### RFP QUESTIONS AND ANSWERS

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<tr>
<th>RFP Q&amp;A Number:</th>
<th>755175-RFP-02_Q_and_A</th>
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<tr>
<td>Project Title:</td>
<td>Creative Content and Curriculum Development Consultant</td>
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<tr>
<td>Application Deadline 11:59 pm CST:</td>
<td>February 1, 2019</td>
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<tr>
<td>Proposals must be emailed to:</td>
<td><a href="mailto:323RFP@aap.org">323RFP@aap.org</a></td>
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<tr>
<td>Questions about this RFP must be submitted to the application email address above and will be accepted until:</td>
<td>January 18, 2019</td>
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<td>Responses to questions will post on:</td>
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### QUESTIONS AND ANSWERS

**Question 1. Would AAP Share:**
- Any existing formative research results from the target audiences for the Residency Curriculum?
- Results and/or reports of the Pilot Studies involved in implementing the Residency Curriculum?
- Results from the online survey about current Breastfeeding Education programs?
- Google Analytics for current Residency Curriculum web usage over the past year?

**Answer 1.** YES. Please see:
- Appendix 1: AAP Breastfeeding Landscape Analysis Report (Review "Key Findings" section).
- Appendix 2: Pediatrics journal article, Residency Curriculum Improves Breastfeeding Care
- Appendix 3: Breastfeeding Residency Curriculum Survey Results
- Appendix 4: Google Analytics of AAP Breastfeeding Website and Breastfeeding Residency Curriculum Site

**Question 2. Please clarify the target audiences for market research. Under “Statement of Purpose”, these audiences are listed:**
- Medical students,
- Residents
- Residency Program Faculty
- Post-graduates in:
  - Pediatrics,
  - Obstetrics-Gynecology, and
  - Family Medicine.

**Under “Product Specifications or Scope of Work” D.2., these audiences are listed:**
- Medical students
- Residents
- Residency Program Faculty

**For proposal purposes, which audiences should we include in market research activities? What would be an acceptable number of people in total to include in market research activities?**

**Answer 2.** For proposal purposes, the market research should include residents in: 1. Pediatrics, 2. OB/GYN, and 3. Family Medicine as the primary target audience. We specifically need to hear from the current generation of residents in terms of what they want and will use and how they want to receive it. There may be an opportunity to develop curriculum material for medical students as there may be some overlap with the materials for
An acceptable number of people to include in market research activities would be 9. See sample options below:

Option 1 - Key Informant Interviews. Conduct key informant interviews on a maximum of 9, but no less than 5 individuals.

Option 2 - Organize and facilitate Focus Group(s). Collect identical information from a maximum of 9, but no less than 5 people.

Option 3 - Key Informant Interviews with Focus Group. 2-sets of participants each with a maximum of 9, but no less than 5 people.

Question 3. Under “Product Specifications or Scope of Work”, first paragraph: Is there a document that provides the “…recommendations identified by the Physician Education and Training Focused on Breastfeeding Project Advisory Board”?

Answer 3. Yes, you can find recommendations identified by the Physician Education and Training Focused on Breastfeeding Project Advisory Committee at http://www.aap.org/breastfeedingactionplan

Question 4. The Residency Curriculum is quite extensive, and the time May-June is very limited for “developing and/or revise creative content, tools and/or resources that would be included on the Breastfeeding Residency Curriculum website.” Under “Product Specifications or Scope of Work D. Prioritize list of curriculum content to be revised and/or created.” Since prioritization is requested, does that indicate that AAP expects only a portion of the curriculum would be revised within this timeframe? If so, approximately what percent of the curriculum does AAP anticipate being in need of development or revision during this timeframe?

Answer 4. Yes, the AAP expects only a portion of the breastfeeding residency curriculum website to be revised within this timeframe. It’s difficulty to place an exact percentage for this activity, however, the AAP anticipates an update of the curriculum sitemap model and design of landing pages specific to recommendations from the market analysis, the Project Advisory Committee and Project Manager.

Question 5. Under “Product Specifications or Scope of Work” D.5, where would we find the “Breastfeeding Residency Curriculum sitemap model”?

Answer 5. Please see Appendix 5 for the current Breastfeeding Residency Curriculum Sitemap model.

Question 6. Please provide a list of the members of the Project Advisory Committee. How involved would committee members be in the curriculum revision process? Will any members play an active role in developing or revising the curriculum or do they participate in more of an advisory/review/feedback role?

Answer 6. Please see Appendix 6 for organization member list of the Project Advisory Committee. The committee would participate more as advisory (e.g. review/feedback) and can revise health-related content (e.g. medical knowledge content, patient care recommendations, case studies, learner objectives, implementation and evaluation strategies, etc).

Question 7. What role will CDC play in the review/approval of new/updated/repurposed content?

Answer 7. As a member of the Project Advisory Committee, the CDC Technical Monitor will actively offer input, as appropriate, on subject matter related to curriculum content.

Question 8. What is the overall length of time required to implement the residency curriculum?
Answer 8. The curriculum is flexible. It can be implemented over 1 rotation, 1 year, or during the entire length of residency.

Question 9. Is AAP open to exploring alternative formats for presenting the Residency Curriculum such as eLearning Modules?

Answer 9. Pending funding sources and staff/resource capacity, the AAP is open to exploring alternative formats for presenting the Breastfeeding Residency Curriculum.

Question 10. Can AAP provide an estimated budget range for this effort?

Answer 10. Applicants are expected to submit a budget that realistically aligns with the scope of work.

Question 11. For the research among target audiences (medical students, residents, program faculty, etc.) do you have existing contacts in these groups that you can connect/refer us to, or should we plan to recruit and schedule them independently?

Also, on the research you reference talking with 9 or fewer participants; we assume this is to not trigger any OMB/PRA approval procedures?

Answer 11. For proposal purposes, the market research should include residents in: 1. Pediatrics, 2. OB/GYN, and 3. Family Medicine. The Project Advisory Committee can connect/refer you to existing contacts and/or groups.

OMB clearance will not be required if the consultant collects research information from 9 or fewer participants.

Question 12. In the scope of work #5 you state to "Update the Breastfeeding Residency Curriculum sitemap model and design of landing pages", who will be responsible for doing the development work to implement those changes on the AAP.org site? Or is that not included in the scope of this request?

Also, we’re assuming that the selected contractor will be charged with actually creating/updating curriculum content, and not just providing recommendations about what should change. Can you please confirm that is correct?

Answer 12. The consultant will be responsible for developing the updated sitemap model and a new design for the landing pages on the Breastfeeding Residency Curriculum website. The consultant should be familiar with SharePoint as the AAP will be responsible for implementing their changes on the AAP.org site.

Correct, the selected contractor will be charged with actually creating/updating some curriculum content and not just providing recommendations about what should change.

Question 13. Could you please provide additional clarification for the following task:

2. Conduct market research on learning needs of target audience (i.e. medical students, residents, residency program faculty) including but not limited to key informant interviews and focus group facilitation. Collect identical information from 9 or fewer people per research method.

Answer 13. For proposal purposes, the market research should include residents in: 1. Pediatrics, 2. OB/GYN, and 3. Family Medicine as the primary target audience. We specifically need to hear from the current generation of residents in terms of what they want and will use and how they want to receive it. There may be an opportunity to develop curriculum material for medical students as there may be some overlap with the...
materials for residents; the AAP and consultant can build upon what they learn from the market research. Lastly, the AAP has multiple residency faculty on the Project Advisory Committee and will tap into that area of expertise as needed.

An acceptable number of people to include in market research activities would be 9. See sample options below: Option 1 - Key Informant Interviews. Conduct key informant interviews on a maximum of 9, but no less than 5 individuals. Option 2 - Organize and facilitate Focus Group(s). Collect identical information from a maximum of 9, but no less than 5 people. Option 3 - Key Informant Interviews with Focus Group. 2-sets of participants each with a maximum of 9, but no less than 5 people.
BREASTFEEDING LANDSCAPE ANALYSIS

FINAL REPORT

Prepared by Sarah Lifsey, MPP and Sheryl Mathis MSW/MPH

for the American Academy of Pediatrics

Version 8.23.17
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**Acknowledgments**

This project was completed with support from the American Academy of Pediatrics (AAP). The findings and conclusions of this report are those of the authors and do not necessarily represent the views of AAP. Altarum Institute is deeply appreciative of the time each key informant and survey respondent gave to participate in this effort.

Authors: Sarah Lifsey and Sheryl Mathis. Altarum Institute. Rockville, MD.
Executive summary

This report is a summation of the activities undertaken on behalf of the American Academy of Pediatrics (AAP) to inform the development of an action plan for physician training on breastfeeding and lactation support. This landscape analysis consisted of an environmental scan of published materials, a series of key informant interviews with breastfeeding and physician education stakeholders, and a survey of physicians’ experiences in formal medical education and beyond.

This research found that although breastfeeding and lactation are part of medical education in the United States, coverage of these topics is patchy, highly dependent on the institutions, and largely inadequate. These topics are not well covered in medical school, and although breastfeeding is included in the residency and fellowship experiences in pediatrics, family medicine, neonatology, and obstetrics and gynecology (OB/GYN), many physicians begin their practice feeling inadequately prepared in breastfeeding competencies. Coverage of more specific topics, including cultural competency, continuity of care, and safe implementation of breastfeeding-related maternity care practices, is less common. Key informants and survey respondents noted significant gaps in their ability to provide practical management of and troubleshooting for common breastfeeding issues.

Significant barriers to prioritizing breastfeeding education and training include inadequate time to cover these topics during formal medical education and limited uptake among practicing physicians, wherein those with a personal interest in breastfeeding are the primary consumers of breastfeeding continuing medical education (CME). In addition, colleague, mentor, and institutional support are lacking for physicians who are breastfeeding or expressing milk during medical education and practice. Competency gaps include little exposure to hands-on training, lack of knowledge about the practical management of breastfeeding, a need for training on the scope of practice for breastfeeding care, and an understanding of how to work with lactation support specialists.

BACKGROUND

In October 2016, the AAP launched a project to develop a comprehensive action plan with recommendations for addressing physician training on breastfeeding and safe implementation of evidence-based breastfeeding practices in maternity care facilities. The core issue this project sought to address was identifying opportunities to enhance physician engagement in breastfeeding support. Approaches include integration of breastfeeding training in the various stages of formal medical education, encouraging culture change to support breastfeeding within the medical education and training process, and encouragement of continuity of care with community breastfeeding resources.

Goal of the project

Altarum Institute (Altarum) was charged with conducting a landscape analysis to assess the current scope of physician training on breastfeeding care and safe implementation of evidence-based breastfeeding practices in maternity care facilities. Altarum accomplished this task through the following key tasks:
• Conduct an environmental scan to map existing breastfeeding-related education and training materials that target health care professionals.
• Conduct key informant interviews with breastfeeding and health care provider stakeholders to identify concerns regarding education and training needs and perceived gaps in existing resources for physicians.
• Conduct a physician survey to assess educational needs and concerns and identify perceived gaps in available resources.

The results of the landscape analysis, presented in this report, inform the Project Advisory Committee (PAC) in its development of a comprehensive action plan to address (1) gaps in breastfeeding-related education and training for providers and (2) training needed for physicians to safely implement evidence-based maternity care practices supportive of breastfeeding.

Role of the PAC
The PAC, which consists of breastfeeding experts and key stakeholders, was convened by the AAP and its partner, the United States Breastfeeding Committee (USBC). Its role is to provide input and align efforts to address gaps in breastfeeding-related education and training among providers. The PAC, through facilitation by USBC, provided oversight to project activities, and input on information relevant to develop the action plan. Ultimately, the PAC will use the results of this project to develop an action plan and strategies for addressing gaps in breastfeeding-related education and training.

Key questions
On December 3 and 4, 2016, Altarum attended the PAC in-person kickoff meeting with the AAP Project Team at the AAP Offices in Elk Grove Village, Illinois. At this meeting, Altarum led a brainstorming session about the landscape analysis and developed an initial list of key topics and potential key informants. Altarum and the PAC created the following questions:

• What are the challenges and barriers to the provision of breastfeeding education and training to medical providers who care for women and children?
• What are the challenges and barriers to incorporation of breastfeeding competencies into provider credentialing, licensing, and certification processes?
• How can we improve the capacity of medical practitioners to facilitate the safe implementation of evidence-based maternity care practices at the hospital level and within their practices?
• How can medical practitioners promote continuity of breastfeeding-related care in their communities?

METHODOLOGY
The three phases of this project—the environmental scan, the key informant interviews, and the physician survey—were developed to build on one another. Altarum used the results of the environmental scan to develop questions for the key informant interviews, and then used the key informant interview results to inform development of the physician survey. The sections that follow present more detailed information about each step of landscape analysis.
Environmental scan

For the first phase of the landscape analysis, Altarum conducted a comprehensive environmental scan of evidence-based breastfeeding care training and resources for medical practitioners. This scan included peer-reviewed literature and gray literature (such as white papers, reports, and conference proceedings), including training resources (manuals, webinars) and best-practice and competency recommendations from key stakeholder organizations. The scan encompassed the past 10 years and included resources that the AAP and PAC members suggested, such as maintenance of certification (MOC) materials from professional organization Web portals.

Altarum did not include materials intended for lactation consultants and similar allied health professionals unless the material was specifically targeted at physicians, as well. Research and materials related to establishing the evidence base for any of the content focus or topic areas were also excluded. The findings were synthesized into a matrix that maps existing resources by date, author, target audience, content focus or topic, type of resource, and level of medical education.

Key informant interviews

In Phase 2, Altarum conducted a series of key informant interviews on the state of breastfeeding education and training in current medical education, including barriers, gaps, needs, and opportunities. The Altarum team, with input from the PAC, interviewed key informants from nine organizations:

- Accreditation Council for Graduate Medical Education (ACGME)
- American Academy of Family Physicians (AAFP)
- AAP
- American Congress of Obstetricians and Gynecologists (ACOG)
- American Medical Student Association
- American Medical Women’s Association (AMWA)
- Dr. MILK (Mothers Interested in Lactation Knowledge)
- National Hispanic Medical Association (NHMA)
- National Medical Association (NMA)

Interviews were recorded, with the interviewee’s permission, and transcribed. The team analyzed the transcripts for themes by using NVivo version 10 qualitative analysis software (QSR International, Melbourne, Australia).

Physician survey

In the final phase of this project, Altarum conducted a Web-based survey on the breastfeeding education and training provided to physicians both during formal medical training (medical school, residency, and fellowships) and after. The team created the content for the survey in March and April 2017 based on the findings of the above environmental scan and key informant interviews. The team developed the survey questions with feedback from members of the PAC and pilot-tested it with members of the target audience. Altarum distributed this survey to members of the AAP, ACOG, and the AAFP on Friday, April 14, and it remained open for responses through Friday, April 28. The respondents self-selected to take the survey, and these results represent a convenience sample; the respondents and results cannot be interpreted as representative of the memberships of these organizations. The Altarum
team conducted an analysis of the quantitative data by using SAS version 9.4 software (SAS Institute, Cary, North Carolina) and conducted analysis of the open-ended questions by using NVivo qualitative analysis software.

A total of 1026 respondents began the survey, and 833 respondents (81%) completed it. By specialty, the largest group of respondents came from pediatrics (39%), followed by neonatology (28%), family medicine (23%), and OB/GYN (7%). Approximately 3% of respondents identified as some other specialty. By years in practice, a quarter of respondents have been in practice less than 5 years, and another quarter have been in practice 5 to 10 years. Approximately 20% of respondents have been in practice 11 to 20 years, and 29% have been in practice more than 20 years. Only about 1% of respondents are retired. This survey received responses from all 50 states and the District of Columbia as well as a small amount (2%) from outside the United States.

KEY FINDINGS

Integration of breastfeeding education in medical education

Breastfeeding and lactation are included in medical education in the United States, but coverage of these topics is patchy, highly dependent on the institutions, and largely inadequate.

Medical school. In medical school, both key informants and respondents to the physician survey indicated that breastfeeding and lactation topics are not emphasized. According to key informants, the extent of breastfeeding training in medical school is insufficient, often only a few hours of lecture, with the potential for more in fourth-year electives if the student so elects: “It might be mentioned briefly in terms of anatomy and physiology of the mammary gland, but it may not necessarily be integrated into a clinical context or even a public health advocacy context.” Topics such as safe implementation of breastfeeding recommendations, cultural competency, and continuity of care are rarely addressed unless during a clerkship rotation in a maternity care environment. Survey respondents concurred; about a third (35%) did not receive any training or education on breastfeeding while in medical school, and the most common education they received was a lecture on pediatrics, obstetrics, or family medicine that included breastfeeding, received by 30% of respondents. Lectures dedicated to breastfeeding, either mandatory or optional, were less common (11% and 9%, respectively). Of the materials found during the environmental scan, 12 of 103 materials were intended for use in medical schools, although it should be noted that Altarum staff were not generally able to review detailed syllabi or course materials for medical school courses.

Direct clinical experience is present in medical school, with about a fifth of survey respondents reporting clinical experience related to breastfeeding (20%) or direct observation of a breastfeeding mother (21%). Hospital rounds that included caring for breastfeeding mothers were slightly more common (27%), but few respondents received lactation-specific rounds in medical school (4%). Family medicine and OB/GYN practitioners reported receiving more clinical experience than the other specialties.

Some evidence exists showing that the amount of time spent on breastfeeding and lactation in medical school is increasing. When survey respondents are analyzed by years in practice, more respondents with less than 5 years in practice report receiving breastfeeding training or education on several topics
compared with respondents who have more years in practice. Only 21% of respondents with less than 5 years of practice reported receiving no training or education, compared with 44% of respondents with more than 20 years in the field and 67% of retired respondents.

**Residency and fellowship.** Education and training specific to breastfeeding and lactation are much more common during residency and fellowship than in medical school, with only 18% of survey respondents receiving no training or education. More than two-thirds of respondents attended a lecture that included breastfeeding (69%), had clinical experience (67%), attended hospital rounds that included caring for breastfeeding mothers (66%), and had direct observation of a breastfeeding mother (63%). Family medicine practitioners report the most training and education, with majorities having clinical experience (80%), direct observation (79%), and hospital rounds (83%). Lactation-specific hospital rounds are the least common form of breastfeeding training or education (20% overall), followed by optional or mandatory lectures dedicated to breastfeeding (30% and 38%, respectively).

Key informants concurred that breastfeeding training is included in residency and fellowship programs in family medicine, OB/GYN, and pediatric specialties but that outside the obvious specialties, breastfeeding and lactation are not well covered: “When you get outside of those areas, I think many people could go through residency without necessarily ever learning very much about breastfeeding.” In addition, key informants felt that coverage of these topics is highly institution dependent. An institution with or pursuing designation as Baby-Friendly may be more likely to include safe implementation of breastfeeding supportive maternity care practices, and an institution with a diverse patient base is more likely to cover cultural competency. Whether continuity of care is addressed may depend on the presence of lactation specialists. The presence of a breastfeeding champion is another factor that increases the likelihood that breastfeeding education is covered.

Key informants had different opinions on whether the amount of breastfeeding education included is sufficient. A few felt that breastfeeding education was stressed appropriately in their institutions, although they did note that this coverage depended on the institution. Survey respondents were given a list of breastfeeding competencies and asked to indicate the degree to which they agree or disagree that their medical education adequately prepared them in each competency. Seventy percent of respondents agreed strongly or somewhat (34% and 36%) that they were adequately prepared to counsel women about breastfeeding in general; respondents felt less adequately prepared to counsel women and families of different backgrounds (24% and 25%, respectively) and to provide clinical evaluations (22% strongly and 23% somewhat) and treatment (25% strongly and 24% somewhat) of breastfeeding problems.

Similar to medical school, some evidence exists that breastfeeding and lactation topics may now be covered more in residency and fellowship than in earlier years. Looking at breastfeeding education and training by years in practice, more respondents with less than 5 years of practice reported receiving nearly every kind of training or education more than respondents with more years of practice, though the length of time since formal education may affect respondents’ recall.

Key informants stated that breastfeeding is included on the American Board of Pediatrics content outline, in curriculum guidelines from the AAFP, and in residency requirements as outlined by the
ACGME. Of the materials found during the environmental scan, 8 out of 103 were specific to residency, and none was specific to fellowships, although—as with medical school—Altarum staff were not generally able to review detailed syllabi or course materials.

**Board certification and medical education exams.** Breastfeeding and lactation topics can be included on board certification and medical education exams but are not emphasized. Key informants felt that there may be some questions about breastfeeding on the exam for board certification, depending on one's specialty, but that the topic is a minor part of the overall exam: “I can pretty much guarantee you that the volume of those or quantity of those is low enough that if you knew nothing about breastfeeding but were well versed in other aspects on that test . . . you could conceivably become board certified and credentialed without knowing anything about breastfeeding.” Similarly, some key informants noted that although the United States Medical Licensing Examination and standardized subject examinations for graduates included some breastfeeding questions, most students would not focus their studies on breastfeeding because of the volume of other materials on the exam: “It’s a crap shoot, but you want to play the odds, so you study a little bit for it, but there’s other, higher yield information.”

**Continuing education and maintenance of certification.** It is apparent that many practitioners turn to continuing education materials on breastfeeding and lactation to supplement their formal medical education, with most respondents to the physician survey reporting some level of engagement with CME materials. The most common across all specialties (69%) was self-study of breastfeeding literature, with 52% to 73% of respondents by specialty undertaking self-study. More than a third of respondents (40%) have undergone training related to the Baby-Friendly designation, particularly neonatologists (55%) and OB/GYN practitioners (43%). About a third of respondents (32%) have attended a non-CME webinar or lecture on breastfeeding topics. Nearly a third of respondents (30%) have participated in CME on basic breastfeeding care competencies, but less than one-sixth of respondents report attending CME courses on advanced breastfeeding care competencies (15%), cultural competency and health disparities (15%), or continuity of care (13%).

Of the materials found during the environmental scan, many (50 out of 103) were intended for CME or postgraduate education, with a handful (7 out of 103) specific to MOC. Many of the resources were research articles (29) describing a need for breastfeeding education, methods for incorporating breastfeeding education, and gaps in breastfeeding education. Online courses (20) and webinars (17) were well represented in the materials, as were practicum curricula (12) and didactic curricula (10). Other resources include manuals (9), competencies (4), and best practices (2).

Breastfeeding topics are often included at the annual meetings of specialties such as OB/GYN, pediatrics, and family medicine, but key informants noted the “preaching to the choir” problem of self-selection into these learning opportunities. In general, key informants noted that breastfeeding topics are often included in CME during annual conference trainings for their specialties, including AAFP, ACOG, AMWA, NHMA, NMA, and AAP. Breastfeeding is included in the AAFP’s curricular framework, and both AAFP and NMA offer breastfeeding training in response to demand from their membership.
Coverage of specific breastfeeding and lactation topics

This project focused on the inclusion of several specific topics that the PAC deemed of interest and importance in breastfeeding education. These topics—cultural competency, continuity of care, and safe implementation of breastfeeding-related maternity care practices—were specifically probed during key informant interviews and the physician survey.

**Cultural competence.** Cultural competence is an institution or practitioner’s ability to provide health care services that meet the social, cultural, and linguistic needs of a diverse patient body. Cultural competency is included in the guidelines of both Liaison Committee for Medical Education, which accredits medical schools, and ACGME, which accredits residency and fellowship programs, but is not specific to breastfeeding in either case.

Several key informants felt that medical schools included cultural competency as a concept in a limited way and that there have been improvements in coverage as a general topic in recent years. One key informant felt that some students do hear about cultural competency issues in breastfeeding but from the popular literature, not from classroom content. According to key informants, the institution can determine whether cultural competency is covered in residency and fellowship: “When you have a very diverse patient population where the residents are engaging in that on a regular basis in their clinics, when they’re covering the nursery, I suspect there is more of an emphasis on that. If they tend to be in a more homogenous area where their clinical population isn’t as reflective of a diverse society, then it might not be covered quite as much.” About half of survey respondents disagreed or strongly disagreed that they felt prepared to counsel women and families of different backgrounds (24% and 25%, respectively). Only 13% agreed strongly that they were adequately prepared.

Of the materials found during the environmental scan, only a few focused on cultural competency and health disparities as related to breastfeeding (4 out of 103 materials). More materials are available for residents than for medical students, including a cultural competency curriculum from the Family Medicine Association and a Physician Conversation Guide and accompanying webinar on disparities in breastfeeding among women of different ethnicities from ACOG. For continuing education, key informants felt that materials were available but that physicians must self-select to take advantage of them.

**Continuity of care.** In this context, continuity of care is the management of breastfeeding and lactation in partnership with lactation support professionals. One key informant noted that continuity of care is a hallmark of family medicine training and that there is a great deal of emphasis on this topic in general. A module on breastfeeding and lactation counseling exists in the AAFP Residency Curriculum Resource. Similarly, one key informant stated that an integrative approach to postpartum care is an important part of OB/GYN residency training. Key informants did note that continuity of care is more likely to be a topic covered in residencies and fellowships in institutions where lactation specialists are present. Approximately half of respondents feel strongly that they were adequately prepared to refer

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breastfeeding mothers to appropriate lactation supports (54%). Of the materials found during the environmental scan, only a few focused specifically on continuity of breastfeeding care (10 out of 103 materials).

**Safe implementation of breastfeeding supportive maternity care practices.** Safe implementation of breastfeeding recommendations refers to a physician’s understanding of and ability to help direct the implementation of skin-to-skin care and rooming-in in a manner that supports the safety of both mother and neonate. Many of the key informants were not sure whether these subjects were covered at any stage of medical education. Key informants felt that safe implementation of breastfeeding recommendations was more likely to be included in residency and fellowship at institutions designated as Baby-Friendly by Baby-Friendly USA. Informants also felt that skin-to-skin care and rooming-in were likely to be covered in OB/GYN residencies and fellowships, and skin-to-skin care and pacifier use are covered in CME available to family medicine physicians. Despite the key informants’ feelings that these topics may not be well covered, approximately half of survey respondents felt strongly that they were adequately prepared to refer breastfeeding mothers to appropriate lactation support personnel or services (54%), safely implement rooming-in (46%), and safely implement skin-to-skin care (43%). Respondents were less sure about pacifier recommendations. Of the materials identified during the environmental scan, only a few focused specifically on safe implementation of breastfeeding practices (9 out of 103 materials).

**Culture of support for breastfeeding physicians in medical education and practice settings**

Support is a well-established contributing factor related to breastfeeding initiation and continuation. Responses from both the key informant interviews and physician survey indicated that although the culture of support has improved in general, there is still room for improvement in areas such as protected time, dedicated space, and support from colleagues. The perceived improvements of recent years are seen as institution dependent. Respondents of the physician survey indicated that the support of colleagues and staff could be a major help or a discouragement for breastfeeding, and several key informants felt that areas exist in which support is lacking both in medical education and in practice settings.

**Gaps in support at different stages of medical education.** Key informants indicated that medical schools are generally accommodating of students who are breastfeeding, particularly during the first 2 years of medical school, when a student is in the classroom. Breastfeeding can be more challenging, however, during clinical rotations, particularly in relation to needing time both for maternity leave and for expressing breast milk. Residents and fellows were perceived to generally have more institutional support and be offered greater flexibility to accommodate breastfeeding than medical students, who face pressures related to securing a residency. However, the lack of understanding from peers, faculty, and administrators about time taken to breastfeed or express milk was one of the key challenges cited for residents. For practicing physicians, protecting time and private space within their practice site were areas in which more support is needed. Respondents identified continuing education as having the fewest gaps in support because attendees have a significant amount of autonomy and leave as needed
during sessions and conferences.

**Personal experiences with breastfeeding and pumping in medical education and practice.**

Approximately one-third of survey respondents had personal experience with breastfeeding as a medical student, resident (or fellow), or both, and many indicated that the support was what allowed them to continue. The most common support these respondents received was simply support from colleagues about breastfeeding or pumping breast milk (59%), followed by support to take maternity leave (55%), a dedicated room to express breast milk (48%), and support from faculty members (55%). Medical students reported fewer supports than residents, corroborating key informant perceptions of the difference in support at these stages of medical education. More than one-quarter of those who had breastfeeding experience indicated that colleagues or staff were not supportive of their needs. Areas in which their needs were not met included having time and space to express milk and unsupportive colleagues that made undermining remarks or were impatient with the time needed for pumping breast milk. Responses were mixed with regard to the number of respondents who indicated that the support they received from their institution affected their decision to breastfeed. Many respondents noted that they were determined to breastfeed in spite of the lack of institutional support, while others said that the support they received encouraged them to breastfeed and express milk.

**Most important supports for breastfeeding and pumping.** Survey respondents most commonly identified protected time and dedicated space to express breast milk as the additional supports they needed. Accommodations for pumping are needed for residency or fellowships as well as in practice while managing shared office space and constraints related to clinical schedules. Multiple respondents cited support from peers, including moral support and understanding. Key informants indicated that training for faculty and administrators on the importance of supporting residents who are breastfeeding is key as well as helping physicians to feel sufficiently empowered to ask for accommodations at all levels of education and practice.

**SIGNIFICANT GAPS IN BREASTFEEDING EDUCATION AND TRAINING**

**Barriers to prioritizing breastfeeding in medical education**

Many key informants agreed that the main barrier to incorporating breastfeeding training and education is the sense that there are more important topics to address. In medical education, this means that breastfeeding training is set aside or only shallowly covered: “It’s not necessarily seen as a situation where you have to know right away, an emergency situation or whatnot . . . We can always push it back until we have the time for it.” The sheer volume of information that physicians-in-training must absorb at all levels of medical education is daunting, and advocates for breastfeeding education face challenges in the inclusion of breastfeeding information.

In their comments, some survey respondents explained why they felt that breastfeeding education was not a priority. Some noted that there is a lack of time and space in the curriculum of medical school and residency to include this topic: “Too many competing and higher-level priorities.” Other respondents felt that the topic is simply not a priority because of a lack of interest from their institutions: “Despite the positive data in favor of breastfeeding, there remains no real urgency in accomplishing this goal.”
Key informants were mixed on whether education and licensing standards are appropriate places to integrate more questions about or requirements for breastfeeding education. One stated, “I would think that would be way too much in the weeds for what licensure looks at.” One of the main barriers to including breastfeeding topics on the board certification exams is the number of other topics that must be covered. A few key informants felt that more questions on breastfeeding could be appropriate and that adding questions to these and other exams might motivate medical schools and students to give more weight to the topic.

**Improving physician confidence in management and troubleshooting**

A direct consequence of the lack of breastfeeding education is that physicians do not feel as though they have the skills or knowledge to effectively counsel women who are breastfeeding. When asked to describe the breastfeeding-related areas where they do not feel that their medical education adequately prepared them, the most common response from survey respondents was that they do not feel adequately prepared for any part of breastfeeding management. The second most common response was the practical management of breastfeeding, particularly dealing with common breastfeeding problems such as nipple care, mastitis, and thrush. These deficiencies can negatively impact patient care, with some key informants feeling that when physicians are not comfortable with a topic, they are likely to either shy away from it or offer advice that is not evidence-based: “When I’ve talked to obstetricians in particular and pediatricians, it’s their discomfort in handling problems that keeps them from bringing it up.”

Key informants also noted a need for advanced breastfeeding topics, particularly on the treatment of breastfeeding problems, how to pump, latch establishment, and infant weight loss (outside of normal limits), among others. A few key informants suggested that these topics would best be covered by a hands-on training or practicum and that medical education rarely provides opportunities for practicing practical management of breastfeeding: “Just having a few actual skills, like we learn how to do a spinal tap and we know how to draw blood . . . If a family doctor gets asked about the breastfeeding, they should be able to do a small assessment, enough that that would give them clues to why they should send them to the lactation consultant.” Managing breastfeeding problems is a weakness for all four specialties, with between 43% and 50% disagreeing or strongly disagreeing that they were adequately prepared for clinical evaluation and between 40% and 56% disagreeing or strongly disagreeing that they were adequately prepared for clinical treatment of breastfeeding problems.

Few physician-oriented materials address practical breastfeeding management or clinical skills. Of the materials identified during the environmental scan, more than three-quarters (80 out of 103 materials) addressed general breastfeeding competencies. Only two were focused on clinical skills, one on for first-year medical students and one for first-year pediatric residents.

**Cultivating patient and public awareness and support**

Several key informants felt that patient awareness is a barrier to breastfeeding and that patients come with cultural beliefs and myths about breastfeeding that physicians are not equipped to address. One cultural barrier is the status of breasts as a sexual organ in the United States and a lack of comfort with the topic: “I think we need to explore why people are uncomfortable with this because we need to get
at the cultural/societal aspect of why they have difficulty having this discussion, why they cut those conversations short.”

This barrier can also affect the attitudes of medical students and residents toward receiving breastfeeding training and toward supporting fellow trainees and physicians who are breastfeeding. As mentioned earlier, many physicians reported a lack of support, including undermining remarks and attitudes toward breastfeeding, from their peers and administrators: “Although most people were supportive, the few that were not were very nasty about it” (Pediatrics); “Yes, there were attending physicians who openly ridiculed the time needed by nursing mothers to pump” (Neonatology); “We had an administrator who did everything he could to limit time and private space to pump” (Family Medicine). Respondents with more positive peer experiences described how support enabled them to reach their breastfeeding goals, wherein colleagues assisted with the workload while the respondent was pumping, provided a private space for pumping, and provided mentorship and moral support. One respondent indicated that breastfeeding was normalized and accepted as part of the culture within the organization such that she felt like she was “...being a good example to patients by breastfeeding instead of dragging the team down.”

The role and limits of the breastfeeding champion

Many key informants mentioned the importance of a champion in breastfeeding education: Champions advocate for inclusion of breastfeeding education in didactic and clinical education, administer breastfeeding-focused electives, support medical students and residents by fostering a culture of support, and educate fellow faculty and administrators on breastfeeding-friendly practices. However, some key informants did acknowledge that the champion’s role is a tiring one and that having a champion is not sufficient for institutionalized changes: “Breastfeeding tends to be a personal hobby of one or two passionate doctors at a residency program. And, thank God, they do! Without that type of advocacy, nobody would learn anything! But, it also makes it seem like only a doctor that has breastfed themselves is someone who could manage it or treat it.”

Creating a partnership between lactation consultants and physicians

Survey respondents felt strongly that they could refer breastfeeding mothers to appropriate lactation support services in the hospital or in the community, but key informants were less sure that physicians were working closely with these professionals. There are acknowledged gaps in the knowledge of physicians about available lactation support resources: “I think from the medical side many doctors are not as well informed about those services and particularly don’t know the difference in terms of how somebody might be trained who’s working in a [Woman, Infants, and Children] office versus somebody that’s a La Leche person versus somebody who’s gone to a [Certified Lactation Counselor] course versus somebody who’s trained as an [International Board Certified Lactation Consultant]; to them, it’s just they’re all lactation people and they don’t necessarily discriminate between their training, their scope of practice, or what services they can provide.”

Access to lactation support personnel can be highly institution specific. If a physician group is large enough, then it may have its own lactation specialists that come in for postpartum rounds or perhaps a nurse with lactation training. However, many practices are not large enough and would refer patients to
the local hospital. In the hospital setting, one key informant noted that “lactation support people are seen as the sort of superfluous—nice to have but not necessary,” that they may not be available every day of the week and could be some of the first staff cut in times of budget hardship. In addition, insurance coverage, language issues, and ability to pay are barriers to patients who need lactation consultation services.

However, some stakeholders felt that there are downsides to overreliance on breastfeeding support professionals. One key informant noted, “The interprofessional team is very important in terms of medical education across the spectrum nowadays, but I think that when it comes to breastfeeding, a lot of times if there’s a breastfeeding issue, it’s ‘oh, just get a lactation consult, go see a lactation specialist’ as opposed to really working hand in hand with those professionals.” Some survey respondents agreed that breastfeeding can be seen as a topic more appropriate for lactation consultants, midwives, and nurses than for physicians, and a few even agreed: “Lactation consultants seemed to have cornered this market in my area. Doesn’t seem like we are needed.”

**Supporting breastfeeding at the institution/hospital level**

Several key informants felt that basic standards for breastfeeding training, particularly at the medical school level, would help all physicians better understand the importance of breastfeeding: “I hope we come up with definitely some basic curriculum messaging for all physicians, whether they’re in medical school or residency, of any specialty.” This is particularly important for several specialties key informants identified as giving incorrect or outdated advice to breastfeeding mothers: anesthesiology, radiology, and surgery.

The survey respondents who felt that their institution, medical school, or program prioritized and valued breastfeeding education noted the presence of the following supports: employment of staff with additional lactation training, policies and activities supporting breastfeeding education undertaken by the AAP and the Academy of Breastfeeding Medicine, efforts towards the Baby-Friendly designation, and training related to breastfeeding.

**Expanding the pool of learners with CME**

The physicians who responded to the survey have pursued breastfeeding education after formal medical education through self-study of breastfeeding literature, training related to the Baby-Friendly designation, CME and non-CME webinars on breastfeeding topics, and other forms of continuing education. However, it’s likely that a respondent willing to set aside time to complete a survey on breastfeeding is inherently interested in the topic and the rates of self-pursuit of breastfeeding education after medical school in the general physician population are lower.

Several key informants noted that breastfeeding-related CME is available but that it tends to be selected by physicians who are already interested in breastfeeding care and support. Key informants suggested publishing outside of breastfeeding-focused journals and conducting breastfeeding-related CME that is tied to chronic disease and obesity: “I think if we approach the importance of breastfeeding and the evidence behind it rather than our opinions behind it, as a primary prevention, we’ll make some headway, particularly with the obesity epidemic in this country and in other industrialized countries.”
NEXT STEPS AND RECOMMENDATIONS

Create a culture of breastfeeding as the norm
Breastfeeding is the normative method of infant feeding, but it is often not the practiced method. Therefore, targeted effort is necessary to support the cultural shift to adoption of breastfeeding as the norm. To facilitate this shift, consider communicating to physicians targeted and compelling messages in support of breastfeeding. For example, managers and administrators might be swayed by information on the business case for breastfeeding, where they are informed of the cost savings of less absenteeism among breastfeeding mothers. Pediatricians might respond to information about the reduction in ear infections among breastfeeding infants. To create a cultural shift in support of breastfeeding, it is important to create a compelling argument based on the audience’s values system, with repeated exposure to the messaging over time.

Further cultural adoption can be fostered by acknowledging the personal, unique, and emotional nature of breastfeeding. Tailored education and training opportunities can play a vital role in helping physicians acknowledge their personal experiences and beliefs and address the ways in which these factors influence overt or covert support or discouragement of breastfeeding among colleagues and patients.

Clarify scope of practice
The complexity of breastfeeding management can be challenging and is highly situational. Therefore, it is important to clearly define the physician’s scope of practice and establish expectations for support of breastfeeding and the advanced competencies necessary to engage in counseling on breastfeeding, particularly for different specialties and subspecialties. More specific resources, like a framework for when artificial milk may be indicated and guidelines for referral to other breastfeeding resources, including a taxonomy of the roles and competencies of the various lactation support specialists, may also be useful to the field.

Explore methods for including breastfeeding in formal medical education
Although barriers to increasing the coverage of breastfeeding and lactation in formal medical education exist, information in this report gives stakeholders several possible avenues to explore. Key informants described a “chicken and egg” problem of including breastfeeding on licensure exams, where schools are reluctant to cover topics not included on exams but exam writers are reluctant to include topics that are not well covered in education. Discussing the inclusion of these topics with credentialing and accreditation bodies may give more texture to this problem and point to a way forward. Drawing lessons from medical schools and hospitals where breastfeeding and lactation are prioritized is another recommendation. Survey respondents and key informants pointed toward the employment of lactation support specialists and staff who have specialized lactation training, a Baby-Friendly designation, and the presence of breastfeeding champions as signs of a supportive institution. A case study–style examination of how a medical school or hospital successfully prioritized breastfeeding and lactation may be illuminating.
Prioritize convenient, accessible CME training on breastfeeding and lactation topics with hands-on training components, when appropriate.

Self-study and pursuit of CME are important venues for physicians to build their breastfeeding and lactation knowledge. Stakeholders should create targeted, accessible training content for physicians. According to the survey, the most desired topics for education were:

- Benefits of breastfeeding to mother and baby (71% very interested);
- Breastfeeding in general (67%);
- Clinical evaluation of breastfeeding problems (63%);
- Working with lactation support services (63%);
- Safely implementing skin-to-skin care (59%);
- Counseling women and families of different religious, cultural, or ethnic backgrounds on breastfeeding (58%);
- Breast pump management (56%);
- Safely implementing rooming-in (55%); and
- Providing recommendations for appropriate pacifier use (52%).

Clinical evaluation of breastfeeding problems and the practical management and troubleshooting of these problems were recurring needs in both key informant interviews and the physician surveys. Respondents were particularly interested in learning how to cope with latch and suck issues; supply issues; dealing with lip and tongue-tie; and treatment of engorgement, mastitis, thrush, and other complications.

Other topics of interest include:

- Caring for babies with special needs, including premature babies, babies in the neonatal intensive care unit, and multiples (21);
- Medication management, including anesthesia, when “pump and dump” recommendations are and are not evidence-based, medications for chronic diseases, managing medication for depression while lactating, and the effects of marijuana and other recreational drugs (21);
- Encouraging mothers to breastfeed and their families to support breastfeeding (12);
- Milk expression management, including hand and pump expression, milk storage, and best practices for methods of providing expressed milk to infants (10); and
- Counseling and supporting mothers when they return to work (10).

The training should be developed in the most suitable and accessible format based on the content area to be covered. Survey respondents were open to every mode of education and training, with a slight preference for in-person CME (41% very interested) and online classes (40%) over webinars (36%) and written materials (36%). In particular, both key informants and survey respondents urged breastfeeding education stakeholders to increase the amount of hands-on training with breastfeeding mothers, including specific techniques for positioning and latching, conducting clinical evaluations of breastfeeding problems, and hand expression. One respondent noted, “I have seen lectures given by breastfeeding residents, with breastfeeding mothers giving practical demonstrations, and they are helpful and excellent.” Many survey respondents cited their own personal experience with breastfeeding, as a mother or a partner of a breastfeeding mother, as instrumental in the development of their own breastfeeding competencies as a physician. A respondent also noted the passion of select
colleagues as a driving force for education at specific institutions: “Breastfeeding tends to be a personal hobby of one or two passionate doctors at a residency program.” However, other respondents felt that it is necessary to move beyond dependence on the personal experiences or passion of a few physicians to effect positive change in this area.

**Build opportunities at each level of training, education, and organizational practice**

An overarching theme from these project data, which lend themselves well to concrete next steps, is the need to create and build on opportunities at each level of training and in organizational practice to cultivate awareness, knowledge, and support for breastfeeding best practices, as elucidated by these two thoughts from respondents:

▲ “I think there are a lot of places where you can interject breastfeeding [into medical education], but you have to have somebody that values that and is really pushing to make sure that the students get that exposure.”

▲ “I would say the large majority, 90% or better, of the mothers that deliver that I encountered intend to breastfeed. It’s the ongoing support afterwards that affects whether or not they’ll successfully do so.”

The role that well-trained and competent physicians have in providing that ongoing support is crucial. This research found that there are considerable gaps at all levels of physician education and training and that the perception that breastfeeding is a less important topic is one of the reasons for its lack of prioritization in medical education. This may be why some stakeholders feel that a breastfeeding champion is needed to elevate this topic in medical schools and teaching hospitals. At the same time, depending on a breastfeeding champion can mean that support for breastfeeding education is not truly institutionalized and could evaporate if the champion leaves or focuses on another priority. Moving beyond the dependence on a breastfeeding champion will involve changes at multiple levels and could include the development and promotion of basic standards for breastfeeding training in medical schools; the development of competencies focused on practical breastfeeding management and troubleshooting; support for hands-on training, clinical exposure to the breastfeeding dyad, and practicums; training on the roles of different lactation support service professionals; reaching out with research and CME beyond the usual pool of breastfeeding supporters; and using a consistent message on the importance of breastfeeding to increase practitioner, patient, and public support for breastfeeding.
Residency Curriculum Improves Breastfeeding Care
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http://www.pediatrics.org
Residency Curriculum Improves Breastfeeding Care

WHAT’S KNOWN ON THIS SUBJECT: Despite a rise in overall breastfeeding, lack of physician support has continued to undermine the practice of exclusive breastfeeding. Inadequacies exist in breastfeeding education during residency, and study results have suggested that support of breastfeeding is decreasing among practicing pediatricians.

WHAT THIS STUDY ADDS: The authors used an AAP curriculum to train a multispecialty group of primary care residents. This training on breastfeeding improved knowledge, confidence, and practice patterns related to breastfeeding care among residents and resulted in increased breastfeeding rates in their patients.

OBJECTIVES: Multiple studies have revealed inadequacies in breastfeeding education during residency, and results of recent studies have confirmed that attitudes of practicing pediatricians toward breastfeeding are deteriorating. In this study, we evaluated whether a residency curriculum improved physician knowledge, practice patterns, and confidence in providing breastfeeding care and whether implementation of this curriculum was associated with increased breastfeeding rates in patients.

SUBJECTS AND METHODS: A prospective cohort of 417 residents was enrolled in a controlled trial of a novel curriculum developed by the American Academy of Pediatrics in conjunction with experts from the American College of Obstetricians and Gynecologists, American Academy of Family Physicians, and Association of Pediatric Program Directors. Six intervention residency programs implemented the curriculum, whereas 7 control programs did not. Residents completed pretests and posttests before and after implementation. Breastfeeding rates were derived from randomly selected medical charts in hospitals and clinics at which residents trained.

RESULTS: Trained residents were more likely to show improvements in knowledge (odds ratio [OR]: 2.8 [95% confidence interval (CI): 1.5–5.0]), practice patterns related to breastfeeding (OR: 2.2 [95% CI: 1.3–3.7]), and confidence (OR: 2.4 [95% CI: 1.4–4.1]) than residents at control sites. Infants at the institutions in which the curriculum was implemented were more likely to breastfeed exclusively 6 months after intervention (OR: 4.1 [95% CI: 1.8–9.7]).

CONCLUSIONS: A targeted breastfeeding curriculum for residents in pediatrics, family medicine, and obstetrics and gynecology improves knowledge, practice patterns, and confidence in breastfeeding management in residents and increases exclusive breastfeeding in their patients. Implementation of this curriculum may similarly benefit other institutions.
Increasing the rate of breastfeeding has been a public health priority in the United States for more than a century.\(^1\) Multiple strategies have been studied, including prenatal promotion, improvement of hospital policies, public health awareness campaigns, peer support, and work-site improvements.\(^3\) Physician promotion and support of breastfeeding is less well studied. In 1974, when breastfeeding rates were recovering from an all-time low, only 30% of physicians routinely encouraged breastfeeding, and only 52% said that they would encourage breastfeeding if the mother was already interested.\(^3\) Attitudes about breastfeeding had improved 20 years later, with 90% of physicians indicating that they encouraged breastfeeding but only 50% saying that they felt confident in their ability to counsel breastfeeding patients.\(^4\) Practicing physicians and residents have reported inadequacies in the training and preparation they received to help them advise breastfeeding mothers.\(^5\) In 1999, results of the American Academy of Pediatrics (AAP) Periodic Survey indicated a lack of knowledge, confidence, and positive attitudes toward breastfeeding counseling in a random sample of pediatricians that included US pediatric residents and fellows.\(^8\) Most respondents in that survey reported that breastfeeding and formula feeding were equally acceptable. In a follow-up 2004 survey, more pediatricians recommended exclusive breastfeeding but were up to 5 times more likely than pediatricians in 1995 to recommend termination of breastfeeding for inappropriate reasons.\(^7\) The results of these studies demonstrated a need to improve breastfeeding knowledge and attitudes among practicing physicians and to develop more effective faculty, mentors, and role models for physicians in training. However, many primary care physicians, who have an influential role in mothers’ decisions to breastfeed, lack the necessary clinical skills to provide lactation management.\(^4,\)\(^5,\)\(^8\)\(^\text{–}^10\) Furthermore, if physicians have poor attitudes and absent skills, they are more likely to discourage continued breastfeeding.\(^10\)

In October 2000, the US Department of Health and Human Services Office on Women’s Health released the HHS Blueprint for Action on Breastfeeding,\(^1\) which documented a comprehensive national policy in which breastfeeding was identified as the ideal method of feeding and nurturing infants and declared a national health priority. The authors advocated changes in the health care system that included providing professional maternal and child health care providers with culturally appropriate clinical and in-service training and continuing education on the basics of lactation, breastfeeding counseling, and lactation management.

To address this issue, the AAP, with funding from the Health Resources and Services Administration’s Maternal and Child Health Bureau, partnered with organizations such as the American College of Obstetricians and Gynecologists, American Academy of Family Physicians, and Association of Pediatric Program Directors to develop a model residency breastfeeding curriculum. In this study we evaluated the impact of that curriculum on breastfeeding knowledge, practice patterns (PPs), and confidence among participating residents, as well as the impact of implementing the curriculum on the institution’s breastfeeding rates.

Our primary hypothesis was that residents would improve their breastfeeding knowledge, skills, and PPs as a result of curriculum implementation. Our secondary hypothesis was that breastfeeding rates at the institutions implementing the curriculum would increase.

**METHODS**

**Development of Curriculum**

The AAP Breastfeeding Residency Curriculum was developed by a project advisory committee that included expert representation from the AAP, American College of Obstetricians and Gynecologists, American Academy of Family Physicians, Association of Pediatric Program Directors, and other professional organizations. Two previously studied models, a field-trip design and the second edition of the Wellstart Lactation Management Self-study Modules\(^11,\)\(^12\) were incorporated into the new curriculum that also included a comprehensive resource and reference list. The curriculum contained 7 major sections: advocacy, community outreach and coordination of care, anatomy and physiology, basic skills, peripartum support, ambulatory management, and cultural competency. For each category, goals, learner objectives, suggested activities, clinical correlations, and evaluation strategies were specified. The authors structured the curriculum according to the Accreditation Council of Graduate Medical Education Core Competencies (www.acgme.org/outcome/comp/compMin.asp) to allow for flexibility during implementation. The full curriculum and related materials are available online (www.aap.org/breastfeeding/curriculum) for general use.

**Selection of Pilot Intervention Sites and Control Sites**

In 2006, the AAP sent a request for applications to directors of residency programs in pediatrics, obstetrics, and family medicine, and 69 of those directors responded. The AAP selection committee chose applications from programs reported to have low or unknown breastfeeding rates, and enrollment included at least 20 ethnically diverse pediatrics, family medicine, obstetrics and gynecology resi-
Curriculum Implementation

Two faculty members from each implementation site participated in a 2-day curriculum-training program at the AAP, during which each developed a site-specific curriculum-implementation plan. Implementation of the curriculum took place after completion of resident pretests and collection of baseline breastfeeding data.

In all programs, resident training began with self-study materials on anatomy and physiology and basic skills. Residents then met with faculty who led discussion questions, didactic lectures, and skills workshops. Residents learned peripartum breastfeeding support during the newborn-nursery rotation. During this time, the residents were required to assist 3 new mothers with breastfeeding, with at least 1 encounter (live or role-play) being observed and scored by faculty. Sites generally fulfilled the requirement for community outreach and coordination of care by arranging a field trip to or presentation from local breastfeeding support groups. The faculty taught advocacy of breastfeeding to residents by reviewing the World Health Organization/United Nations Children’s Fund Ten Steps to Successful Breastfeeding and comparing this information with their hospital’s current policy. Residents learned about ambulatory management through discussion of clinical case scenarios in a small-group setting and with hands-on practice during continuity clinic. Cultural competency cases were also discussed.

Collection and Analysis of Resident Knowledge, Confidence, and PPs

The AAP assisted sites in collecting data regarding resident knowledge, confidence, and PPs by posting the pretests and posttests on Survey Monkey (www.surveymonkey.com). The pretests and posttests can be viewed at http://aap.org/breastfeeding/curriculum. The tests were adapted from the Academy of Breastfeeding Medicine “What Every Physician Needs to Know About Breastfeeding” course and the American Academy of Pediatrics Periodic Survey. Three scales were used to measure the impact of curriculum completion. Knowledge was measured by 25 items in the pretest and 26 items in the posttest with “right-or-wrong” answers. Perceived confidence was measured by using questions from 2 domains: adequately addressing parental questions and competently managing common breastfeeding problems. An ordinal scale was used to determine residents’ confidence. PPs were summarized as a composite on the basis of 3 specific practices: (1) assessment of a mother breastfeeding; (2) counseling a mother about infant feeding choices; and (3) teaching a mother breastfeeding techniques. Residents reported each PP by using a scale from never to 5 times or more. Composite scores were calculated as the mean response overall for the 3 PP items. There were additional PP items that addressed cultural competency: (1) asking about cultural beliefs and practices before counseling about breastfeeding; (2) asking about cultural beliefs and practices regarding colostrum; (3) asking for assistance by another staff member (chaperone) when observing breastfeeding; and (4) using the assistance of a bilingual staff member or certified interpreter for a mother who had low English proficiency. PP scores were analyzed with and without the inclusion of items that assessed cultural competency.

Median group differences in demographic variables were tested for significance by using the Mann-Whitney U test. Mean scaled scores within groups were tested for significance by using a paired t test. Mean differences between groups were tested by an independent-samples t test with homogeneity of variance correction as indicated by Levene-test results. Improve-
ments (binary) in scale scores between groups were summarized as odds ratios (ORs) and tested for significance by using 2-tailed log-likelihood χ².

Sample-Size Determination
On the basis of available resources, we determined that the study could include up to 14 sites. A minimum of 20 residents were chosen at each site to provide 80% power to detect an OR of 2.0 between groups on any increase in any of the 3 scales analyzed by using a 2-tailed log-likelihood χ² test at α = .05 and allowing for an increase in up to 33% among control-group residents.

Breastfeeding Rates
Each site collected rates of breastfeeding at study initiation and 6 months later by randomly selecting 100 medical records at specific intervals. Each site determined its baseline breastfeeding rates by selecting newborn and residency continuity-clinic medical records for a 3-month interval (July through September 2006). Sites derived their postintervention rates from charts that were dated after completion of the curriculum and after residents completed their posttests. Breastfeeding-initiation data were collected May through July 2007, and 6-month breastfeeding data were collected December 2007 through January 2008. Site coordinators were instructed to record feeding in 1 of 3 categories: exclusive breastfeeding, nonexclusive breastfeeding (breastfeeding plus feeding of formula or other foods and/or fluids), and exclusive formula feeding. Sites were asked to define “exclusive breastfeeding” as an infant’s consumption of human milk with no supplementation of any type (water, juice, nonhuman milk, or foods) except for vitamins, minerals, and medications. “Overall breastfeeding” was defined for the purpose of analysis as the sum of nonexclusive breastfeeding and exclusive breastfeeding. Breastfeeding rates between intervention and control groups were compared in the preintervention and postintervention periods by using Pearson’s χ² or Fischer’s exact test depending on expected values. The odds of increased breastfeeding rates at birth and 6 months (overall and exclusive) were calculated by using the percentage of exclusive or overall breastfeeding at each point in time and tested for significance as a ratio. A sample of 450 charts in all sites combined provided 82% power to detect an OR of 1.5 between the exclusive breastfeeding rates before and after the intervention by using a 2-tailed log-likelihood χ² test at α = .05, allowing for baseline preintervention rates up to 25%.

RESULTS
A total of 417 residents were enrolled from 13 sites (6 interventions and 7 controls) (Fig 1). One intervention site was unable to obtain institutional review board approval. Resident characteristics are listed in Table 1. There were 157 residents who completed pretests but did not complete posttests (noncompleters), which resulted in 260 residents who completed both pretests and posttests (completers). Completers and noncompleters were similar except for a higher rate of exclusive breastfeeding among completers. This difference was not observed in comparisons between intervention and control residents in the completers group.

Resident Knowledge, Confidence, and PPs
Residents at the intervention sites improved significantly in knowledge, PPs, and confidence (Table 2). Residents who completed the curriculum were more than twice as likely to improve their knowledge, PP (adjusted), and confidence compared with residents at control sites (Table 3). Baseline scores were analyzed for residents according to completion status. Baseline confidence and PP between completers and noncompleters were similar. Residents who completed the study (intervention and control groups) had more knowledge on their pretest than noncompleters (P < .01). Completers in the intervention group scored 64.8%, and completers in the control group scored 68.3%; noncompleters in the intervention group scored 60.1%, and noncompleters in the control group scored 61.3%.
Improvements in knowledge, confidence, and PP were analyzed according to the size of the residency program, to determine if effects were shared equally, by using the weighted number of residents who completed the study at each site (Table 4). After adjustments were made for size, mean improvements remained significant.

Knowledge, PP, and confidence were examined according to gender among residents in the intervention group who completed the study (Table 5). Despite baseline and posttest differences in PP, mean improvements did not differ between genders.

When compared among the 3 medical specialties, pediatric residents improved most in their confidence, whereas residents in obstetrics/gynecology and family medicine improved most in knowledge (Table 6).
Impact of Curriculum on Breastfeeding Initiation and Continuation at 6 Months

Twelve sites (5 intervention and 7 control programs) provided data at baseline (initiation and 6-month rates) and breastfeeding initiation after intervention, and 8 sites (3 intervention and 5 control programs) provided 6-month data. Breastfeeding of infants was more likely to be initiated and continued at intervention sites after curriculum implementation (Table 7). The curriculum had the most significant effect on increasing exclusive breastfeeding at intervention sites (OR: 4.1 [95% confidence interval: 1.8–9.7]), whereas among control sites, 6-month-old infants were half as likely (OR: 0.53 [95% confidence interval: 0.32–0.78]) to be exclusively breastfeeding after the intervention period.

DISCUSSION

Previous studies have revealed that neither residents nor practicing physicians believe that they received adequate training in clinical breastfeeding management.4 Our study results demonstrate that a targeted breastfeeding curriculum can improve breastfeeding knowledge, PPs, and resident confidence in managing breastfeeding. Because general knowledge about breastfeeding is increasing among health care professionals, more institutions are improving their breastfeeding practices.6,7,15 In addition, breastfeeding rates have increased in most populations and geographic areas over the past decade and driven needed improvements in professional care.16 It was important, therefore, to include control sites to reduce back-
Ground improvements in breastfeeding training and care from changes that were measured as a result of the targeted intervention with the AAP breastfeeding curriculum. Intervention-group residents showed significant improvements in knowledge over control-group residents, and these differences were most striking in the obstetrics/gynecology and family medicine residents. Improvements in knowledge were also independent of the size of the residency program, suggesting that programs of all sizes can benefit from the use of these materials. Residents at the intervention sites indicated a change in their PPs (ie, they were more likely to perform bedside assessment of breastfeeding, counsel mothers about breastfeeding issues, or teach breastfeeding techniques than they were before implementing the curriculum). When comparing PPs of residents who received the intervention to those who did not, however, there was no significant difference before adjusting for items relating to cultural competency. One explanation for the lack of difference may have been an emphasis on cultural competency training at the control sites coincidental to the implementation of the breastfeeding curriculum at the intervention sites.

For residents who received the intervention, perceived confidence significantly improved. This result may reflect both increased knowledge and more frequent opportunities to assist mother-infant breastfeeding dyads. Improvement of physician knowledge and practice skills is critical, because lack of physician support has contributed to dwindling rates of exclusive breastfeeding, and attitudes of practicing pediatricians toward breastfeeding are currently deteriorating. Improvements in physician knowledge and practice skills are critical, because lack of physician support has contributed to dwindling rates of exclusive breastfeeding, and attitudes of practicing pediatricians toward breastfeeding are currently deterioring.

Results of previous studies have demonstrated that those residents and practicing physicians who have personal experience with breastfeeding have the greatest confidence in providing support. In this study, 70% of the completing residents were female, and 92% of women who completed the study had personal breastfeeding experience. Female residents were more likely than male residents to provide breastfeeding care for their patients. However, both female and male participants demonstrated similar improvements in breastfeeding care after implementation. It is important to target breastfeeding support and management to both male and female physicians as part of their residency training.

The AAP breastfeeding curriculum resulted in improved rates of breastfeeding. The health education theory, diffusion of innovation, provides a rationale for why training residents may have improved the institution’s overall breastfeeding care. Faculty who championed the new curriculum and their trained residents became the innovators by changing their own knowledge, confidence, and PPs. Fellow residents and other health care practitioners in each health system then became the early adopters to new practices. Trained residents served as catalysts for change by disseminating new information to their colleagues, which resulted in improved policies and practices that supported increased breastfeeding. Although there may have been other influences of change during the study period, the degree of change for control sites is consistent with national trends. It is not clear why this intervention was most influential for exclusive breastfeeding at 6 months. One explanation is that physicians’ support for exclusive breastfeeding was a stronger component of the curriculum than prenatal breastfeeding promotion.

Although this study is one of the first to evaluate the effectiveness of a standardized breastfeeding curriculum, there were limitations. The number of completing residents and participating residency programs was small. The programs were not randomized, and the participating faculty and residents could not be blinded to whether they were an intervention or control.
in institutions, which leads to increased rates of breastfeeding. Opportunities for additional research depend on a wider dissemination of the curriculum to residency programs through the Web site and measurement of the ultimate goal of increased rates of breastfeeding initiation, exclusivity, and duration.

ACKNOWLEDGMENTS

This study was supported in part by Health Resources and Services Administration Maternal and Child Health Bureau grant 4 H04 MD 00009-07-01 CFDA 93.110 and Centers for Disease Control American Medical Colleges Potential Extramural Research Topics grant MM-0993-07/07.

We thank the project sites and their project coordinators: Bellevue Hospital, New York University School of Medicine, Susan Vierczhalek, MD; Duke University School of Medicine, Aditee Narayan, MD, MPH, Joanne Band, MD; Forum Health Center, Lisa Weiss, MD; Harbor–University of California Los Angeles, Julie Noble, MD; Jacobi Medical Center, Lawrence Noble, MD, FAAP, Ivan Hand, MD, and Diane Indyk, MD; Johns Hopkins University, Jessica Bienstock, MD; Medical College of Georgia, Kathryn McLeod, MD; Medical University of South Carolina, Carol Wagner, MD, and Allyson Chambers, MD; MetroHealth Medical Center, Susan Santos, MD, and Tara Williams, MD; St Louis University School of Medicine, Shahida Naseer, MD; Texas Tech University Health Science Center; Amanillo, Fred McCurdy, MD, PhD, and Thomas Hale, PhD; Texas Tech University Health Science Center, El Paso, Ralista Akins, MD, and Ines Anchondo, PhD; and University of Minnesota Medical School, Phillip Rauk, MD, and White Memorial Medical Center, Ernie Guzman, MD.

Other contributors to the curriculum not listed as authors of this article include Tony Ogburn, MD, FACP; Maya Bunik, MD, FAAP; Susan Landers, MD, FAAP; Anne Eglash, MD, FACP; Susan Bostwick, MD, FAAP; Susan Brunsell, MD, FAAP; Eve Espey, MD, FACP; Lourdes Foster, MD, FACP; Libby Hine, MD; Maryann O’Hara, MD, FAAP; Janine Rethy, MD; DeShonta Springs, MD; Wendy Slusser, MD, FAAP; Kinga Szucs, MD, FAAP; Michal Young, MD, FAAP; Rebecca Ramsey, MPH; and Betty Crase, IBCLC.

REFERENCES


14. Academy of Breastfeeding Medicine. What every physician needs to know about breastfeeding [pre-conference course program]. Presented at: 14th annual international meeting of the Academy of Breastfeeding Medicine; November 5, 2009; Williamsburg, VA.


Residency Curriculum Improves Breastfeeding Care
Lori Feldman-Winter, Lauren Barone, Barry Milcarek, Krystal Hunter, Joan Meek,
Jane Morton, Tara Williams, Audrey Naylor and Ruth A. Lawrence
Pediatrics published online Jul 5, 2010;
DOI: 10.1542/peds.2009-3250

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Table of Contents
Q1 What is your name (first and last)?

Answered: 208  Skipped: 9
Q2 Please check your PRIMARY profession/designation.

Answered: 217  Skipped: 0

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<td>Nurse or Nurse Practitioner</td>
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Q3 Are you a residency program director or faculty?

Answered: 215     Skipped: 2

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Q4 Please enter your email address.

Answered: 209   Skipped: 8
Q5 Which portions of the curriculum have you used?

Answered: 78  Skipped: 139

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<th>Responses</th>
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<tr>
<td>Curriculum Outline (the pages you access when you click on the green bar at the top of the page with the words medical knowledge, patient care, etc)</td>
<td>69.23% 54</td>
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<tr>
<td>Implementation Strategies</td>
<td>33.33% 26</td>
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<td>Case Studies</td>
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<td>Prepared Presentations</td>
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<tr>
<td>Resident Evaluation Forms</td>
<td>12.82% 10</td>
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<tr>
<td>Data Collection Forms</td>
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<tr>
<td>Objective Structured Clinical Examination (OSCE) Case Studies</td>
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<tr>
<td>Pre- and Post-tests</td>
<td>38.46% 30</td>
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<tr>
<td>Essential Activities Summaries</td>
<td>16.67% 13</td>
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<tr>
<td>Curriculum Resource Guide</td>
<td>30.77% 24</td>
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Total Respondents: 78
Q6 Did you find it helpful to have the curriculum organized by the ACGME Core Competencies (Medical Knowledge, Patient Care, Systems-Based Practice, Practice based Learning, Interpersonal Communications Skills)?

Answered: 91  Skipped: 126

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<tr>
<td>No</td>
<td>1.10%</td>
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<tr>
<td>I am not familiar with the ACGME Core Competencies.</td>
<td>30.77%</td>
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<td>TOTAL</td>
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Q7 Please describe if there is anything that you feel is missing from the curriculum or you would like to see changed or updated.

Answered: 22  Skipped: 195

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<th>DATE</th>
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<td>1</td>
<td>I think listing more recommended/standardized teaching tools - e.g. videos, Apps, checklists - which may be available free of charge online would be helpful. I am trying to compile a curriculum where residents can access educational information in &quot;small bites&quot; in combination with formal didactics type teaching. It is difficult to decide which resources are reliable/standardized amongst the myriad of choices available. Thank you!</td>
<td>4/19/2017 10:34 AM</td>
</tr>
<tr>
<td>2</td>
<td>I did not notice any information regarding IV Fluids during labor and infant's weight loss. I did not see any information on using donor breast milk in place of formula either.</td>
<td>5/25/2015 1:16 PM</td>
</tr>
<tr>
<td>3</td>
<td>nutrition of lacting women</td>
<td>2/26/2014 1:05 PM</td>
</tr>
<tr>
<td>4</td>
<td>I am just starting to explore this program. I am very glad it exists. I will be assisting the College of Medicine in educating our residents.</td>
<td>10/29/2013 9:16 AM</td>
</tr>
<tr>
<td>5</td>
<td>Substance abuse info</td>
<td>3/16/2013 8:55 AM</td>
</tr>
<tr>
<td>6</td>
<td>More research about breastfeeding and ways to teach professionals /pregnands thanks Maria/Cyprus IBCLC</td>
<td>10/27/2012 11:21 AM</td>
</tr>
<tr>
<td>7</td>
<td>Easy to use resident section.</td>
<td>7/1/2012 7:55 PM</td>
</tr>
<tr>
<td>8</td>
<td>I haven't gone thru all of it, yet. But I hope to find basic breastfeeding information so that our OB docs can alter their &quot;scripts&quot; w/ old, subjective information.</td>
<td>4/19/2012 3:04 AM</td>
</tr>
<tr>
<td>9</td>
<td>Updated information about skin-to-skin care to increase newborn frequency of breastfeeding, hand expressing and spoon-feeding colostrum when baby does not latch in the first 48 hours, updated latching information (such as Biological Nurturing/ Laid Back Breastfeeding).</td>
<td>6/30/2011 9:15 AM</td>
</tr>
<tr>
<td>10</td>
<td>I am just beginning to survey this program and have requested to be contacted by email please</td>
<td>9/16/2010 1:40 PM</td>
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<tr>
<td>11</td>
<td>no</td>
<td>7/22/2010 6:46 AM</td>
</tr>
<tr>
<td>12</td>
<td>More information on the Baby-Friendly Hospital Initiative would be useful to faculty/residents who are interested in pursuing Baby-Friendly designation for their facility.</td>
<td>7/13/2010 10:08 AM</td>
</tr>
<tr>
<td>13</td>
<td>I am presenting at the AMSUS Annual Meeting for military but I am a bit disconcerted of the lack of emphasisi on skin-to-skin in the curriculum as I have found that practice to eliminate much breastfeeding trouble shooting</td>
<td>11/16/2009 10:38 AM</td>
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<tr>
<td>14</td>
<td>Have just located this information. Have not read the material yet.</td>
<td>10/5/2009 4:38 PM</td>
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<tr>
<td>15</td>
<td>I have not yet previewed the entire program.</td>
<td>9/24/2009 2:49 PM</td>
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<tr>
<td>16</td>
<td>I am trying to figure out how to access it.</td>
<td>7/14/2009 12:50 PM</td>
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<tr>
<td>17</td>
<td>more about the normal variations from normal in weight gain and reported feeding practices</td>
<td>7/14/2009 11:17 AM</td>
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<td>18</td>
<td>no</td>
<td>7/11/2009 10:14 PM</td>
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<tr>
<td>19</td>
<td>I love it but have not had opportunity to present it...will try harder...SUNY Stony Brook was disinterested stating that they had an online training...I doubt it as good as AAP</td>
<td>7/10/2009 12:33 PM</td>
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<td>20</td>
<td>prenatal counseling for patients regarding BF</td>
<td>7/4/2009 6:04 AM</td>
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<tr>
<td>21</td>
<td>The resource has been helpful in development of a Lactation Program at our hospital. Any future additions and updates will be of interest to me.</td>
<td>7/1/2009 2:01 PM</td>
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<tr>
<td>22</td>
<td>We've only just begun to delve into the curriculum. There is so much great stuff- we will be using more than what I've indicated above, but for now I think it is amazing!</td>
<td>6/23/2009 8:11 PM</td>
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## Audience Overview

### Overview

- **All Users**: 54,164
- **New Users**: 43,621
- **Sessions**: 64,109
- **Pageviews**: 179,681
- **Pages / Session**: 2.80
- **Avg. Session Duration**: 00:01:42
- **Bounce Rate**: 34.94%

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Breastfeeding Residency Curriculum Sitemap/Welcome to the Curriculum

NOTES: The followings sitemap content are listed separately below.
- Medical Knowledge
- Patient Care
- Systems Based Practice
- Practice Based Learning
- Interpersonal Communication Skills
Medical Knowledge

AAP Breastfeeding Website

Residency Curriculum
Quick Access Link

Benefits of Breastfeeding
Resources
Advocacy and Policy
Residency Curriculum
Mothers' Milk Drive
FAQs

Welcome to Curriculum
Medical Knowledge
Patient Care
Systems Based Practice
Practice Based Learning
Interpersonal Communication Skills

Goal A
Learner Objectives
Activities & Evaluation Strategies

Goal B
Learner Objectives
Activities & Evaluation Strategies

Quick Access Link
Systems Based Practice

AAP Breastfeeding Website

Residency Curriculum
Quick Access Link

Benefits of Breastfeeding
Resources
Advocacy and Policy
Residency Curriculum
Mothers' Milk Drive
FAQs

Welcome to Curriculum
Medical Knowledge
Patient Care
Systems Based Practice
Practice Based Learning
Interpersonal Communication Skills

Goal A
Learner Objectives
Activities & Evaluation Strategies

Goal B
Learner Objectives
Activities & Evaluation Strategies
Interpersonal Communication Skills

AAP Breastfeeding Website

Residency Curriculum Quick Access Link

Benefits of Breastfeeding
Residency Curriculum
Mothers' Milk Drive
FAQs

Welcome to Curriculum
Medical Knowledge
Patient Care
Systems Based Practice
Practice Based Learning
Interpersonal Communication Skills

Goal A
Goal B

Learner Objectives
Activities & Evaluation Strategies
Learner Objectives
Activities & Evaluation Strategies
The Project Advisory Committee is comprised of 15 members representing the following organizations:

1. Academy of Breastfeeding Medicine
2. American Academy of Family Physicians
3. American Academy of Pediatrics
4. American College of Obstetricians and Gynecologists
5. American College of Osteopathic Pediatricians
6. Association of Women's Health, Obstetric and Neonatal Nurses
7. Centers for Disease Control and Prevention
8. National Hispanic Medical Association
9. National Medical Association
10. Reaching Our Sisters Everywhere
11. United States Breastfeeding Committee