

Residents' sleep deprivation compares to alcohol intoxication

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Medical residents working 80 to 90 hours a week have performance impairments comparable to residents with a blood-alcohol concentration of 0.04% to 0.05%, according to a report in the *Journal of the American Medical Association* released Tuesday. (In most states, a driver with a blood-alcohol concentration of 0.08% is considered intoxicated.)

Thirty-four pediatric residents performed a 60-minute battery of tests including simulated driving after their work shifts under four conditions: light call (an average of 44 hours a week); light call with alcohol; heavy call (80 to 90 hours a week); and heavy call with a placebo that tasted and smelled like an alcoholic beverage.

Compared with "light call" residents, residents on "heavy call" had slower reaction times and committed more errors while performing the tests, the report said. Compared with residents who consumed vodka-tonic drinks, residents on heavy call drove 30% faster during simulated driving.

"The study highlights that fatigue is something we can't lose sight of as a cause of impairment in hospitals," said the report's lead author, J. Todd Arnedt, an assistant professor in the departments of psychiatry and neurology at the University of Michigan in Ann Arbor. "It's unlikely that one single solution will solve the issue."

He added, however, that residents do need to prioritize getting enough sleep and that simply shortening residents' work hours doesn't necessarily mean they will get more sleep as a result.

In addition to increasing the safety risk for patients, Arnedt said overly tired residents also put themselves in danger of getting into traffic accidents on their way home from hospitals. He said hospitals should think about providing "post-call napping quarters" or copy the University of Michigan's taxi-voucher program, which provides transportation for tired doctors-in-training.

"It's a reasonable option," Arnedt said of the voucher program. "It recognizes the issue and deals with it in a practical way."

The report cites previous studies indicating that sleep-deprived residents were more likely to commit errors and be involved in traffic accidents. Arnedt said this study "improved on the methodological shortcomings" of those earlier works by limiting test subjects' sleep and caffeine intake and by testing all the subjects at the same time of day.

"I think it's the first study to quantify the impairment that is associated with heavy-call work and it used an index of impairment that people are familiar with," he said.

Arnedt said he didn't want to speculate on what medical tasks and mistakes might be comparable to the tests used to measure residents' concentration and attentiveness. He also emphasized that these were laboratory-based tests and they did not measure residents' performances on the job.

The goals of the study, Arnedt said, were to raise the issue, quantify the impairment and renew the discussion.

According to an accompanying editorial, written by Drew Dawson of the Centre for Sleep Research at the University of South Australia and Phyllis Zee from Northwestern University's Feinberg School of Medicine in Chicago, Arnedt succeeded on those points.

According to Dawson and Zee's editorial, the implication that residents working an 80- to 90-hour workweek posed the same or greater risk as a intoxicated physician was particularly noteworthy.

"This is, without a doubt, a notable finding and one that should concern those responsible for patient safety and medical training," the editorial stated. "Studies such as this should motivate clinicians and managers to reflect on the legal and scientific defensibility of current work practices."

Dawson and Zee added, however, that restricting work hours could also have negative effects. These include restricted access to healthcare practitioners because of a decreased labor pool, insufficient "real-world" clinical preparation and increased sleep deprivation for senior physicians.