

**The Role of Drugs in Impaired Driving:
The Effects of Drugs on Driving and Identifying Impairment
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Impairment from drug use is a major transportation safety risk on par with impairment from alcohol use. Although it had remained largely overlooked for decades, in 2010 the White House Office of National Drug Control Policy (ONDCP) targeted drugged driving as a top priority of the federal government through its *National Drug Control Strategy*. This priority was later underscored at a 2011 White House Summit at which Mother's Against Drugged Driving (MADD) publicly endorsed drugged driving prevention as a critical issue.ⁱ ⁱⁱ The term "drugged driving" refers to drivers using purely illegal drugs – such as marijuana, cocaine and heroin – as well as drivers abusing prescription drugs, either with or without a prescription.

The effects of drugs on driving and more specifically, on the skills required to drive, run a wide gamut and change based on a variety of factors. The National Highway Traffic and Safety Administration sponsored the development of Drugs and Human Performance Fact Sheets which describe effects of individual drugs on driving including psychological, physiological and psychomotor effects.ⁱⁱⁱ Examples of the dangerous effects on driving are drowsiness, disorientation, changes in reaction time, distance estimation, concentration, impulse control, erratic driving, among many others.

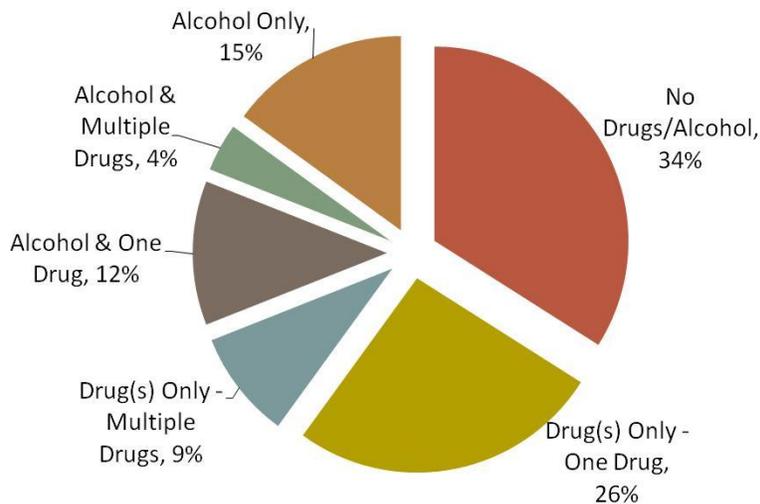
The focus on drugged driving does not compete with efforts to reduce drunk driving. Rather, a dual focus allows for a convergence of both efforts in promoting transportation safety.

The Nature and Extent of Drugged Driving

The research on drugged driving, summarized in a White Paper prepared for the National Institute on Drug Abuse (NIDA) with the support of ONDCP, can be found on the ONDCP website.^{iv} I served as the lead author of the paper, developed by the Drugged Driving Committee of the Institute for Behavior and Health, Inc., the 34 year-old national non-profit organization that I founded.

Figure 1 illustrates the complexity of the alcohol and the drugged driving problem. The data comes from a 2005 study of drug and alcohol tests of seriously injured drivers treated at the University of Maryland Shock Trauma Center:

Figure 1. Drug and Alcohol Use in Injured Drivers ^v

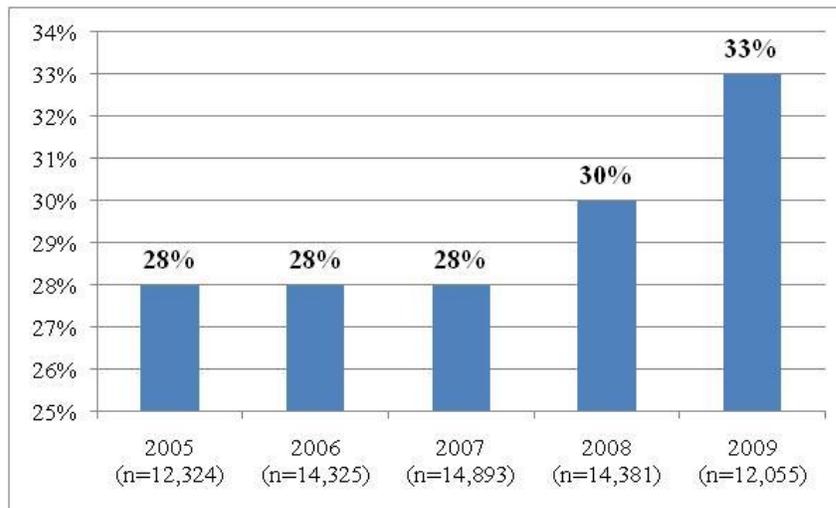


The following table, from the same study, shows the demographics of the seriously injured drivers with positive toxicology, accounting for a total of 65.7% of drivers in the study.

Characteristics of injured drivers with complete toxicology (<i>N</i> =108)		
	<i>N</i>	Percentage (%)
Gender		
Male	78	72.2
Female	30	27.8
Race/ethnicity		
White	67	62.0
Black	34	31.5
Hispanic	6	5.6
Other	1	0.9
Age		
16-20	12	11.1
21-25	23	21.3
26-34	21	19.4
35-44	26	24.1
45-54	11	10.2
55 and above	15	13.9

Another graph adapted from data from the 2009 Fatally Analysis Reporting System (FARS) conducted by the National Highway Traffic Safety Administration (NHTSA) shows that rates of drugged driving have increased:

Figure 2. Percentage of Fatally Injured Drivers With Known Test Results Testing Positive for at Least One Drug,¹ 2005-2009^{vi}



¹ Nicotine, aspirin, alcohol and drugs administered after the crash are excluded.

Defining a Drugged Driving Violation: The Sticking Point in Enforcement

The precedent set by establishing drunk driving laws has led to an expectation that there are impairment thresholds for other psychoactive drugs analogous to the well-known blood alcohol concentration (BAC) limit of 0.08 g/dl. Setting impairment thresholds for drugs would mean that drivers who test at or above specified levels are in violation, deemed as *per se* "impaired" while drivers who test below these limits may or may not be impaired, as is the case with alcohol *per se* laws.

While supported by abundant research, the .08 BAC *per se* standard for alcohol was a compromise of science and public policy. Many drivers are impaired at BACs below .08 g/dl. Conversely, drivers who, as a result of chronic alcohol use, have become partially tolerant to the effects of the drug, may show dramatically less impairment than non-tolerant drivers at all BACs, including those above 0.08 g/dl.^{vii viii ix x} This science is reflected in the varied BAC cut-off levels used in other countries; Western Europe mostly uses 0.05 g/dl, as does Australia, while Sweden and Norway each use 0.02 g/dl.

The development of analogous thresholds for drugs other than alcohol is a dangerous mirage because alcohol is pharmacokinetically unique.^{xi} No other drug is both water and lipid soluble, distributed through total body water, equilibrating rapidly between blood and brain, non-plasma protein-bound, metabolized by zero-order kinetics, and devoid of active metabolites. Furthermore, drug-drug and drug-alcohol combinations and interactions make the task of establishing impairing thresholds impossibly complex, as do factors such as fatigue, time of day, and driver age and experience. Finally, the physiological phenomenon of drug tolerance is the coup de grace to the concept of establishing impairing thresholds for drugs.

Here is a simple example of how the blood level of drug tolerance (or its absence) can produce dramatically different effects in two individuals. The administration of more than 1,000 mg of morphine may not impair the driving ability of an opioid-tolerant individual, while the administration of 10 mg may be impairing and 120 mg may be lethal to the novice user – the ultimate impairment.

Additionally the search for a workable cut-off level on the highway for drugs of abuse is complicated because there is a vast number of potentially impairing drugs. It is inconceivable that, even if thresholds for impairment *could* be developed for each of these drugs, it would be possible to establish thresholds for all of them. Moreover, the common use of combinations of drugs and alcohol precludes setting threshold standards. It makes little sense to create a "limit" for the illegal use of drugs even if it were possible. It would be irresponsible to send the message that driving with "low levels" of certain illegal drugs is acceptable for drivers on the nation's roads and highways.

While testing drivers for every potentially impairing drug is unrealistic, this does not make drug testing impractical in highway settings because most individuals who use drugs that are rarely tested for simultaneously also use the drugs that are commonly tested for.^{xii} While routine testing will not identify all of the drugs some drivers use, it will often identify one or more commonly used illegal drugs that are used along with the more uncommon drugs thus identifying the driver as a drugged driver.

There are sound reasons to support a zero tolerance *per se* standard for illegal drug use, rather than the creation of what amounts to an arbitrary limit that defines drug-caused impairment. There is no workable alternative to the *per se* standard which defines the presence of an illegal drug as a violation. This *per se* approach includes any controlled substance for which the driver does not have a valid prescription. This approach is based on a bright line between legal and illegal use.

Drivers arrested for suspicion of driving under the influence (DUI) who test positive for drugs for which they have prescriptions are not prosecuted under the *per se* standard because their drug use is legal. They can be prosecuted under the impairment law, like a driver who is arrested for DUI but who has a BAC lower than 0.08 g/dl. Drivers under the legal drinking age routinely are charged with a violation even if their BACs are under 0.08 g/dl because their alcohol use is illegal.

There are well-established successful precedents for the *per se* standard for drugged driving in more than two decades of regulation of commercial drivers and others in safety-sensitive positions, including, commercial pilots, workers at nuclear power plants and train engineers. We also have a useful precedent in countries like Sweden which uses a zero tolerance *per se* standard for illegal drug use. While some argue that commercial drivers should be held to a higher standard than other drivers, it is difficult to argue this well-established standard should not be used for every driver on the nation's roads and highways given the life-and-death consequences to impairment for any driver.

Is there a more high-risk, safety sensitive activity than driving a motor vehicle? Is there any population in which it is more in the public interest to ensure that individuals are not impaired by drug use than drivers on the nation's roads and highways? For me, the answer to these two questions is a resounding "no." The *per se* standard for illegal drug use is the standard set by ONDCP in its *National Drug Control Strategies from 2010 through 2012*. It is the standard supported in the NIDA White Paper on Drugged Driving Research and should be the standard supported by the National Transportation Safety Board (NTSB).

To support the full-scale development of education, laws and enforcement related to drugged driving only after further research has established cut-off levels for individual drugs analogous to .08 BAC would be a public safety tragedy. To claim, as many have over the past decades, that "more research is needed" before addressing drugged driving is to ignore a large and robust body of research over the past four decades which is summarized in the NIDA White Paper.

The NTSB is doing great work in its comprehensive investigations by identifying the wide range of drugs involved in motor vehicle crashes. I encourage the Board to focus publicly on the role of drugs in its investigations because this evidence enhances the nation's ability to recognize and respond effectively to the current high levels of drugged driving.

Summary

Today drugged driving is a major public safety risk. The priority as laid out by ONDCP is to develop comprehensive education, effective laws and strong enforcement, as has been done with drunk driving efforts. The efforts dealing with drugs and alcohol must work together to improve highway safety.

NTSB can play a leading role in identifying the all too common impact of illegal drug use in all safety-related behaviors, especially driving. The NTSB, with its sophistication and its unique credibility, must provide important public education and support for the public and all relevant institutions to build practical and effective measures to reduce drug impairment into the safety fabric of the nation.

Thank you!

For more information about the Institute for Behavior and Health, Inc. and our work to reduce drugged driving, visit: www.IBHinc.org and www.StopDruggedDriving.org.

ⁱ Office of National Drug Control Policy. (2011, October 13). White House drug policy director and Mothers Against Drunk Driving unite to combat drugged driving; Call on parents to act to reduce significant public safety threat. Washington, DC: Office of National Drug Control Policy. Available: http://www.whitehouse.gov/sites/default/files/ondcp/white_house_drug_policy_director_and_mothers_against_drunk_driving_unite_to_combat_drugged_driving.pdf

ⁱⁱ Withers, J. (2011, October 13). Drugged driving: A growing threat on our roadways. Irving, TX: Mothers Against Drunk Driving (Blog). Available: <http://www.madd.org/blog/drugged-driving.html>

ⁱⁱⁱ Couper, F. J., & Logan, B. K. (2004). Drugs and Human Performance Fact Sheets. Washington, DC: National Highway Traffic Safety Administration. Available: <http://www.nhtsa.gov/People/injury/research/job185drugs/index.htm>

^{iv} DuPont, R. L., Logan, B. K., Shea, C. L., Talpins, S. K., & Voas, R. B. (2011). Drugged Driving: A White Paper. Bethesda, MD National Institute on Drug Abuse. Available: <http://www.whitehouse.gov/ondcp/drugged-driving>, http://www.whitehouse.gov/sites/default/files/ondcp/issues-content/drugged-driving/nida_dd_paper.pdf

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- ^{vii} Zador, P.L., Krawchuk, S.A., & Voas, R.B. (2000). Alcohol-related relative risk of driver fatalities and driver involvement in fatal crashes in relation to driver age and gender: An update using 1996 data. *Journal of Studies on Alcohol and Drugs*, 61(3), 387-395.
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- ^{xii} Wish E.D., Billing A., Rinehart C., & Artigiani E. (2009). *The Maryland Adult Offender Population Urine Screening (OPUS) Program Final Report*. College Park, MD: Center for Substance Abuse Research, University of College Park.
- ^{xiii} Wish, E.D., Rinehart, C., Hsu, M., Artigiani, E. (2006). *DEWS Investigates: Using Urine Specimens From Parolees/Probationers to Create a Statewide Drug Monitoring System*. College Park, MD: Center for Substance Abuse Research, University of Maryland, College Park.