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Pediatric Subspecialty Fellowship Clinical Training Project: Current Fellows

Gary L. Freed, Kelly M. Dunham, Lauren M. Moran, Laura Spera, Gail A. McGuinness and David K. Stevenson

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abstract

BACKGROUND: The American Board of Pediatrics certifies physicians in general pediatrics and 14 pediatric subspecialties. Historically, all subspecialties have a standard pathway of training that is 3 years in duration to ensure time for both clinical and scholarly training and experience. In 2004, the American Board of Pediatrics expanded the scope for scholarly activity in fellowship training to include the assignment of each fellow to a Scholarship Oversight Committee and the completion of a scholarly activities core curriculum across subspecialties.

METHODS: We conducted a national survey of all current fellows in 13 pediatric subspecialties who took the subspecialty in-training examination ($N = 3551$). Overall, 86% of all pediatric fellows in the United States sit for the examination.

RESULTS: The majority (65%; $N = 2178$) believe the minimum 12-month expectation for clinical training is appropriate for their specific subspecialty. The majority of fellows (59%; $N = 1984$) do not agree that the amount of scholarly activity should be the same for all fellows in their respective subspecialties regardless of career path (ie, primarily clinical versus primarily research). Half (50%; $N = 1661$) posited that the required duration of training, regardless of career path, should remain at 3 years.

CONCLUSIONS: Balancing the components of subspecialty training is an important and probably never-ending quest. As changes in the health care system and care delivery organization continue, what we expect and need from our subspecialists, from the perspectives of the profession, the health care delivery system, and the public, will probably vary over time. *Pediatrics* 2014;133:S58–S63

AUTHORS: Gary L. Freed, MD, MPH,[a,b,c] Kelly M. Dunham, MPP,[a,b] Lauren M. Moran, BA,[a,b] Laura Spera, MS, MCS,[a,b] Gail A. McGuinness, MD,[d] and David K. Stevenson, MD,[e] on behalf of The Research Advisory Committee of the American Board of Pediatrics

[a]Child Health Evaluation and Research (CHEAR) Unit, [b]Division of General Pediatrics, Department of Pediatrics and Communicable Diseases, and [c]Department of Health Management and Policy, School of Public Health, University of Michigan, Ann Arbor, Michigan; [d]The American Board of Pediatrics, Chapel Hill, North Carolina; and [e]Department of Pediatrics, Stanford University School of Medicine, Palo Alto, California

KEY WORDS

fellowship, training, subspecialty, education

ABBREVIATIONS

ABP—American Board of Pediatrics
NIH—National Institutes of Health
RRC—Residency Review Committee
SOC—Scholarship Oversight Committee
SITE—Subspecialty In-Training Exam

Dr Freed conceptualized and designed the study and critically reviewed and revised the manuscript; Ms Dunham designed the data collection instrument, coordinated and supervised data collection, and drafted the initial manuscript; Ms Moran conducted data collection and tracking, coded the responses, and reviewed and revised the manuscript; Ms Spera carried out the analyses and reviewed and revised the manuscript; Dr McGuinness reviewed and revised the data collection instrument and critically reviewed the manuscript; Dr Stevenson reviewed and interpreted the data and critically reviewed the manuscript; and all authors approved the final manuscript as submitted.

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Address correspondence to Gary L. Freed, MD, MPH, University of Michigan Child Health Evaluation and Research (CHEAR) Unit, 300 North Ingalls Building, Room 6D18, Ann Arbor, MI 48109-0456. E-mail: gfreed@med.umich.edu

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The American Board of Pediatrics (ABP) certifies physicians in general pediatrics and 14 pediatric subspecialties. Historically, all subspecialties have a standard pathway of training that is 3 years in duration to ensure time for both clinical and scholarly training and experience.[1] The components of that training are established by the Residency Review Committee (RRC) of the Accreditation Council of Graduate Medical Education.[2] The RRC reviews, and has the authority to accredit, training programs. There are standard requirements set by the RRC for all subspecialties; these include at least 12 months of clinical training and the recommendation for 12 months to be devoted to scholarly activity. The remaining months are left primarily to the discretion of the program director. At the conclusion of training, the ABP, based on the recommendation of the fellowship program directors and documentation of completion of all components of training, determines whether a candidate is eligible to sit for his or her subspecialty certification examination.

In 2004, the ABP expanded the scope for scholarly activity in fellowship training to include the assignment of each fellow to a Scholarship Oversight Committee (SOC) and the completion of a scholarly activities core curriculum across subspecialties.[3] The goal of the changes was to increase the flexibility in options for scholarly activity that would more completely encompass the diverse roles subspecialists are playing in academic settings. No similar changes to clinical requirements have occurred.

In 2011, the ABP impaneled a task force to examine the components of fellowship training, with a specific focus on clinical training. As part of that process, studies were conducted to assess the perspective of current fellows regarding their training. This article presents results from fellows across all pediatric subspecialties and year of training. Results for specific subspecialties are found elsewhere in this supplement.

METHODS

Sample

The ABP maintains a database of all current pediatric fellows in the United States and Canada. To assess pediatric fellow perspectives on fellowship training structure, we studied all current fellows in 13 pediatric subspecialties (adolescent medicine, cardiology, critical care, developmental–behavioral, emergency medicine, endocrinology, gastroenterology, hematology–oncology, infectious disease, neonatal–perinatal medicine, nephrology, pulmonology, and rheumatology) in March 2012.

Survey Instrument

In collaboration with the ABP Research Advisory Committee, we developed a structured questionnaire with 23 fixed-choice items designed to be completed in ≤10 minutes. The survey focused on current fellow perspectives regarding the current landscape of fellowship training.

Questionnaire Administration

Each year in March, the ABP administers the Pediatric Subspecialty In-Training Examination to all current pediatric fellows in the United States and Canada. The survey was administered to 3351 pediatric fellows as part of the 2012 Subspecialty In-Training Exam (SITE). Child abuse pediatrics was not included because it is a new subspecialty and does not yet have an in-training examination.

Data Analysis

Frequency distributions were calculated for all survey items. Next, comparisons were made between third-year fellows and all other fellows. χ^2 statistics were used to determine whether the differences observed were above or beyond chance.

RESULTS

Response Rate

The survey participation rate was 100% ($N = 3551$) among those taking the SITE. However, the overall participation rate among all fellows for the SITE was 86% (Table 1) Thus, 86% of all current fellows completed the survey.

Respondent Demographics

The majority of respondents were female (63%, $N = 2103$), and graduates of US or Canadian medical schools (69%, $N = 2327$). Approximately one-third of respondents were in training level 1 (35%, $N = 1160$), 2 (34%, $N = 1122$), or 3 (30%, $N = 989$), 1% ($N = 30$) were in level 4, and 0% ($N = 1$) were in training level 5.

For all response items (except as noted later in this article), no meaningful differences were noted between fellows at different years of training. Therefore, unless otherwise noted, results are presented in aggregate for all years of fellowship training.

Perspectives on Clinical Training

The majority of fellows (65%; $N = 2178$) believe the minimum 12-month expectation set by the RRC for clinical training is appropriate for their own specific subspecialty, whereas 27% ($N = 922$) responded that the minimum time should be increased. The remainder either noted that the time should be decreased (2%; $N = 60$) or were unsure (6%; $N = 191$).

Among the 27% ($N = 922$) of fellows who believe the minimum expected clinical time should be increased for their specific subspecialty, the most common reasons expressed for that perspective were the need for additional development of clinical independence (79%; $N = 725$), increases in the types of

TABLE 1 2012 ABP SITE Examination Numbers

Subspecialty	Number Tracked	Applicants	Takers	Percentage of Fellows Applying	Percentage of Fellows Taking
Adolescent medicine	76	66	65	87%	86%
Cardiology	452	425	416	94%	92%
Critical care	451	323	314	72%	70%
Developmental–behavioral	103	90	89	87%	86%
Emergency medicine	440	408	401	93%	91%
Endocrinology	262	229	226	87%	86%
Gastroenterology	288	261	251	91%	87%
Hematology–oncology	486	412	408	85%	84%
Infectious diseases	197	177	174	90%	88%
Neonatal–perinatal Medicine	738	663	655	90%	89%
Nephrology	151	134	131	89%	87%
Pulmonology	170	155	153	91%	90%
Rheumatology	87	73	71	84%	82%
Total	3901	3416	3354	88%	86%

procedures or complexity of care (68%; $N = 624$), need for additional time for longitudinal case management (28%; $N = 255$), and the need for additional supervisory experience (26%; $N = 243$).

Perspectives on Scholarly Activity

The majority of fellows (59%; $N = 1984$) do not agree that the amount of scholarly activity should be the same for all fellows in their respective subspecialties regardless of career path (ie, those who pursue primarily a clinical versus primarily a research career).

When asked whether they believed there was a need to change the expected amount of scholarly activity in their own specific subspecialty from the current national standard of approximately 12 months, 53% ($N = 1792$) posited that the current amount of expected time is appropriate, 21% ($N = 704$) responded that the expected time should be decreased but not eliminated, 10% ($N = 346$) responded that the expected time should be increased, and 7% ($N = 220$) responded that the expected time in scholarly activity should be eliminated.

Among the 704 fellows who believed the expected amount of time devoted to scholarly activity should be decreased but not eliminated, the most common reasons cited were that fellows who plan to pursue primarily clinical careers do not need the current amount of recommended scholarly activity during training (84%; $N = 775$), it would allow more time to be devoted to additional clinical training (73%; $N = 678$), it would allow shortened fellowship training (39%; $N = 363$), and scholarly activity requirements are a deterrent to pursuing fellowship training (25%; $N = 234$).

Of the 281 fellows who believe the expected amount of time devoted to scholarly activity should be increased, 81% ($N = 281$) posited that they needed additional time for preparation to begin junior faculty research positions under the current model, and 23% ($N = 80$) thought that duty hour restrictions have adversely limited scholarly activity time.

Scholarly Activities Undertaken

The majority (84%, $N = 2807$) of fellows completed, or planned to complete, bench or clinical research projects to meet the scholarly activity requirements during fellowship. Half (50%; $N = 1670$) planned to complete quality improvement activities or clinical care guideline development, whereas smaller proportions focused on education-based activities (14%; $N = 480$) or intended to complete master of public health or education degrees (10%; $N = 320$) or health service research projects (9%; $N = 316$).

Most fellows (85%; $N = 2861$) reported that their fellowship program has a scholarly activity or research core curriculum for fellows. When asked in which years of fellowship they participate in the core curriculum, 81% ($N = 2310$) responded year 1, 83% ($N = 2370$) year 2, and 75% ($N = 2138$) year 3. Thus, it appears that for many fellows, their curriculum extends across multiple years of their training. Approximately one-third (35%; $N = 1010$) reported their curriculum to be strictly didactic (ie, lectures only) and half (50%; $N = 1416$) that fellows from all subspecialties in their pediatrics department participate in the same core curriculum together.

The percentages of current fellows who believe specific components of training should be included in a fellowship program core curriculum are found in Table 2. The most common was biostatistics, endorsed by 87% ($N = 2928$) of fellows.

Scholarship Oversight Committee

There is a wide range of experiences among fellows with regard to the assistance they receive from their SOCs. Table 3 indicates the percentages of fellows who reported that they received specific types of assistance. Most commonly cited were evaluation of progress and mentorship.

Fellows also expressed a range of opinions about how valuable they perceive their SOC has been to their

TABLE 2 Percentages of Fellows Who Believe Each Component Should Be Included in a Fellowship Program Core Curriculum (N = 3351)

	% (N)
Biostatistics	87 (2928)
Epidemiology	73 (2447)
Training in other aspects of research (eg, institutional review board, developing research protocols)	72 (2402)
Grant or proposal writing course or training	70 (2357)
Journal club	69 (2315)
Quality improvement modules	61 (2029)
Adult learning, teaching, and curriculum development	48 (1603)
Master of public health or master of education	16 (529)
Master of business administration or other business or financial training	11 (372)

TABLE 3 Percentages of Fellows Reporting SOC Assistance With the Following Activities (N = 2405)

	% (N)
Evaluating my progress as related to scholarly activity	88 (2122)
Providing mentorship during my scholarly activity project	77 (1862)
Choosing a scholarly activity topic	47 (1142)
Obtaining data or professional contacts needed to conduct my scholarly activity	43 (1030)
Advocating for time needed to conduct my scholarly activity	33 (805)
None of the above	2 (47)

training. Approximately one-third of fellows (31%; N = 734) reported their SOC as very valuable, whereas 43% (N = 1034) found it to be somewhat valuable. Approximately one-fourth of fellows (23%; N = 579) were unsure or found their SOC to be of little value.

Future Career Plans

Only one-fourth (25%; N = 824) of current fellows plan for research to be a major part of their future career (Table 4).

When we examined the perspectives of third-year fellows only (N = 989) on the influence of scholarly activity during fellowship on their intended career path, approximately one-half reported some impact (Table 5).

Fellows were also asked whether they believe there is a need to increase or decrease the overall length of fellowship training specifically in their own subspecialty. Half (50%; N = 1661) posited that the required duration, regardless of career path, should remain at 3 years (Table 6).

DISCUSSION

Among the most important findings from this study is that only half of current fellows believe that the required duration of training should remain at 3 years for all trainees in their own subspecialty. The most common counterposition (40%) is that there should be 2 different tracks, a shorter one for clinician–educators and a longer track for fellows who plan to pursue academic research. This suggests that a sizable minority of current fellows perceive time devoted to additional scholarly activity during training to be less valuable. These findings are consistent with a previous study of pediatric fellows and recently graduated fellows in 2009.[4,5]

TABLE 4 Do You Plan to Conduct Research (Basic, Clinical, or Health Services Research) at Some Point During Your Career After Fellowship? (N = 3351)

	% (N)
Yes, research will be a major part of my career	25 (824)
Yes, research will be a minor part of my career	43 (1442)
No	12 (416)
Unsure	20 (669)

In comparison, for some subspecialties with less intensive clinical training requirements, the American Board of Internal Medicine currently requires only 2 years of training to be eligible to sit for their board examination.[6,7] There is no requirement by the American Board of Internal Medicine that parallels the scholarly activity recommendations in pediatrics.

The decision that all standard pediatric subspecialty training programs should be 3 years long to be eligible for subspecialty certification was reaffirmed in a 1996 Federation of Pediatric Organizations statement that "the principal goal of fellowship training should be the development of future academic pediatricians and that the graduates of pediatric fellowship training programs should be proficient in clinical care, direct and consultative, teaching; and a selected area of research." This decision was reaffirmed by the ABP in 2004 at the time significant changes were made to increase the flexibility of the scholarly activity requirements.[3,8]

Despite these goals, our findings indicate that only 25% of pediatric subspecialist fellows plan for research to be a major part of their careers. Many pediatric leaders have expressed concern that the number of subspecialists pursuing research careers is too low and that the problem stems from an insufficient quantity of pediatricians entering fellowship training. These concerns often focus on the "split," or the proportions of pediatric residency graduates who pursue careers in primary care or a pediatric subspecialty. Our data indicate that because only a minority (25%) of those in subspecialty fellowships intend to pursue a career focused primarily on research, the issue may be more the result of this specific proportion within

the ranks of current fellowship programs and the absolute numbers entering fellowship training.[9]

The finding that only 12% of third-year fellows reported that their scholarly activity experience during training influenced them to plan a career engaged primarily in research could be sobering to those who hypothesized such activities would significantly increase the ranks of pediatric investigators. More than half of fellows reported that their scholarly activities during fellowship did not change their choice of career path or that they were unsure whether they did so or not.

Approximately one-third of fellows posited that the amount of expected scholarly activity time in their own subspecialty should be reduced or eliminated. Although this probably represents the perspectives of those who do not plan to pursue a research-focused or academic career, it also speaks to the value this proportion of fellows assigns to this aspect of their training. Although it is impossible to craft educational experiences that all will find valuable, it appears that additional effort is needed to ensure that both the content and the potential utility of the scholarly experience during fellowship (including the core curriculum) are made explicit to trainees.[4] Such efforts may also include a broader array of options and mentorship at the program level to conduct scholarly work in the areas of quality improvement or clinical care guideline development. There is a paucity of well-trained people nationwide in these areas, which probably limits the possibilities for many trainees or results in less than satisfactory educational experiences on these topics. Indeed, despite a national agenda to engage in quality improvement, only 61% of respondents noted that this topic should be included in their core curriculum.

If the scholarly activity component of fellowship training is retained in its current form, it will also be important to ensure that trainees do not see the concept of scholarly activity during fellowship solely as the goal-driven effort to complete a research project. The skills and knowledge acquired during training in the critical appraisal of the literature, biostatistics, quality improvement, and public health should all be valuable throughout one's career as a physician, irrespective of clinical setting.

Others have perceived that pediatric subspecialty trainees are increasingly choosing to pursue clinician or clinician–educator career pathways over rigorous prospective basic or clinical science research foci.[4,5,10,11] This has led to concern about a future contraction and consolidation of pediatric research activity in a small number of institutions with a loss of a more pluralistic research base.[12] Our findings provide a baseline regarding the current proportions of fellows who, at the start of their careers, pursue either a predominantly clinical or a research-focused pathway. However, the fact that fewer than half of all fellows posit that adult learning, teaching, and curriculum development should be a part of their core curriculum suggests a potential disconnect between the plan for a clinician–educator role and the perception of any formal training required in this area.

Some have posited that research funding issues, especially at the National Institutes of Health (NIH), may affect the proportion of fellows deciding to pursue a career focused on research. However, the payline for NIH funding has been highly variable over the past 3 decades both in aggregate and by institute. These variations have included the years in which the NIH research budget was doubled, the time of supplemental funding availability through the stimulus program, and eras of continuously flattened budgets and lower paylines. There has been no published study attempting to link, or demonstrate a causal association with, specific changes in the funding environment with the decision to pursue a research career by fellows or residents in training. This is probably one factor among many that affect career decisions.

TABLE 5 Has Your Experience With Scholarly Activity During Fellowship Influenced Your Intended Career Path After Fellowship? (Third-Year Fellows Only, *N* = 989)

	% (*N*)
No, it has not changed my choice of career path	43 (427)
Yes, I now plan to work primarily in research	12 (122)
Yes, I now plan to work primarily as a clinician	13 (124)
Yes, I now plan to work primarily as a clinician–educator	22 (219)
Unsure	10 (97)

TABLE 6 Do You Believe That There Is a Need to Increase or Decrease the Required Overall Length of Fellowship Training in Your Subspecialty? (*N* = 3351)

	% (*N*)
No, I believe that the required training duration, regardless of career path, should remain at three years	50 (1661)
Yes, I believe that the required training duration, regardless of career path, should be shortened to fewer than three years	8 (287)
Yes, I believe that there should be two different tracks, a shorter duration track for clinicians or clinician–educators and a longer duration track for fellows who plan to pursue academic research	40 (1342)
Yes, I believe that the required training duration, regardless of career path, should be extended to more than three years	2 (61)

Indeed, the absolute number of pediatricians matriculating into fellowship programs is at an all-time high and continues to increase.[9] However, just as some express concern about a paucity of subspecialists entering research careers, others are concerned about the available subspecialty clinical workforce to care for the increased numbers of children surviving with chronic illnesses.[13] The trend toward a greater clinical focus may be a function of, or reaction to, current needs in the health care workforce in addition to career preferences of a new generation of pediatric subspecialists.[12,14] The increase in the number and prevalence of children in the United States with chronic diseases has resulted in an increase in the need for the workforce capacity to provide the required subspecialty care.[14,15,16]

Another issue potentially affecting this topic is the growing desire on the part of a seemingly growing proportion of each new generation of physicians to achieve a greater work–life balance. It is possible that certain aspects of a research career and the time investment needed to succeed, either perceived or in reality, may result in more subspecialists taking on enhanced clinical roles. Furthermore, just as in pediatric primary care, the proportion of subspecialists working part-time continues to increase. Often, part-time employment is thought to disadvantage those pursuing research careers, including current full-time effort requirements for NIH career development awards.

In addition to the task force of the ABP, there has been significant recent effort and attention from multiple sources on pediatric fellowship training. For example, the Council on Pediatric Subspecialties was founded in 2006 largely to address concerns about the lack of uniformity in the fellowship application process. Since that time, the council has worked to address a number of issues in both the training and professional life of subspecialists and often serves as a conduit and voice for the subspecialty community.[17]

Balancing the components of subspecialty training is an important and probably never-ending quest. As changes in the health care system and the organization of care delivery continue, what we both expect and need from our subspecialists, from the perspectives of the profession, the health care delivery system, and the public, will probably vary over time.

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