

Resident duty-hour reform: moving beyond “change for change’s sake”

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Interview podcast with the author: soundcloud.com/cmajpodcasts/maniatis-resident

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The movement toward limiting residents’ consecutive hours of duty has gained worldwide momentum. Regulations supporting this type of change have been adopted in many jurisdictions across the globe, following a shift away from the “traditional” 24-hour call system to work periods ranging between 12 and 16 hours. In Canada, the debate about resident duty-hour reform ignited in July 2012, when the province of Quebec negotiated working conditions for all medical residents in that province, with a 16-hour limit for daytime activities and a 12-hour limit for overnight work.¹ This led to immediate and mandated changes across the province’s four faculties of medicine and their affiliated teaching hospital networks. Concomitantly, the Canadian medical education community rapidly integrated duty-hour reform into its agenda at the national level. In addition, the Royal College of Physicians and Surgeons of Canada established a National Steering Committee on Resident Duty Hours in 2012.² This national attention has prompted administrators of residency training programs to develop formal curricula on teaching sign-over (hand-off) skills and self-recognition and management of fatigue. These changes have been driven by concerns about resident health and patient safety,^{3,4} but data to support the adoption of one scheduling model over another remain limited.

In an accompanying research article, Parshuram and colleagues report their investigation of the effect of three resident duty-hour schedules in the intensive care unit (ICU) on patient safety, resident well-being and continuity of care.⁵ For their study, the authors randomized two university-affiliated ICUs to two-month rotation schedules of 24-, 16- or 12-hour overnight shifts. The authors are to be commended for their rigour in achieving such important organizational change for the purposes of this study, as such changes involve substantial resources and require buy-in at many levels. The study showed no sig-

nificant differences in patient safety, resident well-being or continuity of care according to schedule. Although the authors report a “signal” suggesting that safety may be compromised (based on seven of eight preventable adverse events occurring with the 12-hour schedule), the study was relatively underpowered, and the null hypothesis is therefore the prudent interpretation. The authors rightly identified their inability to conceal the schedule as a potential source of bias, particularly for the continuity-of-care aspect of the study.

A number of other factors should nuance our interpretation of these findings. The study team did not observe or otherwise document the exchange of patient information at times of patient sign-over. Given that information loss during sign-overs is one of the biggest concerns hypothesized to negatively affect patient safety, this is an important unmeasured potential confounder in this study. Adverse events may have had more to do with who was present at sign-over (junior residents, senior residents, ICU fellows or attending physicians) and whether residents were trained in safe and effective sign-over (and how this training was put into practice). As such, future research involving different resident schedules should necessarily attempt to measure these variables, so their effects on patient adverse events are better understood.

Interestingly, Parshuram and colleagues found very few differences in resident well-being for

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KEY POINTS

- Resident duty hours are being reformed in many jurisdictions to address concerns about resident health and patient safety, but concerns remain about information loss due to increased patient sign-over.
- There are few data to support the adoption of any particular model of resident duty-hour reform.
- Future studies on resident duty-hour reform should explore the well-being of both residents and faculty, as well as the role of patient sign-over, in determining the effect of resident scheduling systems on patient outcomes.

this two-month intervention (from the residents' perspective). They effectively documented the high rate of burnout-type symptoms among residents. The high burnout rate was present at both the beginning and the end of the study period, without significant change. Given the short duration of the intervention — two months — this result is not surprising. It would be interesting to look at the effect of programmatic limitations in duty hours on resident well-being over long periods across multiple rotations, relative to the effects of a brief intervention in one isolated rotation. Notably, the authors document anecdotal reports of feelings of “isolation” from residents assigned to the 12-hour schedule. Similar anecdotal reports have been published elsewhere.⁶ Further research is needed to explore this aspect in more detail, given that improved resident health is an important driver of duty-hour reform.

Whereas many jurisdictions have taken a one-size-fits-all approach to resident duty-hour reform, with standardized limits to the number of consecutive hours worked and/or total hours worked per week, there is increasing interest in a more level-specific approach. Junior residents may benefit from more structured learning environments, with stricter limitations on consecutive hours worked. Senior trainees may, on the other hand, be able to provide safe and effective care with less rigid limits on hours worked. For example, the 2013 regulations of the US Accreditation Council for Graduate Medical Education stipulate that postgraduate year 1 residents cannot work longer than 16 hours continuously, and postgraduate year 2 residents and above are limited to a maximum of 24 hours.⁷ This level-specific approach warrants further exploration, as I am not aware of any evidence base for its widespread adoption. The shift in approach is all the more intriguing when coupled with training in the recognition and management of fatigue aimed at senior residents. Fatigue recognition is an essential skill for senior residents to master as they begin transitioning to independent practice.

There is increasing, albeit anecdotal, concern that with increased resident duty-hour limits will come a shift of responsibilities to attending physicians.⁸ Future research on resident duty-hour reform should identify and track indicators of attending physician well-being. If such a transfer of responsibilities to attending physicians is proven to occur, then we should be cautious about redesigning our residency programs, especially if they do not properly prepare residents for independent practice. This situation could conceivably lead to “shock” on the part of senior residents and fellows as they enter independent practice.

Many innovative resident schedules and coverage models are being developed and deployed in teaching networks across the country, aimed at improving resident well-being and optimizing patient safety. As such, now is an ideal time to contribute to the evidence base related to resident duty-hour reform.

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