Shorter medical resident duty hours: Worse for patients, slightly better for residents

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Shorter duty hours for medical residents, although marginally better for residents themselves, may result in worse patient care, according to a randomized trial assessing resident duty hour schedules in the intensive care unit (ICU), which is published in *CMAJ* (*Canadian Medical Association Journal*).

"Our findings that overnight duty periods of 12 or 16 hours may be somewhat better for residents and worse for patients are relevant in Canada, the United States and Europe, where these shorter schedules are increasingly used, and underscore the need to further delineate this emerging signal before widespread system change," writes Dr. Christopher Parshuram, Department of Critical Care, The Hospital for Sick Children (SickKids), Toronto, Ontario, with coauthors.

In many hospitals in Canada and around the world, shifts are being shortened from 24- to 16- or 12-hour periods to alleviate fatigue and improve well-being in residents and reduce medical errors that can occur from sleepiness and stress.

This study looks at the impact of different shift lengths for residents who provide the majority of overnight in-hospital care in Canada, and adds to current research in intern and other physician groups. It examines the impact on patient safety and resident well-being of three commonly used in-hospital overnight schedules of 24, 16 or 12 hours. It involved 47 residents in two adult teaching hospitals, who were randomly assigned to the shifts over two-month rotations, and who were assessed at regular

intervals throughout their shifts. Over the study period, there were 971 admissions to the ICU, totalling 5894 patient days.

The main findings were that residents assigned to shorter resident schedules did not feel less tired, and that shorter resident schedules may be less safe than longer resident schedules. Analysis of over 1700 sleepiness measurements from the 47 participating residents found no significant differences in resident sleepiness in the day or overnight. This suggests that time of day is a greater determinant of fatigue than resident schedule. Importantly, residents were asleep at 4 am in 28% of assessments, suggesting that, even in the busy ICUs studied, residents do sleep.

Analysis of nearly 1000 patient admissions to the ICUs involved showed that the overall rate of harmful errors was low, and that most of these harmful errors occurred in the 12-hour schedule. The perceptions of ICU staff were that the 16-hour schedule was associated with lower-quality clinical decisions. This suggests that shorter schedules may not actually be better for patients.

Longer schedules were associated with more severe fatigue-related symptoms. Residents on the 24-hour shifts reported more physical symptoms like headaches, eye pain, nausea, light-headedness, palpitations and muscular pain.

"Our findings do not support the purported advantages of shorter duty and highlight trade-offs between residents' symptoms and multiple secondary measures of patient safety," the authors conclude.

In a related commentary, Dr. Thomas Maniatis, an internist and program director of the Internal Medicine Residency Training Program at McGill University in Montréal when Quebec transitioned from 24- to 16-hour shifts in 2012, commends the authors for their success in undertaking

the study but notes that "[t]he 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."

More information: Paper: www.cmaj.ca/lookup/doi/10.1503/cmaj.140752
Commentary: www.cmaj.ca/lookup/doi/10.1503/cmaj.150010

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