

Landscape Analysis of Breastfeeding-Related Physician Education in the United States

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Abstract

Background: Breastfeeding is the preferred form of infant nutrition supporting optimal health of mothers and children. Research shows that medical training is deficient in preparing physicians to develop the knowledge base, clinical management skills, and attitudes to provide optimal support for breastfeeding families. We developed this project to assess the current gaps in breastfeeding education during medical training for physicians and to inform the plan to address those gaps.

Materials and Methods: We conducted key informant interviews with nine professionals representing medical education, physician professional membership organizations, and ancillary stakeholders with an interest in improving physician education and training with respect to breastfeeding. Using those results, we developed and conducted a survey of physicians to identify training in breastfeeding received during medical school, residency/fellowship, and continuing medical education; confidence in managing breastfeeding; and attitudes about breastfeeding training. A total of 816 respondents completed the survey from the American Academy of Pediatrics, the American College of Obstetricians and Gynecologists, and the American Academy of Family Physicians.

Results: Gaps exist in the training of physicians in terms of knowledge base, and clinical skills in breastfeeding support as highlighted through detailed key informant interviews and physician surveys. Physicians surveyed in the disciplines of pediatrics, obstetrics and gynecology, and family medicine indicated a desire to have more breastfeeding education integrated into their training, especially addressing clinical evaluation and management of breastfeeding problems.

Conclusion: The landscape analysis demonstrates that medical education in breastfeeding remains inadequate despite previous efforts to address the gaps and that physicians desire more training in breastfeeding, especially clinical skills training, to improve provider confidence and competence. The analysis provides the foundation for further efforts to develop a comprehensive plan to enhance physician education in breastfeeding.

Keywords: breastfeeding, medical education, training, support

Introduction

BREASTFEEDING IS RECOMMENDED as the optimal source of infant nutrition by the American Academy of Pediatrics (AAP),¹ the American College of Obstetricians and Gynecologists (ACOG),² the American Academy of Family Physicians (AAFP),³ and the World Health Organization⁴

and supported by the Centers for Disease Control and Prevention (CDC).⁵ In addition, women who breastfeed have reduced risk of several chronic diseases, including breast and ovarian cancers, hypertension, and type 2 diabetes mellitus.⁶ Thus, breastfeeding is important to public health, both in the United States and globally, requiring efforts at all societal levels.⁷

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With funding support from the CDC, the AAP initiated the *Physician Engagement and Training focused on Breastfeeding* project, which aims to (1) increase availability and accessibility of medical provider education and training related to breastfeeding, (2) provide recommendations on training and educational needs to build capacity of medical practitioners to optimize breastfeeding practices, (3) provide recommendations on strategies to engage medical practitioners to improve the continuity of breastfeeding-related care from the prenatal period through infancy, and (4) support the safe implementation of evidence-based breastfeeding practices.

To achieve these goals, the AAP convened medical professional organizations and key stakeholders to develop consensus and align efforts to address gaps in breastfeeding-related training for physicians. First steps included conducting a landscape analysis of undergraduate and graduate medical education with respect to breastfeeding education and developing an action plan to address gaps in breastfeeding-related education and training. The key elements of a landscape analysis include defining the stakeholders, the scope or targets of the analysis, and the methods and parameters to study.

Materials and Methods

The AAP *Physician Engagement and Training focused on Breastfeeding* Project Advisory Committee (PAC) consists of breastfeeding subject matter experts and key stakeholders from the Academy of Breastfeeding Medicine (ABM), AAFP, AAP, ACOG, American College of Osteopathic Pediatricians (ACOP), Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN), CDC, National Hispanic Medical Association (NHMA), National Medical Association (NMA), Reaching Our Sisters Everywhere (ROSE), and United States Breastfeeding Committee (USBC). The PAC organizations, in collaboration with Altarum Institute (Altarum), designed a landscape analysis to assess the current state of physician training on breastfeeding care and implementation of evidence-based breastfeeding practices.

Key informant interviews

Opinions on the current state of breastfeeding-related education and training in undergraduate, graduate, and continuing medical education (CME) in the United States were sought from a key informant from each of nine organizations: AAP, AAFP, ACOG, NHMA, NMA, Accreditation Council for Graduate Medical Education, American Medical Student Association, American Medical Women's Association, and Dr. MILK (Mothers Interested in Lactation Knowledge, an online group of physicians). In-depth interviews lasting 45–60 minutes using standardized questions were conducted by phone. Topics of interest were identified by the PAC members and Altarum. Altarum conducted, recorded, with permission, and transcribed the interviews. Common themes were identified when analyzing interview transcripts using NVivo version 10 (QSR International, Melbourne, Australia).

Membership survey

Representatives from AAP, ACOG, and AAFP, along with Altarum, designed a membership survey informed by an environmental scan of existing resources and materials on breastfeeding-related training of physicians and the key in-

formant interviews. The goal of the survey was to assess breastfeeding-related physician education and training received during undergraduate, graduate, and postgraduate/CME. The AAP Institutional Review Board reviewed and determined that IRB approval was not required. The survey was pilot tested with PAC members.

The web-based survey was distributed to select members of AAP, ACOG, and AAFP during a 2-week period in April 2017. The AAP distributed the survey through its 500-member Section on Breastfeeding listserv. Two thousand ACOG fellows were selected at random to receive the survey (typical response rate of 5%). The AAFP distributed the survey to two large commissions and some member interest groups with ~300 recipients. In addition, AAFP distributed the survey to a family physician online community with ~2,000 physicians.

Participant demographics included primary area of practice, years in practice, and geographic location of practice. Respondents were asked their level of interest in different lactation topics and whether they believed that breastfeeding care was a priority in their specialty. In addition, information was obtained regarding the breastfeeding training received in medical school, residency/fellowship, after formal medical education, and whether they perceived their training as being adequate (Appendix Table A1). For questions where respondents could “check all that apply,” it could not be determined if an unchecked response option was “no” or “missing.” Therefore, if all response options in a given question were missing (range: 0–150), it was assumed the question was skipped and the respondent was excluded from the denominator for analysis of that question; otherwise, for responses with at least one option selected, a blank response for any given response option was considered “no.”

Regarding whether breastfeeding was perceived as a priority within the specialty, response options were categorized as follows: Agree (“Strongly agree,” “Agree somewhat”) and Other (“Neither agree nor disagree,” “Disagree somewhat,” “Strongly disagree”). Regarding level of interest in different lactation topics, response options were categorized as follows: Interested (“Very interested,” “Somewhat interested”) and Other (“Neutral,” “Less interested,” “Not interested”). Regarding characterization of education and training received, response options were categorized as follows: Agree (“Agree strongly,” “Agree somewhat”) and Other (“Strongly disagree,” “Disagree somewhat,” “Does not apply,” “Can't remember”). For the question regarding training received after formal medical education, respondents who reported they were still in training ($n=4$) or did not receive breastfeeding training after their medical education ($n=2$) were excluded.

For the question regarding training received in medical school and residency/fellowship, responses were stratified into training received during medical school and received during residency/fellowship. Within each of these strata, responses were further categorized into (1) reported receiving training, (2) reported not receiving training, and (3) training status unknown, which included respondents who reported “don't know” as well as those with inconsistent responses (e.g., selected “no training or education on breastfeeding” but also selected another response option). The “other” response options ($n=61$) were treated as missing for analysis of this question.

Statistical analysis was performed in SAS 9.4 (Cary, NC). Chi-squared analyses were run to evaluate survey responses

by medical specialty (“Pediatrics,” “Obstetrics/Gynecology,” “Family Medicine”) and years in practice (<5, 5–10, 11–20, and >20 years). Of note, respondents who denoted an “Other” medical specialty were excluded from the statistical analysis when stratifying by specialty given their small number ($n = 17$) and difference in training.

Results

Key informant interviews

Several themes emerged from the key informant interviews. Breastfeeding and lactation management were not being prioritized or sufficiently covered currently in medical education in the United States. While inclusion of breastfeeding topics in the curriculum improved during residency training, compared with medical school, there was still a lack of adequate education and training provided. The extent of training, especially in breastfeeding-specific cultural competency and continuity of care, was described by respondents as being institution-dependent and often heavily reliant on a faculty breastfeeding “champion.”

Furthermore, the key informants perceived that breastfeeding topics were examined only superficially on medical licensing and board certification tests. Key informant-identified barriers and opportunities to including breastfeeding and lactation management into medical training are listed in Table 1.

Despite continued gaps in support for trainees who are breastfeeding themselves, key informants felt support for both trainees and practicing physicians has improved over recent years. Specifically, improvements in workplace accommodations for breastfeeding physicians, such as dedicated space for breastfeeding or expression of breast milk, were noted, as was break time during the United States Medical Licensing Examinations (USMLE)⁸ for milk expression.

Membership survey

Of the 2,800 individuals to whom the survey was distributed, 1,026 respondents started the survey. Of those, 833 surveys were completed. Respondents with missing infor-

mation on specialty ($n = 7$) and years in practice ($n = 2$) (note, not mutually exclusive) and who were retired ($n = 9$) were excluded, as was one respondent who was still a medical student. The final analytical sample was 816, for a response rate of 29%. Respondents who denoted a pediatric subspecialty, including neonatology, were combined with pediatrics; similarly, subspecialties of obstetrics and gynecology and family medicine were combined with their respective primary specialty. Remaining responses ($n = 17$) were categorized as “Other.”

The most common specialty of survey respondents was pediatrics (68.0%), followed by family medicine (23.2%), obstetrics/gynecology (6.7%), and other (2.1%) (Table 2). Almost one-third of respondents had been in practice >20 years with 25% each reporting being in practice <5 and 5–10 years. The practice location of survey respondents was geographically diverse, representing all U.S. census divisions, with the South (33.7%) and the Midwest (25.4%) having the largest representation. A majority (84.7%) of respondents agreed that providing breastfeeding care for patients is a priority for their specialty (Table 2), including 88.2% (other), 86.3% (pediatrics), 81.0% (family medicine), and 80.0% (obstetrics/gynecology).

Ten key breastfeeding topics for the survey were developed by members of the PAC, with support from Altarum, after reviewing feedback from key informant interviews. Most of the respondents reported interest in the 10 breastfeeding and lactation topics assessed, ranging from 80.1% (safely giving recommendations for appropriate pacifier use) to 92.0% (clinical evaluation and treatment of breastfeeding problems) (Table 3).

There were statistically significant differences in the types of breastfeeding training received during medical school and residency, both by specialty and by years in practice (Fig. 1). Some respondents reported receiving breastfeeding education in medical school (range 47.8% among obstetrics/gynecology to 56.1% among family medicine). This was higher during residency/fellowship (65.2% among obstetrics/gynecology and 85.4% among family medicine). More obstetrician/gynecologists reported not receiving training in

TABLE 1. KEY INFORMANT IDENTIFIED BARRIERS AND OPPORTUNITIES FOR ADDITION OF BREASTFEEDING CONTENT INTO MEDICAL EDUCATION

<i>Barriers</i>	<i>Opportunities</i>
Unwillingness to prioritize breastfeeding as part of medical education and practice	Development of institution-specific breastfeeding champions
Lack of physicians' confidence in their skills and knowledge to provide breastfeeding counseling	Training on practical aspects of breastfeeding and lactation management
Lack of patient and public awareness of and support for breastfeeding	Establishing curriculum standards on breastfeeding and lactation management for medical schools
Selection of CME by physicians with an interest in breastfeeding	Integration of breastfeeding into nutrition during basic medical training
Lack of a unified message from all medical specialties that breastfeeding is the primary and best nutrition for infants	Inclusion of breastfeeding and lactation management into board certification examinations
Influence of formula companies within the medical education environment (e.g., national meetings) sends a mixed message to trainees and the public	Breastfeeding and lactation management training for the whole care team
Lack of available lactation support providers, especially in smaller practices and hospitals	

Key informant interviews conducted, transcribed, and analyzed by Altarum Institute (Rockville, MD). CME, Continuing Medical Education.

TABLE 2. CHARACTERISTICS OF RESPONDENTS WITH COMPLETED MEMBERSHIP SURVEYS, AMERICAN ACADEMY OF PEDIATRICS/AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS/AMERICAN ACADEMY OF FAMILY PHYSICIANS SURVEY, 2017 (N=816)

	N	%
Primary area of practice ^a	816	100
Pediatrics	555	68.0
Neonatology (subset of pediatrics)	228	—
Obstetrics/gynecology	55	6.7
Family medicine	189	23.2
Other ^b	17	2.1
Years in practice		
<5	208	25.5
5–10	206	25.2
11–20	164	20.1
>20	238	29.2
Geographical location of practice		
North	147	18.0
South	275	33.7
Midwest	207	25.4
West	142	17.4
International	16	2.0
Missing	29	3.6
Agreed ^c breastfeeding care is a priority in specialty	691	84.7
By specialty:		
Pediatrics (including subspecialties)	479	86.3
Obstetrics/gynecology (including subspecialties)	44	80.0
Family medicine	153	81.0
Other ^b	15	88.2
By years in practice		
<5	170	81.7
5–10	166	80.6
11–20	144	87.8
>20	211	88.7

^aSubspecialties included within main specialty.

^bIncludes: pediatric surgery (7), internal medicine-pediatrics (4), pediatric dentistry (3), other (3) for total in primary area of practice.

^cAgreed included response options of: “Strongly agree” and “Agree somewhat”; percentages are relative to total respondents in that group.

both medical school (37.0%) and residency/fellowship (19.6%) than did the other specialties. Those who had trained more recently were more likely to report receiving breastfeeding training (Fig. 1). The survey also examined breastfeeding education after formal medical education. The majority of respondents reported obtaining education through self-study (73.0%), followed by education related to Baby-Friendly hospital designation (42.9%), non-CME webinar/lecture on breastfeeding care topics (34.1%), and CME on basic breastfeeding care competencies (32.0%) (Table 4). There were statistically significant differences in the types of breastfeeding training received (i.e., maintenance of certification, CME) after formal medical education, both by specialty and by years in practices.

Specific breastfeeding competencies and the respondent's perception on whether they felt adequately trained were examined (Table 5). There was a large variation in perceived

feelings of adequacy among the topics examined. For example, 81.2% of respondents felt they were adequately trained to refer breastfeeding mothers for appropriate support, whereas only 48.8% felt they received adequate training to be able to counsel women and families of differing backgrounds on breastfeeding. Over 60% of respondents felt prepared to counsel about the following topics: breastfeeding in general, referral for lactation support in the hospital or community, safe implementation of skin-to-skin care, safe implementation of rooming in, and counseling about appropriate use of pacifiers for breastfeeding infants.

With respect to clinical evaluation and clinical treatment of breastfeeding problems, only 53.3% and 49.9%, respectively, of respondents felt they had received adequate training. Statistically significant differences by provider type were noted for providing clinical treatment of breastfeeding problems, with fewer pediatricians perceiving they received adequate training ($p=0.004$). Fewer obstetrician/gynecologists reported that they received adequate training for giving recommendations for appropriate pacifier use for breastfeeding infants ($p=0.004$). There were statistically significant differences for all characteristics of training when stratified by years in practice, with a smaller proportion of respondents who had been in practice >10 years perceiving they had received adequate training. This may reflect recall bias but could be indicative of an improvement in breastfeeding education over recent years, perhaps accelerated by the mandatory provider training that occurs in the process of Baby-Friendly designation.

Discussion

In 2010, the USBC released the *Core Competencies in Breastfeeding Care and Services for All Health Professionals*,⁹ providing a framework for integrating evidence-based breastfeeding knowledge, skills, and attitudes into standard training for health care professionals. Furthermore, the 2011 Surgeon General's Call to Action to Support Breastfeeding called for “basic support of breastfeeding as a standard of care.”¹⁰ Physicians who provide medical care for women and children need to develop particular expertise to promote and support breastfeeding.¹¹

Studies have demonstrated continued barriers to breastfeeding support. The 2014 AAP Periodic Survey¹² of practicing pediatricians indicated respondents desired more education focused on the management of breastfeeding. Physicians often report relying on their personal breastfeeding experiences in making recommendations for their patients.¹³ Physicians who have negative personal breastfeeding experiences may be more likely to reject current breastfeeding recommendations or discourage continued breastfeeding when problems arise.¹⁴

The landscape analysis confirmed that gaps remain in the medical education and training of physicians related to breastfeeding support. Key informant interviews highlighted the need for integration of training throughout the continuum of medical education. Respondents noted the lack of a unified message from all medical specialties that breastfeeding is the primary and best nutrition for infants. Physicians also lacked confidence in their skills and knowledge to provide breastfeeding support. The inclusion of representatives from AAP, ACOG, and AAFP into the PAC was important to ensure that these messages are integrated throughout all these organizations.

TABLE 3. REPORTED INTEREST IN SELECT BREASTFEEDING TOPICS, BY SPECIALTY AND YEARS IN PRACTICE, AMERICAN ACADEMY OF PEDIATRICS/AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS/AMERICAN ACADEMY OF FAMILY PHYSICIANS SURVEY, 2017

	Total (n = 811) ^a	Family medicine (n = 182)			p ^b	Practicing years			p	
		Pediatrics (n = 543)	Ob/Gyn (n = 55)	Family medicine (n = 182)		<5 years (n = 204)	5–10 years (n = 204)	11–20 years (n = 156)		>20 years (n = 233)
Breastfeeding in general	90.8	90.8	89.1	94.5	0.24	92.7	90.2	89.7	90.6	0.77
Clinical evaluation and treatment of breastfeeding problems	92.0	91.1	94.6	96.3	0.06	92.7	93.2	93.2	89.5	0.41
Counseling women and families of different religious, cultural, or ethnic backgrounds on breastfeeding	86.7	86.3	81.8	93.1	0.02	85.8	88.3	91.4	83.1	0.09
Working with appropriate lactation support services either in the hospital or in the community	89.2	89.2	83.0	92.9	0.09	88.7	89.8	92.5	86.8	0.35
Safely implementing skin-to-skin care	83.5	83.2	75.5	90.8	0.008	83.4	82.9	83.7	83.8	>0.99
Safely implementing rooming-in	80.3	79.5	77.4	87.0	0.06	79.5	78.5	78.5	83.7	0.47
Safely giving recommendations for appropriate pacifier use	80.1	79.3	73.6	86.0	0.06	77.6	85.3	78.0	79.3	0.19
Benefits of breastfeeding to mother and baby	89.7	89.8	94.3	90.3	0.07	88.3	87.8	90.6	91.9	0.46
Breast pump management	84.3	83.0	76.5	93.6	<0.001	89.3	89.7	84.2	75.2	<0.001

Values in bold are statistically significant.

^aInterest included response options of: “Very interested” and “Somewhat interested.” Of note, five respondents were excluded from analysis of this question since all individual responses were missing (N=811). Furthermore, denominators for individual responses vary slightly for this question due to missing answers (range n=4–14).

^b“Other specialties” not included in analysis stratified by specialty due to small sample size (n=17).

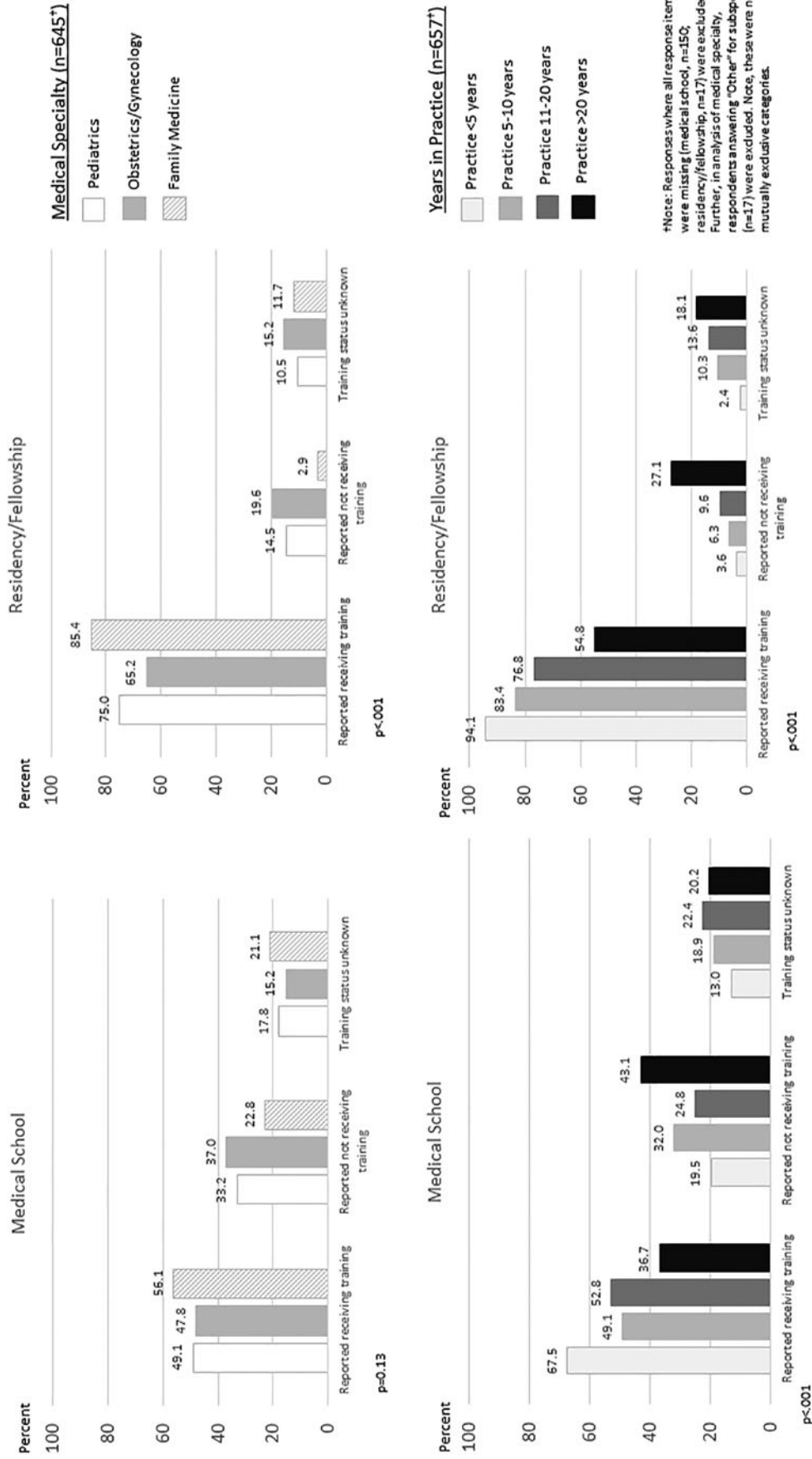


FIG. 1. Report of breastfeeding training in medical school and residency/fellowship, AAP/ACOG/AAFP Survey, 2017. AAP/ACOG/AAFP, American Academy of Pediatrics/American College of Obstetricians and Gynecologists/American Academy of Family Physicians.

TABLE 4. REPORTED BREASTFEEDING TRAINING RECEIVED AFTER MEDICAL EDUCATION, BY SPECIALTY AND YEARS IN PRACTICE, AMERICAN ACADEMY OF PEDIATRICS/AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS/AMERICAN ACADEMY OF FAMILY PHYSICIANS SURVEY, 2017

	Total (n=763) ^a %	Pediatrics (n=528) %	Ob/Gyn (n=52) %	Family medicine (n=169) %	p ^b	Practicing <5 years (n=180) %	Practicing 5–10 years (n=194) %	Practicing 11–20 years (n=158) %	Practicing >20 years (n=231) %	p
Maintenance of certification modules for breastfeeding	22.2	25.4	32.7	10.1	<0.001	11.7	19.6	31.0	26.4	<0.001
Baby-Friendly Hospital designation CME	42.9	46.6	46.2	32.5	0.005	36.7	41.2	44.9	47.6	0.14
Basic breastfeeding care competencies	32.0	35.6	17.3	25.4	0.003	16.1	34.0	36.1	39.8	<0.001
Advanced breastfeeding care competencies	16.0	18.2	3.9	12.4	0.01	6.7	15.0	17.1	23.4	<0.001
Cultural competency and health disparities in breastfeeding	15.2	17.1	7.7	11.2	0.06	6.1	13.4	17.7	22.1	<0.001
Continuity of breastfeeding care	14.0	15.0	7.7	11.8	0.25	4.4	12.9	15.2	21.7	<0.001
Non-CME webinar/lecture on breastfeeding care topics	34.1	36.4	19.2	31.4	0.03	24.4	30.4	36.1	43.3	<0.001
Self-study of breastfeeding care literature	73.0	72.0	59.6	81.7	0.003	76.1	74.2	70.9	71.0	0.60
Other	13.9	11.6	23.1	16.6	0.03	7.2	17.0	18.4	13.4	0.01
Don't recall	4.1	3.4	9.6	3.6	0.08	6.1	3.1	2.5	4.3	0.33

Values in bold are statistically significant.

^aRespondents still in training (n=4) and reporting no training after their medical education (n=2) were excluded as were respondents who skipped the question (n=47).

^b“Other specialties” not included in analysis stratified by specialty due to small sample size (n=14).

TABLE 5. RESPONDENTS WHO AGREED “SOMEWHAT” OR “STRONGLY” ABOUT FEELING THEY HAD RECEIVED ADEQUATE BREASTFEEDING TRAINING, BY SPECIALTY AND YEARS IN PRACTICE, AMERICAN ACADEMY OF PEDIATRICS/AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS/AMERICAN ACADEMY OF FAMILY PHYSICIANS SURVEY, 2017

Characteristics of training received	Total (n=812) ^a %	Family Medicine		p ^b	Practicing <5 years (n=207) %	Practicing 5–10 years (n=206) %	Practicing 11–20 years (n=164) %	Practicing >20 years (n=235) %	p
		Pediatrics (n=551) %	Ob/Gyn (n=55) %						
Counsel women about breastfeeding in general	69.5	71.6	56.4	0.05	82.0	72.7	66.3	57.9	<0.001
Counsel women and families of different religious, cultural, or ethnic backgrounds on breastfeeding	48.8	48.9	41.8	0.48	56.3	51.5	43.3	43.6	0.02
Provide clinical evaluation of breastfeeding problems	53.3	52.1	56.4	0.53	61.7	54.7	50.6	46.6	0.01
Provide clinical treatment of breastfeeding problems	49.9	46.3	56.4	0.004	55.3	54.9	46.3	43.3	0.03
Refer breastfeeding mothers to appropriate lactation support services either in the hospital or in the community	81.2	80.5	80.0	0.23	94.1	85.3	81.7	66.0	<0.001
Safely implement skin-to-skin care	70.4	69.4	63.6	0.06	83.4	77.9	65.0	56.0	<0.001
Safely implement rooming-in	73.3	73.1	65.5	0.07	82.4	81.6	69.9	60.5	<0.001
Safely give recommendations for appropriate pacifier use for breastfeeding infants	68.8	70.4	49.1	0.004	83.3	72.3	65.0	56.0	<0.001

Values in bold are statistically significant.

^aRespondents who skipped the question (n=4) were excluded from the analysis. Furthermore, denominators for individual responses vary slightly for this question due to missing answers (range n=2–10).

^b“Other specialties” not included in analysis stratified by specialty due to small sample size (n=17).

Key informants noted the reliance on breastfeeding champions among the faculty to teach breastfeeding content. They also reported the need to develop more institution-specific breastfeeding champions to integrate breastfeeding throughout the curriculum, especially in the face of competing demands for time and space in the educational programming. This represents an opportunity for faculty development to support integration of breastfeeding in the medical education curriculum. Key informant interviews also stressed the need for curriculum standards on breastfeeding in medical school, as part of nutrition training, and for inclusion of lactation management in state licensure and board certification examinations.

Results indicate that 90.8% of survey respondents would be interested in more breastfeeding training in general, with a high proportion of respondents interested in all surveyed topics (range: 80.1–92.0%). Improvement could include training on practical aspects of breastfeeding management through hands-on, clinical skill-based training. Bunik et al. showed that integration of experiential training can improve attitudes about breastfeeding support.¹⁵ Use of simulation, patient-centered rounds, and skills-based workshops during educational and CME programming could help address educational gaps in clinical assessment and management of breastfeeding.

Of all respondents, 84.7% indicated that breastfeeding care was a priority in their particular specialty, which may be an overestimation because those who view breastfeeding as important may have been more likely to respond to the survey. When broken out by specialty, 86.3% of the pediatricians and 80.0% of obstetrician/gynecologists responded positively to this item. Although obstetrician/gynecologists represented a small percentage of the total sample of respondents, it remains concerning that ~20% of this specialty's respondents did not agree that breastfeeding care was a priority for their specialty. Because most women make decisions about breastfeeding long before delivery, education efforts by obstetricians are important. ACOG has taken steps to improve breastfeeding resources for members and the public. Ongoing ACOG efforts in breastfeeding support include founding the Breastfeeding Expert Work Group in 2014; creation of an online breastfeeding toolkit in 2016¹⁶; publication of ACOG Committee Opinions, such as "Optimizing support for breastfeeding as part of obstetric practice" (2018)²; ACOG clinical guidance about relevant topics; maintenance of breastfeeding web pages with links and resources; and support for early and more frequent postpartum visits,¹⁷ including those involving lactation.

Overall, 69.5% of respondents reported that they had received adequate training in counseling women about breastfeeding in general, but only 53.3% agreed "strongly" or "somewhat" that they could provide clinical evaluation of breastfeeding problems. Only 49.9% could provide clinical treatment of breastfeeding problems. More respondents felt comfortable with their knowledge base than their ability to manage patients clinically. More family physicians and obstetrician/gynecologists reported receiving adequate training to treat clinical problems than did pediatricians ($p=0.004$). The AAP's Section on Breastfeeding develops clinical statements and reports, maintains web resources, and provides online and live CME educational programming in breastfeeding. The AAP and ACOG jointly developed the

Breastfeeding Handbook for Physicians.¹⁸ The AAP Breastfeeding Residency Curriculum,¹⁹ developed in collaboration with ACOG and AAFP, may be contributing to the increase in education that was reported during residency training from more recent trainees.

The percentage of survey respondents who reported receiving breastfeeding training after the completion of graduate medical education was low. Self-study of the medical literature was reported by 73.0% of respondents, while 42.9% of the respondents reported training as part of the Baby-Friendly Hospital designation process. More family physicians and pediatricians reported self-study after their formal medical education than did obstetrician/gynecologists, however, pediatricians and obstetrician/gynecologists were more likely to report receiving training as a part of Baby-Friendly designation than were family physicians, possibly due to hospital-based positions.

When respondents were stratified by the number of years in practice, there were statistically significant differences. Those in practice less than 5 years were much more likely to agree that they received adequate training to counsel women about breastfeeding than those in practice more than 20 years, with a linear association. It is likely that breastfeeding education has improved in the last decade with the significant increase in number of hospitals in the United States implementing breastfeeding-supportive maternity care practices as part of the Baby-Friendly Hospital designation by Baby-Friendly USA.²⁰ Only 55.3% of those in practice less than 5 years, however, agreed that they were trained adequately to provide clinical treatment of breastfeeding problems.

Limitations of these results include the fact that while key informant interviews were conducted with a broad range of representatives, there were restrictions on the total numbers of one-on-one interviews, so there may be selection bias in the responses obtained. The survey of AAP, ACOG, and AAFP members was not disseminated to all members of those organizations. The professional membership associations were used to distribute the surveys, so physicians who choose not to affiliate with their membership organization were excluded. Given that the survey was disseminated to some organizational members who likely have an interest in breastfeeding, there could be selection bias in that members interested in breastfeeding may be more likely to remember their education and training in this area. The survey did not examine race/ethnicity, nor did it address specific work environment of practicing physicians, for example, hospital-based or ambulatory practice.

Recall bias regarding medical training on breastfeeding may be more pronounced among those in practice for longer periods of time. More recent graduates were most likely to recall the education received in breastfeeding topics. Furthermore, some survey respondents had difficulty answering some questions, which may have led to misclassification of responses. Removing those responses from analysis of select questions was done to address this concern. The survey results are not generalizable to all physicians in these fields. Furthermore, they do not represent the full spectrum of medical specialties, only those most likely to have consistent contact with breastfeeding women and children.

The analysis provides the foundation for further efforts to develop a comprehensive plan to enhance physician

education in breastfeeding. The 2018 AAP *Physician Engagement and Training focused on Breastfeeding Action Plan*²¹ outlines key recommendations to achieve a more comprehensive approach to breastfeeding education. The Action Plan aims to integrate breastfeeding education and clinical care consistently throughout the continuum of medical education and across multiple specialties. Broadly, these steps include identification, development and dissemination of curricular materials, tools and resources, including revising and updating the existing AAP Breastfeeding Residency Curriculum.²⁰ The plan includes a systematic process of faculty development to enhance breastfeeding education at all levels of the medical education continuum. Finally, the plan aims to improve the culture of breastfeeding support for trainees and practicing physicians who are breastfeeding their own children as a component of enhancing physician well-being.

Conclusion

Through key informant interviews and a survey, the landscape analysis shows that medical education in breastfeeding remains inadequate and that physicians in multiple specialties desire more training in breastfeeding, especially clinical skills training, to improve provider confidence and competence. The analysis provides the foundation for a comprehensive plan to enhance physician education in breastfeeding.

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Disclaimer

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the American Academy of Pediatrics or the Centers for Disease Control and Prevention, the American College of Obstetricians and Gynecologists, and the American Academy of Family Physicians.

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Appendix Table A1. Physician Training on Breastfeeding Care and Implementation Select Survey Questions

1. Please rate your level of interest in the following breastfeeding and lactation topics:	Very interested
Breastfeeding in general	Somewhat interested
Clinical evaluation and treatment of breastfeeding problems	Neutral
Counseling women and families of different religious, cultural, or ethnic backgrounds on breastfeeding	Less interested
Working with appropriate lactation support services either in the hospital or in the community	Not interested
Safely implementing skin-to-skin care	
Safely implementing rooming in	
Safely giving recommendations for appropriate pacifier use	
Benefits of breastfeeding to mother and baby	
Breast pump management	
2. The following questions ask you to characterize the breastfeeding training you have received. In your medical education, do you feel you received adequate breastfeeding training to be able to:	Strongly disagree
Counsel women about breastfeeding in general	Disagree somewhat
Counsel women and families of different religious, cultural, or ethnic backgrounds on breastfeeding	Agree somewhat
Provide clinical evaluation of breastfeeding problems	Agree strongly
Provide clinical treatment of breastfeeding problems	Does not apply
Refer breastfeeding mothers to appropriate lactation support services either in the hospital or in the community	Can't remember
Safely implement skin-to-skin care	
Safely implement rooming in	
Safely give recommendations for appropriate pacifier use for breastfeeding infants	
3. Please assess the breastfeeding training you have received after your medical education. (Check all that apply.)	
Maintenance of certification	
Baby-Friendly Hospital certification	
Continuing medical education (online or in-person)	
Basic breastfeeding care competencies	
Advanced breastfeeding care competencies	
Cultural competency and health disparities in breastfeeding	
Continuity of breastfeeding care	
Non-CME webinar/lecture on breastfeeding care topics	
Self-study of breastfeeding literature	
Don't recall	
Other (please describe): _____	
4. The following question assesses the breastfeeding training you received while in medical school and as a resident or fellow. (Check all that apply.)	Received as a medical student
Clinical experience related to breastfeeding	Received as a resident or fellow
Direct observation of a breastfeeding mother	
Hospital rounds that included caring for breastfeeding mothers	
Lactation-specific rounds	
Lecture on pediatrics, obstetrics, or family medicine that included breastfeeding	
Mandatory lecture dedicated to breastfeeding	
Optional lecture dedicated to breastfeeding	
No training or education on breastfeeding	
Don't recall	
Other	