Results of the 2012 California Roadside Survey of Nighttime Weekend Drivers' Alcohol and Drug Use

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Executive Summary

Background

This report summarizes the results of the first California Statewide Roadside Survey of Nighttime Weekend Drivers' Alcohol and Drug Use. To our knowledge, it is the first state-level survey of this magnitude. It is modeled on data collection procedures used in the "2007 National Roadside Survey of Alcohol and Drug Use by Drivers," sponsored by the National Highway Traffic Safety Administration.

Methods

A random sample of nighttime drivers was interviewed on Friday and Saturday nights from 10 p.m. to midnight and 1:00 a.m. to 3:00 a.m. Data were collected on one weekend in eight communities and on two weekends in one community during the summer of 2012. The nine communities where data were collected were Eureka, San Rafael, and Redding in the northern part of the state; Fresno and Modesto in the central part of the state; and Anaheim, Ontario, Chula Vista, and Gardena in southern California.

Anonymous breath tests and oral fluid samples as well as responses to questionnaires were collected from over 1,300 drivers. The breath alcohol samples were analyzed for alcohol and the oral fluid samples were analyzed for nearly 50 drugs, including prescription, illegal, and over-the-counter drugs. Analyses were conducted by screening using enzyme-linked immunosorbent assay (ELISA) microplate technology and positive screens were confirmed using gas chromatography–mass spectrometry (GC/MS) or liquid chromatography–mass spectrometry (LC/MS/MS) technology.

Results

Among eligible drivers approached to participate in the survey, 81% (1,375 drivers) agreed to answer questions, 85.3% (1,449 drivers) provided a breath sample, and 77.3% (1,313 drivers) provided an oral fluid sample.

Among drivers participating in the interview, 3.7% reported having a medical marijuana permit and, of those, 65.8% reported having used the permit to purchase marijuana. Within the total population, 40% admitted to having at some time used marijuana.

In terms of breath and oral fluid test results, 184 (or, 14%) tested positive for at least one drug, and 7.3% tested positive for alcohol. One percent of tested drivers were at .08 blood alcohol content (BAC) or above.

The vast majority (89.6%) of drug positive drivers tested negative for alcohol. Of the drug-positive drivers, 2.7% had a BAC above zero but less than .05; 5.5% from .05 to .08; and 2.2% at or above .08.

Marijuana was the most frequently encountered drug at a prevalence rate of 7.4%, with 5.5% of drivers testing positive for marijuana alone; 1.1% testing positive for marijuana and an illegal drug; 0.5% testing positive for marijuana and a medication; and 0.3% testing positive for marijuana, an illegal drug, and a medication. Illegal drugs were present alone in 2.7% of drivers,

and in combination with medications in 0.5%. Medications alone were present in 3.3% of drivers. Synthetic marijuana was found in 5 (or 0.4%) drivers.

Conclusions

This survey provides a baseline California prevalence estimate for alcohol and drug use among nighttime weekend drivers and can be compared with results of future surveys to examine patterns of change in drug and alcohol use in that population. It should be noted that these figures describe the prevalence rates for the presence of these drugs in drivers and do not address whether those drivers were impaired by these substances.

Introduction

The objective of this project was to conduct a roadside survey of a random sample of nighttime weekend California drivers to develop a prevalence estimate of alcohol and drug use within that population, using the same basic methodology followed in the 2007 National Roadside Survey (NRS) (Lacey et al., 2009a). We conducted this study for the California Office of Traffic Safety (OTS) to help them monitor the prevalence of alcohol- and marijuana-involved driving in California and compare that with previous prevalence estimates (Lacey et al., 2009b; Johnson et al., 2012).

Methodology

Data collection was a collaborative effort of the California Office of Traffic Safety (OTS) and the Pacific Institute for Research and Evaluation (PIRE).

Anonymous breath tests and oral fluid samples were obtained from more than 1300 weekend nighttime drivers randomly sampled from nine jurisdictions in California, including Anaheim, Chula Vista, Eureka, Fresno, Gardena, Modesto, Ontario, Redding, and San Rafael. Using procedures that were essentially identical to the 2007 National Roadside Survey (NRS) (Lacey et al., 2009a; Johnson et al., 2012), a random sample of weekend nighttime drivers were interviewed on Friday and Saturday nights from 10 p.m. to midnight and 1 a.m. to 3 a.m. As in the 2007 NRS, participants responded to surveys, including a self-report drug use questionnaire. Breath samples were collected using the Mark V Alcoviser™, and oral fluid samples were collected using the Quantisal™ collection unit. The two-day data collection periods were conducted once in eight of the jurisdictions and on two weekends in one (Modesto). Thus, 10 sessions of weekend data collection occurred.

Site Recruitment

In 2007, the National Highway Traffic Safety Administration (NHTSA) funded the 2007 National Roadside Survey (NRS). Five of the sites who participated in the 2007 NRS were from California (Anaheim, San Jose, Torrance, Concord, and Oxnard). Additionally in 2010, PIRE conducted a roadside survey in six California cities. These cities were Anaheim, Bakersfield, Eureka, Fresno, San Rafael and Torrance. For continuity, we attempted to return to these same sites to conduct the current roadside survey. However, not all the police departments were available to participate. With the assistance from the OTS, specific police departments were identified to possibly assist with the roadside survey. Anaheim, Eureka, Fresno and San Rafael were willing to participate again in 2012 and OTS identified Chula Vista, Gardena, Modesto, Ontario and Redding as additional sites.

Once a geographic location was selected and the police department agreed to assist with traffic control during data collection, the jurisdiction was mapped and divided into a grid of approximately 1-square-mile areas. Squares containing fields, parks, airports, harbors, and the like, which contain few road segments, were eliminated from our sampling frame. Using a simple random sampling procedure of all the eligible "survey squares," we identified 30 possible square-mile grid areas for potential survey site locations.

The map was sent to our main contact within each police department, and the day before data collection, our Survey Manager and a police officer reviewed the map and identified four suitable survey sites within the identified square-mile grids. Suitable survey sites included areas of the jurisdiction that had sufficient traffic flow and an area (i.e., a parking lot) with enough space to safely set up six to eight bays, and where vehicles could enter and exit safely. At a minimum, it was necessary for these locations to be safe and appropriately lit, have sufficient traffic flow to achieve the required sample size.

The Survey Manager and the officer then drove to the identified areas and looked for sites. Once a specific site was identified, they drove to the next square mile grid-area to search for another specific survey site. In total, four different survey sites were identified for each location (plus two backup sites) and each survey site was assigned to a time slot (i.e., one location from 10:00 p.m. until 12:00 a.m. on Friday night, another location 1:00 a.m. until 3:00 a.m., and still another on Saturday night from 10:00 a.m. until 12:00 a.m. and another location 1:00 a.m. until 3:00 a.m.).

General Survey Procedures

Data collectors were trained in all facets of roadside data collection, including safety, interacting with the public, collecting the data, and also a protocol for facilitating a safe ride home for impaired drivers. Data Collectors participated in a two-day training session to learn and understand every aspect of the equipment and the data collection procedures and protocols. The first day of training included classroom instruction using a training manual that detailed all project procedures and protocols. The second night included hands-on instruction, including training in a parking lot to mimic real survey site data collection (simulation survey). After participating in the training sessions, all Data Collectors were proficient in knowing how to interact with the public and successfully recruit participants while also ensuring informed and voluntary consent. All Data Collectors were also trained on how to detect an impaired driver and gained an understanding of the established impaired driving protocol.

At the data collection site, an officer positioned a police vehicle at the side of the road with overhead lights flashing and, thus, visible to approaching traffic. The police vehicle's headlights were positioned to illuminate the officer. Data Collectors, working in an off-road parking lot, set up the site with bays marked off by orange traffic cones borrowed from the police agency. Data Collectors unpacked their backpacks of supplies in preparation for vehicles, and set up the appropriate survey signs that informed the public of the voluntary nature of the survey. When the data collection team was ready, drivers were randomly waived into the survey site. To ensure unbiased selection of the first vehicle at each interview site, the third vehicle passing the site after initiation of the survey was waved in for the first interview. Commercial vehicles were excluded from the survey, but motorcycles were not. As the vehicle came into the survey area, a Data Collector guided the driver into the open survey bay. In some jurisdictions, the police were present but did not direct traffic. In those instances, a research assistant directed traffic.

Basic Survey Sequence

As the motorist came to a safe stop in the bay, the Data Collector recorded basic demographics based on observation (e.g., number of passengers, use of a safety belt by the driver, gender and ethnicity of the driver). These data were recorded so that descriptive information of potential subjects who refused was obtained. The Data Collector then approached

the vehicle and initiated contact with the driver using a basic protocol, including an introduction explaining that participation was anonymous and voluntary, and could be ended at any time.

Once oral consent for an interview was obtained, the subject answered questions covering topics such as his/her annual mileage, vehicle ownership, general alcohol and marijuana use and alcohol and marijuana use and driving, and a series of demographic items. During the interview, the Data Collector also obtained a passive alcohol reading on each subject using a passive alcohol sensor (PAS) device. After the interview was completed, the Data Collector requested a breath test with a preliminary breath test (PBT) device. The breath test results could not be read by the Data Collector but rather were stored in the device and downloaded later for analysis.

After the breath test request, the Data Collector offered a $20 incentive to the subject to provide an oral fluid sample. If the subject agreed, an oral fluid collection device was provided and the subject was instructed to place the device under their tongue. While the device was in the subject's mouth, the subject completed a drug use questionnaire. The items on the questionnaire included questions about their past use of drugs (illegal, prescriptions, and over-the-counter), drugs that they felt might impair driving, and about the most recent time they used specific drugs. The questionnaire also included additional questions on alcohol use. After the conclusion of the oral fluid collection, subjects were provided with the $20 in cash and given instruction on how to exit the survey site safely.

During the interview, if the PAS device detected alcohol in the air and/or if the Data Collector witnessed signs of impairment (e.g., slurred speech, blood-shot eyes, etc.) the Data Collector signaled the Survey Manager, who administered a breath test with a PBT (Intoxilyzer SD-400^{TM}) that displayed the result. Data Collectors were trained to recognize signs of impairment. If the driver had a blood alcohol concentration (BAC) of .05 or higher, the Survey Manager attempted to arrange a safe ride home (e.g., having another occupant of the vehicle drive if that person passed a BAC test, calling a friend or relative to come pick up the driver, arranging a taxi, etc.).

The basic survey sequence included:

- The research team arrived at the location; Data Collectors unpacked and set up study location equipment (e.g., "Voluntary Survey Ahead" signs) and individual Data Collectors' equipment in bays delineated by orange traffic safety cones.

- When a Data Collector was ready for a subject, the randomly selected driver was directed into the research area.

- A member of the research team directed the driver into a specific research bay; typically several bays were in operation.

- As the driver approached the bay, the Data Collector noted easily observable characteristics of the driver and vehicle and recorded those data (e.g., type of vehicle, number of passengers, seat belt usage, gender of driver, likely age of driver, etc.).

- The Data Collector approached the driver and briefly explained the purpose of the study, and explained that participation was both voluntary and anonymous and that the driver could stop participating at any point. The Data Collector obtained consent for continuing or, if the driver refused to participate, requested a breath sample. The non-participating driver's vehicle was assisted back into traffic flow and that driver was counted as non-participating.

- For drivers who chose to participate in this study, the Data Collector asked a few questions regarding the subject's general driving patterns and driving on that particular night.

- The Data Collector then asked a few questions regarding the subject's drinking behavior.

- During the questioning, the Data Collector obtained a passive alcohol reading of the driver using the PAS-Vr passive sensor and recorded the result on the survey form.

- The Data Collector requested a preliminary breath test from the driver. Note that the PBT recorded, but did not display, the driver's BAC.

- The Data Collector requested an oral fluid sample from the driver. As it took a few minutes to collect the required amount of oral fluid, the Data Collector at this time had the driver take a questionnaire that asked questions about their alcohol and drug use.

- Finally, the Data Collector thanked the driver and directed the person and their vehicle safely out of the research area and back into traffic.

The key objective of this roadside survey was to estimate the prevalence of drug- and alcohol-involved driving. However, other substances were also measured for future further analyses, including the use of over-the-counter, prescription, and illegal drugs that may impair driving performance. A specific focus was to estimate the prevalence of marijuana-involved driving in California. Table 1, below (from Lacey et al., 2009a), lists the drugs that were tested for in this survey. Oral fluid samples were analyzed for basically the same panel of drugs as in the 2007 National Roadside Survey (NRS) (see Table 1) supplemented by at least 8 versions of synthetic marijuana.

Table 1. Minimum Drug Detection Concentrations

Drug Class	Minimum Concentration Oral Fluid (ng/ml)		Common Name
	Screen	Confirm	
Cocaine *(Cocaine, benzoylecgonine)*	20	8	Cocaine (e.g., crack or coke)
Opiates *(6-AM, codeine, morphine, hydrocodone, hydromorphone)*	20	10	Heroin Morphine or Codeine (e.g., Tylenol® with codeine)
Amphetamine/ Methamphetamine *(MDMA, MDA, MDEA, Phentermine)*	25	25	Amphetamine or Methamphetamine (e.g., speed, crank, crystal meth)
Cannabinoids *(THC, THC-COOH[THCA])*	4	2	Marijuana (e.g., pot, hash, weed)
Synthetic cannabinoids	N/A	0.5	(e.g., Spice, K2)
Phencyclidine	10	10	PCP (e.g., angel dust)
Benzodiazepines *(oxazepam, nordiazepam, bromazepam, flurazepam, flunitrazepam, lorazepam, chlordiazepoxide, temazepam, diazepam, clonazepam, alprazolam, triazolam, midazolam, nitrazepam)*	5	1	Benzodiazepines (e.g., Valium® or tranquilizers)
Barbiturates *(Phenobarbital, pentobarb, secobarbital, butalbital)*	50	50	Barbiturates (e.g., phenobarbital)
Buprenorphine (Suboxone®)	5	5	Opioid addiction treatment
Naltrexone (ReVia®)	40	10	Addiction treatment
Methadone	50	20	Methadone
Ethyl alcohol	.02%	.02%	Alcohol
Fentanyl (Sublimaze®)	1	0.5	Prescription pain killer
Oxycodone (Percocet®)	20	10	Prescription pain killers (e.g., Percocet®, OxyContin®, oxycodone, Demerol®, Darvon®)
Propoxyphene (Darvon®)	20	10	
Tramadol (Ultram®)	50	25	
Carisoprodol (Soma®)	50	50	
Meperidine (Demerol®)	50	25	
Sertraline (Zoloft®)	25	10	Anti-depressants (e.g., Prozac®, Zoloft®)
Fluoxetine (Prozac®)	100	10	
Tricyclic anti-depressants (amitryptiline, nortriptyline)	25	10	
Zolpidem (Ambien®)	10	5	Ambien® or other sleep aids
Methylphenidate (Ritalin®)	10	10	ADHD medications (e.g., Ritalin®, Adderall®, Concerta®)
Dextromethorphan	50	20	Cough medicines (e.g., Robitussin®, Vicks 44®, etc.)
Ketamine	10	10	Ketamine/Special K

Screening utilized ELISA micro-plate and confirmation utilized GC/MS or LC/MS/MS technology.

The same testing methodologies for assaying oral fluid were used for both the 2007 NRS (Lacey et al., 2009a) and the 2010 study on the prevalence of cannabis-involved driving in California (Johnson et al., 2012). The samples were sent to Immunalysis Corporation for processing. All samples were initially screened using enzyme-linked immunosorbent assay

(ELISA) microplate technology. For positive screening results, confirmation was performed using gas chromatography–mass spectrometry (GC/MS) or liquid chromatography–mass spectrometry (LC/MS/MS) technology.

Issues

The principal challenge was obtaining the cooperation and assistance of local police agencies. Some agencies identified concerns about possible entrapment by waiving potential subjects into the survey area, while others did not perceive this type of participation to be an issue. The assistance of police officers in traffic control was essential to this endeavor. It was important to obtain the endorsement of police management at the agency level to insure that the data collection would move forward in each locality. OTS and PIRE worked collaboratively to recruit and retain this cooperation. Site recruitment activity occurred during the first few months of the project and was maintained and refreshed throughout the data collection phase of the project (June, July, and August 2012).

Additionally, we were not been able to collect as many samples as we wished at nine sites, resulting in a lower number of samples than desired to analyze, so we added an extra data collection weekend at one site to expand the number of samples.

Results

Sample/Population

Site Participation

Nine jurisdictions participated in the roadside survey: three from the northern region of California (Eureka, San Rafael, and Redding), two from the central region of the state (Fresno and Modesto which participated on two weekends), and four from the southern region (Anaheim, Ontario, Chula Vista, and Gardena). Table 2 presents the number of eligible drivers who participated in the survey, by site and region.

Table 2. Sites by Region and Participation Numbers

Region	Site	N	%
North	Eureka	141	8.2%
	San Rafael	79	4.7%
	Redding	165	9.7%
Central	Fresno	101	5.9%
	Modesto	444	26.1%
South	Anaheim	161	9.6%
	Ontario	238	14.0%
	Chula Vista	171	10.0%
	Gardena	199	11.9%
Total		1,699	100.0%

Driver Participation

As indicated in Table 3, a total of 1,715 drivers were approached to participate in the roadside survey. Of those approached, 1,699 were eligible to participate in the survey (99.1%). Ineligible drivers included those who had prior knowledge of the survey (drivers could not self-select themselves to participate), spoke a language other than English or Spanish, or were too intoxicated to consent to participate.

Table 3. Number of Drivers

	# of Drivers
Approached	1,715
Non-eligible	16
Prior Knowledge	*3*
Language	*12*
Too intoxicated	*1*
Eligible	1,699
% of Approached	99.1%
Consented Survey	1,375
% of Eligible	80.9%
Consented Breath Sample	1,449
% of Eligible	85.3%
Provided Breath Sample	1,432
% of Eligible	84.3%
Consented Oral Fluid	1,319
% of Eligible	77.6%
Provided Oral Fluid	1,313
% of Eligible	77.3%

Drivers who refused to participate in the survey were asked if, before leaving, they could at least provide a breath sample. As a result, the participation rate among those who provided a breath sample was higher (85.3%) than that for those who participated in the questionnaire part of the survey (80.9%) and/or provided an oral fluid sample (77.3%). Some drivers who consented to a breath and/or oral sample were not able to complete providing them because of either physiological or technical issues (e.g., failure to exhale a minimum volume of air into the breathalyzer; not providing a large enough sample of saliva).

We compared the demographics of drivers who refused to those who agreed to participate in the survey. There were no differences in the two groups in terms of gender and race, but those who chose to participate were somewhat younger than those who refused. This difference was not statistically significant.

Demographics

Table 4 presents the gender of drivers eligible to participate in the roadside survey by region. There were significantly more male (almost 61%) than female (39%) drivers. This is similar to the 2007 National Roadside Survey where 63% of drivers were male and 37% female. No statistically significant difference in gender distribution was found across the three regions. In the tables, the 95% confidence interval for each value is presented below that value.

Table 4. Gender by Region

Gender		Regions			
		Central	North	South	Total
N		528	379	746	1,653
Males	%	58.1	62.8	61.9	60.9
	CI	[47.8, 67.9]	[60.7, 64.8]	[59.8, 64.1]	[57.2, 64.5]
Females	%	41.9	37.2	38.1	39.1
	CI	[32.1, 52.3]	[35.2, 39.3]	[36.0, 40.2]	[35.4, 42.8]

Note: In all tables, the 95% confidence interval for each value is presented below that value.

By age, there was no statistical difference in the proportion of drivers by region. As illustrated in Table 5, approximately 44% of participants were in the 21-34 year age group, followed by 24% in the 35-49 age group.

Table 5. Age by Region

Age		Regions			
		Central	North	South	Total
<21	N	81	61	87	229
	%	19.8	19.0	13.5	16.7
	CI	[11.7, 31.4]	[10.9, 31.0]	[6.9, 24.9]	[10.1, 23.4]
21-34	N	191	143	272	606
	%	46.7	44.6	42.3	44.1
	CI	[39.9, 53.6]	[40.6, 48.6]	[40.8, 43.8]	[41.9, 46.4]
35-49	N	83	63	181	327
	%	20.3	19.6	28.2	23.8
	CI	[15.1, 26.7]	[14.7, 25.8]	[24.2, 32.5]	[20.9, 27.1]
50+	N	54	54	103	211
	%	13.2	16.8	16.0	15.4
	CI	[9.9, 17.4]	[8.1, 31.8]	[11.7, 21.6]	[12.1, 19.3]
Total		409	321	643	1,373

Table 6 shows that about 45% of the drivers in the sample were of Hispanic/Latino descent. There were significantly more Hispanic/Latinos in the southern region (57.8%) or in the central region (44.6%) than in the northern region (18.3%), (p < .05).

Table 6. Ethnicity by Region

Ethnicity		Region			
		Central	North	South	Total
Hispanic/Latino	N	180	58	370	608
	%	44.6	18.3	57.8	44.9
	CI	[37.7, 51.7]	[9.8, 31.6]	[36.3, 76.7]	[30.3, 60.5]
Not Hispanic/Latino	N	224	259	270	753
	%	55.5	81.7	42.2	55.1
	CI	[48.3, 62.3]	[68.4, 90.2]	[23.3, 63.7]	[39.6, 69.7]
All		404	317	640	1,361

Approximately 55% of the drivers identified themselves as "white." As indicated in Table 7, the percentage identifying as African-American were lower in the northern region of the state (2.5%) than in the central (6.5%) or the southern (13.4%) regions. The percentage identifying themselves as Asians was higher in the southern region (13.4%) than in the central (10.4%) or northern (7.6%) regions. However, this difference was not statistically significant.

Table 7. Race by Region

Race		Region			
		Central	North	South	Total
White	N	251	250	247	748
	%	62.3	78.9	38.8	55.2
	CI	[39.8, 80.5]	[69.1, 86.2]	[28.1, 50.7]	[44.4, 65.5]
African-American	N	26	8	85	119
	%	6.5	2.5	13.4	8.8
	CI	[5.1, 8.1]	[1.2, 5.2]	[3.0, 43.9]	[3.0, 22.8]
Asian/PI	N	42	24	85	151
	%	10.4	7.6	13.4	11.1
	CI	[4.3, 23.2]	[4.6, 12.2]	[7.1, 23.8]	[7.1, 17.0]
American Indian	N	6	3	8	17
	%	1.5	1.0	1.3	1.2
	CI	[0.4, 5.2]	[0.0, 11.0]	[0.8, 2.0]	[0.6, 2.4]
Other	N	78	32	211	321
	%	19.4	10.1	33.2	23.7
	CI	[11.0, 31.8]	[6.6, 15.1]	[19.7, 50.1]	[16.1, 33.4]
Total		403	317	636	1,356

Table 8 shows that most drivers in the sample, approximately 38%, reported to have some college experience (but no degree). Overall, drivers' education level did not differ significantly from region to region.

Table 8. Education by Region

Education		Central	North	South	Total
		Region			
		Central	**North**	**South**	**Total**
None-8th Grade	N	15	8	28	51
	%	3.7	2.5	4.4	3.7
	CI	[1.5, 8.9]	[0.8, 7.5]	[2.0, 9.0]	[2.1, 6.4]
9th-11th Grade	N	15	12	29	56
	%	3.7	3.8	4.5	4.1
	CI	[2.0, 6.7]	[2.4, 6.1]	[2.8, 7.4]	[3.0, 5.6]
High School Grad	N	80	66	129	275
	%	19.6	20.9	20.2	20.2
	CI	[10.6, 33.4]	[18.3, 23.8]	[16.4, 24.6]	[16.6, 24.4]
Some College - No Degree	N	176	130	208	514
	%	43.1	41.1	32.6	37.7
	CI	[30.2, 57.1]	[27.5, 56.3]	[26.1, 39.7]	[31.6, 44.2]
Trade School Certificate	N	14	5	24	43
	%	3.4	1.6	3.8	3.1
	CI	[2.0, 5.7]	[0.3, 9.1]	[2.6, 5.3]	[2.3, 4.3]
Associate	N	43	30	44	117
	%	10.5	9.5	6.9	8.6
	CI	[9.3, 11.9]	[5.7, 15.5]	[4.7, 10.0]	[7.0, 10.5]
Bachelor	N	39	45	96	180
	%	9.6	14.2	15.0	13.1
	CI	[8.2, 11.2]	[6.3, 29.1]	[12.4, 18.0]	[10.7,16.2]
Master/ Doctorate/ Professional	N	26	20	81	127
	%	6.4	6.3	12.7	9.3
	CI	[1.3, 25.9]	[1.6, 21.5]	[8.7, 18.1]	[5.6, 15.0]
Total		408	316	639	1,363

As shown in Table 9, among participating drivers, most (about 77%) reported to be employed (either full-time or part-time). No differences in employment status were found across regions.

Table 9. Employment by Region

Employment		Central	North	South	Total
			Region		
		Central	**North**	**South**	**Total**
Employed	N	312	241	509	1,062
	%	76.3	75.3	79.0	77.3
	CI	[71.8, 80.2]	[63.5, 84.3]	[75.2, 82.4]	[73.4, 80.6]
Unemployed	N	53	39	86	178
	%	13.0	12.2	13.4	13.0
	CI	[11.5, 14.6]	[8.5, 17.2]	[10.1, 17.5]	[11.1, 15.1]
Retired	N	8	14	18	40
	%	2.0	4.4	2.8	2.9
	CI	[0.8, 4.6]	[1.6, 11.5]	[2.1, 3.7]	[2.0, 4.2]
Disability	N	8	12	9	29
	%	2.0	3.8	1.4	2.1
	CI	[1.2, 3.2]	[2.0, 7.1]	[0.8, 2.4]	[1.4, 3.3]
Homemaker	N	14	2	11	27
	%	3.4	0.6	1.7	2.0
	CI	[1.4, 8.1]	[0.1, 3.8]	[1.2, 2.5]	[1.1, 3.4]
Student	N	12	12	10	34
	%	2.9	3.8	1.6	2.5
	CI	[1.2, 7.3]	[0.8, 16.4]	[1.1, 2.2]	[1.2, 5.0]
Other	N	2	0	1	3
	%	0.5		0.2	0.1
	CI	[0, 2.9]		[0, 1.6]	[0, 0.8]
All		409	320	644	1,373

Driver's Responses to Roadside Questionnaires

Drivers were asked several questions about their driving, general drug use, and alcohol and drug use and driving. The following section examines the self-reported responses related to marijuana, and risk perceptions related to alcohol use and driving.

Marijuana

Drivers who participated in the questionnaire portion of the roadside survey were asked specific items related to medical marijuana. As indicated by Table 10, almost 4 % of the drivers reported to have a medical marijuana permit.

Table 10. "Do you currently have a medical marijuana permit which allows you to purchase and use marijuana for pain relief?"

	N	%
Yes	48	3.7%
No	1,258	96.3%
Total	1,306	100.0%

Among those drivers who reported having a medical marijuana permit, almost 66% reported to actually having used the permit to purchase marijuana (Table 11).

Table 11. "If Yes, have you used your permit to purchase marijuana?"

	N	%
Yes	27	65.8%
No	14	34.1%
Total	41	100.0%

All drivers who completed the questionnaire were asked whether they had ever used marijuana. As indicated in Table 12, 40% reported they had used marijuana at least once.

Table 12. "Have you ever, even once, used marijuana or hashish?"

	N	%
Yes	519	40.0%
No	778	60.0%
Total	1,297	100.0%

Among drivers who reported that they had used marijuana at least once (n = 519), only 362 drivers reported the age at which they first used marijuana. Of these, most (53%) reported having initiated use between the ages of 14 and 17 years (Table 13).

Table 13. "If Yes, how old were you the first time you used marijuana or hashish?"

Age of First Use		Driver's Age				
		0-21	21-34	35-49	50+	Total
<13	N	3	10	3	2	18
	%	5.5%	5.5%	4.4%	3.5%	5.0%
	CI	[1.1, 23.4]	[2.8, 10.7]	[1.0, 17.4]	[1.2, 10.0]	[3.3, 7.4]
14-17	N	38	98	35	21	192
	%	69.1%	54.1%	50.7%	36.8%	53.0%
	CI	[54.0, 81.0]	[47.2, 61.0]	[34.1, 67.2]	[21.4, 55.6]	[46.9, 59.1]
18-20	N	14	47	19	19	99
	%	25.5%	26.0%	27.5%	33.3%	27.4%
	CI	[10.1, 49.0]	[20.8, 31.9]	[13.0, 49.2]	[18.8, 51.9]	[20.5, 35.4]
21-24	N	0	22	5	6	33
	%		12.2%	7.3%	10.5%	9.1%
	CI		[8.1, 17.8]	[2.2, 21.2]	[4.9, 21.2]	[6.0, 13.6]
25+	N	0	4	7	9	20
	%		2.2%	10.1%	15.8%	5.5%
	CI		[0.7, 7.0]	[4.8, 20.3]	[6.9, 32.1]	[3.9, 7.8]
All		55	181	69	57	362

Among drivers who completed the questionnaire and responded that they had used marijuana at least once (n = 519), 470 drivers responded to the question regarding how long it had been since they last used marijuana. Of these, more than half reported they had not used marijuana in over a year (Table 14). Almost 28% reported they had used marijuana within the past 30 days.

Table 14. "How long has it been since you last used marijuana or hashish?"

Timeframe	N	%
Within Past 30 Days	130	27.7%
More than 30 Days/ within a Year	85	18.1%
More than a Year	255	54.3%
Total	470	100.0%

Among drivers who responded they had used marijuana at least once, almost 63% reported using marijuana once per day, and 12% reported using marijuana more than three times a day (Table 15).

Table 15. "If daily, on average how many times a day do you use it?"

Timeframe	N	%
Once per Day	52	62.6%
2-3 Times per Day	21	25.3%
More than 3 Times per Day	10	12.0%
Total	83	100.0%

The roadside questionnaire also included questions about marijuana use and driving. This question was asked of drivers who indicated that they had used marijuana at least once. As indicated in Table 16, among those drivers asked the question, "In the past year have you used marijuana within two hours before driving?" approximately 14% reported that they had used the drug within two hours of driving.

Table 16. "In the past year, have you used any marijuana within two hours before driving?"

	N	%
Yes	67	14.3%
No	402	85.7%
Total	469	100.0%

Further, among those drivers who reported to have used marijuana at least once, 246 drivers answered the question, "When you used marijuana and drove, did you notice if it (marijuana) had any effect on your driving?" Of those who responded, about 22% reported marijuana has had an effect on their driving (Table 17).

Table 17. "When you used marijuana and drove, did you notice if it (marijuana) had any effect on your driving?"

	N	%
Yes	55	22.4%
No	191	77.6%
Total	246	100.0%

Of those drivers who reported that they felt that marijuana had an effect on their driving (n = 55), the majority (almost 52%) reported that they felt the drug made their driving "worse." However, interestingly, almost 31% reported that the drug made their driving "better" (Table 18). A number of other studies (e.g., Danton et al., 2003; McCarthy et al., 2007; Terry & White, 2004) have reported that cannabis users do not report perceptions that cannabis use impairs driving, even among those who acknowledge the risks associated with alcohol-involved driving.

Table 18. "If Yes (did feel an effect), did marijuana make your driving better or worse?"

	N	%
Better	16	30.8%
Worse	27	51.9%
No Difference	9	17.3%
Total	52	100.0%

In addition to asking eligible drivers about marijuana use, the roadside questionnaire also included items on medication use. Specifically, we asked drivers if they had taken any medications or drugs on the day of the survey that might affect their driving. As indicated in Table 19, approximately 2% of the population (n = 28) reported they had taken a medication that might have affected their driving that day.

Table 19. "Have you taken any medications or drugs TODAY that you think may affect your driving?"

	N	%
Yes	28	2.2%
No	1,267	97.8%
Total	1,295	100.0%

Participants were also asked if they had ever not driven because they had taken a medication or drug. Interestingly, 35% reported "yes" to this item (Table 20).

Table 20. "Have you ever NOT driven because you were on a medication/drug?"

	N	%
Yes	450	35.0%
No	836	65.0%
Total	1,286	100.0%

Laboratory Analysis Results

In this section we first present the estimated prevalence for all of the drugs tested for in this study (see Table 1).These are examined either for drugs consumed alone or in conjunction with others (i.e., multi-drug users). Next, we present drug prevalence in conjunction with alcohol (collected from breath samples).

Drug Prevalence

As indicated in Table 21, among the drivers who provided an oral fluid sample, a total of 184 were positive for drugs (14% of the total sample of drivers).

Table 21. Total Drivers with Positive Oral Fluid Result

	N	%
Positive	184	14.0%
Negative	1,130	86.0%
Total	1,314	100.0%

Among those who tested positive, 122 drivers (66.3%) were single-drug users, 37 drivers (20.1%) tested positive for two drugs; 14 drivers (7.6%) tested positive for three drugs; eight drivers (4.3%) tested positive for four drugs, two drivers (1.1%) tested positive for five drugs, and one driver (0.5%) tested positive for six drugs (see Table 22).

Table 22. Distribution of Drug-Positive Drivers by Number of Drugs Present (Excluding Alcohol)

# Drugs	N	%
1	122	66.3%
2	37	20.1%
3	14	7.6%
4	8	4.3%
5	2	1.1%
6	1	0.5%
Total	184	100.0%

We divided the drug positive findings into three categories to better enable interpretation of the results. The three categories were marijuana (the most prevalent drug), illegal drugs, and medications (prescription and over-the-counter drugs combined). Since several drivers tested positive for more than one drug, we had to create some combination categories, such as in the case where an individual tested positive for both a medication and an illegal drug, or marijuana and a medication, etc. Table 23 displays these results. The first line presents the summary result that 14.0% of drivers tested positive for one or more drugs. The subsequent lines present the results by category as described as mutually exclusive values. Thus, if one wishes to know the total percentage of drivers testing positive for illegal drugs, whether alone or in combination with other categories, one must sum the values for Illegal (2.7%), Illegal & Medication (0.5%), Marijuana & Illegal (1.1%), and Marijuana, Illegal & Medication (0.3%), for a total of 4.6% of drivers testing positive for illegal drugs, alone or in combination with other drugs. Marijuana is the most frequently encountered category both alone and in combination with other drugs. Among marijuana users, 26.5% (26 of 98) also used another drug.

Table 23. Drug Prevalence by Detailed Category

Drug Category	N	% (of Total)
Drug Positive	184	14.0%
Illegal	36	2.7%
Illegal & Medication	6	0.5%
Medication	44	3.3%
Marijuana	72	5.5%
Marijuana & Illegal	15	1.1%
Marijuana & Medication	7	0.5%
Marijuana, Illegal, & Medication	4	0.3%
Drug Negative	1,130	86.0%
Total	1,314	100.0%

We also tested for eight compounds of synthetic marijuana, or "Spice" (K2). These were JWH-018, JWH-073, JWH-200, JWH-250, AM2201, HU-210, CP47497, and CP47497 C8. Five oral fluid samples tested positive for AM2201. None of the other compounds were detected. Of the five positives, three appeared alone, one was found in conjunction with THC and methamphetamine, and one other was found in conjunction with alcohol.

Table 24 shows the prevalence rates by category with the sub-categories above collapsed. Thus, an individual may appear in more than one category if they tested positive in more than one category. Again, marijuana is the most prevalent category with 7.4% and with Medication and Illegal both at 4.6%. To reiterate, the cell values in this table are not additive because individuals who are multi-drug users may appear in more than one category.

Table 24. Drug Prevalence by Category Overall

Drug Category	N	% (of Total)
Illegal	61	4.6%
Medication	61	4.6%
Marijuana	98	7.4%
Drug Negative	1,130	
Total Number of Drivers Tested	1,314	

Table 25 presents the drug prevalence by drug class as described in the labels in the table. Again, marijuana is the highest prevalence class, followed by stimulants and by drivers who tested positive for drugs in more than one class.

Table 25. Drug Prevalence by Drug Class

Drug Class	N	%
Antidepressants	3	0.2%
Marijuana	72	5.5%
Narcotics	14	1.1%
Sedatives	9	0.7%
Stimulants	42	3.2%
Other	4	0.3%
More than one class	40	3.0%
Negative	1,130	86.0%
All	1,314	100.0%

Drugs and Alcohol

This section presents alcohol prevalence as well as drug prevalence in conjunction with alcohol (collected from breath samples). To simplify the report, we do not present tables for all individual drugs; rather, we present tables for drivers with any drug positive, separated as marijuana users and consumers of any drugs other than marijuana; and by single- versus multi-drug users.

Table 26 shows the distribution of blood alcohol content (BACs) among the drivers in the sample that provided a breath sample. The vast majority of the drivers (about 93%) were negative for alcohol. About 1% of the drivers were at a BAC = .08 or higher.

Table 26. BAC Distribution

BAC	N	%
BAC = .00	1,326	92.6%
.00 < BAC < .05	66	4.6%
.05 ≤ BAC < .08	25	1.7%
BAC ≥ .08	15	1.0%
Total	1,432	100.0%

As shown in Table 27, most of the drivers who participated (86%) were drug negative (1,111 out of 1,294). Further, about 81% of the drivers who provided both breath and oral fluid samples were both alcohol and drug negative (1,048 out of 1,294). Of those testing positive for alcohol, 23% (19 of 82) also tested positive for at least one other drug. Interestingly, the drug-positive drivers are more likely to have a positive BAC (19 of 183, 10%) than drug negative drivers (63 of 1,111, 6%). However, for marijuana users, there was no driver with a BAC ≥ .08 g/dl.

Table 27. Drug Use by BAC

			BAC				
			BAC = .00	.00 < BAC < .05	.05 ≤ BAC < .08	BAC ≥ .08	Total
Drug Positive	Marijuana	N	85	4	9	0	98
		%	7.0%	23.5%	17.0%		7.6%
		CI	[5.3, 9.2]	[10.8, 43.8]	[7.4, 34.2]		[5.7, 10.0]
	Other Drugs	N	79	1	1	4	85
		%	6.5%	5.9%	1.9%	33.3%	6.6%
		CI	[4.4, 9.6]	[0.1, 32.8]	[0, 17.6]	[8.3, 73.4]	[4.5, 9.5]
Drug Negative		N	1,048	12	43	8	1,111
		%	86.5%	70.6%	81.1%	66.7%	85.9%
		CI	[83.8, 88.8]	[50.3, 85.1]	[63.6, 91.4]	[26.6, 91.7]	[83.5, 87.9]
All			1,212	17	53	12	1,294

Discussion

This OTS-sponsored first statewide survey on alcohol and drug use of the California nighttime weekend driving indicated an overall drug prevalence rate of 14.0% and an alcohol prevalence rate of 7.3%. Among the drugs tested for, marijuana had the highest prevalence rate at 7.4%. The prevalence rate for illegal drugs was 4.6% as was that of medications (prescription and over-the-counter drugs). Two point seven percent of drivers had breath alcohol levels at or

above > .05, a level generally considered to be impairing and 1.0% at or above .08, the illegal limit in California and the United States. In terms of drug impairment, we tested for drugs that experts believe are potentially impairing. However, the current science does not provide enough information to address what proportion of the drug positive drivers may have had their driving impaired. That knowledge will be building as more studies of specific drugs' contribution to crash involvement develops. Thus, this prevalence study speaks to the 14.0% prevalence of drug-involved driving in the nighttime weekend driving population. In the future, if other surveys of this magnitude are conducted, more insight can be brought to this topic in terms of prevalence rate changes over time and the effects that any potential policy changes may have.

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Project Team

Credits

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The resulting project was a collaborative effort between the California OTS, the University of California/Berkeley SafeTREC, and the Pacific Institute for Research and Evaluation (PIRE).

Disclaimer

The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the State of California Business Transportation and Housing Agency or the National Highway Traffic Safety Administration.

Grant Personnel

John H. Lacey served as the Principal Investigator for this project. As such, he was responsible for overall oversight of the research, including finalizing the research protocol. He was also responsible for guiding the statistical analysis.

Dr. Tara Kelley-Baker served as Co-Principal Investigator on this project, assisting Mr. Lacey with all aspects of project's direction, including generation of manuscripts.

Dr. Eduardo Romano served as the statistician on this project; he was responsible for the primary data analyses on this project.

Katharine Brainard served as Project Manager. She was responsible for the day-to-day management of project tasks and staff.

Anthony Ramirez and Beth Lauer served as Field Supervisors and were responsible for the overall training of staff and managing the day-to-day data collection operations of staff in the field for data collection events.

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Appendix A. Surveys

D.C. _____   PBT # ___ ___ ___ ___   SITE __ / SESSION __ / CASE __ __
DATE: ___ / ___ / 2012   PAS # ___ ___ ___ ___   TIME: ___ ___ : ___ ___ AM PM

HOOK Greet driver with eye contact and smile—**AND get them to talk to you**… **TAKE PAS**

CONSENT *"You have not committed any violation. You have been randomly selected to participate in a voluntary and anonymous driver survey. The survey takes about 10 minutes and you will earn $20 for completing other parts of the survey. The survey includes questions on alcohol and drug use and an anonymous sample of your breath. Our breath test devices don't display the result, so there is no risk to you. You may skip any question or leave at any time. **May I begin?"***

AGE Qualifier: If subject looks younger than 25 yrs old, ask *"Are you at least 16 yrs of age"*
☐ Yes   ☐ No *(Thanks, but you have to be at least 16 to participate).* ☐ **Didn't need to ask**

OBSERVATIONS on Participants and Refusers: Amer. Indian

| **AGE**: ☐16-20, ☐ 21-34, ☐ 35+ | **GENDER**: ☐ Male ☐ Female | ☐ Unknown |
| **HISP/LATINO** (Ethnicity) **:** ☐ Yes ☐ No | **RACE:** ☐ W, ☐ B, ☐ A, ☐ PI, ☐ AI, ☐ Multi, ☐ UNK | |

Did you hear about this survey before being waved in? (Prior Knowledge)
☐ No   ☐ Yes… How did you hear about this survey?....... ☐ Sought it out   ☐ Did not seek it out

NOT ELIGIBLE: ☐ Commercial ☐ Age ☐ Language ☐ Prior Knowledge ☐ Too Intoxicated
☐ Other _____

☐ **AGREED**: *"Great, thank you for helping us out, I'll begin by asking some questions…"*

> ☐ *Refusal*: **If you don't want to do the survey, would you mind giving us a quick, anonymous sample of your breath? Our device does not display any readings and there is no risk to you.**
>
> *PBT Refused*: ☐ *Give PINK sheet / Read Warning*   ☐ *MANUAL SAMPLE*
>
> *PBT Provided*: **Sample ___-___-___-___ Time _____** ☐ *Give PINK sheet & Read*

California Roadside Survey Questions

1. The average driver drives about 15,000 miles a year. Would you say you drive?
☐ More than average   ☐ Average   ☐ Less than Average   ☐ Did not answer

★ **Record PAS Reading**   ☐ **Positive**   ☐ **Negative**   ☐ **Not Collected**

G1 ☐, **G**2 ☐,   **Y**1 ☐, **Y**2 ☐,   [**Y**3 ☐, **Y**4 ☐, **R**1 ☐, **R**2 ☐, **R**3 ☐ call supervisor]

★★ **ASSESS INTOXICATION LEVEL**
☐ **LEVEL 1** = No Signs of alcohol or drug use
☐ **LEVEL 2** = Signs of use but no intoxication
☐ **LEVEL 3** = Signs of use & INTOXICATION (Signal Supervisor, **"I need some dollars over here!"**)
☐ **IDP (engaged impaired driver protocol)**

2. Who is the owner of this vehicle?
☐ Self   ☐ Family member   ☐ Friend   ☐ Employer   ☐ Other, specify: _____

3. Now I have a question about your use of alcohol:

a. In the past year, how often have you had a drink containing alcohol?
☐ Never *(skip to Q7)*   ☐ 2 – 3 times a week
☐ Monthly or less   ☐ 4 or more times a week
☐ 2-4 times a month   ☐ Did not answer

b. Do you ever drink alcohol beverages such as beer, wine, or liquor or are you a total abstainer?
☐ Yes   ☐ No, total abstainer *(Skip to Q7)*   ☐ Did not answer

4. In general would you describe yourself as:
☐ A very light drinker   ☐ A fairly light drinker   ☐ A moderate drinker
☐ A fairly heavy drinker   ☐ A very heavy drinker   ☐ Refused to answer

5. About how many alcoholic beverages do you consume in an average week?
☐ 0   ☐ 1 – 2   ☐ 3 – 4   ☐ 5 – 7   ☐ 8 – 14   ☐ More than 14   ☐ Refused to answer

6. In the past 12 months, did you ever drive after drinking enough that you might be considered to be legally under the influence of alcohol?
☐ Yes …How many times did that happen would you say? _____ ("99" if refused to answer)   ☐ No

Now I have a few background questions

7. What is your age? _____ **yrs** *("00" if refused)* / **8. What is your zip code?** _____ *("00000" if refused)*

9. How far have you gone in school?

None – 8th grade	Some college – no degree	Master's degree	Trade School Certificate
9th – 11th grade	Associate's degree	Professional degree	Did not answer
High School Grad	Bachelor's degree	Doctorate Degree	

10. Are you currently...
- ☐ Employed → ☐ Full time, ☐ Part time, ☐ Did not answer
- ☐ Unemployed → How long have you been unemployed _____ Months _____ Years ☐ Did not answer
- ☐ Retired ☐ On disability ☐ Homemaker ☐ Other _____, ☐ Did not answer

11. Are you Hispanic or Latino? ☐ No ☐ Yes ☐ Don't know ☐ Did not answer

12. To which racial group would you say you belong?
- ☐ White ☐ Black or African American ☐ Asian ☐ American Indian or Native Alaskan
- ☐ Native Hawaiian or Pacific Islander ☐ Other ☐ Did not answer

13. Please estimate your household income
- ☐ $0 - $25,000 ☐ $25,000 - $50,000 ☐ $50,000 - $75,000 ☐ $75,000 - $100,000
- ☐ $100,000 or more ☐ Did not answer

Breath Sample (PBT) ☐ **Refused / not provided** ☐ **Failed to capture** ☐ **Manual Sample**

"Now I'd like to get an anonymous sample of your breath. Our device does not display any readings and there is no risk to you (show PBT to driver). This will take just a couple of seconds. Take a deep breath in and blow it out long and steady (like blowing up a balloon) until I tell you to stop."

<u>*PBT Provided*</u>: **Sample** ___-___-___-___ **Time** ___ ___:___ ___ (show driver PBT- no display)

Oral Fluid Sample and Booklet ☐ **Refused oral fluid test/ not provided** ☐ **Failed to capture**

"We are now asking you to PARTICIPATE in two anonymous research activities. This may take a few minutes. It involves collecting a sample of your saliva for <u>later</u> analysis in a lab AND filling out a questionnaire about California laws and your use of substances, both prescription and non-prescription. As before, this is voluntary and anonymous and you may stop participating at any time."

	ADMINISTERED ORAL FLUID	**X'd out pages 4 & 5 if "Never" to Q3a.**
	HAND BOOKLET and pen	**COC label on Booklet and Swab**
	Gave Consent Sheet (WHITE)	**Read Warning**
	Gave Incentive	**Swab didn't turn blue**

Seatbelt use:	Driver	Passenger	
	☐	☐	Lap & shoulder belts (helmet if motorcyclist)
	☐	☐	Shoulder belt only
	☐	☐	Lap belt only
	☐	☐	No use / no belt
	☐	☐	Unknown
		☐	Not applicable (No Passengers)

Number of Passengers (excluding driver): ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6+

Passengers under age 15 present: ☐ Yes ☐ No ☐ Unknown

Type of vehicle: ☐ Car ☐ SUV ☐ Minivan ☐ Pickup ☐ Other ☐ Motorcycle ☐ Unknown

Place COC Label Here

END TIME: ___ ___: ___ ___AM / PM

Put **COC** *Label Here*

ID: _ _ /_ _ /_ / _ _

California Driver Survey

The following questions ask about marijuana, driving, and laws regarding marijuana. All answers are anonymous and confidential. This survey is for research purposes only. You may skip any question and stop participating at any time.

1. Do you currently have a medical marijuana permit which allows you to purchase and use marijuana for pain relief?

   ☐ Yes ☐ No ☐ Refuse to answer
   If Yes, what year did you receive your
       permit?_____ ☐ Refuse to answer
   If Yes, have you used your permit to purchase
       marijuana?
   ☐ Yes ☐ No ☐ Refuse to answer

2. Have you ever, even once, used marijuana or hashish?
   ☐ Yes ☐ No ☐ Refuse to answer
If Yes, how old were you the first time you used
     marijuana or hashish?
     _____ Age ☐ Refuse to answer

3. How long has it been since you last used marijuana or hashish?
   ☐ Within the past 30 days
   ☐ More than 30 days, but within the past 12 months
   ☐ More than 12 months
   ☐ No use **(Skip to Q7)**
   ☐ Refuse to answer

4. If daily, on average how many times a day do you use it? (select one)
   ☐ Once per day
   ☐ 2-3 times per day
   ☐ More than 3 times per day
   ☐ No use
   ☐ Refuse to answer

5. In the past year, have you used any marijuana within two hours before driving?
   ☐ Yes ☐ No ☐ No use ☐ Refuse to answer

6. When you used marijuana and drove, did you notice if it (marijuana) had any effect on your driving?
   ☐ Yes ☐ No ☐ No Use ☐ Refuse to answer
If Yes, did marijuana make your driving: (select one)
   ☐ Better ☐ Worse ☐ No difference
   ☐ Refuse to answer

7. Have you taken any medications or drugs **TODAY** that you think may affect your driving?
   ☐ Yes ☐ No ☐ Refuse to answer

8. Have you ever **NOT** driven because you were on a medication/drug?
   ☐ Yes ☐ No ☐ Refuse to answer

9. How likely do you think it is that alcohol impairs a person's ability to drive safely?
   ☐ Very likely
   ☐ Likely
   ☐ Somewhat likely
   ☐ Not at all likely
   ☐ Refuse to answer

10. How likely do you think it is that a person drinking and driving could be arrested for impaired driving?
   ☐ Very likely
   ☐ Likely
   ☐ Somewhat likely
   ☐ Not at all likely
   ☐ Refuse to answer

11. When you drink, how likely will it be somewhere other than your home?
   ☐ Very likely
   ☐ Likely
   ☐ Somewhat likely
   ☐ Not at all likely
   ☐ Refuse to answer

Drug Questionnaire			ID: _ _ /_ _ /_ / _ _ _			
The following questions ask about your use of medications and/or drugs and driving. This is for research purposes only. All your responses are **completely anonymous**. The following is a list of medications/drugs people may use. Please indicate the last time you used that particular medication/drug and answer the lettered questions across.						
	Past 24 Hours	**Past 2 Days**	**Past Month**	**Over a Month**	**Never**	**Refuse to Answer**
Cough medicines (e.g., Robitussin, Vicks 44, etc.)	☐	☐	☐	☐	☐	☐
Other over the counter medicines	☐	☐	☐	☐	☐	☐
Tobacco (e.g., cigarettes, cigars)	☐	☐	☐	☐	☐	☐
Prescription pain killers (e.g., Percocet, Oxycontin, Oxycodone, Demerol, Darvon)	☐	☐	☐	☐	☐	☐
Ambien or other sleep aids	☐	☐	☐	☐	☐	☐
Muscle relaxants (e.g., Soma, Miltown)	☐	☐	☐	☐	☐	☐
Prescription dietary supplements (e.g., Phentermine)	☐	☐	☐	☐	☐	☐
ADHD medications (e.g., Ritalin, Aderall, Concerta)	☐	☐	☐	☐	☐	☐
Antidepressants (e.g., Prozac, Zoloft)	☐	☐	☐	☐	☐	☐
Marijuana (e.g., pot, hash, weed)	☐	☐	☐	☐	☐	☐
Cocaine (e.g., crack or coke)	☐	☐	☐	☐	☐	☐
Heroin	☐	☐	☐	☐	☐	☐
Methadone	☐	☐	☐	☐	☐	☐
LSD (acid)	☐	☐	☐	☐	☐	☐
Morphine or Codeine (e.g., Tylenol with Codeine)	☐	☐	☐	☐	☐	☐
Ecstasy (e.g., "E", Extc, MDMA, "X")	☐	☐	☐	☐	☐	☐
Amphetamine or Methamphetamine (e.g., speed, crank, crystal meth)	☐	☐	☐	☐	☐	☐
GHB (e.g., Liquid Ecstasy, Liquid G)	☐	☐	☐	☐	☐	☐
PCP (e.g., Angel dust)	☐	☐	☐	☐	☐	☐
Rohypnol (Ruffies)	☐	☐	☐	☐	☐	☐
Ketamine (Special K)	☐	☐	☐	☐	☐	☐
Benzodiazepines (e.g., Valium or tranquilizers)	☐	☐	☐	☐	☐	☐
Barbiturates (e.g., Phenobarbital)	☐	☐	☐	☐	☐	☐

ID: _ _ / _ _ / _ / _ _ _

Here is a list of questions concerning information about your potential involvement with drugs, excluding alcohol and tobacco, during the past 12 months. When the words "drug abuse" are used, they mean the use of **prescribed or over-the-counter medications/drugs in excess of the directions and any non-medical use of drugs.** The various classes of drugs may include: cannabis (e.g., marijuana or hashish), solvents, tranquilizers (e.g., Valium), barbiturates, cocaine, stimulants (e.g., speed), hallucinogens (e.g., LSD) or narcotics (e.g., heroin). Remember that the questions do not include alcohol or tobacco. If you have difficulty with a statement, then choose the response that is mostly right. You may choose to answer or not answer any of the questions in this section. **These questions refer to the past 12 months.**

In the past 12 months . . .	Yes	No	Refuse to Answer
In the last 12 months, have you used drugs other than those required for medical reasons?			
Do you abuse more than one drug at a time?			
Are you always able to stop using drugs when you want to? (If never use drugs, answer "Yes")			
Have you had "blackouts" or "flashbacks" as a result of drug use?			
Do you ever feel bad or guilty about your drug use? (If never use drugs, choose "No")			
Does your spouse (or parents) ever complain about your involvement with drugs?			
Have you neglected your family because of your use of drugs?			
Have you engaged in illegal activities in order to obtain drugs?			
Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?			
Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, convulsions, bleeding, etc.)?			

ID: _ _ / _ _ / _ / _ _ _

The following questions ask about your experiences with alcohol:

In the past year, how many drinks containing alcohol did you have on a typical day when you were drinking?
☐ 1-2 ☐ 3-4   ☐ 5-6   ☐ 7-9   ☐ 10 or more
☐ Refuse to answer

In the past year, how often did you have six (five for a woman) or more drinks on one occasion?
☐ Never
☐ Less than monthly
☐ Monthly
☐ Weekly
☐ Daily/almost daily
☐ Refuse to answer

Did your drinking often interfere with taking care of your home or family or cause you problems at work or school?
☐ Yes   ☐ No   ☐ Refuse to answer

Did you more than once get into a situation while drinking or after drinking that increased your chances of getting hurt—like driving a car or other vehicle or using heavy machinery after having had too much to drink?
☐ Yes ☐ No   ☐ Refuse to answer

Did you get arrested, held at a police station or have legal problems because of your drinking?
☐ Yes   ☐ No   ☐ Refuse to answer

Did you continue to drink even though it was causing you trouble with your family or friends?
☐ Yes   ☐ No   ☐ Refuse to answer

Have you found that you have to drink more than you once did to get the effect you want?
☐ Yes   ☐ No   ☐ Refuse to answer

Did you find that your usual number of drinks had less effect on you than it once did?
☐ Yes   ☐ No   ☐ Refuse to answer

Did you more than once want to try to stop or cut down on your drinking, but you couldn't do it?
☐ Yes   ☐ No   ☐ Refuse to answer

Did you end up drinking more or drinking for a longer period than you intended?
☐ Yes   ☐ No   ☐ Refuse to answer

Did you give up or cut down on activities that were important to you or gave you pleasure in order to drink?
☐ Yes   ☐ No   ☐ Refuse to answer

When the effects of alcohol were wearing off, did you experience some of the bad after effects of drinking – like trouble sleeping, feeling nervous, restless, anxious, sweating or shaking, or did you have seizures or sense things that weren't really there?
☐ Yes   ☐ No   ☐ Refuse to answer

Did you spend a lot of time drinking or getting over the bad after effects of drinking?
☐ Yes   ☐ No   ☐ Refuse to answer

Did you continue to drink even though it was causing you to feel depressed or anxious or causing a health problem or making one worse?
☐ Yes   ☐ No   ☐ Refuse to answer

During the past 12 months (one year), how often did you:
A.   have any kind of high energy (caffeinated) drink like *Red Bull*, not containing alcohol?
☐ Every day
☐ More than once a week
☐ Once a week
☐ Once a month
☐ Less than once a month
☐ Never in the last year
☐ Never in my life
☐ Refuse to answer

B.   have a high energy drink with alcohol?
   (e.g., *Red Bull* + Vodka, or a pre-mixed drink)
☐ Every day
☐ More than once a week
☐ Once a week
☐ Once a month
☐ Less than once a month
☐ Never in the last year
☐ Never in my life
☐ Refuse to answer

ID: _ _ / _ _ / _ / _ _ _

The following questions ask about the last time you drank alcohol other than in your home. Think about the last time you drank alcohol. **Please DO NOT include tonight.**

1. Approximately how many drinks did you have? _____   ☐ Refuse to Answer

2. How long did you wait to travel back home after finishing your last alcoholic drink?
   ☐ less than 2 hours
   ☐ 2 hours or more
   ☐ Refuse to Answer

3. Which of following was the main way you traveled back home (**check one**)?
   ☐ Drove myself
   ☐ Caught a ride
   ☐ Took a taxi
   ☐ Took a bus or train
   ☐ Walked or biked
   ☐ Did not go home (stayed at a friend's or hotel)
   ☐ Refuse to Answer

4. Which of following options were available to you for your travel back home (**check all that apply**)?
   ☐ Driving myself
   ☐ Catching a ride with someone
   ☐ Taking a taxi
   ☐ Taking a bus or train
   ☐ Walking or biking
   ☐ Not going home (staying at a friend's or hotel)
   ☐ Refuse to answer

5. For the last time you drank alcohol, please answer the lettered questions (A-D) **for each travel option available (leave blank if not applicable)**.

Travel Option	A	B	C	D
	This option was convenient	This option was inexpensive	This option was safe	This option was fast
Driving myself	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer
Catching a ride with someone	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer
Taking a taxi	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer
Taking a bus or train	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer
Walking or biking	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer
Not going home (staying at a friend's or hotel)	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer	☐ Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐ Refuse to answer