Pediatric Hospitalist Workload and Sustainability in University-Based Programs: Results from a National Interview-Based Survey

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Wide variability exists in the clinical workload of pediatric hospitalists without an accepted standard for benchmarking purposes. By using data obtained from interviews of pediatric hospital medicine (PHM) program leaders, we describe the clinical workload of university-based programs and report on the program sustainability perceived by PHM program leaders. The median clinical hours reported for a full-time pediatric hospitalist were 1,800 hours per year, with a median of 15 weekends worked per year. Furthermore, program leaders reported an ideal number of clinical hours as 1,700 hours per year. Half of the interviewed program leaders perceived their current models as unsustainable. Programs perceived as unsustainable were more likely than those perceived as sustainable to require a higher number of weekends worked per year or to be university employed. Further research should focus on establishing benchmarks for the workloads of pediatric hospitalists and on evaluating factors that can affect sustainability. *Journal of Hospital Medicine* 2018;13:702-705. Published online first June 27, 2018. © 2018 Society of Hospital Medicine

Pediatric hospital medicine (PHM) has grown tremendously since Wachter first described the specialty in 1996.[1] Evidence of this growth is seen most markedly at the annual Pediatric Hospitalist Meeting, which has experienced an increase in attendance from 700 in 2013 to over 1,200 in 2017[2]. Although the exact number of pediatric hospitalists in the United States is unknown, the American Academy of Pediatrics Section on Hospital Medicine (AAP SOHM) estimates that approximately 3,000-5,000 pediatric hospitalists currently practice in the country (personal communication).

As PHM programs have grown, variability has been reported in the roles, responsibilities, and workload among practitioners. Gosdin et al.[3] reported large ranges and standard deviations in workload among full-time equivalents (FTEs) in academic PHM programs. However, this study's ability to account for important nuances in program description was limited given that its data were obtained from an online survey.

Program variability, particularly regarding clinical hours and overall clinical burden (eg, in-house hours, census caps, and weekend coverage), is concerning given the well-reported increase in physician burn-out.[4,5] Benchmarking data regarding the overall workload of pediatric hospitalists can offer nationally recognized guidance to assist program leaders in building successful programs. With this goal in mind, we sought to obtain data on university-based PHM programs to describe the current average workload for a 1.0 clinical FTE pediatric hospitalist and to assess the perceptions of program directors regarding the sustainability of the current workload.

METHODS

Study Design and Population

To obtain data with sufficient detail to compare programs, the authors, all of whom are practicing pediatric hospitalists at university-based programs, conducted structured interviews of PHM leaders in the United States. Given the absence of a single database for all PHM programs in the United States, the clinical division/program leaders of university-based programs were invited to participate through a post (with two reminders) to the AAP SOHM Listserv for PHM Division Leaders in May of 2017. To encourage participation, respondents were promised a summary of aggregate data. The study was exempted by the IRB of the University of Chicago.

Interview Content and Administration

The authors designed an 18-question structured interview regarding the current state of staffing in university-based PHM programs, with a focus on current descriptions of FTE, patient volume, and workload. Utilizing prior surveys[3] as a basis, the authors iteratively determined the questions essential to understanding the programs' current staffing models and ideal models. Considering the diversity of program models, interviews allowed for the clarification of questions and answers. A question regarding employment models was included to

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determine whether hospitalists were university-employed, hospital-employed, or a hybrid of the two modes of employment. The interview was also designed to establish a common language for work metrics (hours per year) for comparative purposes and to assess the perceived sustainability of the workload. Questions were provided in advance to provide respondents with sufficient time to collect data, thus increasing the accuracy of estimates. Respondents were asked, "Do you or your hospitalists have concerns about the sustainability of the model?" Sustainability was intentionally undefined to prevent limiting respondent perspective. For clarification, however, a follow-up comment that included examples was provided: "Faculty departures, reduction in total effort, and/or significant burn out." The authors piloted the interview protocol by interviewing the division leaders of their own programs, and revisions were made based on feedback on feasibility and clarity. Finally, the AAP SOHM Subcommittee on Division Leaders provided feedback, which was incorporated.

Each author then interviewed 10-12 leaders (or designee) during May and June of 2017. Answers were recorded in REDCAP, an online survey and database tool that contains largely numeric data fields and has one field for narrative comments.

Data Analysis

Descriptive statistics were used to summarize interview responses, including median values with interquartile range. Data were compared between programs with models that were self-identified as either sustainable or unsustainable, with *P*-values in categorical variables from χ^2-test or Fischer's exact test and in continuous variables from Wilcoxon rank-sum test.

Spearman correlation coefficient was used to evaluate the association between average protected time (defined as the percent of funded time for nonclinical roles) and percentage working full-time clinical effort. It was also used to evaluate hours per year per 1.0 FTE and total weekends per year per 1.0 FTE and perceived sustainability. Linear regression was used to determine whether associations differed between groups identifying as sustainable versus unsustainable.

RESULTS

Participation and Program Characteristics

Of the 143 subscribers to the listserv, which includes community and university-based programs, 62 division leaders/directors that self-identified by university-based hospitalist programs initially responded, and 56 completed phone interviews. Of these 56 respondents, 48% were university employed. The remainder were hospital employed (27%), had joint university/hospital appointments (13%), practiced in a private group (5%), or other models (7%).

Administration

A wide variation was reported in the clinical time expected of a 1.0 FTE hospitalist. Clinical time for 1.0 FTE was defined as the amount of clinical service a full-time hospitalist is expected to complete in 12 months (Table 1). The median hours worked per year were 1800 (Interquartile range [IQR] 1620,1975; mean 1796). The median number of weekends worked per year was 15.0 (IQR 12.5, 21; mean 16.8). Only 30% of pediatric hospitalists were full-time clinicians, whereas the rest had protected time for nonclinical duties. The average amount of protected time was 20% per full-time hospitalist.

TABLE 1. **Demographics of Programs Interviewed**

	All (n = 56)
Total FTEs employed, median (IQR)	9.8 (5, 18)
Metric used to describe FTE	
Hours	22 (39%)
Shifts	15 (27%)
Weeks	19 (34%)
1.0 FTE in hours per year (converted from metric used)	
Mean (SD)	1,796 (232)
Median (IQR)	1,800 (1,620, 1,975)
Weekends total/year in 1.0 FTE	
Mean (SD)	16.8 (5.9)
Median (IQR)	15 (12.5, 21)
Cap on weekends, n (%)	28 (50%)
Pager overnight, n (%)	36 (64%)
Average pager burden (1-5 scale, with lower = less)	2.41
Expansion of staff/coverage seasonally, n (%)	18 (32%)
Back-up system formally in place, n (%)	30 (54%)
Census cap in place, n (%)	22 (39%)
Percentage working full clinical FTE, median (IQR)	30 (6, 56)
Average buyout for nonclinical %, median (IQR)	20 (17.5, 34.5)

Abbreviations: FTE, full-time equivalent; IQR, interquartile range; SD, standard deviation.

Sustainability and Ideal FTE

Half of the division leaders reported that they or their hospitalists have concerns about the sustainability of the current workload. Programs perceived as sustainable required significantly fewer weekends per year (13 vs 16, $P < .02$; Table 2) than those perceived as unsustainable. University-employed programs were more likely to be perceived as unsustainable (64% unsustainable vs 32% unsustainable, $P < .048$), whereas programs with other employment models were more likely to be perceived as sustainable (Table 2). Total hours currently worked did not differ significantly between programs perceived as sustainable and unsustainable. Respondents reported an ideal workload for a 1.0 FTE of 1,700 clinical hours (median). The hours worked per year for programs perceived as sustainable were statistically closer to their ideal than those perceived as unsustainable ($P = .46$; Table 2).

DISCUSSION

This study updates what has been previously reported about the structure and characteristics of university-based pediatric

TABLE 2. **Comparison of Practices Reporting Sustainable and Unsustainable Models**

	All Programs n = 56	Unsustainable n = 28	Sustainable n = 28	*P*-value
1.0 FTE hours per year, median (IQR)	1,800 (1,620, 1,975)	1,800 (1,646, 2,000)	1,764 (1,620, 1,935)	.47
Weekends total per year, median (IQR)	15.0 (12.5, 21)	16 (13.5, 23.5)	13 (12, 16)	.02
University employed, n (%)	27 (48%)	18 (64%)	9 (32%)	.048
Dual university and hospital employed, n (%)	7 (13%)	2 (7%)	5 (18%)	
Hospital employed, n (%)	15 (27%)	6 (21%)	9 (32%)	
Private employed, n (%)	3 (5%)	0	3 (11%)	
Other, n (%)	4 (7%)	2 (7%)	2 (7%)	
Ideal 1.0 FTE, median (IQR)	1,700 (1,545, 1,813)	1,700 (1,500, 1,800)	1,696 (1,583, 1,831)	.55
Difference 1.0 FTE–Ideal FTE, median (IQR)	0 (0, 220)	125 (0, 321)	0, (0, 114)	.046

hospitalist programs.[3] It also deepens our understanding of a relatively new field and the evolution of clinical coverage models. This evolution has been impacted by decreased resident work hours, increased patient complexity and acuity,[6] and a broadened focus on care coordination and communication,[7] while attempting to build and sustain a high-quality workforce.

This study is the first to use an interview-based method to determine the current PHM workload and to focus exclusively on university-based programs. Compared with the study by Gosdin et al,[3] our study, which utilized interviews instead of surveys, was able to clarify questions and obtain workload data with a common language of hours per year. This approach allowed interviewees to incorporate subtleties, such as clinical vs total FTE, in their responses. Our study found a slightly narrower range of clinical hours per year and extended the understanding of nonclinical duties by finding that university-based hospitalists have an average of 20% protected time from clinical duties.

In this study, we also explored the perceived sustainability of current clinical models and the ideal clinical model in hours per year. Half of respondents felt their current model was unsustainable. This result suggested that the field must continue to mitigate attrition and burnout.

Interestingly, the total number of clinical hours did not significantly differ in programs perceived to be unsustainable. Instead, a higher number of weekends worked and university employment were associated with lack of sustainability. We hypothesize that weekends have a disproportionate impact on work-life balance as compared with total hours, and that employment by a university may be a proxy for the increased academic and teaching demands of hospitalists without protected time. Future studies may better elucidate these findings and inform programmatic efforts to address sustainability.

Given that PHM is a relatively young field, considering the evolution of our clinical work model within the context of pediatric emergency medicine (PEM), a field that faces similar challenges in overnight and weekend staffing requirements, may be helpful. Gorelick et al.[8] reported that total clinical work hours in PEM (combined academic and nonacademic programs) has decreased from 35.3 hours per week in 1998 to 26.7 in 2013. Extrapolating these numbers to an annual position with five weeks PTO/CME, the average PEM attending physician works 1,254 clinical hours. These numbers demonstrate a marked difference compared with the average 1,800 clinical work hours for PHM found in our study.

Although total hours trend lower in PEM, the authors noted continued challenges in sustainability with an estimated half of all PEM respondents indicating a plan to reduce hours or leave the field in the next five years and endorsing symptoms of burnout.[6] These findings from PEM may motivate PHM leaders to be more aggressive in adjusting work models toward sustainability in the future.

Our study has several limitations. We utilized a convenience sampling approach that requires the voluntary participation of division directors. Although we had robust interest from respondents representing all major geographic areas, the respondent pool might conceivably over-represent those most interested in understanding and/or changing PHM clinical models. Overall, our sample size was smaller than that achieved by a survey approach. Nevertheless, this limitation was offset by controlling respondent type and clarifying questions, thus improving the quality of our obtained data.

CONCLUSION

This interview-based study of PHM directors describes the current state of clinical work models for university-based hospitalists. University-based PHM programs have similar mean and median total clinical hours per year. However, these hours are higher than those considered ideal by PHM directors, and many are concerned about the sustainability of current work models. Notably, programs that are university-employed or have higher weekends worked per year are more likely to be perceived as unsustainable. Future studies should explore dif-

ferences between programs with sustainable work models and those with high levels of attrition and burnout.

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