Research Needs of Pediatric Hospitalists

abstract

OBJECTIVE: To assess the current state of research productivity, goals, obstacles, and needs of pediatric hospitalists.

METHODS: The American Academy of Pediatrics Section on Hospital Medicine performed a cross-sectional online survey of pediatric hospitalists. Questions assessed demographics, research productivity, system-level factors, research interests, goals and obstacles, and the perceived need for research training and support.

RESULTS: Two hundred twenty pediatric hospitalists in the United States completed the survey. Of these, 56% had presented at a national meeting, 24% were first authors of an article in a peer-reviewed journal, 8% had more than publications, and 12% had secured external grant support. While 90% of respondents had spent 10% or less time in research, 64% had an academic appointment at the assistant professor level or above. Nearly 40% felt that their institution expected them to do research, and 56% were interested and another 27% were very interested in conducting research. The main research interest was quality improvement (QI) evaluation. Common obstacles to research were lack of time, mentorship, and resources.

CONCLUSIONS: Pediatric hospitalists want to conduct research to improve the quality of inpatient care but face significant obstacles including lack of dedicated time for research and mentorship. Coordinated efforts to improve access to academic resources are important for career development and academic growth of the field. National organizations and hospital programs interested in improving the quality of care for hospitalized children can provide support to meet the field’s professional needs for research.

Introduction

Pediatric hospital medicine is a rapidly growing field in both community and academic medical centers. The transition to a hospitalist model has generated multiple questions about the best approach to caring for hospitalized children. Even the most common inpatient pediatric conditions have varied management approaches. Numerous opportunities are available to make pediatric inpatient care safer and more effective, patient-centered, timely, efficient, and equitable. Current areas of pediatric inpatient research include quality measures, clinical trials, comparative effectiveness, clinical informatics, translation and implementation of new medical advances, inpatient care of children with special health care needs and medically complex conditions, and inequities of care related to race, ethnicity, or income.

In many programs, hospitalists serve as attending physicians who teach residents and medical students. Many hospitalists also participate in quality improvement (QI) initiatives, hospital administration, utilization review, and
Development of research capacity is important because it will not only lead to better patient care and outcomes but also promote the development of the field of pediatric hospital medicine. Research is also a traditional benchmark for individual academic career advancement. A robust research foundation is essential for the field of hospital medicine to improve its status in the academic medical community, contribute to the prestige of the field, and advance the field for non-academics.

Methods

STUDY DESIGN

We performed a cross-sectional survey of pediatric hospitalists. The study was approved by the Committee on Human Research at the University of California, San Francisco (UCSF).

STUDY POPULATION

We sent the survey to all 1,100 unique electronic mail (e-mail) addresses on the American Academy of Pediatrics (AAP) Section on Hospital Medicine (SOHM) listserv. From May to August 2009, reminders were sent every 2 weeks after an initial announcement on the SOHM e-mail listserv which explained the study. Announcements and reminders were also distributed at the Pediatric Academic Society, Society of Hospitalist Medicine (SHM), and Pediatric Hospitalist Medicine (PHM) meetings during the same period. No physician-identifying information (eg, name, address, date of birth) was collected. We excluded respondents who were not currently working as a pediatric hospitalist. Two hundred and twenty pediatric hospitalists were included in the study.

SURVEY INSTRUMENT

The SOHM Research Subcommittee developed a 32-item confidential online survey designed to be completed by respondents in 15 minutes or less using SurveyMonkey. Two of us (RJT and KMW) are co-chairs of the SOHM Research Subcommittee. The survey included a mixture of fixed-choice, Likert-scale (1 was “not important” or “not useful,” 3 was “very important” or “very useful”), and open-ended questions. The original draft of the survey was pretested on 10 pediatric hospitalists from the three authors’ institutions. Survey questions assessed demographics, system-level factors, research interests, goals for and obstacles to performing research, research productivity, and the need for research training opportunities and support. Survey questions assessed demographics, system-level factors, research interests, goals for and obstacles to performing research, research productivity, and the need for research training opportunities and support.

Research productivity included abstract presentation at national meetings, first-author publication in a peer-reviewed journal, and securing external grant support. Potentially useful research training opportunities and support ideas were derived from current offerings and discussions with research subcommittee members, and included roundtable discussions, workshops, short-term training courses, and aid from national organizations (AAP, Academic Pediatric Association [APA], and SHM). Topics included getting started in research, statistical analysis, QI research, dataset analysis, research funding, writing and publishing research, collaboration, developing clinical practice guidelines, and developing multicenter research networks.

DATA ANALYSIS

Descriptive statistics using means, frequency distributions, and proportions.
were calculated for the survey items using statistical software (SAS 9.1). For open-ended questions, answers from respondents were summarized into key concepts and themes by the three study authors.

Results
Of the 220 pediatric hospitalists who completed the survey, approximately 60% of the respondents were women (Table 1), between the ages of 31 and 40 years old, and had been practicing for 1 to 6 years. Fifteen percent had completed a fellowship (academic pediatrics [38%], critical care [18%], PHM [15%], infectious disease [15%], other [14%]); 25% had a master's or PhD degree (Figure 1). Large proportions of respondents were employed by a children's hospital (73%), described their practice setting as “academic” (82%), served on medical staff (83%) and QI (67%) committees, and designed clinical practice guidelines (59%).

Over half (56%) of the respondents had presented an abstract at a national meeting, 24% had a first-author publication in a peer-reviewed journal, 8% had more than 2 publications, and 12% had secured external grant support (Figure 1). While 90% of respondents had spent 10% or less time on research, 64% had an academic appointment at the assistant professor level or above, and nearly 40% believed that their institution expected them to do research. Fifty-six percent were interested and another 27% were very interested in conducting research.

Research interests were diverse and included fields such as health services, clinical trials, translational research, operations, informatics, basic science, and global health. However, the greatest research interests were QI/patient safety (65%), clinical research (72%), and educational evaluation (43%). The primary goal in doing research was to improve quality of care for hospitalized patients (70%); promotion was one of the least important motivators (Figure 2). Common obstacles were lack of time (70%), mentorship (53%), and resources (eg, statistician, laboratory, and nursing) (48%) (Figure 3). Lack of prior formal research training was the lowest rated obstacle.

Potentially useful programs included roundtable discussions to generate ideas and collaborations for future research projects (94%); workshops

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TABLE 1 Demographics of 220 Pediatric Hospitalists Surveyed

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<th>Percent</th>
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<tr>
<td>Female gender</td>
<td>63%</td>
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<tr>
<td><strong>Clinical setting</strong></td>
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<tr>
<td>Free-standing children's hospital</td>
<td>36%</td>
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<tr>
<td>Children's hospital within a hospital</td>
<td>37%</td>
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<tr>
<td>Community hospital with significant pediatric subspecialty services</td>
<td>9%</td>
</tr>
<tr>
<td>Community hospital with limited pediatric subspecialty services</td>
<td>18%</td>
</tr>
<tr>
<td>“Academic” practice setting</td>
<td>82%</td>
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<tr>
<td><strong>Current career level</strong></td>
<td></td>
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<tr>
<td>Instructor/fellow</td>
<td>11%</td>
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<tr>
<td>Staff physician</td>
<td>25%</td>
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<tr>
<td>Assistant Professor</td>
<td>52%</td>
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<tr>
<td>Associate/Full Professor</td>
<td>12%</td>
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<tr>
<td><strong>Administrative activities</strong></td>
<td></td>
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<tr>
<td>Medical staff hospital committee</td>
<td>83%</td>
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<tr>
<td>Participate in QI committees</td>
<td>67%</td>
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<tr>
<td>Design clinical practice guidelines</td>
<td>59%</td>
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<tr>
<td><strong>Teaching responsibilities</strong></td>
<td></td>
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<tr>
<td>Supervise residents</td>
<td>90%</td>
</tr>
<tr>
<td>Residency/clerkship director (associate)</td>
<td>21%</td>
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FIGURE 1: Research capacity (academic environment, research interest, training, and productivity).
on QI research (90%), national/administrative dataset analysis (89%), and research funding (83%); and short-term training courses in statistical analysis and methodology (83%) and writing and publishing research (80%). Opportunities to develop multicenter research networks were strongly desired (96%), as was increasing collaboration and integration of hospital medicine (especially in community hospitals) within scientific circles and other specialties (96%), giving new researchers opportunities to share their findings (93%), and funding hospital-based research (88%).

**Discussion**

This cross-sectional study shows that most of the pediatric hospitalists who responded to our survey are motivated to carry on inpatient research but have limited formal research training and perceive that they need more time, mentorship, and resources. Over half of the study respondents had presented an abstract at a national meeting and a quarter had been a first author of a peer-reviewed publication. Most pediatric hospitalists were interested in doing research in the areas of QI and patient safety. Over half of the study respondents had designed clinical practice guidelines and two-thirds had participated in implementing QI initiatives. However, with fewer than an eighth of survey respondents having funding to perform research and even fewer having more than two publications as first author, research productivity of pediatric hospitalists remains concentrated among very few researchers.

Our study shows that, on the one hand, pediatric hospitalists are well-positioned to conduct inpatient clinical research because they are motivated, are in academic positions, and are leading QI and practice changes. For example, because they can reduce hospital lengths of stay and costs, hospitalists are well-positioned to lead inpatient cost-effectiveness research. Other important niches of expertise include quality control, resource utilization, perioperative medicine, and care transitions. In addition, interest in research in our study was less driven by requirements for academic promotion and more by a desire to improve the quality of care for hospitalized patients and advance the field of hospital medicine.

On the other hand, most pediatric hospitalists in our study lacked formal
Research training. Many hospitalists were hired immediately after completing residency training and very few have pursued fellowship training. This may be because there are only a few fellowships in PHM (fewer than 15 in the United States) and/or because there is a lack of role models and mentors active in research to guide residents interested in PHM. Also, most PHM fellowships center on clinical care, teaching, and local QI rather than on research.11,15,16 While formal academic fellowships may be the most efficient way of training hospitalists in rigorous research, the current obstacles make it important to develop alternative training opportunities and support hospitalists who want to do some research but not make it their career. Most pediatric hospitalists who are interested in doing research considered lack of prior formal research training to be the least significant obstacle to doing research. However, they are ready to acquire research skills now and want to start by attending workshops and short-term training courses in research methodology, publishing, and obtaining funding. These programs should be continued and promoted.

In our study, lack of time was the most significant obstacle for pediatric hospitalists interested in doing research. Time allocated for research was rare, even though about two-thirds of respondents had academic appointments and over a third were expected by their institution to do research. Similarly, other studies have found that because of the structure of most hospitalist programs and the financial arrangement between the hospitalist group and the hospital, hospitalists experience heavy clinical workloads and are drawn into operational or administrative duties that leave insufficient time to focus on research.11,15,17 In our study, pediatric hospitalists allocated twice as much time to administrative duties and teaching as they did to research. We agree with other authors3,15,18,19 that protected time to learn research-related skills and participate in research is crucial to the success of academic hospitalist programs. With protected time for research, interested pediatric hospitalists can acquire research training and apply an academic analytical approach to their administrative roles, teaching, involvement in local QI and clinical practice guidelines. Academic programs can provide a few years of salary support to help junior investigators so that they can develop their research projects and obtain extramural funding.

Pediatric hospitalists also want and need opportunities for mentorship and the development of multicenter research networks and collaboration with other researchers and specialties. Such opportunities are crucial for the hospitalist, and can be provided within the division if well established. For example, the UCSF Adult Hospital Medicine Division implemented a Faculty Development Program to improve faculty scholarly skills and academic output.20 The program targeted new faculty with a multifaceted approach including dedicated coaching relationships with more senior faculty members, a core curriculum, a teaching course, and activities to meet scholarly expectations. As a result, faculty reported increased work satisfaction and submitted more abstracts to regional and national meetings.

Research by hospitalists may need considerable investment from the department, medical school, and medical center, but institutions have the responsibility to develop junior faculty and to provide resources (eg, statisticians, laboratories, nursing).4,11,18,20 Junior faculty can be supported to participate in existing structured research programs.4,18 Institutions can support junior faculty’s attendance at research training courses available through general academic pediatric or adult hospital medicine fellowships or university postgraduate programs. Further, institutions can build a new clinical research infrastructure similar to that at the University of Michigan.3 The Specialist-Hospitalist Allied Research Program at that institution used hospitalist revenues brought into the Department of Internal Medicine to fund a 3-year program to provide salary support for collaborative projects. The program paired hospitalists with subspecialists and a team composed of a clinical research nurse, research associate, and clinical epidemiologist. Multiple studies are currently under way. Professional societies (eg, SHM, AAP, APA) may also be able to develop PHM research capacity by offering long-term research training. For example, in 1995, several national family medicine organizations came together to develop and fund a Grant Generating Project to build research capacity.21 This was a “fellowship without walls” for family medicine researchers who lacked these resources in their home institutions. It gave family medicine researchers the skills they needed to successfully obtain over $200 million in external funding.

Federal grants focusing on inpatient pediatric research are limited and difficult to obtain compared with subspecialty, disease-specific research.3,11,17 The field of emergency medicine (EM)
faced similar challenges in its early years.\textsuperscript{22} It too was born out of high clinical demand. It was the “forgotten stepchild of medical academia,” and junior faculty seeking research careers struggled to find support and mentorship.\textsuperscript{22} But just like the inpatient ward, the emergency department proved to be a rich site for clinical research. Academic growth in EM required rallying support from the American College of Emergency Physicians and the Society of Academic Emergency Medicine, and engaging the stakeholders (NIH, Centers for Medicare and Medicaid Services, and Agency for Health Research and Quality) in “think-tank” meetings (M. Callaham, MD, personal communication, 2011). Policy pronouncements helped establish public expert documents that recommended guidelines and measurable outcomes. At a consensus workshop session, EM leaders brainstormed ways to develop research capacity.\textsuperscript{23} EM, like hospital medicine, had a huge amount of clinical practice based on little evidence, so they established a research agenda,\textsuperscript{24} and used it to their advantage in discussions with federal agencies. Likewise, professional societies such as the SHM, AAP, and APA can lobby for federal funding for inpatient pediatric research.

Two main limitations to our study should be noted. First, our study has a relatively low response rate (20%), so our findings may not be representative of all pediatric hospitalists. Despite the low response rate, this is one of the largest surveys to date of pediatric hospitalists, comparable to previous studies from the Pediatric Research in Inpatient Settings (PRIS) network.\textsuperscript{25,26} Most online surveys have a response rate of 10% to 40%,\textsuperscript{27,29} It is likely that some of our e-mail contacts were in error or dormant (not the primary e-mail address), so our response rate may be higher. Of note, only 380 e-mail contacts belong to “active” members who have posted to the listserv at least once in 2009 (K. Powell, MD PhD, personal communication, September 2010). Nevertheless, we chose the AAP SOHM listserv because it is the largest listserv of pediatric hospitalists and it enabled us to collect data from the most representative population, including practicing pediatric hospitalists who may not be members of the PRIS network.

Second, some biases may have affected our results. The pediatric hospitalists who completed the survey may be biased toward an interest in research. Interest in conducting research may be lower in the general population of pediatric hospitalists. In an attempt to minimize selection bias, the explanatory letter accompanying the study explicitly asked all pediatric hospitalists to complete the survey regardless of their interest in research. It is encouraging that even community pediatric hospitalists were eager to address the research needs of the hospitalist community, as supported by the fact that almost a third of survey respondents worked at community hospitals. In addition, all responses were based on self-report and we could not verify the information provided. However, given the anonymous nature of the survey, the likelihood of misrepresentation of data was low. To minimize recall bias we asked few questions about past events. Finally, while we did not have a standard measure to time allocated for “professional responsibilities” across institutions, the self-reported results likely reflect the respondents’ view of how their time was compensated.

Conclusion
Pediatric hospitalists are in a unique position to conduct research to improve the quality of inpatient care. However, pediatric hospitalists face significant obstacles to academic productivity. Time allocated for research and coordinated efforts to improve access to training, collaboration, and academic resources are critical for career development and the academic growth of the field. National organizations and hospital programs can support these professional needs.

References


