RESEARCH LETTER

Effect of ACGME Duty Hours on Attending Physician Teaching and Satisfaction

The implementation of restricted duty hours by the Accreditation Council for Graduate Medical Education (ACGME) have raised concerns regarding the potential negative effects on resident education and patient care. Equally concerning are the potential effects on teaching faculty. Surgical studies report the "trickle-up" effect, or, increased faculty workload due to absent residents. In a recent survey after the implementation of ACGME duty hours, faculty retrospectively reported decreased satisfaction with teaching and diminished career satisfaction. This study assesses the effect of ACGME duty-hour restrictions on in-patient attending physician teaching and satisfaction using data collected for 5 years, before and after implementation at a single institution.

Methods. From July 2001 to July 2006, inpatient attending physicians at the University of Chicago, Chicago, Illinois, were surveyed after their inpatient general medicine (GENS) rotation. The institutional review board of the University of Chicago approved this study. From July 2001 to July 2003, residents were not restricted by work hours. Each GENS team consisted of 1 attending physician, 1 resident, and 2 interns and took calls every fifth night, with 2 days of short-call shifts. In July 2003, to comply with ACGME restrictions, 8 teams with the same composition were introduced. Two teams took calls each night in a fourth-night rotation. New admissions alternated between teams until midnight. After admitting 10 patients or midnight (whichever came first), a night float resident admitted new patients. These admissions were "held over" for the next day’s call team. During the study period, 1 resident team each month was led by a faculty hospitalist, who was an attending physician 3 months yearly. Resident hours were consistent with ACGME restrictions. Attending physicians were asked to complete a 32-item end-of-rotation survey, adapted from prior studies. Attending physicians were asked to estimate the following: total, bedside, and didactic teaching (hours per week); feedback to housestaff (times per month); conferences missed due to rounds (times per week); and percentage of patients seen on day of admission. Attending physicians also rated their overall satisfaction and their satisfaction with items related to teaching, relationships, patient care, and professional development using a 5-point Likert scale ranging from 5 (very satisfied) to 1 (not at all satisfied). Lastly, space was provided for additional comments.

Because attending physicians were surveyed repeatedly, mixed-effects regression models controlling for attending physician were used to determine the effect of duty hours on teaching and satisfaction. Models included month indicators to account for seasonal variation. To investigate temporal trends, secondary analysis using study year indicators and (no duty-hour effect) was performed. All statistical tests were performed using Intercooled Stata 9.0 statistical software (StataCorp, College Station, Texas), with statistical significance defined as P < .05. Open-ended comments were reviewed for mention of duty hours.

Data are reported as before vs after implementation mean value; difference (95% confidence interval of the difference) and P value from mixed effects regression model.

Results. Of the 465 end-of-rotation surveys, 314 (68%) were received from attending physicians. Of the 113 individual attending physicians on GENS rotation during the study, 92 completed at least 1 survey before and after duty hours, for a total of 300 surveys (65%) for multivariate analyses. After implementation of duty-hour restrictions, attending physicians reported fewer hours of didactic teaching (3.92 hours vs 3.13 hours; −0.79 hours [−1.28 to −0.30 hours]) (P = .01), more times per week when residents missed conferences because of rounds (1.22 vs 1.69; 0.46 [0.13 to 0.80]) (P = .007), and a lower percentage of patients seen on the day of admission (40.01% vs 29.26%; −10.75% [−15.72% to −5.77%]) (P = .001). According to the Likert scale scores, attending physicians were less satisfied after implementation of duty-hour restrictions (4.26 vs 4.00; −0.26 [−0.47 to −0.05]) (P = .02), specifically for the following items: time for teaching (3.40 vs 2.92; −0.48 [−0.73 to −0.24]) (P = .001), professional growth and development (4.06 vs 3.72; −0.34 [−0.53 to −0.15]) (P = .001), educational stimulation of the work (4.41 vs 4.15; −0.26 [−0.43 to −0.09]) (P = .002), ability to determine length of stay (3.68 vs 3.27; −0.41 [−0.63 to −0.20]) (P = .001), and influence on hospital policy (2.65 vs 2.42; −0.23 [−0.40 to −0.07]) (P = .006). After implementation of duty-hour restrictions, attending physicians were also less likely to report that interns were truly involved in clinical decisions (4.50 vs 4.27; −0.24 [−0.37 to −0.10]) (P = .001) or that residents had sufficient autonomy (4.57 vs 4.40; −0.16 [−0.30 to −0.02]) (P = .02).

Using temporal trend models, we confirmed that changes related to housestaff teaching (time for teaching) were the greatest in the year immediately after implementation of duty-hour restrictions and were not likely
The decline in satisfaction with teaching may be due to structural changes in the residency to achieve duty-hour compliance. For example, the institution of a night float system results in more patients “held over” for an on-call team, with lower percentages of patients seen on the “initial day of admission.” These patients may not be ideal teaching cases, since housestaff did not admit the patient. Alternatives that balance duty hours with the opportunity for housestaff to actively participate in admitting patients they will follow should be explored.

Because inpatient attending physicians serve as career role models for medical students, understanding declines in attending physician satisfaction with professional development is important. One possibility is that over time, clinical work interferes with increasing pressures to produce scholarly work. Clinical work may be less educationally stimulating over time due to repeated hospitalization of the same patients or patients with the same disease (eg, sickle cell disease) or increased time spent addressing nonmedical issues (eg, nursing home placement). Future work can test these hypotheses.

There are several limitations of this study. This single-institution study limits generalizability. While the effects of secular trend or accumulating physician experience—both overall and institutional—cannot be excluded, additional analyses suggest that changes relating to housestaff teaching were consistent with the implementation of duty-hour restrictions. Preconceived attitudes toward duty hours may have biased responses. The survey was initially designed to test the effect of hospitalists and may have missed other effects of duty hours. While more satisfied attending physicians may have responded, this would lower the likelihood of detecting any changes. Because mixed-effects models may underestimate standard errors, we also used fixed-effects models, which yielded similar results that remained significant except for overall satisfaction (Likert scale score change, 0.23 [range, −0.47 to 0.09]) (P = .06).

In conclusion, after implementation of ACGME duty hours, inpatient attending physicians reported diminished satisfaction with teaching and professional development. Although changes in teaching corresponds with duty hours, decreased satisfaction with professional development appears to be due to secular trend.

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Author Contributions: Study concept and design: Arora and Meltzer. Acquisition of data: Arora and Meltzer. Analysis and interpretation of data: Arora and Meltzer. Drafting of the manuscript: Arora. Critical revision of the manuscript for important intellectual content: Arora and Meltzer. Statistical analysis: Arora and Meltzer. Obtained funding: Arora and Meltzer. Administrative, technical, and material support: Arora and Meltzer. Study supervision: Meltzer.

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Rooks et al\(^1\) report that patients with fibromyalgia syndrome experienced a meaningful improvement in physical function and well-being after undergoing a program of aerobic and flexibility exercise, strength training, and a self-help course (the Arthritis Foundation’s Fibromyalgia Self-Help Course). This is a finding with important treatment implications for this difficult-to-treat syndrome.

The authors’ conclusions were based on the findings of an analysis of subjects who completed treatment, and they did a laudable job of fully and transparently describing withdrawals. They also indicated that they performed an intention-to-treat analysis; however, the results of this do not appear to have been reported. The intention-to-treatment result may be especially important. First, high dropout rates can destroy the similarities of an analysis of subjects who completed treatment, and attending surgeons. Ann Surg. 2006;243(6):864-871.


**Detrimental Effect of Statin Therapy in Women With Fibromyalgia**

Rooks and colleagues\(^1\) found that an appropriately structured exercise program improved physical, emotional, and social function in women with fibromyalgia being actively treated with medication. However, they did not mention whether patients in the studied population were being treated with statins.

It is well known that statins may adversely affect the muscle’s ability to appropriately respond to physical exertion.\(^2\) In fact, in clinical practice, it has been reported that the incidence of muscle pain increases with the level of physical activity, with a great number of patients avoiding even moderate exertion during everyday activities.\(^3\) Furthermore, many physicians may be unfamiliar with the spectrum of statin-related muscular complaints and may not appreciate the impact of symptoms on patients.\(^4\) Indeed, it is thought that as many as 25% of statin users who exercise may experience muscle complaints due to statin therapy, which may be potentially dismissed by both patient and physician.\(^5\) Statin therapy has also been shown to cause muscle complaints in treated patients without inducing a marked increase in creatine kinase level.\(^6\)

Thus, statin therapy may interfere with the implementation of physical activity in patients with fibromyalgia and lead to the overdiagnosis of fibromyalgia syndrome.

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