

The Effect of Overnight In-House Attending Coverage on Perceptions of Care and Education on a General Medical Service

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Abstract

Background An increased emphasis on patient safety has led to calls for closer supervision of medical trainees. It is unclear what effect an increased degree of faculty presence will have on educational and clinical outcomes. The aim of this study was to evaluate resident and attending attitudes and preferences regarding overnight attending supervision.

Methods This study was a cross-sectional electronic survey of physicians. Participants were resident and faculty physicians recently on inpatient service rotations after implementation of an overnight attending coverage system.

Results Of 58 total respondents, most faculty (91%) and resident (92%) physicians reported they were satisfied

with the overall quality of care delivered and believed the quality of care delivered overnight improved with an in-house attending system (90% and 85%, respectively). Most resident physicians (82%) believed the educational experience improved with the system of increased attending availability. Nearly all faculty (95%) and resident (97%) physicians preferred the in-house attending system to the traditional system of attendings being available by pager. The implementation of such coverage resulted in increased cost to the hospital for compensating covering hospitalist physicians.

Conclusion In-house attending coverage was acceptable to both residents and faculty, with perceived improvements in quality and educational experience.

Background

The prevailing model of graduate medical education has long been one of according the trainee increasing gradations of responsibility over time.^{1,2} This process remains widely endorsed^{3,4} and, despite a lack of substantial empirical evidence supporting its effectiveness, has a strong theoretical basis.⁵ It is clear that the degree and quality of the clinical supervision currently provided is highly variable.^{2,6,7} In addition, recent developments have highlighted the need to reconsider the current paradigm of supervision. Evolution of the concept of patient safety, for example, has emphasized the importance of preventing medical errors and the need for close oversight of all medical trainees.^{8,9} The 2008 report of an Institute of Medicine committee on resident duty hours strongly

endorsed greater supervision of residents stating “The committee found that closer supervision leads to fewer errors, lower patient mortality, and improved quality of care.”¹⁰ Finally, there has been increased scrutiny as to the specific form of clinical supervision provided, with the acknowledgment that such oversight may occur on several different levels¹¹ and that direct supervisory involvement in patient care may be the most critical element of effective clinical supervision.¹²

A logical response on the part of academic medical centers to these developments is to increase attending physician availability and supervision, including mandating 24-hour in-house coverage. As described previously, the potential benefits of a system of increased attending involvement include the prevention of medical errors, more efficient medical care, and decreased length of stay.¹⁰ In addition, increased attending presence could serve to counter the “hidden curriculum,” which substantially affects resident perceptions of supervision and may act as a barrier to requesting assistance, even when it is clearly necessary.^{13,14}

Yet there are theoretical risks to such a system. Most important, there is the potential to undermine resident autonomy,^{6,15} long thought to be integral to the learning process in graduate medical education and a central component of residency program requirements.³ Furthermore, such an extension of attending responsibilities

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would likely require the recruitment of additional academic staff and the adoption of a shift-based schedule for supervisory physicians. The latter change could reinforce and model a “shift worker mentality” among residents with a resultant diffusion of responsibility for patient care. Similarly, more hand-offs among attending staff could have adverse clinical repercussions.¹⁶ Daytime attending physicians may also feel undermined by the presence of a faculty interloper admitting “their patients” overnight.

There has been little investigation into the effect of increased attending presence on medical education and none to our knowledge on the specific practice of 24-hour in-house attending coverage. One report studied the effect of excusing attending physicians from all other clinical responsibilities while teaching on an inpatient medical service in order to increase daytime and evening availability.¹⁷ The study found increased faculty presence resulted in improved resident educational satisfaction and a perceived increase in the quality of care delivered. Research of an admitting psychiatry service found that providing attending presence for at least 1 hour during an overnight call resulted in fewer admissions to the hospital and an increased level of comfort among the trainees.¹⁸ We aimed to determine the effect of in-house overnight general medical attending coverage on the perception of both the quality of care delivered and the quality of the educational experience in a large teaching hospital.

Methods

The study was conducted within an internal medicine residency at a 605-bed independent academic medical center. The medical services at the medical center include 4 general medical teaching services that are staffed by both community-based internists and hospitalists. There are also several uncovered nonteaching services. In 2007, 2 of the 4 general medical teaching services adopted a model of 24-hour in-house attending coverage. These 2 services were staffed during the day by either hospital-based or community-based physicians with overnight coverage provided by a rotating series of hospitalist physicians. These hospitalists worked from 1 to 4 night shifts in a row, depending on individual preference. All hospitalists on staff were required to cover night shifts. The overnight hospitalist physician was responsible for staffing all overnight admissions to the teaching services, while also covering admission and cross-coverage duties for the nonteaching services. On average, this physician would admit 5 to 7 patients per night and provide cross coverage for approximately 30 patients. The other 2 teaching services were staffed overnight with the traditional model of an off-site attending physician available by pager. All 4 of the teaching services were additionally staffed overnight by a night-float system of resident coverage on weekdays, with the day team covering overnight call on weekend nights.

All resident and attending physicians who spent at least 1 contiguous week on a general medical service with overnight in-house attending coverage were invited to participate via completion of an electronic survey. The survey was developed by study investigators based on prior literature and personal experience. The survey was trialed on several resident physicians, resulting in several minor modifications in survey structure.

Eligible participants (N = 87) were identified by attending and resident rotation schedules maintained by the Department of Medicine. The request for participation was sent in the form of an e-mail by one of the study investigators. None of the investigators held a leadership position in the residency program at the time of the study and no incentive for participation was offered. Individuals were asked to participate once during the study period and those spending more than 1 rotation on an eligible service over the course of the study period were considered for inclusion only following their initial rotation. All residents additionally rotated on the general medical services without overnight attending coverage, which served as a basis for comparison. Upon completion of the general medical rotation, eligible faculty and residents were sent a brief confidential online survey asking their perceptions of both the care delivered during the rotation and the quality of the educational experience. Informed consent was embedded within the survey. Survey data for the respondents were downloaded to a central database (Microsoft Excel, Microsoft Corporation, Redmond, WA). The study was approved by the medical center’s Institutional Review Board.

Results

Overall response rate for the survey was 67% (58 of 87 eligible). Twenty faculty members (61%) and 38 resident physicians (70%) enrolled in the study. A similar number of resident physicians participated at all levels of postgraduate experience. Attending physicians varied significantly in degree of experience, with a range of 1 to 26 years of posttraining experience and an average of 7 years. Most faculty (91%) and resident (92%) physicians reported they were satisfied with the overall quality of care delivered. Both faculty and trainees overwhelmingly believed the quality of care delivered overnight improved with the in-house attending system (90% and 85%, respectively). Most faculty physicians also felt the presence of an overnight in-house attending both decreased the incidence of medical errors (55%) and expedited the evaluation of patients (90%). Resident physicians also felt attending presence resulted in fewer medical errors (51%) and expedited the evaluation of patients (73%), although to a lesser degree when compared with the faculty.

Results were similar regarding the perception of the educational experience. A majority (82%) of resident physicians felt the educational experience on the general

medical service improved with the addition of overnight in-house attending coverage. None thought the educational experience worsened with the new model. Both the resident group (97%) and the faculty group (95%) strongly preferred the in-house attending model to the model of having the off-site attending available by pager. Most resident physicians (87%) also believed that the in-house model made the program more attractive to prospective residents. Finally, most attending physicians (80%) found the new model improved their overall satisfaction with serving as an attending on the general medical teaching service.

Discussion

Our study found that both faculty and resident physicians perceive 24-hour in-house general medicine attending coverage resulted in improved clinical and educational outcomes compared with the traditional model of attending coverage. Despite a lack of objective evidence, both groups also endorsed the in-house attending model as one that decreased medical errors and expedited the evaluation of medical inpatients. Residents and faculty also perceived that the educational experience was enhanced by increased attending availability, discounting concerns regarding loss of resident autonomy. In addition, both groups expressed a strong overall preference for the in-house attending model.

These results extend our knowledge of the relationship between attending supervision and the educational environment. Although there is widespread acceptance that adequate oversight of clinical trainees is essential to both the clinical and the education missions of academic medical centers,^{5,19} there currently exists substantial variability as to the form and intensity of the oversight provided.^{6,7} In addition, residents and supervisory staff may disagree as to the degree of oversight needed with trainees believing they require substantially less supervision than attendings believe is appropriate.⁶ This difficulty is compounded by the current educational supervisory hierarchy in which the attending physician may be the last individual contacted by trainees for assistance.²⁰ Our results, however, suggest an increased attending presence during “off-hours” may provide a partial solution to these issues.

The results of our study are particularly important in light of recent developments in medical education and the call for an increased level of supervision of medical trainees.^{4,7,10,12,21} Postgraduate medical education has long been focused on the model of resident autonomy and residents often cite this as a central theme of their education.^{3,5} As a result, unproven initiatives with the potential to improve patient care outcomes but which may negatively impact the educational process are likely to be met with significant resistance by educators and trainees alike. These results, however, indicate that an increased level of in-house attending physician presence is acceptable to medical trainees.

There are several limitations to the study. First, the findings reflect the perceptions of a limited number of faculty and resident physicians from within a single specialty at a single medical center. It is unclear if the results are generalizable to other specialties and institutions. Second, the faculty providing the overnight attending coverage were generally busy with teaching and nonteaching service responsibilities. The additional nonteaching obligations may have prevented them from becoming overly involved in the care of the teaching patients, such that resident physicians felt autonomy was compromised. Finally, these nonteaching activities were largely composed of nonbillable “cross coverage” of patients on the nonteaching services, and attending staff on the overnight shift rarely billed at a rate that would support their presence. The medical center was thus obliged to provide a substantial subsidy to the hospitalist group to support the 24-hour attending coverage paradigm. It is unclear whether other academic medical centers are willing or able to make such a financial commitment.

Most physicians providing the overnight coverage were also experienced clinician-educators, well versed in balancing resident autonomy with an adequate degree of supervision. It has been suggested that clinical faculty may be lacking in the oversight skills required to provide an appropriate level of supervision without impinging resident autonomy and significant faculty development may be required to provide faculty with such skills.^{6,12,22} With the significant expansion of hospitalist services nationwide, the availability of such experienced clinician-educators is likely to be limited.^{23–25} Finally, this study reported solely perceptions regarding the quality of care provided and the educational experience. There was no comparison of direct measures of patient care or educational experience between the 2 models of attending supervision.

Our results indicate a strong preference on the part of attending and resident physicians for an increased off-hour presence of general medical faculty on inpatient teaching teams. The costs and logistical challenges of widespread implementation of such a model, however, are substantial. Future studies of such interventions should include detailed study of error reduction and cost.

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