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Pediatricians' Involvement in Community Child Health From 2004 to 2010

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KEY WORDS

community pediatrics, pediatric workforce, child advocacy

ABBREVIATION

AAP—American Academy of Pediatrics

Dr Minkovitz conceptualized and designed the study, carried out the analyses, drafted the initial manuscript, and reviewed and revised the manuscript; Ms Grason, Dr Solomon, and Dr Kuo critically reviewed the analyses and reviewed and revised the manuscript; Ms O'Connor led data collection, coordinated data use, critically reviewed the analyses, and reviewed and revised the manuscript; and all authors approved the final manuscript as submitted.

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WHAT'S KNOWN ON THIS SUBJECT: Although community engagement is considered an important professional role of physicians, there has been declining involvement of pediatricians in community child health activities. Whether enhanced training is associated with increased involvement is unclear.



WHAT THIS STUDY ADDS: This study reveals a continued decline in pediatricians' involvement in community child health activities and is the first national study to identify a link between formal training and pediatricians' community involvement.

abstract

BACKGROUND AND OBJECTIVE: Pediatricians are encouraged to engage in community child health activities, yet practice constraints and personal factors may limit involvement. The objective was to compare community involvement in 2004 and 2010 and factors associated with participation in the past year.

METHODS: Analysis of 2 national mailed surveys of pediatricians (2004: $n = 881$; response rate of 58%; 2010: $n = 820$; response rate of 60%). Respondents reported personal characteristics (age, gender, marital status, child ≤ 5 years old, underrepresented in medicine), practice characteristics (type, setting, full-time status, time spent in general pediatrics), formal community pediatrics training, and community pediatrics involvement and related perspectives. We used χ^2 statistics to measure associations of personal and practice characteristics, previous training, and perspectives with involvement in the past 12 months. Logistic regression assessed independent contributions.

RESULTS: Fewer pediatricians were involved in community child health in 2010 (45.1% in 2004 vs 39.9% in 2010) with a higher percentage participating as volunteers (79.5% vs 85.8%; both $P = .03$). In 2010, fewer reported formal training at any time (56.1% vs 42.9%), although more reported training specifically in residency (22.0% vs 28.4%; both $P < .05$). Factors associated with participation in 2010 included older age, not having children ≤ 5 years old, practice in rural settings, practice type, training, and feeling moderately/very responsible for child health. In adjusted models, older age, practice setting and type, feeling responsible, and training were associated with involvement ($P < .05$).

CONCLUSIONS: Formal training is associated with community child health involvement. Efforts are needed to understand how content, delivery, and timing of training influence involvement. *Pediatrics* 2013;132:997–1005

For nearly 2 decades, pediatricians have been encouraged to engage in community child health activities to promote the well-being of children at a population level.^{1–5} The American Academy of Pediatrics (AAP) recognizes community pediatrics as “the practice of promoting and integrating the positive social, cultural, and environmental influences on children’s health as well as addressing potential negative effects that deter optimal child health and development within a community.”⁶ Pediatricians are expected to adopt a population focus, combine public health principles with clinical practice, and collaborate with community partners to improve the health and well-being of children and families.⁶ Corresponding efforts to promote pediatricians’ involvement in the community have included initiatives to enhance the acquisition and use of related skills during residency training through programs such as the AAP’s Community Pediatrics Training Initiative,⁷ the University of California–Los Angeles’ Community Health and Advocacy Training Program,⁸ or the Child Advocacy Curriculum at Stanford, University of California, San Francisco, and the University of Miami.⁹ Also, initiatives to promote involvement after clinical training have included the AAP’s Community Access to Child Health Program^{10,11} and the Healthy Tomorrows Partnership for Children Program, a collaboration between the federal Maternal and Child Health Bureau and the AAP.

Despite the endorsement of community engagement as an important aspect of professionalism among physicians generally,¹² there has been declining involvement of pediatricians in community child health activities. In 1989, 56.6% of pediatricians reported being involved in the previous year in community child health activities, whereas the corresponding percentage in 2004 was 45.1%.¹³ The decline has been

attributed to practice constraints with heightened focus on clinical productivity as well as demographic shifts with more pediatricians working part time¹⁴ and entering practice with greater educational debt,¹⁵ limiting opportunities for voluntary community activities. In 2004, factors associated with involvement included older age, rural practice setting, and favorable perspectives toward community pediatrics.^{13,16}

Heightened awareness of the social determinants of health and recognition of the life-course consequences of both positive and negative experiences have strengthened calls for civic engagement and advocacy in partnership with the community among pediatricians.^{17,18} Solomon et al¹⁹ reported a consistent focus on community pediatrics and child advocacy training between 2002 and 2005. Whether these and other training efforts before, during, and after completion of residency have translated into increased involvement among practicing clinicians remains unclear. The objective of these analyses is to assess involvement of pediatricians in community child health activities in 2004 compared with 2010 and to identify factors (personal, practice, and community pediatrics related) associated with participation in the past year.

METHODS

Periodic Surveys

The AAP conducts Periodic Surveys of Fellows on topics of importance to pediatricians 3 or 4 times per year. Each survey uses a unique random sample of members of the AAP. Periodic surveys in 2004 (number 60) and 2010 (number 77) included questions on involvement in community child health outside of their clinical practice. Both surveys included a global question asking participants to indicate whether they participated in a professional capacity

in any community-based activities in the past 12 months. These surveys also included a separate question about involvement in 19 specific settings or activities related to health and fitness, schools/education, other government/public health programs, and nonprofit organizations. The surveys asked whether participation was voluntary or paid and about personal and practice characteristics and the timing of formal training in community activities that promote child health (before or during medical school, during residency, during fellowship, since completing training, or none). Respondents reported the extent to which they viewed themselves as responsible for improving the health of children (other than those in their practice) in their home or practice community (4-point Likert scale: “not at all” to “very”). Also, participants indicated how much time they were willing to spend over the next year participating in activities that promote the health of children at the local, state, or national level (“none” to “>5 hours/month”). Respondents indicated whether they had used 6 skills in the past year and their skill level (4-point Likert scale: “not at all” to “very”) for each; skills included locating and accessing resources for individual children, identifying community needs, using population-level data to understand the determinants and consequences of children’s health and illness, working as a member of an interdisciplinary team to promote children’s health in the community, speaking publicly on behalf of children’s health, and using computers/Internet to find information about child health policy and related activities.

The 2004 Periodic Survey was an 8-page, self-administered questionnaire sent to 1829 active AAP members. The original mailing and 5 follow-up mailings to nonrespondents were conducted from April through September 2004. After the first and fifth mailings, an e-mail

reminder was sent to nonrespondents with e-mail addresses and a postcard reminder was sent to those without (67.9% and 32.1% of nonrespondents, respectively). A total of 1053 completed questionnaires were received (response rate of 57.6%).

The 2010 Periodic Survey was an 8-page, self-administered survey sent to 1622 active AAP members. The original and 6 follow-up mailings to nonrespondents were conducted from June through November 2010. A \$2 bill was included with the first mailing, and no e-mail or reminder postcards were sent. A total of 968 completed questionnaires were received (response rate of 59.9%). In both the 2004 and 2010 surveys reported herein, involvement in community child health was the only topic of the surveys. Survey content was informed by a national advisory group with expertise in community pediatrics and was reviewed by the AAP Community Pediatrics Action Group and the Council on Community Pediatrics. Human subjects approval was obtained from the AAP Institutional Review Board and the Committee on Human Research at Johns Hopkins Bloomberg School of Public Health.

Analysis

Analysis on both surveys included postresidency pediatricians, excluding pediatricians with a Specialty Fellow designation (certified by a board other than pediatrics) in the AAP membership database. The final sample included 881 pediatricians in 2004 (83.7% of respondents) and 820 pediatricians in 2010 (84.7% of respondents). We used χ^2 analysis and *t* tests to assess differences in responses between survey years. Additional χ^2 analysis of the 2010 respondents included a comparison of personal and practice characteristics, community child health training and perspectives, and use of skills and skill level by participation in

community child health activities in the past year. Logistic regression assessed the independent contributions of characteristics associated with participation in bivariate analyses ($P < .05$). We also assessed whether use of skills mediated the relation between formal training and participation in 2010. Analyses were conducted by using SPSS statistical software, version 11.5 (IBM SPSS Statistics, IBM Corporation, Armonk, NY).

RESULTS

Personal and employment characteristics, formal training, perspectives, and use and level of skills were compared between participants in 2004 and those in 2010 (Table 1). A greater percentage of respondents in 2010 were female (52.2% in 2004 vs 59.2% in 2010; $P = .004$) and aged ≥ 51 years (31.5% vs 38.5%; $P = .018$); the samples were comparable with regard to the percentages underrepresented in medicine (eg, black, Hispanic, American Indian), those who were married, and those with children. In 2010, fewer pediatricians practiced in rural settings (12.5% vs 9.0%; $P = .048$) and spent $\geq 50\%$ of their time in general pediatrics (71.6% vs 66.5%; $P = .025$), with no significant changes in employment settings and part-time status. Compared with 2004, a smaller percentage in 2010 reported any formal training in community child health (56.1% in 2004 vs 42.9% in 2010), although a larger percentage reported training before medical school (2.9% vs 4.9%) and during residency (22.0% vs 28.4%; all $P < .05$; training reported at multiple time points). More than three-quarters of pediatricians reported feeling moderately/very responsible for child health, and 71% reported being willing to spend at least 1 hour per month in child health activities that promote the health of children in their home or practice communities, with no

differences between comparison years ($P > .05$). The use of 2 of 6 assessed skills, locating and accessing resources for individual children and using computers/Internet to find information about child health policy and related activities, was greater in 2010 than in 2004. In 2010, more pediatricians reported having moderate/high skill levels for those 2 areas as well as identifying community needs and being a member of an interdisciplinary team to promote children's health in the community (all $P < .05$).

To assess potential response bias, respondents and nonrespondents were compared with regard to several demographic variables. No significant differences were found in 2004 between respondents and nonrespondents in mean age (43.7 years) and region of the country (Northeast, 24.5%; Midwest, 21.5%; South, 33.4%; and West, 20.7%). In 2004, more respondents than nonrespondents were women (53.9% vs 46.6%; $P < .05$). In 2010, no significant differences were found between respondents and nonrespondents in mean age (45.1 years), region of the country (Northeast, 24.1%; Midwest, 21.8%; South, 36.1%; West 18.1%), or gender (57.6% female).

Overall, a smaller percentage of pediatricians reported involvement in community child health activities in the past 12 months (45.1% in 2004 vs 39.9% in 2010; $P = .03$), with decreases in each age subgroup (Table 2). There were significant decreases in community child health training among pediatricians 40 to 50 years old (53.6% in 2004 vs 37.3% in 2010), and a significant increase among pediatricians ≥ 51 years old (52.1% vs 69.5%; all $P < .001$), with no changes observed for the other age groups. Among those participating in community activities, a larger percentage in 2010 reported that their participation was voluntary rather than paid (79.5% vs 85.8%; $P = .03$).

With regard to specific activities, among those who reported any involvement in the past 12 months, the only significant changes were fewer reporting participation as a school health clinic provider (7.2% vs 3.4%; $P = .025$) and more engaging in child advocacy (9.8% vs 15.7%; $P = .017$). Among those with any involvement, the most common settings, in both study years, were as follows: health fairs (28.8% for 2004 and 2010 combined), nonprofit volunteer organizations (eg, AAP, March of Dimes, Rotary; 25.2%), and school consultant (16.9%).

In 2010, personal and practice characteristics associated with any involvement in community child health activities included older age, not having children aged ≤ 5 years, employment type, practice in rural settings, and receiving any formal training (Table 3). With regard to the timing of training, exposures before medical school, during fellowship, and since completing training were associated with involvement. Feeling responsible for child health and being willing to spend time to promote child health also were associated with involvement. In adjusted analyses, older age, practice setting and type, feeling responsible, and formal training remained associated with increased involvement ($P < .05$; Table 4).

To further understand the role of training, we examined the use of 6 skills related to community child health in 2010 and their relation to whether respondents received any formal training (Table 5). Nearly three-quarters of pediatricians reported locating resources for individual children (74.2%) and using computers/Internet to find information about child health policy and related activities (74.0%). Among those using the skills, more than half reported having moderate/high skill levels. Formal training was associated with larger percentages of pediatricians reporting the use of 4 skills and with smaller percentages reporting the use of 2 skills

TABLE 1 Personal and Practice Characteristics, Training, Perspectives, and Skills: 2004 Versus 2010

	Total		P^a
	2004 ($n = 881$)	2010 ($n = 820$)	
Personal characteristics			
Age			.018
≤ 34 years	141 (16.1)	107 (13.1)	
35–39 years	164 (18.7)	136 (16.7)	
40–50 years	295 (33.7)	258 (31.7)	
≥ 51 years	276 (31.5)	314 (38.5)	
Gender			.004
Male	421 (47.8)	334 (40.8)	
Female	459 (52.2)	484 (59.2)	
Hispanic/Latino origin			.214
Yes	58 (6.7)	43 (5.3)	
No	806 (93.3)	773 (94.7)	
Underrepresented in medicine ^b			.922
Yes	92 (10.6)	88 (10.8)	
No	773 (89.4)	728 (89.2)	
Marital status			.867
Married	766 (87.7)	713 (87.3)	
Single	71 (8.1)	72 (8.8)	
Widowed/separated/divorced	36 (4.1)	32 (3.9)	
Children <18 years in household			.424
Yes	516 (58.9)	465 (57.0)	
No	360 (41.1)	351 (43.0)	
Youngest child ≤ 5 years ^c			.796
Yes	250 (49.6)	232 (50.4)	
No	254 (50.4)	228 (49.6)	
Practice characteristics			
Primary employment type			.398
Solo or 2-physician	123 (14.4)	93 (11.3)	
Group/multispecialty	388 (45.4)	365 (44.8)	
HMO or nongovernment hospital/clinic	119 (13.9)	127 (15.6)	
Medical school	99 (11.6)	112 (13.8)	
Nonprofit community health center	24 (2.8)	28 (3.4)	
Government hospital/clinic	44 (5.2)	36 (4.4)	
Other	57 (6.7)	53 (6.5)	
Community setting			.048
Urban inner city	184 (21.8)	179 (22.3)	
Urban non-inner city	247 (29.3)	220 (27.4)	
Suburban	307 (36.4)	333 (41.4)	
Rural	105 (12.5)	72 (9.0)	
Employment status ^d			<.001
Full-time	680 (78.3)	631 (78.5)	
Part-time	161 (18.5)	173 (21.5)	
Percentage of time in general pediatrics			.025
<50%	243 (28.4)	270 (33.5)	
$\geq 50\%$	613 (71.6)	537 (66.5)	
Formal training in community activities^e			
Timing			
Before medical school	24 (2.9)	38 (4.9)	.037
During medical school	166 (20.1)	133 (17.2)	.142
During residency	182 (22.0)	219 (28.4)	.004
During fellowship	44 (5.3)	36 (4.7)	.543
Since completing training	95 (11.5)	89 (11.5)	.986
None	363 (43.9)	441 (57.1)	<.001
Perspectives			
View of child health responsibility			.924
Very responsible	285 (32.9)	277 (34.1)	
Moderately responsible	374 (43.1)	346 (42.6)	
A little responsible	195 (22.5)	176 (21.6)	
Not at all responsible	13 (1.5)	14 (1.7)	

TABLE 1 Continued

	Total		<i>P</i> ^a
	2004 (<i>n</i> = 881)	2010 (<i>n</i> = 820)	
Time willing to spend in child health activities			.225
>5 hours/month	94 (10.9)	102 (12.6)	
4–5 hours/month	84 (9.7)	96 (11.9)	
1–3 hours/month	438 (50.6)	385 (47.6)	
<1 hour/month	158 (18.3)	129 (16.0)	
0 hours/month	91 (10.5)	96 (11.9)	
Use of skills			
Locate and access resources for individual children	568 (68.4)	560 (74.2)	.012
Identify community needs	249 (30.7)	253 (34.5)	.114
Use population-level data to understand the determinants and consequences of children's health and illness	202 (25.2)	184 (25.3)	.969
Member of interdisciplinary team/participate in team building to promote children's health in the community	248 (30.5)	249 (33.6)	.179
Speak publicly on behalf of children's health	228 (27.8)	204 (27.6)	.930
Use computer/Internet to find information about child health policy and related activities	553 (67.0)	560 (74.0)	.003
Moderate/high level of skills			
Locate and access resources for individual children	399 (56.4)	407 (63.2)	.011
Identify community needs	169 (29.9)	189 (37.8)	.006
Use population-level data to understand the determinants and consequences of children's health and illness	158 (28.2)	151 (32.8)	.116
Member of interdisciplinary team/participate in team building to promote children's health in the community	255 (44.0)	250 (50.7)	.027
Speak publicly on behalf of children's health	295 (50.7)	261 (55.5)	.118
Use computer/Internet to find information about child health policy and related activities	424 (60.3)	475 (73.4)	<.001

Data are presented as numbers (%) of respondents. HMO, health maintenance organization.

^a *P* values were calculated for 2004 vs 2010 results.

^b Includes blacks/African Americans, Hispanics/Latinos, Native Hawaiians/Other Pacific Islanders, American Indians/Alaska Natives.

^c Among those with children ≤18 years.

^d For employment status, the 2004 survey includes options for full-time, part-time, retired, semiretired, not-in-practice, temporarily not in practice, and not active for other specified reasons. The 2010 survey only includes options for full-time or part-time.

^e Training could be reported at multiple time points.

(locating resources for individual children and using computers/Internet to find information about child health policy and related activities; all *P* ≤

.001). In turn, greater use of skills was reported by those who participated in community child health activities in the past year than by those who did not

participate (*P* < .001 for all 6 skills). Formal training remained significant (*P* < .01) when use of each of the skills was added individually to the regression model, although the magnitude of the odds ratio decreased (range of odds ratios: 1.61–1.79), indicating partial mediation.

In 2010, formal training also was associated with higher skill level for 3 of 6 skills, with findings in a comparable direction, although not significant, for the remaining 3 skills. In turn, participation was associated with higher self-reported skill levels (*P* < .001 for all 6 skills). The extent to which skill level mediated relations between formal training and participation was not assessed due to small sample sizes because fewer respondents reported skill levels than use of skills.

DISCUSSION

This study reveals a continued decline in pediatricians' involvement in community child activities in 2010 compared with 2004. In 2010, greater involvement was reported by pediatricians who were older, practiced in rural settings and in particular types of practices, had received formal training, and had a high sense of personal responsibility. Although several of these associations have previously been noted, this is the first national survey to identify relations between formal training and pediatricians' community involvement broadly defined across an array of settings and activities. One previous study reported that

TABLE 2 Involvement in Past 12 Months by Age Group: 2004 Versus 2010

	Total		≤34 Years		35–39 Years		40–50 Years		≥51 Years						
	2004 (<i>n</i> = 881)	2010 (<i>n</i> = 820)	<i>P</i>	2004 (<i>n</i> = 141)	2010 (<i>n</i> = 107)	<i>P</i>	2004 (<i>n</i> = 164)	2010 (<i>n</i> = 136)	<i>P</i>	2004 (<i>n</i> = 295)	2010 (<i>n</i> = 258)	<i>P</i>	2004 (<i>n</i> = 276)	2010 (<i>n</i> = 314)	<i>P</i>
Any involvement			.032			.084			.072			.329			.431
Yes	387 (45.1)	325 (39.9)		53 (37.9)	29 (27.4)		71 (44.4)	46 (34.1)		133 (46.2)	108 (42.0)		128 (48.3)	140 (45.0)	
No	471 (54.9)	489 (60.1)		87 (62.1)	77 (72.6)		89 (55.6)	89 (65.9)		155 (53.8)	149 (58.0)		137 (51.7)	171 (55.0)	

Data are presented as numbers (%) of respondents. There were 5 missing age responses in 2004 and 5 missing age responses in 2010. *P* values were calculated for 2004 vs 2010 results.

exposure to 1 particular community setting in residency, schools, was associated with subsequent involvement in that same setting.²⁰ Solomon et al²¹ also observed that, among pediatricians who trained at programs funded by the Dyson Community Pediatrics Training Initiative, those who trained at programs emphasizing population-level advocacy reported greater use of strategies to promote community child health.

Increased involvement with age likely reflects the need to be established in clinical practice before engagement in community activities¹¹ and greater ability to balance personal, work, and other professional responsibilities over time. Nearly all community involvement reported by pediatricians in 2010 was voluntary and likely not conducted in association with clinical responsibilities. It may be particularly challenging for younger pediatricians, many with educational debt and/or beginning families, to volunteer in the community without focused efforts or incentives to facilitate involvement. Also, in some communities, allied health professionals may engage with community organizations as part of their work responsibilities, thus decreasing pediatricians' opportunities.

Other factors associated with participation in community child health activities are more difficult to influence; these include practice setting and type. However, the independent association of formal training with community involvement emphasizes the importance of this modifiable factor. Not surprisingly, the use of skills partially mediated the relation between formal training and participation in the past year, suggesting that evaluations of community pediatrics training focus on skills acquisition as well as influences on attitudes and subsequent community involvement.

The timing of training in this national sample varied. Residency was the most frequently cited, as might be expected because programs are required to

TABLE 3 Personal and Practice Characteristics, Training, and Perspectives Regarding Community Child Health Activities Among Participants and Nonparticipants in 2010

Characteristic	Participation in Community Child Health Activity in Past Year		P
	Yes (n = 325)	No (n = 489)	
Personal characteristics			
Age			.003
≤34 years	82 (33.3)	164 (66.7)	
35–39 years	117 (39.7)	178 (60.3)	
40–50 years	241 (44.2)	304 (55.8)	
≥51 years	268 (46.5)	308 (53.5)	
Gender			.056
Male	146 (43.8)	187 (56.2)	
Female	178 (37.2)	301 (62.8)	
Marital status			.121
Married	291 (41.2)	416 (58.8)	
Single	23 (31.9)	49 (68.1)	
Widowed/separated/divorced	9 (28.1)	23 (71.9)	
Youngest child ≤5 years			.018
Yes	78 (33.6)	154 (66.4)	
No	244 (42.7)	328 (57.3)	
Underrepresented in medicine ^a			.744
Yes	33 (38.4)	53 (61.6)	
No	291 (40.2)	433 (59.8)	
Practice characteristics			
Primary employment type			.012
Solo or 2-physician	35 (38.9)	55 (61.1)	
Group/multispecialty	153 (42.0)	211 (58.0)	
HMO or nongovernment hospital/clinic	31 (24.4)	96 (75.6)	
Medical school	48 (43.2)	63 (56.8)	
Nonprofit community health center ^b	14 (50.0)	14 (50.0)	
Government hospital/clinic	16 (44.4)	20 (55.6)	
Other	24 (46.2)	28 (53.8)	
Community setting			.007
Urban, inner city	78 (43.8)	100 (56.2)	
Urban, non-inner city	87 (39.9)	131 (60.1)	
Suburban	115 (34.6)	217 (65.4)	
Rural	39 (55.7)	31 (44.3)	
Employment status			.677
Full-time	253 (40.5)	372 (59.5)	
Part-time	67 (38.7)	106 (61.3)	
General pediatrics			.151
<50%	98 (36.6)	170 (63.4)	
≥50%	223 (41.8)	310 (58.2)	
Training			
Timing ^c			
Before medical school	22 (57.9)	16 (42.1)	.018
During medical school	50 (37.6)	83 (62.4)	.606
During residency	92 (42.2)	126 (57.8)	.350
During fellowship training	21 (58.3)	15 (41.7)	.018
Since completing training	57 (64.8)	31 (35.2)	<.001
None at any time	149 (33.9)	290 (66.1)	<.001
Perspectives			
Responsibility for child health			<.001
Not at all responsible	0 (0.0)	14 (100.0)	
A little	46 (26.1)	130 (73.9)	
Moderately	132 (38.4)	212 (61.6)	
Very responsible	146 (53.5)	127 (46.5)	
Time willing to spend in child health			<.001
None	8 (8.4)	87 (91.6)	
<1 hour/month	47 (37.0)	80 (63.0)	
1–3 hours/month	150 (39.1)	234 (60.9)	

TABLE 3 Continued

Characteristic	Participation in Community Child Health Activity in Past Year		P
	Yes (n = 325)	No (n = 489)	
4–5 hours/month	48 (50.0)	48 (50.0)	
>5 hours/month	67 (67.0)	33 (33.0)	

Data are presented as numbers (%) of respondents. HMO, health maintenance organization.

^a Includes blacks/African Americans, Hispanics/Latinos, Native Hawaiians/Other Pacific Islanders, American Indians/Alaska Natives.

^b Includes nonprofit community health center and other.

^c Training could be reported at multiple time points.

TABLE 4 Participation in Community Child Health Activities in 2010

	Odds Ratio (95% Confidence Interval)
Personal characteristics	
Age	
≤34 years	Referent
35–49 years	1.43 (0.76–2.67)
40–50 years	2.29 (1.31–3.98)
≥51 years	2.71 (1.54–4.79)
Children ≤5 years in household	
No	Referent
Yes	1.13 (0.73–1.76)
Practice characteristics	
Community setting	
Suburban	Referent
Urban, non–inner city	1.26 (0.83–1.91)
Urban, inner city	1.48 (0.93–2.36)
Rural	2.78 (1.54–4.99)
Primary employment type	
HMO or nongovernment hospital/clinic	Referent
Solo or 2-physician	1.96 (0.98–3.93)
Group/multispecialty	2.64 (1.56–4.45)
Medical school	2.55 (1.39–4.68)
Nonprofit community health center	2.67 (1.08–6.58)
Government hospital/clinic	2.63 (1.13–6.14)
Other	2.74 (1.26–5.97)
Training	
None	Referent
Any formal training	2.10 (1.51–2.92)
Responsibility for child health	
A little/not at all	Referent
Moderately/very	2.45 (1.63–3.69)

HMO, health maintenance organization.

provide “structured educational experiences ... that prepare residents for the role of advocate for the health of children within the community.”²² However, only 28% of pediatricians reported receiving training during residency, perhaps reflecting vague language of the Residency Review Committee requirement,⁸ difficulty implementing the requirement given competing priorities, and varied

respondent ages. The recently revised guidelines that went into effect in 2013 are more proscriptive and recommend that 2 out of 5 ambulatory months include elements of community pediatrics and child advocacy.²³ Solomon et al¹⁹ found that >70% of residency programs reported offering training in schools (1 of 14 types of community-based settings queried in a survey of program directors) and >73% reported

moderate to heavy emphasis of child advocacy training during residency recruitment. The percentage of pediatricians reporting formal training may increase over time if efforts are sustained; the Pediatric Milestones Project has recently been developed to guide resident assessment and educational outcomes in the next accreditation system. Under systems-based practice, the Milestones Working Group included the subcompetency “Advocate for the promotion of health and prevention of disease and injury in the population.”²⁴ Among the initial 21 subcompetencies that programs are required to report on, is, under systems-based practice, “advocate for quality patient care and optimal patient care systems.”²⁵

Several limitations are noted. First, respondents may overestimate their extent of community involvement, although we have no reason to suspect differential reporting by survey year. Second, the surveys had response rates of 58% to 60%; these are consistent with other national surveys of physicians, and respondent bias has not been observed.²⁶ A combination of Web-based and mailed administration might increase participation but also might increase response bias.²⁷ Third, we lacked information regarding previous experiences that might influence community engagement and information regarding the types or quality of training received. Fourth, although we identified associations between formal training and participation, we were not able to assess causality. Analyses from the longitudinal evaluation of the Dyson Community Pediatrics Training Initiative will capture some of the additional factors of interest and provide enhanced understanding of how training during residency influences participation in community activities.

Pediatricians' involvement in community child health activities has taken on new importance with implementation of the Affordable Care Act. For example,

TABLE 5 Formal Training, Skills Used, and Moderate/High Skills in Community Child Health Activities in 2010

	Total	Any Formal Training		P
		Yes	No	
Skills used				
Locate and access resources for individual children	560/775 (74.2)	256/532 (48.1)	276/532 (51.9)	<.001
Identify community needs	253/733 (34.5)	137/244 (56.1)	107/244 (43.9)	<.001
Use population-level data to understand the determinants and consequences of children's health and illness	184/728 (25.3)	103/179 (57.5)	76/179 (42.5)	<.001
Member of interdisciplinary team/participate in team building to promote children's health in the community	249/740 (33.6)	128/242 (52.9)	114/242 (47.1)	.001
Speak publicly on behalf of children's health	204/739 (27.6)	103/192 (53.6)	89/192 (46.4)	.001
Use computer/Internet to find information about child health policy and related activities	560/757 (74.0)	260/534 (48.7)	274/534 (51.3)	<.001
Moderate/high level of skills				
Locate and access resources for individual children	407/649 (63.2)	190/365 (52.1)	175/365 (47.9)	.007
Identify community needs	189/500 (37.8)	90/147 (61.2)	57/147 (38.8)	.053
Use population-level data to understand the determinants and consequences of children's health and illness	151/461 (32.8)	73/120 (60.8)	47/120 (39.2)	.121
Member of interdisciplinary team/participate in team building to promote children's health in the community	250/493 (50.7)	106/189 (56.1)	83/189 (43.9)	.014
Speak publicly on behalf of children's health	261/470 (55.5)	92/166 (55.4)	74/166 (44.6)	.100
Use computer/Internet to find information about child health policy and related activities	475/647 (73.4)	213/413 (51.6)	200/413 (48.4)	.012

Data are presented as numbers/total numbers of respondents (%) who answered question about use of skill or level of skill (regardless of use).

pediatricians skilled in identifying community needs and working as members of interdisciplinary teams may be particularly well suited to collaborate with nonprofit hospitals, now required to engage in community health planning.²⁸ Others skilled in using population-level data may contribute to discussions regarding implementation of health insurance exchanges to be certain that children with special health care needs have continuous, adequate, affordable coverage.²⁹ Pediatricians skilled in speaking publicly on behalf of children's health also can contribute to critical discussions regarding their state's essential health benefits selection process to advocate for a robust set of dental benefits³⁰ and to ensure implementation of Bright Futures Guidelines for Health Supervision

and provision of preventive services for infants, children, and adolescents without patient/family cost-sharing. The ability of pediatricians to work beyond the clinical setting and play these important roles is congruent with recommendations put forth in recent reports calling for the integration of primary care and public health to improve population health.^{31,32}

CONCLUSIONS

The association of formal training with community involvement is intriguing and suggests that a continued commitment to community pediatrics training efforts is needed to support such involvement amid the realities of current practice

environments. Including core advocacy skills for all residents and concurrently providing enhanced experiences for those who wish to include enhanced related skills as part of their "individualized curriculum" may be warranted. Residency programs are currently restructuring curricula to create experiences consistent with learners' needs and career paths. As these changes occur, it will be important to assess the impact of enhanced community exposure on skills and future community involvement. Efforts are needed to understand how content, delivery, and timing of training influence involvement and, ultimately, to understand how pediatricians' involvement contributes to population health outcomes.

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Pediatricians' Involvement in Community Child Health From 2004 to 2010
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