

## ***Drowsy Driving: A National Sleep Foundation Position Statement and Call to Action***

Drowsy driving is impaired driving. It accounts for an estimated 1 in 5 fatal motor vehicle crashes on US roads, which demands everyone take responsibility to help prevent it as a form of impaired driving. To address known causes and risk factors for drowsy driving and improve road safety, the National Sleep Foundation calls for targeted actions from a broad range of stakeholders:

- ***Everyone:***
  - Prioritize sleep, recognize signs of drowsiness, and drive only when alert behind the wheel.
  - Say or do something if you see signs that a friend or family member is too drowsy to drive safely.
- ***Public Health, Educational and Government Organizations:***
  - Include drowsy driving prevention as a target and goal in the transportation safety and health agenda
  - Reinforce drowsy driving is impaired driving through public service campaigns and educational programs.
  - Reach high-risk groups, such as young drivers, shift workers, and long-haul truckers, with tailored educational materials and training programs.
  - Incorporate drowsy driving education and prevention skills into driver education programs.
  - Teach drivers to recognize signs of drowsiness and how to respond (e.g., pulling over to nap).
  - Install signs along highways and major roads that warn drivers about the dangers of drowsy driving and suggest taking breaks.
- ***Employers:***
  - Educate workforces about the dangers of drowsy driving and implement fatigue management plans for shift workers and other at-risk employees.
  - Promote fatigue management programs for industries that involve long-distance driving, such as trucking and bussing.
  - Educate healthcare providers about the risks of drowsy driving associated with relevant medical conditions, medication use, and lifestyle.
  - Provide adequate training and technologies to help law enforcement identify and act on driver impairment due to drowsiness.
- ***Policy Makers:***
  - Enact legislation that penalizes drowsy driving similarly to drunk, drugged, or distracted driving.
  - Establish clear definitions and criteria for drowsy driving in laws to aid enforcement.
  - Evaluate policies and programs for their effectiveness in reducing drowsy driving crashes and regularly adjust them as needed.
- ***Automakers and Tech Companies:***
  - Integrate standardized drowsy driving detection systems and other relevant driver assistance technologies across vehicles to democratize access to automotive safety.
  - Support innovation among emerging mobility alternatives, such as rideshare solutions or autonomous platforms.
- ***Funding Agencies and Organizations:***

- Fund and support research to better quantify the health, safety, economic, and societal burdens of drowsy driving.
- Support efforts to identify social determinants, disparities or disproportionate effects of drowsy driving on minority or historically disinvested communities.
- Broaden funding to all relevant organizations with stated interests to better understand and mitigate the risks of drowsy driving, including sharing and implementation of best practices.

**Basis for Action:** The National Sleep Foundation’s (NSF) mission is to improve the health and well-being of the public through sleep education and advocacy. NSF’s sleep health mission extends to include sleep health and safety, with a specific focus on preventing drowsy driving. Drowsy driving, sometimes generalized as fatigued driving, is a dangerous and widespread issue on US roads, estimated to be a common behavior by 150+ million Americans. While acknowledging drowsy driving can be caused or exacerbated by factors such as sedating medications and substances, medical conditions and illness, and engagement in repetitive motions., NSF focuses on the **predominant** cause of drowsy driving, which is when a person drives while being impaired due to an insufficient amount of quality sleep necessary to safely operate a motor vehicle. NSF considers drowsy driving a significant risk to public health and safety that is associated with potentially catastrophic personal and societal consequences, including the preventable loss of life and extensive economic damages. Motor vehicle crashes caused by drowsy driving account for roughly 20% of all motor vehicle crashes.<sup>1</sup> Data from the AAA Foundation implicate sleepiness in 21% of all motor vehicle crashes resulting in death and 13% of motor vehicle crashes resulting in hospitalizations—totaling more than 300,000 police-reported crashes, 100,000 injuries, and 6,400 deaths in the US each year.<sup>2</sup> NSF and other expert groups believe these figures underestimate the true scope of the problem. To complement the best available crash, morbidity and fatality data from US federal transportation traffic safety sources, NSF gathers representative, population-level data on Americans’ attitudes and behaviors about drowsy driving and their sleep health. The results of these NSF surveys highlight specific targets for population-level education and behavior change, but also reveal concerning evidence of the broad public mindset that minimizes the risk and consequences of drowsy driving compared to other forms of impaired driving.

**Background:** Drowsy driving is impaired driving. As such, drowsy driving is often called the “fourth D” among drunk, drugged, and distracted causes of impaired driving. While each may have distinct features, all of these conditions’ slow reaction times and affect alertness and decision-making to increase the risk of causing a crash. Studies have shown that sleeping only 4-5 hours in a 24 hour period increases a driver's crash risk as much as a blood alcohol concentration of 0.05, and getting less than 4 hours of sleep increases crash risk as much as a BAC of roughly 0.12.<sup>3</sup> After longer periods without sleep, performance decrements were equivalent to a BAC of 0.1%.<sup>4</sup> Given the significant public health impact of drowsy driving, and because it is preventable, the National Sleep Foundation has sustained advocacy efforts since its founding in 1990 that educate the public about the dangers of drowsy driving and ways to prevent it. Formally, the National Sleep Foundation has developed and produced Drowsy Driving Prevention Week<sup>®</sup> since 2007. In 2016, the National Sleep Foundation published a landmark consensus guideline to establish a clear definition of when people are categorically too sleep deprived to operate a motor vehicle safely, along with defining quantifiable thresholds for sleep-related driving impairment.<sup>5</sup>

**Risk Factors for Drowsy Driving:**

- Lack of sufficient quality sleep. Most adults need 7-9 hours of sleep per night to maximize alertness.<sup>6</sup>
- Use of substances or medications that cause drowsiness.
- Driving long hours without breaks, especially during the body's natural dips in the circadian rhythm, typically in the early afternoon and between midnight and 6 a.m.
- Undiagnosed, untreated, or under-treated medical conditions, especially sleep disorders associated with daytime sleepiness, such as obstructive sleep apnea (OSA), insomnia, or narcolepsy.

**Specific At-Risk Groups for Drowsy Driving:** Some groups of drivers are at greater risk for drowsy-driving crashes. Research supports five key groups in focus:

- Young drivers. Males under 25 years old are at highest risk overall.
- Shift workers and people with variable or long work hours. Working the night shift can increase the risk of drowsy driving by nearly six times. Rotating-shift workers and people working more than 60 hours a week need to be particularly careful.
- Commercial drivers. Long-haul drivers are at high risk.
- People with undiagnosed or untreated sleep disorders. Untreated obstructive sleep apnea increases the risk of falling asleep at the wheel by seven times.
- Business travelers. These workers spend long hours driving or may be jet-lagged from a previous trip.

**Warning Signs of Drowsy Driving:**

1. Difficulty focusing thoughts, starting to daydream, wandering eyes
2. Having trouble remembering the last few miles driven
3. Missing an exit or ignoring traffic signs
4. Yawning repeatedly or rubbing your eyes
5. Nodding off or finding it hard to keep your head up
6. Drifting from your lane, tailgating, or hitting a shoulder rumble strip
7. Feeling restless and irritable, or becoming aggravated with common annoyances such as sitting in traffic

Drivers experiencing these warning signs of drowsy driving should pull over to a safe place and only continue driving once alert and refreshed.

**Conclusion:** Drowsy driving is impaired driving. It is a considerable risk to millions of drivers on our roads and to public health and safety. Drowsy driving is preventable through changes in attitudes, actions, policies, and cultural beliefs that prioritize healthy sleep. The number of drowsy driving-related crashes and potentially tragic outcomes can be reduced dramatically by understanding its dangerous consequences and taking proactive measures, both individually and as a society. Combatting drowsy driving requires a comprehensive approach that involves drivers, educators, government, healthcare professionals, industry, employers, and law enforcement. Beginning with healthy sleep, by taking the combined actions recommended by NSF, it is possible to reduce the risks of drowsy driving, improve road safety, and ultimately save lives.

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<sup>1</sup> Dingus T, Klauer S, Neale V, et al. The 100-Car Naturalistic Driving Study; Phase II-Results of the 100-Car Field Experiment. National Highway Traffic Safety Administration; 2006.

<sup>2</sup> Tefft B. Prevalence of Motor Vehicle Crashes Involving Drowsy Drivers, United States, 2009-2013. AAA Foundation for Traffic Safety; 2014.

<sup>3</sup> Tefft B. Acute sleep deprivation and culpable motor vehicle crash involvement. *Sleep*. 2018 Oct 1;41(10). doi:10.1093/sleep/zsy144. PMID: 30239905.

<sup>4</sup> Williamson AM, Feyer AM. Moderate sleep deprivation produces impairments in cognitive and motor performance equivalent to legally prescribed levels of alcohol intoxication. *Occup Environ Med*. 2000 Oct;57(10):649-55. doi: 10.1136/oem.57.10.649. PMID: 10984335; PMCID: PMC1739867.

<sup>5</sup> Czeisler, Charles A et al. "Sleep-deprived motor vehicle operators are unfit to drive: a multidisciplinary expert consensus statement on drowsy driving." *Sleep health* vol. 2,2 (2016): 94-99. doi:10.1016/j.sleh.2016.04.003

<sup>6</sup> Hirshkowitz M, Whiton K, Albert SM, et al. National Sleep Foundation's updated sleep duration recommendations: final report. *Sleep Health*. 2015;1(4):233-243. doi:10.1016/j.sleh.2015.10.004