Drug Testing and Drug-Involved Driving of Fatally Injured Drivers in the United States: 2005–2009

Office of National Drug Control Policy
Executive Office of the President
Washington, DC

October 2011

For more information regarding this report, contact Terry Zobeck at tzobeck@ondcp.eop.gov or Fe Caces at mcaces@ondcp.eop.gov. Data analysis for was conducted by CSR, Incorporated for the Office of National Drug Control Policy (ONDCP) under Contract Number: HHSP 233-2009-5632 WC. The following individuals contributed to this report: Lynn Disney, Steven Pelkey, Marcia Wipperman, and Hsiao-ye Yi from CSR; and Fe Caces, Karen Rank, and Terry Zobeck from ONDCP. This report and other information on drugged driving may be accessed by Internet users at http://www.whitehouse.gov/ondcp/drugged-driving. Additional information on the *Fatality Analysis Reporting System* is available from http://www.nhtsa.gov/FARS.

REPORT HIGHLIGHTS

- In 2009, 21,978 drivers were killed in motor vehicle crashes nationwide, and 63 percent were tested for the presence of drugs.
- In the same year, 3,952 fatally injured drivers tested positive for drug involvement, representing 18 percent of all fatally injured drivers, or 33 percent of drivers with known drug test results.
- Drug testing rates nationwide increased by 5 percentage points from 2005 to 2009; however, testing rates in the United States varied considerably across states, ranging from 0 to 100 percent.
- Eight states exhibited sizable increases in their testing rates since 2005. Testing rates in all other states remained relatively stable.
- The proportion of fatally injured drivers with known results who tested positive for drugs also varied by state.
- In 2009, narcotics and cannabinoids accounted for almost half of all positive results.
- Positive results involving stimulants decreased by 40 percent since 2005, and the proportion of positive results for narcotics and depressants increased by 36 percent and 39 percent, respectively.
- In states with more than 10 fatally injured drivers, the proportion of male fatally injured drivers who tested positive for drugs was similar to the proportion reported for females.
- Among fatally injured males who tested positive for drugs, 28 percent tested positive for cannabinoids compared with 17 percent of females. Twenty-seven percent of females tested positive for narcotics, whereas 19 percent of males tested positive for narcotics.
- Cannabinoids were reported in 43 percent of fatally injured drivers under age 24 who tested positive for drugs, and this percentage decreased steadily as age increased.
- Narcotics and depressants were reported at a higher rate among drivers age 45 and older who tested positive for drugs.
- Females were overrepresented in crashes involving drivers who tested positive for narcotics and depressants, whereas crashes involving cannabinoids and stimulants were more likely among male drivers.
- Overall, alcohol was involved in approximately one-third (34 percent) of all crashes involving fatally injured drivers, yet among drivers who tested positive for any drug, 48 percent also tested positive for alcohol.
- Over half (55 percent) of drug-positive drivers did not use a seatbelt, compared to 48 percent of all fatally injured drivers.
- Nighttime fatal crashes were more common among drug-positive drivers (43 percent) compared to all fatally injured drivers (37%).
- Fifty-four percent of all fatally injured driver crashes involved a single vehicle, and for drug-positive drivers, single-vehicle crashes were slightly more common (57 percent).

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1. Scope of This Report

The Office of National Drug Control Strategy (ONDCP) identified drugged driving as a major initiative in the 2011 *National Drug Control Strategy*. A primary goal of the *Strategy* is to reduce the frequency of drugged or drug-involved driving by 10 percent between 2009 and 2015 by making drug-involved driving prevention a national priority on par with efforts to combat drunk driving. Specifically, this goal will be achieved by "raising awareness of the dangers of drugged driving and providing technical assistance to states considering anti-drugged driving laws" (ONDCP, 2011).

In order to effectively curb drug-involved driving and the dangers it poses, various factors associated with drug-related motor vehicle crashes must first be elucidated. Information is needed so that states may more effectively combat drug-involved driving by taking a more consistent and targeted enforcement approach based on empirical research.

This report uses data from the *Fatality Analysis Reporting System* (FARS) to provide a description of drug-involved driving and its correlates. In 2010, the National Highway Traffic Administration (NHTSA) under the U.S. Department of Transportation released a brief statistical summary reporting the first ever analysis of drug involvement among deceased drivers in fatal crashes based on FARS data for 2005 through 2009 (NHTSA, 2010). In 2009, 21,978 drivers were killed in motor vehicle crashes nationwide, and 63 percent were tested for the presence of drugs. In the same year, 3,952 tested positive for drug involvement, representing 18 percent of all fatally injured drivers.

This report begins with the NHTSA statistical summary of 2009 data and provides additional analysis to inform the drugged driving initiative as outlined in the *National Drug Control Strategy*. It is descriptive and is intended to lay a foundation for additional analysis. The report also highlights variability in the existing data, particularly between states, and identifies some areas for improving data reporting to permit more robust analysis of factors associated with drug-involved driving.

2. Background

Drug and alcohol use are linked to a range of health outcomes, including fatalities related to driving under the influence. However, compared with alcohol-involved driving, relatively little is known about drug testing and drug-involved driving rates and trends (DuPont, 2011). While a blood alcohol content (BAC) of 0.08[1] or greater was found in 7,281 (33 percent) of fatally injured drivers in 2009 (Insurance Institute for Highway Safety, 2009), an accurate assessment of the prevalence of drug-involved driving is much more difficult to ascertain. Drug testing of drivers involved in fatal crashes is not as common as alcohol testing, nor is it standardized across jurisdictions. A confluence of potentially confounding factors—including but not limited to the diversity of drug categories (both illegal and legal), poly-substance use, and the assorted physiological effects on the body—makes such an assessment difficult. Furthermore, unlike with laws about testing for alcohol in driving fatalities, states vary considerably in their laws

[1] A BAC of 0.08 is the level at which the law of all states assumes intoxication.

regulating drug-testing policy, which makes it even more difficult to aggregate valid empirical data on drug testing and drug-involved driving.

All states have had the same alcohol laws related to driving since August 2005.[2] All have *per se* alcohol laws at the 0.08 BAC level for persons 21 years and older. That is, if a person tests positive for alcohol with a BAC over 0.08, that person is deemed under the influence of alcohol. Moreover, all states have zero tolerance laws for drivers under age 21 who have consumed any alcohol. These laws have improved drunk driving data by establishing a standard unit of analysis.

Currently, no two state laws regarding drug-involved driving are the same. Even though 17 states have *per se* laws, 15 of which create a zero tolerance level for illicit drugs, these laws are not consistently written from state to state. For example, Minnesota has a *per se* law, but it does not apply to cannabis consumption. Nevada lists each drug individually and provides for threshold levels in blood and urine separately. Two states (North Carolina and South Dakota) have *per se* laws that are applicable only to individuals who are under age 21. Some states, moreover, require testing of only certain bodily substances (e.g., blood or urine). Some recognize a positive test as including the presence of a metabolite, while others do not. Some state laws only apply to certain specified substances, whereas others are much broader.

It also is important to recognize that the circumstances under which testing is conducted and the consequences of testing positive are just as varied. Some states require testing for drugs when there is a fatality, while others merely make it permissible to test for the presence of drugs. States also vary in the consequences of a positive drug test. The specific legal requirements for each state are summarized in Appendix A based on a comprehensive review of state laws in 2008 commissioned by NHTSA (Walsh, 2009).

To better understand the nature of drug-involved driving in the United States, its associated correlates need to be identified and subsequently assessed. In the alcohol field, identification of such correlates for alcohol-involved driving has resulted in a better understanding of the issue, leading to improved enforcement and, ultimately, a reduction in alcohol-involved fatal crashes. Analogous work in the area of drug-involved driving is necessary, and is only at the early stages.

3. METHODS

Data Source

This report uses data collected in the *Fatality Analysis Reporting System* (FARS), maintained by the National Highway Traffic Safety Administration (NHTSA), to describe drivers involved in fatal crashes. The FARS data set is the most comprehensive database on fatal crashes. Included in these data are variables that indicate whether drug testing was conducted on the driver, and also include test results when available. This analysis focuses on only fatally injured drivers who were killed between 2005 and 2009.

The FARS database is a crash census system that documents pertinent factors related to all motor vehicle crashes within the 50 states, the District of Columbia, and Puerto Rico that result in the

[2] National Institute on Alcohol Abuse and Alcoholism, *Alcohol Policy Information Systems* (APIS) database, accessed July 12, 2011.

death of a motorist or nonmotorist within 30 days of the crash. (Data on Puerto Rico are excluded from this report.) Variables within FARS are functionally organized into three major categories: Crash, Vehicle, and Person. In general, this report uses variables from the Person file. However, in a few instances, relevant variables from the other two files were merged into the Person file to create a composite data set for analytical purposes.

Variables and Measures

This report provides descriptive statistics on drug testing and drug-involved driving among fatally injured drivers in the United States. In relation to fatal motor vehicle crashes, the commonly used term "drugged driving" implies both intoxication and causality, neither of which can be established using the data in FARS. Thus, this report will use the term "drug-involved driving" interchangeably with a "driver having a positive drug test result." The following definitions are used:

- *Total Drivers*—All fatally injured drivers involved in a motor vehicle crash in a given year.
- *Tested Drivers*—Fatally injured drivers who were tested for drugs, which may be done using blood, urine, or another testing method.
- *Tested Drivers with Known Results*—Fatally injured drivers for whom drug-test results are known.
- *Drivers with Drug-Positive Results*—Drivers for whom at least one category of drug was reported. Note that the minimum threshold that must be reached for a drug to be reported in a fatally injured driver varies by state.
- *Testing Rates*—The total number of fatally injured drivers tested for drugs, divided by the total number of fatally injured drivers for that demographic group, expressed as a percentage.
- *Tested Positive Rates*—The number of drivers with positive test results, divided by the number of drivers with known test results for a demographic group, expressed as a percentage.[3]
- *Drug Class*—The general class of drug for which a fatally injured driver tested positive, but not including any drug(s) that was administered after the crash.

More than 300 drugs and drug metabolites are recorded in FARS. NHTSA grouped these individual drug codes into 10 general classes, which are listed in Table 1. For this report, due to small numbers of reported cases, hallucinogens, phencyclidine (PCP), anabolic steroids, inhalants, and other drugs were collapsed into the single category—"Other drug". Table 2 shows the drug classes used in this report. It should be noted that although these categories are mutually exclusive within the data set, there is overlap between the classes in terms of the drug

Table 1. NHTSA Drug Classification

Hierarchy	Drug Class
1	Narcotic
2	Depressant
3	Stimulant
4	Cannabinoid
5	Hallucinogen
6	Phencyclidine (PCP)
7	Anabolic Steroid
8	Inhalant
	Other
	Unknown Drugs Found

[3] In some instances, drug-positive rates are expressed as a percentage of all fatally injured drivers – a rate that should be interpreted as a low (floor) estimate based on incomplete testing of all drivers.

contents. For example, heroin is classified as a narcotic in these data, even though it is also a depressant. It should also be noted that these drugs include illicit drugs as well as prescription and over-the-counter medications. Table 2 includes a brief description of the categories, but details of the drug classes are available from the FARS *Coding and Validation Manual* (National Highway Traffic Safety Administration, 2009). FARS data provide up to three testing results for each driver. If more than one class of drugs was reported for a driver, the highest class (as shown in the hierarchy on Table 1) was used.

Table 2. Drug Classes Used in This Report

Class	Description
Narcotic	Mostly opiates regardless of legality
Depressant	Mostly prescription benzodiazepines, barbituates, and other sedatives
Stimulant	Any psychomotor stimulant regardless of legality. Ranges from anorectics to cocaine
Cannabinoid	Cannabinoids and any derivatives thereof regardless of legality
Other drug	PCP, hallucinogens, anabolic steroids, inhalants, and any other drugs not specified. Excludes nicotine, asprin, and alcohol
Type Unknown	Category Unknown

- *Gender*—Dichotomously coded as male or female. Unknown values were excluded.
- *Age*—Age is a continuous variable in FARS that ranges from 1 to 120 years old in 2009 and 1 to 97 in all years prior to 2009. These values were recoded into six groups: 15–24, 25–34, 35–44, 45–54, 55–64, and 65+.
- *Race/Ethnicity*—In FARS, race and ethnicity are represented by two separate variables. The race variable records more than 15 races, while the ethnicity variable codes up to six Hispanic ethnicities. Both variables were collapsed into fewer categories and combined into a composite race/ethnicity variable. First, if a person was classified as Hispanic, that person was placed in that category. After that, people were placed into race categories based on their racial designation. The category "unknown" contained individuals who were unknown for both race and ethnicity. The composite race/ethnicity variable are as follows:
  - White, non-Hispanic and White, unknown ethnicity
  - African American, non-Hispanic and African American, unknown ethnicity
  - American Indian, non-Hispanic and American Indian, unknown ethnicity
  - Other race, non-Hispanic and Other Race, unknown ethnicity
  - Hispanic
  - Asian/Pacific Islanders, non-Hispanic and Asian/Pacific Islanders, unknown ethnicity
  - Unknown race and unknown ethnicity

  For brevity, these racial/ethnic categories are referenced by the terms White, African American, American Indian, Asian/Pacific Islander, Other, Hispanic, and Unknown, respectively.

In addition to using percentages, standardized rates also are presented in some of the results, using either:

- population-based rates, expressed per 100,000 population, or
- vehicle miles traveled (VMT) rates, expressed per 100 million VMT.

Selection of Attributes Associated with Drug-Involved Driving

The variables selected for these analyses were based on the findings of previous research that identified risk factors of both alcohol- and drug-involved driving among fatally injured drivers (Heeren et al., 1985; Shults et al., 2001; Romano and Voas, 2011). These include demographic characteristics, particularly gender, age, and race/ethnicity. (However, due to data shortcomings, only limited use of race/ethnicity is possible at this time). Additional crash characteristics associated with drug-involved driving include:

- Alcohol involvement
- Seatbelt use
- Adherence to traffic signs
- Driver attentiveness
- Vehicle speed
- Crash characteristics, including time of crash (daytime vs. nighttime), day of the week (weekday vs. weekend), number of vehicles involved (single vs. multiple), and population density of the crash site (rural vs. urban).

Bivariate distributions of these attributes are explored in the context of testing positive for any drug as well as for testing positive for specific drug classes as outlined in Table 2, focusing particularly on narcotics, depressants, stimulants, and cannabinoids.

Limitations

Caution should be used when drawing conclusions or making comparisons across states about drug-testing or drug-involved driving rates. As evidenced by Appendix A, every state has its own drug-testing policies, and some are quite unique. The FARS data set reports the findings of drug tests, and a positive test result does not necessarily imply impairment or causation. Furthermore, drug testing can be inaccurate, and states also vary in what drugs they test for and the threshold that constitutes a positive finding. There is no generally accepted threshold for impairment for either licit or illicit drugs. For illicit substances, although no amount is considered acceptable, this does not mean that any amount of the illicit drug is equivalent to impairment.

Moreover, only data from fatal crashes are used; and are further restricted to crashes in which the driver died. Drivers who may have been using drugs but were not in fatal crashes or who survived a fatal crash (in which the fatal injury was to a passenger or other victim) are not included.

The small number of cases at the county level also precludes detailed county-level analyses. Therefore, county-level data are shown only to illustrate what data are available on drug-involved driving.

4. RESULTS

This section presents findings on the occurrence of drug testing, testing positive for any drug, and testing positive for specific drug classes, including some trends. Variability among states is examined, and some illustrative county-level results are presented. In addition, attributes associated with testing positive for any drug as well as specific drug classes are explored using nationwide data.

Drug Testing of Fatally Injured Drivers

For the United States in 2009, 63 percent of fatally injured drivers were tested for the presence of drugs. In 2005, 56 percent were tested, with a generally increasing trend in the proportion of drivers being drug-tested over time, as shown on Table 3.

Table 3. Drug-Testing of Fatally Injured Drivers, 2005–2009

Year	Total Fatally Injured Drivers	Drivers Tested	
		Number	Percent
2005	27,491	15,384	56%
2006	27,348	16,212	59%
2007	26,570	16,703	63%
2008	24,254	15,696	65%
2009	21,798	13,833	63%

Nationally, female fatally injured drivers were slightly less likely to be tested for drugs (62 percent) than their male counterparts (64 percent).

Some variation in drug testing by age group was observed. From ages 25 to 64, the percentage of fatally injured drivers tested for drugs decreased slightly with each subsequent decade of life. Further, fatally injured drivers aged 65 or older were tested at a considerably lower rate than younger drivers (≥65=51 percent, <65=66 percent).

Drug-Positive Tests

The FARS indicator of drug-involved driving is a drug-positive test result. There were 3,952 fatally injured drivers who had a positive result on their drug test in 2009. Given the variability between and within states in the proportion of drivers that are drug tested, two results are presented in Table 3:

- Among drivers whose test results were known, 33 percent tested positive for drugs in 2009. In 2005, 28 percent tested positive.
- Among all fatally injured drivers, 18 percent tested positive for drugs in 2009. In 2005, 13 percent tested positive.

Table 4. Drug-Testing Results of Fatally Injured Drivers, 2005–2009

Year	Total Fatally Injured Drivers	Drivers Tested with Known Results			
		Number	Drug Reported		
			Number	Percent of Drivers with Known Results	Percent of all Fatally Injured Drivers
2005	27,491	13,345	3,710	28%	13%
2006	27,348	14,344	4,018	28%	15%
2007	26,570	14,921	4,214	28%	16%
2008	24,254	14,394	4,267	30%	18%
2009	21,798	12,087	3,952	33%	18%

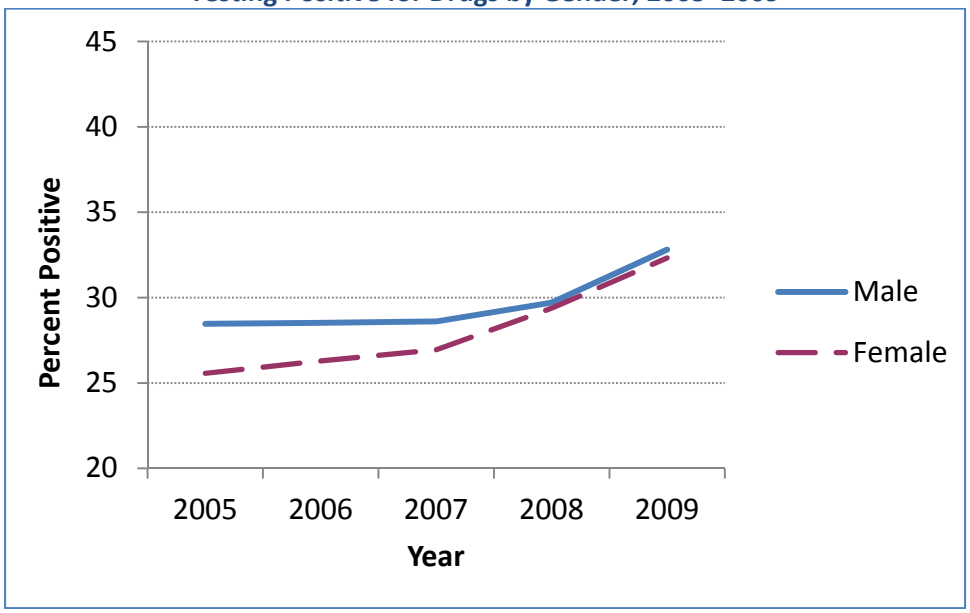
From 2005 to 2009, the proportion of tested drivers with known results who tested positive for any drug increased 5 percentage points, from 28 to 33 percent (Table 4).

There was no gender difference in the percent of fatally injured drivers with known results who tested positive for any drug (M=32.8 percent, F=32.3 percent) in 2009. Since 2005, the slightly lower percentage of females testing positive compared to males has increased (Table 5). The diminishing gender difference in testing positive has resulted in a convergence of the male and female trends in 2008 and 2009 (Figure 1).

Table 5. Rates of Fatally Injured Drivers with Known Results Testing Positive for Drugs by Gender, 2005–2009

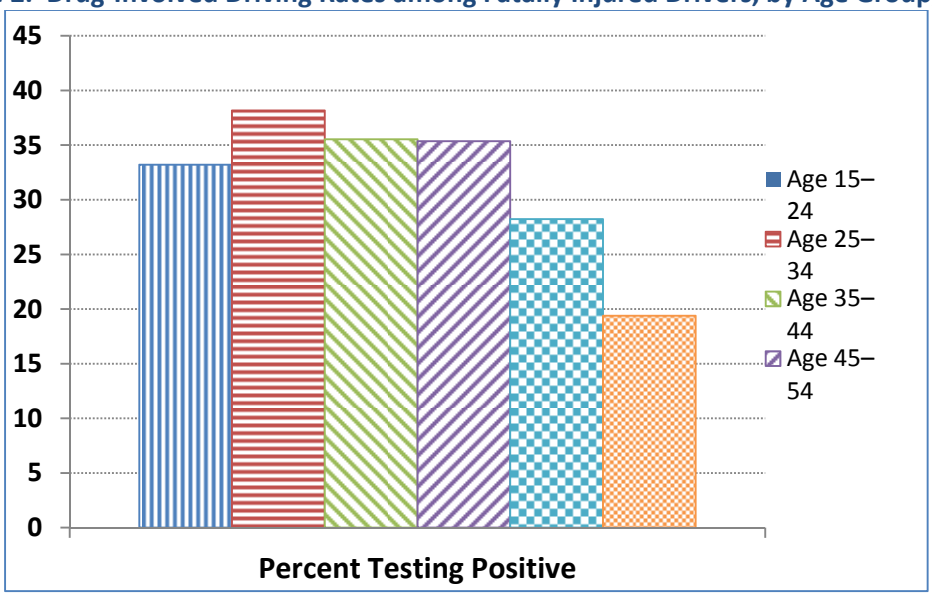
Year	Drivers Tested with Known Results		Drivers with Positive Test Results			
	Males	Females	Male		Female	
			Number	Percent	Number	Percent
2005	10,289	3,055	2,929	28.5	781	25.6
2006	11,037	3,309	3,148	28.5	870	26.3
2007	11,680	3,240	3,341	28.6	873	26.9
2008	11,226	3,165	3,335	29.7	930	29.4
2009	9,366	2,719	3,073	32.8	879	32.3

Figure 1. Percentage of Fatally Injured Drivers with Known Results Testing Positive for Drugs by Gender, 2005–2009



There was some variation by age group. Data for 2009 show that beginning with age group 25–34, the percentage of fatally injured drivers with known results who test positive for drugs decreases as age increases (Figure 2).

Figure 2. Drug-Involved Driving Rates among Fatally Injured Drivers, by Age Group, 2009

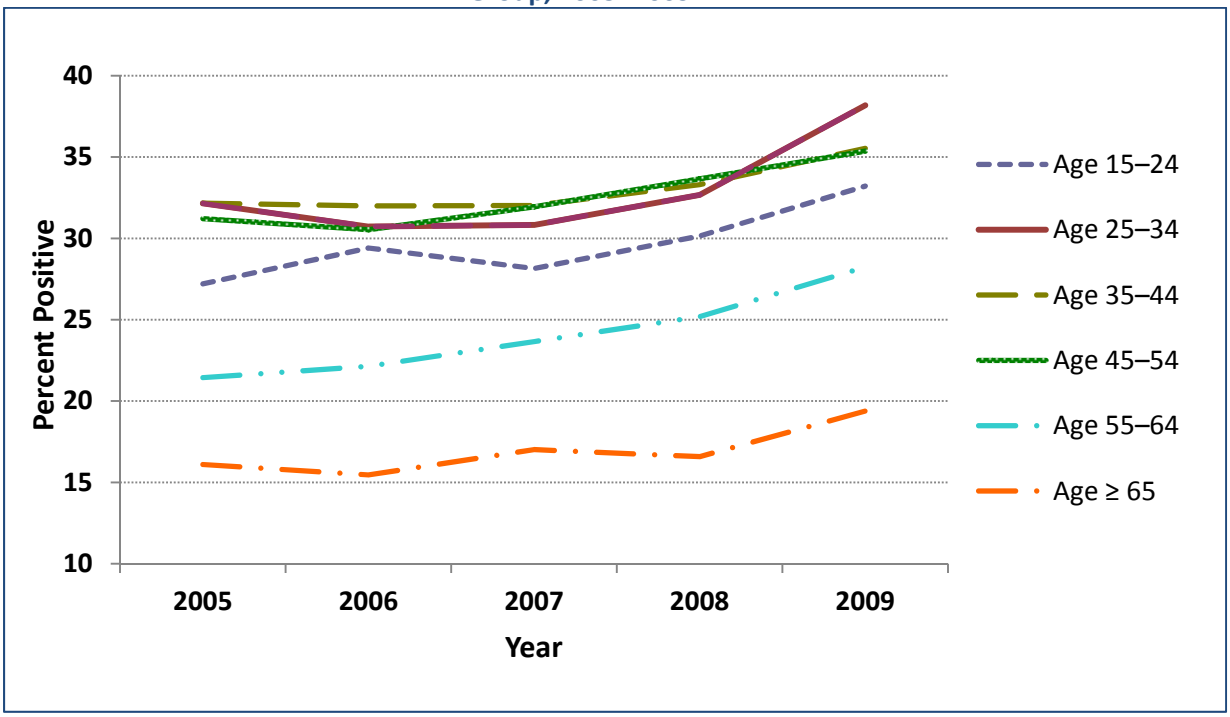


For the years 2005 to 2009, in general, the relative age-related differences in drug-positive tests reported for 2009 were consistent with all prior years – fatally injured drivers aged 15–54 had higher rates of drug-involved driving than drivers aged 55 and older (Table 6 and Figure 3).

Table 6. Number of Fatally Injured Drivers with Known Results Testing Positive for Drugs by Age, 2005–2009

Drivers Tested with Known Results												
Year	Age 15–24		Age 25–34		Age 35–44		Age 45–54		Age 55–64		Age ≥ 65	
2005	3,411		2,647		2,338		2,063		1,348		1,499	
2006	3,737		2,815		2,488		2,276		1,414		1,589	
2007	3,695		2,998		2,601		2,398		1,577		1,620	
2008	3,430		2,941		2,423		2,323		1,592		1,660	
2009	2,704		2,402		1,970		2,132		1,406		1,455	
Drivers with Positive Test Results												
	N	%	N	%	N	%	N	%	N	%	N	%
2005	928	27	851	32	752	32	644	31	289	21	241	16
2006	1,099	29	865	31	796	32	695	31	313	22	246	15
2007	1,040	28	924	31	833	32	766	32	373	24	276	17
2008	1,034	30	961	33	807	33	782	34	401	25	275	17
2009	898	33	917	38	700	36	754	35	397	28	283	19

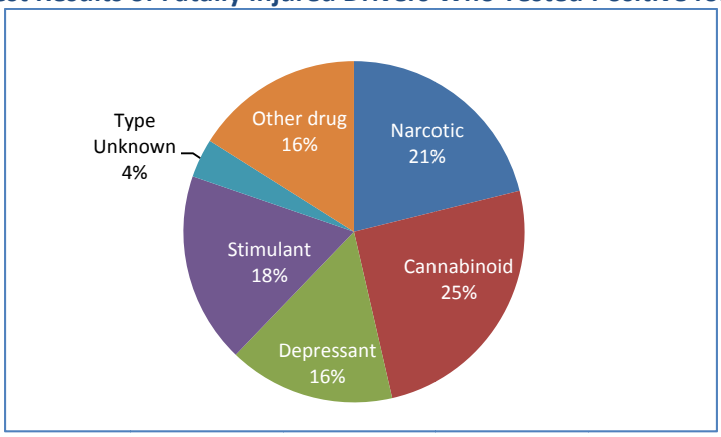
Figure 3. Percentage of Fatally Injured Drivers with Known Results Testing Positive for Drugs by Age Group, 2005–2009



Specific Drug Classes

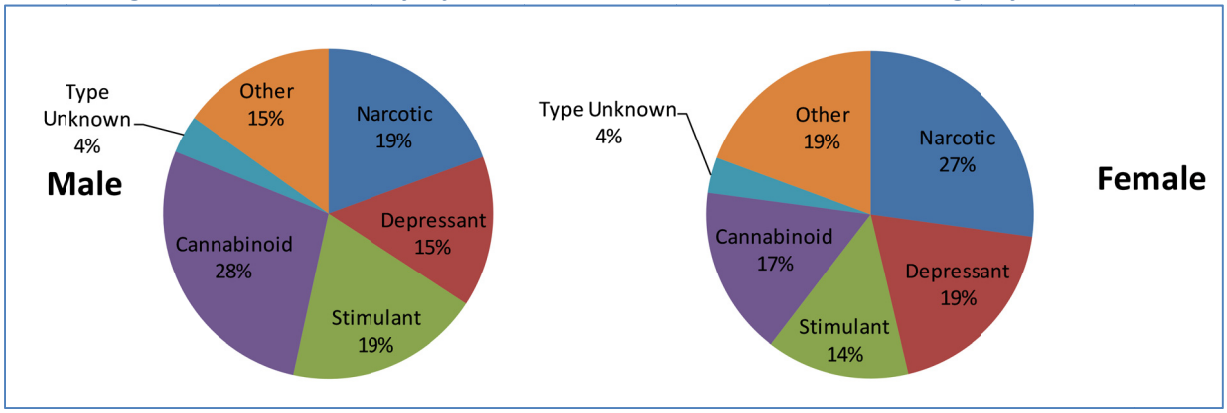
Figure 4 shows drug-test results by drug category among all fatally injured drivers who tested positive for any drug in 2009. The drugs most commonly reported among fatally injured drivers were narcotics (21 percent) and cannabinoids (25 percent), which, when combined, accounted for almost half (46 percent) of all positive test results.

Figure 4. Drug Test Results of Fatally Injured Drivers Who Tested Positive for Drugs, 2009



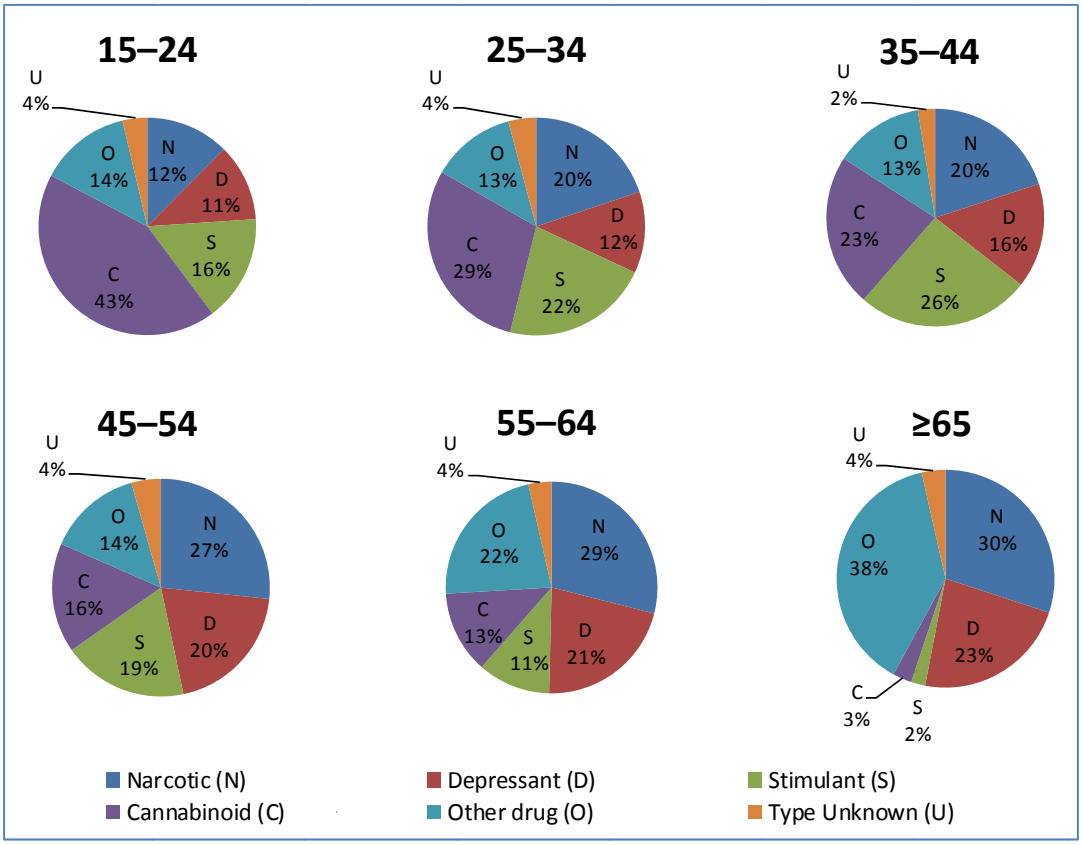
Testing results by drug type for males and females are presented in Figure 5. There were noticeable gender differences by drug type. Specifically, a higher percentage of women tested positive for narcotics (M=19 percent, F=27 percent), whereas a higher percentage of men tested positive for cannabinoids (M=28 percent, F=17 percent).

Figure 5. Drug Test Results of Fatally Injured Drivers Who Tested Positive for Drugs, by Gender, 2009



Among fatally injured drivers who tested positive for drugs, certain types of drugs were found at a higher rate contingent upon the age of the driver. While many age-related trends can be observed, the presence of cannabinoids among younger drivers is of particular note. Among fatally injured drivers aged 15–24 who tested positive, 43 percent tested positive for cannabinoids. On average, this rate decreased by 8 percentage points in each subsequent age group (Figure 6).

Figure 6. Drug Test-Positive Results of Fatally Injured Drivers, by Age Group, 2009



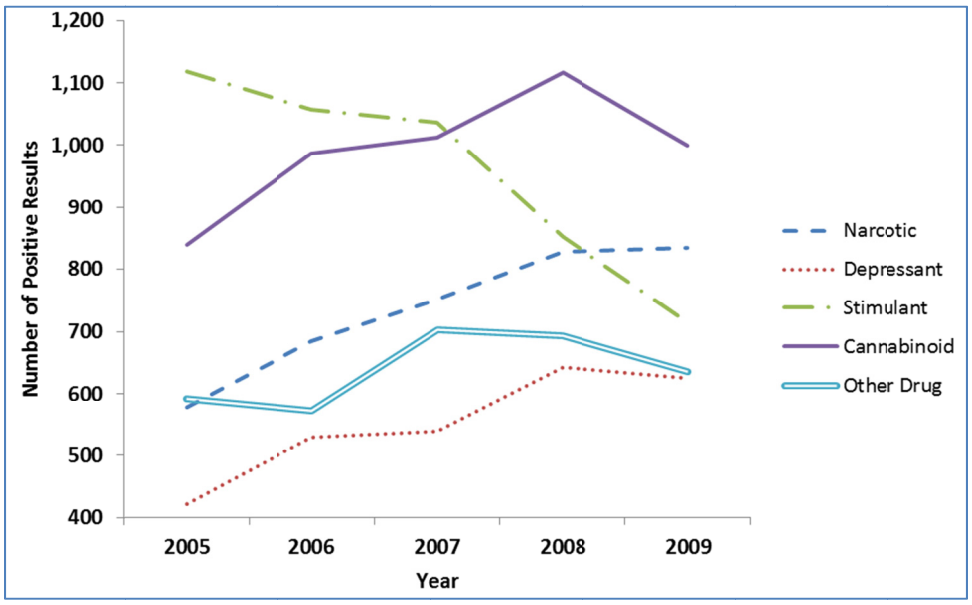
Drug-Specific Trends, 2005–2009

The number of fatally injured drivers who had a positive drug test by drug category is presented in Table 7. As noted earlier, narcotics and cannabinoids account for almost half of drug-positives in 2009. Since 2005, there was a notable decline in the number (from 1,119 to 714) and proportion (from 30% to 18%) of drivers who tested positive for stimulants. There was an increase in positive test results for narcotics and – to a lesser magnitude – depressants. The trend for cannabinoids, however, was not as clear-cut, showing an increase from 2005 to 2008 and a slight decline in 2009 (Figure 7).

Table 7. Fatally Injured Drivers Who Tested Positive for Specific Selected Drugs, 2005–2009

Year	Total	Narcotic		Cannabinoid		Depressant		Stimulant		Type Unknown		Other drug	
		N	%	N	%	N	%	N	%	N	%	N	%
2005	3,710	577	15.6	839	22.6	422	11.4	1,119	30.2	162	4.4	591	15.9
2006	4018	683	17.0	987	24.6	529	13.2	1,057	26.3	191	4.8	571	14.2
2007	4214	750	17.8	1,012	24.0	539	12.8	1,037	24.6	175	4.2	701	16.6
2008	4267	828	19.4	1,117	26.2	642	15.0	852	20.0	136	3.2	692	16.2
2009	3952	835	21.1	999	25.3	624	15.8	714	18.1	146	3.7	634	16.0

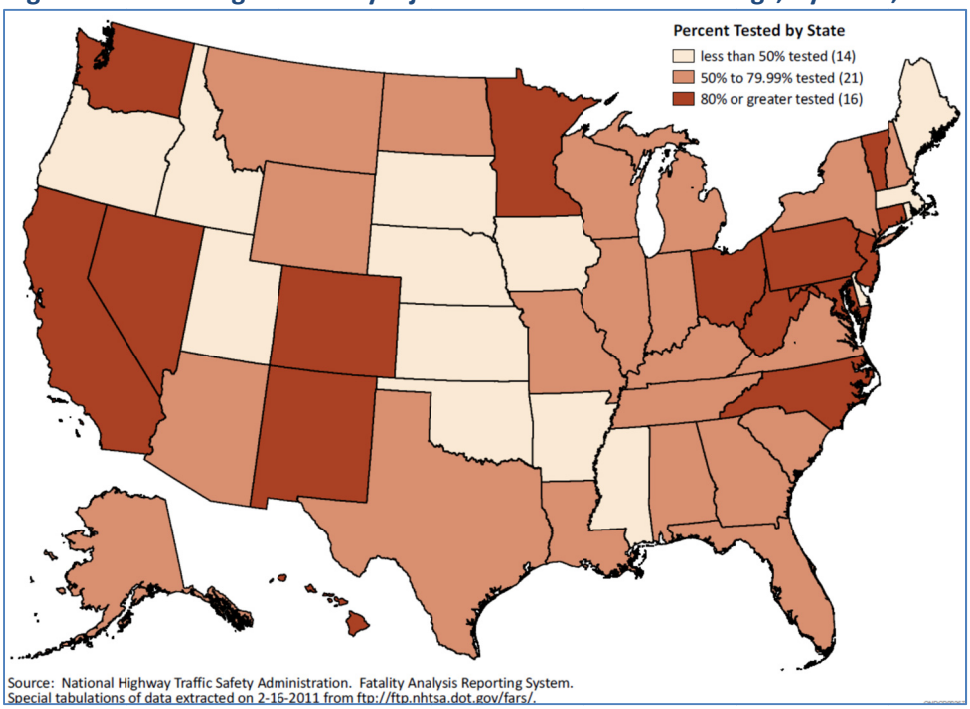
Figure 7. Drug-Testing Results of Fatally Injured Drivers Who Tested Positive for Specific Drug Types, 2005–2009



State Variation

In 2009, drug testing of fatally injured drivers varied substantially across states, from none (0% in Maine) to all (100% in New Mexico and North Carolina). Nevertheless, 37 jurisdictions drug-tested 50 percent or more of their fatally injured drivers and, of these, 15 states and the District of Columbia had testing rates of 80 percent or greater (Figure 8).

Figure 8. Percentage of Fatally Injured Drivers Tested for Drugs, By State, 2009



In comparison to 2009, states were drug testing at generally lower rates in 2005. Thirty-two jurisdictions tested 50 percent or more of their fatally injured drivers, including 16 states and the District of Columbia with testing rates of 80 percent or greater (Figure 9). Although the national percentage of drug-tested drivers increased from 2005 to 2009, many states did not change markedly from year to year.

Figure 9. Percentage of Fatally Injured Drivers Tested for Drugs, By State, 2005

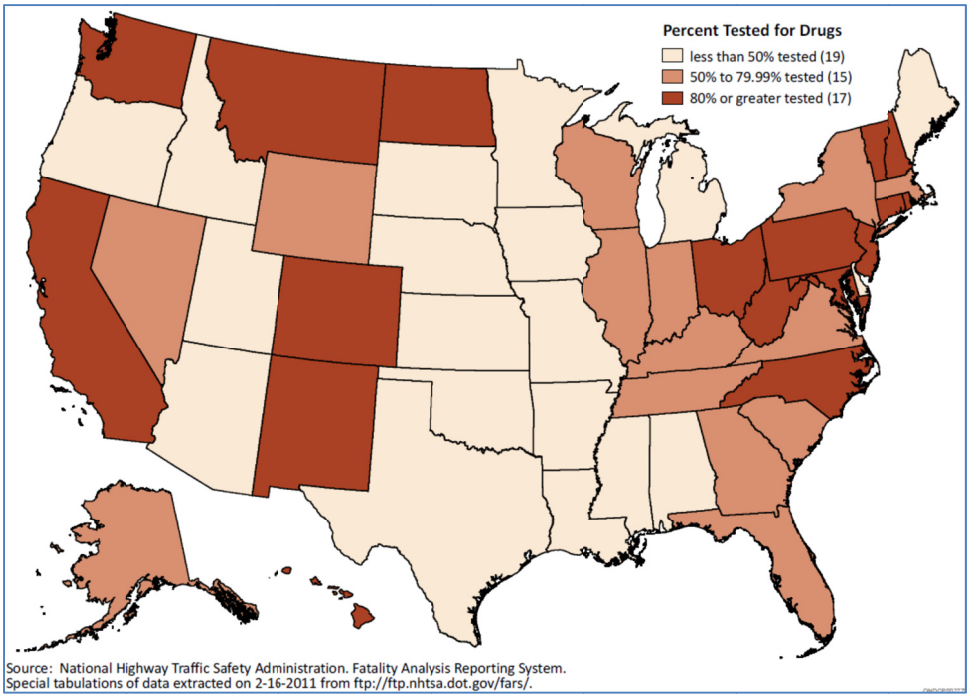


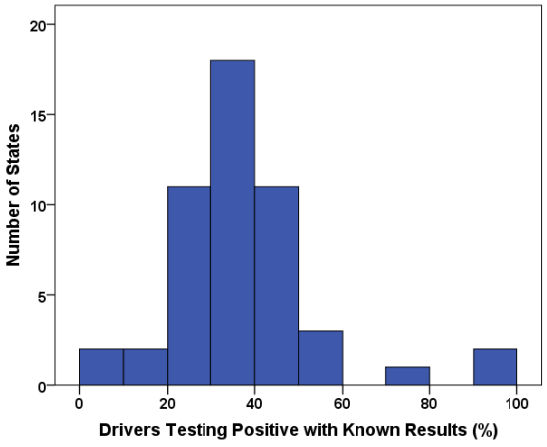
Table 8 presents the testing rates of selected states that did have variable testing rates in this time period.[4] Testing rates increased in all but one of these states. Eight states exhibited sizable increases in their testing rates since 2005, with Minnesota showing the largest change, from testing 38 percent to 83 percent of their fatally injured drivers. (However, for some of the states listed in Table 5, namely New York, Minnesota, Texas, and South Dakota, the observed changes in testing rates reflect changes in testing rates of particular counties rather than a uniform increase across the entire state.) Virginia is unique in showing a reduction in drug testing rates, dropping from 62 percent in 2005 to 50 percent in 2009.

Table 8. Percentage of Fatally Injured Drivers Tested for Drugs for States in which a Trend Can Be Observed, 2005–2009

STATE	2005	2006	2007	2008	2009
Trend from Moderate towards High Testing Practices					
Nevada	53	75	84	93	93
New York	54	58	68	76	72
Trend from Low towards High Testing Practices					
Minnesota	38	35	69	74	83
Trend from Low towards Medium Testing Practices					
Michigan	41	46	61	62	59
Alabama	27	27	38	57	55
Texas	15	30	41	52	52
South Dakota	28	31	33	39	47
Arkansas	12	22	18	22	35
Trend from Medium towards Low Testing Practices					
Virginia	62	78	68	51	50

The proportion of fatally injured drivers with known results who tested positive for drugs varied by state. Eleven states reported that between 40 and 49 percent of tested fatally injured drivers were positive for drugs, 18 states reported between 30 and 39 percent, and 11 states reported between 20 and 29 percent (Figure 10).

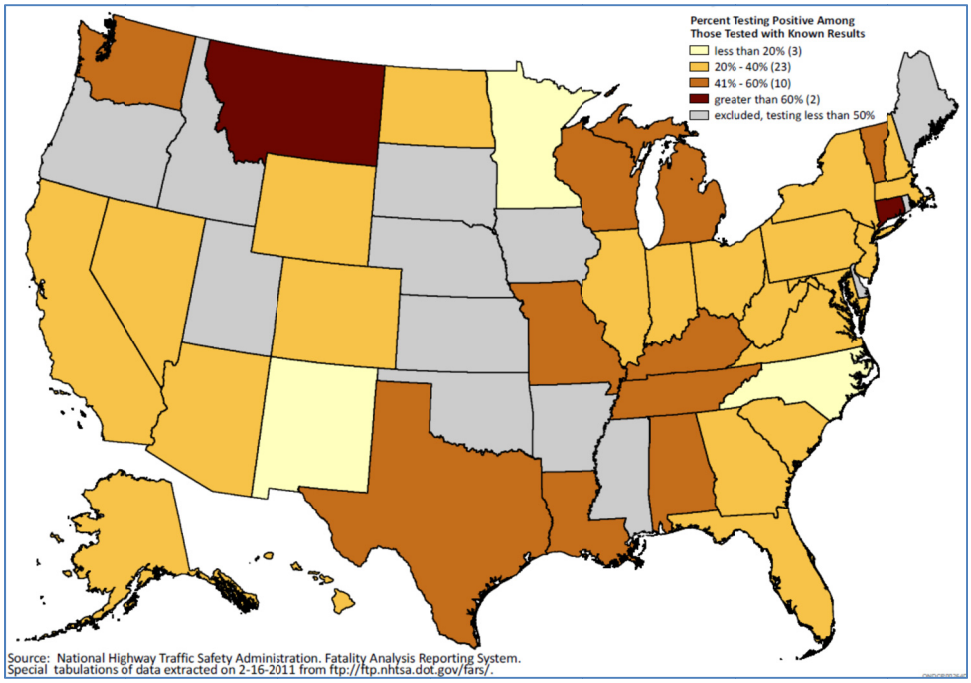
Figure 10. State Rates of Drug-Positive Results, 2009



[4] Year-to-year drug testing rates for each state are presented in Appendix B (Table B-7).

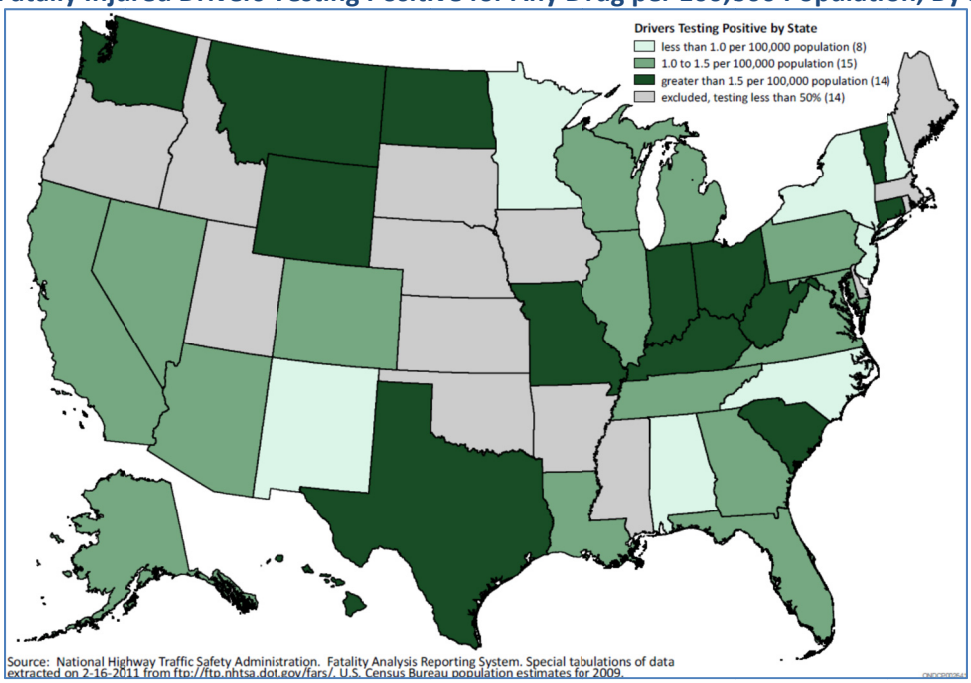
Figure 11 shows some state-specific variability in drug testing results in 2009. For this comparison, only the 37 states that tested 50 percent or more of their drivers are included. Of tested drivers with known results, two states stand out with very high drug-positive rates – Connecticut (76%) and Montana (97%); and two states have extremely low drug-positive rates – New Mexico (1%) and North Carolina (2%). All four states reported drug-testing more than 80 percent of their drivers. Of the 12 states that had greater than 40 percent of fatally injured drivers testing positive for drugs, six are concentrated in the southern midsection of the United States. State-by-state drug testing rates and results in 2009 are detailed in Table B-1.

Figure 11. Percentage of Fatally Injured Drivers Who Tested Positive for Drugs among Those with Known Results, By State, 2009



Another way to standardize the number of drug-positive drivers is to use population-based rates. Figure 12 also focuses on the 37 states drug-testing at least half of their fatally injured drivers. Fourteen jurisdictions, including the District of Columbia, had more than 1.5 drug-positive driver fatalities per 100,000 population.

Figure 12. Fatally Injured Drivers Testing Positive for Any Drug per 100,000 Population, By State, 2009



County Variation

As noted earlier, there also is large variability between counties within and across state lines on drug testing and drug-positive rates. These maps are included in Appendix C, as follows:

- Figure C-4 shows the number of fatally injured drivers by county for 2009. It suggests larger numbers of fatal crashes in population centers, as might be expected.
- Figure C-6 shows the percentage of fatally injured drivers who were tested for drugs in 2009. Many states had consistent test rates across their respective counties. Counties in the following states had testing levels exceeding 80 percent in almost every county: California, Nevada, New Hampshire, New Mexico, North Carolina, Vermont, West Virginia, Pennsylvania, and Washington. Maine was exceptional in that no counties reported any drug testing, and all but three counties in Mississippi did not report any drug testing. Figure C-5 shows testing rates in 2005, with generally similar results. Oklahoma also had very few counties conducting drug testing in 2005, but showed notable improvement in 2009.
- Map C-7 shows the percentage of drivers who tested positive for any drug by county in 2009. Counties with fewer than 5 fatally injured drivers were excluded. Only California, New Mexico, Nevada, Washington, and West Virginia reported high rates of testing positive (in addition to high rates of drug testing).
- Map C-8 shows county-level drug-positive rates adjusted for population size. There are more than 200 counties with positive testing rates exceeding 5 fatally injured drivers per 100,000 population. However, no clear geographic pattern is evident.

County-level data were further examined for California focusing on 2009 because of the large number of cases – 1,678 fatally injured drivers – and a high percentage of drug testing conducted – 89 percent of these drivers were tested for drugs.

California has 58 counties. Only one county did not have a fatally injured driver in 2009 (Mono County) and one did not test its drivers (Ventura County). Figure 13 shows that all California counties tested at least half of their fatally injured drivers for drugs. The vast majority of counties (47 of 58) tested more than 80 percent of their fatally injured drivers.

Figure 13. Percentage of Fatally Injured Drivers Tested for Drugs, By County: California, 2009

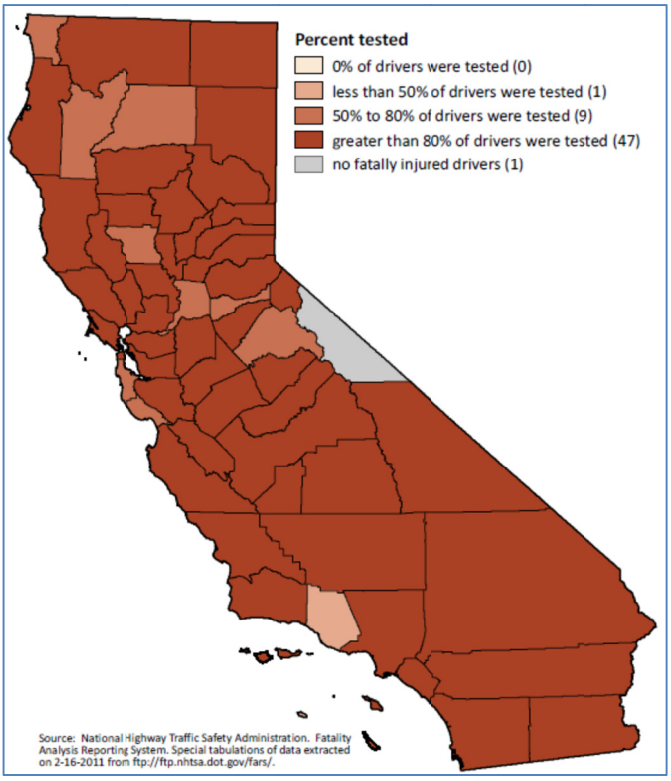
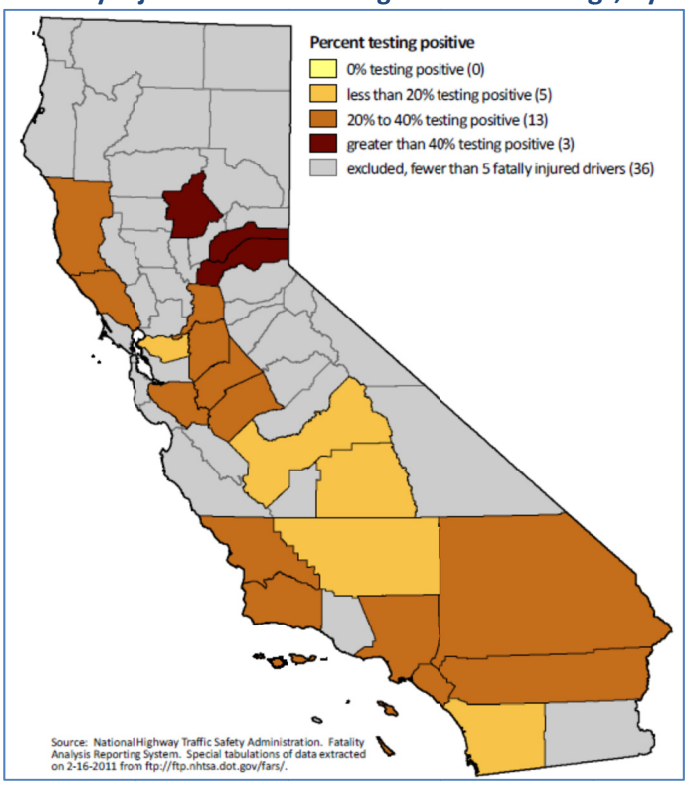


Figure 14 shows the percentage of fatally injured drivers with known results that tested positive for drugs in California in 2009. For this distribution, counties that had fewer than 5 fatally injured drivers were excluded. Of the remaining 21 counties, over half (13 counties) had drug-positive rates of 20 to 40 percent. Three counties had drug-positive rates greater than 40 percent, and 5 counties had drug positive rates less than 20 percent but not zero. Note, however, that even with a large state like California, single-year analysis of county-level data is compromised by small numbers.

Figure 14. Percentage of Fatally Injured Drivers Testing Positive for Drugs, By County: California, 2009



Attributes Associated with Testing Positive for Any Drug

This section addresses attributes associated with testing positive for any drug, and the next section for testing positive for specific drug classes, using national data. Table 9 shows the bivariate distribution of demographic and crash attributes with testing positive for any drug in 2009. Highlights of this table include:

- Fatally injured male drivers outnumbered fatally injured female drivers approximately 3:1 overall.
- The younger age groups – 15 to 24 and 25 to 34 – accounted for almost half of all fatally injured drivers (each with 23 percent). Testing positive for any drug declined in older age groups.
- White drivers accounted for 66 percent of drug-positives, similar to their share of all fatally injured drivers (64 percent). Other race/ethnic groups also tested positive for any drug at proportions similar to their proportion of all fatally injured drivers.
- Overall, alcohol was involved in approximately one-third (34 percent) of all crashes involving fatally injured drivers, yet among drivers who tested positive for any drug, 48 percent also tested positive for alcohol.
- Drug-positive drivers were slightly more likely to not use a seatbelt compared to all fatally injured drivers. Over half (55 percent) of drug-positive drivers did not use a seatbelt, compared to 48 percent of all fatally injured drivers.

- Failure to obey traffic signs was fairly uncommon overall (10 percent), and results among drivers testing positive for any drug were similar (8 percent). Likewise, driver inattentiveness and speeding were not different for all drivers and those testing positive for drugs.
- Fatal crashes occurring on a weekend or weekday were similar for all fatally injured drivers and those who tested positive for drugs. Nighttime crashes were more common among drug-positive drivers (43 percent) compared to all fatally injured drivers (37%).
- Fifty-four percent of all fatally injured driver crashes involved a single vehicle, and for drug-positive drivers, single-vehicle crashes were slightly more common (57 percent).
- Sixty-two percent of these crashes occurred in rural areas, and for those involving drug-positive drivers rural crashes were slightly less common (58 percent).

Table 9. Crash Characteristics of Fatally Injured Drivers Testing Positive for Any Drug, 2009

	All Drivers		Drivers Tested		Drivers Testing Positive for Any Drug	
	#	%	#	%	#	%
Driver Demographic Characteristics						
Gender						
Male	16,678	76.5	10,677	77.2	3,073	77.8
Female	5,115	23.5	3,154	22.8	879	22.2
Age						
≤ 14 and Unknown	70	0.3	26	0.2	3	0.1
15-24	4,592	21.1	3,078	22.3	898	22.7
25-34	4,008	18.4	2,734	19.8	917	23.2
35-44	3,420	15.7	2,261	16.3	700	17.7
45-54	3,755	17.2	2,441	17.6	754	19.1
55-64	2,656	12.2	1,622	11.7	397	10.0
≥ 65	3,297	15.1	1,671	12.1	283	7.2
Race/Ethnicity						
White	13,826	63.4	8,406	60.8	2,626	66.4
African American	2,114	9.7	1,293	9.3	346	8.8
American Indian	221	1.0	127	0.9	50	1.3
Asian/Pacific Islander	178	0.8	116	0.8	26	0.7
Other Race	29	0.1	22	0.2	2	0.1
Hispanic	1,492	6.8	936	6.8	235	5.9
Unknown Race and Ethnicity	3,938	18.1	2,933	21.2	667	16.9
Driver Risk Characteristics						
Alcohol Involvement						
Alcohol Involved Accident	7,359	33.8	5,497	39.7	1,900	48.1
Non-Alcohol Involved Accident	14,439	66.2	8,336	60.3	2,052	51.9
Seatbelt Use						
Seatbelt Nonuse	10,370	47.6	6,554	47.4	2,165	54.8
Seatbelt Use	10,003	45.9	6,397	46.2	1,543	39.0
Unknown	1,425	6.5	882	6.4	244	6.2
Adherence to Traffic Signs						
Failure to Obey	2,104	9.7	1,243	9.0	315	8.0
No Indication of Non-Adherence	19,694	90.3	12,590	91.0	3,637	92.0
Driver Attentiveness						
Inattentive	2,540	11.7	1,582	11.4	509	12.9
No Indication of Inattention	19,258	88.3	12,251	88.6	3,443	87.1
Vehicle Speed						
Speeding	34	0.2	12	0.1	6	0.2
No Indication of Speeding	21,764	99.8	13,821	99.9	3,946	99.8
Crash Characteristics						
Day of the Week						
Weekday (Mon.-Thurs.)	10,807	49.6	6,757	48.8	1,986	50.3
Weekend (Fri.-Sun.)	10,991	50.4	7,076	51.2	1,966	49.7
Time of Accident						
Daytime (7 a.m.-8 p.m.)	13,442	61.7	8,221	59.4	2,210	55.9
Nighttime (9 p.m.-6 a.m.)	8,160	37.4	5,502	39.8	1,708	43.2
Unknown Time	196	0.9	110	0.8	34	0.9
Number of Vehicles						
Single Vehicle Accident	11,722	53.8	7,375	53.3	2,262	57.2
Multi Vehicle Accident	10,076	46.2	6,458	46.7	1,690	42.8
Population Density						
Rural	13,426	61.6	8,298	60.0	2,311	58.5
Urban	8,242	37.8	5,491	39.7	1,628	41.2
Unknown	130	0.6	44	0.3	13	0.3

Attributes Associated with Testing Positive for Specific Drug Classes

Pooled national data for the years 2005 to 2009 were used to explore attributes associated with testing positive for specific drug classes. Aggregating several years of data yields more stable numbers for exploring patterns for specific drugs – close to 3,000 drivers tested positive for depressants, almost 4,000 tested positive for narcotics, and for stimulants and cannabinoids, nearly 5,000 tested positive for each drug. Table 10 shows the bivariate distribution of demographic and crash attributes associated with testing positive for specific drug classes. Highlights of this table include:

- Fatally injured male drivers outnumbered fatally injured female drivers across all drug classes, with a larger representation of males among those testing positive for stimulants (82 percent) and cannabinoids (86 percent) when compared to the gender distribution of all fatally injured drivers (77 percent male). Females were slightly overrepresented among those testing positive for narcotics (27 percent) and depressants (28 percent) when compared to all fatally injured drivers (24 percent female).
- Cannabinoid-positive drivers were younger, peaking at age group 15–24, while narcotic-positive drivers peaking at age group 45–54.
- Race/ethnic differences were evident in specific groups of drug-positive drivers. Compared to their overall representation among all fatally injured drivers, Whites tended to test positive more often for narcotics, depressants, and other/unknown drug types, whereas African Americans were overrepresented among stimulant-positive and cannabinoid-positive drivers and Hispanics were overrepresented among stimulant-positive drivers.
- Overall, alcohol was involved in approximately one-third of all crashes involving fatally injured drivers, yet drug-positive drivers in all drug classes, except narcotics, had rates of alcohol involvement that exceeded this percentage – 46 percent of drivers testing positive for depressants also tested positive for alcohol, as did 56 percent among stimulant users, and 57 percent among cannabinoid users.[5]
- Drug-positive drivers in all drug classes were less likely to use a seatbelt.
- Failure to obey traffic signs and failure-to-yield rates were 10 percent overall; drivers testing positive in every drug category were associated with lower rates of these factors.
- Driver inattentiveness was associated with 10 percent of all fatally injured drivers but was slightly more common among narcotic, depressant, and other drug-positive drivers.
- Speeding was associated with 24 percent of fatally injured drivers but was more common among stimulant- and cannabinoid-positive drivers (32 percent and 34 percent, respectively).
- Fatal crashes occurred at approximately the same rate on the weekend as weekdays. However, drivers testing positive for narcotics and depressants were more likely to be in weekday crashes, and stimulant and cannabinoid drug-positive drivers were more likely to be in weekend crashes.

[5] This may partially be an artifact of testing; that is, the most significant risk factor for being tested for drugs was being tested for alcohol – exploratory multivariate findings (not shown) suggest that alcohol-tested drivers were 180 times more likely to also be tested for drugs.

- Daytime fatal crashes are generally more common than nighttime crashes overall (61 percent and 38 percent, respectively), but stimulant-positive and cannabinoid-positive drivers were more likely to be in nighttime crashes (each 51 percent, compared to 38 percent overall).
- Fifty-two percent of all fatal crashes involved a single vehicle, and for each drug-positive category, with the exception of other/unknown drugs, the rate of single vehicle-crashes was greater.
- Sixty-one percent of crashes involving a fatally injured driver occurred in rural areas. Stimulant-positive and cannabinoid-positive drivers were slightly underrepresented in rural crashes (52 percent and 56 percent, respectively).

Table 10. Crash Characteristics of Fatally Injured Drivers by Drug Category, Aggregated 2005–2009 Data

Accident Characteristic	Drivers Testing Positive by Drug Type										Drivers Testing Negative		All Other Drivers[1]		Total Number of Drivers	
	Narcotic		Depressant		Stimulant		Cannabinoid		Other/ Unknown Drug							
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Driver Demographic Characteristics																
Gender																
Male	2,688	73.2	1,991	72.2	3,928	82.2	4,251	85.8	2,968	74.2	37,772	77.2	43,894	75.2	97,492	76.5
Female	984	26.8	765	27.8	850	17.8	703	14.2	1,031	25.8	11,155	22.8	14,457	24.8	29,945	23.5
Age																
≤ 14 and Unknown	3	0.1	0	0.0	5	0.1	10	0.2	3	0.1	120	0.2	268	0.5	409	0.3
15-24	541	14.7	512	18.6	1,058	22.1	2,079	42.0	809	20.2	11,978	24.5	12,826	22.0	29,803	23.4
25-34	717	19.5	504	18.3	1,329	27.8	1,272	25.7	696	17.4	9,285	19.0	9,789	16.8	23,592	18.5
35-44	686	18.7	529	19.2	1,254	26.2	780	15.7	639	16.0	7,932	16.2	8,942	15.3	20,762	16.3
45-54	863	23.5	617	22.4	851	17.8	582	11.7	728	18.2	7,551	15.4	9,256	15.9	20,448	16.0
55-64	494	13.4	335	12.2	226	4.7	200	4.0	518	13.0	5,564	11.4	6,984	12.0	14,321	11.2
≥ 65	369	10.0	259	9.4	56	1.2	31	0.6	606	15.2	6,502	13.3	10,303	17.7	18,126	14.2
Race/Ethnicity																
White	2,884	78.5	2,153	78.1	2,703	56.6	3,136	63.3	2,941	73.5	30,852	63.1	39,310	67.3	83,979	65.9
African American	188	5.1	139	5.0	558	11.7	587	11.8	275	6.9	4,656	9.5	5,984	10.3	12,387	9.7
American Indian	28	0.8	20	0.7	59	1.2	64	1.3	69	1.7	488	1.0	733	1.3	1,461	1.1
Asian/Pacific Islander	17	0.5	21	0.8	53	1.1	45	0.9	52	1.3	945	1.9	501	0.9	1,634	1.3
Other Race	6	0.2	5	0.2	16	0.3	23	0.5	5	0.1	133	0.3	68	0.1	256	0.2
Hispanic	144	3.9	114	4.1	758	15.9	405	8.2	203	5.1	5,184	10.6	4,076	7.0	10,884	8.5
Unknown Race and Ethnicity	406	11.1	304	11.0	632	13.2	694	14.0	454	11.4	6,674	13.6	7,696	13.2	16,860	13.2
Driver Risk Characteristics																
Alcohol Involvement																
Alcohol Involved Accident	1,202	32.7	1,270	46.1	2,684	56.2	2,842	57.4	1,541	38.5	18,608	38.0	14,009	24.0	42,156	33.1
Non-Alcohol Involved Accident	2,471	67.3	1,486	53.9	2,095	43.8	2,112	42.6	2,458	61.5	30,324	62.0	44,359	76.0	85,305	66.9
Seatbelt Use																
Seatbelt Nonuse	1,996	54.3	1,621	58.8	2,771	58.0	2,761	55.7	2,020	50.5	21,977	44.9	28,439	48.7	61,585	48.3
Seatbelt Use	1,445	39.3	967	35.1	1,628	34.1	1,866	37.7	1,705	42.6	23,761	48.6	26,023	44.6	57,395	45.0
Unknown	232	6.3	168	6.1	380	8.0	327	6.6	274	6.9	3,194	6.5	3,906	6.7	8,481	6.7

Table 10 (cont'd). Crash Characteristics of Fatally Injured Drivers by Drug Category, Aggregated 2005–2009 Data

Accident Characteristic	Drivers Testing Positive by Drug Type										Drivers Testing Negative		All Other Drivers[1]		Total Number of Drivers	
	Narcotic		Depressant		Stimulant		Cannabinoid		Other/ Unknown Drug							
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Adherence to Traffic Signs																
Failure to Obey	289	7.9	196	7.1	310	6.5	355	7.2	367	9.2	4,609	9.4	6,705	11.5	12,831	10.1
No Indication of Non-Adherence	3,384	92.1	2,560	92.9	4,469	93.5	4,599	92.8	3,632	90.8	44,323	90.6	51,663	88.5	114,630	89.9
Driver Attentiveness																
Inattentive	450	12.3	313	11.4	440	9.2	443	8.9	474	11.9	4,787	9.8	6,048	10.4	12,955	10.2
No Indication of Inattention	3,223	87.7	2,443	88.6	4,339	90.8	4,511	91.1	3,525	88.1	44,145	90.2	52,320	89.6	114,506	89.8
Vehicle Speed																
Speeding	641	17.5	638	23.1	1,546	32.3	1,672	33.8	873	21.8	11,732	24.0	13,472	23.1	30,574	24.0
No Indication of Speeding	3,032	82.5	2,118	76.9	3,233	67.7	3,282	66.2	3,126	78.2	37,200	76.0	44,896	76.9	96,887	76.0
Crash Characteristics																
Day of the Week																
Weekday (Mon.-Thurs.)	2,005	54.6	1,460	53.0	2,218	46.4	2,332	47.1	2,099	52.5	24,064	49.2	29,514	50.6	63,692	50.0
Weekend (Fri.-Sun.)	1,668	45.4	1,295	47.0	2,561	53.6	2,622	52.9	1,900	47.5	24,867	50.8	28,849	49.4	63,762	50.0
Time of Accident																
Daytime (7 a.m.-8 p.m.)	2,459	66.9	1,724	62.6	2,296	48.0	2,349	47.4	2,500	62.5	29,195	59.7	37,794	64.8	78,317	61.4
Nighttime (9 p.m.-6 a.m.)	1,183	32.2	996	36.1	2,415	50.5	2,545	51.4	1,463	36.6	19,347	39.5	20,019	34.3	47,968	37.6
Unknown Time	31	0.8	36	1.3	68	1.4	60	1.2	36	0.9	390	0.8	555	1.0	1,176	0.9
Number of Vehicles																
Single Vehicle Accident	1,976	53.8	1,658	60.2	2,870	60.1	3,030	61.2	2,133	53.3	24,593	50.3	30,289	51.9	66,549	52.2
Multi Vehicle Accident	1,697	46.2	1,098	39.8	1,909	39.9	1,924	38.8	1,866	46.7	24,339	49.7	28,079	48.1	60,912	47.8
Population Density																
Rural	2,211	60.2	1,762	63.9	2,484	52.0	2,767	55.9	2,277	56.9	27,988	57.2	37,730	64.6	77,219	60.6
Urban	1,441	39.2	980	35.6	2,270	47.5	2,174	43.9	1,717	42.9	20,720	42.3	20,241	34.7	49,543	38.9
Unknown	21	0.6	14	0.5	25	0.5	13	0.3	5	0.1	224	0.5	397	0.7	699	0.5

[1] Includes fatally injured drivers who were not tested, unknown if tested, and tested with unknown results.

In general, these preliminary results underscore the finding that drug-involved driving is best understood according to the primary drug class for which drivers tested positive.

5. Discussion

While findings are preliminary, many patterns and trends found among fatally injured drivers are consistent with drug trends from other data sources. For example, based on drug use prevalence, stimulants in the form of methamphetamines and cocaine have been declining since 2007, whereas narcotics, mainly in the form of pain relievers have been increasing (Substance Abuse and Mental Health Services Administration, 2011).

There are a number of themes that emerge from these results that require more refined analysis, including:

- The numerous factors associated with drivers testing positive for drugs are, in themselves, interrelated. In order to untangle the complex relationships between drug-positive outcomes and demographic and other crash-related variables – including alcohol impairment – there is a need for multivariate analyses to control for the effects of several attributes simultaneously.

- The use of more than one substance that can impair driving is a well-recognized phenomenon. Poly-substance use – particularly drugs in combination with alcohol – needs to be addressed explicitly in assessing drug-involved driving.

- Illicit drugs and medications, including both prescription-type and over-the-counter medications have different characteristics, which need to be understood and recognized, not only in research, but in policy pertaining to drug-involved driving.

- As noted in the state- and county-level findings, there is substantial variability between jurisdictions in drug testing drivers and in reporting the results of such testing to FARS. There is much room for improving testing and data reporting to permit more robust analysis of factors associated with drug-involved driving.

- Small numbers of cases precludes detailed analysis for small geographic areas, including states with small populations, and specific drug classes. Pooling multiple years of data can mitigate the instability of findings based on small numbers. This approach is promising, based on the rich information, albeit preliminary, on drivers testing positive for specific drug classes. However, care needs to be taken when aggregating multiple years to avoid masking trends that may be important.

- Besides geographic variation in data reporting, there are regional variations in specific drugs – for example, methamphetamines (a type of stimulant) are known to be more common west of the Mississippi River, and are also more of a problem in rural areas. This suggests that careful attention needs to be paid to geographic patterns, as well as secular ones.

As noted earlier, caution should be used when drawing conclusions on drug-involved driving due to variability between jurisdictions on drug testing policies, practices, and data reporting. It is important to reiterate that drug-involved driving, as measured by drug-positive testing of fatally injured drivers, does not necessarily imply drug intoxication or impairment. Progress towards developing and implementing generally accepted thresholds for impairment specific to drug classes is essential. These are critical in implementing driver drug testing protocols that ultimately will truly assess drug-impaired driving and not just drug-involved driving.

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Appendices

APPENDIX A. SUMMARY OF STATE LAWS CONCERNING DRUG TESTING AFTER A MOTOR VEHICLE CRASH

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
Alabama	no	no		any controlled substance	x	x	x observation	"shall" after serious accident involving physical injury
Alaska	no	no		any controlled substance	x	x		"may" after motor vehicle accident involving death or serious physical injury
Arizona	yes	yes	**28-1381 Driving or actual physical control while under the influence** A. It is unlawful for a person to drive or be in actual physical control of a vehicle in this state under any of the following circumstances: 1. While under the influence of intoxicating liquor, any drug, a vapor releasing substance containing a toxic substance or any combination of liquor, drugs or vapor releasing substances if the person is impaired to the slightest degree. 3. While there is any drug defined in section 13-3401 or its metabolite in the person's body.	any drug or metabolite	x	x	x observation	"can request" after accident involving death or serious physical injury
Arkansas	yes	no		any controlled substance	x	x		"can request" after accident involving death or serious physical injury
California	yes	no		any drug	x	x		"may" if arrested for DUI; per se illegal to drive for drug addict or habitual user
Colorado	yes	no		any drug	x	x	x saliva	per se illegal to drive for drug addict or habitual user
Connecticut	yes	no		any drug	x	x		

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
Delaware	yes	yes	Forbids driving within four hours of consumption of illicit or recreational drug consumption (e.g. cocaine, heroin, controlled substances)	any drug	x	x		"must" be a death related DUI offense
Washington, D.C.	yes	no		any drug	x	x		"required to submit" if involved in any accident or if arrested for any DUI offense
Florida	yes	no		any chemical substance set forth in section 877.111 or any substance controlled under Chapter 893.	x	x		"may" test for any accident that results in death or serious bodily injury
Georgia	yes	yes	**40-6-391 Driving under the influence of alcohol, drugs, or other intoxicating substances** a. A person shall not drive or be in actual physical control of any moving vehicle while: (2) Under the influence of any drug to the extent that it is less safe for the person to drive; (6) Subject to the provisions of subsection (b) of this code section, there is any amount of marijuana or a controlled substance, present in the person's blood or urine, or both, including the metabolites and derivatives of each or both without regard to whether or not any alcohol is present in the person's breath or blood.	any controlled substance	x	x	x observation	"not mandatory" when accident occurs which results in death or serious bodily injury
Hawaii	yes	no		any controlled substance	x	x		testing "may" occur when a collision results in injury or death to any person

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
Idaho	yes	no		any drug	x	x		"may" test when there is DUI involving aggravated or homicide offense; per se illegal to drive for drug addict or habitual users
Illinois	yes	yes	**Illinois Compiled Statutes, Section 625 ILCS 5/11-501 Driving while under the influence of alcohol, other drug or drugs, intoxicating compound or compounds or any combination thereof.** A person shall not drive or be in actual physical control of any vehicle in this State while:(3) under the influence of any intoxicating compound or combination of intoxicating compounds to a degree that renders the person incapable of driving safely; (4) under the influence of any other drug or combination of drugs to a degree that renders the person incapable of safely driving; (5) under the combined influence of alcohol, other drug or drugs, or intoxicating compound or compounds to a degree that renders the person incapable of safely driving; (6) there is any amount of a drug, substance, or compound in the person's breath, blood or urine resulting from the unlawful use or consumption of cannabis listed in the Cannabis Control Act, a controlled substance listed in the Illinois Controlled Substances Act, or an intoxicating compound listed in the Use of Intoxicating Compounds Act.	any drug	x	x		"must" test if DUI is related to death or injury to person
Indiana	yes	yes	c) A person who operated a vehicle with a controlled substance listed in schedule I or II of IC 35-48-2 or its metabolite in the person's body commits a class C misdemeanor.	any drug	x	x	x observation	"may" test if there is fatality or serious injury

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
Iowa	yes	yes	**IC 9-30-5-1 Class C Misdemeanor**1. A person commits the offense of operating while intoxicated if the person operates a motor vehicle in this state in any of the following conditions: c. while any amount of a controlled substance is present in the person, as measured by the person's blood or urine.	any drug	x	x		A person may be required to a chemical test via search warrant where accident has resulted in death or personal injury likely to cause death and there is evidence of DWI.
Kansas	yes	no		any drug	x	x	x observation	"may" be tested in the event of death or serious injury; per se illegal to drive if drug addict or habitual user
Kentucky	yes	no		any substance	x	x		Testing is "allowed" where death or physical injury occurs.
Louisiana	yes	no		any controlled dangerous substance	x	x	x observation	testing "may" occur when a collision results in injury or death to any person
Maine	yes	no		The term "drug" refers to either scheduled drugs or to "any natural or artificial chemical substances that can impair the ability of a person to safely operate a motor vehicle".	x	x		Drug testing "shall" occur when a traffic accident results in death to other person

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
Maryland	yes	no		any drug	x			drug testing "must" be done when the accident results in death or life threatening injury
Massachusetts	no	no		1. marijuana, narcotic drugs, depressants or stimulant substances or 2. vapors or glue	unless the defendant is brought in for treatment			
Michigan	yes	yes	**257.625(8) Operating a Motor Vehicle while Intoxicated** (8) A person, whether licensed or not, shall not operate a vehicle upon a highway or other place open to the general public or generally accessible to motor vehicles, including an area designated for the parking of vehicles, within this state if the person has in his or her body any amount of a controlled substance listed in schedule 1.	any controlled substance	x	x		
Minnesota	yes	yes	**169A.20 (7) Driving while Impaired.** It is a crime for any person to drive, operate or be in physical control of any motor vehicle within this state or on any boundary water of this state: 7. when the person's body contains any amount of a controlled substance listed in schedule I or II, or its metabolite, other than marijuana or tetrahydrocannabinols.	a controlled substance	x	x		A test can be requested if a person is involved in a motor vehicle accident resulting in property damage, personal injury or death.
Mississippi	yes	no		any substance	x	X		A driver can be tested after a fatal traffic accident if the driver is at least 16 years of age and the death occurred within 4 hours of the accident.

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
Missouri	yes	no		a controlled substance	x	x	x saliva	"may" be tested under exigent circumstances and probably cause
Montana	yes	no		any drug	x			
Nebraska	yes	no		any drug	x	x		"must" test when an accident results in a fatality
Nevada	yes	yes	**NRS 484.379 Driving under the Influence of Intoxicating Liquor or Controlled or Prohibited Substance** 3. It is unlawful for any person to drive or be in actual physical control of a vehicle on a highway or on premises to which the public has access with an amount of a prohibited substance in his blood or urine that is equal or greater than (amounts omitted):a. amphetamine b. cocaine; c. cocaine metabolite; d. heroin; e. heroin metabolite f. morphine g. 6-monoacetyl morphine; h. lysergic acid diethylamide; i. marijuana; j. marijuana metabolite; k. methamphetamine; l. phencyclidine.	a controlled substance	x	x		Law enforcement may "direct" a person to submit to blood test when accident resulted in death or serious injury while under the influence of controlled substance; urine test may be substituted if driver has hemophilia or heart condition.
New Hampshire	yes	no		any controlled substance	Sample shall be taken to allow 2 tests and lab shall retain for 30 days.	x		A person "must" be subject to drug test when accident resulted in death or serious injury.

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
New Jersey	no	no		1. a narcotic; 2. hallucinogenic drug; 3. habit producing drug				
New Mexico	yes	no		any drug	x			A driver "may" be tested if the driver has killed or greatly injured another person
New York	yes	no		a controlled substance	x	x	x saliva	A driver "may" be tested if the driver has killed or greatly injured another person
North Carolina	yes	yes	**20-138.1 Impaired Driving.** A. Offense-A person commits the offense of impaired driving if he drives any vehicle upon any highway, any street, or any public vehicular area within this state: 1. while under the influence of an impairing substance; 3. with any amount of a Schedule I controlled substance, as listed in G.S. 90-89, or its metabolites in his blood or urine.	any impairing substance	x	x	x observation	A driver "may" be tested via other lawful procedures.
North Dakota	yes	no		any drug or substance	x	x	x saliva	A driver "may" be tested where there is death or serious injury

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
Ohio	yes	yes	**4511.19 Operating vehicle under the influence of alcohol or drugs-OVI.** A.1. No person shall operate any vehicle, streetcar, trackless trolley within this state, if, at the time of operation, any of the following apply:j. except as provided in division (K) of this section, the person has a concentration of any of the following controlled substances or metabolites of a controlled substance in the person's whole blood, blood serum, or plasma, or urine that equals or exceeds the following (amounts omitted): i. amphetamine; ii. cocaine; iii. cocaine metabolite.	drugs of abuse, controlled substances, metabolites	x	x	xobservation	
Oklahoma	yes	no		intoxicating substances, may include any substance which can be ingested, inhaled, injected or absorbed into the human body and which can adversely affect "the central nervous system, vision, or other sensory or motor functions"	x	x	x saliva	A person "may" be tested for an accident involving serious physical injury or death

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
Oregon	yes	no		controlled substances	x	x		
Pennsylvania	yes	yes	**Title 75 Chapter 38 Sec. 3802 (d) Controlled Substances**An individual may not drive, operate or be in actual physical control of the movement of a motor vehicle under the following circumstances:1. there is in the individual's body any amount of a:i. Schedule I controlled substance;ii. Schedule II or Schedule III controlled substance which has not been medically prescribed for the individual; or iii. metabolite of a substance under subparagraph (i) or (ii).	a controlled substance	x	x		Accident that results in a death or injury that requires medical treatment.
Rhode Island	yes	yes	**31-27-2. Driving under the influence of liquor or drugs** 2. whoever drives or otherwise operates any vehicle in the state with a blood presence of any scheduled controlled substance as defined within chapter 28 of title 21, as shown by analysis of a blood or urine sample shall be guilty of a misdemeanor and shall be punished as provided in subsection (d) of this section.	any drug	x (exception allowed on religious grounds)			
South Carolina	yes	no		any drug	x	x		Testing "must" be done where bodily injury or death is related to DUI.

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
South Dakota	yes	no		marijuana and any controlled substance	x (in 2006, SD repealed its implied consent law. No person arrested for DUI offense may refuse to submit blood or other bodily substance as evidence. Force may be used to obtain blood sample.)		xobservation	Testing is required for any person arrested for 3rd or subsequent DWI offense.
Tennessee	yes	no		Intoxicants, marijuana, narcotic drugs, drugs producing stimulating effects on the central nervous system.	x	x		
Texas	yes	no		Drugs, controlled substances and any other substance that can impair normal mental or physical faculties.	x			Testing "shall be required" for any accident that resulted in death or likely will result in one.

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
Utah	yes	yes	**41-6a-502 Driving under the influence of alcohol, drugs or a combination of both or with specified or unsafe blood alcohol concentration.** 1. A person may not operate or be in actual physical control of a vehicle within this state if the person: b. is under the influence of alcohol, any drug, or the combined influence of alcohol and any drug to a degree that renders the person incapable of safely operating a vehicle; **41-6a-517 Driving with any measurable controlled substance in the body** 2. In cases not amounting to a violation of 41-6a-502, a person may not operate or be in actual physical control of a motor vehicle within this state if the person has any measurable controlled substance or metabolite of a controlled substance in the person's body.	any drug	x	x	x saliva	

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
Vermont	yes	no		any related drug	x (person tested has the right at person's own expense to have someone of the person's own choosing administer a chemical test or tests in addition to any administered at the direction of law enforcement).			A person "may" be tested when an accident resulted in bodily injury or death.

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
Virginia	yes	yes	**18.2-266 Driving motor vehicle, engine, etc., while intoxicated** It shall be unlawful for any person to drive or operate any motor vehicle, engine or train while such person is under the influence of any narcotic drug or any other self-administered intoxicant or drug of whatsoever nature, or any combination of such drugs, to a degree which impairs his ability to drive or operate any motor vehicle, engine or train safely, (iv) while such person is under the combined influence of alcohol and any drug or drugs to a degree which impairs his ability to drive or operate any motor vehicle, engine or train safely, or (v) while such person has a blood concentration of any of the following substances at a level that is equal to or greater than: (a) 0.02 mg of cocaine per liter of blood, (b) 0.1 mg of methamphetamine per liter of blood, (c) 0.01 mg phencyclidine per liter of blood, (d) 0.002 mg THC per liter of blood, or (e) 0.1 mg of 3,4, methylenedioxymethamphetamine per liter of blood.	any drug	x			

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
Washington	yes	no		any drug	x			A person "may" be tested when an accident results in serious bodily injury. The implied consent law provides for a blood test only in situations where a person has been arrested for 1. vehicular homicide; 2. vehicle assault; 3. a DWI offense and where the offense involved an accident in which there was serious bodily injury to another person.
West Virginia	no	no		any drug				Zero tolerance for any drug addict or habitual users.
Wisconsin	yes	yes	**346.63 Operating under the influence of intoxicant or other drug.** No person may drive or operate a motor vehicle while" (1)(a) Under the influence of an intoxicant, a controlled substance, a controlled substance analog or any combination of an intoxicant, a controlled substance, and a controlled substance analog, under the influence of any drug to a degree which renders him or her incapable of safely driving or under the combined influence of an intoxicant and any other drug to a degree which renders him or her incapable of safely driving; or (1)(am) The person has a detectable amount of a restricted controlled substance in his or her blood.	any drug	x	x		

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

State	Implied Consent Law for Drugs	Status of per se Law		Type of Drugs that are Basis of Law	Specimens that may be Used			Other Circumstances that Require Testing
		Law on the Books	Text of per se Law		Blood	Urine	Other	
Wyoming	yes	no		controlled substances	x	x		A person "may" be tested when an accident resulted in bodily injury or death.

Source: Walsh, J.M., *A State-by-State Analysis of Laws Dealing with Driving Under the Influence of Drugs*, http://druggeddriving.org/pdfs/WalshStatebyStateDrugLawsAnalysis811236.pdf, accessed July 15, 2011.

Appendix B. Data Tables

Table B-1. Drug Testing Rates and Results among Fatally Injured Drivers, by State, 2009[1]

State	Total drivers	Drivers Tested		Drivers Tested with Known Results		
		Number	Percent	Number	Drug Reported	
					Number	Percent
Alabama	610	336	55	64	31	48
Alaska	33	20	61	20	7	35
Arizona	424	216	51	211	82	39
Arkansas	425	149	35	148	66	45
California	1678	1493	89	1401	388	28
Colorado	312	262	84	221	72	33
Connecticut	157	130	83	119	90	76
Delaware	69	23	33	21	9	43
Dist of Columbia	10	8	80	8	3	38
Florida	1484	861	58	861	239	28
Georgia	863	449	52	406	121	30
Hawaii	74	72	97	72	25	35
Idaho	147	66	45	58	13	22
Illinois	575	449	78	445	132	30
Indiana	493	301	61	281	108	38
Iowa	274	30	11	21	8	38
Kansas	271	98	36	95	34	36
Kentucky	591	437	74	436	182	42
Louisiana	539	345	64	113	57	50
Maine	121	0	0	0	0	NA
Maryland	338	287	85	285	85	30
Massachusetts	212	106	50	89	20	22
Michigan	546	322	59	259	107	41
Minnesota	264	219	83	214	24	11
Mississippi	487	5	1	4	4	100
Missouri	600	318	53	312	161	52
Montana	161	129	80	128	124	97
Nebraska	169	46	27	46	14	30
Nevada	142	132	93	117	28	24
New Hampshire	71	54	76	53	13	25
New Jersey	314	261	83	260	71	27
New Mexico	221	221	100	221	2	1
New York	611	440	72	435	93	21
North Carolina	880	880	100	531	10	2
North Dakota	91	48	53	48	12	25
Ohio	703	591	84	567	205	36
Oklahoma	521	57	11	55	24	44
Oregon	248	52	21	52	22	42
Pennsylvania	859	756	88	621	149	24
Rhode Island	46	18	39	18	6	33
South Carolina	614	456	74	456	162	36
South Dakota	89	42	47	36	7	19
Tennessee	682	423	62	170	91	54
Texas	2021	1051	52	1041	461	44
Utah	148	44	30	43	14	33
Vermont	56	48	86	48	22	46
Virginia	511	258	50	258	82	32
Washington	303	270	89	270	116	43
West Virginia	254	240	94	240	65	27
Wisconsin	395	265	67	152	74	49
Wyoming	86	57	66	57	17	30
United States	**21,798**	**13,833**	**63**	**12,087**	**3,952**	**33**

[1] See Maps 1, 2, and C7 for corresponding State spatial representation. Maps C5, C6, and C8 portray county-level testing rates and results.

Table B-2. Number of Fatally Injured Drivers with Known Results Testing Positive for Drugs, by Drug Category and State, 2009

State	Total	Narcotic	Depressant	Stimulant	Cannabinoid	Other drug	Drug found, type unknown
Alabama	31	9	4	3	4	2	9
Alaska	7	2	1	0	3	1	0
Arizona	82	18	16	19	12	17	0
Arkansas	66	14	24	10	14	4	0
California	388	64	34	135	120	34	1
Colorado	72	13	7	17	26	9	0
Connecticut	90	9	3	9	0	69	0
Delaware	9	1	0	4	2	2	0
Dist of Columbia	3	0	0	0	3	0	0
Florida	239	78	52	43	49	3	14
Georgia	121	30	24	25	30	10	2
Hawaii	25	2	1	4	7	11	0
Idaho	13	3	1	1	3	5	0
Illinois	132	24	17	23	38	20	10
Indiana	108	25	17	11	31	0	24
Iowa	8	1	2	1	2	0	2
Kansas	34	5	6	6	7	2	8
Kentucky	182	88	37	14	37	5	1
Louisiana	57	12	14	9	11	9	2
Maine	0	0	0	0	0	0	0
Maryland	85	19	3	15	0	48	0
Massachusetts	20	8	1	3	7	1	0
Michigan	107	21	8	8	23	43	4
Minnesota	24	7	4	6	5	2	0
Mississippi	4	1	0	1	2	0	0
Missouri	161	21	38	19	54	29	0
Montana	124	7	6	6	18	87	0
Nebraska	14	1	3	4	5	0	1
Nevada	28	9	3	6	10	0	0
New Hampshire	13	2	4	0	7	0	0
New Jersey	71	19	11	8	25	5	3
New Mexico	2	0	0	2	0	0	0
New York	93	8	1	21	62	1	0
North Carolina	10	4	1	1	0	4	0
North Dakota	12	4	1	1	3	2	1
Ohio	205	62	25	20	60	38	0
Oklahoma	24	6	5	8	0	5	0
Oregon	22	13	1	6	2	0	0
Pennsylvania	149	30	17	16	40	4	42
Rhode Island	6	2	2	1	1	0	0
South Carolina	162	7	58	36	50	1	10
South Dakota	7	0	0	2	5	0	0
Tennessee	91	8	11	14	14	44	0
Texas	461	79	75	115	99	83	10
Utah	14	2	4	3	3	1	1
Vermont	22	4	2	3	4	9	0
Virginia	82	28	15	17	20	1	1
Washington	116	25	28	17	44	2	0
West Virginia	65	23	16	8	12	6	0
Wisconsin	74	15	20	4	21	14	0
Wyoming	17	2	1	9	4	1	0
United States	**3952**	**835**	**624**	**714**	**999**	**634**	**146**

Table B-3. Number of Fatally Injured Drivers Tested for Drugs, by State and Gender, 2009

STATE	Number of Fatally Injured Drivers		Drivers Tested				
	Male	Female	Male		Female		Discrepancy in Testing (M-F %)
			Number	Percent	Number	Percent	
Alabama	444	166	252	57	86	52	5
Alaska	23	10	14	61	6	60	1
Arizona	342	82	182	53	37	45	8
Arkansas	306	119	106	35	42	35	0
California	1328	350	1183	89	308	88	1
Colorado	229	83	195	85	67	81	4
Connecticut	122	35	102	84	29	83	1
Delaware	51	18	16	31	7	39	-8
Florida	1134	350	654	58	208	59	-1
Georgia	654	209	348	53	101	48	5
Idaho	119	28	54	45	12	43	2
Illinois	448	127	349	78	98	77	1
Indiana	379	114	241	64	62	54	10
Iowa	222	52	26	12	4	8	4
Kansas	204	67	78	38	19	28	10
Kentucky	454	137	334	74	103	75	-1
Louisiana	431	108	275	64	68	63	1
Maine	99	22	0	0	0	0	0
Maryland	268	70	227	85	59	84	1
Massachusetts	171	41	85	50	20	49	1
Michigan	401	145	240	60	83	57	3
Minnesota	201	63	164	82	55	87	-5
Mississippi	363	124	3	1	1	1	0
Missouri	447	153	244	55	76	50	5
Montana	117	44	96	82	32	73	9
Nebraska	117	52	32	27	14	27	0
Nevada	114	28	106	93	26	93	0
New Hampshire	51	20	37	73	17	85	-12
New Jersey	235	79	198	84	62	78	6
New Mexico	159	62	159	100	62	100	0
New York	490	121	351	72	87	72	0
North Carolina	643	237	642	100	236	100	0
North Dakota	67	24	38	57	10	42	15
Ohio	524	179	440	84	148	83	1
Oklahoma	402	119	51	13	4	3	10
Oregon	191	57	33	17	19	33	-16
Pennsylvania	653	206	577	88	179	87	1
South Carolina	468	146	352	75	104	71	4
South Dakota	68	21	33	49	9	43	6
Tennessee	499	183	311	62	109	60	2
Texas	1557	464	833	54	222	48	6
Utah	111	37	38	34	7	19	15
Vermont	42	14	37	88	11	79	9
Virginia	397	114	192	48	66	58	-10
Washington	242	61	217	90	52	85	5
West Virginia	205	49	195	95	45	92	3
Wisconsin	307	88	205	67	59	67	0
Wyoming	66	20	46	70	11	55	15
United States	**16,678**	**5,115**	**10,677**	**64**	**3,154**	**62**	**2**

Table B-4. Number of Fatally Injured Drivers Testing Positive for Drugs, by State and Gender, 2009

STATE	Drivers with Known Results		Drivers Testing Positive for Drugs				
	Male	Female	Male		Female		Discrepancy in Testing Positive (M-F %)
			Number	Percent	Number	Percent	
Alabama	51	13	24	47	7	54	-7
Alaska	14	6	5	36	2	33	2
Arizona	175	36	67	38	15	42	-3
Arkansas	106	42	47	44	19	45	-1
California	1114	287	305	27	83	29	-2
Colorado	166	55	58	35	14	25	9
Connecticut	92	27	71	77	19	70	7
Delaware	15	6	7	47	2	33	13
Dist of Columbia	7	1	2	29	1	100	-71
Florida	652	208	184	28	55	26	2
Georgia	319	87	94	29	27	31	-2
Hawaii	65	7	22	34	3	43	-9
Idaho	47	11	11	23	2	18	5
Illinois	347	98	105	30	27	28	3
Indiana	226	55	87	38	21	38	0
Iowa	19	2	7	37	1	50	-13
Kansas	76	19	25	33	9	47	-14
Kentucky	333	103	133	40	49	48	-8
Louisiana	88	25	41	47	16	64	-17
Maine	0	0	0	NA	0	NA	NA
Maryland	226	59	73	32	12	20	12
Massachusetts	74	15	18	24	2	13	11
Michigan	193	66	81	42	26	39	3
Minnesota	162	52	20	12	4	8	5
Mississippi	3	1	3	100	1	100	0
Missouri	238	74	125	53	36	49	4
Montana	96	32	93	97	31	97	0
Nebraska	32	14	8	25	6	43	-18
Nevada	93	24	21	23	7	29	-7
New Hampshire	37	16	8	22	5	31	-10
New Jersey	198	62	59	30	12	19	10
New Mexico	159	62	1	1	1	2	-1
New York	349	86	79	23	14	16	6
North Carolina	393	138	5	1	5	4	-2
North Dakota	38	10	10	26	2	20	6
Ohio	423	144	159	38	46	32	6
Oklahoma	51	4	21	41	3	75	-34
Oregon	33	19	12	36	10	53	-16
Pennsylvania	472	149	121	26	28	19	7
Rhode Island	14	4	5	36	1	25	11
South Carolina	352	104	122	35	40	38	-4
South Dakota	27	9	6	22	1	11	11
Tennessee	125	45	64	51	27	60	-9
Texas	822	219	351	43	110	50	-8
Utah	37	6	11	30	3	50	-20
Vermont	37	11	19	51	3	27	24
Virginia	192	66	66	34	16	24	10
Washington	217	52	91	42	25	48	-6
West Virginia	195	45	52	27	13	29	-2
Wisconsin	120	32	58	48	16	50	-2
Wyoming	46	11	16	35	1	9	26
United States	**9,366**	**2,719**	**3,073**	**33**	**879**	**32**	**0**

Table B-5. Number of Fatally Injured Drivers Tested for Drugs, by State and Age Category, 2009

State	Number of Dead Drivers					Drivers Tested											
	Age 15–24	Age 25–34	Age 35–44	Age 45–54	Age 55–64	Age ≥ 65	Age 15–24		Age 25–34		Age 35–44		Age 45–54		Age 55–64		Age ≥ 65	
							N	%	N	%	N	%	N	%	N	%	N	%
Alabama	124	105	107	92	82	97	68	55	71	68	76	71	56	61	35	43	29	30
Alaska	6	10	3	11	0	3	4	67	5	50	2	67	7	64	NA	NA	2	67
Arizona	74	88	66	68	55	72	39	53	48	55	39	59	40	59	27	49	26	36
Arkansas	73	75	71	87	58	57	27	37	21	28	26	37	39	45	21	36	14	25
Califomia	372	340	246	310	196	212	347	93	322	95	220	89	278	90	170	87	153	72
Colorado	56	57	45	62	44	48	51	91	48	84	38	84	54	87	36	82	35	73
Connecticut	37	38	25	23	18	16	31	84	30	79	23	92	20	87	13	72	14	88
Delaware	13	11	13	13	3	16	5	38	6	55	4	31	6	46	1	33	1	6
Dist of Columbia	3	3	2	1	0	0	3	100	2	67	1	50	1	100	NA	NA	NA	NA
Florida	318	263	222	249	182	246	205	64	163	62	128	58	153	61	105	58	108	44
Georgia	149	164	143	130	127	148	87	58	104	63	73	51	66	51	63	50	55	37
Hawaii	23	20	13	8	7	3	23	100	19	95	13	100	8	100	6	86	3	100
Idaho	26	22	27	27	16	26	10	38	13	59	16	59	10	37	7	44	10	38
Illinois	118	107	93	98	62	96	104	88	91	85	74	80	73	74	48	77	57	59
Indiana	98	90	91	89	50	74	64	65	62	69	63	69	49	55	31	62	34	46
Iowa	47	45	47	51	34	48	4	9	6	13	7	15	8	16	3	9	2	4
Kansas	67	53	30	42	34	44	22	33	22	42	13	43	17	40	12	35	11	25
Kentucky	116	120	94	101	67	91	84	72	102	85	74	79	78	77	44	66	53	58
Louisiana	121	108	91	94	51	72	74	61	73	68	68	75	62	66	31	61	33	46
Maine	24	21	13	22	18	23	0	0	0	0	0	0	0	0	0	0	0	0
Maryland	72	58	40	74	38	55	61	85	52	90	36	90	65	88	31	82	40	73
Massachusetts	47	39	29	33	27	36	29	62	17	44	13	45	18	55	14	52	14	39
Michigan	100	102	73	101	61	109	68	68	71	70	45	62	59	58	36	59	44	40
Minnesota	47	35	48	42	43	49	40	85	31	89	42	88	34	81	34	79	38	78
Mississippi	110	100	77	82	56	58	0	0	2	2	0	0	1	1	1	2	0	0
Missouri	123	99	103	109	75	87	70	57	66	67	66	64	55	50	35	47	26	30
Montana	38	28	26	26	16	26	30	79	23	82	20	77	21	81	12	75	22	85
Nebraska	37	35	27	25	16	27	8	22	12	34	8	30	7	28	5	31	5	19
Nevada	36	19	23	25	21	18	34	94	18	95	22	96	25	100	20	95	13	72
New Hampshire	12	4	6	20	15	14	7	58	4	100	6	100	16	80	13	87	8	57

Table B-5 (cont'd). Number of Fatally Injured Drivers Tested for Drugs, by State and Age Category, 2009

State	Number of Dead Drivers						Drivers Tested											
	Age 15–24	Age 25–34	Age 35–44	Age 45–54	Age 55–64	Age ≥ 65	Age 15–24		Age 25–34		Age 35–44		Age 45–54		Age 55–64		Age ≥ 65	
							N	%	N	%	N	%	N	%	N	%	N	%
New Jersey	59	51	52	42	36	74	55	93	44	86	48	92	37	88	29	81	47	64
New Mexico	52	40	40	28	26	34	52	100	40	100	40	100	28	100	26	100	34	100
New York	151	122	75	92	69	101	112	74	91	75	59	79	67	73	42	61	66	65
North Carolina	214	142	129	159	108	124	213	100	142	100	129	100	159	100	107	99	124	100
North Dakota	18	18	12	13	18	12	9	50	11	61	7	58	8	62	10	56	3	25
Ohio	127	119	125	135	85	112	110	87	104	87	108	86	120	89	64	75	82	73
Oklahoma	105	88	90	92	57	86	14	13	13	15	11	12	8	9	8	14	1	1
Oregon	51	44	40	42	28	43	7	14	18	41	6	15	8	19	7	25	6	14
Pennsylvania	181	140	123	156	97	162	162	90	128	91	115	93	140	90	89	92	122	75
Rhode Island	10	7	6	13	2	8	4	40	2	29	2	33	8	62	0	0	2	25
South Carolina	126	125	98	104	85	75	99	79	97	78	74	76	79	76	58	68	48	64
South Dakota	19	14	17	10	18	10	10	53	7	50	9	53	5	50	7	39	4	40
Tennessee	131	137	91	132	84	105	90	69	85	62	58	64	84	64	51	61	51	49
Texas	457	420	368	320	237	214	251	55	249	59	193	52	162	51	119	50	81	38
Utah	31	19	23	31	22	21	12	39	9	47	9	39	11	35	1	5	3	14
Vermont	11	3	10	11	8	13	10	91	3	100	8	80	11	100	8	100	8	62
Virginia	119	86	69	89	58	90	64	54	46	53	35	51	41	46	30	52	42	47
Washington	80	59	43	49	38	34	74	93	56	95	40	93	44	90	33	87	22	65
West Virginia	54	41	42	34	45	37	52	96	35	85	42	100	32	94	43	96	35	95
Wisconsin	87	58	62	71	52	62	66	76	39	67	43	69	50	70	31	60	34	55
Wyoming	22	16	11	17	11	9	13	59	11	69	9	82	13	76	5	45	6	67
United States	**4,592**	**4,008**	**3,420**	**3,755**	**2,656**	**3,297**	**3,078**	**67**	**2,734**	**68**	**2,261**	**66**	**2,441**	**65**	**1,622**	**61**	**1,671**	**51**

Table B-6. Number of Fatally Injured Drivers with Known Results Testing Positive for Drugs, by State and Age Category, 2009

State	Number of Fatally Injured Drivers with Known Results						Drivers Testing Positive											
	Age 15–24	Age 25–34	Age 35–44	Age 45–54	Age 55–64	Age ≥ 65	Age 15–24		Age 25–34		Age 35–44		Age 45–54		Age 55–64		Age ≥ 65	
							N	%	N	%	N	%	N	%	N	%	N	%
Alabama	13	15	12	12	6	5	5	38	9	60	6	50	7	58	4	67	0	0
Alaska	4	5	2	7	0	2	3	75	1	20	0	0	3	43	NA	NA	0	0
Arizona	36	47	38	38	26	26	15	42	18	38	18	47	12	32	11	42	8	31
Arkansas	27	21	26	39	21	14	12	44	13	62	13	50	19	49	5	24	4	29
California	328	304	209	257	160	142	92	28	76	25	68	33	81	32	50	31	21	15
Colorado	41	38	33	47	29	33	13	32	18	47	10	30	14	30	9	31	8	24
Connecticut	26	26	23	19	12	13	19	73	20	77	18	78	17	89	8	67	8	62
Delaware	5	5	3	6	1	1	1	20	3	60	2	67	2	33	0	0	1	100
Dist of Columbia	3	2	1	1	NA	1	1	33	1	50	0	0	1	100	NA	NA	0	0
Florida	205	162	128	152	105	108	53	26	58	36	41	32	46	30	26	25	15	14
Georgia	79	88	70	60	58	51	26	33	36	41	19	27	17	28	12	21	11	22
Hawaii	23	19	13	8	6	3	8	35	6	32	5	38	1	13	4	67	1	33
Idaho	9	12	14	7	7	9	2	22	3	25	4	29	2	29	2	29	0	0
Illinois	104	90	73	73	48	57	35	34	22	24	25	34	23	32	14	29	13	23
Indiana	60	60	59	46	28	28	31	52	25	42	19	32	20	43	10	36	3	11
Iowa	3	5	4	5	2	2	1	33	4	80	1	25	1	20	1	50	0	0
Kansas	22	21	12	17	12	11	9	41	10	48	5	42	8	47	2	17	0	0
Kentucky	84	102	74	78	44	52	31	37	54	53	30	41	38	49	12	27	17	33
Louisiana	28	24	21	18	8	13	16	57	12	50	11	52	7	39	4	50	7	54
Maine	0	0	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Maryland	61	52	35	65	31	40	11	18	21	40	7	20	19	29	9	29	18	45
Massachusetts	26	15	10	15	10	13	6	23	9	60	2	20	1	7	2	20	0	0
Michigan	58	57	37	47	25	35	23	40	30	53	18	49	22	47	8	32	6	17
Minnesota	40	30	39	34	34	37	4	10	6	20	4	10	6	18	3	9	1	3
Mississippi	0	2	0	1	1	0	NA	NA	2	100	.	NA	1	100	1	100	NA	NA
Missouri	70	64	64	53	34	25	38	54	36	56	33	52	29	55	14	41	10	40
Montana	30	23	20	21	12	22	29	97	22	96	19	95	20	95	12	100	22	100
Nebraska	8	12	8	7	5	5	2	25	2	17	4	50	4	57	0	0	1	20
Nevada	29	18	17	25	17	11	8	28	2	11	7	41	6	24	4	24	1	9
New Hampshire	7	3	6	16	13	8	3	43	1	33	1	17	3	19	4	31	1	13

Table B-6 (cont'd). Number of Fatally Injured Drivers with Known Results Testing Positive for Drugs, by State and Age Category, 2009

State	Number of Fatally Injured Drivers with Known Results						Drivers Testing Positive											
	Age 15–24	Age 25–34	Age 35–44	Age 45–54	Age 55–64	Age ≥ 65	Age 15–24		Age 25–34		Age 35–44		Age 45–54		Age 55–64		Age ≥ 65	
							N	%	N	%	N	%	N	%	N	%	N	%
New Jersey	55	44	48	37	29	47	19	35	16	36	16	33	10	27	9	31	1	2
New Mexico	52	40	40	28	26	34	0	0	1	3	1	3	0	0	0	0	0	0
New York	111	90	59	67	42	65	39	35	25	28	11	19	14	21	3	7	1	2
North Carolina	134	89	78	100	57	71	3	2	2	2	0	0	2	2	2	4	1	1
North Dakota	9	11	7	8	10	3	5	56	3	27	1	14	2	25	1	10	0	0
Ohio	105	102	106	113	62	79	32	30	48	47	36	34	48	42	21	34	20	25
Oklahoma	14	13	11	8	8	1	6	43	7	54	5	45	5	63	1	13	0	0
Oregon	7	18	6	8	7	6	1	14	8	44	4	67	4	50	3	43	2	33
Pennsylvania	132	101	102	114	72	100	35	27	34	34	26	25	37	32	13	18	4	4
Rhode Island	4	2	2	8	0	2	2	50	0	0	2	100	2	25	NA	NA	0	0
South Carolina	99	97	74	79	58	48	34	34	39	40	31	42	38	48	8	14	11	23
South Dakota	9	5	9	4	5	4	1	11	4	80	2	22	0	0	0	0	0	0
Tennessee	34	41	17	40	21	17	20	59	26	63	9	53	18	45	11	52	7	41
Texas	248	245	192	162	116	78	114	46	106	43	92	48	79	49	44	38	26	33
Utah	11	9	9	10	1	3	3	27	1	11	6	67	3	30	0	0	1	33
Vermont	10	3	8	11	8	8	6	60	2	67	5	63	3	27	4	50	2	25
Virginia	64	46	35	41	30	42	22	34	22	48	10	29	13	32	5	17	10	24
Washington	74	56	40	44	33	22	25	34	25	45	18	45	21	48	18	55	9	41
West Virginia	52	35	42	32	43	35	14	27	14	40	18	43	4	13	11	26	4	11
Wisconsin	38	22	25	31	18	18	16	42	9	41	12	48	20	65	11	61	6	33
Wyoming	13	11	9	13	5	6	4	31	5	45	5	56	1	8	1	20	1	17
United States	**2,704**	**2,402**	**1,970**	**2,132**	**1,406**	**1,455**	**898**	**33**	**917**	**38**	**700**	**36**	**754**	**35**	**397**	**28**	**283**	**19**

Table B-7. Drug Testing Rates by State, 2005–2009

STATE	Number of Fatally Injured Drivers					Percent of Drivers Tested				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
Alabama	795	841	775	702	610	27	27	38	57	55
Alaska	46	47	46	40	33	50	28	4	75	61
Arizona	650	702	578	522	424	39	51	68	68	51
Arkansas	481	479	462	431	425	12	22	18	22	35
California	2,310	2,335	2,243	1,950	1,678	84	86	88	89	89
Colorado	394	337	352	361	312	80	86	87	86	84
Connecticut	180	220	193	197	157	91	86	88	86	83
Delaware	91	81	76	70	69	18	11	26	36	33
Dist of Columbia	19	12	14	16	10	79	83	93	19	80
Florida	2,021	1,997	1,897	1,801	1,484	57	62	60	64	58
Georgia	1,160	1,154	1,087	1,022	863	53	52	55	49	52
Hawaii	80	83	78	71	74	98	98	99	99	97
Idaho	190	184	162	164	147	41	40	43	51	45
Illinois	842	802	766	655	575	80	83	84	78	78
Indiana	663	613	625	558	493	60	59	64	63	61
Iowa	306	314	293	288	274	17	10	8	7	11
Kansas	301	344	296	276	271	33	37	46	42	36
Kentucky	692	662	632	584	591	64	64	67	69	74
Louisiana	620	665	639	581	539	45	63	59	64	64
Maine	109	136	136	115	121	2	0	2	0	0
Maryland	375	429	370	357	338	86	84	83	87	85
Massachusetts	286	284	277	218	212	71	74	73	72	50
Michigan	709	695	684	628	546	41	46	61	62	59
Minnesota	380	343	381	310	264	38	35	69	74	83
Mississippi	632	653	641	568	487	1	0	2	1	1
Missouri	865	740	668	665	600	47	46	49	51	53
Montana	163	171	194	156	161	80	79	82	82	80
Nebraska	185	173	174	155	169	25	31	29	26	27
Nevada	262	253	228	198	142	53	75	84	93	93
New Hampshire	128	93	93	104	71	89	88	77	89	76
New Jersey	427	428	426	320	314	82	83	85	89	83
New Mexico	276	267	236	204	221	95	98	92	97	100
New York	786	822	776	683	611	54	58	68	76	72
North Carolina	1,012	1,009	1,140	925	880	100	100	100	100	100
North Dakota	86	78	68	69	91	81	72	85	86	53
Ohio	916	874	872	825	703	81	83	86	88	84
Oklahoma	547	524	499	515	521	1	2	2	5	11
Oregon	316	291	297	255	248	7	14	19	59	21
Pennsylvania	1,104	1,044	1,021	1,048	859	88	85	87	86	88
Rhode Island	49	48	40	44	46	90	96	88	89	39
South Carolina	720	691	704	616	614	62	69	70	72	74
South Dakota	115	134	99	80	89	28	31	33	39	47
Tennessee	904	880	902	775	682	65	67	61	56	62
Texas	2,106	2,198	2,196	2,192	2,021	15	30	41	52	52
Utah	161	165	169	167	148	27	26	18	11	30
Vermont	55	68	48	47	56	95	96	96	89	86
Virginia	643	646	705	566	511	62	78	68	51	50
Washington	402	405	362	354	303	87	85	91	91	89
West Virginia	262	289	314	283	254	83	83	82	89	94
Wisconsin	548	510	523	411	395	54	49	60	60	67
Wyoming	118	129	110	105	86	71	61	74	69	66
United States	**27,491**	**27,348**	**26,570**	**24,254**	**21,798**	**56**	**59**	**63**	**65**	**63**

[1] See Maps C-3, C-4, and C-5 for trends in testing rates since 2005 by county.

Figure C-1. Fatally Injured Drivers per 100 Million Vehicle Miles Driven, By State, 2005 and 2009

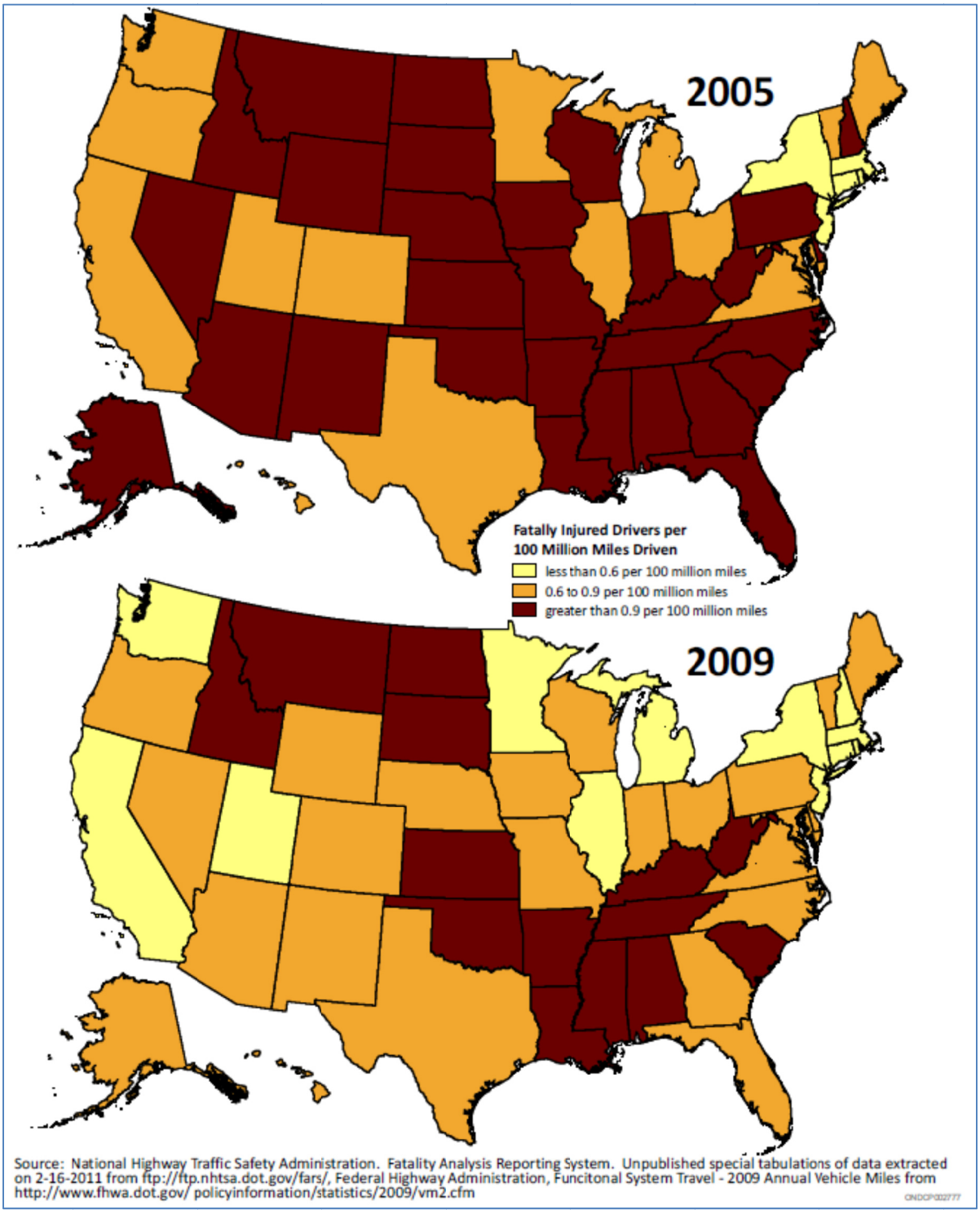
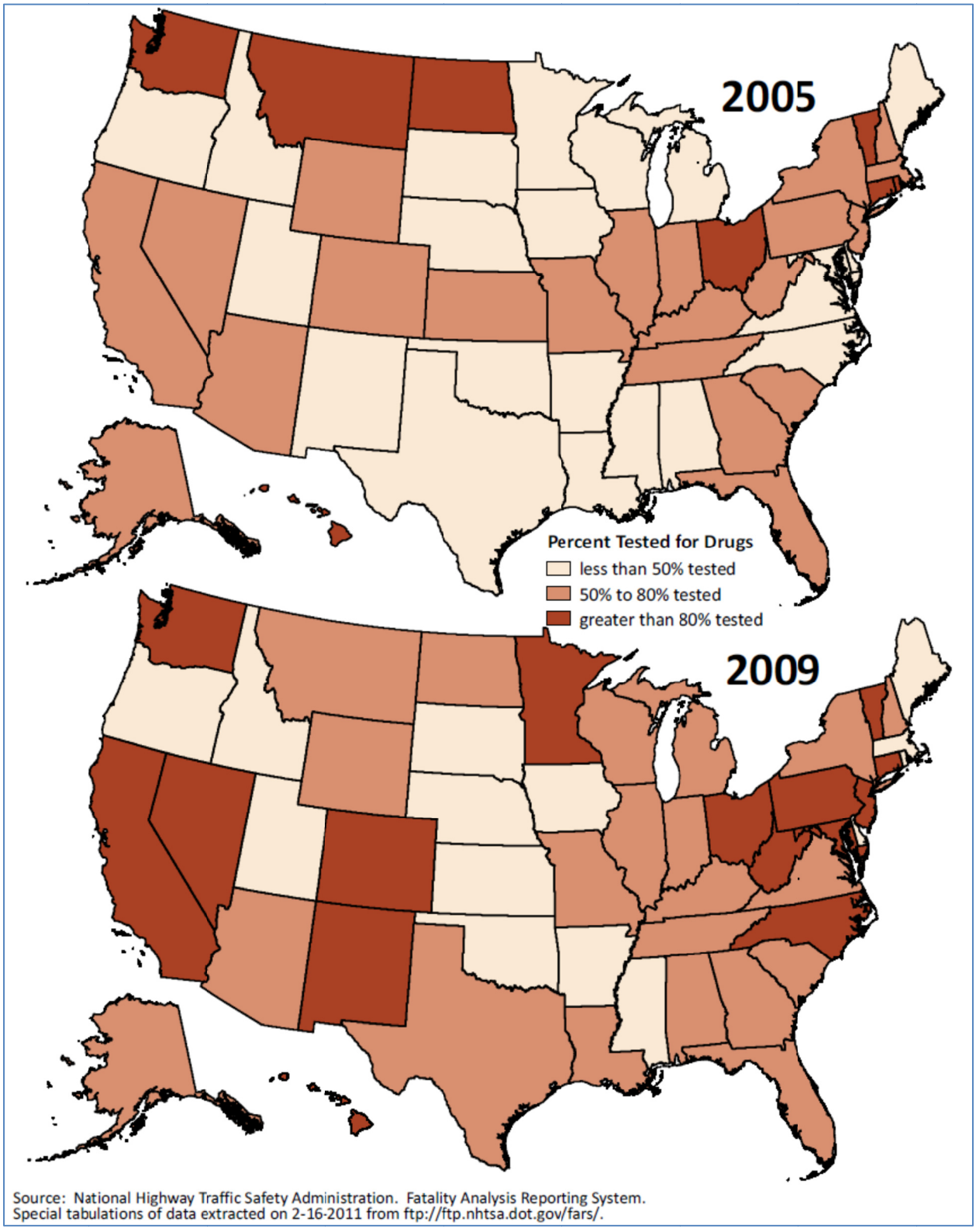


Figure C-2. Percentage of Fatally Injured Drivers Tested for Drugs, By State, 2005 and 2009



Source: National Highway Traffic Safety Administration. Fatality Analysis Reporting System.
Special tabulations of data extracted on 2-16-2011 from ftp://ftp.nhtsa.dot.gov/fars/.

Figure C-3. Fatally Injured Drivers Testing Positive for Drugs per 100,000 Population, By State, 2005 and 2009

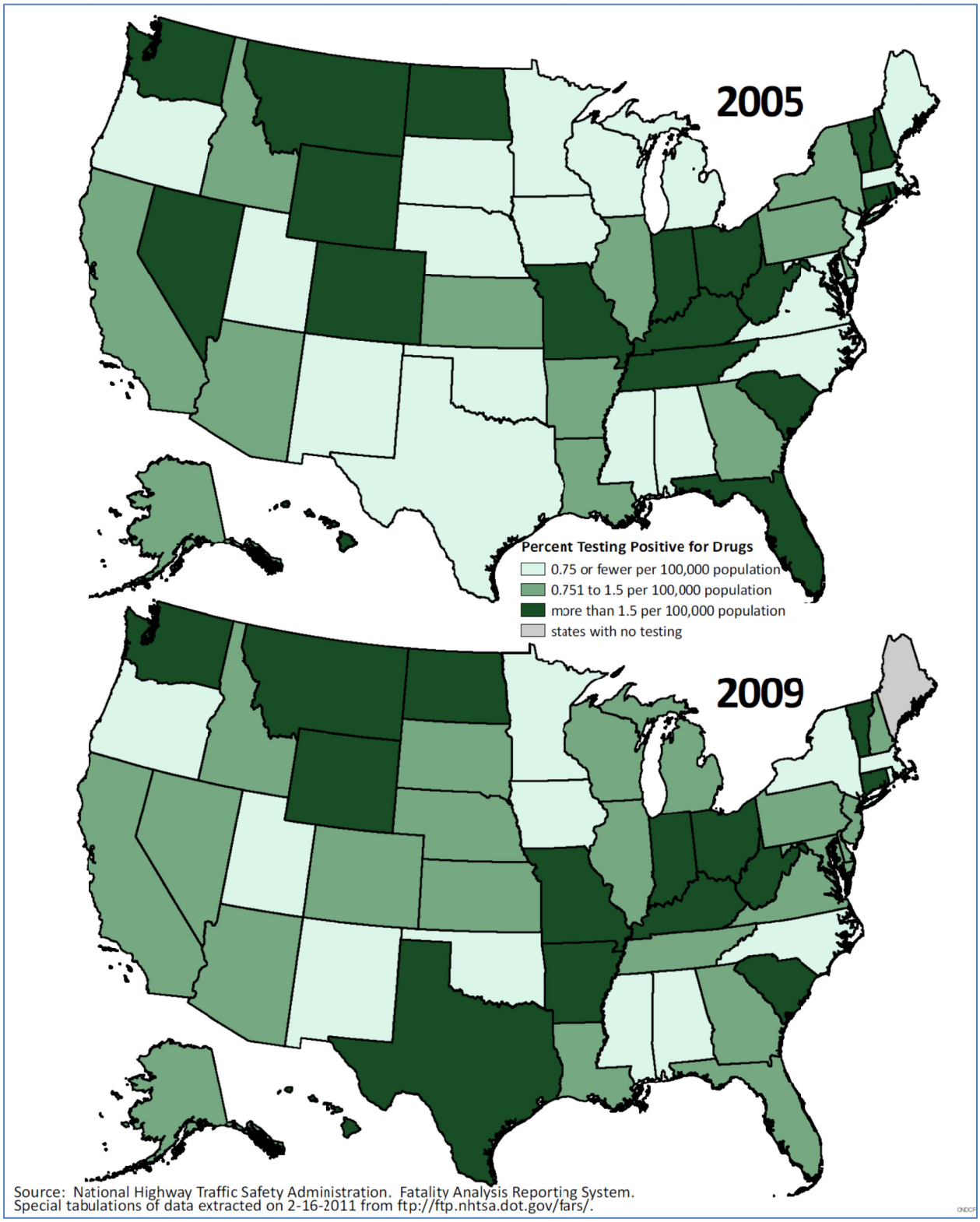


Figure C-4. Number of Fatally Injured Drivers, By County, 2009

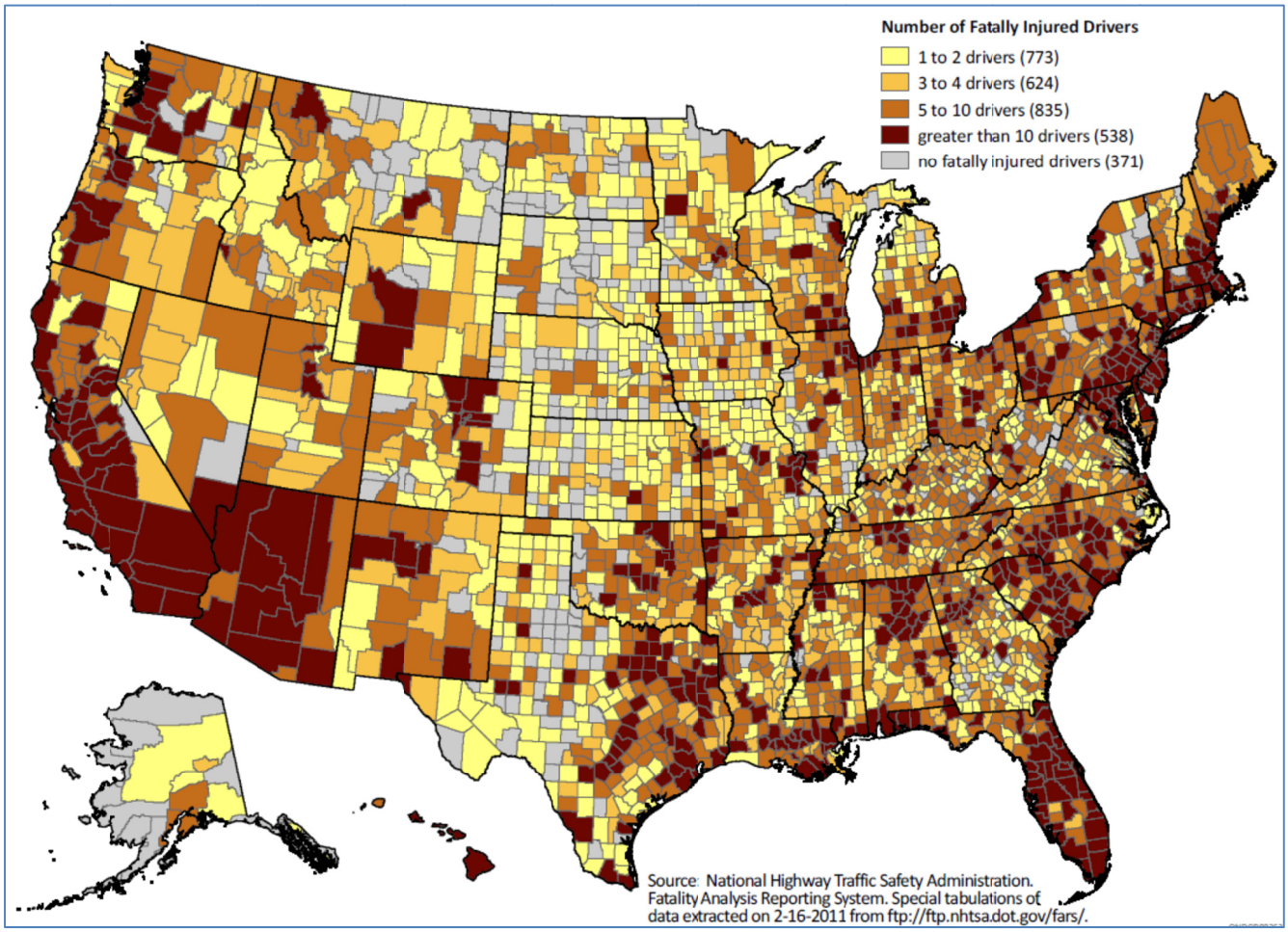


Figure C-5. Percentage of Fatally Injured Drivers Tested for Drugs, By County, 2005

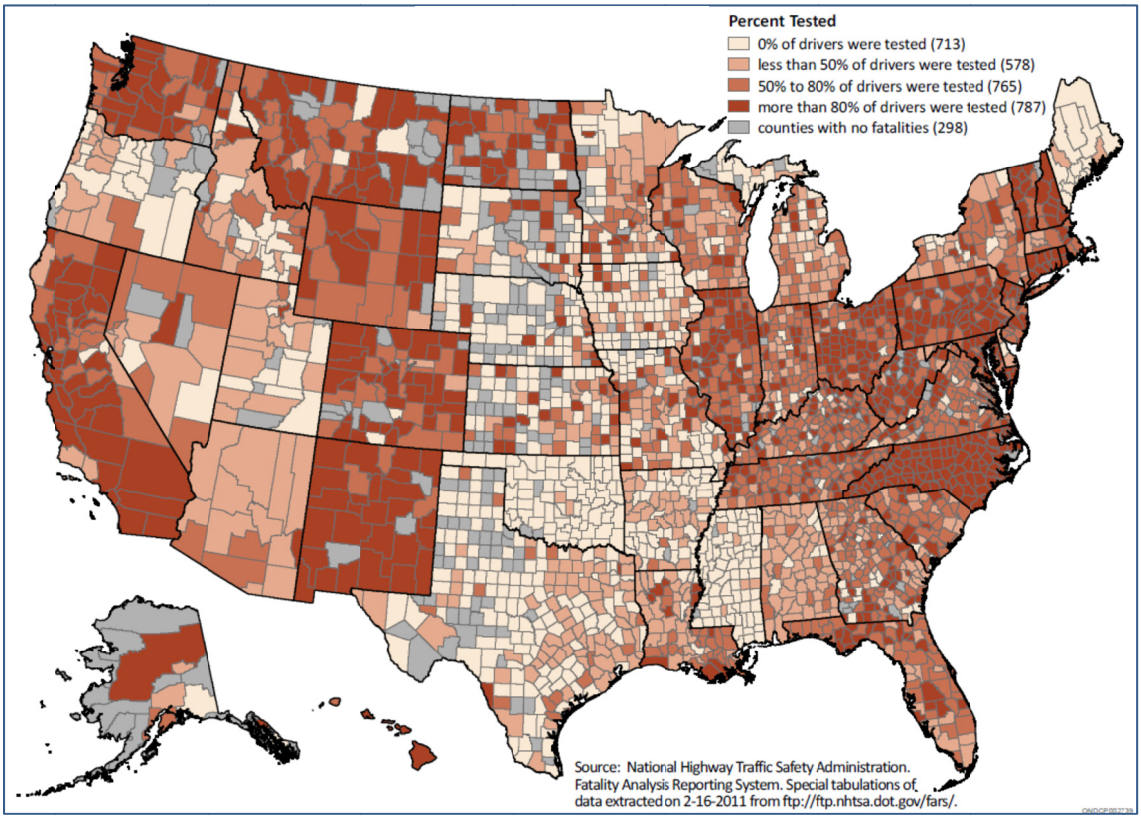


Figure C-6. Percentage of Fatally Injured Drivers Tested for Drugs, By County, 2009

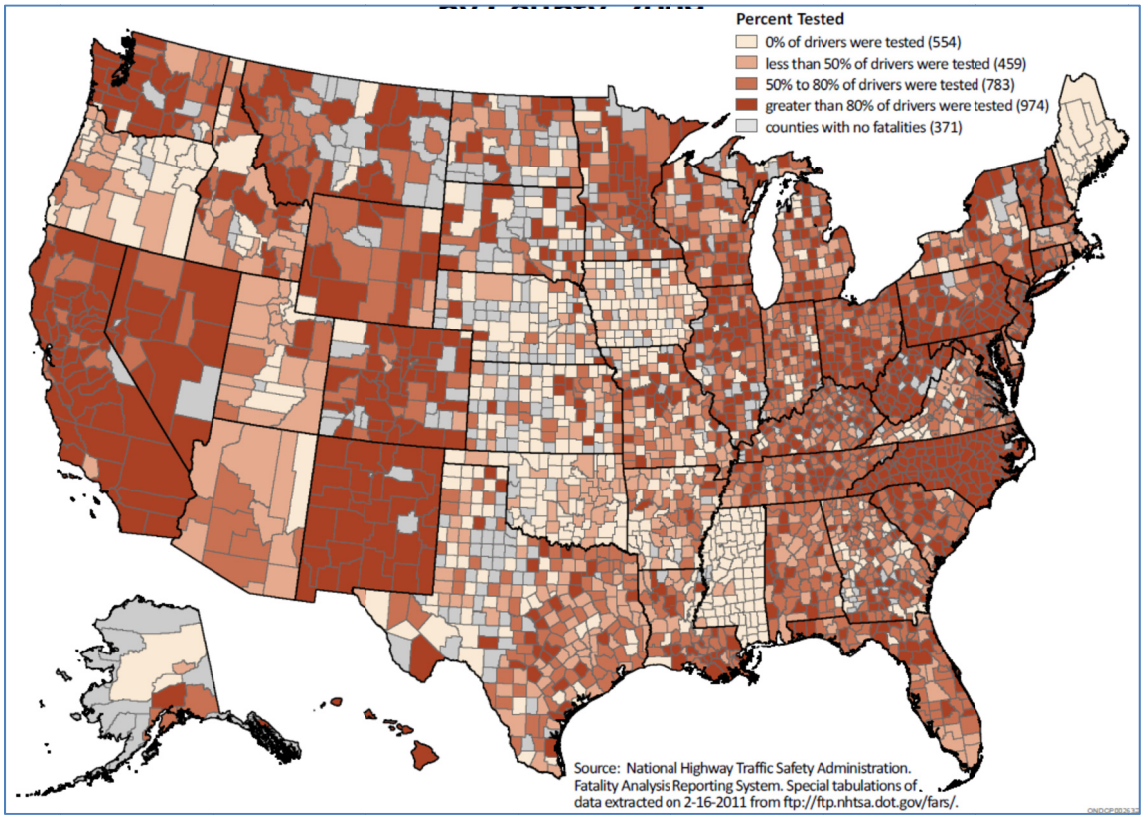


Figure C-7. Percentage of Fatally Injured Drivers with Known Test Results who Tested Positive for Drugs, By County, 2009

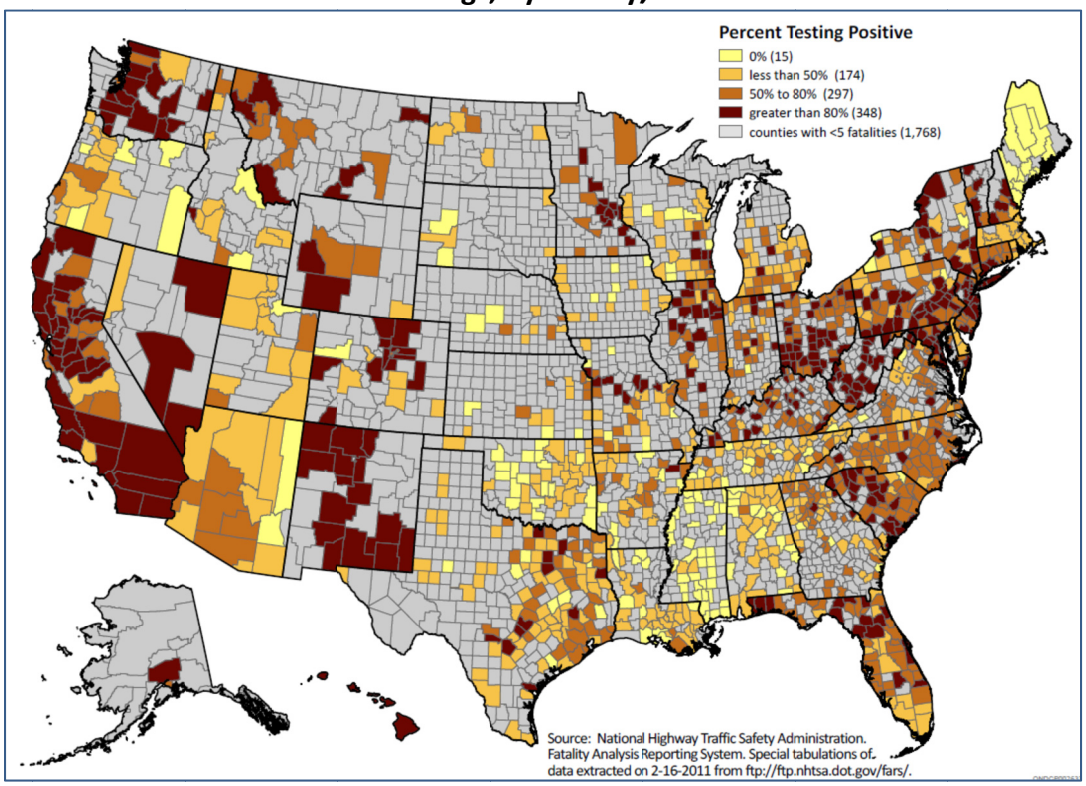


Figure C-8. Fatally Injured Drivers who Tested Positive for Drugs per 100,000 Population, By County, 2009