EDITORIAL AND COMMENT

# Enhancing the Medical School Learning Environment: A Complex Challenge

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The medical school learning environment encompasses the physical, social, and psychological contexts in which students learn; interactions with faculty, staff and peers; and the formal, informal and hidden curricula.[1] The learning environment influences students' professional and identity development, and studies have found that optimized learning environments have positive impacts on humanism, achievement and student learning.[2,3] At the same time, a poor learning environment has been shown to be associated with increased student burnout and distress. Features of the learning environment such as a low level of faculty support, a non-collaborative environment, cynical residents, poorly organized rotations, and inadequate supervision by residents are all independently related to student burnout.[4]

The imperative to reduce student burnout and enhance well-being among trainees is great. Our society invests a great deal in medical education, and it demands much from students in return.[5] Moreover, the demand for physicians is growing faster than the supply, with a projected shortfall of between 46,100 and 90,400 physicians by 2025.[6] As a result, once students enter medical school, we must support and encourage them to become productive members of the physician workforce. At the national level, efforts to reduce student burnout, enhance wellness, and improve the learning environment have been widely incorporated. Longitudinal clinical rotations, resident-as-teacher programs, enhanced opportunities for students to build relationships with faculty, pass-fail curricula, ambulatory rotations, and faculty recognition and promotion as educators are but a few approaches to enhancing the learning experience and climate for trainees.

In this JGIM medical education theme issue, important ideas related to improving the learning environment from two studies are offered for our consideration. Eric Goren and colleagues' study, "Overnight Hospital Experiences for Medical Students: Results of the 2014 Clerkship Directors in Internal Medicine National Survey," describes the current status of medical students' night experiences during internal medicine clerkships and sub-internships.[7] As part of The Clerkship Directors in Internal Medicine's annual survey of institutional members, the authors assessed the prevalence of night experiences and perceived importance of various overnight tasks as they relate to student learning. While night experiences were rated as important in terms of admitting new patients, following the course of newly hospitalized patients, and participating in the management of emergencies, less than half of internal medicine clerkships and sub-internships in this study included any night experiences for students. Compared to 61 % in 2009,[8] this decrease in night experiences during internal medicine rotations raises important questions about the preparation of students for internship where most will be required to rotate on night float services to respond o emergencies and cross-cover significant numbers of patients. While the literature shows that rotations requiring overnight call are associated with burnout,[4] there is little by way of evidence to support that night experiences, in and of themselves, result in decreased wellness. The findings of this study highlight three important needs: first, clarification regarding the distinct learning that happens during night shifts is needed both from the perspective of students as well as residents; second, education leaders would benefit from considering the key competencies that may be achieved through such experiences in an effort to prepare students for residency; third, optimizing learning during night shifts will require innovative teaching approaches given limited staff and time pressures faced by trainees.

Bierer et al. examine the impact of student-designed remediation interventions on student outcomes at one medical school over a 10-year period.[9] Compared to remediation plans developed for students by medical school leadership, faculty, advisors or promotions committees, this model is designed to enhance learner autonomy and promote student engagement. It requires students in remediation to consider their learning deficits using self-regulation cycle principles such as reflection, self-assessment and goal-setting,[10] and with faculty advisor support, to develop a plan and measurable outcomes for presentation and approval by the promotion committee. Despite the fact that the complex areas of professionalism and communication skills are the most frequent reasons students were placed in remediation, most students in this study addressed their performance deficits to the satisfaction of the school. Yet questions remain unanswered in this initial work, including

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the circumstances surrounding the two students in remediation who did not graduate from the program, and descriptive details about the role played by faculty who supported students during the remediation process at this institution. Notwithstanding these limitations, this approach recognizes the impact of learner autonomy and self-regulation on motivation and satisfaction, and therefore represents a novel programmatic method to student remediation. Additionally, it promotes an environment in which students feel in control, and can identify their gaps and propose collaborative solutions. Furthermore, by incorporating faculty in an advisory and collaborative role, the model shifts the locus of control to the student and may reduce the overall burden on faculty.

Taken together, these two studies offer opportunities for further scholarship and innovation in this important area. Might competency-based night experiences during medical school rotations allow students to be more actively involved in patient care and to be better prepared for internship? How can evidence from the literature on supportive learning environments be incorporated into night experiences so that they do not result in fatigue, burnout and distress? What is the impact of night experiences on residents who will likely serve as the primary educators of students on such a service? How can lessons learned from Bierer et al. be incorporated more broadly into medical education such that students, with faculty support, reflect and set goals to address their areas of improvement? What is the impact of such collaborative models on students' perceptions of the learning environment? Finally, what benefits might a model that relies on self-regulation behaviors have on self-assessment, help-seeking behaviors and reflective practice among trainees in the long term?

Despite the fact that the learning environment is a multifaceted and complex construct, a supportive environment promotes student wellness, facilitates professionalism and optimizes learning. The manuscripts in this issue stimulate us to take up the challenge of enhancing and improving the learning environment for all our trainees!

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