Drugs en rijden: een bad trip

Hospitaalstudies in het project DRUID: ‘DRiving Under the Influence of Drugs, alcohol and medicines’

Gene zever - Studiedag 21 september 2011

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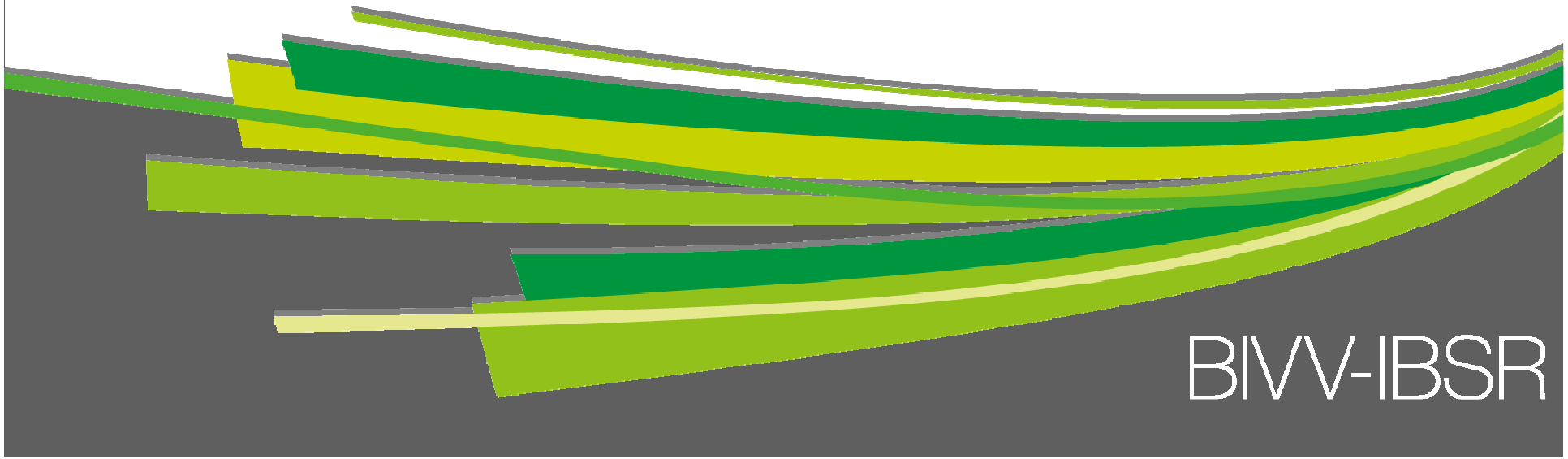
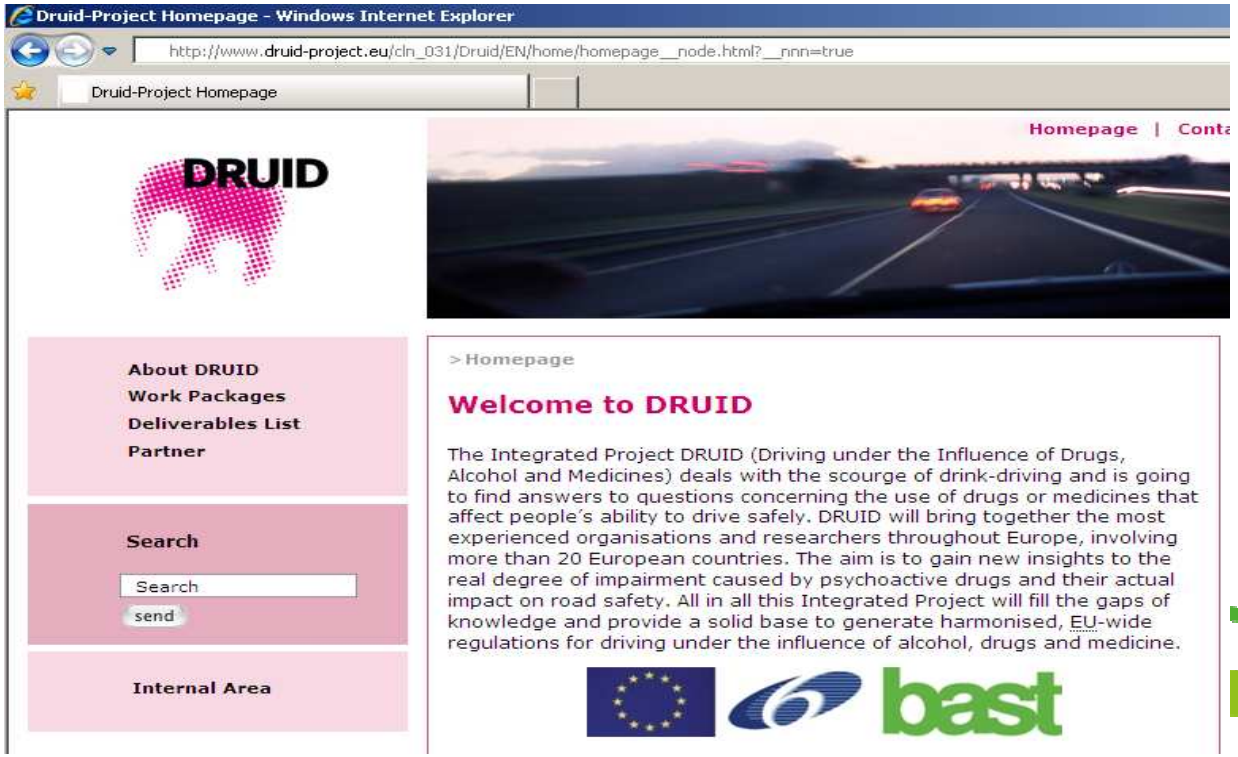


Inleiding


DRUGS
EN RIJDEN
BEZORGEN
JE EEN
BAD TRIP.
ROULER
DROGUÉ,
C'EST PARTI
POUR UN
MAUVAIS TRIP.

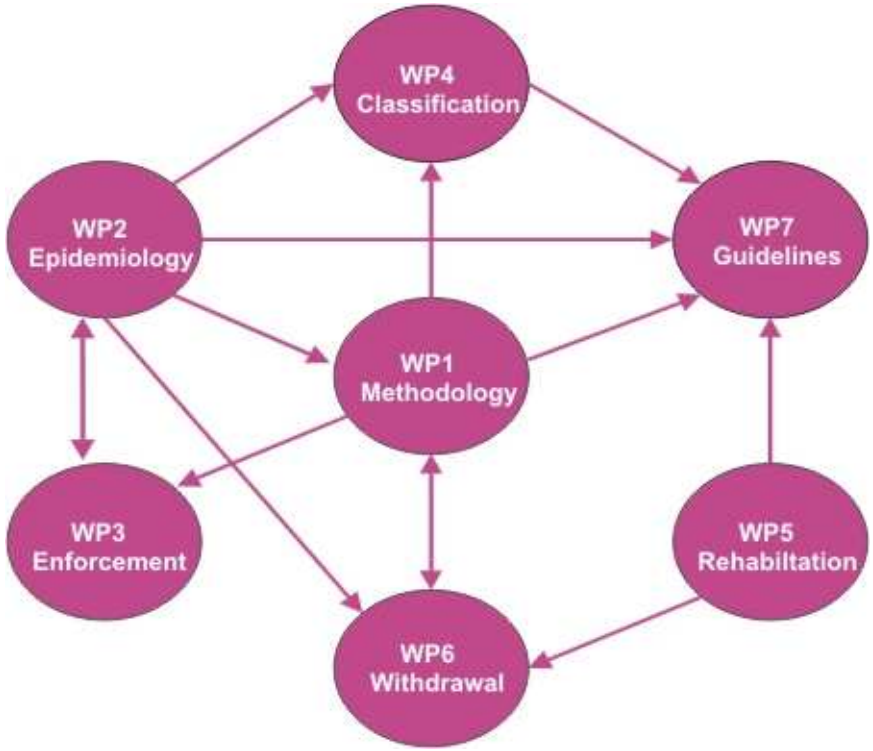
Het DRUID project

- Project met steun van de Europese Commissie
- "Rijden onder invloed van drugs, alcohol en medicijnen"
- Cf. http://www.druid-project.eu/ :



DRUID werkpaketten

- Hospitaalstudie BE deel van WP Epidemiologie
- Overige werkpaketten:

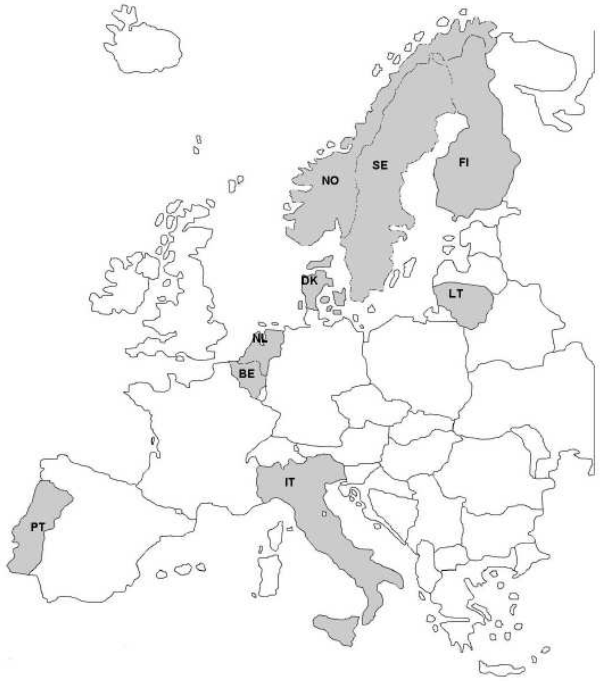


WP Epidemiologie

- Hoofddoelstellingen:
  - Estimatie van prevalentie van ROI
    - in algemene populatie bestuurders (=> road side surveys)
    - bij ernstig gewonde of overleden bestuurders (=> hospitaalstudies)
  - Estimatie van relatieve risico van ROI
    - van alcohol
    - van illegale drugs (THC, XTC, cocaïne, amfetamines...
    - van bepaalde geneesmiddelen
    - via vergelijking prevalenties algemeen vs in ongevallen

Deelnemende landen

Hospitaalstudies:



Road side surveys:

Hospitaalstudies

- Cf. DRUID deliverables list: overige resultaten nog niet publiek (verwacht 1 okt 2011)

Work Package 2 - Epidemiological Studies	
Deliverable Name	**Lead Participant**
Prevalence of Psychoactive Substances in the General Population (pdf 567-KB)	University of Groningen, Department of Pharmacotherapy and Pharmaceutical Care, Netherlands
Working paper "Uniform design and protocols for carrying out case-control studies" (pdf 240-KB)	Danish Transport Research Institute
Motives behind risky driving – driving under the influence of alcohol and drugs (pdf 87-KB)	VTI - Swedish National Road and Transport Research Institute
Prevalence of psychoactive substances and consumption patterns in traffic, based on a smartphone survey in Germany (pdf 1960-KB)	Bayerische Julius - Maximilians - Universität Würzburg, Germany
Prevalence of alcohol and other psychoactive substances in drivers in traffic in general in 13 member states	SWOV - Institute for Road Safety Research, Netherlands
Prevalence study: Main illicit psychoactive substances among all drivers involved in fatal road crashes in France (pdf 176-KB)	INRETS - National Institute for Transport and Safety Research, France
Prevalence of alcohol and other psychoactive substances in injured and killed drivers (pdf 4408-KB)	Universiteit Gent, Belgium
Relative accident risk of patients using psychotropic medicines in the Netherlands: A pharmacoepidemiological study (pdf 293-KB)	University of Groningen, Department of Pharmacotherapy and Pharmaceutical Care, Netherlands
Responsibility study: Main illicit psychoactive substances among car drivers involved in fatal road crashes in France (pdf 182-KB)	INRETS - National Institute for Transport and Safety Research, France
Relative risk of impaired drivers who were killed in motor vehicle accidents in Finland (pdf 342-KB)	University of Turku, Finland
Responsibility study: Psychoactive substances among killed drivers in Germany, Lithuania, Hungary and Slovakia (pdf 2177-KB)	Ludwig-Maximilians Universität München, Germany
Relative accident risk for impaired drivers based on case control studies in seven member states	Danish Transport Research Institute
Synthesis report: Driving under the influence of alcohol and drugs: Who and how much, risk and responsibility	Danish Transport Research Institute

Inclusie - algemeen

- Periode okt 2007 t/m mei 2010 (extended)
- Selectiecriteria:
  - Opgenomen in spoed na verkeersongeval
  - MAIS ≥ 2
  - 18+
  - In België: informed consent (vrijwillige deelname)
    - deelnamegraad ± 95%
    - deelnamegraad ongerelateerd aan karakteristieken patiënten
    - => vertekening door nonrespons zéér onwaarschijnlijk

Methode - algemeen

- Bloedstaal
- Vragenlijst
  - socio-demografische karakteristieken
    - leeftijd
    - geslacht
    - medicatie toegediend na ongeval
    - ...
  - ongevalskarakteristieken
    - datum
    - tijdstip
    - voertuigtype
    - gordeldracht
    - ...

Analyse - algemeen

- Bloedstalen
  - BE: Departement klinische biologie UGent
  - Criterium: "Druid cut-offs"
  - DRUID grenswaarden vs legale grenswaarden

Substance	**Druid cut-off (ng/ml)**	**Legale limiet in bloed (ng/ml)**
Ethanol	0.1 g/L	0.5 g/L
Amphetamine	20	25
Benzoylecgonine	50	25
Cocaine	10	25
MDMA	20	25
Morphine	10	10
THC	1	1
THCCOOH	5	nvt

Deelnemende Belgische ziekenhuizen

UZ Gent
UZ Leuven
UZ Luik (Sart Tilman)
regionaal ziekenhuis Namen
UZ Brussel

Resultaten

- Aantallen (alle types bestuurders, incl. fietsers, bromfietsers,...):

Injured drivers		Killed drivers	
	Samples		Samples
Belgium	1078	Finland	652
Denmark	856	Norway	193
Finland	325	Portugal	290
Italy	690	Sweden	158
Lithuania	424		
Netherlands	197		
Total	3570		1293

- Waarvan autobestuurders in België (car + van): 377

Type of vehicle	Distribution of drivers	
	n	%
Personal car	353	32.7%
Van	24	2.2%
Motorcycle	159	14.7%
Moped	96	8.9%
Bicycle	413	38.3%
Bus/truck > 3500kg	22	2.0%
Other vehicles	11	1.0%
Total	1078	

- additioneel criterium < 3h na ongeval => 348 BE car drivers
- waarvan volledige toxicologische screening: 325

Specificiteit Belgische steekproef

- Cf. inclusie per hospitaal:

Hospital	Distribution of injured drivers	
	n	%
Ghent	440	40.8%
Leuven	436	40.4%
Brussel	35	3.2%
Namur	162	15.0%
Sart Tilman (Liège)	5	0.5%
Total	1078	

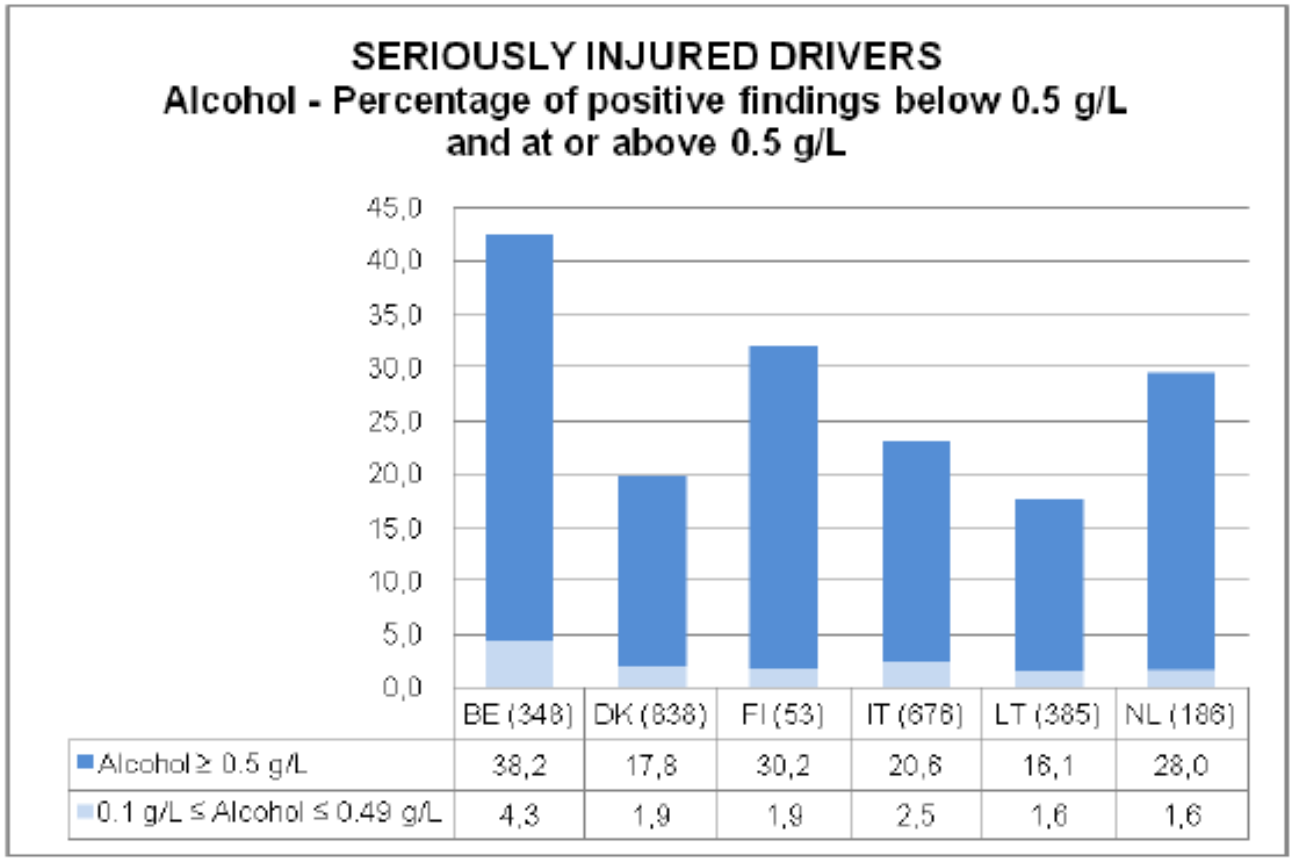
	Distribution of injured drivers
Region	
Brussels	35 (3.2%)
Flanders	876 (81.3%)
Wallonia	167 (15.5%)
Total	1078

- => relatieve oververtegenwoordiging fietsers & zwakke weggebruikers
- => internationale vergelijkingen:
- uitsluitend personenwagens / vans

Resultaten

1. Internationaal - belangrijkste stoffen - gewonde niet overleden bestuurders
2. Internationaal - combinatiegebruik
3. Details volledige belgische steekproef

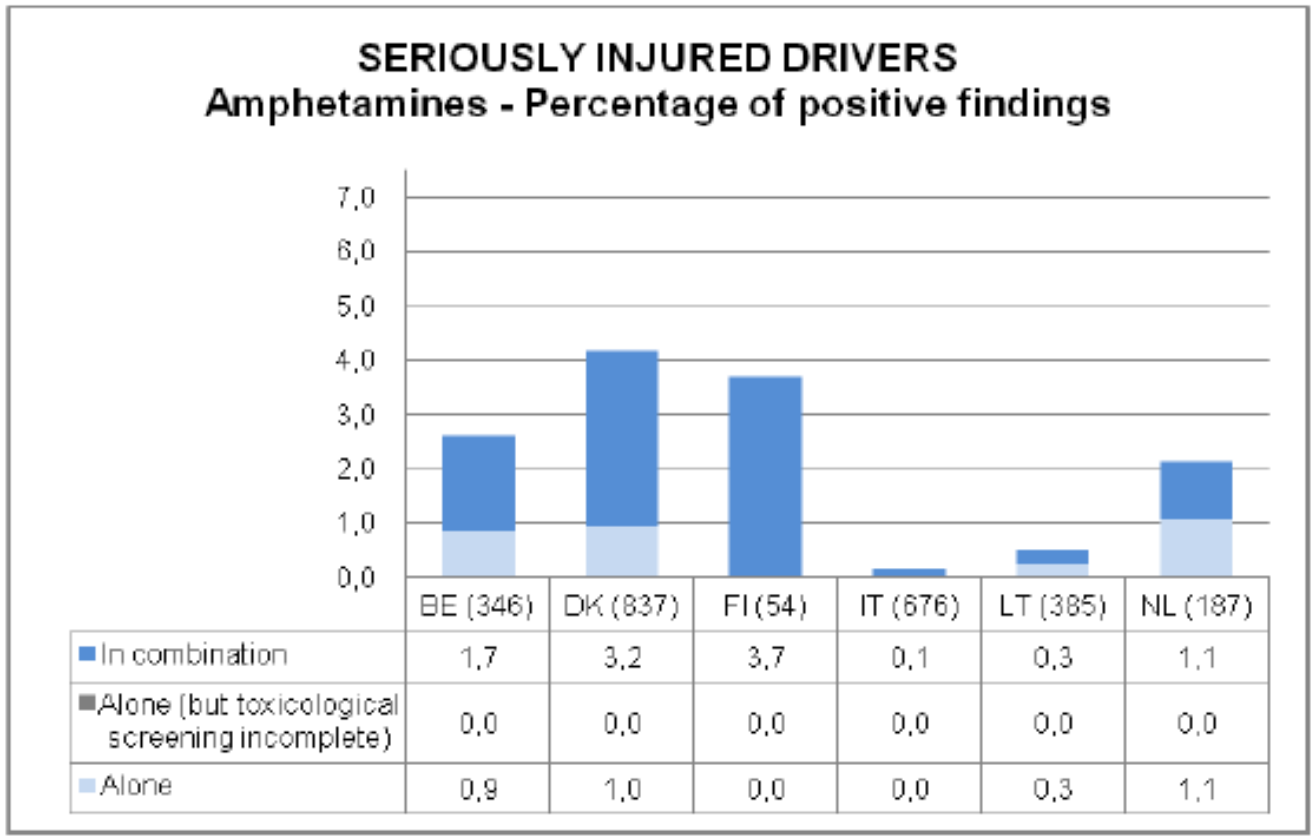
Alcohol - internationaal



	BE (348)	DK (838)	FI (53)	IT (676)	LT (385)	NL (186)
Alcohol ≥ 0.5 g/L	38,2	17,8	30,2	20,6	16,1	28,0
0.1 g/L ≤ Alcohol ≤ 0.49 g/L	4,3	1,9	1,9	2,5	1,6	1,6

Figure 21. Prevalence of uses – alcohol (≥0.5g/L)

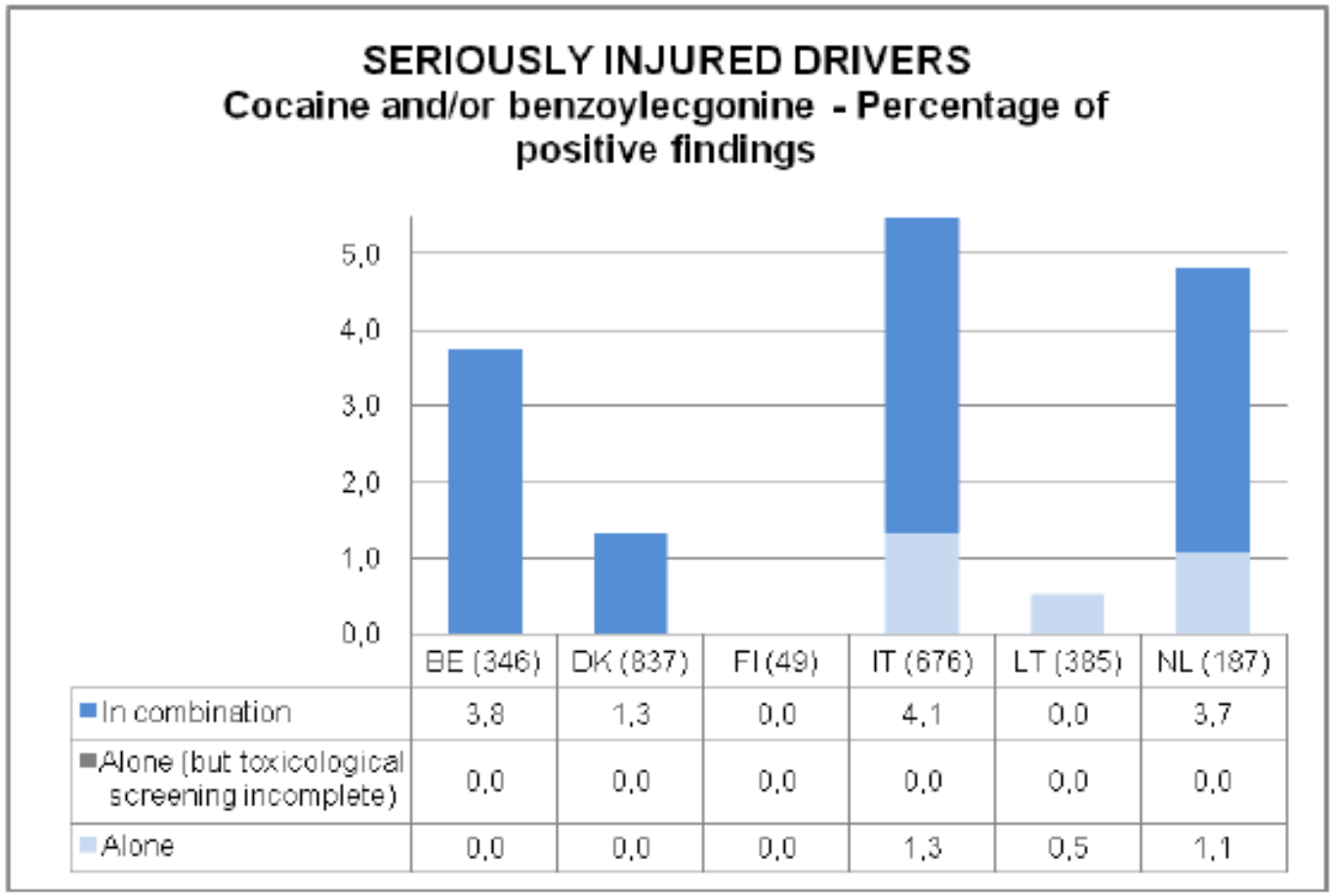
Amfetamines (incl. MDMA) - internat.



	BE (346)	DK (837)	FI (54)	IT (676)	LT (385)	NL (187)
In combination	1,7	3,2	3,7	0,1	0,3	1,1
Alone (but toxicological screening incomplete)	0,0	0,0	0,0	0,0	0,0	0,0
Alone	0,9	1,0	0,0	0,0	0,3	1,1

Figure 22. Prevalence of use – Amphetamines: detail of toxicological findings

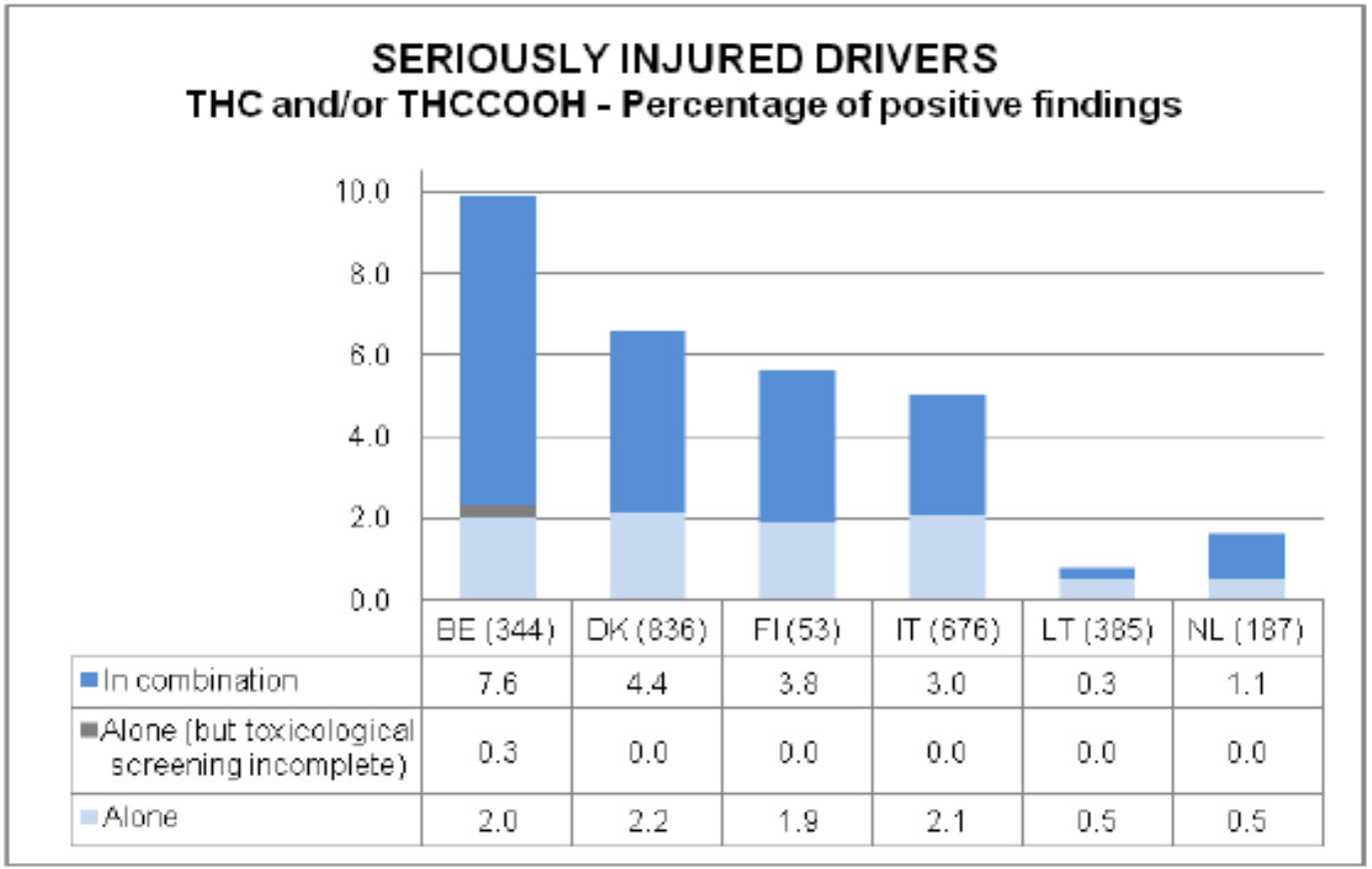
Cocaïne - internationaal



	BE (346)	DK (837)	FI (49)	IT (676)	LT (385)	NL (187)
In combination	3,8	1,3	0,0	4,1	0,0	3,7
Alone (but toxicological screening incomplete)	0,0	0,0	0,0	0,0	0,0	0,0
Alone	0,0	0,0	0,0	1,3	0,5	1,1

Figure 31. Prevalence of use - Cocaine and/or benzoylecgonine

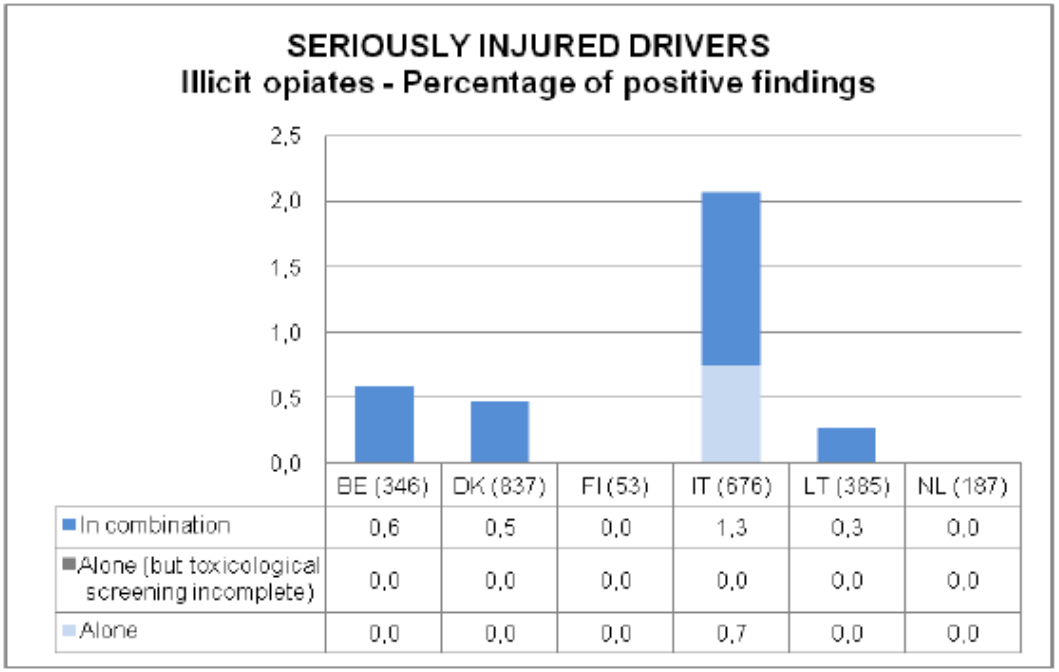
Cannabis - internationaal



	BE (344)	DK (836)	FI (53)	IT (676)	LT (385)	NL (187)
In combination	7.6	4.4	3.8	3.0	0.3	1.1
Alone (but toxicological screening incomplete)	0.3	0.0	0.0	0.0	0.0	0.0
Alone	2.0	2.2	1.9	2.1	0.5	0.5

Figure 40. Prevalence of use – THC and/or THCCOOH

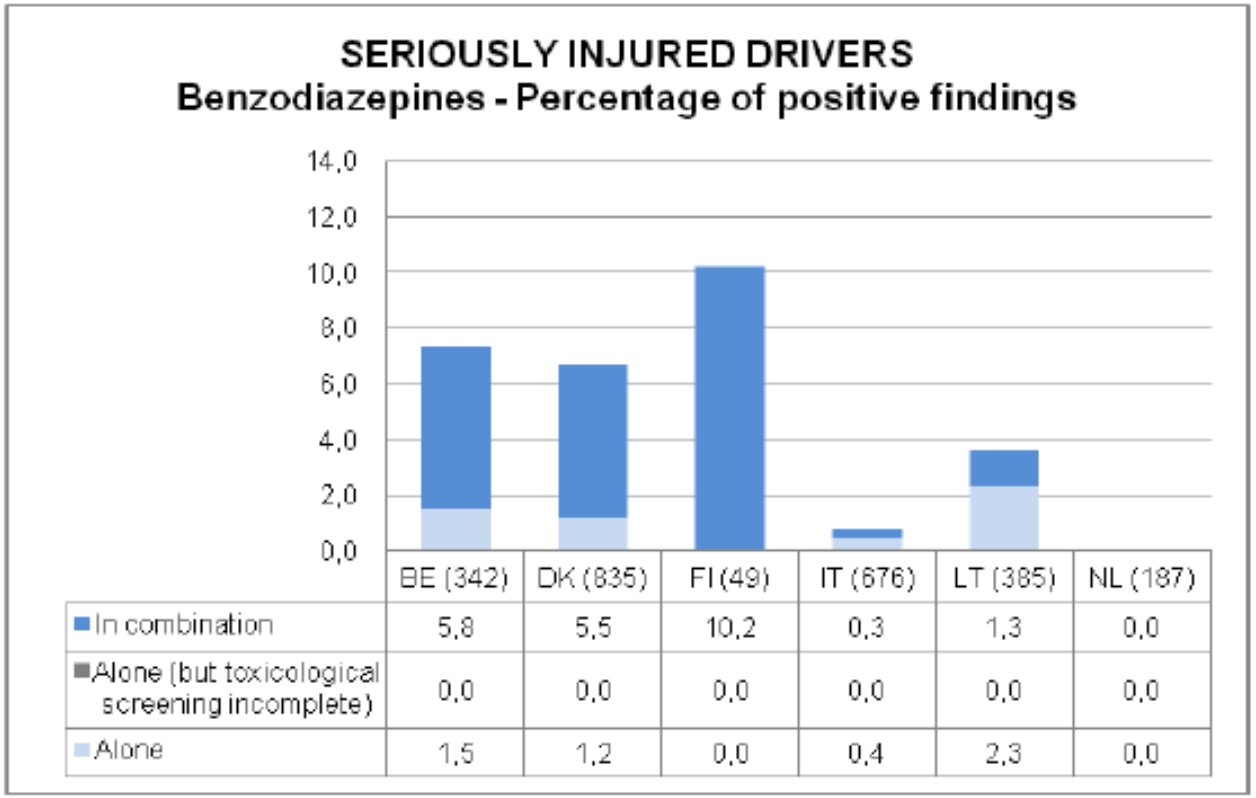
Heroïne - illicit opiates



	BE (346)	DK (837)	FI (53)	IT (676)	LT (385)	NL (187)
In combination	0,6	0,5	0,0	1,3	0,3	0,0
Alone (but toxicological screening incomplete)	0,0	0,0	0,0	0,0	0,0	0,0
Alone	0,0	0,0	0,0	0,7	0,0	0,0

Figure 43. Prevalence of use – Illicit opiates: detail of toxicological findings

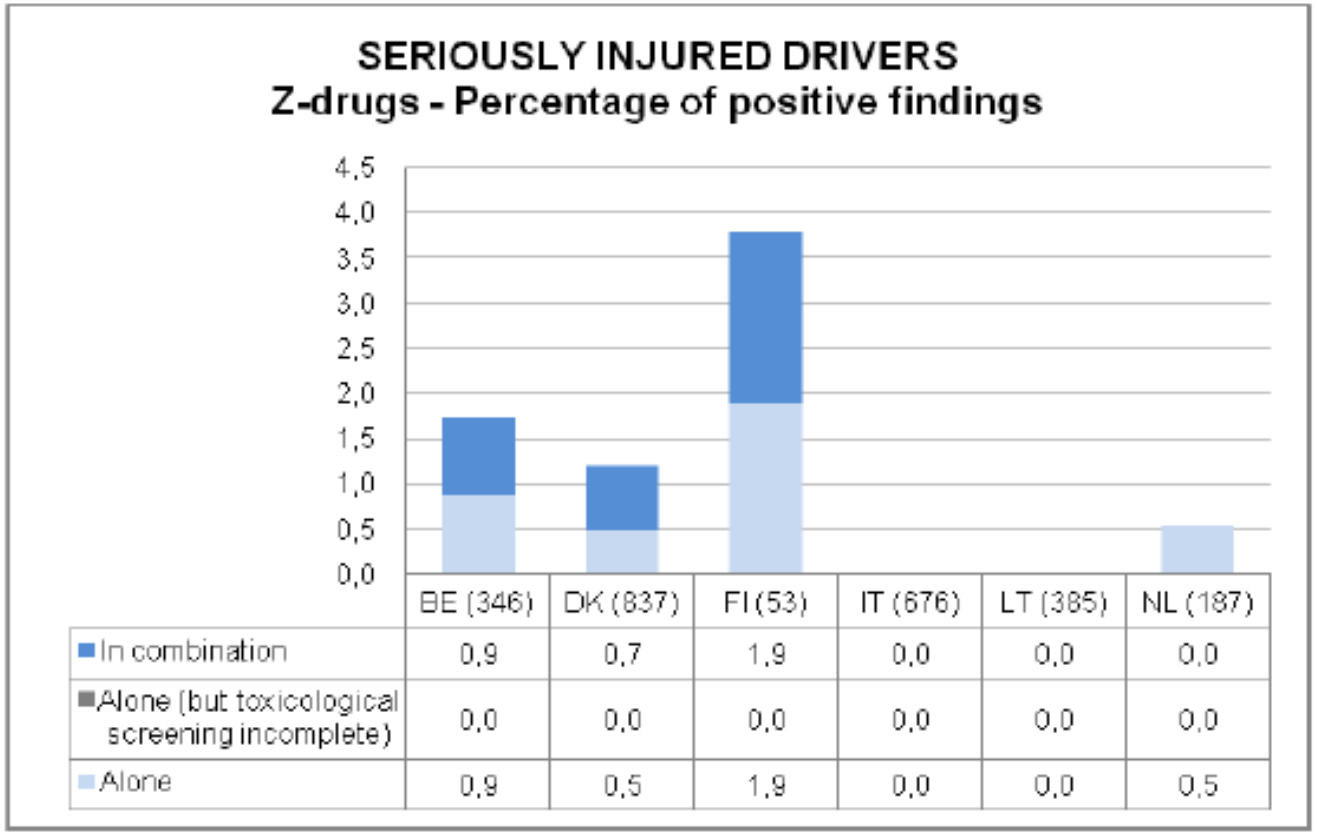
Benzodiazepines - internationaal



	BE (342)	DK (835)	FI (49)	IT (676)	LT (385)	NL (187)
In combination	5,8	5,5	10,2	0,3	1,3	0,0
Alone (but toxicological screening incomplete)	0,0	0,0	0,0	0,0	0,0	0,0
Alone	1,5	1,2	0,0	0,4	2,3	0,0

Figure 46. Prevalence of use – Benzodiazepines: detail of toxicological findings

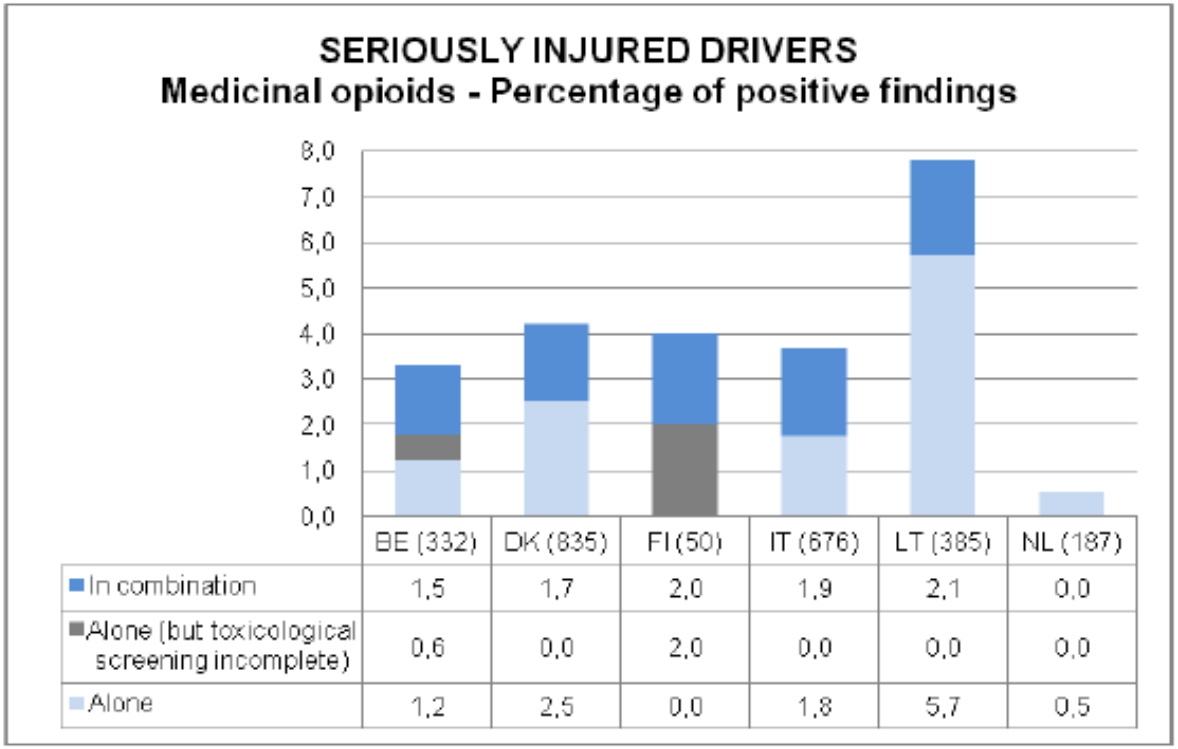
Z-drugs internationaal



	BE (346)	DK (837)	FI (53)	IT (676)	LT (385)	NL (187)
In combination	0,9	0,7	1,9	0,0	0,0	0,0
Alone (but toxicological screening incomplete)	0,0	0,0	0,0	0,0	0,0	0,0
Alone	0,9	0,5	1,9	0,0	0,0	0,5

Figure 49. Prevalence of use – Z-drugs: detail of toxicological findings

Medicinale opiaten - internationaal



	BE (332)	DK (835)	FI (50)	IT (676)	LT (385)	NL (187)
In combination	1,5	1,7	2,0	1,9	2,1	0,0
Alone (but toxicological screening incomplete)	0,6	0,0	2,0	0,0	0,0	0,0
Alone	1,2	2,5	0,0	1,8	5,7	0,5

Figure 52. Prevalence of use – Medicinal opioids: detail of toxicological findings

Combinatiegebruik - internationaal

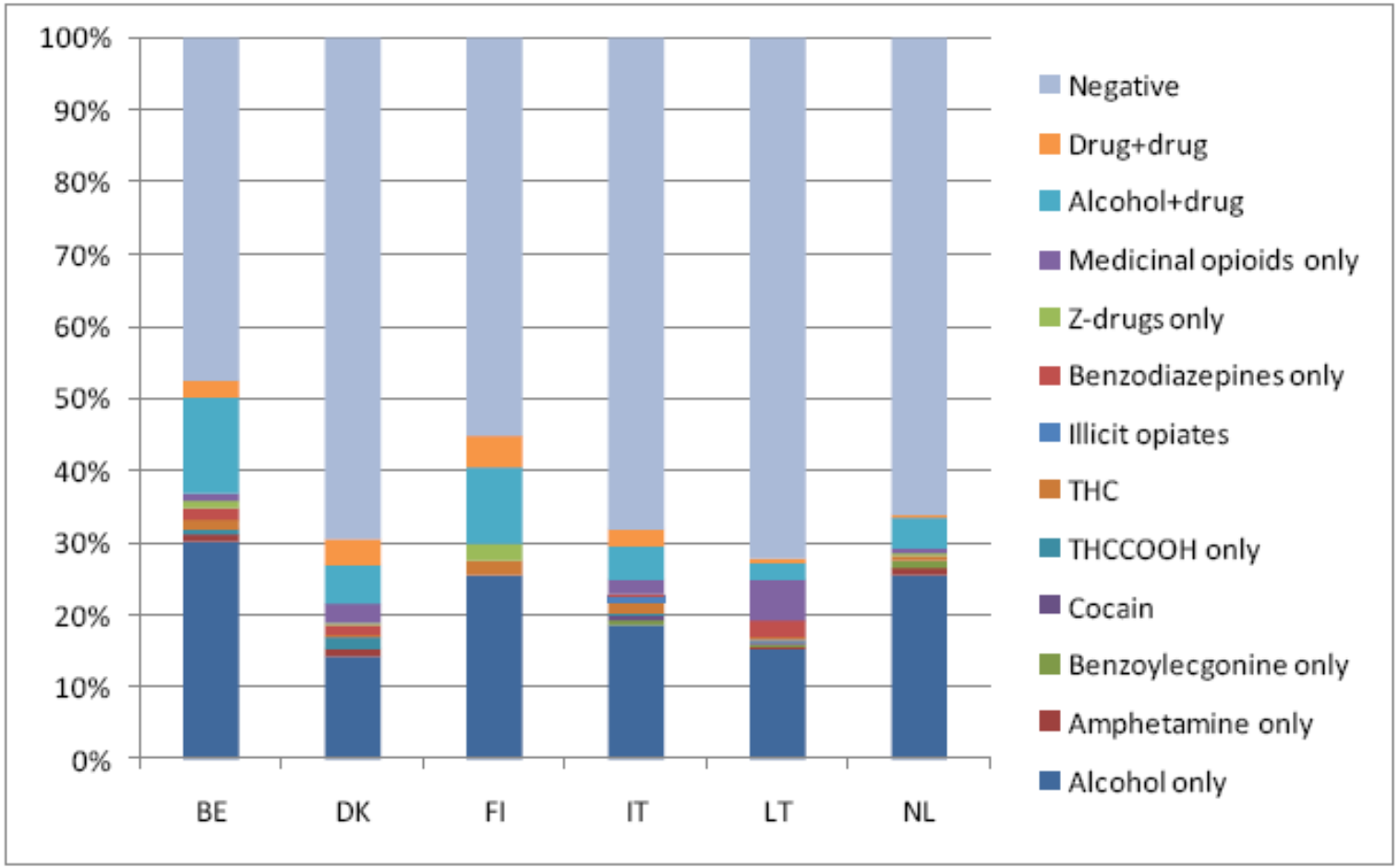


Figure 85. Seriously injured drivers – Distribution of positive drivers by substance groups

Invloed van geslacht en leeftijd - int.

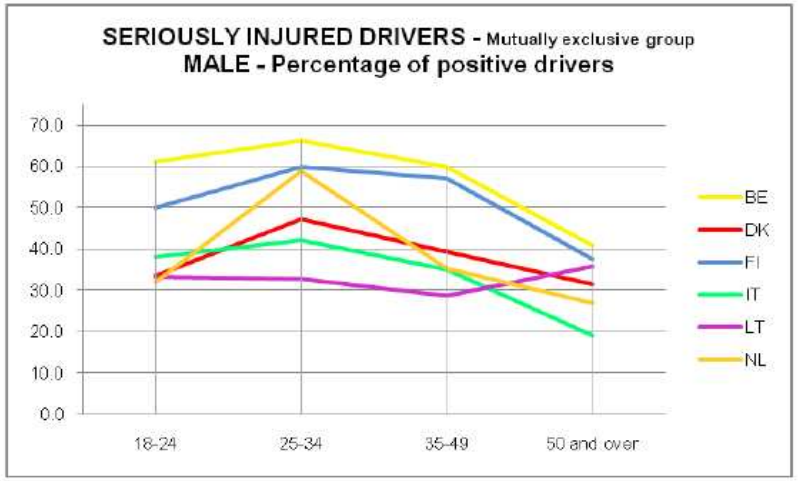


Figure 83. Mutually exclusive groups – Percentage of positive drivers: male

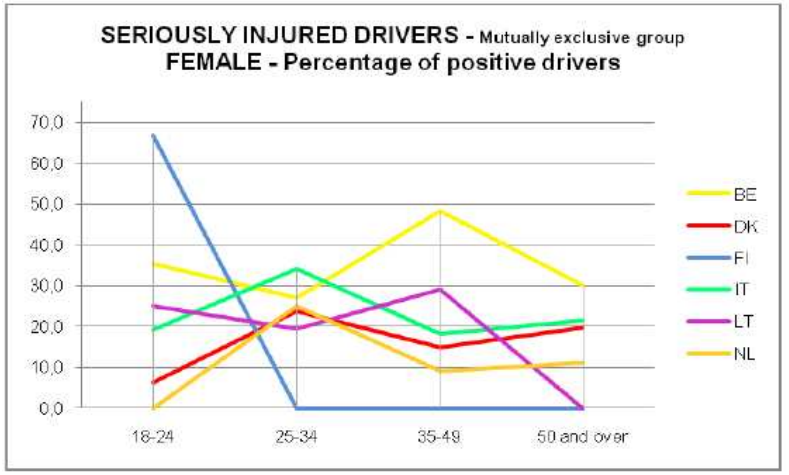


Figure 84. Mutually exclusive groups – Percentage of positive drivers: female

Details volledige BE steekproef

- Interessant nevenresultaat
- (resultaten exclusief voor 4-wielers)

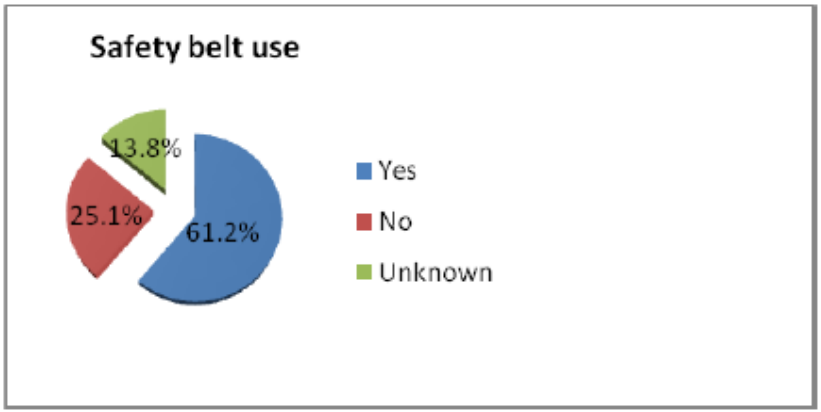
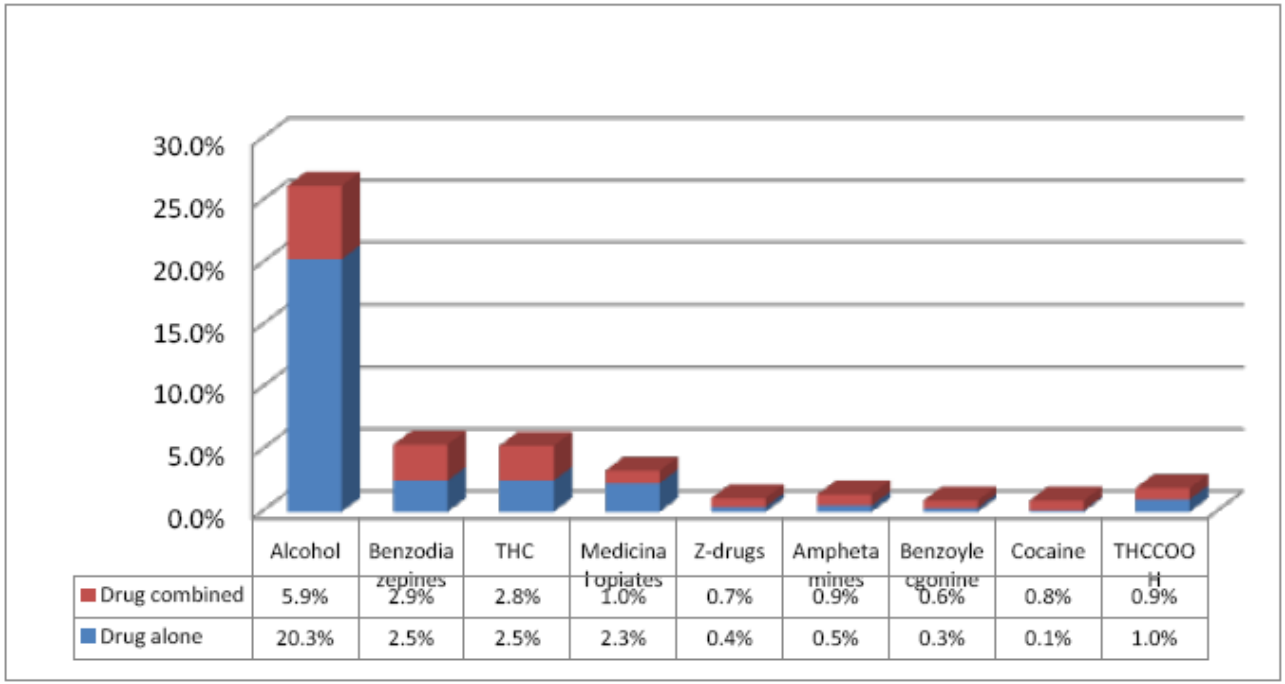


Figure 5. Safety belt use in vehicles fitted with safety belts

Prevalenties volledige BE steekproef



	Alcohol	Benzodiazepines	THC	Medicinal opiates	Z-drugs	Amphetamines	Benzoylecgonine	Cocaine	THCCOOH
Drug combined	5.9%	2.9%	2.8%	1.0%	0.7%	0.9%	0.6%	0.8%	0.9%
Drug alone	20.3%	2.5%	2.5%	2.3%	0.4%	0.5%	0.3%	0.1%	1.0%

Figure 7. Distribution of drugs alone and combined

- => lagere prevalentiecijfers dan in internationale steekproef ~ oververtegenwoordiging kwetsbare weggebruikers + lagere prevalentie daar

Details volledige BE steekproef

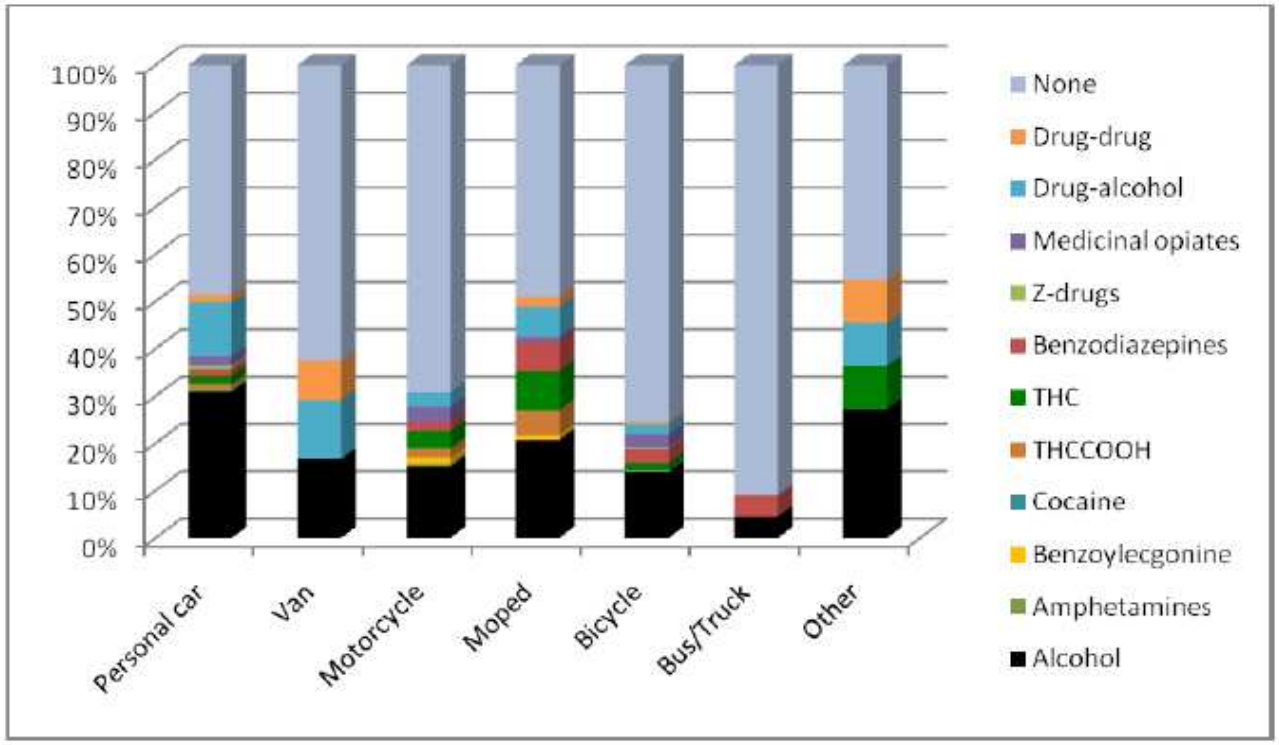


Figure 9. Distribution of substance groups by vehicle type

Meer details cf. D 2.2.5

- Dag vs nacht
- Week vs weekend
- Snelheidsregimes
- Single vs multiple vehicle accidents
- ...

Conclusies

- Finale conclusies afhankelijk van estimaties relatieve risico's
- Vroeger onderzoek (o.a. IMMORTAL) toonde echter aan:
  - exponentieel verhoogd risico bij alcohol-drug en drug-drug combinaties
  - genoegzaam gekend: risico van alcohol > .5 g/l
- Besluit:
  - Belgische prevalentiecijfers relatief hoog in EU vgl.
  - Bijzondere aandacht (handhaving/sensibilisatie) voor:
    - ROI alcohol: 38.2% > .5 g/l
    - Alcohol-drug combinaties: 13.2% positief