

Restoring Emphasis on Ambulatory Internal Medicine Training—The 3:1 Model

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Abstract

Background Resident dissatisfaction in ambulatory care training has prompted the need for new scheduling models that support a positive learning climate.

Intervention We instituted a 3:1 scheduling model for postgraduate year (PGY)-2 and PGY-3 residents. We hypothesized this model would provide a more structured ambulatory educational atmosphere, better continuity of care, and more exposure to subspecialty outpatient medicine. This model would also eliminate conflict with inpatient duties and contribute to enhance residents' satisfaction with ambulatory medicine and their ambulatory education experience. The model used weeklong ambulatory blocks every fourth week, consisting of morning continuity clinic and afternoon subspecialty clinics. The PGY-1 residents maintained a traditional schedule.

Results Residents were surveyed regarding their ambulatory experience, with an overall response rate of 73 of 80 (91%). The PGY-2 and PGY-3 responses were analyzed descriptively and compared with PGY-1 responses. Residents reported that the 3:1 model positively affected their satisfaction with residency training in general, their satisfaction with outpatient/primary care training, and their outpatient/clinic educational experience. Residents in the 3:1 model perceived improvements in continuity of care and in the quality of care they provided for patients. The experience in ambulatory subspecialty training was positive.

Conclusions A 3:1 scheduling model appears to mitigate some of the conflict between inpatient and outpatient duties. Residents agreed the new model promoted an improved ambulatory experience.

Editor's Note: The online version of this article contains the survey instruments used in this study.

Introduction

Prior studies indicate that internal medicine (IM) residents feel poorly trained in the ambulatory setting.¹⁻⁴ Without an adequate ambulatory care experience, IM residents may fail to observe the rewarding nature of developing continuity relationships with patients and may not gain the confidence and experience to be effective outpatient practitioners.^{1-3,5} Despite the majority of health care being provided in the

outpatient setting,⁶ IM residents traditionally spend most of their time on inpatient rotations. The Accreditation Council for Graduate Medical Education (ACGME) mandates one-third of a resident's training be ambulatory based.⁷ Unfortunately, on average, only approximately 13% of residency training occurs in the continuity clinic setting as programs use other rotations to fulfill the ambulatory requirement.³

The aforementioned concerns coupled with ACGME duty hour mandates have sparked a push for redesigning and revitalizing the ambulatory environment.^{2-4,8} Several institutions have altered the structure of their ambulatory training, yet, to date, few studies have been published regarding the efficacy of such changes. Following the institution of a 4:1 scheduling template, which provided residents with weeklong ambulatory blocks every fifth week, results included improved perceptions of the ambulatory educational experience and minimized conflict between inpatient and ambulatory duties.⁹ Other research has found positive outcomes in terms of resident and patient satisfaction, quality measures, and lower no-show rates following the institution of a yearlong continuous ambulatory group experience.^{10,11}

After benchmarking several innovative programs, the IM residency program at Upstate Medical University

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instituted a 3:1 scheduling model for postgraduate year (PGY)-2 and PGY-3 residents. The model provided 1 week of strictly ambulatory care medicine every fourth week. A 3:1 model was preferred over a 4:1, or yearlong model, for several reasons. Primarily, it was felt that this would provide more ambulatory time and foster continuity of care. In addition, scheduling for a 3:1 model is simpler and more flexible.

We hypothesized that the 3:1 model would have several positive effects; primarily, that residents would report an improved learning climate and the ability to provide quality ambulatory care by eliminating the concurrent demands of inpatient duties. Additionally, we hoped to improve resident satisfaction with ambulatory training, to provide more exposure to subspecialty outpatient medicine, and to improve residents' perceptions of continuity of care with their patients.

Methods

Setting, Participants, and Program Description

The 3:1 model was instituted for PGY-2 and PGY-3 IM residents starting in July 2012, dedicating every fourth week to ambulatory training. To promote team continuity, PGY-2 and PGY-3 residents were equally divided into 4 groups for the duration of their training, and ambulatory teams consisting of 1 resident from each group were created to help provide clinic continuity. Staggering was utilized to maintain inpatient continuity of care such that PGY-2s and PGY-3s switched service on Mondays while PGY-1s and attendings did so on Wednesdays. During the ambulatory week, residents participated in morning continuity clinic and afternoon subspecialty clinic training. The subspecialty experience rotated with every ambulatory week, offering each resident 13 different subspecialty clinics yearly. Residents were allowed to schedule up to 2 weeks of vacation during ambulatory blocks. For simplicity, during the transition to the 3:1 model, PGY-1s maintained the traditional half-day per week clinic schedule and had a monthlong ambulatory care block. These changes were compliant with the ACGME resident duty hour standards.

In addition to offering subspecialty ambulatory care experience, the 3:1 model offered the opportunity to implement small group sessions on ambulatory care. Three mornings per week, residents started the day learning practice management issues, reviewing an *Annals of Internal Medicine* "In the Clinic" article, covering a pharmacy topic, or reviewing a physical examination skill. The topics rotated every 4 weeks. Once every quarter, residents participated in a half-day teaching activity that allowed faculty to directly observe residents communicate with simulated patients, role play clinical teaching scenarios, and run simulated codes.

What was known

Traditional ambulatory scheduling in internal medicine results in conflict between residents' inpatient and ambulatory experiences.

What is new

A weeklong ambulatory block every fourth week reduced conflict, enhanced continuity of care, and improved residents' perception of their ambulatory care experience.

Limitations

Single specialty, single site study reduces generalizability; survey tools were without established validity evidence.

Bottom line

A 3:1 model mitigates some of the conflict between inpatient and outpatient duties and improves residents' ambulatory education experience.

Program Evaluation

After instituting the 3:1 model, resident evaluations were obtained during the 10th 4-week block using a Likert scale survey. A literature review did not find any survey instruments with validity evidence; thus, the authors developed the survey questions using a similar study⁹ as a reference (provided as online supplemental material). A core set of 9 questions was administered to all residents, allowing comparison of the interns' traditional schedule to the 3:1 model for the PGY-2/PGY-3 group using a *t* test and calculating a 95% CI. Additionally, the PGY-2/PGY-3 group was asked to evaluate their experience in the 3:1 model and compare it to the prior year's traditional schedule. These results were analyzed descriptively by calculating the mean of the Likert scale responses. Survey questions focused on residents' perspectives of the ambulatory experience, including its educational value, effects on continuity of care, and presence of conflict between inpatient and outpatient duties.

We obtained Institutional Review Board exemption for the surveying of residents; participant identification was not collected. Completed surveys were collected by the study's investigators, and data were entered on Microsoft Excel and analyzed on Stata software version 10.0 (StataCorp LP).

Results

All categorical IM residents were asked to complete the cross-sectional anonymous survey. Twenty-three of 28 PGY-1 residents (82%) participated during a mandatory meeting, and 50 of 52 PGY-2/PGY-3 residents (96%) participated during their ambulatory care week, for an overall response rate of 91%. All 73 participants responded to 100% of the questions. Both the PGY-1 and PGY-2/PGY-3 groups noted satisfaction with their IM residency

TABLE 1 POSTGRADUATE YEAR (PGY)–1 VERSUS PGY-2/PGY-3 RESPONSES REGARDING AMBULATORY TRAINING^a

Question	PGY-1, ^b Mean (SD) (n = 23)	PGY-2/PGY-3, ^b Mean (SD) (n = 50)	Mean Difference (95% CI)	P Value
I am satisfied with my residency training in general.	4.61 (0.58)	4.66 (0.48)	−0.05 (−0.31 to 0.21)	.69
I am satisfied with my outpatient/primary care training.	3.48 (0.85)	4.08 (0.92)	−0.60 (−1.05 to −0.15)	.01 ^c
Ambulatory medicine is enjoyable.	3.61 (0.84)	4.06 (0.96)	−0.45 (−0.91 to 0.01)	.06
The ambulatory medicine clinic provides a positive educational experience.	3.70 (0.82)	4.06 (0.91)	−0.36 (−0.81 to 0.08)	.11
I have continuity of care with my patients.	3.91 (0.67)	4.38 (0.88)	−0.47 (−0.88 to −0.06)	.03 ^c
I provide quality care for my patients.	4.35 (0.57)	4.5 (0.54)	−0.15 (−0.43 to 0.13)	.28
I have adequate exposure to subspecialty outpatient medicine.	3.0 (0.93)	4.58 (0.54)	−1.58 (−1.93 to −1.23)	≤ .01 ^c
I am not distracted or worried by inpatient duties while at clinic.	2.39 (0.99)	4.92 (0.34)	−2.53 (−2.84 to −2.22)	≤ .01 ^c
The half-day per week clinic experience is ideal for IM training.	1.95 (1.02)	2.41 (1.48)	−0.45 (−1.14 to 0.23)	.19

Abbreviation: IM, internal medicine.

^a N = 73.

^b Likert scale: 1, disagree strongly; 2, disagree; 3, neutral; 4, agree; 5, agree strongly.

^c Opinions between the first-year residents and second-/third-year residents were significantly different.

training. Participants agreed that quality care was provided for their patients and that the ambulatory clinic provided an enjoyable and positive educational experience.

There was consensus that the traditional ambulatory schedule was not ideal for IM training (TABLE 1). The PGY-1 residents were less satisfied than PGY-2/PGY-3 residents with their outpatient/primary care training (mean 3.48 versus 4.08, $P = .01$), and perceived less continuity of care with their patients (mean 3.91 versus 4.38, $P = .03$), less adequate exposure to subspecialty outpatient medicine (mean 3.0 versus 4.58, $P \leq .01$), and more distractions or worries about inpatient duties while at clinic (mean 2.39 versus 4.92; $P \leq .01$; TABLE 1). The PGY-2/PGY-3 participants were neutral when asked if they were more likely to pursue a career in primary care after experiencing the 3:1 model (mean 3.34); however, they reported that the institution of the 3:1 model had positively affected their satisfaction with residency, outpatient/primary care training, clinic educational experience, continuity of care, quality of care, and opinion of subspecialty clinical medicine (TABLE 2).

Discussion

To our knowledge, this is the first study to directly survey residents who had participated in a traditional ambulatory schedule and a weekly clinic block model. In several ways,

our results parallel those of the study by Marriotti et al⁹ of a 4:1 scheduling system. Similarly, our 3:1 model addresses the longstanding concern of competing inpatient and outpatient duties and serves to improve the ambulatory educational experience. Other positive ramifications include residents' perceived improvements in continuity of care, quality of care, and the opportunity to experience subspecialty medicine in the outpatient arena. Although this model required significant coordinating efforts with subspecialty clinics and placed an increased demand on ambulatory faculty, it has proven to be very feasible. There has been minimal extra cost to the program and ambulatory faculty have embraced the transition. Residents' elective time has not decreased significantly, and they are no longer pulled from electives to help in clinic.

Our findings echo prior studies noting that residents frequently cite undesired conflicts with the traditional model of half-day weekly clinics and simultaneous responsibility for an inpatient service. Eliminating that conflict likely is the reason residents overwhelmingly agreed that the 3:1 model positively affected their outpatient experience. Other reasons for a positive response likely include an organized ambulatory care curriculum, emphasis on promoting continuity of care, increased time in the ambulatory setting, and improved exposure to subspecialty outpatient medicine.

TABLE 2

**ANALYSIS OF POSTGRADUATE YEAR (PGY)-2/
PGY-3 RESPONSES TO THE CHANGE TO THE 3:1
CLINIC SCHEDULE^a**

The 3:1 model has affected my . . .	Likert Scale, ^b Mean (SD)
Satisfaction with my residency training in general	4.42 (0.65)
Satisfaction with my outpatient/primary care training	4.27 (0.71)
Outpatient/clinic educational experience	4.25 (0.73)
Quality of care that I provide to my patients	4.25 (0.70)
Continuity of care with my patients	4.10 (0.81)
Opinion of subspecialty clinic medicine	4.06 (0.78)

^a N = 50.^b Likert scale: 1, very negatively; 2, negatively; 3, neutral; 4, positively; 5, very positively.

Our results suggest that the 3:1 model promotes continuity of care, which has been shown to increase provider and patient satisfaction and improve patient outcomes.¹² The 3:1 model offers more frequent continuity sessions than the 4:1 system does; same week and 1-month follow-ups are very achievable. The PGY-2/PGY-3 residents in the 3:1 model reported continuity of care scores significantly higher than the PGY-1 residents in the traditional model did, and residents who had experienced patient care in both systems agreed that the change to the 3:1 model positively affected continuity of care. The 3:1 model eliminated monthlong inpatient rotations, which may negatively affect inpatient continuity of care. We feel that was offset by a staggered schedule and by inpatient rotations that were no longer disrupted by clinic duties.

Our program has yet to assess the effect of subspecialty clinic exposure on the residency experience. A previous study of integrated ambulatory subspecialty experiences found residents performed slightly better on in-service examinations in fields in which they had subspecialty exposure.¹³ Our residents reported that the 3:1 model positively affected their opinion of subspecialty clinical medicine.

Our study has several limitations, including the lack of objective data supporting residents' perceived experience. A comparison of the percentage of visits patients had with their primary provider before and after implementation of the 3:1 model was not feasible because data were not

previously recorded and a new electronic health record system was implemented during the change. Further, conclusions drawn regarding the PGY-2/PGY-3 residents' perceptions of continuity of care could be biased by the opportunity for repeated visits and established rapport from an additional year of clinic training. Comparing the experiences of residents at different points in their training has inherent limitations.

Conclusion

Our 3:1 model for IM residency program scheduling appeared to substantially mitigate the conflict between inpatient and outpatient duties. Additionally, this model provided increased time for organized ambulatory educational sessions, improved resident satisfaction in several arenas, promoted continuity of care, and provided exposure to subspecialty outpatient medicine. Given the positive results thus far, our program has instituted the 3:1 model for all categorical interns as well as PGY-2 and PGY-3 residents since July 2013.

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