

Where Does the Week Go? Parsing Trends in Program Director Workload

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ABSTRACT

Background Program directors (PDs) play an important role in resident career development, and resident retention may be influenced by PD turnover and workload.

Objective To examine PD tenure, work hours, and resident attrition.

Methods A retrospective study of data from the Accreditation Council for Graduate Medical Education (ACGME) Data Resource Book from 2012 to 2021. Descriptive statistics were used to examine PD characteristics. Regression analyses were used to examine trends in PD tenure and work hours as well as the relationship between work hours, PD turnover, and resident attrition rate for anesthesiology, emergency medicine, family medicine, internal medicine, obstetrics and gynecology, pediatrics, psychiatry, general surgery, plastic surgery, orthopaedic surgery, otolaryngology, thoracic surgery, urology, and vascular surgery programs.

Results Average PD tenure has decreased between 2012 and 2021 for most specialties, with an overall average decrease from 7.0 years to 6.6 years. Total weekly hours spent by PDs on job-related activities in all specialties decreased over time, from 51.3 hours to 44.2 hours. The proportion of weekly hours spent on teaching has decreased slightly, with a corresponding increase in time spent on clinical supervision and administrative duties. PDs in procedural specialties spend more time on clinical supervision, while PDs in non-procedural specialties devote more time to administration. Logistic regression showed a significant association between weekly hours spent by PDs on clinical supervision and resident attrition rate.

Conclusions Length of PD tenure and total number of weekly hours devoted to residency-related activities has decreased across specialties. Proportions of time spent on teaching, clinical supervision, and administrative work vary.

Introduction

Program directors (PDs) need to follow several sets of regulation imposed by different governing bodies (eg, the Accreditation Council for Graduate Medical Education [ACGME], specialty boards, local institutional graduate medical education offices) as well as to be in charge of the admission process, resident promotion, resident graduation, and preparation for residents who opt for pursuing a fellowship program.^{1,2}

Although the influence of PDs on the success and well-being of individual residents is undoubtedly significant, it is difficult to quantify which characteristics and behaviors of PDs are specifically associated with resident outcomes. Because of the job complexity and demanding learning curve of becoming a PD, turnover has been hypothesized to be detrimental to residents and is a topic of interest in many specialties.^{3,4} For example, within general surgery residency programs, greater PD turnover is associated with

higher failure rates on board examinations for graduating residents.⁵ In addition, a significant proportion of PDs have tenure shorter than the term required by the ACGME.^{4,5} Turnover can affect faculty, residents, program quality, and recruitment.⁶

Surgical specialties have been shown to have higher resident attrition rates than other specialties,⁷⁻¹⁰ which may be related to a variety of factors, including lifestyle issues and resident and program characteristics.¹¹⁻¹³ Better understanding of the interplay between PDs and resident retention may aid in the development of strategies to mitigate attrition, particularly for residents in specialties at high risk of attrition. In this study, we were interested in elucidating the tenure and workload of residency PDs and exploring the relationship between PD factors and resident attrition rate.

Methods

This is a retrospective study performed using publicly available data obtained from the ACGME Data Resource Book from 2012 to 2021.¹⁴ All ACGME-accredited anesthesiology, emergency medicine, family medicine, internal medicine, obstetrics and gynecology

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(OB/GYN), pediatrics, psychiatry, general surgery, plastic and integrated plastic surgery, orthopaedic surgery, otolaryngology (ENT), integrated thoracic surgery, urology, and integrated vascular surgery programs were included in the analysis, as these are the largest residency specialties based on number of residents. Variables obtained directly from the ACGME Data Resource Book include mean number of hours per week spent by PDs on administration, clinical supervision, teaching/didactics, and total hours; number of programs with new PDs; number of residency programs; percent of programs with new PDs (turnover); number of residents; number of residents who withdrew from residency; and average tenure in years of PDs. Resident attrition rate was calculated as the number of residents who withdrew from residency divided by total number of residents within a given specialty each year. Data are aggregated at the specialty level, with one observation per specialty per year.

Descriptive statistics were used to examine characteristics related to PDs, including percent change in PD tenure over the study period, for each specialty. To examine changes in average PD tenure and total hours per week spent by PDs on program-related activities over the study period, linear regression models were used, with year and specialty as predictor variables. Three additional linear regression models were used to examine the relationship of year and specialty with proportion of weekly hours spent on clinical, administrative, and teaching duties, respectively. Binary logistic regression analysis was used to examine the effect of program factors (specialty, year, weekly hours spent by PDs on program-related activities, and

KEY POINTS

What Is Known

Program director (PD) tenure and workload may affect resident retention.

What Is New

This study of ACGME Data Resource Book material showed that, from 2012 to 2021, the average tenure of PDs has shortened, and their weekly work hours on PD activities have decreased across medical specialties. Increased hours spent on clinical supervision are significantly associated with lower resident attrition rates.

Bottom Line

The study highlights a trend of decreasing tenure and a shift in work responsibilities for PDs that are associated with resident retention rates, suggesting that adjustments in PD roles may be necessary to enhance resident stability.

PD turnover) on resident attrition rate. General surgery was selected as the reference group because there is a large existing body of literature about resident attrition in general surgery. We used SAS Studio software, version 3.81 (SAS Institute Inc), to perform the analysis for this article.

Results

The average tenure of PDs has decreased between 2012 and 2021 for all included specialties, except anesthesiology, family medicine, OB/GYN, and integrated plastic surgery (TABLE 1). On average, the tenure of a PD decreased from 7.0 years to 6.6 years in this interval. On linear regression analysis, length of tenure was significantly associated with year (2021 compared to 2012, $B=-0.3$, $P=.01$; see TABLE 2).

TABLE 1

Average Tenure of Program Directors of ACGME-Accredited Residency Programs

Specialty	Average Tenure (Years)		% Change
	2012	2021	
Anesthesiology	5.9	6.8	15
Emergency medicine	7.1	6.9	-3
ENT	8.5	7.1	-16
Family medicine	6.6	6.6	0
General surgery	7.1	6.8	-4
Internal medicine	7.2	6.9	-4
OB/GYN	5.8	6.6	14
Orthopedic surgery	7.6	7.0	-8
Pediatrics	8.0	7.9	-1
Plastic surgery	6.4	7.1	11
Psychiatry	6.9	6.3	-9
Thoracic surgery	7.6	5.4	-29
Urology	9.3	8.1	-13
Vascular surgery	3.8	3.5	-8

Abbreviations: ACGME, Accreditation Council for Graduate Medical Education; ENT, otolaryngology; OB/GYN, obstetrics and gynecology.

TABLE 2

Linear Regression of Specialty and Year on Average Length of Tenure in Years for Program Directors From 2012 to 2021

Predictor Variables	B	SE	t	P value
Intercept	7.1	0.14	49.7	<.0001
Specialty ^a				
Anesthesiology	-0.5	0.2	-3.2	.002
Emergency medicine	0.2	0.2	1.2	.23
ENT	1.1	0.2	7.2	<.0001
Family medicine	0.0	0.2	-0.2	.85
Internal medicine	0.3	0.2	1.9	.07
OB/GYN	-0.7	0.2	-4.2	<.0001
Orthopaedic surgery	0.3	0.2	2.0	.05
Pediatrics	1.1	0.2	6.7	<.0001
Plastic surgery	-0.0	0.2	-0.6	.95
Psychiatry	-0.2	0.2	-1.2	.23
Thoracic surgery	-1.2	0.2	-7.9	<.0001
Urology	1.8	0.2	11.1	<.0001
Vascular surgery	-3.3	0.2	-21.1	<.0001
Year ^b				
2013	-0.2	0.1	-1.7	.09
2014	-0.2	0.1	-1.8	.07
2015	-0.2	0.1	-1.8	.08
2016	-0.3	0.1	-1.9	.06
2017	-0.3	0.1	-2.3	.03
2018	-0.3	0.1	-1.0	.04
2019	-0.3	0.1	-2.6	.01
2020	-0.3	0.1	-2.4	.02
2021	-0.3	0.1	-2.6	.01

^a Reference group is general surgery.^b Reference group is 2012.

Abbreviations: ENT, otolaryngology; OB/GYN, obstetrics and gynecology.

Note: Bolding denotes statistical significance ($P < .05$).

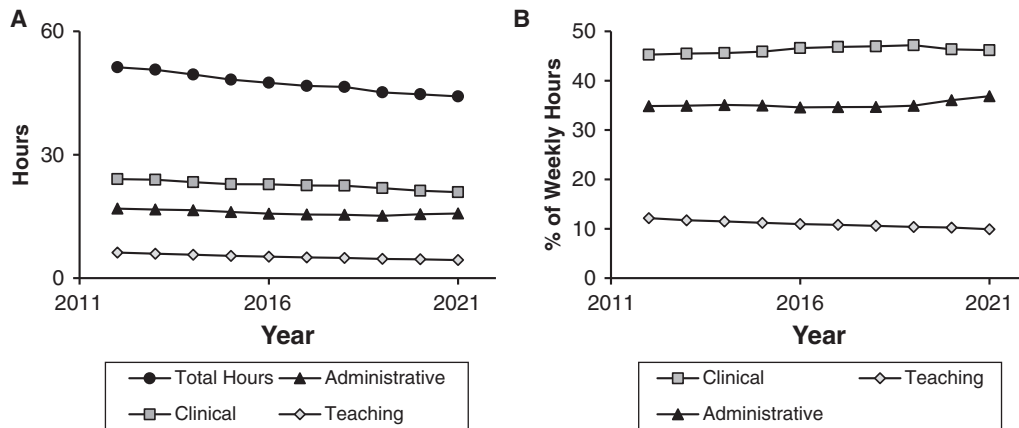
Tenure length was also related to specialty. Relative to the reference group (general surgery), anesthesiology, OB/GYN, integrated thoracic, and integrated vascular surgery PDs had significantly shorter average tenure, while ENT, pediatrics, and urology PDs had longer tenure on average (TABLE 2).

Among all specialties, the total number of weekly hours spent by PDs on program-related activities, classified as administrative, teaching, or supervising, has decreased over time (from 51.3 hours in 2012 to 44.2 hours in 2021), mainly at the expense of teaching (FIGURE 1A and supplementary data TABLE 1). Proportionally, this represents an increase in time devoted to administrative work (34.9% in 2012 to 36.9% in 2021; FIGURE 1B). Linear regression analysis showed a significant association between year (2021 compared to 2012) and proportion of time spent on teaching ($B = -0.02$, $P < .0001$), clinical ($B = 0.01$, $P = .03$), and administrative ($B = 0.02$, $P < .0001$) activities (supplementary data TABLES 2-4). This trend is

most pronounced among internal medicine PDs, where the proportion of time devoted to teaching has dropped by over 40% (17.5% in 2012 vs 10.1% in 2021), with a corresponding increase in the proportion of time devoted to clinical supervision (from 27.0% in 2012 to 34.6% in 2021; supplementary data FIGURE 1). The steepest decline presented during the COVID-19 pandemic.

Overall, the proportion of weekly hours devoted to teaching ranges from 8% to 18% for all specialties. When averaged across the 10-year study period, clinical supervision comprises the largest proportion of work-related hours for PDs in most procedural specialties (anesthesiology, ENT, general surgery, orthopaedic surgery, plastic surgery, thoracic surgery, urology, and vascular surgery), while administration is the primary activity for all other PDs (TABLE 3).

A logistic regression model of program-related factors on resident attrition did not show any significant association between PD turnover and attrition.

**FIGURE 1**

Weekly Hours and Percent of Time Spent on Clinical, Administrative, and Teaching Activities by Program Directors, by Year
 a. Number of mean total weekly hours and hours spent on clinical, administrative, and teaching duties by program directors averaged across specialties, by year
 b. Percent of weekly hours spent by program directors on clinical, administrative, and teaching duties averaged across specialties, by year

Resident attrition rate was significantly associated with specialty, with all specialties having lower odds of attrition relative to general surgery, except plastic, thoracic, and vascular surgery. Hours spent each week by PDs on clinical supervision were significantly associated with resident attrition rate, with a decreased odds of attrition associated with increased hours spent on clinical supervision (OR 0.93, $P < .0001$; TABLE 4).

Discussion

In this article, we examined the current work environment for PDs in surgical and nonsurgical fields.

We found a decrease in the average length of tenure and the total number of weekly hours devoted to residency-related activities by PDs across specialties. There is a significant association between time spent by PDs on clinical supervision and resident attrition rates.

A previous survey among Canadian PDs showed that the amount of protected time does not correlate with job time requirements. Although the relationships and fulfillment of PDs was high, it was counterbalanced by a lack of administrative support and compensation. The net effect was that many PDs consider leaving their position.¹⁵ In the current study,

TABLE 3

Proportion of Weekly Hours Spent by Program Directors on Administrative, Clinical, and Teaching Activities, Averaged From 2012 to 2021

Specialty	Administrative (%)	Clinical (%)	Teaching (%)
Anesthesiology	34.1	50.2	9.5
Emergency medicine	41.7	36.8	13.7
ENT	21.4	61.1	9.3
Family medicine	53.1	32.7	9.6
General surgery	32.6	48.1	11.5
Internal medicine	48.8	29.7	14.7
OB/GYN	46.6	38.8	9.4
Orthopaedic surgery	22.8	59.0	10.1
Pediatrics	54.4	28.8	11.1
Plastic surgery	21.4	59.5	10.4
Psychiatry	55.0	27.2	11.0
Thoracic surgery	21.8	55.5	11.6
Urology	19.9	60.7	10.1
Vascular surgery	18.5	59.3	11.2

Abbreviations: ENT, otolaryngology; OB/GYN, obstetrics and gynecology.

Note: Remaining percent of weekly hours correspond to time percent of weekly hours spent on research activities was not included in this analysis.

TABLE 4

Adjusted Association Between Residency Program Factors and Resident Attrition Rate From 2012 to 2021

Predictor Variables	Adjusted OR, OR (95% CI)	P value
Specialty ^a		
Anesthesiology	0.51 (0.43-0.60)	<.0001
Emergency medicine	0.13 (0.09-0.18)	<.0001
ENT	0.35 (0.22-0.54)	<.0001
Family medicine	0.29 (0.16-0.54)	.0001
Internal medicine	0.12 (0.07-0.20)	<.0001
OB/GYN	0.34 (0.21-0.55)	<.0001
Orthopaedic surgery	0.44 (0.31-0.64)	<.0001
Pediatrics	0.14 (0.07-0.28)	<.0001
Plastic surgery	0.72 (0.45-1.16)	.18
Psychiatry	0.17 (0.09-0.33)	<.0001
Thoracic surgery	2.54 (1.47-4.40)	.0009
Urology	0.20 (0.13-0.33)	<.0001
Vascular surgery	1.04 (0.58-1.85)	.90
Year ^b		
2013	0.94 (0.83-1.06)	.31
2014	0.86 (0.76-0.98)	.03
2015	0.77 (0.67-0.89)	.0003
2016	0.70 (0.60-0.82)	<.0001
2017	0.65 (0.55-0.76)	<.0001
2018	0.63 (0.53-0.75)	<.0001
2019	0.56 (0.47-0.68)	<.0001
2020	0.62 (0.51-0.75)	<.0001
2021	0.50 (0.41-0.62)	<.0001
Administrative hours	0.98 (0.93-1.03)	.45
Clinical hours	0.93 (0.90-0.97)	<.0001
Teaching hours	0.99 (0.90-1.10)	.82
PD turnover	1.00 (0.99-1.02)	.86

^a Reference group is general surgery.^b Reference group is 2012.

Abbreviations: ENT, otolaryngology; OB/GYN, obstetrics and gynecology; PD, program director.

Note: ORs, 95% CIs, and *P* values from logistic regression of specialty, year, administrative hours per week spent by PD, clinical hours per week spent by PD, teaching hours per week spent by PD, and PD turnover on resident attrition rate; bolding denotes statistical significance (*P* < .05)

we found that total weekly hours spent by PDs on PD-related responsibilities has been declining in recent years. This may result in decreased job satisfaction and ultimately impact tenure, as we have shown that tenure has decreased for PDs overall in the past decade. Thus, the looming effect of this decrease in work hours may signify a future exacerbation of the trend in decreased PD tenure, which may have pernicious effects on board passage rates, resident recruitment, faculty experience, and indirectly on patient care. An alternate explanation is that these changes in weekly workload reflect a delegation of responsibilities to other core faculty within the residency program.

In 2000, a survey of PDs revealed that 18% of time was spent teaching¹⁶; we found a similarly low proportion of time devoted to teaching among PDs

in all fields in our study. Emotional exhaustion was reported frequently in the above-referenced survey and, importantly, was more prevalent among younger PDs than those who were more experienced.¹⁶ This may further contribute to increased future turnover. In 2020, 34% of internal medicine PDs met burnout criteria, and 45% contemplated leaving the position in the past year.¹⁷ The administrative burden placed on PDs, especially in nonprocedural specialties, coupled with the decreased support in terms of work hours may play a critical part in the development of burnout among PDs.

Although we did not find a statistically significant relationship between PD turnover and resident attrition rates in the current study, we did show an association between an increased number of hours per

week spent by PDs on clinical supervision and lower rates of resident attrition. This may reflect a relationship between programs that place a priority on appropriate resident support in clinical settings and resident satisfaction and retention. Lower attrition rate residency programs have been shown to be more likely to use resident remediation¹⁸; thus, PDs who spend more time on clinical supervision may also be better able to directly mentor or remediate residents at risk of attrition. It is also possible that a greater abundance of hospital resources and support may serve as a moderator variable underlying the relationship between clinical supervision and resident attrition.

This study was limited by using aggregated retrospective data, which does not contain detailed information about individual PDs that may help to explain some of the trends we have observed in the current article. Additionally, the outcome measure of this study is resident attrition rate; while attrition is important, it does not fully capture resident well-being or success. Other outcomes such as resident satisfaction, competency, or post-residency performance could provide a more nuanced understanding of the impact of PD characteristics on residents.

While these findings offer valuable insights into the current state of PDs, future work should explore additional PD characteristics and their impact on a broader range of resident outcomes to provide a more comprehensive understanding of the complex dynamics at play within residency training programs. Such knowledge is crucial for informing strategies to support PDs in their roles and optimize resident experiences.

Conclusions

In this study, we found a decrease in PD tenure and total weekly hours spent by PDs on program-related activities from 2012 to 2021. Additionally, we observed a significant association between time spent by PDs on clinical supervision and resident attrition rates.

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