Research in Pediatric Residency: National Experience of Pediatric Chief Residents

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ABSTRACT

OBJECTIVE: To determine factors associated with increased research productivity, satisfaction, and perceived barriers to research within residency from the experience of pediatric chief residents.

METHODS: An online cross-sectional survey was administered to academic year 2014–15 chief residents. Topics assessed included program demographic characteristics, career intentions, research productivity, satisfaction with research training and opportunities, and research barriers. Chi-square and Fisher exact tests were used for descriptive statistics. Multivariable logistic regression analysis was used to determine factors associated with productivity and research satisfaction.

RESULTS: The response rate was 63% (165 of 261). Half (82 of 165) were productive in research. Most were satisfied with their quality of research training (55%; 90 of 165) and research opportunities (69%; 114 of 165). Chiefs reporting interest in research were 5 times more likely to be productive than those who did not (odds ratio [OR] = 5.2; 95% confidence interval [CI], 2.3–11.8). Productive chiefs were more likely to report including research time in future careers ($P = .003$). Most (83%; 137 of 165) thought their programs were supportive of resident research, but lack of time was frequently cited as a major barrier. Those satisfied with research opportunities were less likely to find lack of training (OR = 0.3; 95% CI, 0.1–0.7) or faculty mentorship (OR = 0.2; 95% CI, 0.0–0.9) as a major barrier.

CONCLUSIONS: Pediatric chief resident interest in research is strongly associated with research productivity during residency, and research productivity is strongly associated with career plans including research time. By cultivating research interest through faculty mentorship, research training, and dedicated time, pediatric residency programs might help foster early research success and, potentially lead to continued engagement with research in trainees' future careers.

KEYWORDS: chief residents; medical education; pediatrics; research

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WHAT'S NEW

Pediatric chief residents who were interested in research were 5 times more likely to be productive. Productivity was associated with incorporating research into career plans. Research training, faculty mentorship, and scholarly activity requirements were associated with satisfaction with research opportunities.

CHILD HEALTH RESEARCH is critical for the advancement of pediatric medicine.[1,2] We are facing a shortage of clinician-researchers.[3] To bridge this gap, we need to find ways to encourage early physicians to incorporate research in their future careers. Previous studies have shown that research experiences not only improve the ability to do research, but also positively influence decisions to be involved in research careers.[4–6] Pediatric residency is an ideal setting for exposure to research experiences. Scholarly activity during residency is an Accreditation Council for Graduate Medical Education (ACGME) requirement for all residents and residency programs are required to allocate adequate resources to facilitate resident involvement in scholarly activity.[7] There is limited literature on the implementation of research curricula, tracks, and rotations to help support trainees with research. However, few data exist nationally on the resident experience of research.[8–11]

We performed a national survey of pediatric chief residents (CR) to understand their experiences with research during their residencies. Our specific aims were: 1) to determine factors associated with increased research productivity; 2) to determine factors associated with increased satisfaction with the quality of research training and research opportunities; and 3) to determine barriers to research faced during residency.

Table 1. Demographic Characteristics of Respondents' Programs

Variable	Total Respondents (N = 137), n (%)*	All ACGME-Accredited Pediatric Residency Programs (N = 199), n (%)	*P*
Program size			.49
Small (≤30 residents)	41 (29.9)	72 (36.2)	
Medium (31–60 residents)	60 (43.7)	80 (40.2)	
Large (>60 residents)	36 (26.3)	47 (23.6)	
Program location			.89
Northeast (Maine, NH, Mass, Conn, Vt, RI, Pa, NY, NJ)	38 (27.7)	58 (29.1)	
Midwest (Wis, Mich, Ill, Ind, Ohio, Mo, ND, SD, Neb, Minn, Iowa)	36 (26.3)	45 (22.6)	
South (Texas, Okla, La, Ark, Miss, Ala, Tenn, Ky, WVa, Va, NC, SC, Ga, Fla, Md, Del, DC, Puerto Rico)	46 (33.6)	69 (34.7)	
West (Idaho, Mont, Utah, Ariz, Wyo, Colo, NM, Calif, Nev, Ore, Wash, Hawaii, Alaska)	17 (12.4)	27 (13.6)	

*Only 1 respondent per program was included in program demographic analysis.

METHODS

SURVEY ADMINISTRATION

We performed a national cross-sectional Web-based survey of pediatric CR. CR in ACGME-accredited pediatric residency programs were e-mailed an online survey link and recruitment letter in February 2015, followed by 2 reminders. Three gift cards were randomly raffled off as incentives. The institutional review board at Indiana University approved this study.

SURVEY CONTENT

The survey was adapted from a national assessment of pediatric residency program directors.[12] Both terms, "scholarly activity" and "research" were used in this survey. When asked if there was a scholarly activity requirement in their programs, respondents were asked to define what qualified as scholarly activity. In all other instances, the words were interchangeable, and thus we only use the term "research" throughout the remainder of this report. Topics assessed included program size (small: ≤30; medium: 31–60; large: >60), program location (Northeast, Midwest, South, West), career intentions, research participation, productivity (publication or presentation at national meeting), satisfaction with research training and opportunities, and barriers to research. We confirmed program-related characteristics, such as size and location, using Fellowship and Residency Electronic Interactive Database Access System (the American Medical Association's online residency and fellowship database).

MEASURES

Research productivity was defined as manuscript publication or abstract presentation at a national conference, including those accepted but not yet published or presented. We used a 7-point Likert scale to evaluate satisfaction and interest, with "1" indicating not at all satisfied/interested, "4" indicating somewhat satisfied/interested, and "7" indicating completely satisfied/interested. We defined "satisfied" and "interested" as a 5, 6, or 7 on the scale.

ANALYSIS

We analyzed program demographic characteristics using standard summary statistics. Only 1 respondent per program was included in the program demographic analysis. We used chi-square testing and Fisher exact test to evaluate the association between categorical variables. We used multivariable logistic regression adjusting for program size and region to determine factors associated with productivity and satisfaction with research opportunities and training. Factors that were evaluated and controlled for in the model included research time in residency (<8 weeks and ≥8 weeks), research interest, scholarly activities requirement, perceived barriers related to lack of research training, mentorship, and funding to conduct research. We summarized results using odds ratios (ORs) and 95% confidence intervals (CIs). Analyses were performed using SPSS version 23.0 (IBM Corp, Armonk, NY).

RESULTS

RESPONSE RATE

A total of 165 CR completed the survey, representing 70% (139 of 199) of all ACGME-accredited pediatric programs. Three programs did not have CR and 8 did not have accurate contact information publicly available. Twenty-two programs had 2 CR complete the survey and 2 had 3 CR complete the survey. Some CR had a group e-mail. The response rate per e-mail address contacted was 63% (165 of 261).

PARTICIPANT AND PROGRAM DEMOGRAPHIC CHARACTERISTICS

Respondents were representative of all CR in terms of program size and location (Table 1). Almost all (98%; n = 162) completed their residency training at the same program where they were currently CR. Nearly a third (31%; n = 51) believed they were equally interested in research compared with their coresidents, whereas just over a third (39%; n = 65) believed they were more interested. Eight percent (n = 13) were part of a special research track during residency. Most (84%; n = 140) reported that scholarly activity was a program requirement.

Half (51%; n = 84) intended to pursue a fellowship, and 61% (n = 101) intended to pursue an academic medicine career. Eighty-five percent (n = 140) expected to devote