

The Practice Patterns of Recently Graduated Internal Medicine–Pediatric Hospitalists

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ABBREVIATIONS

ABP: American Board of Pediatrics

Med-Peds: internal medicine and pediatrics

MPPDA: Medicine–Pediatrics Program Directors Association

REDCap: Research Electronic Data Capture

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abstract



OBJECTIVES: To identify the current practice patterns and professional activities of internal medicine–pediatrics (med-peds) hospitalists who have graduated in the past 5 years (June 2009–June 2013).

METHODS: The national Medicine–Pediatrics Program Directors Association (MPPDA) conducted a cross-sectional survey study of the 79 residency program directors who are members of the MPPDA regarding the practice patterns of recent graduates (from 2009–2013) currently practicing as hospitalists. The survey was distributed in the spring of 2014 on the MPPDA listserv. The survey inquired about time spent caring for hospitalized adults and children, medical school appointments, practice in freestanding children's hospitals, and completion of hospital medicine (HM) fellowships.

RESULTS: Forty-nine program directors (62%) completed the survey and provided data on 1042 graduates from 46 programs. Of those graduates, 26.4% ($n = 275$) practice as hospitalists, and none had completed an HM fellowship. Approximately two-thirds (65%) of med-peds hospitalists provide care to hospitalized children and adults, with one-third providing care solely to hospitalized adults. Approximately one-half (53.5%) have an appointment with a medical school and roughly one-quarter (28%) practice in a freestanding children's hospital.

CONCLUSIONS: An increasing percentage of recent med-peds graduates are pursuing careers in HM, and two-thirds are providing care to hospitalized children. As consideration for an accredited pediatric HM fellowship continues, certifying and accrediting bodies should consider how this will impact the med-peds workforce and allow med-peds graduates flexibility in their training requirements that will permit them to acquire the necessary skills to care for hospitalized children and adults.

The care of hospitalized children is a rapidly evolving field, with an estimated 2500 pediatric hospitalists nationwide.¹ In 2013, the Joint Council on Pediatric Hospital Medicine recommended that the field of pediatric hospital medicine become a board-certified specialty through the American Board of Pediatrics (ABP).² The stated goals for seeking accreditation included improving care for hospitalized children and ensuring public trust in the care provided by pediatric hospitalists. The American Board of Internal Medicine offers a Focused Practice in Hospital Medicine Maintenance of Certification program for general internists who concentrate their practice to the care of hospitalized adults. However, a pathway for accredited fellowship training or board certification does not exist in adult medicine.³ These proposed differences in training and practice requirements have created a quandary for internal medicine and pediatrics (med-peds) hospitalists

who are trained to care for both hospitalized children and adults, and it may impact their ability to care for both of these populations in the future.

A survey of 427 med-peds graduates conducted by the American Academy of Pediatrics in 2003–2004 found that 17% of graduates identified themselves as hospitalists.⁴ In 2003, Freed et al⁵ surveyed graduates from med-peds residencies who completed training between 1980 and 2003 and found that ~76% of graduates who identified themselves as “generalists” provided some inpatient care (552 of 726 generalists), and 39% (283 of 726) provided inpatient care to adults only. The majority of those who cared for both hospitalized children and adults spent a larger percentage of their time caring for adults. Although informative, these studies are now a decade old and may not reflect the current practice patterns of med-peds hospitalists given the growth in the practice of hospital medicine and the evolution in med-peds career options over the past decade.^{6,7}

To fully inform decisions that might affect the future training, scope, and practice of med-peds hospitalists, our goal, as members of the Medicine-Pediatrics Program Directors Association (MPPDA) Executive Committee, was to identify the current practice patterns and leadership activities of med-peds hospitalists who graduated between June 2009 and June 2013. We hypothesized that during this time period, a larger percentage of recent med-peds residency graduates will have pursued careers in hospital medicine compared with graduates from a decade ago. In addition, while the inpatient care of adults will continue to dominate, we hypothesized that a

larger percentage of recent med-peds graduates practicing as hospitalists will care for hospitalized children.

METHODS

This cross-sectional survey study included all med-peds residency program directors who are members of the MPPDA. This research was approved as an exempt study by the institutional review board at Cincinnati Children’s Hospital Medical Center.

Study Design

This study took place over a 4-month period during the spring of 2014. Five attempts were made to contact med-peds program directors asking them to complete a survey. The first 3 attempts took place via an e-mail to the MPPDA listserv. These e-mails contained a link to the online survey hosted on a secure Web-based application known as REDCap (Research Electronic Data Capture).⁸ The initial attempt occurred via e-mail during the MPPDA annual spring meeting in April 2014, and the second and third attempts took place 1 and 2 weeks after the initial request. After these first 3 attempts via the MPPDA listserv, we identified program directors who had not responded and contacted them directly via their individual e-mail addresses. Individual e-mails were sent twice to delinquent program directors, and the study was closed in mid-June 2014.

Study Population

The MPPDA maintains a list of all med-peds residency program directors who are members of the organization. As of February 2014, a total of 79 med-peds program directors and their corresponding programs were members of the MPPDA. This number encompasses all med-peds programs in the United States and US territories

that participated in the 2014 National Resident Matching Program.⁹ The MPPDA maintains an e-mail listserv for all members of the MPPDA, and the program directors or co-directors from all MPPDA member programs were invited to participate in the study via this listserv. Data were reviewed for duplicate entries from individual programs or program directors; no duplications were received.

Survey Instrument

We constructed de novo a 6-question survey (with 4 questions containing various subquestions) comprising a mixture of fixed choice, free response, and open-ended questions (Supplemental Information). Each committee member reviewed the survey and provided feedback on content and structure. Using this feedback, we edited the survey to ensure clarity of the content and structure. These revisions were repeated for a total of 3 cycles.

The primary outcome variable of interest on the survey was the amount of time med-peds hospitalists who completed residency from 2009 through 2013 spend caring for hospitalized children and adults. Additional variables assessed included: (1) using a job as a hospitalist as a temporary position before pursuing another career option; (2) practicing at a university-based institution and having an academic appointment through an affiliation with a medical school; (3) practicing at a freestanding children’s hospital; and (4) having completed a hospital medicine fellowship. We also inquired about leadership positions held by med-peds hospitalists through a free-response question and inpatient practice patterns (for both children and adults) of med-peds physicians who primarily practice in the ambulatory setting.

Currently, there is no standardized process by which residency program directors are required to maintain contact with their former graduates. Our study survey assumed that residency program directors are knowledgeable about the practice patterns of their recent graduates, given the fact that program directors characteristically play a pivotal role in assisting residents with the job selection and negotiation process. Many also maintain contact with their graduates via surveys, telephone, or e-mail conversations. In addition, direct interaction for graduate information is often required from their institutional leadership and is critical for the successful recruitment of future residents.

Data Collection

Depending on the timeliness of their survey completion, program directors were contacted up to 5 times and asked to complete the survey in an attempt to improve response rates. Study data were collected and managed by using REDCap electronic data capture tools hosted at Cincinnati Children's Hospital Medical Center. REDCap is a secure, Web-based application designed to support data capture for research studies. It provides: (1) an intuitive interface for validated data entry; (2) audit trails for tracking data manipulation and export procedures; (3) automated export procedures for seamless data downloads to common statistical packages; and (4) procedures for importing data from external sources.⁸ Data were de-identified before analysis.

Statistical Methods and Data Analysis

Descriptive and frequency statistics were calculated for both the primary and additional variables. A Pearson's

correlation coefficient was calculated to model the relationship between program size (and number of program graduates) and the number of graduates who have pursued careers in hospital medicine. An online statistical calculator was used to calculate the Pearson's correlation coefficient.¹⁰

RESULTS

A total of 49 med-peds program directors, representing 62% of the MPPDA membership, completed our survey. One survey had insufficient data and could not be included in the analysis. Two programs have not had graduates in the past 5 years (their programs opened during the reference time period [2009–2013]). Our results include practice pattern and leadership activity data from 1042 graduates from 46 med-peds programs for the years 2009 through 2013. The mean and median number of graduates from a program was 4.95 and 5, respectively. According to the ABP between 2009 and 2013, a total of 1747 residents were reported to have graduated from accredited med-peds residencies in the United States; our survey data therefore represent 60% of all med-peds graduates from the reference time period.¹¹

Of the 1042 med-peds graduates who program directors cited in this survey,

275 (26.4%) are practicing as hospitalists. A summary of the global practice patterns of these med-peds hospitalists, as well as a summary of how they split their time between the inpatient care of adults and children as reported by responding program directors, is detailed in Tables 1 and 2. We noted a strong positive relationship ($R = 0.8269$; $P < .01$) between the size of a program and the total number of hospitalists that come from an individual program. As noted in Fig 1, larger programs with more graduates have produced more of the practicing med-peds hospitalists from the graduating years between 2009 and 2013. Roughly one-quarter of recent med-peds graduates practicing as hospitalists provide specialized care to hospitalized adults who are survivors of congenital or childhood disease (Table 1).

Our respondents noted that none of their recent graduates who currently practice as med-peds hospitalists have pursued a nonaccredited fellowship in pediatric or adult hospital medicine. A summary of the leadership roles held by recently graduated med-peds hospitalists is provided in Table 3. Of the med-peds graduates who practice primarily in the ambulatory setting (ambulatory-based practitioners),

TABLE 1 Global Practice Patterns of Med-Peds Hospitalists Who Completed Residency, 2009–2013 ($N = 275$)

Variable	<i>N</i>	Percentage of Total
Using the position as a temporary career option	18	6.5
Practices at a university-affiliated hospital and has an official academic appointment via an affiliation with a medical school	147	53.5
Practices as a hospitalist at a freestanding children's hospital	77	28
Practices as a hospitalist in a children's hospital within an adult hospital	119	43.3
Care for hospitalized adults who are survivors of congenital or childhood disease	69	25.1

Data were obtained via a survey of national med-peds program directors.

TABLE 2 Practice Patterns of Med-Peds Hospitalists Who Completed Residency (2009–2013) Involving the Inpatient Care of Adults and Children (*N* = 275)

Distribution	<i>N</i>	Percentage of Total
Inpatient care of adults only (≥ 18 y of age)	96	35
Inpatient care of adults > inpatient care of children	114	41.4
Inpatient care of adults = inpatient care of children	43	15.6
Inpatient care of adults < inpatient care of children	14	5.1
Inpatient care of children only (<18 y of age)	8	2.9

Data were obtained via a survey of national med-peds program directors.

199 (19% of the 1042 graduates from 2009–2013) provide some type of inpatient care (eg, rounding on their own patients or serving as a teaching attending at a university-based institution affiliated with a medical school or training program), and 166 (15.9% of the 1042 graduates from 2009–2013) provide inpatient care for children (including newborn nursery care).

DISCUSSION

Compared with the graduate survey conducted by the American Academy of Pediatrics in 2003–2004,¹¹ we found that a larger percentage of recent med-peds graduates from the past 5 years are pursuing careers as hospitalists (17% vs 26.4%). To date, our study is the largest and most comprehensive evaluation of recent med-peds graduates practicing as hospitalists. Similar to Freed et al,⁵ this survey found that approximately two-thirds of recently graduated med-peds hospitalists (65%), and 15.9% of ambulatory-based med-peds practitioners, continue to offer care to hospitalized children in a variety of settings. This information provides evidence that a significant proportion of med-peds graduates from the past 5 years are currently caring for hospitalized children and are therefore playing an active role in the movement for quality health care for hospitalized children.

Med-peds hospitalists bring a breadth of knowledge and experience regarding

the inpatient care of children and adults to both university-based and community pediatric hospital medicine groups. This knowledge and experience have the potential to enhance the care these groups provide. They also serve as a bridge between the adult and pediatric hospitalist communities and are able to act as conduits for the sharing of knowledge and best practices between the 2 groups. In addition, with the increasing number of adults with chronic health conditions originating in childhood who continue to receive care at children's hospitals, med-peds hospitalists will be essential in the provision of care and oversight to this population.¹² Our survey found that 25.1% of med-peds hospitalists included in the survey are already providing care for adults who are survivors of congenital or childhood disease.

As the ABP and American Board of Medical Specialties assess the value of accredited hospitalist training on the care of hospitalized children, strong consideration should be given to the potential impact accreditation will have on the med-peds hospitalist workforce. Med-peds hospitalists provide a unique and valuable service for both university-based and community hospitals and, with our best estimate, comprise at least 10% of the current pediatric hospitalist workforce. If accreditation is ultimately concluded to be the best course for those who

care for hospitalized children, then opportunities for med-peds physicians to maximize their abilities to care for adults, children, and young adults with chronic health conditions originating in childhood should be made a priority. This scenario will require flexible fellowship training options and regular surveillance of how accreditation affects the practice patterns of med-peds hospitalists.

Although our information represents the largest and most comprehensive set of data regarding med-peds hospitalists, there are a number of limitations to this study. We were able to achieve a survey response rate of only 62% of med-peds program directors from across the United States, which accounts for 60% of graduates from 2009 through 2013. We are therefore unable to account for the practice patterns and fellowship training status of those who graduated from programs from which a program director did not complete a survey, as well those who graduated before 2009, in our results. We also recognize the fact that some program directors may have difficulty separating a pediatric hospital medicine fellowship from a general academic or health services research fellowship. This complication may have affected their response to the question regarding their graduates' fellowship completion status and biased our final results on this question. Likewise, the survey assumed that residency program directors are knowledgeable about the practice patterns of their recent graduates. This assumption is reasonable given the roles program directors often hold in assisting residents with the job selection and negotiation process, as well as continued communication with recent graduates

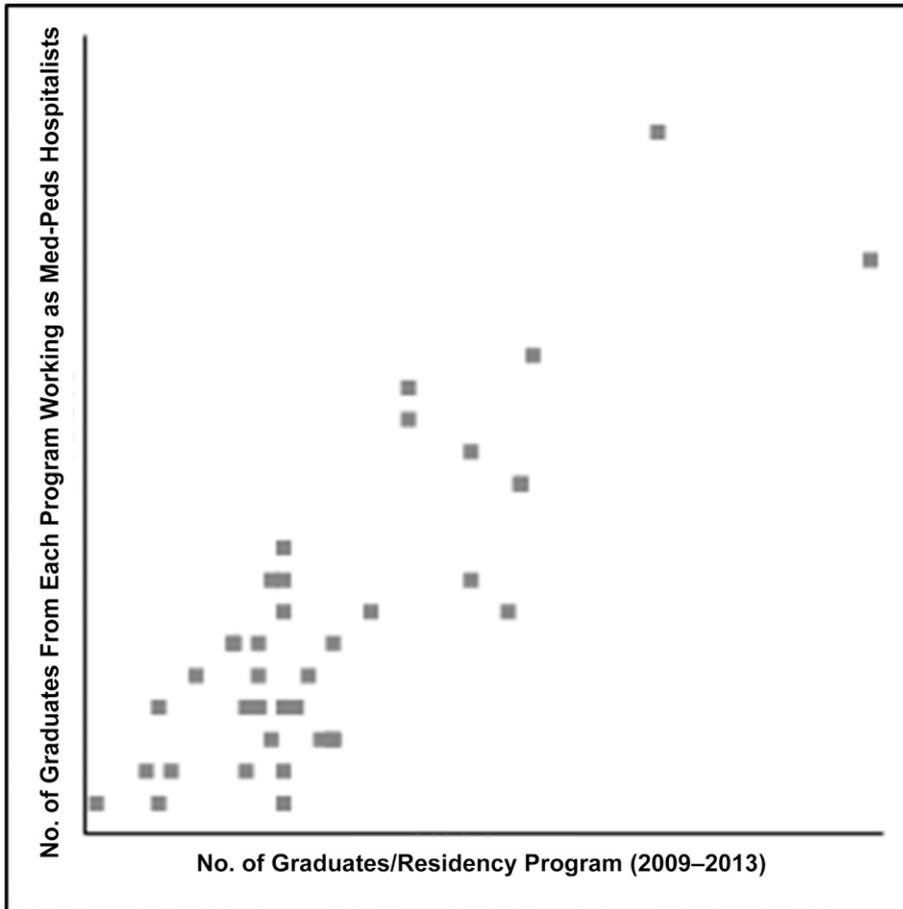


FIGURE 1 Relationship between residency program size and the number of hospitalists that a program graduates. $R = 0.8269$, $P < .01$ per Pearson’s correlation. Data were obtained via a survey of national med-peds program directors.

via postgraduate surveys and other forms of contact. It is possible, however, that some data reported may be incomplete or inaccurate given the absence of a standard reporting process or mechanism. Lastly, although our survey instrument underwent significant pilot testing and revision with

the MPPDA Executive Committee for content and clarity, the validity and reliability of the tool were not established before the study.

CONCLUSIONS

This survey represents the most recent and inclusive group of data

regarding the practice patterns of med-peds hospitalists who completed residency from 2009 through 2013. This information is likely indicative of current national practice patterns for med-peds physicians and may predict trends and practice patterns for the future. Our results indicate that an increasing percentage of recent med-peds residency graduates are pursuing careers in hospital medicine, and two-thirds are providing care to children in the inpatient setting. Given the unique knowledge base and skillset med-peds hospitalists bring to pediatric hospitals and hospitalist groups, it will be critical that med-peds and hospital medicine organizations advocate for innovative, balanced career and training options for med-peds hospitalists so that they may continue to care for both children and adults in the inpatient setting.

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TABLE 3 Leadership Roles Held by Med-Peds Hospitalists Who Completed Residency, 2009–2013 ($N = 275$)

Role	<i>N</i>
Leadership role in an undergraduate or graduate medical education program (eg, residency program director or associate director, curriculum committee chair, medical school course director)	14
Leadership role in one’s hospitalist program	8
Leadership role in an information technology department	1
Leadership role for a clinical program or medical unit (eg, cystic fibrosis adult program director, ward medical director or chief medical officer at an international institution)	3

Data were obtained via a survey of national med-peds program directors.

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