (mean=3.60, S.D.=0.52) ranked most important to medical practice. “Latch assessment” (mean=3.31, S.D.=0.75), “tongue tie/ankyloglossia” (mean=3.28, S.D.=0.74) and “hand massage and expression” (mean=3.07, S.D.=0.72) ranked lowest importance, but were still assessed as important. Importance of knowledge to practice is summarized in in Table 2.

| Table 1. Descriptive statistics of physicians participating in survey |
|--------------------------------------------------|
| **N (75)**             | **Percent of total** |
| Age                   |                       |
| 20-39                 | 31                     | 41.2          |
| 40-49                 | 19                     | 25.7          |
| 50+                   | 24                     | 32.4          |
| Missing               | 1                      |               |
| Gender                |                       |
| Female                | 60                     | 82.2          |
| Male                  | 13                     | 17.8          |
| Missing               | 2                      |               |
| Type of Physician     |                       |
| Family physician      | 42                     | 57.5          |
| Pediatrician          | 22                     | 30.1          |
| Obstetrician          | 9                      | 12.3          |
| Missing               | 2                      |               |
| Practice Patterns*    |                       |
| Cares for mothers in pregnancy to postpartum | 45               |
| Cares for newborns only in hospital               | 19               |
| Cares for mothers and babies in hospital            | 34               |
| Re-admits babies when concerns arise                 | 18               |
| Outpatient or concurrent care only for babies      | 26               |
| Practice Location*  |                       |
| Clinic                | 63                     |               |
| Hospital              | 51                     |               |
| Learning Method*      |                       |
| Grand Rounds          | 37                     |               |
| 15 minute online modules    | 42               |
| 1 hour online modules           | 14               |
| ½ day workshop         | 25                     |               |
| Full day workshop      | 11                     |               |

*Respondents could choose more than one answer

Overall, confidence to manage was highest for “informed choice when supporting newborn feeding” (mean=3.53, S.D.=0.60), “benefits of breastfeeding in premature, late premature and term infants” (mean=3.44, S.D.=0.60) and “common problems that arise for breastfeeding mothers” (mean=3.35, S.D.=0.62). The confidence to manage was lowest for “latch assessment” (mean=2.66, S.D.=0.72), “what mom can do during pregnancy to promote milk production” (mean=2.66, S.D.=0.66), and “risk factors for delayed lactogenesis” (mean=2.79, S.D.=0.75). See Table 3.

**Differences between specialties**

Differences in importance of knowledge to practice and confidence to manage are shown in Table 2 and 3, respectively (see bold p-values).
Discussion

All physicians who care for women and babies require breastfeeding education appropriate to their role. Continuing education for practicing physicians has focused on breastfeeding technique and latch assessment, clinical management and problem solving skills, medication use, knowledge of common maternal concerns (e.g. mastitis), addressing maternal perception of not enough milk, referral resources, and importance of avoiding of breast milk substitutes and marketing materials in the office. Participants in this study reported low confidence in many

### Table 2. Importance of knowledge to practice by discipline

| Issue                                                                 | Mean | Family Physicians | Pediatricians | Obstetricians | P-value |
|----------------------------------------------------------------------|------|-------------------|---------------|---------------|---------|
| Informed choice when supporting newborn feeding                      | 3.68 | 3.74              | 3.63          | 3.56          | 0.484   |
| Analgesics, antidepressants and other medications while breastfeeding | 3.63 | 3.67              | 3.53          | 3.78          | 0.483*  |
| Community resources for breastfeeding support                         | 3.60 | 3.68              | 3.48          | 3.67          | 0.321   |
| Benefits of breastfeeding in premature, late premature and term infants | 3.59 | 3.71              | 3.33          | 3.67          | 0.088*  |
| Maintenance of lactation during illness or maternal separation        | 3.58 | 3.60              | 3.58          | 3.56          | 0.978   |
| Common problems that arise for breastfeeding mothers (e.g. mastitis)  | 3.56 | 3.62              | 3.38          | 3.63          | 0.278   |
| What health professionals can do in the first hour of life to promote milk production | 3.54 | 3.64              | 3.29          | 3.44          | 0.150   |
| Medical contraindications to breastfeeding                            | 3.53 | 3.47              | 3.57          | 3.78          | 0.277*  |
| Medical indications for supplements                                   | 3.53 | 3.64              | 3.45          | 3.33          | 0.173   |
| Role of skin-to-skin and contraindications                           | 3.50 | 3.59              | 3.33          | 3.44          | 0.304   |
| What mom can do in pregnancy to promote milk production              | 3.49 | 3.57              | 3.21          | 3.56          | 0.137   |
| Management of babies with neonatal abstinence syndrome               | 3.44 | 3.39              | 3.63          | 3.17          | 0.190   |
| Risk factors for delayed lactogenesis                                | 3.43 | 3.55              | 3.16          | 3.44          | 0.078   |
| Food allergies in newborn feeding                                    | 3.37 | 3.45              | 3.45          | 2.88          | 0.316*  |
| How to promote a breastfeeding/baby friendly office (WHO Code)       | 3.32 | 3.37              | 3.25          | 3.38          | 0.823   |
| Latch assessment                                                     | 3.31 | 3.50              | 3.11          | 2.87          | 0.033   |
| Tongue tie/ankyloglossia                                             | 3.28 | 3.48              | 3.15          | 2.71          | 0.019   |
| Hand massage and expression                                          | 3.07 | 3.22              | 2.81          | 2.89          | 0.118   |

* P-value according to Welch test utilized as unequal variances in these questions. Bold indicates statistically significant differences.

### Table 3. Confidence to manage by discipline

| Issue                                                                 | Mean | Family Physicians | Pediatricians | Obstetricians | P-value |
|----------------------------------------------------------------------|------|-------------------|---------------|---------------|---------|
| Informed choice when supporting newborn feeding                      | 3.53 | 3.69              | 3.3           | 3.25          | 0.061*  |
| Benefits of breastfeeding in premature, late premature and term infants | 3.44 | 3.48              | 3.32          | 3.63          | 0.409   |
| Common problems that arise for breastfeeding mothers (e.g. mastitis)  | 3.35 | 3.55              | **2.93**      | **3.00**      | **0.001** |
| Medical contraindications to breastfeeding                            | 3.34 | 3.38              | 3.15          | 3.56          | 0.196   |
| Role of skin-to-skin and contraindications                           | 3.31 | 3.49              | 3.00          | 3.22          | 0.041   |
| What health professionals can do in the first hour of life to promote milk production | 3.15 | **3.29**          | **2.79**      | 3.22          | **0.013*** |
| Medical indications for supplements                                   | 3.11 | 3.24              | 3.00          | 2.78          | 0.187*  |
| Analgesics, antidepressants, and other medications while breastfeeding | 3.07 | **3.17**          | **2.67**      | **3.33**      | **0.010** |
| Tongue tie/ankyloglossia                                             | 3.03 | 3.21              | 2.74          | 2.4           | 0.016   |
| Community resources for breastfeeding support                         | 2.99 | **3.17**          | 2.7           | 2.78          | 0.014   |
| Maintenance of lactation during illness or maternal separation        | 2.96 | 3.12              | 2.72          | 2.78          | 0.092   |
| How to promote a breastfeeding/baby friendly office (WHO Code)       | 2.90 | **3.15**          | **2.47**      | 2.75          | **0.004** |
| Hand massage and expression                                          | 2.87 | 2.93              | 2.69          | 2.88          | 0.561   |
| Food allergies in newborn feeding                                    | 2.87 | 2.95              | 2.85          | 2.50          | 0.303   |
| Management of babies with neonatal abstinence syndrome               | 2.80 | **2.68**          | **3.17**      | 2.50          | **0.035** |
| Risk factors for delayed lactogenesis                                | 2.79 | **2.93**          | **2.37**      | **3.11**      | **0.009** |
| What mom can do in pregnancy to promote milk production              | 2.66 | 2.78              | 2.38          | 2.67          | 0.116   |
| Latch assessment                                                     | 2.66 | 2.76              | 2.31          | 2.80          | 0.087   |

* P-value according to Welch test utilized as unequal variances in these questions. Bold indicates statistically significant differences. Based on one-way ANOVA with 2 degrees freedom.
related areas (e.g. latch assessment, community resources, and strategies to promote a breastfeeding friendly office) and some complex learning needs (e.g. delayed lactogenesis, strategies to maintain lactation during illness and separation, neonatal abstinence syndrome, allergies). Participating pediatricians were generally less confident to manage breastfeeding and lactation compared to family physicians and obstetricians. Specific aspects of maternal care relevant to pediatric practice include the role of skin-to-skin and contraindications, medication use during lactation, common maternal breastfeeding concerns, and risk assessment for delayed lactogenesis.

In this study, importance of learning about latch assessment ranked relatively low despite low confidence to assess latch. Knowledge of community resources ranked as more important. This may represent a lack of insight regarding importance of evaluation of latch in medical practice or an overreliance on referral to other specialists, such as lactation consultants. Establishment of effective latch is central to breastfeeding success and assessment is a fundamental skill required of physicians caring for breastfeeding infants and mothers. However, physicians may not routinely observe breastfeeding or believe evaluation of breastfeeding is their responsibility. In Canada, 90% of women initiate breastfeeding and approximately 25% stop in the neonatal period, most commonly due to difficulty with breastfeeding technique and concern about insufficient milk supply. Nearly 20% of women experience delayed lactogenesis. Participants also reported low confidence to assess risk factors for delayed lactogenesis and to suggest early interventions for management.

We recommend latch assessment and management of delayed lactogenesis (e.g. risk assessment, role of antenatal breastmilk expression, role of early skin-to-skin, medical indications for supplementation) as priorities for physician education to support breastfeeding. Framing topics in a context that addresses the physician’s complex work environment may impact perception of importance to learn. We observed that topics such as “what mom can do during pregnancy to promote milk production” (e.g. “hand massage and expression”) and “what health professionals can do in the first hour to promote milk production” (e.g. “role of skin-to-skin and contraindications”) were assessed as more important than content typically associated with these stages. For skill-based competencies (e.g. latch assessment, skin-to-skin, breast milk expression, and informed feeding choice discussion) clinical demonstration or simulation improve knowledge and confidence.

Competing learning needs, workload, and funding may impact physician engagement in continuing education. Participating physicians preferred shorter modes of learning. Access to accredited learning opportunities may improve physician engagement, support lifelong learning and enable physicians to identify professional practice goals related to breastfeeding medicine.

Implications for postgraduate training
Alignment of Canadian training objectives with best practice is required to impact physician knowledge and skills to support breastfeeding at entry to practice. In Canada, training objectives for family medicine have been recently expanded but remain limited for pediatrics and obstetrics.

Limitations
This survey assessed perceived knowledge and confidence among three specialist groups at one Canadian tertiary center. Learning needs may differ in other hospital settings. The survey response rate is comparable to other studies of Canadian physicians. The majority of respondents were female and they tend to have higher survey response rates than males; personal experience with breastfeeding was not assessed. Younger age, female sex, and personal breastfeeding experience are associated with higher breastfeeding knowledge. Physicians with significant knowledge deficits may have been overconfident or may have lacked awareness of importance of knowledge to practice (e.g. latch assessment). Due to sample size, we cannot make any conclusions regarding impact of age, gender, or years of practice on learning needs. Furthermore, we are challenged to comment definitively about obstetricians; a high coefficient of variation is present in counts less than 20.

Conclusions
This survey assessed perceived importance of knowledge and confidence to support breastfeeding among family physicians, pediatricians and obstetricians practicing within a Canadian tertiary center. Results of our survey suggest all 18 topics are important considerations for physician education in practice. Participants placed relatively low importance on learning about latch assessment despite the central nature of this skill in supporting early breastfeeding. Physician confidence was lowest for latch assessment, implementation of prenatal
interventions to support lactation and risk assessment for delayed lactogenesis. Physicians preferred shorter learning opportunities. We identified latch assessment and management of delayed lactogenesis as two priorities for physician education; a case-based approach that acknowledges medical complexity throughout the continuum of care is recommended.

Conflicts of Interest: Krista Baerg, Juliet Smith-Fehr, Amanda Loewy, Jill Blaser Farrukh and Tonia Olson report that they were planning committee members for an MDBriefcase Group Inc. program on breastfeeding. Joshua Marko has no conflicts of interest to declare.

Acknowledgments: We thank the members of the Baby-Friendly Initiative Physician Working Group for their support during the planning phase of this study, Daniel Mittelholtz for creating the survey for distribution, and Khalid Amin for supporting data analysis. We also gratefully acknowledge the assistance of the Saskatchewan Health Authority and participating physicians.

References
1. World Health Organization. Guideline: protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services - executive summary, Geneva, 2017. Available from: https://www.ncbi.nlm.nih.gov/books/NBK487814/.
2. Taylor JS, Bell E. Medical education and leadership in breastfeeding medicine. Breastfeed Med Off J Acad Breastfeed. Med. 2017; 12:476–478. https://doi.org/10.1089/bfm.2017.0104.
3. United Nations Children’s Fund Canada. The baby-friendly hospital initiative. [Internet]. (n.d.). Available at https://www.unicef.ca/en/article/the-baby-friendly-hospital-initiative [Accessed July 17, 2020].
4. Pound CM, Williams K, Grenon R, Aglipay M, Plint AC. Breastfeeding knowledge, confidence, beliefs, and attitudes of Canadian physicians. J. Hum. Lact. 2014; 30:298. https://doi.org/10.1177/089034414535507.
5. Breastfeeding Committee for Canada. The BFI ten steps and WHO code outcome indicators for hospitals and community health services, 2017. Available at https://breastfeedingcanada.ca/wp-content/uploads/2020/03/Indicators-we2019-En.pdf [Accessed Sept 22, 2021].
6. The College of Family Physicians of Canada. College of Family Physicians of Canada infant feeding policy statement 2004. Available at https://www.cfpc.ca/CFPC/media/Resources/Health-Policy_Final_04Infant_Feeding_Policy_Statement.pdf . [Accessed Sept 22, 2021].
7. ACOG committee opinion no. 756: optimizing support for breastfeeding as part of obstetric practice. Obstet. Gynecol. 2018; 132:e187–e196. https://doi.org/10.1097/AOG.0000000000002890.
8. Pound CM, Unger SL. The baby-friendly initiative: protecting, promoting and supporting breastfeeding. Paediatr Child Health. 2012;17:317–327.
9. World Health Organization. International code of marketing of breast-milk substitutes. 1981. Available at https://www.who.int/nutrition/publications/code_english.pdf. [Accessed on Sept 22, 2021].
10. Aryeetey R, Dykes F. Global implications of the new WHO and UNICEF implementation guidance on the revised baby-friendly hospital initiative. Matern Child Nutr. 2018;14 e12637. https://doi.org/10.1111/mcn.12637.
11. Cardaci R. CE: beyond maternity nursing: the baby-friendly hospital initiative. Am. J. Nurs. 2017; 117:36–43. https://doi.org/10.1097/01.NAJ.0000521947.45448.d9
12. Balogun OO, Dagvadorj A, Yourkavitch J, et al. Health facility staff training for improving breastfeeding outcome: a systematic review for step 2 of the baby-friendly hospital initiative. Breastfeed. Med. Off. J. Acad. Breastfeed. Med. 2017;12: 537–546. https://doi.org/10.1089/bfm.2017.0040
13. Schoch DE, Lawhon G, Wicker LA, Yecco G, An interdisciplinary multidpartmental educational program toward baby friendly hospital designation. Adv. Neonatal Care Off. J. Natl. Assoc. Neonatal Nurses. 2014;14:38–43. https://doi.org/10.1097/ANC.0000000000000029.
14. Meek JY. Educational objectives and skills for the physician with respect to breastfeeding, Revised 2018, Breastfeed. Med. 2019;14:5–13. https://doi.org/10.1089/bfm.2018.29113.jym.
15. Saskatoon Health Region. Better health for all health status reporting - series nine: maternal and child health. 2017.
16. Pek J, Wong O, Wong ACM. How to address non-normality: a taxonomy of approaches, reviewed, and illustrated. Front. Psychol. 2018;9:2104. https://doi.org/10.3389/fpsyg.2018.02104.
17. Public Health Agency of Canada. Breastfeeding in Canada. 2018. Available at https://www.canada.ca/en/public-health/services/publications/healthy-living/breastfeeding-infographic.html [Accessed on July 18, 2020].
18. Huang L, Xu S, Chen X, et al. Delayed lactogenesis is associated with suboptimal breastfeeding practices: a prospective cohort study. J Nutr. 2020;150:894–900. https://doi.org/10.1093/jn/nxz311.
19. de Oliveira Rocha B, Machado MP, Bastos LL. et al. Risk factors for delayed onset of lactogenesis II among primiparous mothers from a Brazilian baby-friendly hospital. J. Hum. Lact. Off. J. Int. Lact. Consult. Assoc. 2020;36:146–156. https://doi.org/10.1177/0890334419835174.
20. Lamba S, Chopra S, Negi M. Effect of antenatal breast milk expression at term pregnancy to improve post natal lactational performance. J. Obstet. Gynaecol. India. 2016; 66:30–34. https://doi.org/10.1007/s13224-014-0648-7.

21. Filipe HP, Silva ED, Stulting AA, Golnik KC. Continuing professional development: best practices. Middle East Afr. J. Ophthalmol. 2014; 21:134. https://doi.org/10.4103/0974-9233.129760.

22. Yew EHH, Goh K. Problem-based learning: an overview of its process and impact on learning. Heal. Prof. Educ. 2016;2:75–79. https://doi.org/10.1016/j.hpe.2016.01.004.

23. Wallace LM, Ma Y, Qiu LQ, Dun OM. Educational videos for practitioners attending baby friendly hospital initiative workshops supporting breastfeeding positioning, attachment and hand expression skills: effects on knowledge and confidence. Nurse Educ. Pract. 2018; 31:7–13. https://doi.org/10.1016/j.nepr.2018.04.005.

24. Reese CE, Jeffries PR, Engum SA. Learning together: using simulations to develop nursing and medical student collaboration. Nurs. Educ. Perspect. 2010; 31:33–37.

25. The Royal College of Physicians and Surgeons of Canada. CPD accreditation: self-assessment programs. 2020. Available at http://www.royalcollege.ca/rcsite/cpd/accreditation/cpd-accreditation-self-assessment-programs-saps-e [Accessed July 17, 2020].

26. Pound CM, Moreau KA, Hart F, Ward N. Plint AC. The planning of a national breastfeeding educational intervention for medical residents. Med. Educ. Online. 2015; 20:26380. https://doi.org/10.3402/meo.v20.26380.

27. Crichton T, Schultz K, Lawrence K, et al. Assessment objectives for certification in family medicine. Mississauga, ON: College of Family Physicians of Canada; 2020. Available at https://www.cfpc.ca/CFPC/media/Resources/Examinations/Assessment-Objectives-for-Certification-in-FM-full-document.pdf [Accessed Sept 23, 2021]

28. The Royal College of Physicians and Surgeons of Canada. Objectives of training in pediatrics. 2008. Available at https://www.royalcollege.ca/rcsite/documents/ibd/pediatrics_otr_e.pdf. [Accessed Mar 20, 2020]

29. The Royal College of Physicians and Surgeons of Canada. Objectives of training in the specialty of obstetrics and gynecology (version 2.1). 2016. Available at https://www.royalcollege.ca/rcsite/documents/ibd/obgyn-otr-e. [Accessed Sept 23, 2021]

30. Cunningham CT, Quan H, Hemmelgarn B, et al. Exploring physician specialist response rates to web-based surveys. BMC Med. Res. Methodol. 2015; 15:32. https://doi.org/10.1186/s12874-015-0016-z.

31. New York State Department of Health. Rates based on small numbers - statistics teaching tools. 1999. Available at https://www.health.ny.gov/diseases/chronic/ratesmall.htm [Accessed July 17, 2020].