

Analysis Brief

Federal Motor Carrier Safety Administration
Office of Research and Analysis
Publication No. FMCSA-RRA-07-014
July 2007

DRUG AND ALCOHOL TESTING SURVEY: 2005 RESULTS

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Summary

It is estimated that 1.7 percent of drivers with commercial driver's licenses (CDLs) in 2005 used controlled substances, and 0.2 percent used alcohol (0.04 BAC) while performing their duties. On the basis of these findings, the Federal Motor Carrier Safety Administration (FMCSA) required that testing rates for CDL drivers in calendar year 2007 remain at 50 percent for controlled substances and 10 percent for alcohol.

Introduction

FMCSA requires all motor carriers operating vehicles that must be driven by someone holding a CDL to have drug and alcohol testing programs. Such vehicles include trucks with gross combination weight ratings of more than 26,000 pounds, trucks carrying specific hazardous materials that require the vehicle to be placarded in accordance with FMCSA regulations, and buses designed to carry 16 or more passengers, including the driver. Carriers must randomly test a fixed percentage of their CDL drivers both for alcohol and for a specified set of five controlled substances.

In the case of alcohol, a driver is in violation of FMCSA regulations when the alcohol breath content is 0.02 grams per 210 liters of breath—equivalent to a blood alcohol content (BAC) of 0.02 grams per deciliter (g/dL). Drivers testing at this level are not permitted to perform safety-sensitive functions for at least 24 hours. In addition, drivers who test at the 0.04 g/dL level or higher must be evaluated by a substance abuse professional and undergo additional testing before being allowed to return to duty. For controlled substances, drivers are tested for marijuana, cocaine, opiates, amphetamines, and PCP. Table 1 shows the cutoff levels for identifying the use of these drugs, based on guidelines set by the

Table 1
Cutoff Levels for Identifying Drug Use Among CDL Drivers

Substance	Cutoff Levels
Alcohol	0.02 g/210 liters breath [a]
Marijuana	15 ng/mL [b]
Cocaine	150 ng/mL
Opiates	
Morphine, Codeine	2,000 ng/mL
6-Acetylmorphine (6AM)	10 ng/mL [c]
Amphetamines	
Amphetamine	500 ng/mL
Methamphetamine	500 ng/mL [d]
Phencyclidine (PCP)	25 ng/mL

[a] FMCSA’s estimated violation rate is based on a cutoff of 0.04 g/210 liters.

[b] Nanograms per milliliter. One nanogram equals one billionth of a gram.

[c] Test for 6AM when morphine concentration exceeds 2,000 ng/mL.

[d] Specimen must also contain amphetamine at 200 ng/mL or higher.

In addition to random testing, FMCSA’s drug and alcohol testing regulations require motor carriers to perform the following types of nonrandom testing: pre-employment testing (for controlled substances only, and only if the driver has not recently been in a drug and alcohol testing program); post-accident testing (if the crash involved a fatality, or if the truck driver received a citation in a crash involving a towaway or hospital-related injury); and testing of any driver who is suspected by a supervisor of using drugs or alcohol while at work. Table 2 summarizes these testing requirements.

Table 2
Motor Carrier Testing Requirements for CDL Drivers

Type of Test	Drivers To Be Tested
Random Controlled Substance Testing	50% of all company CDL drivers per year [a]

Random Alcohol Testing	10% of all company CDL drivers per year <i>[a]</i>
Post-Accident Testing	
Fatal crashes	All CDL drivers involved
Nonfatal crashes	CDL drivers receiving citations, if crash involves towaway or hospital-related injury
Reasonable Suspicion Testing	Any CDL driver suspected by supervisor of using alcohol or controlled substances on the job

[a] If random testing is conducted through a consortium, the number of drivers to be tested may be based on the total number of drivers covered by the consortium, rather than the total number of drivers in the company.

Motor carriers must make their annual drug and alcohol summary data available to FMCSA upon request. This summary information includes the number of drivers tested and the number who tested positive for each category. Each year, FMCSA estimates drug and alcohol usage rates for CDL drivers, based on a statistical sample of such summary information collected from motor carriers (in the case of alcohol, FMCSA defines the positive usage rate in terms of testing at or above the 0.04 BAC level). Estimates from the annual survey are used to evaluate FMCSA’s random testing requirements for both alcohol and controlled substances. Currently, motor carriers are required to test 50 percent of their CDL drivers annually for controlled substances and 10 percent of their CDL drivers annually for alcohol. In accordance with Federal regulations (49 CFR, Part 382), these requirements are subject to change, based on the results of the annual survey.

Regulatory History

The FMCSA drug testing requirements for motor carriers began in 1989, when interstate motor carriers domiciled in the United States with 50 or more CDL drivers were required to implement controlled substance testing programs (49 CFR, Part 391, Subpart H). Interstate carriers with fewer than 50 CDL drivers became subject to these requirements one year later. Beginning in 1995, a new set of requirements (49 CFR, Part 382) took effect in response to the passage of the Omnibus Transportation Employee Testing Act of 1991. Part 382 expanded the scope of motor carriers covered by Federal drug testing regulations to include large intrastate carriers (50 or more CDL drivers) by 1995 and all interstate and intrastate carriers with CDL drivers by 1996. In addition to controlled substance testing, Part 382 required the implementation of alcohol testing programs. Beginning in 1996, all motor carriers operating in the United States (both domiciled and foreign-based) became subject to these new regulations.

Methodology for Data Collection

Each year, eligible motor carriers are selected into the survey by means of a stratified random sample. In this approach, all eligible motor carriers are classified before sample selection into size-class groupings (or strata), based on their number of CDL drivers. A random sample of carriers is then selected in each

size-class stratum. Stratification helps to ensure that the sample is representative and also increases the precision of the estimates. Summary data for both random and nonrandom testing are collected from the motor carrier.

For the 2005 survey, 3,255 motor carriers were solicited, using the following seven size-class strata:

- 1 CDL driver
- 2–19 CDL drivers
- 20–99 CDL drivers
- 100–249 CDL drivers
- 250–999 CDL drivers
- 1,000+ CDL drivers
- Size unknown

To maximize the precision of the survey estimates, all eligible motor carriers from the largest size-class stratum (1,000 or more CDL drivers) are selected into the sample with certainty.

In the case of random testing, the sample can be viewed as a two-stage design, in which the motor carrier is selected in the first stage, and a subsample of its CDL drivers is selected (by the carrier) in the second stage. In the case of nonrandom testing, the sample represents a single-stage design in which each sampled motor carrier reports the results for all drivers subject to pre-employment, post-accident, and reasonable suspicion testing.

Results

Random Testing

For the 2005 survey 1,403 motor carriers provided summary data on controlled substance random testing (representing more than 420,000 drivers), and 1,235 motor carriers provided data on random alcohol testing (representing 117,000 drivers). Survey estimates based on random testing, including estimates for previous years, are shown in Table 3. As indicated in Table 3, the positive rate for controlled substance use in 2005 is estimated to be 1.7 percent, with a standard error estimate of 0.3 percent. Based on these results, a 95 percent confidence interval on this estimate ranges from 1.1 to 2.3 percent. If the survey were replicated, one would expect 95 out of 100 confidence intervals to contain the true value for the positive rate. The positive rate for alcohol use in 2005 is estimated to be 0.2 percent, with a standard error estimate of approximately 0.1 percent. These results suggest that a 95 percent confidence interval for the positive rate for alcohol ranges roughly from 0 percent to 0.4 percent.

Table 3

Estimated Positive Rates from Random Drug and Alcohol Testing: 2002-2005

Areas of Testing	Positive Rate			
	2002	2003	2004	2005
Controlled Substances	1.7%	2.0%	1.6%	1.7%
(standard error estimate)	(0.4%)	(0.3%)	(0.3%)	(0.3%)
Alcohol (BAC \geq 0.04)	0.4%	0.2%	0.1%	0.2%
(standard error estimate)	(0.1%)	(0.1%)	(0.1%)	(0.1%)

The survey results suggest that the positive rates for controlled substance use and alcohol use have been approximately the same since 1997. (The differences in the year-to-year estimates are not statistically significant. That is, they cannot be shown to be the result of real differences in the population over time and may simply be a product of statistical sampling error.) Furthermore, the 2005 survey estimates do not suggest that the required random testing rate for controlled substances or alcohol should be changed. For the controlled substance random testing rate to be lowered (now at 50 percent of CDL drivers), the controlled substance usage rate estimated from the survey must be less than 1 percent for two consecutive years, in accordance with FMCSA regulations. For random alcohol testing, the testing rate is currently at the minimum allowable by FMCSA (10 percent). In order for this rate to be raised, the alcohol usage rate from the survey must be estimated to be more than 0.5 percent in a given survey year.

Nonrandom Testing

The number of tested drivers evaluated by the survey each year has been too small to produce reliable estimates of a usage rate for many of the nonrandom testing categories, particularly for alcohol testing. In 2005, the largest number of nonrandom tests captured by the survey was in preemployment controlled substance testing, for which 504,448 tests were reported. Based on those cases, it is estimated that in 2005, 2.1 percent of CDL drivers undergoing pre-employment testing tested positive for controlled substances.

The goal of the Federal Motor Carrier Safety Administration (FMCSA) is to reduce the number and severity of crashes involving large trucks and buses through more commercial motor vehicle and operator inspections and compliance reviews, stronger enforcement measures against violators, expedited completion of rulemaking proceedings, scientifically sound research, and effective CDL testing, recordkeeping, and sanctions.

The Office of Research and Analysis manages agency-wide research, technology, and data analysis programs and studies that will improve safety and security and reduce the number and severity of

commercial motor vehicle crashes.

This Analysis Brief was produced by the Analysis Division in FMCSA's Office of Research and Analysis. The division analyzes motor carrier data pertaining to crashes, inspections, compliance reviews, and drug and alcohol testing, and supports research on the effectiveness of FMCSA inspections and compliance review programs.

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