

Stiffened penalties for nighttime teen driving associated with fewer fatal crashes

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Motor vehicle crashes are the leading cause of teenage deaths in the United States and globally, and drowsy driving accounts for one out of five of those deaths. Young people, who are especially vulnerable to sleep deficiency, are responsible for most fatigue-related crashes.

In 2007, a series of regulations for young [drivers](#) was introduced in

Massachusetts, which included more stringent penalties for unsupervised nighttime driving by 16 and 17 year old novice drivers, and mandated [drowsy driving](#) education. To evaluate the impact of these regulations on teenage drivers, researchers at Brigham and Women's Hospital (BWH) examined the rate of [motor vehicle crashes](#) in junior operators (16-17 years) compared to older age groups (18-19 years and 20 years or above) in the one year prior to, and five years after implementation.

Using data from police-reported [crashes](#) with property damage of more than \$1,000, and/or personal injury, from March 31, 2006 to March 30, 2012, as reported by the Massachusetts Registry of Motor Vehicles, researchers analyzed separately the reduction in nighttime and daytime crash rates following implementation of the amended Massachusetts graduated driver licensing law. Researchers also integrated the number of active motor-vehicle license holders by age recorded in March/April of each year into their data analysis.

Results of the research, published by *Health Affairs* in its June 2015 issue, found that the rate of crashes involving fatal and incapacitating injury among drivers age 16-17 decreased by 40 percent after the regulations were enacted. Overall, police-reported crashes decreased in these junior operators by 19 percent, and nighttime crashes decreased by 29 percent.

These results demonstrated that the 2007 amendments to the graduated licensing law for 16 and 17 year old drivers in Massachusetts, which included increased penalties for violation of the restriction on unsupervised nighttime-driving, speeding, and transporting young passengers, plus the addition of drowsy driver education requirements, led to significantly reduced [crash rates](#) in that population.

"We know that teenaged drivers are more vulnerable to performance impairment due to sleep deprivation than older people. Our research

shows that restricting unsupervised nighttime driving until age 18 years, with significant penalties for violating the law, contributed to a significant reduction in the crash rate in junior operators, and importantly, reduced crashes that occurred at night, and those that caused serious injury," said lead author Shantha Rajaratnam, PhD, associate neuroscientist in the Division of Sleep and Circadian Disorders at BWH and professor at Monash University.

Because the natural tendency to sleep peaks at night, coincident with the peak in sleep-related crashes, a key provision of the recommended amendments involved stricter penalties for violation of the nighttime (12:30 - 5:00 a.m.) driving restriction. The penalties were increased from a maximum fine of \$35 for the first offense, and a fine of \$75 to \$100 for subsequent offenses to a 60-day, 180-day, and one-year license suspension for the first, second, and third offenses, respectively, with required driver retraining for second or subsequent offenses and a \$100 license reinstatement fee for each offense.

"The 40 percent reduction in fatal and incapacitating injury crashes that we observed for teen drivers has been sustained for five years following passage of this law. The steep decline of nighttime crashes demonstrates that tough penalties for violations of the nighttime driving restrictions for 16- and 17-year-old drivers are effective for preventing crashes and injury among teen drivers," added Charles Czeisler, PhD, MD, FRCP, chief of the Division of Sleep and Circadian Disorders at BWH and senior study author. Czeisler further noted, "It has been encouraging to advise former Massachusetts State Senator Richard T. Moore on the design of legislation to reduce drowsy driving crashes among Massachusetts teenagers. Our data demonstrate that the 2007 revisions to the Massachusetts Junior Operator Law have prevented about 320 fatal and incapacitating injuries and 13,000 motor vehicle crashes among Massachusetts teen drivers over the past eight years."

Provided by Brigham and Women's Hospital

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