Breakout Session 2:

Closing the Research Gaps In Impaired Driving Data

Ryan C Smith, Research Scientist, Group Lead, Virginia Tech Transportation Institute

DeReece Smither, Research Psychologist, National Highway Traffic Safety Administration, U.S. Department of Transportation

NGA
NATIONAL GOVERNORS ASSOCIATION

Closing the Research Gaps in Impaired Driving Data

Ryan C. Smith, Ph.D.

Research Scientist

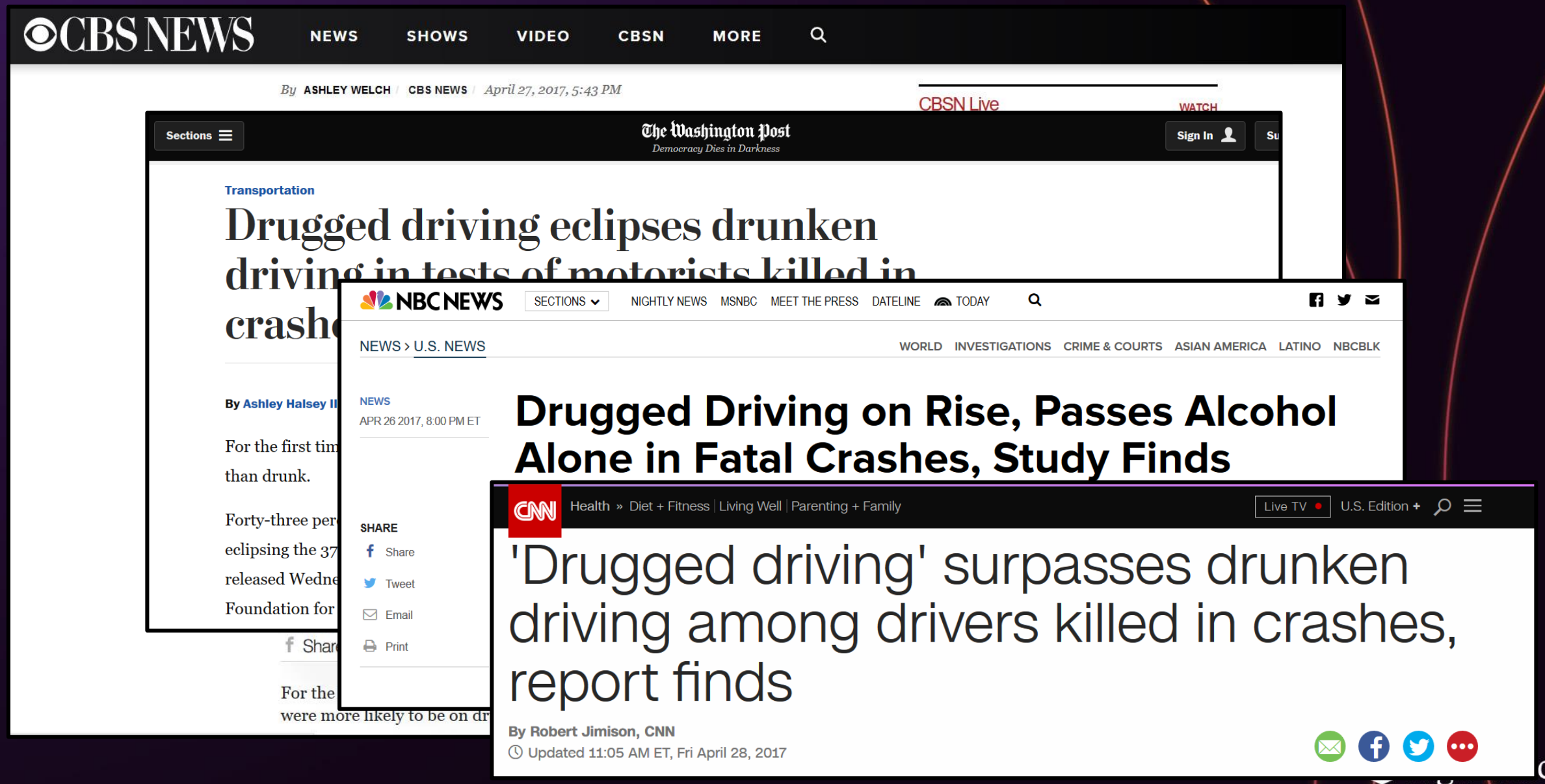
Group Lead

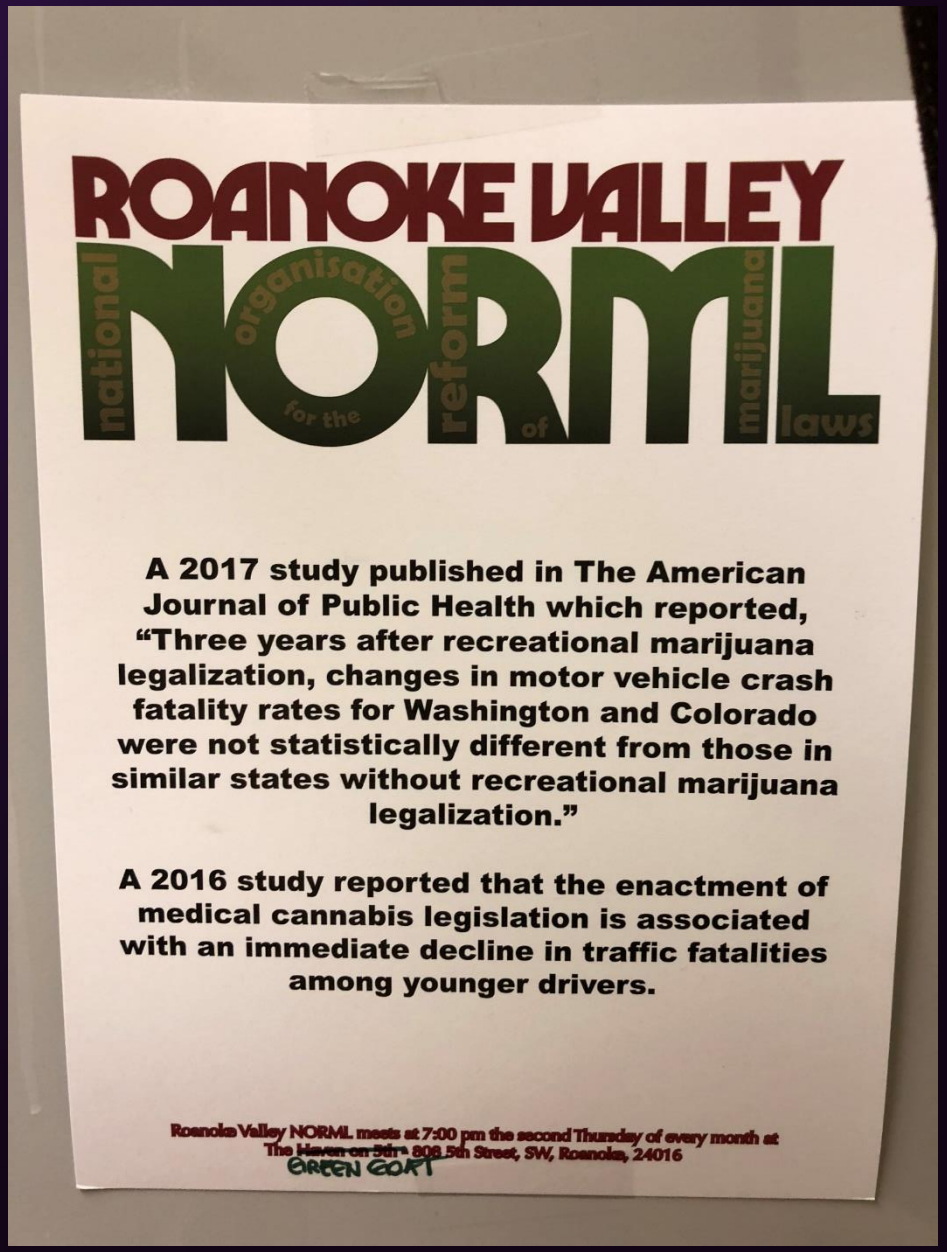
Impaired Driving Research, Evaluation, & Analysis

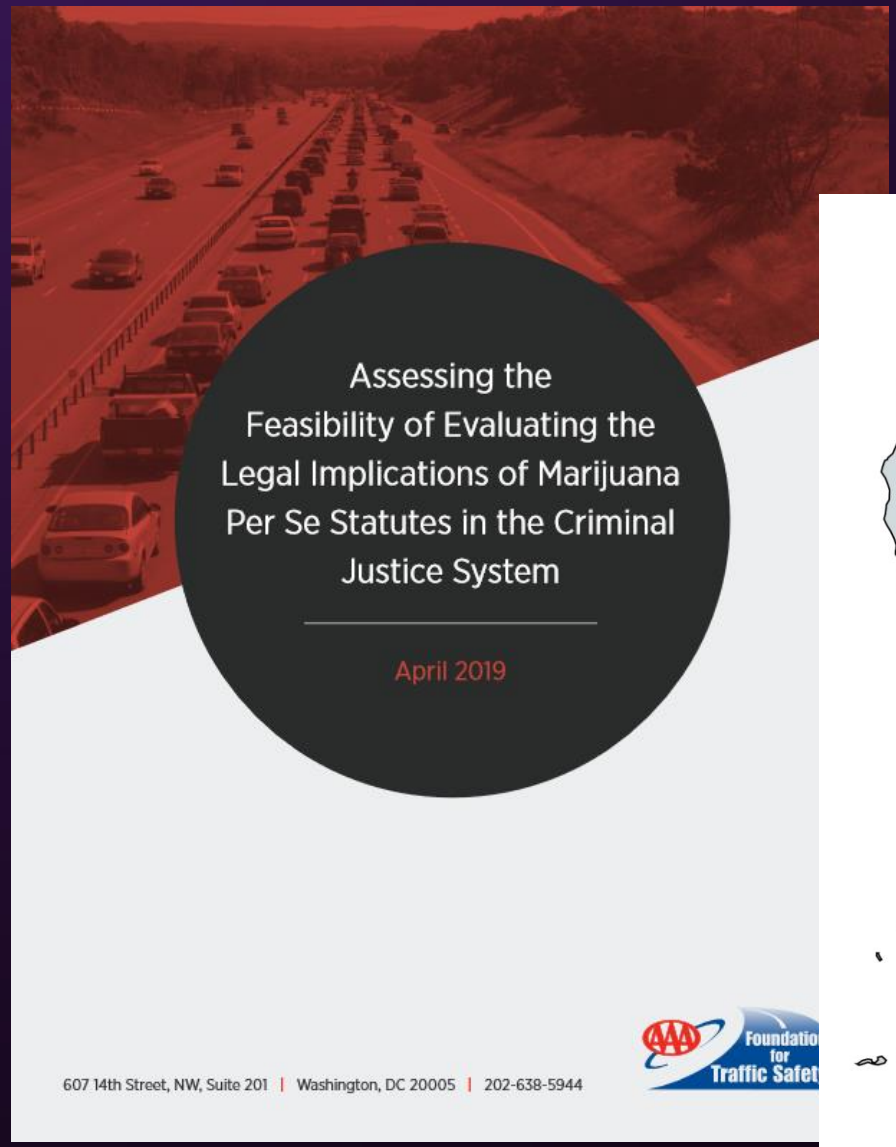
Virginia Tech Transportation Institute

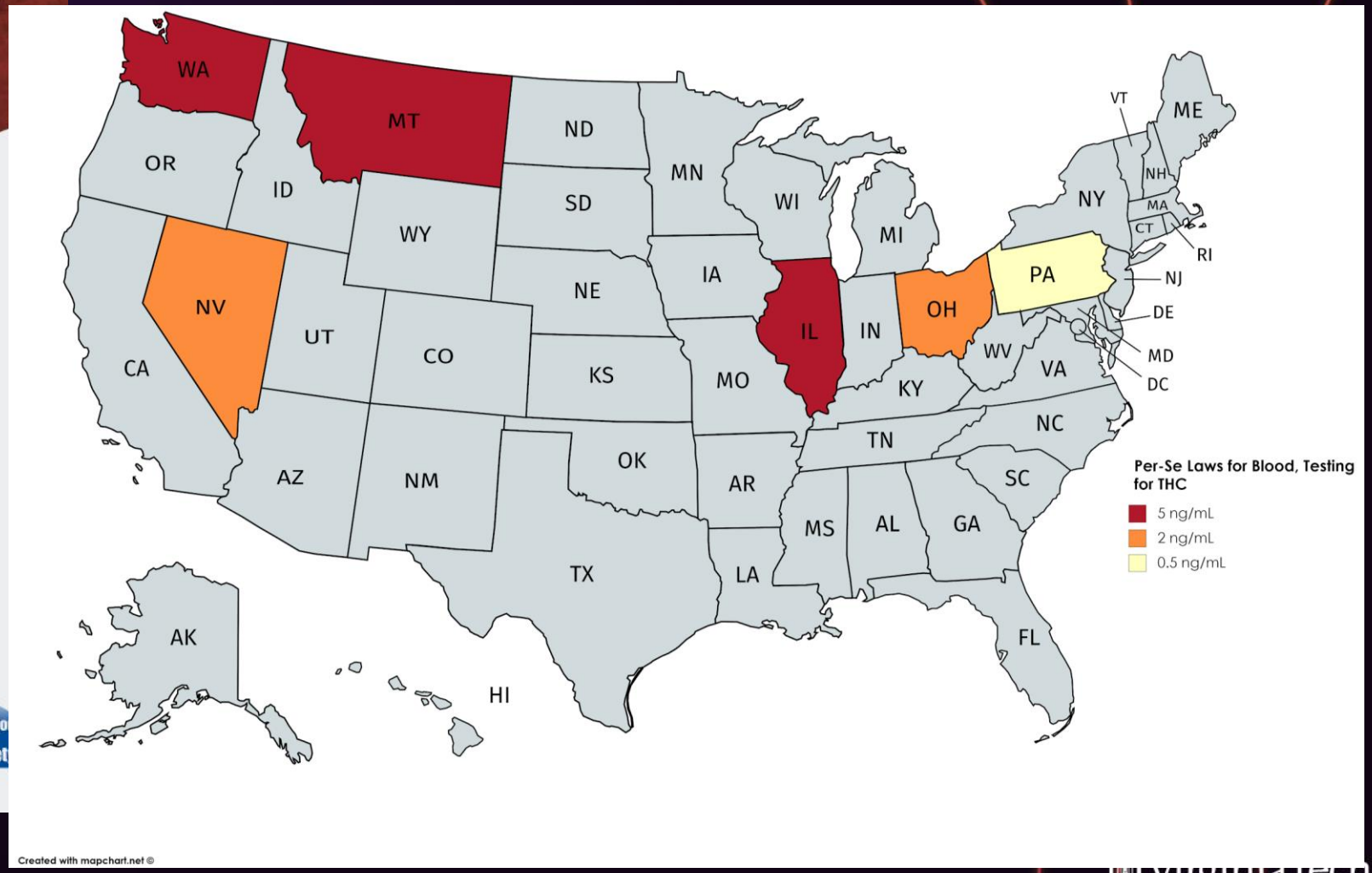
Advancing Transportation Through Innovation

VirginiaTech
Transportation Institute

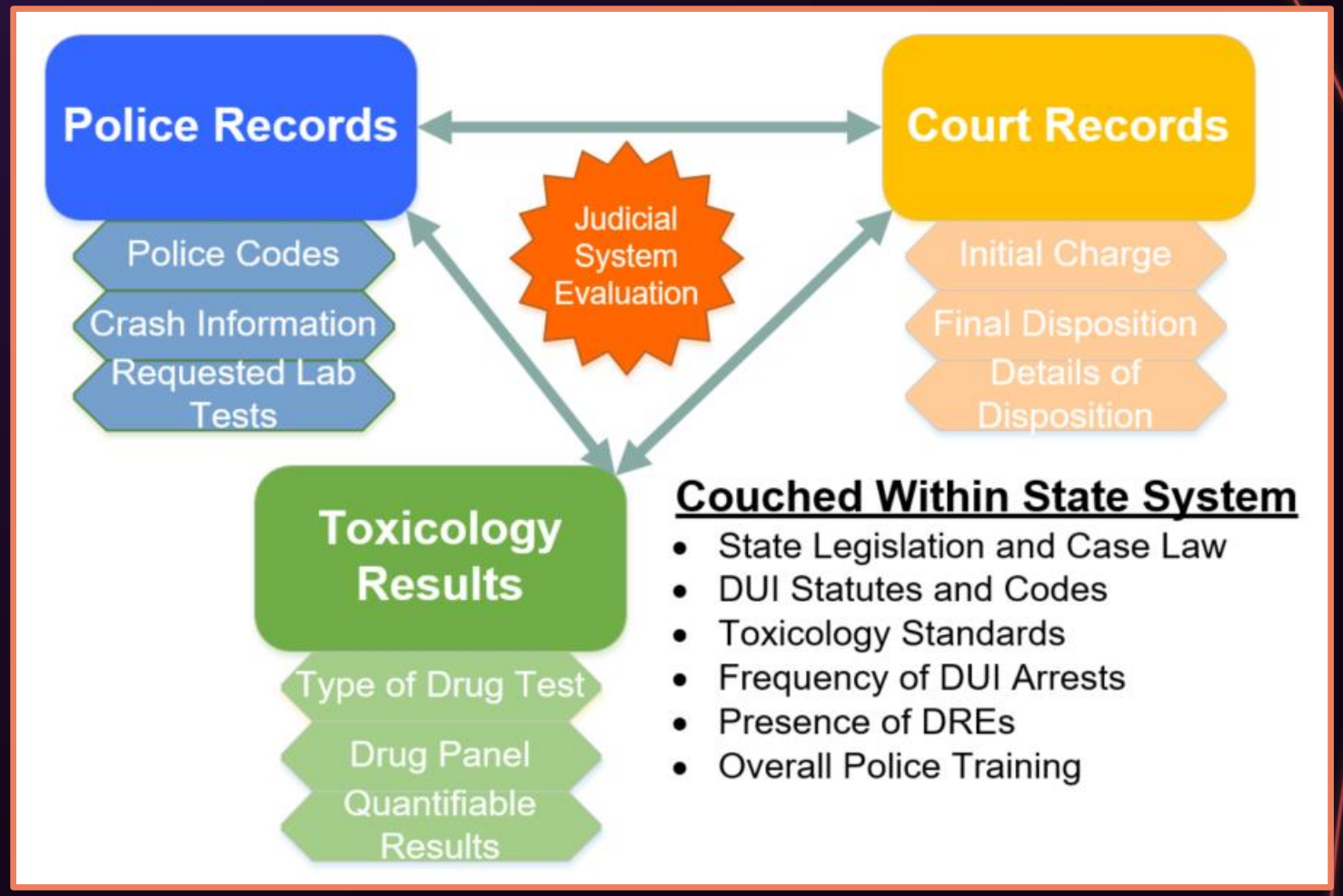

CBS NEWS
NEWS SHOWS VIDEO CBSN MORE
By ASHLEY WELCH / CBS NEWS / April 27, 2017, 5:43 PM
CBSN Live
WATCH
Sections
The Washington Post
Democracy Dies in Darkness
Sign In
Transportation
Drugged driving eclipses drunken
By Ashley Halsey II
For the first tim
than drunk.
Forty-three per
eclipsing the 37
released Wedne
Foundation for
NBC NEWS
SECTIONS
NIGHTLY NEWS MSNBC MEET THE PRESS DATELINE TODAY
NEWS > U.S. NEWS
WORLD INVESTIGATIONS CRIME & COURTS ASIAN AMERICA LATINO NBCBLK
NEWS
APR 26 2017, 8:00 PM ET
Drugged Driving on Rise, Passes Alcohol Alone in Fatal Crashes, Study Finds
SHARE
Share
Tweet
Email
Print
CNN
Health » Diet + Fitness | Living Well | Parenting + Family
Live TV
U.S. Edition +
'Drugged driving' surpasses drunken driving among drivers killed in crashes, report finds
By Robert Jimison, CNN
Updated 11:05 AM ET, Fri April 28, 2017


ROANOKE VALLEY
national organisation for the reform of marijuana laws
NORML
A 2017 study published in The American Journal of Public Health which reported, "Three years after recreational marijuana legalization, changes in motor vehicle crash fatality rates for Washington and Colorado were not statistically different from those in similar states without recreational marijuana legalization."
A 2016 study reported that the enactment of medical cannabis legislation is associated with an immediate decline in traffic fatalities among younger drivers.
Roanoke Valley NORML meets at 7:00 pm the second Thursday of every month at
The Haven on 9th • 808 5th Street, SW, Roanoke, 24016
GREEN GOAT

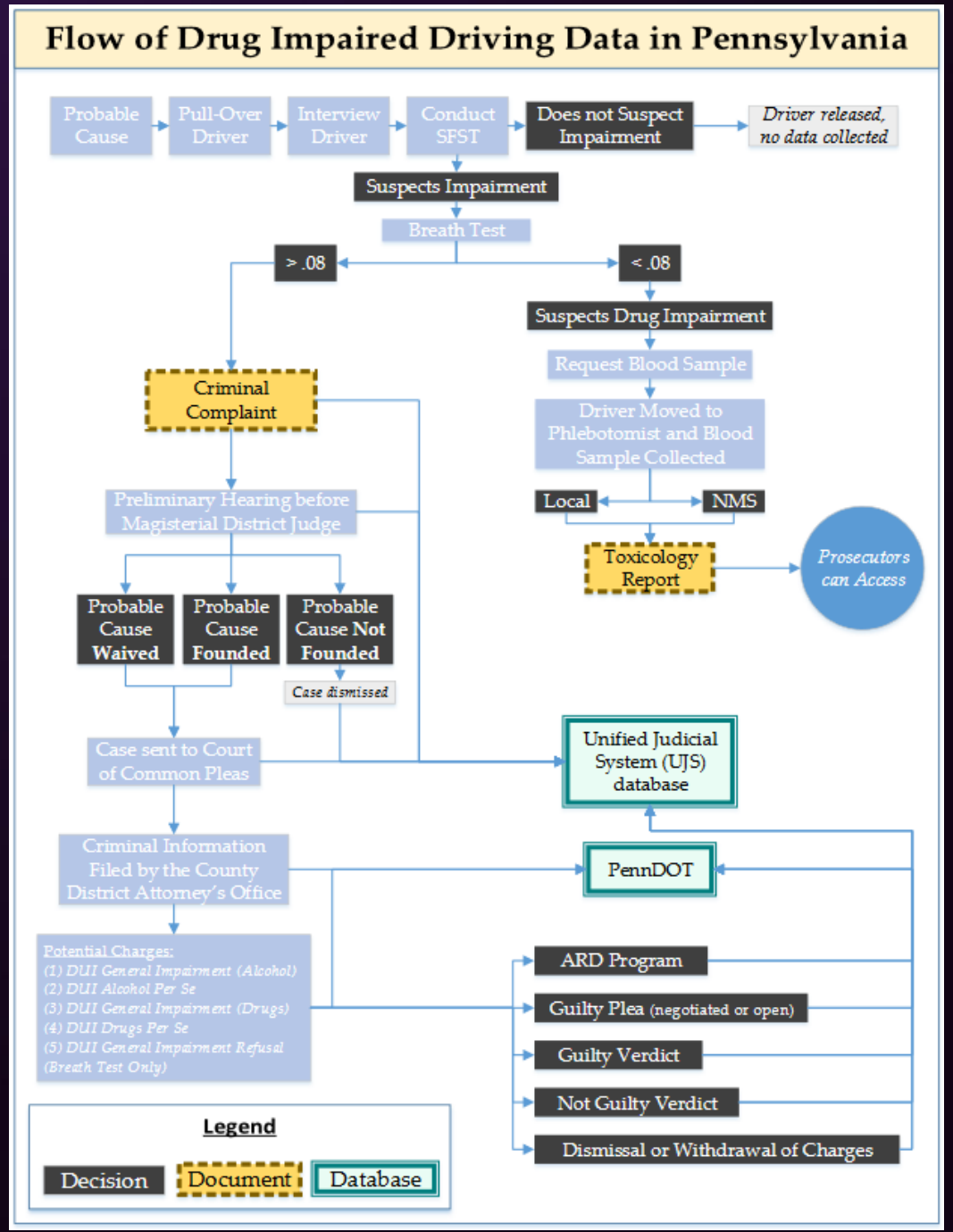

Assessing the Feasibility of Evaluating the Legal Implications of Marijuana Per Se Statutes in the Criminal Justice System
April 2019
607 14th Street, NW, Suite 201 | Washington, DC 20005 | 202-638-5944
Foundation for Traffic Safety


WA
MT
ND
MN
OR
ID
SD
WI
MI
WY
NY
VT
ME
NH
MA
CT
RI
NV
IA
PA
NJ
NE
IL
IN
OH
DE
UT
CO
KS
MO
WV
VA
MD
DC
CA
KY
TN
NC
AZ
NM
OK
AR
SC
MS
AL
GA
TX
LA
FL
AK
HI
Per-Se Laws for Blood, Testing for THC
5 ng/mL
2 ng/mL
0.5 ng/mL
Created with mapchart.net ©

Drug Data Reporting and Linking



Flow of Drug Impaired Driving Data in Pennsylvania



VirginiaTech
Transportation Institute

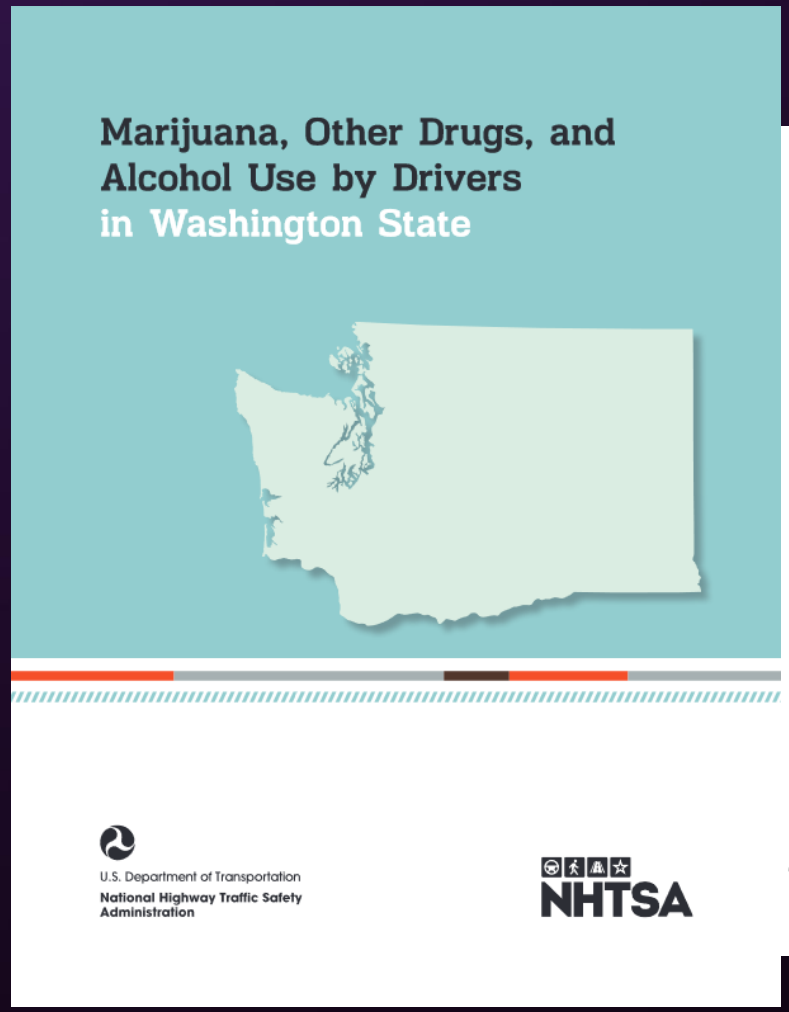
Toxicology Challenges within a State

- Multiple Laboratories
  - State-run vs. Private
- Significant Variance in:
  - Drug Panels
  - Drug Matrices
  - Detection Thresholds
- Changes in Protocols over Time
- BAC Stop Testing Levels
- Flow of Toxicology Data

Other State-Level Challenges

- Data Linkage and Integration across Systems
- Combined Offenses for Alcohol and Other Drugs
- Charge Detail in Judicial Databases
- Linking of Toxicology Information
- Inability to Track an Individual from Citation to Final Disposition

Partnering with Research Groups



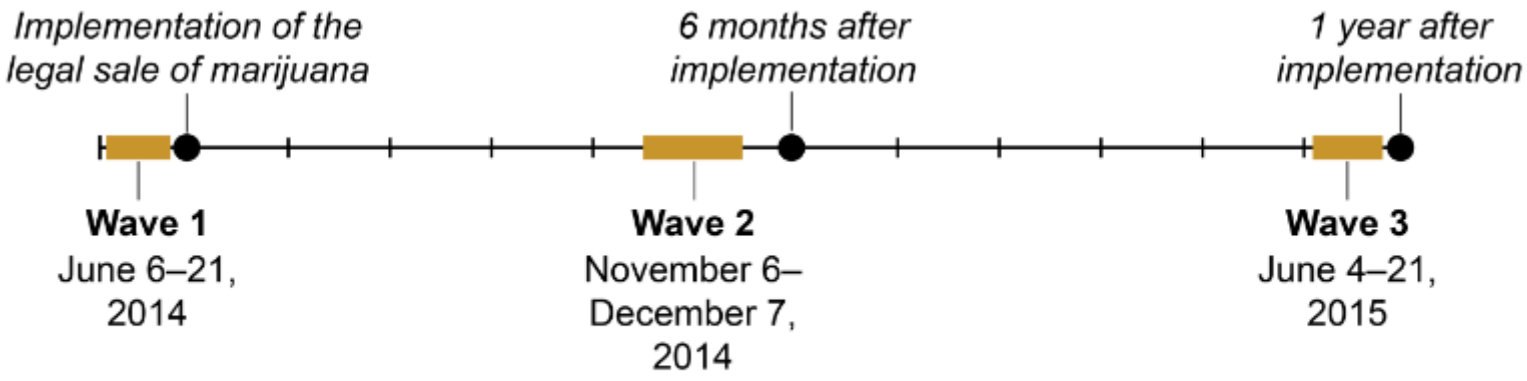


Figure 1. Timeline of the Washington State Study

Table 4. Percentage of THC-Positive Drivers by Wave (Oral Fluid or Blood)

	% THC-positive	*N*	95% CI
Wave 1	14.6	908	[11.9, 17.8]
Wave 2	19.4	672	[16.4, 22.8]
Wave 3	21.4	810	[17.5, 25.9]

In this table, Ns are unweighted; percentages are weighted.
THC-positive includes results from THC and hydroxy-THC.

Naturalistic Driving Research


2143242


170121

Potential Solutions

- Improved Communication within a State
  - Enhanced Focus on Toxicology
  - Build Broad Coalitions
- Consider Research Partnerships
- Invest in Toxicology and Technological Advancements
- Make Drugged Driving Data a State Value and Priority
- New BTSCRP Project “Tracking State Traffic Citation and Adjudication Outcomes”

Ryan C. Smith, Ph.D.
Research Scientist, Group Lead
Impaired Driving Research, Evaluation, & Analysis
Virginia Tech
rsmith@vtti.vt.edu
(540)231-0281

Advancing Transportation Through Innovation

VirginiaTech
Transportation Institute

Roadmap to Improving FARS Drug Data

DeReece D. Smither, PhD
Research Psychologist
NHTSA
Office of Behavioral Safety Research
dereece.smither@dot.gov

Fatality Analysis Reporting System (FARS)

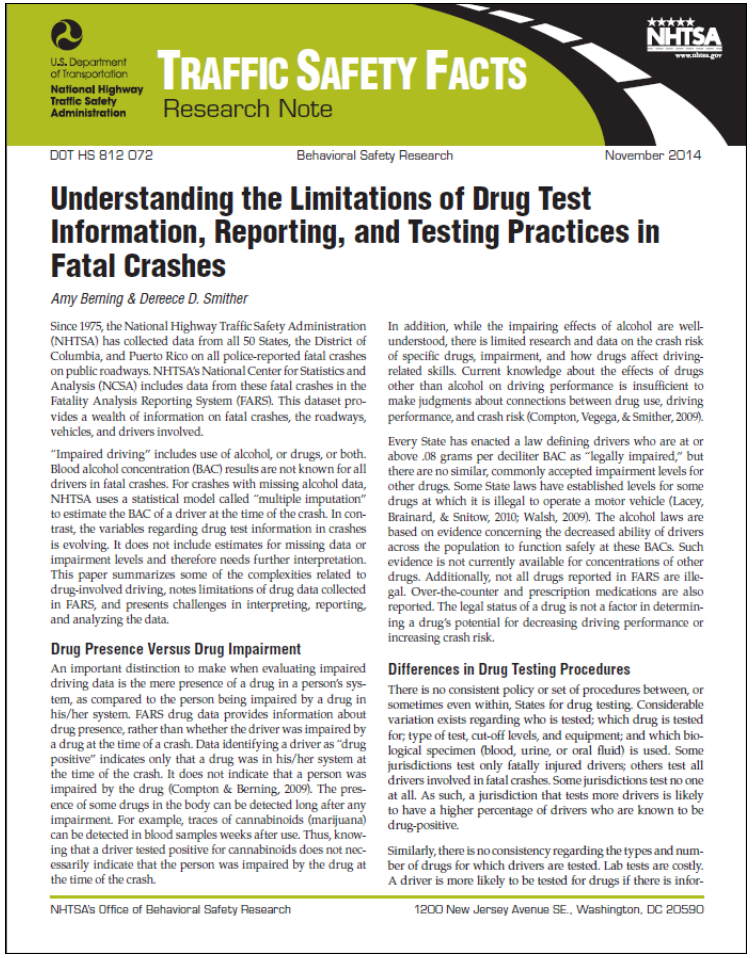
- A census of all police-reported fatal motor vehicle traffic crashes in the U.S. (50 States, DC, & Puerto Rico)
- Operated cooperatively with States
- FARS Analysts–state employees gather, analyze,& enter data

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: A Cautionary Note

- Many people are seeking answers about drugged driving
- Many look to NHTSA's FARS data
- FARS Drug-involved Data has <u>many</u> limitations



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

TRAFFIC SAFETY FACTS
Research Note

NHTSA
www.nhtsa.gov

DOT HS 812 072 | Behavioral Safety Research | November 2014

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-

NHTSA's Office of Behavioral Safety Research | 1200 New Jersey Avenue SE., Washington, DC 20590

Limitations—FARS Drug 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

Improvements to Date

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

Improvements to Come

- Add Test Type Variable
  - Screening Test, Confirmatory Test, Unknown
- Record data source
- Reorganize drug list

Longer Term Updates

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