

Commentary

Float or sink: a solution to the resident burn-out crisis?

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Introduction

As medical students, we were always told that medicine is a tough road. The training is gruelling with endless hours of studying, patient care, and considerable sacrifices in our personal lives. Many came into this profession ready for long hours and difficult training. However, until residency, it is tough to envision what the experience really entails.

Recently, a debate erupted in the medical Twitter universe when Dr. Colleen Farrell, an Internal Medicine resident at Bellevue Hospital in New York, wrote a tweet decrying 27-hour resident call shifts as inhumane. Dr. Farrell argued that residents and staff physicians deserve protection against harsh working hours and conditions on par with workers in unionized professions. As a local example, the Ontario Nurses Association closely regulates how long nurses can work on a given day with the minimum time nurses must receive for breaks.¹ The ensuing debate saw numerous residents and staff physicians joining the conversation on either side of the argument. Some physicians argued that extended call shifts are a necessary part of resident training, which equips residents to work effectively and independently in future demanding roles. On the other hand, others suggested that the lack of adequate rest and humane working hours leaves residents ill-prepared to make decisions and may hinder patient care. In the end, Dr. Farrell received heavy backlash which led to her taking a break from Twitter.

A similar challenge exists in Canada, with research suggesting that Canadian medical residents also work long hours and struggle with mental wellness.² But what does the research say about changes to residency hours? Does reducing work hours improve resident wellness and patient safety? What is the impact on resident education? Can float systems be comparable to call systems in domains of resident wellness, competency, and patient safety?

System Responses

In 2003, residents across Canada were mandated to an 80-hour work limit on average over a 4-week period. This was followed in 2011 by a second mandate limiting first-year resident call shifts to a maximum of 16 hours. Soon after, all Quebec medical residents, regardless of their training level, had a similar 16-hour limit implemented for in-house call.

McMaster University was one of the first schools to address these concerns at the program level. For instance, the McMaster Anesthesia Program has reduced call shifts to a 16-hour maximum for all residents. Taking an alternate approach, McMaster's pediatrics residency program introduced the float system in 2013-2014.³ The float system replaces conventional 26 hour call shifts with residents working consecutive night-only shifts for a set period, alternating with a period of daytime service. However, the float system was not new at the time. Studies have shown, as early as 1991, that switching to a float system improved staff morale, reduced working hours, and did not have a detrimental effect on patient care.⁴

Previous Research

Three review articles have examined the effects of residency shifts with defined lengths, night float, or protected sleep times on patient outcomes.⁵⁻⁷ Two of these reviews found no effect on patient mortality with these changes,^{5,7} while the third cited evidence of improvement in patient mortality.⁶ In addition, while there was a decrease in medical errors in general upon imposing shift limits, there was increased patient complication rates specifically in specialties with high acuity, suggesting that the effects of shift limits are program-dependent.⁷

In 2015, a prospective study was published after the McMaster Anesthesia Residency Program transitioned to a 16-hour call system in 2013.⁸ The majority of residents supported the change, citing improved quality of life and less fatigue. Most respondents also believed that there was improved or unchanged patient safety and quality of education. Studies conducted on the night float system implemented at Queen's and Dalhousie University likewise found improved resident satisfaction and quality of life.^{9,10}

Although research into Canadian residents participating in a float system found improved learning by self-report, other international studies have found residents reporting equivocal or decreased education quality, possibly related to difficulties in attending daytime teaching while working night shifts.⁹⁻¹¹ Two large randomized studies from American internal medicine and general surgery programs compared examination scores between flexible and standard-hour residency programs and found no significant differences between the two groups.^{12,13} Furthermore, studies have largely found that the total number of hours completed by residents are comparable between the float system and the call system, suggesting the quality of education did not differ between the two systems.⁹⁻¹⁴ These studies, though difficult to generalize, suggest that the quality of education does not have to be sacrificed when adequate measures are taken in a float system.

The downsides to a float system, however, should not be minimized. Previous studies in internal medicine have suggested that a float system might decrease continuity of care, cause inadequate teaching of the night float staff, and increase miscommunication.⁴ Due to lack of continuity of care, residents on the night float staff do not participate in the decision-making process for their patient's care, thus removing them from potential learning opportunities.⁴ However, the McMaster Pediatrics Program has attempted to address these issues through having specific night float teaching so that the residents still obtain adequate education.¹⁵ Although there may be fewer errors associated with fatigue, night float is also linked to increased errors due to more frequent and inadequate handover, and decrease in continuity of care.^{16,17} Several authors also point to the potential risk to quality of life due to chronic night-time work and one study in particular demonstrated a decrease in perceived quality of life upon switching to a night float system.¹⁸ Possible explanations for this include the change in sleep habits upon switching from regular work hours to night shifts, as well as the loss of post-call rest days. The presence of this conflicting evidence suggests that the purported benefits of the night float system are not

universal, and programs should consider, on a case-by-case basis, which model is most suitable for their residents.

Conclusion

The response to these research findings has been a slow process. Currently, most residency programs in Canada still implement the traditional call system, and implementation of night float systems remains a topic of debate between residency programs and residents themselves. Call systems have existed long before float systems and have indisputably produced many exemplary, competent, and compassionate physicians. Yet, it is also known that inappropriate working conditions lead to burn out and apathy. The research suggests that reducing hours or changing to a more flexible schedule may lead to improvements in perceptions of resident wellness. Furthermore, there does not seem to be a significant impact on resident education, though the impact on patient care remains unclear. Future research examining mixed models with aspects of night float and call system may help clarify whether alternate approaches might reduce residency burnout whilst not sacrificing education quality or patient safety. Dr. Colleen Farrell is likely not a lone voice, but presenting a sentiment shared amongst many residents undergoing their training. Although there is not yet a definitive solution, positive steps have been taken. With time, and more research, individualized solutions for different residencies which optimize for resident wellness, education, and patient care can be found.

Author Biographies

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