

National Trends in Pediatricians' Practices and Attitudes About Breastfeeding: 1995 to 2014

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abstract

BACKGROUND AND OBJECTIVES: The American Academy of Pediatrics (AAP) has affirmed breastfeeding as the preferred method of infant feeding; however, there has been little systematic examination of how pediatricians' recommendations, affiliated hospitals' policies, counseling practices, and attitudes toward breastfeeding have shifted over the past 2 decades. These trends were examined from 1995 to 2014.

METHODS: Data are from the Periodic Survey (PS) of Fellows, a nationally representative survey of AAP members. PS #30 (1995; response rate = 72%; $N = 832$), PS #57 (2004; response rate = 55%; $N = 675$), and PS #89 (2014; response rate = 51%; $N = 620$) collected demographics, patient and practice characteristics, and detailed responses on pediatricians' recommendations, affiliated hospitals' policies, counseling practices, and attitudes toward breastfeeding. By using bivariate statistics and logistic regression models, the analysis investigated changes over time with predicted values (PVs).

RESULTS: From 1995 to 2014, more pediatricians reported their affiliated hospitals applied for "baby-friendly" designation (PV = 12% in 1995, PV = 56% in 2014; $P < .05$), and more reported that they recommend exclusive breastfeeding (65% to 76% [$P < .05$]). However, fewer respondents indicated that mothers can be successful breastfeeding (PV = 70% in 1995, PV = 57% in 2014; $P < .05$) and that the benefits outweigh the difficulties (PV = 70% in 1995, PV = 50% in 2014; $P < .05$). Younger pediatricians were less confident than older pediatricians in managing breastfeeding problems ($P < .01$).

CONCLUSIONS: Pediatricians' recommendations and practices became more closely aligned with AAP policy from 1995 to 2014; however, their attitudes about the likelihood of breastfeeding success have worsened. These 2 divergent trends indicate that even as breastfeeding rates continue to rise, continued efforts to enhance pediatricians' training and attitudes about breastfeeding are necessary.

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WHAT'S KNOWN ON THIS SUBJECT: Pediatricians' recommendations about breastfeeding have consistently improved over the past several decades and were closely aligned with guidelines issued by the American Academy of Pediatrics, yet attitudes about the potential for breastfeeding success and meeting goals for breastfeeding have declined.

WHAT THIS STUDY ADDS: Pediatricians have continued to improve their recommendations for breastfeeding in alignment with American Academy of Pediatrics policy and the "Ten Steps to Successful Breastfeeding"; however, there are modest declines in attitudes about breastfeeding, and younger pediatricians are less confident in managing breastfeeding problems.

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The American Academy of Pediatrics (AAP) has affirmed breastfeeding as the preferred method of infant feeding, providing ideal nutritional and optimal health outcomes.^{1,2} In 2012, a new policy statement from the AAP reaffirmed the recommendation of exclusive breastfeeding for the first 6 months of life, citing universal agreement on this point, and acknowledged the critical role of the pediatrician in supporting and advocating breastfeeding at the hospital and community level.²

In 1995, a survey of pediatrician's attitudes and practices related to breastfeeding was conducted and the results were analyzed: 65% of the responding pediatricians recommended exclusive breastfeeding for the first month after birth, and only 38% recommended continued breastfeeding for the first year. Additionally, most responding pediatricians at the time of the survey were not familiar with the Baby-Friendly Hospital Initiative, and most were interested in additional education on breastfeeding management.³ In the first decade after these data were collected and interpreted, there was an increase in research in which health benefits related to breastfeeding were delineated and methods of breastfeeding promotion and support were explored.⁴ In 2004, a new survey was completed to trend the initial data in the face of this culture change; the authors of the survey concluded that there was a sense of improved preparedness among pediatricians to support breastfeeding and improved counseling strategies consistent with the "Ten Steps to Successful Breastfeeding," but it also concluded that the overall attitudes of these practitioners toward the benefits of breastfeeding and their commitment to advocating for it had deteriorated.⁵

In the decade since the 2004 survey, efforts toward increasing awareness, advocacy, and education among health professionals have continued and grown, both among professional societies and governmental entities.⁶ In 2008, a formal curriculum for residency education in breastfeeding was developed through funding from the Maternal and Child Health Bureau in a project entitled "Breastfeeding Promotion in Physicians' Office Practices" for trainees in pediatrics, family medicine, internal medicine, and obstetrics and gynecology.⁷ In 2009, the AAP gave its formal endorsement to the World Health Organization and United Nations Children's Fund's "Ten Steps to Successful Breastfeeding."⁸ The "Ten Steps to Successful Breastfeeding" outlines the framework of systematic changes for delivery hospitals seeking "baby-friendly" designation. The role of primary care interventions in improving breastfeeding outcomes was studied,⁹ and a focus on the primary care physicians' role in supporting this trend and driving it forward has evolved, with new research on methods and approaches to overcoming early barriers to breastfeeding.^{4,10-12}

The Centers for Disease Control and Prevention Division of Nutrition, Physical Activity, and Obesity now collects and publishes yearly data on aspects of breastfeeding to monitor and encourage improvement in breastfeeding practices and support in the United States.¹³ The percentage of US children who were ever breastfed increased from 71.4% for those born in 2002 to 81% for those born in 2013; the percentage who were exclusively breastfed for their first 6 months of life increased from 10.3% for those born in 2003 to 22.3% for those born in 2013.

The past decade has seen a rise in delivery hospitals implementing the "Ten Steps to Successful Breastfeeding" and becoming

designated as baby-friendly hospitals.^{14,15} Pediatrician education and training is an essential component of the Baby-Friendly Hospital Initiative and a requirement for designation. With more hospitals providing education and training about breastfeeding and more pediatricians working in environments with more women breastfeeding, enhanced knowledge and practices about breastfeeding would be expected. Given this assertion, we expected to find continued improvements in pediatricians' practices and a rebound toward positive attitudes with regards to advocating for and supporting breastfeeding. In this study, we followed preceding surveys of pediatricians to ascertain recommendations, affiliated hospitals' policies, counseling practices, and attitudes related to breastfeeding,⁵ and we examined trends from 1995 to 2014.

METHODS

Data

This analysis used data from the Periodic Survey (PS) of Fellows, a nationally representative survey of randomly selected, nonretired US members of the AAP. PS #89 (2014) was administered to 1627 respondents, including residents and excluding those subboarded in a pediatric subspecialty. Seven mailed contacts were made to nonrespondents between July and December 2014 (in addition to 2 e-mails with a link to complete the survey electronically). The analysis also used data from 2 other similar PSs: PS #30 (1995) and PS #57 (2004). The 3 PSs collected demographic information on respondents, characteristics of their patients and practice, and detailed responses regarding breastfeeding recommendations, counseling, policies, and attitudes. The final survey response rates for 1995, 2004, and 2014 were 72%, 55%, and 51%, respectively. Restricting the analytic

TABLE 1 Pediatricians' Recommendations and Affiliated Hospitals' Policies Toward Breastfeeding: 1995, 2004, and 2014

	Descriptive Results ^a			Multivariable Results ^b					
	1995 (n = 821)	2004 (n = 670)	2014 (n = 613)	1995		2004		2014	
				PV	95% CI	PV	95% CI	PV	95% CI
Hospital policies									
Hospital has applied to be a "baby-friendly hospital"	11.9	22.6	56.9	12.2 ^c	9.8–14.5	22.2 ^c	18.9–25.5	55.6	51.4–59.9
Maintain written hospital policy that is available to all staff ^d	43.1	44.7	64.1	43.7 ^c	40.0–47.5	45.1 ^c	41.1–49.1	62.9	58.7–67.1
Establish support groups for parents within the community ^e	46.8	47.6	46.5	48.7	44.9–52.4	47.3	43.3–51.3	44.3	40.0–48.6
Recommendations									
Breastfeed within 1 h of delivery	43.4	67.0	92.3	44.3 ^c	40.7–47.9	66.7 ^c	63.0–70.5	91.9	89.7–94.2
Give nothing but breast milk unless medically indicated	78.9	88.2	92.6	80.2 ^c	77.2–83.2	89.2	86.7–91.7	92.7	90.5–94.9
Rooming-in 24 h/d	51.0	70.8	86.3	49.4 ^c	45.6–53.2	71.3 ^c	67.7–74.9	87.3	84.6–90.0
Unrestricted breastfeeding	58.6	67.1	73.2	61.6 ^c	58.0–65.2	66.5	62.7–70.3	71.3	67.4–75.2
No pacifiers in hospital	23.3	34.2	47.3	23.9 ^c	20.9–27.1	33.4 ^c	29.6–37.1	46.2	41.9–50.4
Inform all pregnant women about breastfeeding so they can make an informed decision (mean % of parents seen in prenatal visits) ^b	11.4	10.4	8.4	12.1 ^c	10.7–13.5	10.8 ^c	9.3–12.3	7.5	5.9–9.1

CI, confidence interval.

^a Data presented in percentage of pediatricians reporting.

^b Multivariable results are the PV of the dependent variable at each survey year holding all other variables at their means; model covariates include survey year, sex, age, personal breastfeeding experience, practicing general pediatrics >50% of the time, and total hours worked per week.

^c Indicates the PV is significantly different ($P \leq .05$) from the PV in the 2014 survey year.

^d 64.1% in 2014 reported that their hospital maintained a policy; 33.7% did not know if their hospital had a policy.

^e Survey question was: "Practice refers or provides the following lactation service: breastfeeding support group."

sample to pediatricians who provide primary care to children from birth to 2 years of age yielded the following sample sizes for each survey: 1995 ($N = 832$), 2004 ($N = 675$), and 2014 ($N = 620$). The surveys were all approved by the AAP Institutional Review Board.

Dependent Variables

Three clusters of outcome variables were examined: policies, counseling, and attitudes. The policy outcomes indicate to what extent pediatricians' recommendations and affiliated hospital policies align with the "Ten Steps to Successful Breastfeeding" and whether the respondents' main hospital has applied to be a "baby-friendly hospital." The counseling variables were used to document respondents' breastfeeding counseling practices, including whether respondents advise

exclusive breastfeeding during the first month and schedule the first postnatal office visit within 5 days for breastfed infants. The attitudes cluster was used to measure agreement among respondents for a variety of statements regarding breastfeeding, such as "Almost any mother can be successful at breastfeeding if she keeps trying" and "Benefits of breastfeeding outweigh the difficulties or inconvenience mothers may encounter." We examined these 3 clusters of outcome variables across the 3 surveys, and with our analysis we investigated changes over time in pediatricians' affiliated hospitals' policies, counseling practices, and attitudes toward breastfeeding.

Independent Variables

The primary independent variable in this analysis was survey year (1995,

2004, and 2014). Other independent variables included as controls in multivariable models were sex, age, respondents' (both men and women) personal breastfeeding experience with their own children (including both exclusive and nonexclusive breastfeeding), practicing general pediatrics $\geq 50\%$ of the time, and total hours worked per week; all the multivariable results presented in Tables 1, 2 and 3 include these independent variables as controls.

Nonresponse Bias

We assessed nonresponse bias for each of the 3 surveys based on key demographic variables available in the AAP administrative database. Each analytic sample was compared with its respective target sample by using a t test for age and 1-sample proportion tests for sex and US geographical region.

TABLE 2 Pediatricians' Counseling Practices Toward Breastfeeding: 1995, 2004, and 2014

	Descriptive Results ^a			Multivariable Results ^b					
	1995 (N = 794)	2004 (N = 657)	2014 (N = 615)	1995		2004		2014	
				PV	95% CI	PV	95% CI	PV	95% CI
Feeding during the first month ^c									
Formula feeding exclusively	2.0	2.9	2.3	1.9	0.1–2.9	2.7	1.4–3.9	2.3	1.0–3.5
Breastfeeding exclusively	65.0	74	75.7	66.4 ^d	62.9–69.9	74.8	71.4–78.2	75.2	71.6–78.9
Breastfeeding with formula supplementation	12.8	7.5	4.9	12.3 ^d	9.8–14.7	6.9	4.9–8.9	4.5	2.8–6.1
No recommendation	20.2	15.6	17.1	18.8	15.9–21.7	15.1	12.3–17.9	17.7	14.5–20.9
First postnatal office visit scheduled within 5 d after birth ^e									
Breastfed infants	—	51.8	90.1	—	—	53.3 ^d	49.2–57.3	90.3	87.8–92.7
Formula-fed infants	—	31.5	80.1	—	—	31.9 ^d	28.2–35.7	80.1	76.7–83.4

CI, confidence interval; —, not applicable.

^a Data presented in percentage of pediatricians reporting.

^b Multivariable results are the PV of the dependent variable at each survey year holding all other variables at their means; model covariates include survey year, sex, age, personal breastfeeding experience, practicing general pediatrics >50% of the time, and total hours worked per week.

^c Initial breastfeeding should be exclusive without supplements.

^d Indicates the PV is significantly different ($P \leq .05$) from the PV in the 2014 survey year.

^e If discharged <48 h after delivery, all breastfeeding mothers and their newborn infants should be seen when their infants are 2–4 d of age.

TABLE 3 Pediatricians' Attitudes Toward Breastfeeding: 1995, 2004, and 2014

	Descriptive Results ^a			Multivariable Results ^b					
	1995 (N = 821)	2004 (N = 670)	2014 (N = 613)	1995		2004		2014	
				PV	95% CI	PV	95% CI	PV	95% CI
Almost any mother can be successful at breastfeeding if she keeps trying (% agree) ^c	69.4	62.2	57.2	69.9 ^d	66.7–73.3	62.1	58.3–65.9	56.6	52.4–60.8
Breastfeeding and formula feeding are equally acceptable methods for feeding infants (% agree) ^c	45.0	45.1	39.5	43.7	40.1–47.3	44.9	41.1–48.9	40.8	36.7–45.0
Benefits of breastfeeding outweigh the difficulties or inconvenience mothers may encounter (% agree) ^c	68.3	58.0	52.9	70.1 ^d	66.8–73.4	58.2	54.4–62.1	50.3	46.0–54.5
In the long run, formula-fed infants are just as healthy as breastfed infants (% agree) ^c	34.5	26.0	23.6	33.0 ^d	29.6–36.4	24.1	22.7–29.6	24.3	20.6–27.9
Advice from family and friends is the most important influence in the decision to breastfeed (% agree) ^c	72.4	55.1	57.7	71.6 ^d	68.3–74.8	54.5	50.6–58.4	59.7	55.5–63.8
Pediatricians have little influence on whether mothers initiate breastfeeding (% agree) ^c	18.1	5.8	8.6	18.2 ^d	15.4–21.1	5.6	3.8–7.4	7.4	5.3–9.6
Confidence in ability to competently manage common breastfeeding problems (% confident) ^e	76.5	79.4	82.9	83.0	80.3–85.8	82.8	79.8–85.9	81.1	77.6–84.7

CI, confidence interval.

^a Data presented in percentage of pediatricians reporting.

^b Multivariable results are the PV of the dependent variable at each survey year holding all other variables at their means; model covariates include survey year, sex, age, personal breastfeeding experience, practicing general pediatrics >50% of the time, and total hours worked per week.

^c Responses are given on a scale of 1 (agree) to 3 (disagree); disagree and neutral responses are not shown.

^d Indicates PV is significantly different ($P \leq .05$) from the PV in the 2014 survey year.

^e Pediatricians reporting that they were either confident or very confident (combined).

Analysis Plan

The first analysis step was to provide a descriptive overview of the sample. Then, logistic regression models were separately estimated for each individual outcome within the 3 clusters of dependent variables, controlling for the set of independent variables described above. The focus of the analysis is how pediatricians' responses to the outcomes shifted over time. Descriptive responses to each outcome in 1995, 2004, and 2014 are presented, along with the predicted value (PV) for each outcome for each survey year, generated from the multivariable model holding all other independent variables at their respective sample means.¹⁶ This comprises the bulk of the analysis and establishes to what extent attitudes and behaviors related to breastfeeding have changed across surveys. To explore if the changing landscape of policies and education related to breastfeeding over time has created generational differences in pediatrician attitudes, an independent descriptive analysis was conducted for respondents to the 2014 survey by age (<45 vs 45 years or older), examining differences in 2 key outcomes: pediatricians' confidence in managing breastfeeding problems and ability to answer questions about breastfeeding. Data were analyzed by using IBM SPSS Statistics 24 (IBM SPSS Statistics, IBM Corporation) and Stata 12 (Stata Corp, College Station, TX).

RESULTS

Nonresponse Bias

In 2014, respondents were significantly older than the eligible target sample (mean ages of 45.5 and 43.0, respectively; $P < .001$) but there were no differences for sex and region. For 2004, there was a significantly larger proportion of women in the analytic sample than the target sample (59% and 53%, respectively; $P < .01$), but we found

TABLE 4 Practice and Personal Characteristics of Respondents: 1995, 2004, and 2014

	1995 (N = 832)	2004 (N = 675)	2014 (N = 620)
Female (%)	47.7*	59.7*	67.7
Age (mean)	41.6*	41.7*	45.4
Any personal experience with breastfeeding (%)	41.7*	58.9*	68.2
Time in general pediatrics (mean %)	84.2*	88.4*	91.4
Practicing general pediatrics $\geq 50\%$ of the time (%)	87.7*	92.1	93.6
Total hours worked per week (mean)	52.5*	47.7*	43.4

* Indicates a statistically significant difference ($P \leq .05$) from the 2014 survey year.

no age or region differences. In 1995, there were also more women in the analytic sample compared with the target sample (48% and 45%, respectively; $P < .05$), but again, no age or region differences were found.

Respondents' Practice and Personal Characteristics

Table 4 provides a descriptive overview of the analytic samples from the 3 surveys. In 2014, respondents were more likely than in 1995 or 2004 to be female, have a higher mean age, have any previous personal experience with breastfeeding, to spend a majority of their time in general pediatrics, and to have worked fewer hours per week on average.

Recommendations and Affiliated Hospitals' Policies

Table 1 displays results for pediatricians' recommendations and affiliated hospitals' policies toward breastfeeding in 1995, 2004, and 2014. Collectively, the results in Table 1 indicate a shift toward hospital policies and pediatrician recommendations that are more closely aligned with AAP recommendations. In 2014, pediatricians were significantly more likely than in 1995 or 2004 to report that their affiliated hospitals had applied to be a baby-friendly hospital (PV = 12% in 1995, PV = 22% in 2004, PV = 56% in 2014; $P < .05$) and that practices for the establishment of breastfeeding were more aligned with the "Ten Steps to Successful Breastfeeding." Nevertheless, fewer pediatricians had opportunities to

discuss breastfeeding in the prenatal period in 2014 relative to 1995, as the predicted mean percentage of parents seen in prenatal visits declined from 12.1 to 7.5 ($P < .05$). Furthermore, there has been no change in the proportion of pediatricians referring mothers for breastfeeding support in the community.

Counseling Practices

Table 2 displays results for pediatricians' counseling practices regarding breastfeeding across the 3 surveys. Overall, results from Table 2 indicate that pediatricians' counseling practices in 2014 are more aligned with AAP policy than in the past; in 2014, a PV of 75% of pediatricians reported that they advise exclusive breastfeeding during the first month, up from 66% in 1995 ($P < .05$). Conversely, pediatricians in 2014 were less likely to report recommending breastfeeding with formula supplementation than in 1995 (PV = 12% in 1995, PV = 4.5% in 2014; $P < .05$). Moreover, the PV of respondents reporting that they schedule the first newborn follow-up visit within 5 days of life increased by 37 percentage points for breastfed infants and 48 percentage points for formula-fed infants ($P < .05$).

Attitudes

Table 3 displays results for pediatricians' attitudes toward breastfeeding. Across survey years, fewer respondents reported that

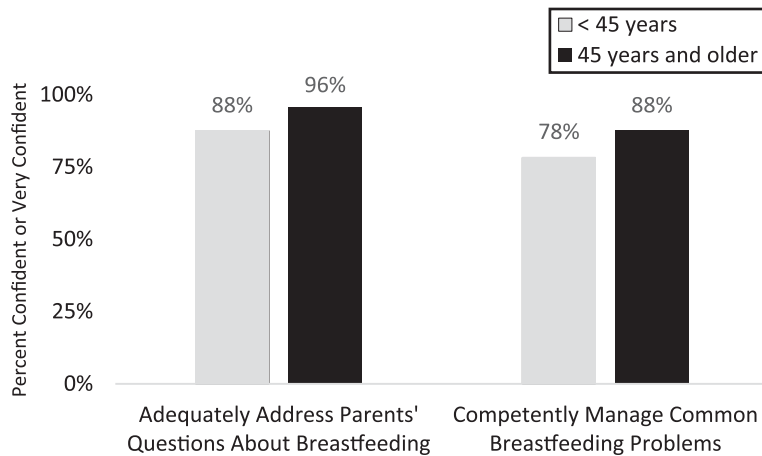


FIGURE 1

Pediatricians' confidence in their ability to care for breastfeeding concerns by age. * indicates a statistically significant difference between age groups ($P < .01$, χ^2 test). Data are from 2014 only.

almost any mother can be successful at breastfeeding if she keeps trying (PV = 70% in 1995, PV = 56% in 2014; $P < .05$). Similarly, fewer reported that the benefits of breastfeeding outweigh the difficulties mothers may encounter (PV = 70% in 1995, PV = 50% in 2014; $P < .05$). In 1995, a PV of 33% of pediatricians reported that formula-fed infants are just as healthy as breastfed infants in the long run, but by 2014 that decreased to 24% ($P < .05$).

Table 3 indicates that there has been no statistically significant change in the overall percent of pediatricians feeling confident in their ability to manage breastfeeding problems over the past 2 decades. Figure 1 displays pediatricians' reported confidence in their ability to care for breastfeeding concerns stratified by age group (2014 only). Results in Fig 1 indicate that, relative to older pediatricians, younger pediatricians are less confident in their ability to manage common breastfeeding problems ($P < .01$) and adequately address parents' questions about breastfeeding ($P < .01$).

DISCUSSION

Over the past 20 years, the share of pediatricians who report their affiliated hospitals seek baby-friendly designation has increased from

12% to 57%, with a corresponding increase in supportive hospital policies. Pediatricians may, however, overestimate baby-friendly aspirations, given that merely 7% of hospitals were actually designated at the time of the 2014 survey.¹⁷ Pediatricians may believe they are affiliated with hospitals seeking baby-friendly designation because the affiliated hospital has implemented 1 or more of the ten steps.

The percent of primary care pediatricians who, in their own counseling, recommend exclusive breastfeeding has increased from 65% to 76% over this time, and nearly all now recommend a postnatal visit within 5 days for breastfed infants. Pediatricians may be receiving additional education about breastfeeding because the baby-friendly designation process itself requires mandatory physician education. There are now also multiple opportunities for in-person, online, and remote, web-based learning about breastfeeding.¹⁸

Even with these expanded educational opportunities, this analysis indicates that gaps remain in pediatricians' awareness about breastfeeding best practices, such as only 47% reporting that they

refer to community support groups and just 47% recommending to avoid pacifiers until breastfeeding is established. Furthermore, 17% of pediatricians do not make any recommendation regarding infant feeding for the first month of life. These gaps may indicate that pediatricians may not fully understand policies supportive of breastfeeding.¹⁹

With this analysis, we showed that the area of most significant improvement is the recommendation to initiate breastfeeding within the first hour of delivery; the PV increased 48 percentage points from 1995 to 2014, from 44% to 92% ($P < .05$). Breastfeeding in the first hour is now part of the fourth step of the Ten Steps to Successful Breastfeeding, which now states that all healthy newborns should be placed immediately skin-to-skin regardless of feeding decision.²⁰ The finding that 92% of the respondents in 2014 supported this recommendation is somewhat surprising given the backlash of concerns that have been raised about safety during skin-to-skin care.²¹ In response to these concerns and other safety issues related to the ten steps, the AAP issued guidelines for implementation.²²

Additional areas of promise include the increase in pediatricians recommending exclusive versus supplemented breastfeeding during the first month (9 percentage points from 1995 to 2014) and a dramatic rise in pediatricians recommending all newborns return for a postnatal office visit within 5 days of birth. Given that it is not uncommon for problems to arise in the establishment of breastfeeding, to fully support avoidance of supplementation, early follow-up by providers capable of managing breastfeeding is necessary to monitor the maternal transition to lactogenesis II as well as infant weight trajectories.^{2,23,24}

Pediatricians' attitudes about breastfeeding have become modestly more positive on some issues; For example, fewer pediatricians believe formula-fed infants are as healthy as breastfed infants. However, on other issues pediatrician's attitudes have declined. For example, the percent of pediatricians that believe a mother can be successful at breastfeeding if she keeps trying declined by 12 percentage points to 57%, and the share that believe that the benefits of breastfeeding outweigh the difficulties or inconveniences encountered fell by 15 percentage points to 53%. These attitudinal changes from 1995 to 2014 indicate that even while noting the health benefits of breastfeeding relative to formula feeding, there is a growing awareness among pediatricians of the challenges that breastfeeding can present for mothers. Pediatricians may be increasingly wary of the fragmented and insufficient support system available to breastfeeding mothers. Despite evidence that individual-level support for women that spans from the prenatal to postpartum period and includes both professionals and peers can increase the duration of any breastfeeding and exclusive breastfeeding,⁴ these support systems are not yet widespread.²⁵ These declining attitudes may contribute to the precipitous decline in exclusive breastfeeding over the first few months and may adversely affect pediatricians' willingness to provide support.

Although confidence in breastfeeding management has remained steady across survey years, younger respondents are less confident in this area. This finding may seem paradoxical given that more pediatricians in recent years are females who have had personal experience with breastfeeding, a factor known to be associated with greater confidence in managing breastfeeding problems.⁵ However, it is possible that our findings reflect a greater awareness of the potential problems that exist. Researchers

conducting future studies could examine the relationship between type of personal experience (positive or negative) and confidence in managing breastfeeding problems. The AAP has a role in enhancing pediatricians' attitudes about breastfeeding, including supporting personal breastfeeding experiences. Lack of resident support for breastfeeding is apparent among many programs and may set the stage for attitudes about breastfeeding for years to come.²⁶

There are several limitations to this study. Our findings are based on self-report data rather than actual counseling practices. Furthermore, respondents may have given answers they perceived to be more acceptable to themselves, their peers, their employer, or the AAP. This social desirability bias may have resulted in overestimations or underestimations of perception-based questions. Given that the survey only included AAP member primary care pediatricians, the responses may not be generalizable to non-AAP members or subspecialists. However, the AAP estimates that 60% of board-certified pediatricians in the United States between the ages of 27 and 70 were AAP members in 2016, indicating that AAP members represent the majority of board-certified pediatricians.

Survey response rates declined in recent decades,²⁷ and the PS is no exception to this trend. However, response rates for the PS compared favorably with other physician-based surveys, and the broader literature indicates that there is no conclusive link between a survey's response rate and response bias,²⁸ a conclusion that was also reached by a peer-reviewed study of response rates from 50 AAP pediatrician surveys.²⁹ Although it is conceivable that there are unmeasured factors (eg, interest in breastfeeding issues) that are shaping response rates to this survey, our nonresponse bias

analysis finds that there are no substantial differences in age, sex, or regional characteristics between respondents and nonrespondents. Additionally, sex and age were included as controls in all the multivariable logistic regression models shown here.

Finally, pediatricians were asked whether their hospitals had applied to become baby-friendly, not whether their hospital was already designated. Because the initial application is at the beginning of the process involved in baby-friendly designation, there may be wide variability of hospital policies and practices among pediatricians responding affirmatively to this question. Pediatricians may also be affiliated with >1 hospital and may be reporting if any of their affiliated hospitals have applied to become baby-friendly.

CONCLUSIONS

Pediatricians continue to improve on breastfeeding recommendations over time, concurrent with the upswing of the Baby-Friendly Hospital Initiative in the United States. However, pediatricians have demonstrated a modest decline in attitudes about the potential for breastfeeding success. There are continued opportunities to enhance training in breastfeeding and participate in breastfeeding management and support.

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ABBREVIATIONS

AAP: American Academy of Pediatrics
PS: Periodic Survey
PV: predicted value

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**National Trends in Pediatricians' Practices and Attitudes About Breastfeeding:
1995 to 2014**

Lori Feldman-Winter, Kinga Szucs, Aubri Milano, Elizabeth Gottschlich, Blake Sisk
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