Detecting Alcohol and Illicit Drugs in Oral Fluid
Samples Collected from Truck Drivers in the State of São Paulo, Brazil

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According to the National Institute of Applied Economic Research – IPEA

Traffic accidents cost about 3.7 billion dollars (all spending in the care of accidents, hospital/rehabilitation expenses and lost production of individuals).

Cars are involved in most cases (2.0 billion dollars), followed by motorcycles, urban buses, trucks and light trucks.

A traffic accident costs (USD): on average 4,000.00, without victim 1,482.00, with injured victim 7,936.00 and with fatal victim 65,671.00.

Data from the WHO estimate that, in Brazil, these expenses can be even higher, representing somewhere around $ 100 billion/year.

WORLD-HEALTH-ORGANIZATION, 2013; IPEA, 2003

Monitoring drug and alcohol use in traffic

This study was performed on 3 different highways in the state of São Paulo, between the years 2002 and 2008.
(Rod. Raposo Tavares, Rod. Castelo Branco e Rod. Sen. José Erminio de Moraes).

This toxicological evaluation was part of an operation called “Truck Driver’s Health Program,” administered by ViaOeste.
Volunteers and Procedures

Truck drivers were randomly stopped and were asked by police officers to participate in research. As soon as the interview was carried out the oral fluid was collected using salivette® device during the morning (9 to 11 a.m.).

Sample Collection and Analyses

Determination of ethanol and drug abuse in Oral Fluid

Analyses (2002-2008):

Of the 1298 truck drivers stopped, 1277 agreed (98.4%) to participate and provided oral fluid samples then 1250 samples were analyzed. Then they answered the questionnaire administered by a staff member.

Questionnaire results

All participants were male, and most were married (average and 95% confidence interval: 70.8%; 67.9–73.6%, n = 1005)
**Questionnaire results**

School-level education (63.5%: 40.4-46.5%, n = 1002)

The ages of the drivers ranged between 18 and 80 years and the average was 39.1 years old (38.4-39.8%, n = 996).

**Results of toxicological analyses (3.1%)**

- 18 for ethanol
- 8 for amphetamine (1 for methamphetamine)
- 7 for cocaine
- 5 for THC
- 4 for cocaine and THC

**Law (Alcohol, drugs and traffic)**

- LEI 12.760/2012
  - Art. 11 Esta Lei altera dispositivos da Lei nº 9.503, de 23 de setembro de 1997, que institui o Código de Trânsito Brasileiro, com a finalidade de estabelecer alterações e mais severas para o condutor que dirigir sob a influência do álcool ...
- Art. 165. Dirigir sob a influência do álcool ou de qualquer outra substância psicotrópica que determine dependência: Inflação - gravíssima;
- Art. 276. Qualquer concentração de álcool por litro de sangue ou por litro de ar plasmático sujeita o condutor às penalidades previstas no art. 165. Parágrafo único. O Condutor disciplinar as margens de tolerância quando a inflação for apurada por meio de aparelho de medição, observada a legislação metrológica.

**Psychoactive medicines**

**Medicines that can affect driving safety**

- Are often misused by drug addicts
- Most common: sleeping agents and tranquilizers/sedatives
  - Diazepam (Valium etc.)
  - Oxazepam (Sibel etc.)
  - Chlonazepam (Rivotril etc.)
  - Bromazepam (Lorazepam etc.)
  - Flunitrazepam (Roehynol etc.)
  - Zopiclone (Zimovane etc.)
- Also: strong pain killers (opioids)
  - Codeine
  - Morphine
  - Tramadol

**Illicit drugs**

- Cannabis
- Amphetamines
  - Amphetamine
  - Methamphetamine
  - MDA
- Cocaine
- Heroin
Conclusion

The finding that drug use is more common than alcohol use among truck drivers emphasizes the need for prevention, fiscalizations and educational campaigns highlighting not only the risks of using alcohol but also of abusing drugs.

Despite the current Brazilian traffic code, which states that “driving under the influence of alcohol or any other psychoactive substances that cause dependence” is a serious offense, random testing and checkpoints are only performed to control alcohol use (breath testing).

Therefore, a more intense and judicious surveillance of traffic regarding impaired driving is necessary to better promote safety for everyone.

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