

Drug and Alcohol Testing Survey

In 1995, it is estimated that 2.8 percent of drivers with a commercial driver's license (CDL drivers) tested positive for controlled substance use, and 0.1 percent tested positive for alcohol use. In 1996, it is estimated that 2.2 percent of CDL drivers tested positive for controlled substances and 0.2 percent for alcohol use. On the basis of these findings, the alcohol testing rate for motor carriers was lowered from 25 percent to 10 percent for all motor carriers for calendar year 1998.

Introduction

The Federal Highway Administration (FHWA) requires all motor carriers employing drivers holding CDLs to have drug and alcohol testing programs. Carriers must randomly test a fixed percentage of their CDL drivers each year for both alcohol (for which 10 percent of all drivers must be tested annually) and for a specified set of controlled substances (for which 50 percent of all drivers must be tested annually).

In the case of alcohol, a driver is considered to have tested positive if the blood alcohol content is 0.04 grams per deciliter or higher. For controlled substances, drivers are tested for marijuana, cocaine, opiates, amphetamines, and PCP. The cutoff levels for identifying the use of these drugs are based on guidelines set by the Department of Health and Human Services, as shown in **table 1**.

In addition to random testing, the FHWA's drug and alcohol testing regulations require motor carriers to perform the following types of nonrandom testing: pre-employment testing (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 crash involved both a towaway or hospital-related injury and the truck driver received a citation); and testing of any driver who is suspected by a supervisor of using drugs or alcohol while at work. **Table 2** presents the testing requirements for CDL drivers.

Motor carriers must make their annual drug and alcohol summary data available to the FHWA upon request. The summary information includes the number of drivers tested and the number who tested positive for each test category.

Each year, the FHWA conducts a survey to estimate drug and alcohol usage rates for CDL drivers, based on a statistical sample of the summary information collected from motor carriers. The estimates from this survey are used to evaluate FHWA required random testing rates (the percentage of employees that need to be tested annually by each carrier) for both alcohol and controlled substances.

Background

FHWA drug testing requirements for motor carriers began in 1994, when all U.S.-domiciled motor carriers operating motor vehicles in interstate commerce were required to implement controlled substance testing programs. In 1995, the requirements were expanded to include large intrastate carriers (50 or more CDL drivers). In the same year,

The vision of the Office of Motor Carriers (OMC) is to help move people, goods, and commercial motor vehicles on our Nation's highways in the most efficient, economical, and crash-free manner possible. The goal of OMC's Office of Information Analysis is to develop and maintain systems for collecting and analyzing motor carrier data and to disseminate information concerning the motor carrier industry.

The Analysis Division analyzes motor carrier data pertaining to crashes, inspections, compliance reviews, and drug and alcohol testing; supports research on the effectiveness of OMC programs, such as roadside inspections and compliance reviews; and helps States to comply with Federal size and weight statutes for trucks.



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Table 1.
Cutoff Levels for Identifying Drug Use
Among CDL Drivers

| Substance | Cutoff Levels |
|-----------------------------|--------------------|
| Alcohol | .04 gr / deciliter |
| Marijuana | 15 ng / ml |
| Cocaine | 150 ng / ml |
| Opiates (morphine, codeine) | 300 ng / ml |
| Amphetamines | |
| amphetamine | 500 ng / ml |
| methamphetamine | 500 ng / ml* |
| Phencyclidine (PCP) | 25 ng / ml |

*Specimen must also contain amphetamine at 200 ng / ml or higher.

all large carriers (both interstate and intrastate) were first required to begin implementing alcohol testing programs. Beginning in 1996, all motor carriers operating in the United States (both U.S.-domiciled and foreign-based) were required to have both controlled substance and alcohol testing programs in place.

Methodology — 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 the carrier's 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. Both random and nonrandom testing data are collected from the motor carrier.

For this survey, six size class strata are used:

- 1 – 19 CDL drivers,
- 20 – 49 CDL drivers,
- 50 – 99 CDL drivers,
- 100 – 999 CDL drivers,
- 1,000 or more CDL drivers, and
- 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.

Because each sampled motor carrier randomly tests only a fraction of its CDL drivers, the sample, in the case of random testing, represents a two-stage design in which the motor carrier is selected in the first stage and a subsample of its drivers is selected in the second. On the other hand, in the case of nonrandom testing, the sample represents a single-stage design in which each sampled motor carrier reports the results of all the nonrandom tests it was required to perform during the calendar year.

Results

Random Testing

For the 1994 survey, 1,048 motor carriers were selected into the sample. Of those carriers, 547 provided usable random testing data to the FHWA for controlled substances. (Alcohol testing was not yet required in 1994; hence, no data for alcohol were provided for that year.)

In 1995, 1,747 motor carriers were selected. Of those, 648 provided random testing data for controlled substances, and 265 provided random testing data for alcohol. (Note that in 1995 only carriers with 50 or more CDL drivers were required to perform random alcohol testing.)

For the 1996 survey, 3,396 motor carriers were selected. Of those, 1,147 provided data for controlled substance random testing and 1,004 provided data for alcohol testing. Survey estimates based on random testing for each year are shown in **table 3**.

As indicated in the table, the positive rate for controlled substance use in 1994 is estimated to be 2.6 percent with a standard error of 1.0 percent. Based on these results, a 95 percent confidence interval on this estimate ranges from 0.64 to 4.56 percent ($0.026 \pm 1.96 \times 0.01$). Thus, if the survey had been replicated, one would have expected the estimate to have fallen within this range in 95 out of 100 replications.

The positive rate for controlled substance use in 1995 is estimated to be 2.8 percent of all CDL drivers, with an estimated standard error of 0.5 percent. Based on these results, a 95 percent confidence interval for this estimate ranges from 1.8 percent to 3.8 percent ($0.028 \pm 1.96 \times 0.005$).

The positive rate for alcohol use in 1995 based on random testing is estimated at 0.14 percent, with a standard error of 0.02 percent. Based on this level of precision, the 95 percent confidence interval for the estimate ranges from 0.10 percent to 0.18 percent ($0.0014 \pm 1.96 \times 0.0002$).

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.* |
| Random Alcohol Testing | 10% of all company CDL drivers per year.* |
| 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. |

*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.

Table 3.
Estimated Positive Rates from Random Drug and Alcohol Testing, 1994, 1995, and 1996

| Areas of Testing | 1994 | | 1995 | | 1996 | |
|-----------------------|---------------|--------------------------|---------------|--------------------------|---------------|--------------------------|
| | Positive Rate | Estimated Standard Error | Positive Rate | Estimated Standard Error | Positive Rate | Estimated Standard Error |
| Controlled Substances | 2.6% | 1.0% | 2.8% | 0.5% | 2.2% | 0.4% |
| Alcohol | NA | NA | 0.14% | 0.02% | 0.18% | 0.03% |

Source: Federal Highway Administration, Office of Motor Carriers

NA = not available

For 1996, the positive rate for controlled substance use is estimated to be 2.2 percent, with a 95 percent confidence interval ranging from 1.4 percent to 3.0 percent ($0.022 \pm 1.96 \times 0.004$). The estimated positive rate for alcohol use in 1996 is approximately 0.2 percent, with a 95 percent confidence interval ranging from 0.12 percent to 0.24 percent.

Although the positive rates for alcohol usage are extremely low for both 1995 and 1996, it should be noted that the 1996 estimate incorporates data from all carriers, whereas the 1995 estimate for alcohol use incorporates data only from carriers that have 50 or more employees.

Based on the results of the 1996 survey, the alcohol random testing rate for motor carriers was lowered from 25 percent to 10 percent of each carrier's CDL drivers for calendar year 1998, in accordance with Federal regulations. These regulations stipulate that when the required testing rate for alcohol is 25 percent or higher, the FHWA may lower the testing rate

to 10 percent if the positive rate for alcohol usage among CDL drivers is estimated from the survey to be less than 0.5 percent for 2 consecutive years.

The required random testing rate for controlled substances did not change for calendar year 1998 and remains at 50 percent of each carrier's CDL drivers. In order for this rate to be lowered, the controlled substance usage rate estimated from the survey would have to be less than 1 percent for 2 consecutive years.

Nonrandom Testing

In the case of 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 most of the nonrandom testing categories. In 1996, the largest number of nonrandom tests captured by the survey was in pre-employment controlled substance testing, where 852 cases were considered. On the basis of those cases, it is estimated that in 1996, 2.4 percent of CDL drivers undergoing pre-employment testing tested positive for controlled substances.

Researcher

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Distribution

This Analysis Brief is being distributed according to a standard distribution. Direct distribution is being made to the Regions and Divisions.

Availability

The study final report (PB97-124705) is available from the National Technical Information Service, Telephone: (703) 605-6000.

Key Words

motor carriers, CDL drivers, alcohol usage, controlled substance usage, positive rate, testing rate, random testing, nonrandom testing, sample survey.

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