NHTSA

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

Drug-Impaired Driving In the United States

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Objectives

1. NHTSA's Mission and Role
2. What We Know About Impaired Driving
3. Addressing What We Don't Know:
   - Addressing FARS Drug Data Quality & Quantity

NHTSA’s Mission and Role

Save lives, prevent injuries, and reduce economic costs due to road traffic crashes through education, research, safety standards and enforcement activity.

NHTSA's Mission

Lives Lost in Crashes

(2020)

38,824

People Injured in Crashes

(2020)

2,282,015

Police-Reported Crashes

(2020)

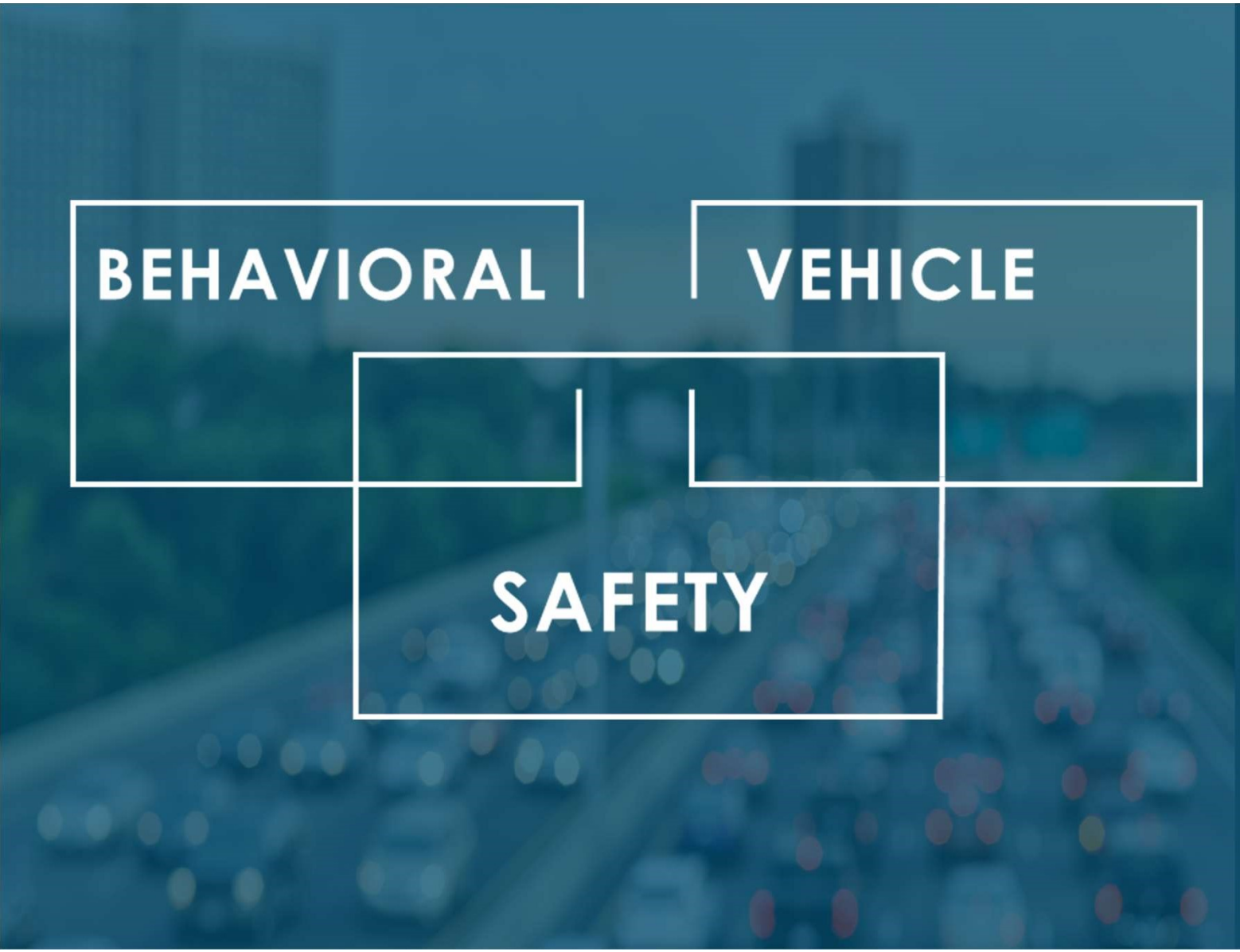
5,250,837

Economic Costs

Of Motor Vehicle Crashes

(2018)

$242 Billion



Behavioral Safety

Drivers & Other Road Users

NHTSA's Role

Federal Partners
- NIDA
- NIAAA
- SAMHSA
- CDC
- ONDCP
- NTSB
- FDA
- US DOJ

- Research Projects
- Evaluation Research
- Demonstration Programs
- Technical Support

Other Topics
- Older Drivers
- Novice Drivers
- Vulnerable Road Users
- Speeding
- EMS
- Drowsy Driving
- Distracted Driving
- Occupant Protection
- Criminal Justice

What We Know About Impaired Driving?

What Do We Know?

- **A complex problem**
  - Effects of alcohol on driving performance fairly well-known
  - 50+ years of research and programmatic efforts on drugs

	Alcohol	Other Drugs
Size of Effort	One type of drug	Many (illegal, OTCs, prescription)
Research Efforts	Well-studied	Many, disparate
Metabolism	Processes understood	Variable; many possibilities
Effect on Driving Behavior	Strong correlation to poor performance	Uncertain Correlation
Effect of High Doses	Greater decrements in performance	Unpredictable

  - specific drug concentration levels **cannot** be reliably equated with effects on driver performance

Addressing What We Don't Know

Research Questions & Projects

- Many research questions, limited resources
  - 18 impaired-driving-related research projects, that vary by
    - Research Question
    - Primary Research Method
    - Scale (e.g., scope, size of effort)
- Collaborating with our NHTSA Colleagues to address issues

Addressing What We Don’t Know:

Addressing FARS Drug Data Quality & Quantity

Fatality Analysis Reporting System (FARS)

- A census of all police-reported fatal motor vehicle traffic crashes in the U.S. (50 States, DC, & Puerto Rico)
- Operated cooperatively with States

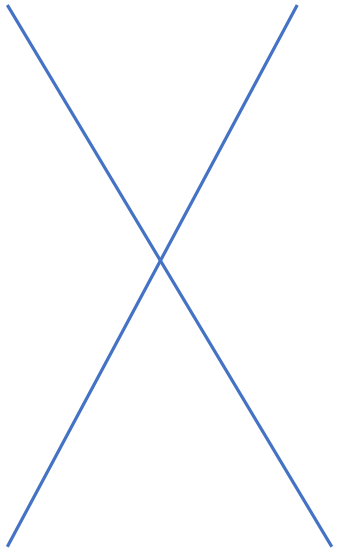
FARS Operations

- Eight State record sources
- > 140 data elements coded into uniform data system
- Quality control checks
- Not all data is available
- Not all data elements are coded

FARS Drug Data ≠ FARS Alcohol Data

- Quantity nor Quality
  - States and NHTSA reporting on alcohol-related fatalities for 40 years
  - Imputation to estimate BACs
  - Testing, procedures are well-established
  - Testing rates vary by
    - Driver was fatality-injured or survived
    - State
    - Cost, time, resources

Summary of Fatal Crashes

Total Crashes	Alcohol-Impaired Crashes	Drug-Involved Crashes
2020 Fatalities: **38,824**	2020 Fatalities: **11,654**	
2019 Fatalities: **36,355**	2019 Fatalities: **10,196**	

Source: Overview of Motor Vehicle Crashes in 2020 (NHTSA, 2022)

Limitations—FARS Data

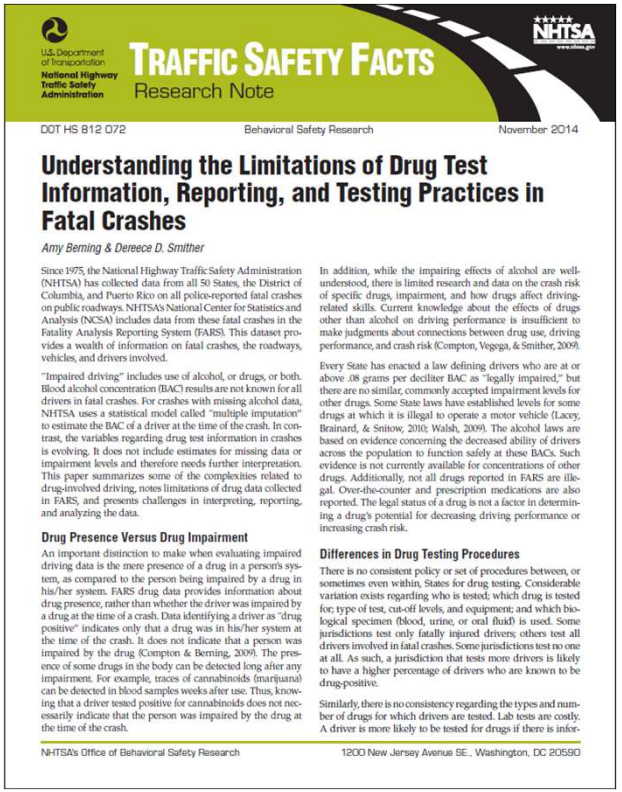
Issue	Things to Work On

Quality	• limited drugs entered
	• need specificity on specimen
	• need info on testing panels and thresholds
	• type of test not indicated
	  ▪ need concentration amounts
	• need positive and negative results
	• need time/date of specimen collection
	• non-representative
	  ▪ survivors and decedents
	• **presence indicated not impairment**

Quantity	• >testing of surviving and deceased drivers

FARS Drug Data: A Cautionary Note

- Many people are seeking answers about drugged driving
- Many look to NHTSA's FARS data
- NHTSA's FARS drug-involved data has <u>many</u> limitations
- New report coming soon



U.S. Department of Transportation
National Highway Traffic Safety Administration

TRAFFIC SAFETY FACTS
Research Note

NHTSA

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Understanding the Limitations of Drug Test Information, Reporting, and Testing Practices in Fatal Crashes

Amy Berning & Dereece D. Smither

Since 1975, the National Highway Traffic Safety Administration (NHTSA) has collected data from all 50 States, the District of Columbia, and Puerto Rico on all police-reported fatal crashes on public roadways. NHTSA's National Center for Statistics and Analysis (NCSA) includes data from these fatal crashes in the Fatality Analysis Reporting System (FARS). This dataset provides a wealth of information on fatal crashes, the roadways, vehicles, and drivers involved.

"Impaired driving" includes use of alcohol, or drugs, or both. Blood alcohol concentration (BAC) results are not known for all drivers in fatal crashes. For crashes with missing alcohol data, NHTSA uses a statistical model called "multiple imputation" to estimate the BAC of a driver at the time of the crash. In contrast, the variables regarding drug test information in crashes is evolving. It does not include estimates for missing data or impairment levels and therefore needs further interpretation. This paper summarizes some of the complexities related to drug-involved driving, notes limitations of drug data collected in FARS, and presents challenges in interpreting, reporting, and analyzing the data.

Drug Presence Versus Drug Impairment

An important distinction to make when evaluating impaired driving data is the mere presence of a drug in a person's system, as compared to the person being impaired by a drug in his/her system. FARS drug data provides information about drug presence, rather than whether the driver was impaired by a drug at the time of a crash. Data identifying a driver as "drug positive" indicates only that a drug was in his/her system at the time of the crash. It does not indicate that a person was impaired by the drug (Compton & Berning, 2009). The presence of some drugs in the body can be detected long after any impairment. For example, traces of cannabinoids (marijuana) can be detected in blood samples weeks after use. Thus, knowing that a driver tested positive for cannabinoids does not necessarily indicate that the person was impaired by the drug at the time of the crash.

In addition, while the impairing effects of alcohol are well-understood, there is limited research and data on the crash risk of specific drugs, impairment, and how drugs affect driving-related skills. Current knowledge about the effects of drugs other than alcohol on driving performance is insufficient to make judgments about connections between drug use, driving performance, and crash risk (Compton, Vegega, & Smither, 2009).

Every State has enacted a law defining drivers who are at or above .08 grams per deciliter BAC as "legally impaired," but there are no similar, commonly accepted impairment levels for other drugs. Some State laws have established levels for some drugs at which it is illegal to operate a motor vehicle (Lacey, Brainard, & Snitow, 2010; Walsh, 2009). The alcohol laws are based on evidence concerning the decreased ability of drivers across the population to function safely at these BACs. Such evidence is not currently available for concentrations of other drugs. Additionally, not all drugs reported in FARS are illegal. Over-the-counter and prescription medications are also reported. The legal status of a drug is not a factor in determining a drug's potential for decreasing driving performance or increasing crash risk.

Differences in Drug Testing Procedures

There is no consistent policy or set of procedures between, or sometimes even within, States for drug testing. Considerable variation exists regarding who is tested; which drug is tested for; type of test, cut-off levels, and equipment; and which biological specimen (blood, urine, or oral fluid) is used. Some jurisdictions test only fatally injured drivers; others test all drivers involved in fatal crashes. Some jurisdictions test no one at all. As such, a jurisdiction that tests more drivers is likely to have a higher percentage of drivers who are known to be drug-positive.

Similarly, there is no consistency regarding the types and number of drugs for which drivers are tested. Lab tests are costly. A driver is more likely to be tested for drugs if there is infor-

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Improvements to Date

- Unlimited drugs allowed
- Updated specimen list
- Some variables renamed
- Identify positive & negative tests
- Reorganize drug list
- Software & training updates

Improvements to Come

- Add Test Type Variable
  - Screening Test, Confirmatory Test, Unknown
- Record data source
- Separate positive & negative test results

Longer Term Updates

- Time and date of
  - specimen collection
  - test performed
- Record concentration level of each drug
- Testing panel and detection threshold

NHTSA

Top 10 Leading Causes of Death in the United States in 2017, By Age Group[1]

National Highway Traffic Safety Administration's National Center for Statistics and Analysis

RANK	Cause and Number of Deaths											Years of Life Lost[2]
	Infants Under 1	Toddlers 1–3	Young Children 4–7	Children 8–15	Youth 16–20	Young Adults 21–24	Other Adults			Elderly 65+	All Ages	
							25–34	35–44	45–64			
1	Perinatal Period 11,000	Congenital Anomalies[a,5] 371	Malignant Neoplasms[5] 346	Suicide 871	**MV Traffic Crashes 3,129**	Accidental Poisoning 3,852	Accidental Poisoning 16,478	Accidental Poisoning 15,032	Malignant Neoplasms[5] 154,076	Heart Disease 519,052	Heart Disease 647,457	Malignant Neoplasms[5] 22% (9,430,293)
2	Congenital Anomalies[5] 4,580	Accidental Drowning[a] 371	**MV Traffic Crashes 268**	**MV Traffic Crashes 742**	Suicide 2,812	**MV Traffic Crashes 3,345**	Suicide 7,948	Malignant Neoplasms[5] 10,900	Heart Disease 112,760	Malignant Neoplasms[5] 427,896	Malignant Neoplasms[5] 599,108	Heart Disease 18% (8,016,939)
3	Heart Disease 304	**MV Traffic Crashes 257**	Congenital Anomalies[5] 169	Malignant Neoplasms[5] 704	Homicide 2,284	Suicide 3,091	**MV Traffic Crashes 6,822**	Heart Disease 10,401	Accidental Poisoning 25,288	CLRD[5] 136,139	CLRD[5] 160,201	Accidental Poisoning 6% (2,523,995)
4	Homicide 302	Homicide 251	Homicide[b] 152	Homicide 377	Accidental Poisoning 1,160	Homicide 2,476	Homicide 5,488	Suicide 7,335	CLRD[5] 22,642	Stroke 125,653	Stroke 146,383	CLRD[5] 5% (1,958,339)
5	Influenza/ Pneumonia 157	Malignant Neoplasms[5] 237	Accidental Drowning[b] 152	Congenital Anomalies[5] 292	Malignant Neoplasms[5] 609	Malignant Neoplasms[5] 658	Heart Disease 3,681	**MV Traffic Crashes 5,096**	Chronic Liver Disease 22,049	Alzheimer's 120,107	Alzheimer's 121,404	Suicide 4% (1,684,955)
6	Septicemia 147	Heart Disease 112	Exposure to Smoke/Fire 88	Heart Disease 173	Heart Disease 375	Heart Disease 499	Malignant Neoplasms[5] 3,616	Homicide 3,351	Diabetes 21,313	Diabetes 59,020	Diabetes 83,564	Stroke 4% (1,605,127)
7	Stroke 100	MV Other/Non-Traffic Crashes[4] 110	Heart Disease 60	Accidental Drowning 171	Accidental Drowning 232	Accidental Drowning 202	CLRD[5] 918	Chronic Liver Disease 3,000	Stroke 17,906	Influenza/ Pneumonia 46,862	Accidental Poisoning 64,795	**MV Traffic Crashes 3% (1,419,930)**
8	**MV Traffic Crashes 80**	Influenza/ Pneumonia 90	Influenza/ Pneumonia 56	CLRD[5] 121	Congenital Anomalies[5] 176	Congenital Anomalies[5] 150	Diabetes 823	Diabetes 2,118	Suicide 16,543	Nephritis/ Nephrosis 41,670	Influenza/ Pneumonia 55,672	Diabetes 3% (1,319,549)
9	Nephritis/ Nephrosis 79	Exposure to Smoke/Fire 66	Stroke 40	MV Other/Non-Traffic Crashes[4] 103	Accidental Falls 94	Diabetes 148	Stroke 593	Stroke 1,811	**MV Traffic Crashes 10,756**	Accidental Falls 31,190	Nephritis/ Nephrosis 50,633	Chronic Liver Disease 2% (966,956)
10	Malignant Neoplasms[5] 57	Stroke 53	MV Other/Non-Traffic Crashes[4] 33	Exposure to Smoke/Fire 88	Diabetes 92	Complicated Pregnancy 122	HIV 513	Septicemia 854	Septicemia 8,279	Parkinson's Disease 31,177	Suicide 47,173	Homicide 2% (903,678)
ALL[3]	22,335	3,282	2,050	5,338	13,204	17,602	60,215	79,796	542,148	2,067,404	2,813,503	All Causes 100% (43,470,252)

For More Information About Our Traffic Safety Projects

Research in Progress

https://rip.trb.org/

Published Research (RosaP)

https://rosap.ntl.bts.gov/

Thank You!

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