

# A Longitudinal Study of Pediatricians Early in Their Careers: PLACES

Mary Pat Frintner, MSPH<sup>a</sup>, William L. Cull, PhD<sup>a</sup>, Bobbi J. Byrne, MD<sup>b</sup>, Gary L. Freed, MD, MPH<sup>c</sup>, Shesha K. Katakam, MD, MPH<sup>d</sup>, Laurel K. Leslie, MD, MPH<sup>e</sup>, Ashley A. Miller, MD<sup>f</sup>, Amy J. Starmer, MD, MPH<sup>g,h</sup>, Lynn M. Olson, PhD<sup>a</sup>

## abstract

The American Academy of Pediatrics (AAP) launched the Pediatrician Life and Career Experience Study (PLACES), a longitudinal study that tracks the personal and professional experiences of early career pediatricians, in 2012. We used a multipronged approach to develop the study methodology and survey domains and items, including review of existing literature and qualitative research with the target population. We chose to include 2 cohorts of US pediatricians on the basis of residency graduation dates, including 1 group who were several years out of residency (2002–2004 Residency Graduates Cohort) and a second group who recently graduated from residency at study launch (2009–2011 Residency Graduates Cohort). Recruitment into PLACES was a 2-stage process: (1) random sample recruitment from the target population and completion of an initial intake survey and (2) completion of the first Annual Survey by pediatricians who responded positively to stage 1. Overall, 41.2% of pediatricians randomly selected to participate in PLACES indicated positive interest in the study by completing intake surveys; of this group, 1804 (93.7%) completed the first Annual Survey and were considered enrolled in PLACES. Participants were more likely to be female, AAP members, and graduates of US medical schools compared with the target sample; weights were calculated to adjust for these differences. We will survey PLACES pediatricians 2 times per year. PLACES data will allow the AAP to examine career and life choices and transitions experienced by early-career pediatricians.

<sup>a</sup>Department of Research, American Academy of Pediatrics, Elk Grove Village, Illinois; <sup>b</sup>Section of Neonatal-Perinatal Medicine, Department of Pediatrics, Indiana University, Indianapolis, Indiana; <sup>c</sup>Department of Pediatrics and Child Health Evaluation and Research Unit, University of Michigan, Ann Arbor, Michigan; <sup>d</sup>Department of Pediatrics, Indiana University Health La Porte, La Porte, Indiana; <sup>e</sup>Department of Pediatrics, Tufts Medical Center Floating Hospital for Children, Boston, Massachusetts; <sup>f</sup>Department of Pediatrics New London Hospital, New London, New Hampshire; <sup>g</sup>Division of General Pediatrics, Department of Medicine, Boston Children's Hospital, Boston, Massachusetts; and <sup>h</sup>Department of Pediatrics, Harvard Medical School, Boston, Massachusetts

Ms Frintner helped conceptualize and design the study, coordinated data collection, carried out analyses, interpreted data, and drafted and revised the manuscript; Drs Cull and Olson conceptualized and designed the study, interpreted data, and reviewed and revised the manuscript; Drs Byrne, Freed, Katakam, Leslie, Miller, and Starmer conceptualized and designed the study and reviewed and revised the manuscript for important intellectual content; and all authors approved the final manuscript as submitted.

[www.pediatrics.org/cgi/doi/10.1542/peds.2014-3972](http://www.pediatrics.org/cgi/doi/10.1542/peds.2014-3972)

DOI: 10.1542/peds.2014-3972

Accepted for publication May 7, 2015

Address correspondence to Mary Pat Frintner, MSPH, American Academy of Pediatrics, Department of Research, 141 Northwest Point Blvd, Elk Grove Village, IL 60007. E-mail: [mfrintner@aap.org](mailto:mfrintner@aap.org)

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2015 by the American Academy of Pediatrics

**FINANCIAL DISCLOSURE:** The authors have indicated they have no financial relationships relevant to this article to disclose.

**FUNDING:** PLACES is funded by the American Academy of Pediatrics.

**POTENTIAL CONFLICT OF INTEREST:** The authors have indicated they have no potential conflicts of interest to disclose.

In 2008, the American Academy of Pediatrics (AAP) established the Vision of Pediatrics 2020 Task Force, a group of pediatricians who represented various perspectives including primary, subspecialty, and surgical care, to focus on the future of pediatrics.<sup>1</sup> The task force identified 8 key trends likely to have an important future influence on both children's health in general and on the field of pediatrics in particular over the coming decade. One trend focused on the pediatric workforce and increasing demands for work-life balance.<sup>2</sup> A conclusion was that a longitudinal study of young pediatricians would afford the opportunity to identify emerging

trends in the pediatric workforce and guide the field's response to those trends.<sup>2</sup>

The AAP has been collecting cross-sectional survey data from pediatricians for >25 years through the Periodic Survey of Fellows<sup>3</sup> and from graduating pediatrics residents for almost 20 years through the Annual Survey of Graduating Residents.<sup>4</sup> The American Board of Pediatrics (ABP) is an important resource for trends in the pediatric workforce.<sup>5</sup> These and other cross-sectional data have examined pediatrician workforce issues,<sup>6–18</sup> including satisfaction,<sup>19–22</sup> burnout,<sup>19,21,23–26</sup> and personal characteristics.<sup>3</sup> Together, these data

have contributed to the understanding of who pediatricians are and what their work entails. Important trends over time identified through these cross-sectional analyses include an increase in the proportion of women in pediatrics, an increase in part-time work, a decrease in the number of hours pediatricians work each year, an increase in the proportion working in a group rather than in a solo practice setting, and an increase in educational debt among graduating pediatric residents.<sup>6,17,27-29</sup> In contrast, data suggest that the proportion of minority pediatricians and those choosing jobs in rural areas has remained relatively unchanged over time.<sup>6</sup> Although these cross-sectional data are important, multiple questions remain, such as do individuals who work part-time hours early in their careers maintain part-time hours through retirement? How often do young pediatricians change jobs or shift their specialization within pediatrics? Does satisfaction with careers as physicians, job burnout, and work-life balance change over time?

Although cross-sectional survey results can provide multiple snapshots of pediatricians in different groups over time, a longitudinal study in which individuals are repeatedly measured over time is the best way to measure change, event occurrence, and factors associated with change.<sup>30,31</sup> Most surveys are not linked over time at the individual level, but such longitudinal data and analysis are essential for understanding pediatrician careers over a lifetime. Multiple years of data from pediatricians will enhance the understanding of career development and allow new and important questions to be answered about workforce issues. Determinants of professional and personal experiences can be examined, including the following: practice decisions regarding work hours and location; career choices, satisfaction, and work-life balance; and financial and personal

health and well-being. Such experiences and decisions might be of value to policy makers, those in the medical education community, and organizations dedicated to the profession.

To date, few specialties in medicine have collected longitudinal data. In the United States, the Longitudinal Study of Emergency Physicians conducted by the American Board of Emergency Medicine is 1 such study.<sup>32-34</sup> The study collects data from emergency physicians every 5 years on the practice of emergency medicine. An international example is Medicine in Australia: Balancing Employment and Life (MABEL), an Australian national longitudinal survey of physicians.<sup>35,36</sup> To inform Australian health policy, MABEL is designed to track how the individual decisions made by physicians, such as where to work and how many hours to work, influence national health care workforce supply. However, we were unable to identify any similar US longitudinal studies of pediatricians. In many ways, pediatrics is at the forefront of demographic changes in medicine: for example, with the majority of early-career pediatricians now women with young children. Thus, it is especially appropriate and timely to launch a longitudinal study of pediatricians.

The AAP launched the Pediatrician Life and Career Experience Study (PLACES) in 2012 to collect longitudinal data from early-career pediatricians each year across their careers, with an initial participant commitment of 5 years. We decided to focus on early-career pediatricians so that we could examine the changes and transitions that pediatricians experience in their personal and professional lives as they progress in their careers. We chose 2 cohorts of early-career pediatricians so that we could compare pediatricians who just completed training with those who have had time to launch their careers. Many steps are involved in

the development and implementation of a national longitudinal study of physicians. In this article, we describe the study design and methodology we used to develop this prospective longitudinal study of US pediatricians. The article includes a detailed analysis of response rate and response bias and presents personal and work characteristics of pediatricians early in their careers.

## METHODS

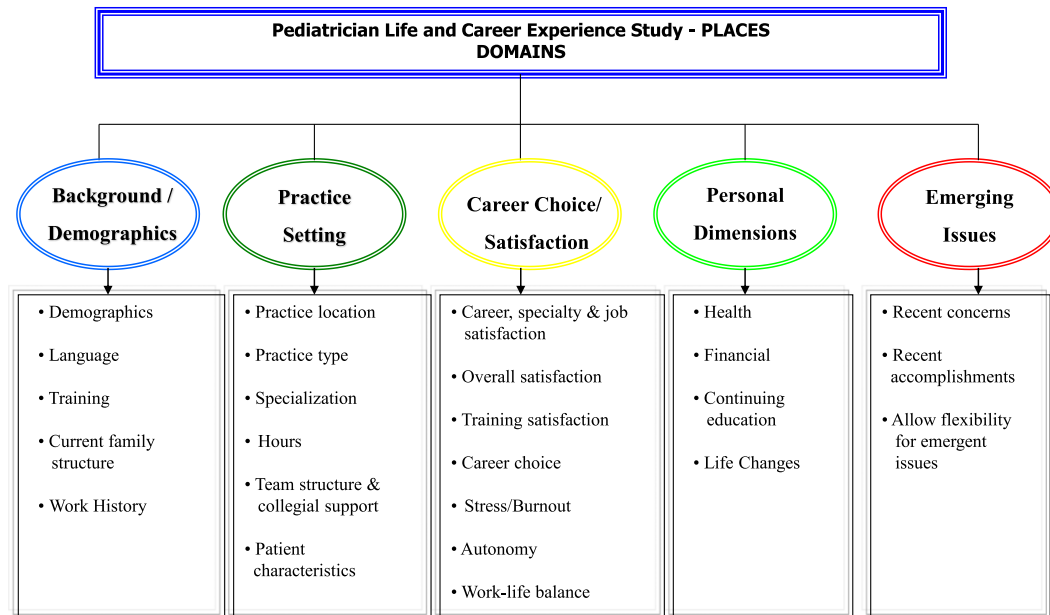
The AAP formed a PLACES project advisory committee that consists of survey researchers, thought leaders, and pediatricians who are representative of the PLACES target sample (<11 years out of residency; referred to as early-career pediatricians throughout the article). The committee worked closely with AAP researchers to develop and launch PLACES and continues to be involved in the study assisting with data interpretation and analysis, providing input on survey development and manuscript development, and facilitating data dissemination. As described below, many steps went into the development and implementation of PLACES.

### Study Design and Content Development

We used a multipronged approach to design the study and develop the survey domains and specific survey items, including review of existing, relevant literature and qualitative research with the target population. At each stage, project development was carried out by AAP research staff in consultation with the project advisory committee. Study domains, outlined in Fig 1, reflect many of the topics and trends identified in the AAP Vision of Pediatrics 2020 project.<sup>1,2,37</sup>

### Review of Relevant Literature

We conducted an extensive review of the literature related to physician work characteristics, satisfaction, and work-life balance. Several relevant



**FIGURE 1**  
Study domains and survey content for PLACES.

survey topics and questions were identified and reviewed.<sup>3,4,22-24,32,36,38-53</sup> Helpful frameworks and survey items were drawn from several studies. For example, the Physician Worklife Survey includes a measure of physician satisfaction with 3 scales measuring job, career, and specialty satisfaction<sup>54</sup> and has been used and/or adapted in various physician studies.<sup>46,49,55-57</sup> The Community Tracking Study surveyed physicians in the 1990s and 2000s, and the survey includes a number of questions on physician work characteristics, interactions with patients, and satisfaction.<sup>52,58</sup> The study by Clem et al<sup>41</sup> in female emergency physicians developed a survey that included questions on work schedules, colleagues, and satisfaction.

#### *Qualitative Research With Target Population*

We conducted focus groups with residents, fellowship trainees, and early-career pediatricians to determine the feasibility and acceptability of a longitudinal study and study content. A total of 7 focus

groups were conducted between 2009 and 2011, and participants provided input on the study design, recruitment strategies and materials, survey topic areas, and data collection methods. We transcribed focus group discussions, examined the data for themes, and collected valuable information that helped design PLACES.

Focus group participants identified important content areas for surveys and study feasibility issues such as making surveys easy to complete (eg, online, ability to pause and restart surveys, and e-mail reminders), limiting the time commitment (eg, 1-2 surveys per year, 15- to 30-minute time commitment per survey), and feeding back results to participants in a timely way (eg, to allow them to compare themselves with the group; to let them know their data were valuable). Focus group participants who reviewed draft recruitment materials for PLACES, such as cover letters and project information, highlighted the following points as key to future participants: why the project should be important to them, how much time will be required of them, and

what they will receive in return for their participation. We revised all recruitment materials on the basis of feedback from the focus group participants.

Once a complete first-year survey was drafted, we conducted cognitive interviews with 16 early-career pediatricians to assess how select survey items were being interpreted by respondents. After the survey content was adjusted on the basis of the cognitive interviews, we mailed the survey to 100 early-career pediatricians for pilot testing. We further revised the survey format and questions on the basis of 11 pilot responses received. The main study survey (PLACES Annual Survey Year 1) was 12 pages in length, with an estimated duration of completion of 20 minutes. All questions were either adapted from other physician studies,<sup>3,4,22-24,32,36,38-54,58</sup> national surveys (eg, National Health Interview Survey, Panel Study of Income Dynamics),<sup>38,44,48</sup> and AAP surveys (Periodic Survey, Annual Survey of Graduating Residents)<sup>3,4</sup> or were new questions refined through the cognitive interview and pilot testing process.

### Target Population and Sample Size

We chose to include 2 cohorts of US pediatricians on the basis of residency graduation dates, including 1 group who were several years out of residency and early in their careers (2002–2004 Residency Graduates Cohort) and a second group who recently graduated from residency at the time of the study launch in 2012 (2009–2011 Residency Graduates Cohort). We included 2 cohorts to compare pediatricians who had just completed their residency training and those who have had time to launch their careers. We focused on pediatricians who were <11 years out of residency so we would be able to track them early in and across their careers.

To determine study sample size, we conducted power analyses using 2 different examples from the published literature.<sup>17,46</sup> We focused on the power to detect a 1-point difference on a 5-item satisfaction scale and to detect a 10-point difference in percentages using a dichotomous outcome variable. We also wanted a large-enough sample to detect differences within known subgroups of interest, such as general pediatricians, with a goal of 80% statistical power. On the basis of the power calculations, our target sample size was 600 pediatricians per cohort or 1200 total pediatricians for the study.

Members of the cohorts were identified by using the AAP administrative database (NetForum), which includes all pediatricians in the targeted age range (both AAP members and nonmembers) who completed a US residency program. The core target population for the 2002–2004 Residency Graduates Cohort included 9682 pediatricians who completed their residency from a categorical pediatric or pediatric combined training program between the years 2002 and 2004. The core target population for the 2009–2011 Residency Graduates Cohort included 9916 pediatricians who completed

their residency training between the years 2009 and 2011. An additional small group of pediatric surgical and other specialists, who would not have completed a pediatric residency, were identified on the basis of membership in an AAP specialty section and having an age consistent with the cohort residency graduation years. The final target population included 9880 pediatricians in the 2002–2004 cohort and 9942 in the 2009–2011 cohort.

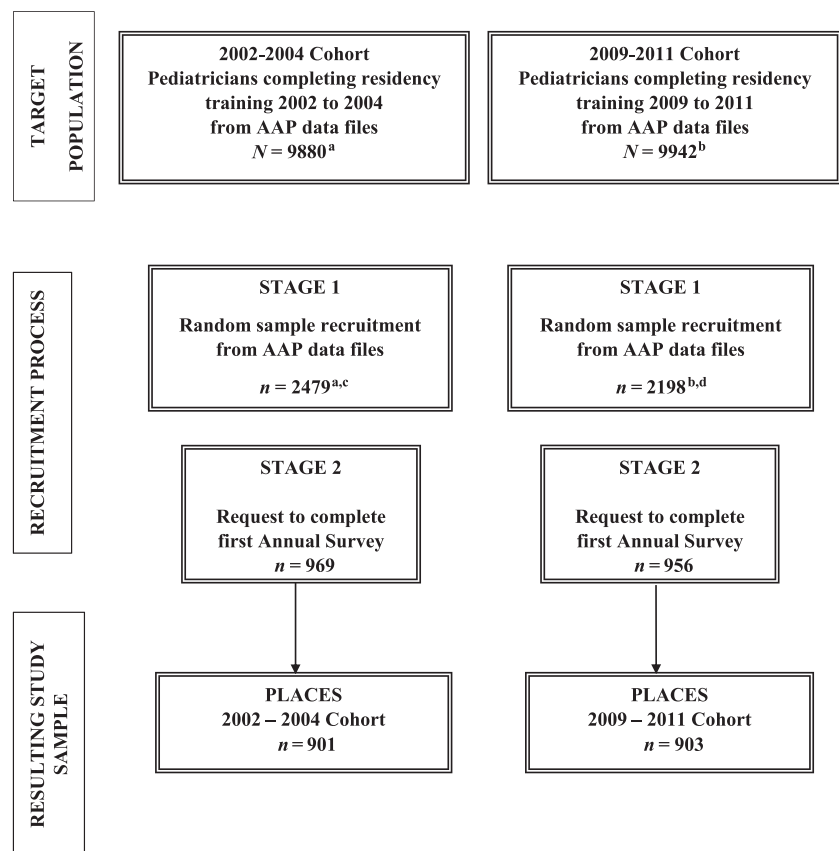
### Recruitment

Recruitment into PLACES was a 2-stage process. First, we conducted random sample recruitment from the target population. Second, among pediatricians who responded positively to the random sample

recruitment, we sent the first Annual Survey. To be enrolled in the study, participants needed to (1) respond to the initial intake survey and (2) successfully complete the Annual Survey Year 1. Procedures used in these recruitment stages are described below and summarized in Fig 2.

#### Stage 1: Random Sample Recruitment

Before random sample recruitment, many efforts were made to increase general awareness of the study among the pediatric community, especially among early-career pediatricians, including the formation of an AAP Web site and articles and announcements placed in various AAP communication vehicles. Recruitment began by randomly drawing samples of participants from the respective target



**FIGURE 2**

Recruitment of pediatricians into PLACES. <sup>a</sup>Includes 198 pediatric surgical and other specialists, aged 37–41 years, identified on the basis of membership in an AAP specialty section. <sup>b</sup>Includes 26 pediatric surgical and other specialists, aged 30–34 years, identified on the basis of membership in an AAP specialty section. <sup>c</sup>Sixteen pediatricians were ineligible (eg, residency graduation date was incorrect in AAP data files, residence outside the United States). <sup>d</sup>Thirty-two pediatricians were ineligible (eg, residency graduation date was incorrect in AAP data files, residence outside the United States).

**TABLE 1** Study Nonresponse Bias Comparisons: PLACES Pediatricians and Target Sample

	2002–2004 Residency Graduates Cohort			2009–2011 Residency Graduates Cohort		
	PLACES Participants (N = 901)	Target Sample From All US Pediatric Residency Graduates (N = 2479) <sup>a</sup>	Difference Between Participants and Target Sample, P	PLACES Participants (N = 903)	Target Sample From All US Pediatric Residency Graduates (N = 2198) <sup>b</sup>	Difference Between Participants and Target Sample, P
Female, % (n)	69.8 (629)	60.3 (1491)	<.001	76.1 (687)	70.8 (1397) <sup>c</sup>	<.001
AAP member at time of recruitment, % (n)	65.5 (590)	52.2 (1294)	<.001	61.4 (554)	46.8 (1029)	<.001
AAP US geographic district, % (n)						
I (CT, ME, MA, NH, RI, VT, Uniformed Serv East)	7.4 (67)	7.0 (174)	NS	7.2 (65)	7.5 (164)	NS
II (NY)	7.2 (65)	9.1 (225)	NS	7.2 (65)	10.2 (225)	<.01
III (DE, DC, MD, NJ, PA, WV)	12.9 (116)	11.4 (282)	NS	12.4 (112)	12.7 (278)	NS
IV (KY, NC, SC, TN, VA)	12.7 (114)	10.7 (265)	NS	11.2 (101)	10.3 (226)	NS
V (IN, MI, OH)	8.5 (77)	8.1 (200)	NS	11.5 (104)	9.6 (212)	NS
VI (IL, IA, KS, MN, MO, NE, ND, SD, WI)	11.4 (103)	10.9 (269)	NS	14.3 (129)	12.6 (276)	NS
VII (AR, LA, MS, OK, TX)	9.4 (85)	11.5 (284)	NS	9.9 (89)	11.1 (244)	NS
VIII (AK, AZ, CO, HI, ID, MT, NV, NM, UT, WA, WY, Uniformed Serv West)	11.1 (100)	10.4 (257)	NS	8.4 (76)	8.0 (175)	NS
IX (CA)	10.1 (91)	11.3 (281)	NS	10.3 (93)	10.2 (224)	NS
X (AL, FL, GA, PR)	9.2 (83)	9.8 (242)	NS	7.5 (68)	7.9 (173)	NS
Age (mean, minimum–maximum), y at recruitment	39, 34–58	39	NS	32, 27–54	32	NS

NS, not significant ( $P \geq .05$ ); PR, Puerto Rico; Uniformed Serv East, Uniformed Services East; Uniformed Serv West, Uniformed Services West.

<sup>a</sup> Random samples from AAP data files, plus 198 specialty members, minus 16 known ineligible.

<sup>b</sup> Random samples from AAP data files, plus 26 specialty members, minus 32 known ineligible.

<sup>c</sup> Gender field was not complete in the AAP database NetForum for this cohort (eg, gender was missing for 225 pediatricians; proportions included in the table exclude those missing).

population for each cohort. To ensure that the recruitment procedure was working properly, the first random samples drawn only included 100 pediatricians per cohort (200 total). One month later, additional samples of 1695 pediatricians from the 2002–2004 cohort and 1529 pediatricians from the 2009–2011 cohort were randomly drawn from the target populations, with the restriction that all potential surgical specialists were included due to their small numbers. A postcard was then sent to potential participants before the first recruitment mailing to alert them that they would be soon receiving an invitation to participate in the study.

Each of the selected pediatricians was contacted up to 5 times during the invitation phase (December 2, 2011, to April 18, 2012). The initial contact attempt was through the postal service; subsequent contacts included 2 e-mails and 2 additional mail messages, alternating methods. Each contact included the invitation, project information, and a hardcopy version with reply envelope or online link to the study intake survey (short, 2-page demographic survey). Online versions of the study surveys were administered through Qualtrics survey software [Qualtrics, Qualtrics Research Suite, Provo, UT]. Pediatricians were asked to complete

the study intake survey if they were interested in becoming part of the PLACES longitudinal study. Upon receipt of their intake survey, pediatricians were sent a personalized thank-you note and information about the upcoming PLACES Annual Survey.

It was anticipated from the outset of the study that multiple iterations of recruitment would be necessary to attain the recruitment target numbers. Thus, additional random samples of 700 pediatricians for the 2002–2004 cohort and 601 pediatricians for the 2009–2011 cohort were selected and sent recruitment materials. Slightly more

**TABLE 2** Study Nonresponse Bias Comparisons: PLACES Pediatricians and ABP Data

	2002–2004 Residency Graduates Cohort			2009–2011 Residency Graduates Cohort		
	PLACES Participants (N = 901)	ABP Data (N = 9064)	Differences Between Participants and ABP Data, P	PLACES Participants (N = 903)	ABP Data (N = 9614)	Differences Between Participants and ABP Data, P
Female, % (n)	69.8 (629)	65.0 (5894)	<.01	76.1 (687)	71.6 (6884)	<.01
Medical school location outside the United States, % (n)	12.2 (110)	21.0 (1905)	<.001	13.7 (124)	23.6 (2271)	<.001

**TABLE 3** Personal and Training Characteristics of PLACES Pediatricians by Study Cohort, Year 1 (2012)

	2002–2004 Residency Graduates Cohort (N = 901)		2009–2011 Residency Graduates Cohort (N = 903)	
	Unweighted	Weighted	Unweighted	Weighted
<b>Personal</b>				
Mean age, y (n) <sup>a</sup>	40 (901)	40	33 (903)	33
Female, <sup>a</sup> % (n)	69.8 (629)	60.3	76.1 (687)	70.0
Hispanic or Latino, % (n)	8.6 (77)	9.9	7.9 (71)	8.3
Race, <sup>a,b</sup> % (n)				
White	74.3 (668)	72.0	70.9 (639)	66.1
Asian	18.1 (163)	20.0	19.3 (174)	23.2
Black or African American	5.7 (51)	5.3	6.4 (58)	6.7
American Indian or Alaska Native	0.9 (8)	0.7	0.6 (5)	0.6
Native Hawaiian or other Pacific Islander	0.4 (4)	0.3	0.6 (5)	0.6
Other	3.4 (31)	4.3	4.8 (43)	5.6
Marital status, <sup>a</sup> % (n)				
Married, civil union, or living with partner	89.4 (804)	89.1	77.4 (699)	77.6
Never married and not living with partner	8.0 (72)	8.3	19.8 (179)	19.4
Divorced, separated, or widowed	2.6 (23)	2.7	2.8 (25)	3.0
Children, <sup>a</sup> % (n)	84.7 (763)	84.0	50.8 (459)	51.6
Number of children, <sup>a</sup> % (n)				
1	16.4 (124)	16.4	54.3 (248)	54.0
2	50.1 (379)	50.2	33.9 (155)	33.5
3	25.1 (190)	24.4	9.6 (44)	9.9
≥4	8.4 (64)	9.0	2.2 (10)	2.6
Proficient in a language other than English, <sup>a</sup> % (n)	39.5 (342)	42.8	34.4 (300)	37.7
<b>Training</b>				
Medical school graduation year, <sup>a</sup> median year (n)	2000 (901)	1999	2006 (900)	2006
Residency graduation year, <sup>a</sup> median year (n)	2003 (901)	2003	2010 (902)	2010
Type of residency, <sup>a</sup> % (n)				
Pediatrics	86.5 (773)	85.5	89.0 (793)	88.3
Combined	8.6 (77)	9.9	9.5 (85)	10.4
Other	4.9 (44)	4.6	1.5 (13)	1.4
US medical school location, % (n)	87.8 (789)	80.2	86.3 (778)	77.2
US residency program location, % (n)	99.1 (884)	98.9	99.8 (898)	99.6
Board-certified in pediatrics, <sup>a</sup> % (n)	91.0 (820)	90.3	87.0 (786)	85.3
Board-certified in subspecialty/surgical specialty/other specialty, <sup>a</sup> % (n)	35.2 (317)	39.5	5.1 (46)	4.9
Board-eligible in subspecialty/surgical specialty/other specialty, or currently in fellowship training program, <sup>a</sup> % (n)	3.7 (31)	4.5	33.7 (302)	38.7

Weighted data presented includes percentage, mean, or median and the respective *n*; unweighted data presented includes percentage, mean, or median.

<sup>a</sup>  $P < .05$  for  $\chi^2$  or analysis of variance tests to examine weighted data for differences between study cohorts (2002–2004 and 2009–2011).

<sup>b</sup> Respondents checked all that applied.

were selected for the 2002–2004 cohort because response was slightly lower in that cohort. The same recruitment procedures were used for the second group of potential participants.

### Stage 2: Annual Survey

Once the overall stage 1 recruitment targets for the 2 cohorts were achieved, fielding of Annual Survey Year 1 was conducted (May 10, 2012,

to August 27, 2012). Within the intake survey, potential participants were asked whether they preferred to complete surveys online or use paper versions. Potential respondents (those who had completed the initial intake survey) received up to 6 contacts requesting their completion of Annual Survey Year 1. In the first survey mailing or e-mailing, we included a graphic summary of the data collected via the intake survey to

initiate an important component of the project, as identified by the focus groups: regular feedback of study data to participants.

Once their annual surveys were completed, pediatricians were considered enrolled in PLACES and were sent a thank-you message and a \$20 Amazon gift card, as promised in the study recruitment materials. Gift cards were either mailed through the postal service or e-mailed through Amazon.com, depending on participant preference. PLACES pediatricians will continue to be sent 2 surveys each year, including (1) the Annual Survey in the spring, which is nearly identical to the Annual Survey Year 1 so that trends can be tracked and individual changes can be examined over time, and (2) the Check Point Survey (short survey in the fall) to update contact information and ask a small set of targeted questions. A participant newsletter with data from previous surveys is included in the first mailing of each survey. Links to PLACES newsletters can be found at [www.2.aap.org/research/places.htm](http://www.2.aap.org/research/places.htm).

### Data Management and Analysis

Data collected through mailed, paper surveys were entered into an SPSS statistical data set (IBM SPSS Statistics, IBM Corporation, Armonk, NY), and ~10% of the data entered were checked by another researcher, with 99.99% accuracy. Data collected online via Qualtrics were downloaded to an SPSS data set and merged with the paper data set. Data checks and data-cleaning procedures were used to further ensure data quality.

Study nonresponse bias was assessed in 2 different ways. First, for a select number of variables (gender, age, AAP membership status, and geographic location) information was available about nonrespondents through the AAP administrative database. Respondents were directly compared with the target samples (random samples from target population) for

**TABLE 4** Work Characteristics of PLACES Pediatricians by Study Cohort, Year 1 (2012)

	2002–2004 Residency Graduates Cohort ( <i>N</i> = 901)		2009–2011 Residency Graduates Cohort <sup>a</sup> ( <i>N</i> = 903)	
	Unweighted	Weighted	Unweighted	Weighted
Direct patient care, % yes ( <i>n</i> )	98.2 (862)	97.9	98.2 (862)	98.2
Direct and/or consultative clinical care, <sup>b</sup> mean % ( <i>n</i> )				
Outpatient general pediatric care	49.6 (855)	46.5	39.3 (870)	36.0
Inpatient general pediatric care	8.7 (855)	8.1	15.9 (870)	14.0
Outpatient pediatric subspecialty/specialty care	16.4 (855)	18.2	12.0 (870)	13.1
Inpatient pediatric subspecialty/specialty care	14.1 (855)	15.5	18.1 (870)	21.5
Other	11.1 (855)	11.7	14.8 (870)	15.5
Employment status, <sup>b</sup> % ( <i>n</i> )				
Employee	73.3 (644)	73.2	88.1 (777)	88.1
Owner or part owner	19.2 (169)	18.8	3.3 (29)	2.8
Independent contractor	4.7 (41)	4.9	2.8 (25)	3.3
Other	2.7 (24)	3.1	5.8 (51)	5.8
Area of primary job, <sup>b</sup> % ( <i>n</i> )				
Suburban	38.9 (340)	36.0	28.2 (248)	26.0
Urban, not inner city	31.2 (272)	32.4	32.5 (285)	31.8
Urban, inner city	23.7 (207)	25.1	30.1 (264)	33.0
Rural	6.2 (54)	6.5	9.2 (81)	9.1
Work setting of primary job, <sup>b</sup> % ( <i>n</i> )				
Medical school or parent university	23.5 (206)	26.5	37.8 (333)	40.0
Pediatric group practice	24.6 (216)	21.8	19.7 (174)	17.6
Multispecialty group practice	12.2 (107)	12.3	6.6 (58)	6.7
Community or nonuniversity hospital or clinic	12.7 (111)	11.6	15.3 (135)	15.2
Solo or 2-physician practice	10.3 (90)	11.2	4.2 (37)	4.3
Managed care organization	3.9 (34)	3.8	1.9 (17)	1.6
Government hospital or clinic	4.0 (35)	3.3	6.3 (56)	6.8
Other	8.9 (78)	9.5	8.2 (72)	7.8

Weighted data presented includes percentage, mean, or median and the respective *n*; unweighted data presented includes percentage, mean, or median.

<sup>a</sup> Approximately one-third of the pediatricians in the 2009–2011 cohort were still in fellowship training in 2012.

<sup>b</sup>  $P < .05$  for  $\chi^2$  or analysis of variance tests to examine weighted data for differences between study cohorts (2002–2004 and 2009–2011).

those factors by using *t* tests or 1-sample proportion tests. Second, data on gender and medical school location were publicly available on the ABP Web site by residency class. Study respondents were compared with the ABP data for the graduation years corresponding to the PLACES cohorts by using 1-sample proportion tests.

We used descriptive statistics to present data on the demographic, training, and work characteristics of the PLACES pediatricians and  $\chi^2$  and analysis of variance tests to examine for differences in the data between study cohorts (2002–2004 cohort and 2009–2011 cohort). Weights were calculated on the basis of participant and nonparticipant characteristics as described in the Results section below.

### Human Protections

The AAP Institutional Review Board approved all research conducted for PLACES, including both the qualitative (eg, focus groups and cognitive interviews) and quantitative data collection. The institutional review board will continue to review the PLACES protocol and new versions of the Annual Survey and Check Point Survey each year. Protecting participant data and keeping it confidential and secure through tight control of data (eg, storage on password-protected computers in password-protected files or in locked file cabinets with limited access) is of the highest priority in a longitudinal study. To further enhance the protection of participant data, we sought and received a Certificate of

Confidentiality for PLACES from the US Department of Health and Human Services Health Resources and Services Administration.

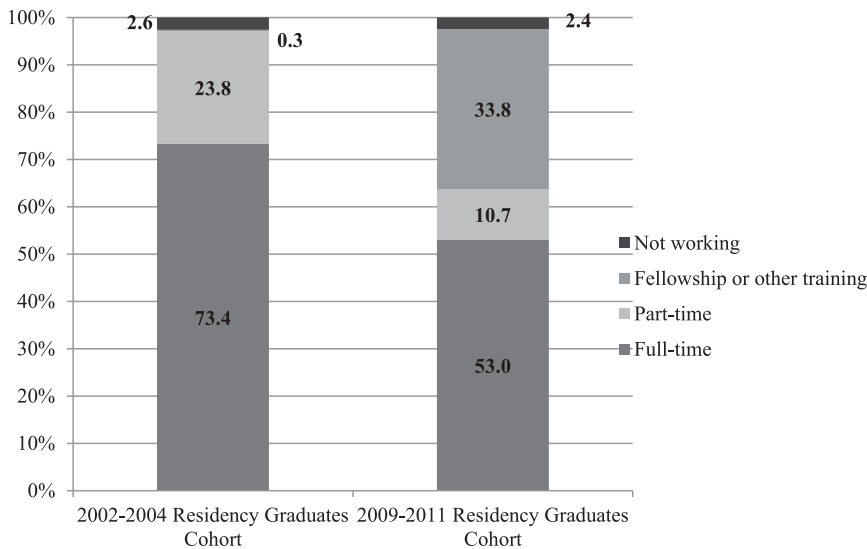
## RESULTS

### Participation and Nonresponse Bias

Overall, 41.2% of those pediatricians randomly selected to participate in PLACES indicated positive interest in the study by completing intake surveys; of this group, 1804 (93.7%) completed the first Annual Survey and were considered enrolled in PLACES. Further details on enrollment at each stage, by cohort, are provided in Fig 2. The pediatricians who indicated positive interest in PLACES by completing stage 1 (responded to initial intake survey) but who did not complete the Annual Survey (stage 2) are not considered PLACES participants and will not be sent additional surveys. Most of the pediatricians graduated from residency during the targeted cohort years (2002–2004 and 2009–2011); 8.7% and 6.0%, respectively, were outside the target years but were included because they met secondary inclusion criteria by being within 1 year of the target residency graduation year and/or matching the typical age of the group (37–41 and 30–34 years, respectively).

### Weighting of the Sample

Compared with the target populations, study participants were found to be significantly more likely to be female, AAP members, and graduates of US medical schools (see Tables 1 and 2). Two types of weights were calculated and combined<sup>59</sup>: (1) nonresponse weight to adjust for differences between respondents and the target sample for gender and AAP membership status and (2) poststratification weight to adjust for differences between medical school location of participants and general information on pediatricians (ABP data).



**FIGURE 3**  
Current work status of PLACES pediatricians in 2012. *N* = 1804.

### Characteristics of PLACES Pediatricians

Most PLACES pediatricians reported a preference to complete study surveys online each year (68% of the 2002–2004 cohort and 78% of the 2009–2011 cohort); almost one-third (32%) of the 2002–2004 cohort and 22% of the 2009–2011 cohort said they preferred to complete surveys on paper ( $P < .001$ ). Personal, training, and current work characteristics of the 1804 PLACES pediatricians are presented in Tables 3 and 4 by study cohort, including both unweighted and weighted data.

#### Personal Characteristics

The majority of PLACES pediatricians in both cohorts are women, married/partnered, and have children. The 2002–2004 cohort pediatricians are more likely than the 2009–2011 cohort to be white, married, a parent, and proficient in a language other than English ( $P < .05$  for all comparisons). The 2009–2011 cohort are more likely to be women (70% vs 60%;  $P < .001$ ).

#### Training Characteristics

As shown in Table 3, several differences in the training characteristics of PLACES

pediatricians were found between the 2 cohorts. Because pediatricians in the 2009–2011 cohort have been out of residency for less time, fewer are board-certified in pediatrics and subspecialties. Approximately one-third of the pediatricians in the 2009–2011 cohort were still in fellowship training in 2012.

#### Work Characteristics

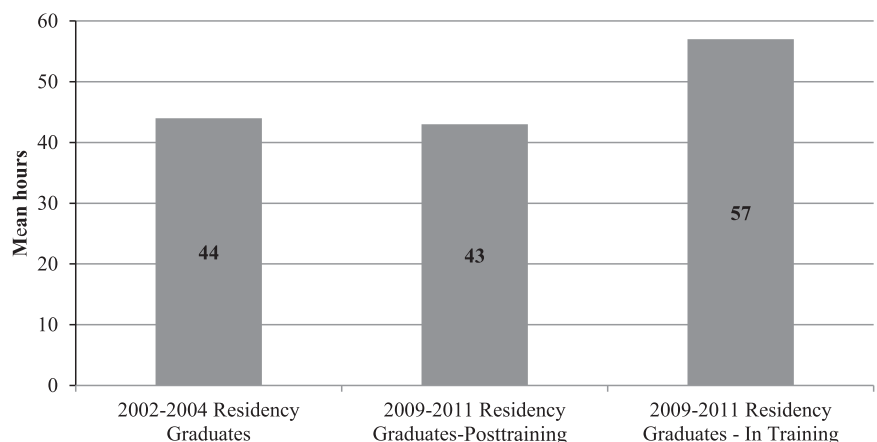
Almost one-quarter (24%) of the pediatricians in the 2002–2004 cohort and 11% of those in the 2009–2011 cohort are working part-time ( $P < .001$ ; Fig 3). When

pediatricians still in fellowship training are excluded, 17% of pediatricians in the 2009–2011 cohort are working part-time. Although the posttraining pediatricians in both cohorts work a mean of 43 hours (excluding time on call when not actively working), pediatricians in the 2009–2011 cohort who are currently in fellowship training report working a mean of 57 hours in a typical week (Fig 4).

Nearly all PLACES pediatricians provide at least some direct patient care (98% in both cohorts), and the mean reported percentage of time spent in general pediatric care represents approximately half of that time (54.6% for the 2002–2004 cohort and 50.0% for the 2009–2011 cohort) (Table 4). Most pediatricians are working as employees, including 73% of those in the 2002–2004 cohort and 88% of those in the 2009–2011 cohort ( $P < .001$ ).

### DISCUSSION

We successfully developed and initiated a national longitudinal study of US early-career pediatricians in both general and subspecialty pediatrics. We believe the valuable information that we gather will inform AAP program development and strategic planning and provide for the field of pediatrics



**FIGURE 4**  
Number of hours worked per week in a typical week in 2012 by the PLACES cohort. *N* = 1693.



an overall understanding of the experiences and expectations of pediatricians early in and across their careers. With longitudinal data, we will be able to examine individual changes over time and learn about career and life choices and transitions, which may be applicable to other physician specialties. We believe the qualitative research conducted with early-career pediatricians to obtain feedback on the study importance, design, and content was extremely valuable and helped to inform many key study decisions. We think that making surveys easy to complete (eg, online and ability to pause and restart surveys), providing reminders to complete surveys, providing the option of online or paper surveys, and keeping the time commitment per year to <1 hour were key to the successful initiation of the project. We place great importance on feeding back data to PLACES participants; each time we ask them to complete a new survey, we will continue to share data with participants.

There are limitations to the current study, including that all data are self-reported. Our initial project sign-up rate of 41% is lower than typical AAP cross-sectional surveys,<sup>60</sup> but efforts were made to account for nonresponse bias via our data-weighting procedure. In addition, a 41% sign-up rate is similar to or higher than other longitudinal, cohort, or panel studies.<sup>33–35,61,62</sup>

## CONCLUSIONS

To our knowledge, this is the first national, longitudinal study that will follow early-career pediatricians prospectively to examine trends in both professional (work and practice characteristics, career choice, satisfaction, and work-life balance) and personal (health, financial, continuing education, and life changes) facets of their lives. PLACES will provide important data for years to come that will inform the field of pediatrics. The longitudinal data will

provide a vehicle to monitor key trends in pediatrics identified by the Vision of Pediatrics Task Force, such as workforce issues and work-life balance, and will allow us to examine career and life choices and transitions experienced by pediatricians, including generalists and subspecialists, across their careers.

## ACKNOWLEDGMENTS

We thank the pediatricians participating in PLACES who are giving generously of their time to make this project possible. We also thank Dr Ken Slaw, PhD, and Ms Julie Raymond for their support and help, especially in the recruitment of pediatricians, and Ms Elizabeth Schott, MA, for her commitment to PLACES and assistance with recruitment and data collection.

## ABBREVIATIONS

AAP: American Academy of Pediatrics

ABP: American Board of Pediatrics

PLACES: Pediatrician Life and Career Experience Study

## REFERENCES

1. American Academy of Pediatrics. Task Force on Vision of Pediatrics 2020. Available at: <http://www2.aap.org/visionofpeds/>. Accessed June 14, 2013
2. Starmer AJ, Duby JC, Slaw KM, Edwards A, Leslie LK; Members of Vision of Pediatrics 2020 Task Force. Pediatrics in the year 2020 and beyond: preparing for plausible futures. *Pediatrics*. 2010; 126(5):971–981
3. American Academy of Pediatrics, Department of Research. Periodic Survey of Fellows: pediatricians' practice and personal characteristics: US only, 2013. Available at: [www.aap.org/en-us/professional-resources/Research/pediatrician-surveys/Pages/Personal-and-Practice-Characteristics-of-Pediatricians-US-only-2010.aspx](http://www.aap.org/en-us/professional-resources/Research/pediatrician-surveys/Pages/Personal-and-Practice-Characteristics-of-Pediatricians-US-only-2010.aspx). Accessed January 23, 2012
4. American Academy of Pediatrics, Department of Research. Annual

Survey of Graduating Residents. Available at: [www.aap.org/en-us/professional-resources/Research/pediatrician-surveys/Pages/Annual-Survey-of-Graduating-Residents.aspx](http://www.aap.org/en-us/professional-resources/Research/pediatrician-surveys/Pages/Annual-Survey-of-Graduating-Residents.aspx). Accessed January 23, 2012

5. American Board of Pediatrics. Workforce data 2013-2014. Available at: <https://www.abp.org/sites/abp/files/pdf/workforcebook.pdf>. Accessed December 3, 2014
6. Frintner MP, Cull WL. Pediatric training and career intentions, 2003–2009. *Pediatrics*. 2012;129(3):522–528
7. Freed GL, Dunham KM, Gebremariam A, Wheeler JRC. Which pediatricians are providing care to America's children? An update on the trends and changes during the past 26 years. *J Pediatr*. 2010; 157(1):148–152, e141
8. Freed GL, Dunham KM; Research Advisory Committee of the American Board of Pediatrics. Characteristics of pediatric hospital medicine fellowships and training programs. *J Hosp Med*. 2009;4(3):157–163
9. Freed GL, Dunham KM, Switalski KE, Jones MD Jr, McGuinness GA; Research Advisory Committee of the American Board of Pediatrics. Pediatric fellows: perspectives on training and future scope of practice. *Pediatrics*. 2009;123(1 suppl 1):S31–S37
10. Freed GL, Dunham KM, Switalski KE, Jones MD Jr, McGuinness GA; Research Advisory Committee of the American Board of Pediatrics. Recently trained pediatric subspecialists: perspectives on training and scope of practice. *Pediatrics*. 2009;123(1 suppl 1):S44–S49
11. Freed GL, Dunham KM, Switalski KE, Jones MD Jr, McGuinness GA; Research Advisory Committee of the American Board of Pediatrics. Recently trained general pediatricians: perspectives on residency training and scope of practice. *Pediatrics*. 2009;123(1 suppl 1):S38–S43
12. Freed GL, Dunham KM; Research Advisory Committee of the American Board of Pediatrics. Pediatric hospitalists: training, current practice, and career goals. *J Hosp Med*. 2009;4(3):179–186
13. Mechaber HF, Levine RB, Manwell LB, et al; MEMO Investigators. Part-time physicians...prevalent, connected, and satisfied. *J Gen Intern Med*. 2008;23(3): 300–303

14. Britto MT, Fuentes-Afflick E, Sectish TC, Stanton B. Federation of Pediatric Organizations Task Force on Women in Pediatrics II: survey of active members of the Society for Pediatric Research regarding part-time and flexible work. *J Pediatr*. 2009;155(4):459–460, e451
15. Merline AC, Cull WL, Mulvey HJ, Katcher AL. Patterns of work and retirement among pediatricians aged  $\geq 50$  years. *Pediatrics*. 2010;125(1):158–164
16. Levine RB, Harrison RA, Mechaber HF, Phillips C, Gallagher TH. Professional characteristics and job satisfaction among SGIM members: a comparison of part-time and full-time physician members. *J Gen Intern Med*. 2008;23(8):1218–1221
17. Cull WL, O'Connor KG, Olson LM. Part-time work among pediatricians expands. *Pediatrics*. 2010;125(1):152–157
18. Freed GL, Nahra TA, Wheeler JRC. Which physicians are providing health care to America's children? Trends and changes during the past 20 years. *Arch Pediatr Adolesc Med*. 2004;158(1):22–26
19. Shugerman R, Linzer M, Nelson K, Douglas J, Williams R, Konrad R; Career Satisfaction Study Group. Pediatric generalists and subspecialists: determinants of career satisfaction. *Pediatrics*. 2001;108(3). Available at: [www.pediatrics.org/cgi/content/full/108/3/e40](http://www.pediatrics.org/cgi/content/full/108/3/e40)
20. Pletcher BA, Rimsza ME, Cull WL, Shipman SA, Shugerman RP, O'Connor KG. Primary care pediatricians' satisfaction with subspecialty care, perceived supply, and barriers to care. *J Pediatr*. 2010;156(6):1011–1015, e1011
21. Shanafelt TD, Boone S, Tan L, et al. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Arch Intern Med*. 2012;172(18):1377–1385
22. Frank E, McMurray JE, Linzer M, Elon L; Society of General Internal Medicine Career Satisfaction Study Group. Career satisfaction of US women physicians: results from the Women Physicians' Health Study. *Arch Intern Med*. 1999;159(13):1417–1426
23. McMurray JE, Linzer M, Konrad TR, Douglas J, Shugerman R, Nelson K; The SGIM Career Satisfaction Study Group. The work lives of women physicians results from the physician work life study. *J Gen Intern Med*. 2000;15(6):372–380
24. Linzer M, Baier Manwell L, Mundt M, et al. Organizational climate, stress, and error in primary care: the MEMO study. In: Henriksen K, Battles JB, Marks ES, Lewin DI, eds: *Advances in Patient Safety: From Research to Implementation*. Vol. 1. Rockville, MD: Agency for Healthcare Research and Quality; 2005:65–77. AHRQ Publication 050021
25. Keeton K, Fenner DE, Johnson TR, Hayward RA. Predictors of physician career satisfaction, work-life balance, and burnout. *Obstet Gynecol*. 2007;109(4):949–955
26. Dyrbye LN, Varkey P, Boone SL, Satele DV, Sloan JA, Shanafelt TD. Physician satisfaction and burnout at different career stages. *Mayo Clin Proc*. 2013;88(12):1358–1367
27. American Academy of Pediatrics. Periodic Survey of Fellows. Additional characteristics of pediatricians: comparisons across time. 2013. Available at: [www.aap.org/en-us/professional-resources/Research/Pages/PS43\\_Additional\\_Characteristics\\_of\\_Pediatricians.aspx](http://www.aap.org/en-us/professional-resources/Research/Pages/PS43_Additional_Characteristics_of_Pediatricians.aspx). Accessed December 11, 2013
28. Frintner MP, Mulvey HJ, Pletcher BA, Olson LM. Pediatric resident debt and career intentions. *Pediatrics*. 2013;131(2):312–318
29. Olson L, O'Connor K, Merline A, Cull W. Trends in hours worked in general pediatrics 1993–2010: age, gender and practice type. Presented at: Pediatric Academic Societies Meeting; April 2012; Boston, MA. Available at: [www.aap.org/en-us/professional-resources/Research/research-findings/Pages/Trends-in-Hours-Worked-in-General-Pediatrics-1993-to-2010-Age-Gender-and-Practice-Type.aspx](http://www.aap.org/en-us/professional-resources/Research/research-findings/Pages/Trends-in-Hours-Worked-in-General-Pediatrics-1993-to-2010-Age-Gender-and-Practice-Type.aspx). Accessed May 22, 2015
30. Diggle PJ, Heagerty P, Liang K, Zeger S. *Analysis of Longitudinal Data*. 2nd ed. Oxford, United Kingdom: Oxford University Press; 2002
31. Singer JD, Willett JB. *Applied Longitudinal Data Analysis*. New York, NY: Oxford University Press; 2003
32. American Board of Emergency Medicine. Longitudinal Study of Emergency Physicians. 2011. Available at: [https://www.abem.org/public/research-and-statistics/longitudinal-study-of-emergency-physicians-\(lsep\)](https://www.abem.org/public/research-and-statistics/longitudinal-study-of-emergency-physicians-(lsep)). Accessed December 11, 2013
33. Cydulka RK, Korte R. Career satisfaction in emergency medicine: the ABEM Longitudinal Study of Emergency Physicians. *Ann Emerg Med*. 2008;51(6):714–722, e711
34. Reinhart MA, Munger BS, Rund DA. American Board of Emergency Medicine Longitudinal Study of Emergency Physicians. *Ann Emerg Med*. 1999;33(1):22–32
35. Joyce CM, Scott A, Jeon SH, et al. The “Medicine in Australia: Balancing Employment and Life (MABEL)” longitudinal survey—protocol and baseline data for a prospective cohort study of Australian doctors' workforce participation. *BMC Health Serv Res*. 2010; doi: 10.1186/1472-6963-10-50
36. The University of Melbourne. Medicine in Australia: Balancing Employment and Life (MABEL). Available at: <https://mabel.org.au/>. Accessed August 31, 2011
37. Leslie LK, Slaw KM, Edwards A, Starmer AJ, Duby JC; Members of Vision of Pediatrics 2020 Task Force. Peering into the future: pediatrics in a changing world. *Pediatrics*. 2010;126(5):982–988
38. Hojat M, Nasca TJ, Erdmann JB, Frisby AJ, Veloski JJ, Gonnella JS. An operational measure of physician lifelong learning: its development, components and preliminary psychometric data. *Med Teach*. 2003;25(4):433–437
39. Centers for Disease Control and Prevention. 2011 National Health Interview Survey Questionnaire—adult health behaviors. Document version date: May 30, 2012. Available at: [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Survey\\_Questionnaires/NHIS/2011/English/qadult.pdf](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Survey_Questionnaires/NHIS/2011/English/qadult.pdf). Accessed May 31, 2013
40. Shrestha D, Joyce CM. Aspects of work-life balance of Australian general practitioners: determinants and possible consequences. *Aust J Prim Health*. 2011;17(1):40–47
41. Clem KJ, Promes SB, Glickman SW, et al. Factors enhancing career satisfaction among female emergency physicians. *Ann Emerg Med*. 2008;51(6):723–728, e728
42. Schoen C, Osborn R, Doty MM, Squires D, Peugh J, Applebaum S. A survey of primary care physicians in eleven countries, 2009: perspectives on care,

- costs, and experiences. *Health Aff (Millwood)*. 2009;28(6):w1171–w1183
43. DeVoe J, Fryer GE Jr, Hargraves JL, Phillips RL, Green LA. Does career dissatisfaction affect the ability of family physicians to deliver high-quality patient care? *J Fam Pract*. 2002;51(3):223–228
  44. Kravitz RL, Leigh JP, Samuels SJ, Schembri M, Gilbert WM. Tracking career satisfaction and perceptions of quality among US obstetricians and gynecologists. *Obstet Gynecol*. 2003; 102(3):463–470
  45. Institute for Social Research, Survey Research Center, University of Michigan. Panel Study of Income Dynamics. Available at: <http://psidonline.isr.umich.edu/>. Accessed May 31, 2013
  46. Linzer M, Konrad TR, Douglas J, et al. Managed care, time pressure, and physician job satisfaction: results from the physician worklife study. *J Gen Intern Med*. 2000;15(7):441–450
  47. Linzer M, Gerrity M, Douglas JA, McMurray JE, Williams ES, Konrad TR. Physician stress: results from the Physician Worklife Study. *Stress Health*. 2002;18(1):37–42
  48. National Center for Health Statistics. Health Indicators Warehouse. Sufficient sleep: adults. Available at: [www.healthindicators.gov/Indicators/SufficientSleepAmongAdults\\_1472/Profile/Data](http://www.healthindicators.gov/Indicators/SufficientSleepAmongAdults_1472/Profile/Data). Accessed January 19, 2013
  49. Williams ES, Konrad TR, Linzer M, et al; SGIM Career Satisfaction Study Group. Physician, practice, and patient characteristics related to primary care physician physical and mental health: results from the Physician Worklife Study. *Health Serv Res*. 2002;37(1): 121–143
  50. American Board of Pediatrics. Maintenance of certification application survey. 2013. Available at: <https://www.abp.org/>. Accessed July 11, 2013
  51. Centers for Disease Control and Prevention. Ambulatory Health Care Data: National Ambulatory Medical Care Survey. Available at: [www.cdc.gov/nchs/dhcs/dhcs\\_surveys.htm](http://www.cdc.gov/nchs/dhcs/dhcs_surveys.htm). Accessed July 11, 2011
  52. Boukus E, Cassil A, O'Malley AS. A snapshot of U.S. physicians: key findings from the 2008 Health Tracking Physician Survey. *Data Bull (Cent Stud Health Syst Change)*. 2009;(35):1–11
  53. Hojat M, Veloski JJ, Gonnella JS. Measurement and correlates of physicians' lifelong learning. *Acad Med*. 2009;84(8):1066–1074
  54. Williams ES, Konrad TR, Linzer M, et al; Society of General Internal Medicine Career Satisfaction Study Group. Refining the measurement of physician job satisfaction: results from the Physician Worklife Survey. *Med Care*. 1999;37(11):1140–1154
  55. Wetterneck TB, Linzer M, McMurray JE, et al; Society of General Internal Medicine Career Satisfaction Study Group. Worklife and satisfaction of general internists. *Arch Intern Med*. 2002;162(6):649–656
  56. Glymour MM, Saha S, Bigby J; Society of General Internal Medicine Career Satisfaction Study Group. Physician race and ethnicity, professional satisfaction, and work-related stress: results from the Physician Worklife Study. *J Natl Med Assoc*. 2004;96(10): 1283–1289, 1294
  57. Hinami K, Whelan CT, Wolosin RJ, Miller JA, Wetterneck TB. Worklife and satisfaction of hospitalists: toward flourishing careers. *J Gen Intern Med*. 2012;27(1):28–36
  58. Center for Studying Health System Change. Community Tracking Study Physician Survey. Available at: [www.hschange.org](http://www.hschange.org). Accessed July 11, 2013
  59. Groves R, Fowler F, Couper M, Lepkowski J, Singer E, Tourangeau R. *Survey Methodology*. 2nd ed. Hoboken, NJ: John Wiley and Sons; 2009
  60. Cull WL, O'Connor KG, Sharp S, Tang SF. Response rates and response bias for 50 surveys of pediatricians. *Health Serv Res*. 2005;40(1):213–226
  61. Crane LA, Daley MF, Barrow J, et al. Sentinel physician networks as a technique for rapid immunization policy surveys. *Eval Health Prof*. 2008; 31(1):43–64
  62. Rund DA, Munger BS, Reinhart MA. Longitudinal study of emergency physicians by the American Board of Emergency Medicine: 1995 interim survey results. *Ann Emerg Med*. 1997; 29(5):617–620

**A Longitudinal Study of Pediatricians Early in Their Careers: PLACES**  
Mary Pat Frintner, William L. Cull, Bobbi J. Byrne, Gary L. Freed, Shesha K. Katakam, Laurel K. Leslie, Ashley A. Miller, Amy J. Starmer and Lynn M. Olson  
*Pediatrics* 2015;136;370; originally published online July 27, 2015;  
DOI: 10.1542/peds.2014-3972

<b>Updated Information &amp; Services</b>	including high resolution figures, can be found at: <a href="/content/136/2/370.full.html">/content/136/2/370.full.html</a>
<b>References</b>	This article cites 39 articles, 12 of which can be accessed free at: <a href="/content/136/2/370.full.html#ref-list-1">/content/136/2/370.full.html#ref-list-1</a>
<b>Citations</b>	This article has been cited by 6 HighWire-hosted articles: <a href="/content/136/2/370.full.html#related-urls">/content/136/2/370.full.html#related-urls</a>
<b>Subspecialty Collections</b>	This article, along with others on similar topics, appears in the following collection(s): <b>Medical Education</b> <a href="/cgi/collection/medical_education_sub">/cgi/collection/medical_education_sub</a> <b>Career Development</b> <a href="/cgi/collection/career_development_sub">/cgi/collection/career_development_sub</a> <b>Workforce</b> <a href="/cgi/collection/workforce_sub">/cgi/collection/workforce_sub</a>
<b>Permissions &amp; Licensing</b>	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: <a href="/site/misc/Permissions.xhtml">/site/misc/Permissions.xhtml</a>
<b>Reprints</b>	Information about ordering reprints can be found online: <a href="/site/misc/reprints.xhtml">/site/misc/reprints.xhtml</a>

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2015 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



# PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

**A Longitudinal Study of Pediatricians Early in Their Careers: PLACES**  
Mary Pat Frintner, William L. Cull, Bobbi J. Byrne, Gary L. Freed, Shesha K.  
Katakam, Laurel K. Leslie, Ashley A. Miller, Amy J. Starmer and Lynn M. Olson  
*Pediatrics* 2015;136;370; originally published online July 27, 2015;  
DOI: 10.1542/peds.2014-3972

The online version of this article, along with updated information and services, is  
located on the World Wide Web at:  
</content/136/2/370.full.html>

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2015 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

