Training Gaps for Pediatric Residents Planning a Career in Primary Care: A Qualitative and Quantitative Study

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Abstract

Background Resident training in pediatrics currently entails similar training for all residents in a fragmented curriculum with relatively little attention to the career plans of individual residents.

Objectives To explore strengths and gaps in training for residents planning a career in primary care pediatrics and to present strategies for addressing the gaps.

Methods Surveys were sent to all graduates of the University of Colorado Denver Pediatric Residency Program (2003–2006) 3 years after completion of training. Respondents were asked to evaluate aspects of their training, using a 5-point Likert scale and evaluating each item ranging from “not at all well prepared” to “extremely well prepared” for their future career. In addition, focus groups were conducted with practitioners in 8 pediatric practices in Colorado. Sessions were transcribed and hand coded by 2 independent coders.

Results Survey data identified training in behavior and development (mean score, 3.72), quality improvement and patient safety strategies (mean, 3.57), and practice management (mean, 2.46) as the weakest aspects of training. Focus groups identified deficiencies in training in mental health, practice management, behavioral medicine, and orthopedics. Deficiencies noted in curriculum structure were lack of residents’ long-term continuity of relationships with patients; the need for additional training in knowledge, skills, and attitudes needed for primary care (perhaps even a fourth year of training); and a training structure that facilitates greater resident autonomy to foster development of clinical capability and self-confidence.

Conclusions Important gaps were identified in the primary care training of pediatric residents. These data support the need to develop more career-focused training.

Introduction

Studies of pediatric residency as preparation for general pediatric practice have reported shortcomings in such topics as developmental and behavioral pediatrics, mental health, adolescent medicine, and sports medicine.^{1–3} The importance of these disciplines has recently been confirmed by an analysis of the frequency with which these competency areas are required in general pediatric practice.⁴ These findings are similar to data reported previously from the United States and Australia.^{5,6} A different way of looking at the challenges of primary care is provided by a list of the 50 conditions most

commonly referred for specialty and subspecialty consultation in the Pediatric Research in Office Settings Network reported by Forrest et al.⁷ Referral patterns confirm the importance of training in development and behavior, mental health, and orthopedic trauma.

We conducted a needs assessment as part of a project to improve preparation for a career in primary care pediatrics in our residency program. Following the study of Camp et al,¹ we surveyed recent graduates of the University of Colorado School of Medicine/The Children’s Hospital Pediatric Residency Program. Second, we conducted focus groups with pediatricians in private practice. This qualitative approach enabled us to better understand their perceptions of residency as preparation for community practice.

Methods

Resident Survey

A survey was sent each year to residents completing the University of Colorado Denver (UCD) pediatric residency training program in the years 2003–2006. The survey was sent 3 years after residency completion. It measured recent graduates’ perceptions early in their careers of how well they were prepared for their chosen careers. A single question addressed each of 12 content areas. Content areas represented the breadth of pediatric training described in the

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TABLE 1 SURVEY RESULTS FROM RECENT RESIDENCY GRADUATES EARLY IN THEIR CAREERS ^a	
Survey Question	Score
Recognize a sick child	4.94
Communicate with colleagues	4.74
Communicate with patients and families	4.72
Urgent care skills	4.65
Intensive care medicine skills	4.55
Manage general pediatric problems	4.48
Subspecialty knowledge; treatment and referral	4.44
Knowledge of use of evidence-based practice	4.25
Ability to practice primary care	4.02
Knowledge of behavior and development	3.72
Knowledge about quality improvement and patient safety	3.57
Knowledge of practice management	2.46

^a Results were evaluated on a 5-point Likert scale, ranging from not at all well prepared (1) to extremely well prepared (5) for their careers.

Accreditation Council for Graduate Medical Education (ACGME) requirements.⁸ Questions were developed by local content experts. Responses were assessed with a 5-point Likert scale that ranged from 1 (not at all well prepared) to 5 (extremely well prepared). Survey data were averaged over the 4 years of responses.

Focus Groups

A purposive sampling approach resulted in the selection of 8 practices across Colorado, representing diverse experiences and perspectives of pediatric practice models in the state. Focus groups were conducted from June 2008 through June 2009 in 6 practices in the Denver metropolitan area (including 1 large health maintenance organization [HMO] practice) and 2 practices outside the metropolitan area.

Focus group participants, excluding the facilitators, included 16 men and 24 women. Four women were physician assistants and 1 was a nurse practitioner. The rest of the group was made up of pediatricians with an average of 18 years in practice, approximately half of whom received their training in the UCD program. The average experience of the physician assistants was 7 years and the nurse practitioner had practiced for 30 years.

The focus groups lasted 60 to 90 minutes and were held at the practice sites. Two of the coinvestigators moderated the focus group sessions by following a semistructured interview guide that used open-ended questions to explore participants' vision of how they thought current training models prepared

residents for practice. No definition of primary care practice was provided; all opinions were spontaneous.

Sessions were recorded and transcribed with the exception of 1 session documented by written notes recorded independently by 2 of the coinvestigators and then transcribed. Two coinvestigators (C.K. and A.D.G.) analyzed transcripts independently by using a grounded theory approach and uncovering recurrent themes, hypotheses, and linkages of findings to the literature on resident training. The transcripts were then hand coded. Statements were divided into single units including phrases, sentences, or paragraphs that depicted a single concept. Using an inductive approach, we grouped these units into similar conceptual categories until we felt confident of the dominant themes. Finally, the 2 readers developed consensus about areas of discrepancy. After 8 practice interviews, the data were felt to have reached saturation.⁹

The study protocol was reviewed and approved as exempt by the Colorado Multiple Institution Review Board.

Results

Survey Data

The results of the survey of recent resident graduates early in their careers are presented in TABLE 1. Of the 79 individuals who received the survey, 63 (80%) responded. Of the respondents, 28 (44%) were practicing primary care pediatrics. There were no differences between the responses from those in primary care versus those in other careers (data not shown).

Focus Group Results

The focus group data added important qualitative information that enriched our understanding of the survey responses. The data clustered into 2 domains: residency curriculum needs and pediatric practice trends. Each domain had major themes that were further divided into categories (TABLE 2).

Two primary themes emerged related to residency curriculum: curriculum content and curriculum structure. The most frequently identified content deficiencies were mental health (39% of a total of 281 coded comments in the curriculum content theme), knowledge of practice management (14%), behavioral medicine (13%), orthopedics (13%), procedures (7%), basic clinical skills (7%), communication skills (4%), and phone triage skills (2%). Illustrative sample comments from these content domains are presented in the BOX. The content identified as lacking in the mental health domain included diagnosis and management of common conditions (depression, attention deficit and hyperactivity, anxiety). Behavioral medicine overlaps with mental health but was mentioned often enough to deserve its own category. This content area included parenting skills, normal and abnormal behavior and development, and breast feeding. Details regarding the need for more orthopedics training in residency mentioned

TABLE 2 DOMAINS, THEMES, AND CATEGORIES DEVELOPED IN THE FOCUS GROUPS

Domain	Themes	Categories
Curriculum needs	Content	Mental health
		Practice management
		Behavioral medicine
		Orthopedics
		Procedures
		Basic skills
		Communication skills
		Phone triage
		Less neonatology, oncology
	Structure	Lack of continuity
		Structure to support continuity
		Fourth year of training
		Flexibility in training
Practice trends	Hospital care	Developing autonomy
		Specific skills
		General
		Hospitalists
		Newborn care
	Ambulatory care	Midlevel providers
		Hours/call
		Economics
		Retail clinics
		Concerns about general pediatrics
		Vaccines
		Chronic disease
		Special needs
		Clinical guidelines

management of routine injuries requiring casting or splinting, especially sports injuries. Conversation around the need for greater experience with procedures focused on simpler procedures except in discussions with the 2 practices located outside of the Denver metropolitan area. Many of the procedural skills learned and used in residency were not used in metropolitan area practices (eg, placement of umbilical lines in a neonate). There was also concern that residents are increasingly likely to lack basic clinical skills (eg, recognition of a child who is in trouble). This was

attributed to perceived lack of autonomy and reliance on subspecialists during residency.

Focus group comments about curriculum structure (TABLE 2) most frequently addressed lack of continuity of patient care experiences (27% of 186 coded comments in the curriculum structure theme) and lack of program structures that support greater continuity (26%). There was consensus that true continuity of care is not modeled by residency continuity clinics. Comments favored a fourth (additional) year of training (18% of coded comments) or special accommodation during the third year for residents intending to practice primary care pediatrics (13%). It should be noted that the focus group participants were asked specifically about the possibility of greater career-oriented flexibility in the third year of residency training. There was also concern among focus group participants that residents have decreased autonomy during their training (8% of coded comments).

The second major domain that emerged from the focus groups was comments on current practice trends. Themes in this domain involved both hospital-based and ambulatory care. The focus group participants noted a change in how pediatricians in practice participate in hospital care particularly in the Denver metropolitan area (30% of 161 coded comments in the practice trends domain). Hospital and well newborn care is usually provided by hospitalists. However, pediatricians practicing outside of metropolitan Denver regularly care for hospitalized newborns and are called to the emergency department for pediatric trauma cases. Routine primary care is increasingly delivered by physician's assistants and other advanced practice nurses (16% of coded comments in the practice trends domain). Few metropolitan Denver practices take late night or weekend telephone calls, and they rarely attend to acute illnesses after regular office hours (10%). They use a nurse-staffed telephone triage and advice system linked to a system of acute-care centers. With regard to the economics of practice (8%), competition from retail clinics was mentioned, but was not felt to be a major factor.

Discussion

Survey data from 4 cohorts of recent residency graduates early in their practice careers and of focus groups with 8 pediatric practices supplement and confirm information in the literature.¹⁻⁷ The unique aspect of this needs assessment is the amplification provided by extensive focus group discussions. The focus groups also served to overcome the limitation of using survey data alone, which might not measure what it was intended to measure. The focus groups identified deficiencies in residency training as well as concerns about how the curriculum is structured. They stated clearly that more emphasis needs to be placed on training in behavior and development, mental health, orthopedics, and for practices outside the Denver

BOX QUOTES FROM FOCUS GROUPS

Curriculum needs

Mental health: "...We do take care of depression and anxiety now, which we, I have never been trained for...we are flying by the seat of our pants."

Behavioral medicine: "...Parenting issues would be another area that we have to deal with a lot in which basically we had no training."

Knowledge of practice management: "New practitioners need to be more familiar with billing and the business aspects of private practice."

Orthopedics: "In a week or 2 you could get some fundamentals down because in some skills I felt like I got enough and then could educate myself. In sports medicine, I felt like I didn't even get enough to even educate myself. I just don't know where to start."

Skills for practice: "One of the important skills that residents must master is the ability to differentiate sick from nonsick patients. They need to know what to do. They need to make a decision instead of thinking, 'let's get a consult.'"

Curriculum structure

Lack of continuity: "Continuity isn't necessarily seeing the patient again and again, but it's seeing them today, calling back tomorrow...It's dealing with the continuity of the illness that just doesn't go away."

"The focus is so much on urgent issues [in residency], whereas our world here is a chronic ongoing time-defined longitudinal kind of care."

Autonomy: "I don't know if it's not the same anymore, if they get that same experience [as we once did]...When you get out and you're spreading your wings, there's nothing to catch you. You need to be able to have the confidence to be able to say: I can do this."

metropolitan area, common procedures. It was also evident in both the survey and focus groups that residents need additional training in practice management. This deficiency has been identified by others.^{3,10}

The need for development of a stronger mental health curriculum was emphasized in a survey of recently certified general pediatricians. In that survey, 62% felt that more mental health training was needed in residency.² The same point was made in a policy statement from the American Academy of Pediatrics, delineating the need for mental health competencies for pediatric primary care.¹¹ The competencies overlap those of mental health specialists, but the high prevalence of mental health disorders and substance abuse in children and adolescents indicates a need among pediatricians.^{12,13} The policy statement calls for "innovations in residency training and continuing medical education activities to increase the knowledge base and skill level of primary care clinicians."¹¹ Wissow et al¹⁴ have shown that primary care clinicians with training and experience can deliver evidence-based care for children with mental health and substance abuse problems.

Behavior and development training is another previously identified area of content weakness in training programs.¹⁻³ This may reflect in part the disjointed presentation of this subject area in the 1-month experience in behavior and development mandated by the ACGME training requirements.^{8,15} This experience is supplemented by the resident continuity clinic, but without a focused approach to allow for deliberate practice, self-confidence in diagnosing and managing problems of behavior and development is unlikely to develop.^{15, 16}

Given the frequency of minor orthopedic injuries in primary care,^{4,7} the emphasis placed by focus group participants on training in this area is not surprising. It is estimated that childhood injuries account for greater than 10 million primary care office visits each year, with sports and overexertion as the leading causes.¹⁷ Lack of focused training in this content area has also been recognized and reported for many years.^{1,2,18} Despite this, hands-on training, including techniques for a proper musculoskeletal examination, is lacking.¹⁹

Concerns about the structure of the residency curriculum center on resident continuity clinic and an apparent lack of opportunities for residents to practice with enough autonomy to develop capability and self-confidence. Focus group participants stated that new graduates of residency training programs seem increasingly tentative about making clinical decisions. They attributed this lack of autonomy to shared decision making with subspecialty fellows and attending physicians, as well as to a decrease in the frequency of night and weekend call during training. The tendency to be tentative about making clinical decisions may also be a manifestation of increasing complexity of patients in the inpatient setting.²⁰ Autonomy during training is further compromised by fractured faculty supervision. As a result, individual faculty may not have sufficient exposure to a given resident to entrust the resident with the independence of which he or she is capable.^{21,22}

With regard to practice trends, the move to hospital-based pediatrics in metropolitan areas highlights the need to emphasize training in ambulatory settings. This is not true, however, for pediatricians who are likely to practice outside large metropolitan areas. This would favor an approach in which learning experiences during residency are individualized.

Strategy for Change

These and the results of prior studies¹⁻⁷ beg the question of why—given the consistency with which deficiencies have been identified in residency education as preparation for primary care—there have been few if any changes in the pediatrics residency curriculum. Epidemiologic data on which residents and program directors could base preparation for a career in primary care⁴⁻⁷ are available, but given the experiential nature of resident learning,^{23,24} nothing can replace experiencing the epidemiology first hand. A different approach to crafting the elements of training needs to be developed. The ACGME requirements specify what must be done in each month of residency for just 24 of the 33 months.⁸ Seven of these months can be chosen from a list of subspecialty experiences, with a total of 16 months that may be structured at the discretion of programs and residents. A thoughtful, individualized, career-centered approach applied to this discretionary time would serve to address the existing gaps (TABLE 3).²⁵ Engaging residents in the development of achievable

TABLE 3 PROPOSED CHANGES TO ADDRESS GAPS IN TRAINING

Curriculum Change	Benefit	Challenges
Career-centered longitudinal experience with both a rural and urban option ²⁵	<ul style="list-style-type: none"> Time to master necessary clinical and management skills for practice Repetition required for deliberate practice Can address gaps in both curriculum content and structure 	<ul style="list-style-type: none"> Scheduling logistics Identifying mentors Monitoring the experience
Features		
Develop the learning activities for the experiences	<ul style="list-style-type: none"> Able to address the existing knowledge gaps: mental health, behavior and development, orthopedics, practice management 	<ul style="list-style-type: none"> Developing a consensus among primary care experts of the critical training elements
Resident-directed learning goals	<ul style="list-style-type: none"> Reflection on career goals with self-assessment of strengths/weaknesses An individualized curriculum based on the needs of the resident within the construct of what training is necessary 	<ul style="list-style-type: none"> Teaching the features of attainable goals³⁰ important to the learner Steps to accomplish Measurable outcome Accountability
One-on-one mentoring during the experiences	<ul style="list-style-type: none"> Consistent faculty supervision Help the resident meet learning goals 	<ul style="list-style-type: none"> Timeline Faculty development of mentors
Direct observation of performance	<ul style="list-style-type: none"> Feedback to aid skill mastery 	<ul style="list-style-type: none"> Faculty development in brief observations Time to do observations
Longitudinal approach to the required behavior and development rotation	<ul style="list-style-type: none"> Create a foundation for all residents in this learning gap Focus on normal and abnormal development, mental health, parenting 	<ul style="list-style-type: none"> Scheduling logistics: combine required outpatient rotations to develop a 2–3 month experience that includes behavior and development

self-directed learning goals supervised by a primary care mentor would enhance career-focused training, allowing residents to address gaps in their training. Not only can this process serve to improve training, but it can also set the tone for a lifetime of self-learning to meet the challenges of primary care practice. This approach was addressed perfectly by the following comment: “In a week or 2 you could get some fundamentals...and then [I] could educate myself” (B O X). It is also important to recognize that the division of learning experiences into month-long blocks is a format better suited for sampling a variety of topics than in-depth exploration of a particular topic.^{16,26} Extending some of these experiences (eg, behavior and development) over a longer period of time could improve learning.²⁷

Conclusion

Our findings and the available literature support a more individualized approach to resident training. This could be done by making use of the discretionary time permitted by the ACGME program requirements without compromising the core experience required during residency training. As emphasized by the Residency Review and Redesign in

Pediatrics Project and now the Initiative for Innovation in Pediatric Education,^{28,29} residency programs need to replace some of the time devoted to broad exposure to pediatrics with time dedicated to preparation for a career within pediatrics.

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