17th St. & Constitution Avenue N.W.
Washington, D.C. 20006
United States of America
Organization of American States
P. 202.458.3000
www.oas.org

INTER-AMERICAN DRUG ABUSE
CONTROL COMMISSION
CICAD

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THE PREVALENCE OF ALCOHOL AND DRUG USE BY DRIVERS IN THE U.S.
BY MARIA E. VEGEGA
OFFICE OF BEHAVIORAL SAFETY RESEARCH
NHTSA

The Prevalence of Alcohol and Drug Use by Drivers in the US

Maria E. Vegega
Office of Behavioral Safety Research

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Background

Alcohol-Impaired Driving

- Documented Crash Problem
- Over 13,000 A/R Fatalities each year
- 1.5 million arrests for alcohol-impaired driving

Drug-Impaired Driving

- Nature and Scope Unknown
- Many drugs have potential to impair driving

Nature and Scope of Drug-Impaired Driving

What do we need to know to understand the nature and scope of the drugged driving problem?

- What drugs impair driving related skills?
- What drugs are used by drivers?
- What drugs increase risk of crash involvement?
- What drugs most frequently contribute to crashes?
- What dosage levels are associated with increased risk?

Current Situation Regarding Drug Impaired Driving Enforcement

- Drugged driving enforcement operates on the "not alcohol" approach
- As a rule – tests for drugs other than alcohol in fatal and serious injury crashes often not conducted
- Drugs often used in combination with alcohol
- Tests for prescription and O-T-C medicines not readily available to law enforcement

NHTSA Epidemiological Research: Role of Alcohol & Drugs in Driving

2007 National Roadside Survey

- Survey of drivers for alcohol and drug use
- Estimate the prevalence of alcohol and other drug use by drivers

2010 Crash Risk of Alcohol- and Drug-Impaired Driving

- Case-control study of alcohol & drug use by crash-involved drivers
- Estimate risk of crash involvement due to alcohol and drug use

2007 National Roadside Survey of Alcohol and Drug Use

Program Manager: Amy Berning

Conducted by:
Pacific Institute for Research and Evaluation

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National Roadside Survey

In a **nationally-representative sample** of drivers in the United States:

- Determine the incidence of drivers at various BACs (Survey methodology well developed)
- Determine the incidence of drugs (over-the-counter, prescription, illegal)
  - Blood is the "gold standard" but oral fluid analyses becoming more accurate and comprehensive

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Background

- 3 previous National Roadside Surveys
  (conducted Friday and Saturday evenings)
  - 1973 (NHTSA)
  - 1986 (IIHS)
  - 1996 (NHTSA-IIHS)
- Decreasing trend in alcohol-positive drivers
  - 1973 – 36%
  - 1986 – 26%
  - 1996 – 17%

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Methodology

- 300 sites: 60 locations & 5 sites/location
- 6 data collection times
- Motorists stopped and asked to participate
- Target: 7,500 drivers
- Excluded commercial vehicles

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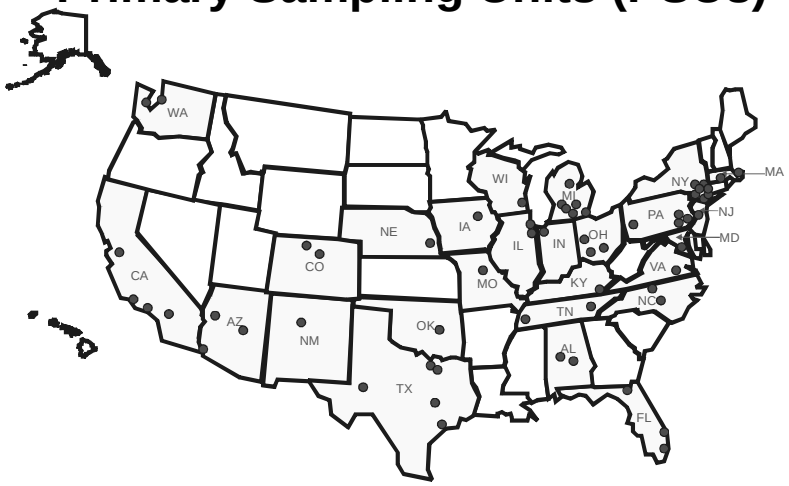
NASS-GES
Primary Sampling Units (PSUs)



National Automotive Sampling System - General Estimates System (NASS-GES)

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Data Collection Days & Times

- Weekends
  - Friday night 10:00 pm – 12:00 am
  - Saturday 1:00 am – 3:00 am
  - Saturday 10:00 pm – 12:00 am
  - Sunday 1:00 am – 3:00 am
- Weekday
  - Friday 9:30 am – 11:30 am
  - Friday 1:30 pm – 3:30 pm

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Subjects

- Randomly stop motorists on road
- Solicit participation
  - Voluntary, Anonymous
- Target: 7,500 drivers
  - 100 nighttime drivers per location (6,000)
  - 25 daytime drivers per location (1,500)
- Over-sample of motorcycles
- Exclude commercial vehicles

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Survey Procedure

- Police direct drivers to survey site
- Passive alcohol reading
- Roadside survey questions
- Breath test
- Alcohol Use Disorder (AUD) questions [$5]
- Drug use questions
- Oral fluid collection (Quantisal) [$10]
- Blood sample collection [$50]

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Major Substances Tested for in Blood and Oral Fluid

CLASS DRUG	DRUG	COMMENTS
Amphetamines	Amphetamine (AMP)	Amphetamine is a metabolite of methamphetamine
	MDA	MDA is a metabolite of MDMA
	MDMA	
	Methamphetamine (METH)	
	Phentermine	
Barbiturates	Butalbital	
	Phenobarbital	
Benzodiazepines	Alprazolam (ALP)	Nordiazepam, oxazepam, temasepam are all metabolites of diazepam
	Chlordiazepoxide	
	Clonazepam	
	Diazepam	Nordiazepam and oxazepam are metabolites of clordiazeoxide
	Lorazepam	BUT, all can be prescribed as individual drugs
	Nordiazepam	
	Oxazepam	
	Temazepam	
Cannabinoids	THC	

Major Substances Tested for in Blood and Oral Fluid

Pain-killers	Tramadol	
	Meperidine	
	Propoxyphene	
Tricyclic antidepressants	Amitriptyline	
	Nortriptyline	Nortriptyline is a metabolite of amitriptyline
Cough suppressants	Dextromethorphan	
Street drugs	Ketamine	
	Norketamine	
	PCP	
Stimulants	Methylphenidate	
Sleep aids	Zolpidem	

Major Substances Tested for in Blood & Oral Fluid

Carisoprodol	Carisoprodol	
	Meprobamate	
Cocaine	Cocaine (COC)	Norcocaine and benzoylecgonine are metabolites of Cocaine
	Benzoylecgonine (BZE)	
	Cocaethylene (CE)	Cocaethylene is formed when cocaine and ethanol are present
	Norcocaine (NC)	
Anti-depressants	Fluoxetine	
	Sertraline	
Methadone	Methadone (MTD)	
Opiates	6-acetylcodeine (6-AC)	
	6-acetylmorphine (6-AM)	6-acetylmorphine (6-AM) is a metabolite of heroin
	Codeine (COD)	
	Morphine (MOR)	Morphine is a metabolite of both codeine and heroin
	Hydrocodone	
	Hydromorphone (HYM)	Hydromorphone (HYM) is a metabolite of hydrocodone
	Oxycodone (OXY, OXYC)	6-acetylcodeine (6-AC) is contaminant of street heroin

Participants

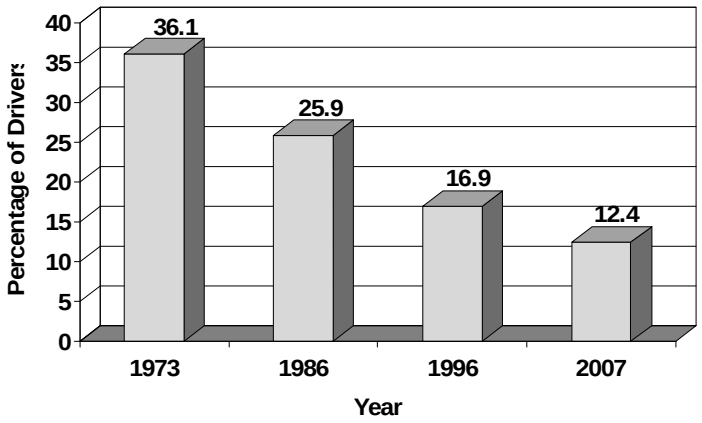
- Over 13,000 vehicles initially selected
- 10,909 eligible
- Ineligible:
  - Commercial vehicles
  - Drivers under age 16
  - Did not speak English or Spanish

Participation Rates

- 9,094 (83%) of eligible drivers participated in the interview
- 7,882 (72%) completed a drug and/or alcohol questionnaire
- 9,413 (86%) provided breath sample
  - 1,496 drivers refused or were unable to provide a breath sample, of those drivers
    - 1,296 (87%) were tested using a passive alcohol sensor and BACs were imputed
    - 200 (13%) no passive alcohol reading was available and no imputation made
- 7,719 (71%) of participants provided an oral fluid sample
- 3,276 (39%) of nighttime drivers provided a blood sample

Roadside Survey Results: Alcohol

Percentage Weekend Nighttime Drivers Positive for Alcohol



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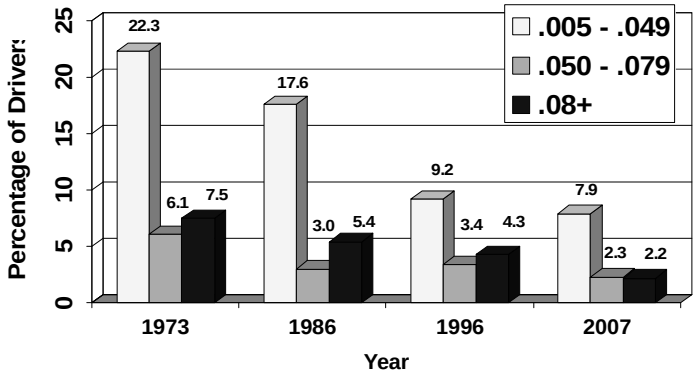
Weekend Nighttime Drivers in Various BAC Categories by Year



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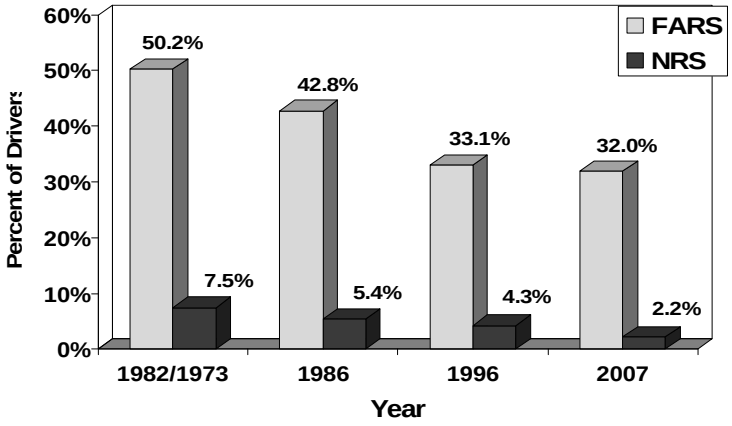
Percent of FARS and NRS Drivers with BAC ≥.08 g/dL



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Alcohol Prevalence by Time of Day

Time of Day	N (Unweighted)	% Alcohol Positive (Weighted)
Daytime	2,466	1.0%
Nighttime	8,189	12.4%

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Roadside Survey Results: Drugs

Drug Classes and Categories

Results were summarized by:

- **Drug Classes** (defined by potential drug effects):
  - Stimulants - Marijuana
  - Sedatives - Narcotic Analgesics
  - Antidepressants - Other
- **Drug Categories**:
  - Illegal
  - Prescription
  - Over-The-Counter

Drug Prevalence
(Oral Fluid and/or Blood)

Time of Day	N (Unweighted)	% Drug Positive (Weighted)
Nighttime	5,910	16.3%

Drug Categories
(Oral Fluid and/or Blood)

Drug Category	N (Unweighted)	% (Weighted)
Illegal	621	11.3%
Medications	277	3.9%
Illegal & Medications	78	1.1%
Negative	4,934	83.7%
Overall	5,910	100.0%

"Medications" includes prescription and over-the-counter drugs. In this table, percentages are weighted.

Drug Prevalence by Session
(Oral Fluid and/or Blood)

Session	N (Unweighted)	% Drug Positive (Weighted)
2: Friday, 10:00 p.m. – Midnight	1,618	15.4%
3: Friday, 1:00 a.m. – 3:00 a.m.	1,313	19.1%
4: Saturday, 10:00 p.m. – Midnight	1,695	15.2%
5: Saturday, 1:00 a.m. – 3:00 a.m.	1,284	18.3%
Overall	5,910	16.3%

Drug Prevalence by Age and Gender (Oral Fluid and/or Blood)

Gender	Age	N (Unweighted)	% Drug Positive (Weighted)
Males	16-20	605	22.1%
	21-34	1,502	21.1%
	35-44	634	19.4%
	45-64	741	10.0%
	65+	101	4.0%
	Overall Males	1,940	18.2%
Females	16-20	368	14.0%
	21-34	944	13.5%
	35-44	409	13.7%
	45-64	482	15.4%
	65+	47	4.2%
	Overall Females	2,250	13.8%

Drug Categories by Time of Day
(Oral Fluid)

Time of Day	Drug Category	N (Unweighted)	% (Weighted)
Daytime	Illegal	125	5.8
	Medications	107	4.8
	Illegal & Medications	14	0.5
	Negative	1,604	89.0
	Overall Daytime	1,850	100.0
Nighttime	Illegal	575	10.5
	Medications	201	3.0
	Illegal & Medications	60	0.9
	Negative	5,033	85.6
	Overall Nighttime	5,869	100.0

Drug Classes by Time of Day and Gender (Oral Fluid)

	Daytime			Nighttime		
Drug Class	Males %	Females %	Total %	Males %	Females %	Total %
	N=1,032	N=811	N=1,843	N=3,605	N=2,250	N=5,855
Antidepressants	0.1	0.9	0.5	0.3	0.1	0.2
Marijuana	5.9	1.7	4.0	7.4	4.1	6.1
Narcotic-Analgesics	1.0	2.5	1.7	1.8	1.3	1.6
Sedatives	1.2	2.2	1.6	0.4	1.0	0.6
Stimulants	1.8	1.4	1.6	3.3	3.1	3.2
Other	0.0	0.5	0.2	0.3	0.3	0.3
More than 1 Class	1.0	2.1	1.5	3.0	1.4	2.4
Overall Drug Positive Daytime	11.0	11.3	11.1	16.5	11.3	14.5
Negative	89.0	88.7	88.9	83.5	88.7	85.5

Drug Classes by Gender
(Oral Fluid and/or Blood)

Drug Class	Males %	Females %	Total %
	N=3,634	N=2,262	N=5,896
Antidepressants	0.7%	0.7%	0.7%
Marijuana	8.0%	5.0%	6.9%
Narcotic-Analgesics	1.7%	1.5%	1.6%
Sedatives	0.6%	1.2%	0.8%
Stimulants	3.1%	3.5%	3.3%
Other	0.3%	0.3%	0.3%
More than 1 Class	3.5%	1.7%	2.8%
Overall Drug Positive	18.0%	13.8%	16.4%
Negative	82.0%	86.2%	83.6%

In this table, percentages are weighted.

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Drug Categories by Gender
(Oral Fluid and/or Blood)

Gender	Drug Category	N (Unweighted)	% (Weighted)
Male	Illegal	444	13.1%
	Medications	136	3.5%
	Illegal & Medications	53	1.3%
	Negative	3,001	82.0%
	Overall	3,634	100.0%
Female	Illegal	176	8.0%
	Medications	141	6.6%
	Illegal & Medications	25	0.5%
	Negative	1,920	84.9%
	Overall	2,262	100.0%

"Medications" includes prescription and over-the-counter drugs. In this table, percentages are weighted.

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BAC by Drug Prevalence
(Oral Fluid and/or Blood)

		BAC (g/dL)		
Drug Result	N (Unweighted)	Zero	Between Zero and .08	.08+
Positive	976	79.5%	16.4%	4.1%
Negative	4,932	90.6%	7.7%	1.7%
Overall	5,908	88.8%	9.1%	2.1%

In this table, percentages are weighted.

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Special Study of Refusals

Do “drivers who refuse” differ?

- Initial refusals offered extra incentive to participate [$100]
- Of drivers who initially refused to participate 444 were selected for conversion (through persuasion and incentives)
  - 222 (50%) provided a breath sample
  - 156 (35%) also provided an oral fluid sample
  - 49 (11%) also provided a blood sample

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Comparison of Drug Positive Rates for Participants and Initial Refusals

- Oral Fluid Results

	Daytime	Nighttime
Participants	11.0%	14.4%
Converted	16.2%	17.0%

- Blood Results

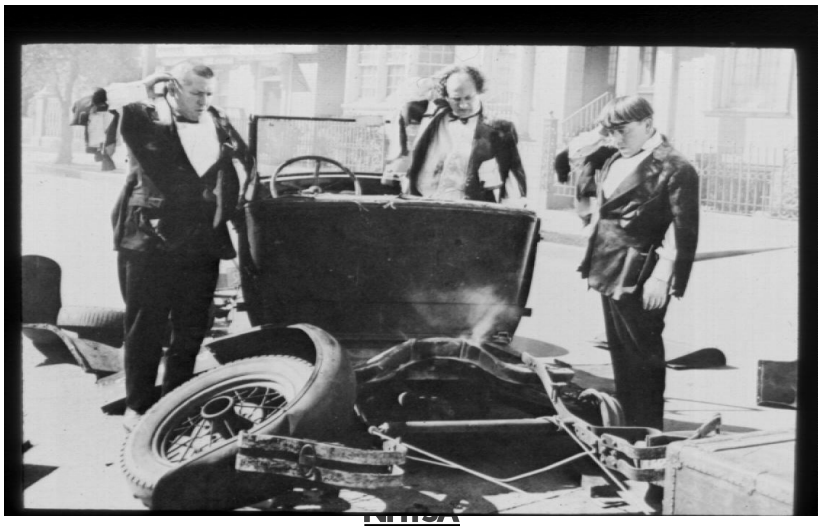
	Nighttime
Participants	13.8%
Converted	12.7%

- All Differences are non-significant

Contact Information

Maria Vegega
Chief, Behavioral Research Division
Office of Behavioral Safety Research
National Highway Traffic Safety Administration
US Department of Transportation
Room W44-302 NTI-131
1200 New Jersey Avenue, SE
Washington, DC 20590
Ph: 202-366-9591
Fax: 202-366-7394
Email: maria.vegega@dot.gov
Website: www.nhtsa.dot.gov

Questions?



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