

Behind the Wheel at Work



Behind the Wheel at Work is a quarterly eNewsletter bringing you the latest news from the NIOSH Center for Motor Vehicle Safety.

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Driver Fatigue

You may remember when we discussed [the difference between fatigued driving and drowsy driving](#) in a previous newsletter. In this month's newsletter, we're sharing tips for how employers can reduce the risks of driver fatigue. For more road safety topics, [access previous newsletters](#).

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NIOSH CMVS Tweets

Employers can use data to drive motor vehicle safety program decisions. Learn more about this action and others to... <https://t.co/n0rKujlbu5>

Demystifying Fatigue Risk Management



As many as one in five fatal crashes in the general population involve driver fatigue.^[1] Job-related factors (e.g., long hours of work and driving, long commutes) contribute to workers' risk of driver fatigue. While regulations set maximum numbers of driving and work hours for jobs such as driving a large truck, this approach doesn't account for individual differences in sleep needs and health. Workers in most other jobs aren't covered by regulations intended to reduce driver fatigue. The good news: There are ways that any company can reduce the risks of driver fatigue through a fatigue risk management system (FRMS). Companies use an FRMS to promote alertness among workers, identify fatigue-prone tasks, and lessen fatigue and its potential consequences.^[2]

What is fatigue? +

Put simply, it is the need for sleep. It's how your body responds to not getting enough sleep or not getting quality sleep.

Fatigue impairs your ability to safely perform tasks, including driving. When you're driving, fatigue causes you to:

- Nod off
- React more slowly to changing road conditions, other drivers, or pedestrians
- Make poor decisions
- Drift from your lane
- Experience "tunnel vision" (when you lose sense of what's going on in the periphery)
- Experience "microsleeps" (brief sleep episodes lasting from a fraction of a second up to 30 seconds)
- Forget the last few miles you drove

What factors can lead to driver fatigue?

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- Being awake for many consecutive hours
- Not getting enough sleep over multiple days
- Time of day: Your body has a sleep/wake cycle that tells you when to be alert and when it's time to sleep. The urge to sleep is most intense in the early morning hours.
- Monotonous tasks or long periods of inactivity
- Health factors such as sleep disorders or medications that cause drowsiness

Research shows:

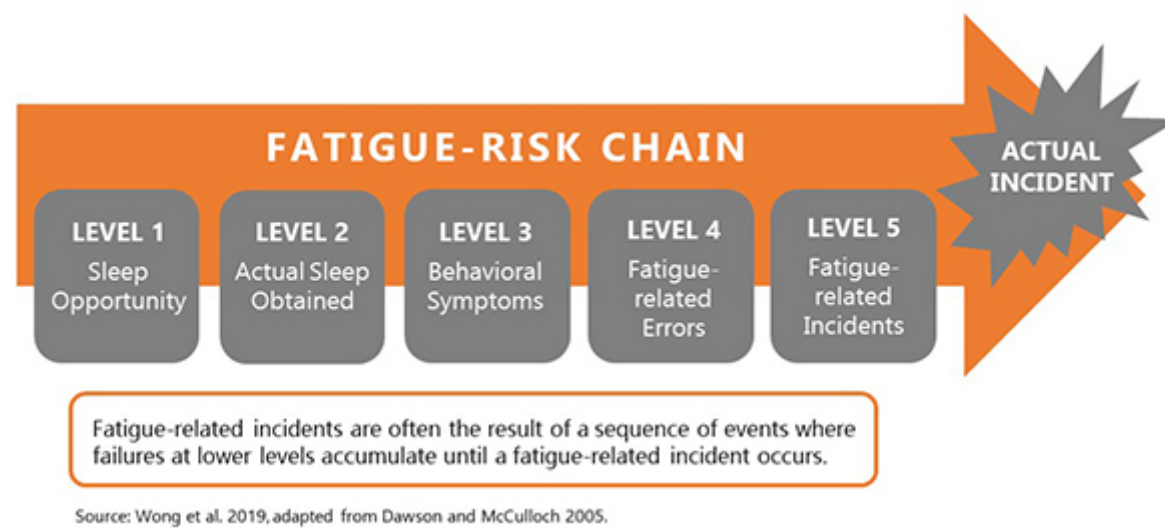
After 17 consecutive hours awake, impairment is equivalent to having a blood alcohol content (BAC) of .05. After 24 hours awake, impairment is equivalent to a BAC of .10.[\[3\]](#)

Things to know before starting an FRMS

- Employers and workers share the responsibilities of managing fatigue.
- Your FRMS should be data-driven, based on your company's operations, fatigue-related incidents, and other sources.
- A successful FRMS depends on commitment and follow-through by senior leaders, with defined roles and responsibilities throughout the management chain.
- The FRMS doesn't stand alone – it becomes part of your overall health and safety management system.
- Driver fatigue risks differ by the type of work, work schedules, remoteness of the work location, and other factors. You will need to tailor your FRMS to account for these differences.
- As with any management system, continued improvement is essential to a FRMS's success.

Managing fatigue using the fatigue-risk chain

Putting an FRMS in place may seem daunting, but it's easier if you break it up into smaller actions. Fatigue management experts have outlined a 5-level chain of events that leads to a fatigue-related incident. Think of these levels as "lines of defense" – at each level are opportunities to stop the chain of events from advancing to the next level. Employer and worker expectations should be defined for each level.



Level 1	Level 2	Level 3 and 4	Level 5
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Level 1: Adequate sleep opportunity

Most adults need 7-9 hours of sleep per night to maintain optimal health and performance. Ensuring that workers are off duty long enough to have adequate opportunity for sufficient sleep is critical. Off-duty time includes time to commute, eat, and engage in necessary personal activities.

Employers:

- Implement policies that outline overtime limits and maximum allowable consecutive shifts.
- Ensure sufficient staffing levels across operations. When determining appropriate numbers of workers needed, don't forget to factor in the inevitable absences that occur due to vacation days, sickness, turnover, etc.

Workers:

- Plan your off-duty activities to allow enough time for adequate sleep.

The bottom line:

- There is no substitute for sleep. No amount of experience, motivation, or professionalism can overcome the body's biological need to sleep.
- Driver fatigue is a significant workplace safety risk, but fatigue risk management systems can help to stop the chain of events that could lead to a crash.

[1] Tefft BC [2014]. Prevalence of motor vehicle crashes involving drowsy drivers, United States, 2009-2013 . AAA Foundation for Traffic Safety.

[2] Lerman SE, et al. [2012]. Fatigue risk management in the workplace. *Journal of Occupational & Environmental Medicine* 54: 231-258.

[3] Dawson D, Reid K [1997]. Fatigue, alcohol, and performance impairment . *Nature* Jul 17;388(6639):235.

[4] Shockey TM, Wheaton AG. Short Sleep Duration by Occupation Group — 29 States, 2013–2014. *MMWR* 2017;66:207–213.

Safety Tip





Involve workers in developing and implementing fatigue risk management in your workplace.

Fatigue Resources


NIOSH fact sheets: [Oil and Gas Workers: How to Prevent Fatigued Driving at Work](#) & [Oil and Gas Employers: How to Prevent Fatigued Driving at Work](#)




National Transportation Safety Board fact sheet: [Reduce Fatigue-Related Accidents](#)  

National Safety Council webpage: [Fatigue – You’re More Than Just Tired](#) 

National Highway Traffic Safety Administration webpage: [Drowsy Driving](#) 




North American Fatigue Management Program webpage: [A Comprehensive Approach for Managing Commercial Driver Fatigue](#) 

International Association of Oil and Gas Producers report: [Report 626 – Managing Fatigue in the Workplace](#) 

Tips for Driving in Hurricane Season



Hurricanes – massive storm systems that form over warm ocean waters and move toward land – can affect any U.S. coast or territory in or near the Atlantic or Pacific Ocean.[1] Hurricane season is June 1 to November 30 in the Atlantic and May 15 to November 30 in the Pacific.[1] Hurricanes can disrupt your business operations and put your workers who drive at risk. It is important to prepare for high winds and flooding so that your drivers know what to do before, during, and after a storm hits.

- If driving is necessary before or after a hurricane, make sure that drivers and supervisors agree on the driver’s route, destination, and travel schedule.
- Set policies that require drivers to consult with their supervisors to continue driving if the weather is bad.
- Check [official weather bulletins](#)  that monitor the storm’s path and strength.
- Provide workers with an emergency kit with food, flares, jumper cables, maps, tools, a fire extinguisher, flashlight, and extra batteries.[2] Consider adding a portable phone charger.
- Give workers information about road construction/closures, roadways likely to flood, washed-out bridges, and other hazards (e.g., downed trees, power lines).
- Remind workers:
 - If driving through an area under a hurricane warning, find safe shelter right away as hurricane conditions are imminent.[3] Hurricane warnings are issued 36 hours in advance of the anticipated onset of tropical-storm-force winds to allow important preparations to take place. [3]
 - Stay off roads during a hurricane.
 - If you must drive after a hurricane:
 - Keep speeds low. Travel slowly and be extra patient. Intersections may be without lights making driving more dangerous.[4] If you come to an intersection with a traffic light out, treat the intersection as if it were a four-way stop.[5]
 - Watch for fallen objects in the road, downed power lines, and weakened walls, bridges, roads, and sidewalks that might collapse.[6]
 - Never drive over downed power lines or through water that is in contact with them.[7]-[8] Even without sparks or fire, a downed line can energize the ground up to 35 feet away and even more in wet conditions.[8]
 - [Turn Around Don’t Drown](#)[®]   if you encounter a flooded road, and stay off bridges over fast-moving water. Twelve inches of moving water can carry off a small car, and 18-24 inches of moving water can carry away larger vehicles such as trucks, vans, and SUVs. [9]
 - Do not drive if you are fatigued. Fatigue impairs your ability to use good judgment when responding to hazards. If your job is to help others cope with the effects of a hurricane, you can’t help them if you don’t get there safely.

The bottom line: Evaluate the need for driving before, during, and immediately after a storm.

[1] Ready.gov 

[2] Centers for Disease Control and Prevention (CDC)

[3] National Ocean Service 

[4] Consumer Reports 

[5] New World Climate 

[6] National Weather Service 

[7] Occupational Safety and Health Administration (OSHA)  

[8] Electrical Safety Foundation International 

[9] National Weather Service  


Fatigued Driving GIF



The more hours awake, the more likely you are to be fatigued. Fatigue can impair your driving and other tasks, similar to alcohol impairment. Use NIOSH's [fatigued driving GIF](#) to share the message: Prevent fatigued driving at work.

Automated Vehicles Symposium



Cosponsored by the Transportation Research Board and the Association for Unmanned Vehicle Systems International, the [Automated Vehicles Symposium](#)  takes place from July 15-18, 2019, in Orlando. Read the [AV issue of our newsletter](#) to learn more about this popular topic.



Questions? Comments? Email kur4@cdc.gov.



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