

Technical University of Denmark



## An overview of results from the epidemiological studies

**Bernhoft, Inger Marie**

*Publication date:*  
2011

*Document Version*  
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

*Citation (APA):*

Bernhoft, I. M. (2011). An overview of results from the epidemiological studies [Sound/Visual production (digital)]. DRUID Final conference, Cologne, Germany, 27/09/2011, [http://www.druid-project.eu/cfn\\_031/nn\\_107534/sid\\_47A55984E846D6D6D6E63D20A4D8DE35/nsc\\_true/Druid/EN/Final\\_20Conference/final-conference-node.html?\\_\\_nnn=true](http://www.druid-project.eu/cfn_031/nn_107534/sid_47A55984E846D6D6D6E63D20A4D8DE35/nsc_true/Druid/EN/Final_20Conference/final-conference-node.html?__nnn=true)

## DTU Library

Technical Information Center of Denmark


---

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

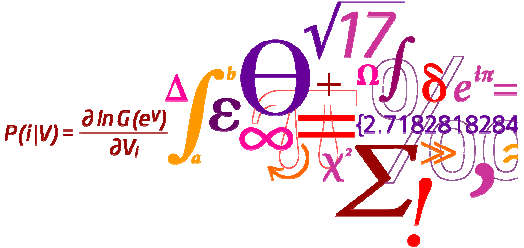
- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.





## An overview of results from the epidemiological studies

Inger Marie Bernhoft  
 Senior Research Scientist  
 Department of Transport  
 Technical University of Denmark  
 imb@transport.dtu.dk




**DTU Transport**  
 Department of Transport


---

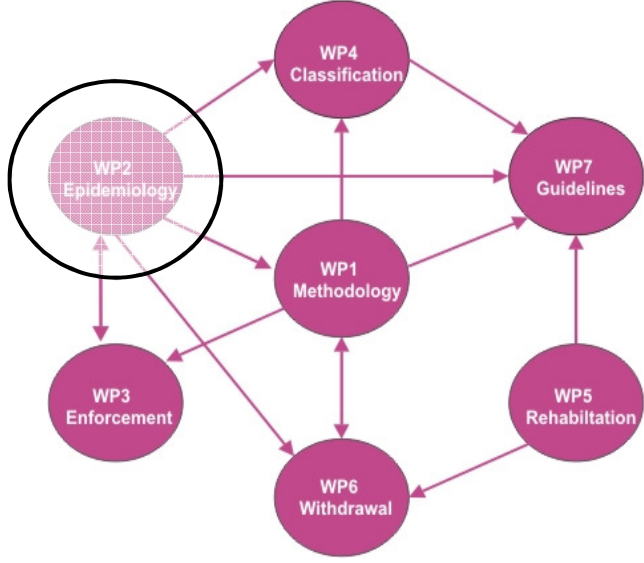



Final conference, Cologne 27-28 September 2011



## Overview of DRUID







```


    graph TD
      WP1((WP1 Methodology)) <--> WP2((WP2 Epidemiology))
      WP1 <--> WP3((WP3 Enforcement))
      WP1 <--> WP4((WP4 Classification))
      WP1 <--> WP5((WP5 Rehabilitation))
      WP1 <--> WP6((WP6 Withdrawal))
      WP2 <--> WP4
      WP2 <--> WP7((WP7 Guidelines))
      WP3 <--> WP2
      WP4 <--> WP7
      WP5 <--> WP6
      WP6 <--> WP7
    
```

**DTU Transport**  
 Department of Transport

---


Final conference, Cologne 27-28 September 2011



## DRUID PROJECT - Epidemiology




- Objectives:
  - To assess the situation in Europe regarding the problem of alcohol and/or other psychoactive substances relation to road safety
    - Prevalence in the general population
    - Prevalence in the driving population
    - Risk of injury for drink and/or drug drivers
    - Characteristics of drink and drug drivers



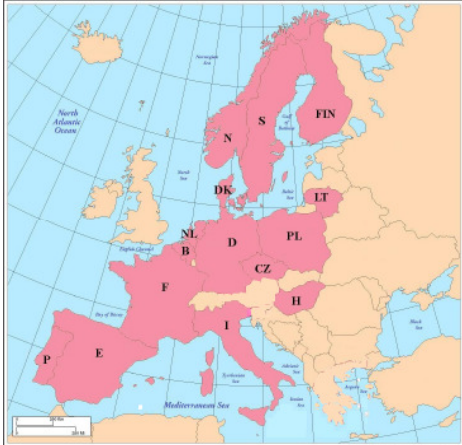





 Final conference, Cologne 27-28 September 2011
 

## DRUID PROJECT - Epidemiology



- Reviews
  - An overview of the prevalence in general consumption in Europe
- Prevalence studies of drugs
  - In the driving population
  - In injured/killed drivers
  - In drivers in fatal accidents
- Risk while drink and drug driving
  - Risk of being injured or killed
  - Risk of being crash responsible
  - Accident risk for medicine users
- Interviews
  - Motives to impaired driving





 Final conference, Cologne 27-28 September 2011
 

## Psychoactive substances in question



- Alcohol
- Illicit drugs
  - Amphetamines, including methamphetamines and MDA, MDEA and MDMA
  - Cocaine and benzoylecgonine
  - Cannabis
  - Illicit opiates
- Medicines
  - Benzodiazepines
  - Z-drugs
  - Medicinal opioids
- Alcohol in combination with other drugs
- Multiple drugs
  
- Positive concentrations are based on the same uniform cut-offs in all studies



Final conference, Cologne 27-28 September 2011



## Review



- **Prevalence of psychoactive substances in the general population (D 2.1.1)**

### Method:

Literature study

### Main results:

An increase in psychotropic medicines and medicines with central nervous system side-effects was observed, a.o.  
 benzodiazepines  
 Z-drugs  
 opioids

The major increase in the consumption of antidepressants and drugs used in addictive disorders was observed

For the other classes of interest either a slight increase or no increase was noted



Final conference, Cologne 27-28 September 2011



## Prevalence studies



- Alcohol and other psychoactive substances in drivers in the general traffic (D 2.2.3)

**Aim of the roadside surveys:**

To estimate the prevalence of psychoactive substances, including alcohol in the general driving population

To identify similarities and differences in the involved countries

To estimate the size of the problem on a European basis

**Method:**

Roadside surveys in 13 countries by means of a uniform protocol in all countries



In total data from more than 50.000 drivers was collected at the roadside



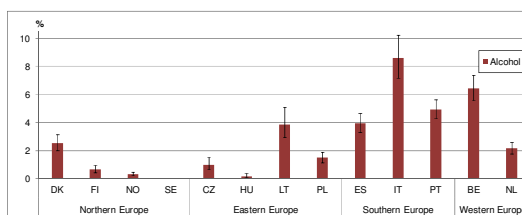
Final conference, Cologne 27-28 September 2011



## Prevalence studies

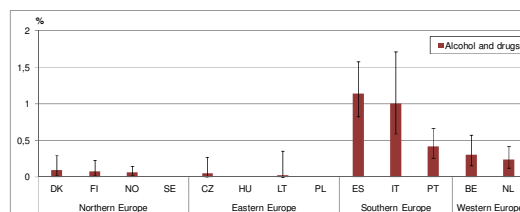


### Alcohol in the general traffic



Prevalence of alcohol

### Prevalence of alcohol in combination with other drugs




Alcohol is still the most prevalent substance in the driving population  
- but most of the drink driving is with concentrations below 0.5 g/L



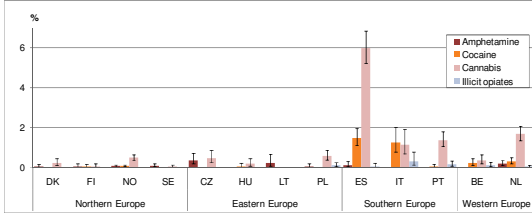
Final conference, Cologne 27-28 September 2011



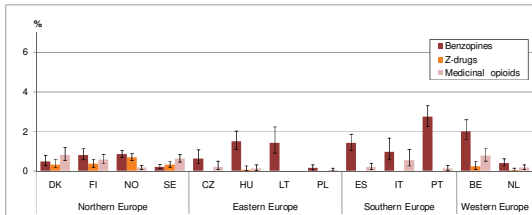
## Prevalence studies



### Illicit and medicinal drugs in the general traffic





**Prevalence of illicit drugs**




**Prevalence of medicines**


**Illicit drugs are most prevalent in southern and western Europe  
Driving with medicines is observed all over Europe**

Final conference, Cologne 27-28 September 2011



## Prevalence studies



- **Psychoactive substances and consumption patterns in traffic (D 2.2.2)**



**Aim of the smart phone study:**

- To investigate the frequency of drug driving incidences among drug users compared with non-users
- To investigate situational aspects of drug driving incidences


**Method:**

- Data collection of information on driving patterns by means of smartphones



Final conference, Cologne 27-28 September 2011

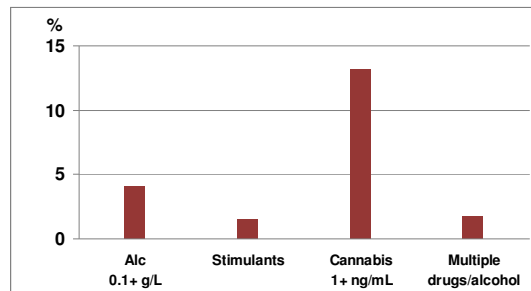


## Prevalence studies



- Drug users compared to non-users
  - More mobile at night
  - But less nighttime drives
  - Consumption of alcohol more frequently and in higher doses
  - Double prevalence of drink driving

Prevalence when driving  
for drug users



Final conference, Cologne 27-28 September 2011



## Prevalence studies



- Alcohol and other drugs in injured and killed drivers (D 2.2.5)

**Aim of the studies on accident involved drivers:**

To estimate the prevalence of psychoactive substances including alcohol in seriously injured drivers and in killed drivers

To identify similarities and differences in the involved countries

To estimate the size of the problem on a European basis

**Method:**

Study of seriously injured drivers in 6 countries and study of killed drivers in 4 countries, by means of a uniform protocol for all countries



The results are based on data from app. 2600 seriously injured and 1000 killed drivers



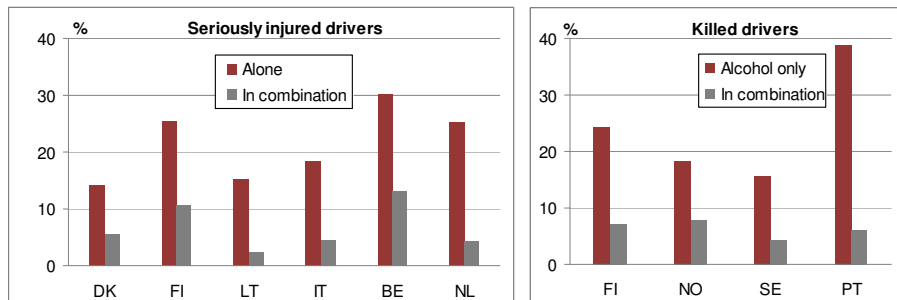
Final conference, Cologne 27-28 September 2011



## Prevalence studies



### Alcohol in injured and killed drivers



Among the alcohol positive drivers – both seriously injured and killed, the majority had a blood alcohol concentration equal to or above 0,5 g/L

Combined use of alcohol combined with other drugs is considerable in a number of countries



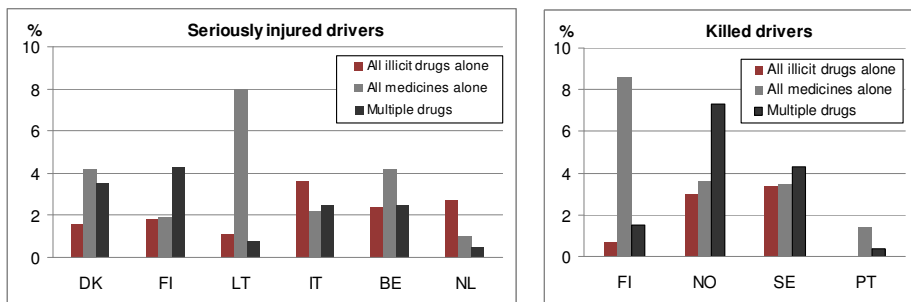
Final conference, Cologne 27-28 September 2011



## Prevalence studies



### Illicit and medicinal drugs in injured and killed drivers



For most illicit drugs and medicines, the percentage of combined drug use exceeded that of single drug use



Final conference, Cologne 27-28 September 2011





## Prevalence studies



### • Alcohol and illicit drugs in drivers in fatal accidents (D 2.2.4)

#### Aim of the prevalence study:

To estimate the prevalence in all types of drivers in fatal accidents

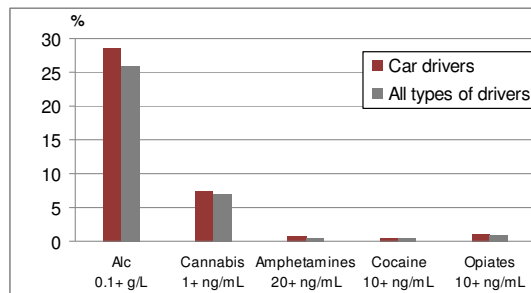
#### Method:

Systematic testing of all drivers in a fatal accident in France

- Killed, injured and non injured

- Alcohol and illicit drugs

- Data from 10,519 drivers



Final conference, Cologne 27-28 September 2011



## Relative risk studies



### • Risk of injury by driving with alcohol and other drugs (D 2.3.5)

#### Aim of the risk study:

To assess the risk for

- alcohol
- illicit drugs and medicines
- alcohol combined with drugs
- multiple drug use

To demonstrate the relation between drug impairment and traffic accidents

To serve as input to the discussion on impairment thresholds

#### Method:

Case-control study based on data from seriously injured /killed drivers (cases) and data from road side surveys (controls)

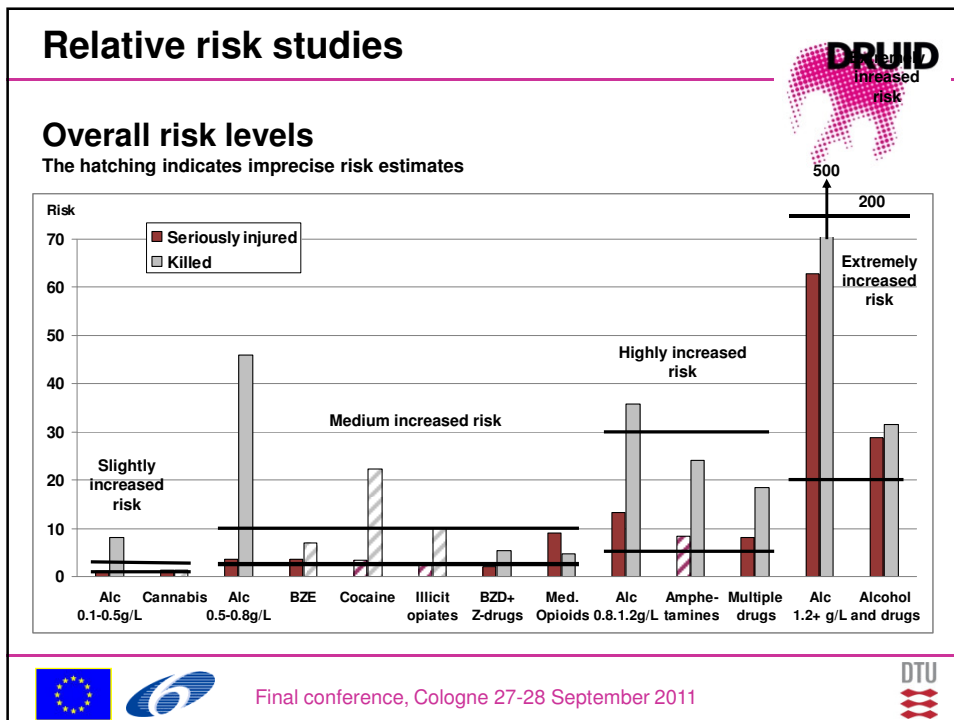
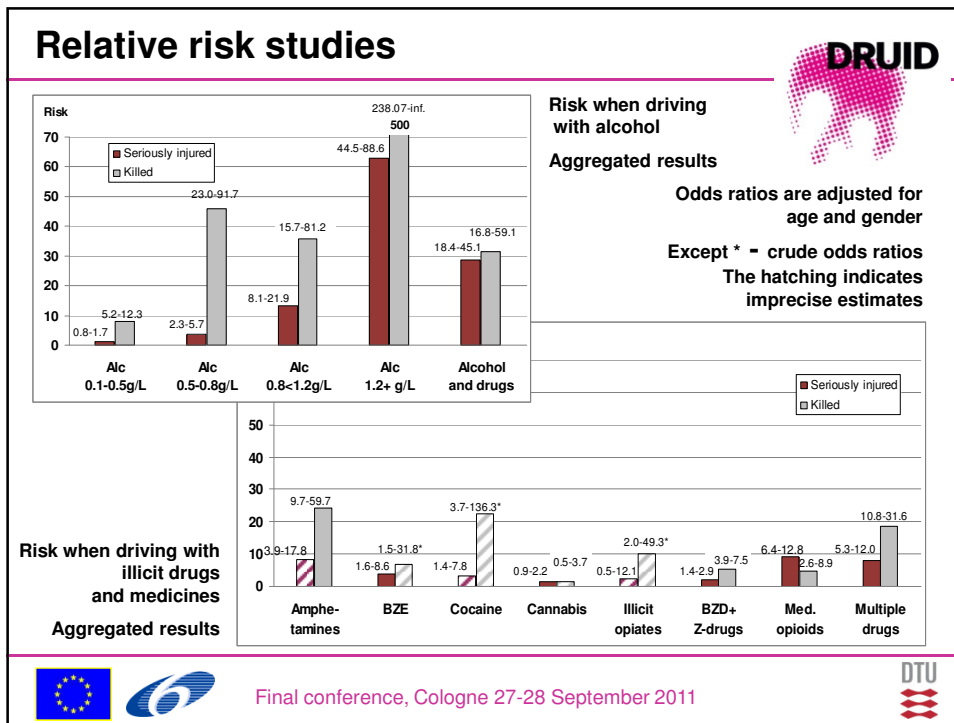


Seriously injured drivers: DK, FI, LT, IT, BE, NL, H, killed drivers: FI, NO, SE, PT




Final conference, Cologne 27-28 September 2011





## Relative risk studies



- Risk of accident responsibility by driving with alcohol and other drugs (D 2.3.2, D 2.3.3, D 2.3.4)

**Aim of the risk studies :**

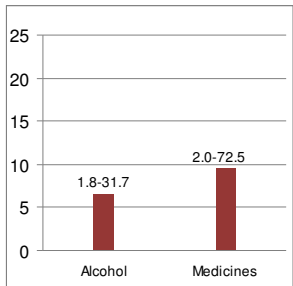
To assess the relative risk for killed drivers who were responsible for their accidents

or



To assess the relative risk for responsible drivers involved in a fatal road accident

**Method:**


- Three case-control studies
- killed drivers (2 studies)
- drivers in fatal accidents (1 study)




**Responsible killed drivers in Finland**

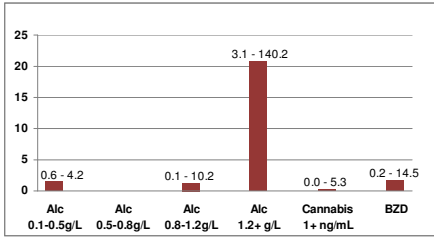
Final conference, Cologne 27-28 September 2011



## Relative risk studies

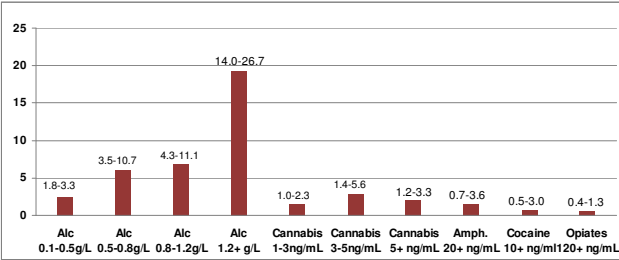




### Risk of accident responsibility




**Responsible killed drivers in Germany, Lithuania, Hungary, Slovakia**

**Responsible drivers in fatal accidents in France**



Final conference, Cologne 27-28 September 2011



## Relative risk studies



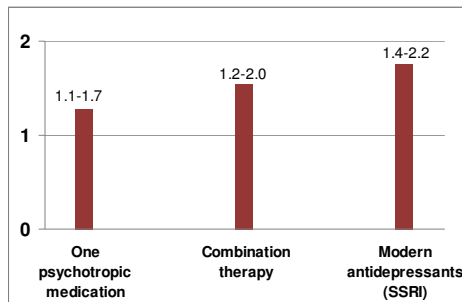
- Relative risk of patients using psychotropic medicines (D 2.3.1)

### Aim:

- To assess
- accident risk of drivers using psychoactive medicines compared to non-users
  - risk when using a combination of (psychoactive) medicines

### Method:

- A pharmacoepidemiological study, linking databases in the Netherlands
- pharmacy prescription
  - police registered traffic accidents
  - driving licenses



Final conference, Cologne 27-28 September 2011



## Driver characteristics



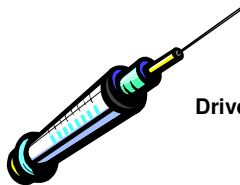
- Motives behind risky driving - driving under the influence of alcohol and drugs (D 2.2.1)

### Aim of the study:

- To explore the motives to drink and drug driving

### Method:

- Qualitative interviews



- Drivers do not think that their driving is influenced
- alcohol does not impair driving
  - but drug improves driving

Drink drivers feel more ashamed than drug drivers

- Loosing the license or imprisonment would not have helped
- rehabilitation is recommend



Final conference, Cologne 27-28 September 2011



**DRUID PROJECT - Epidemiology**



**Thank you for your attention**



**For more information, see [www.druid-project.eu](http://www.druid-project.eu)**



Final conference, Cologne 27-28 September 2011

