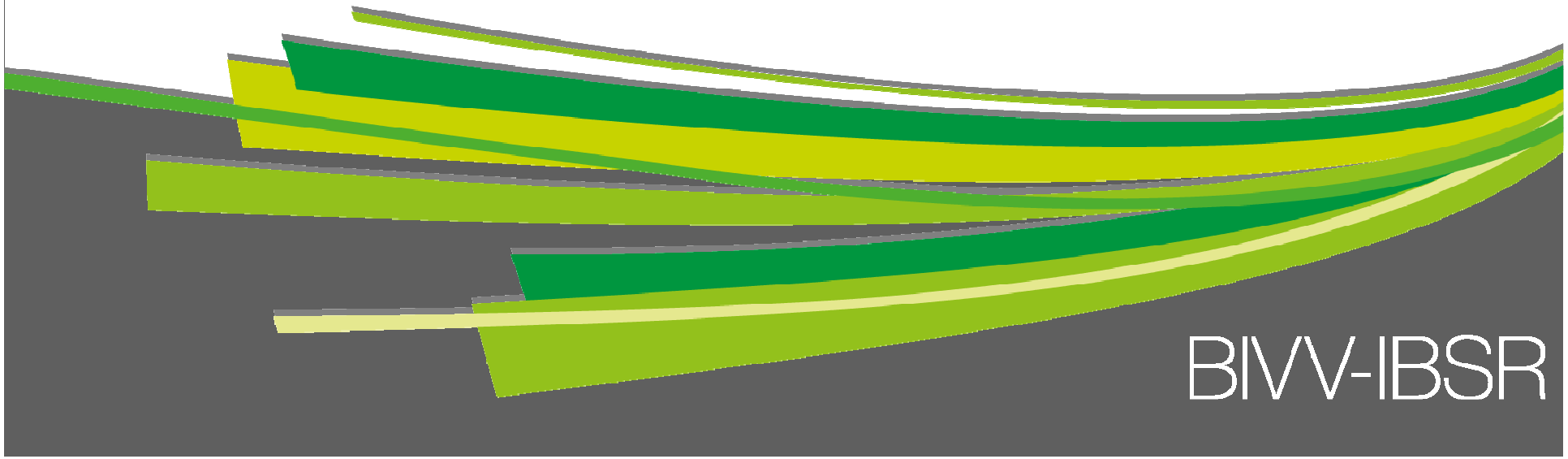
Les drogues et la conduite : un mauvais trip

Etudes hospitalières dans le cadre du projet DRUID : 'DRiving Under the Influence of Drugs, alcohol and medicines'

Crache test – Journée d'étude 21 septembre 2011

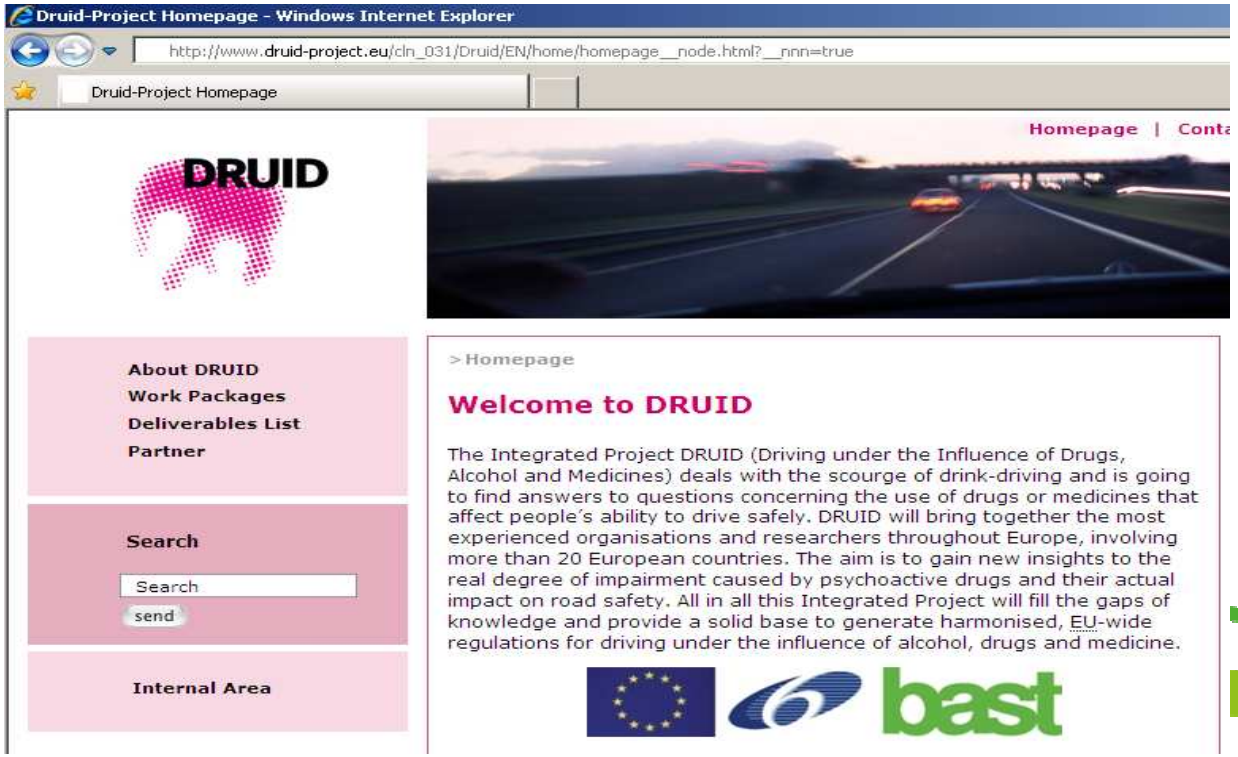
M. Peter Silverans, IBSR



Introduction

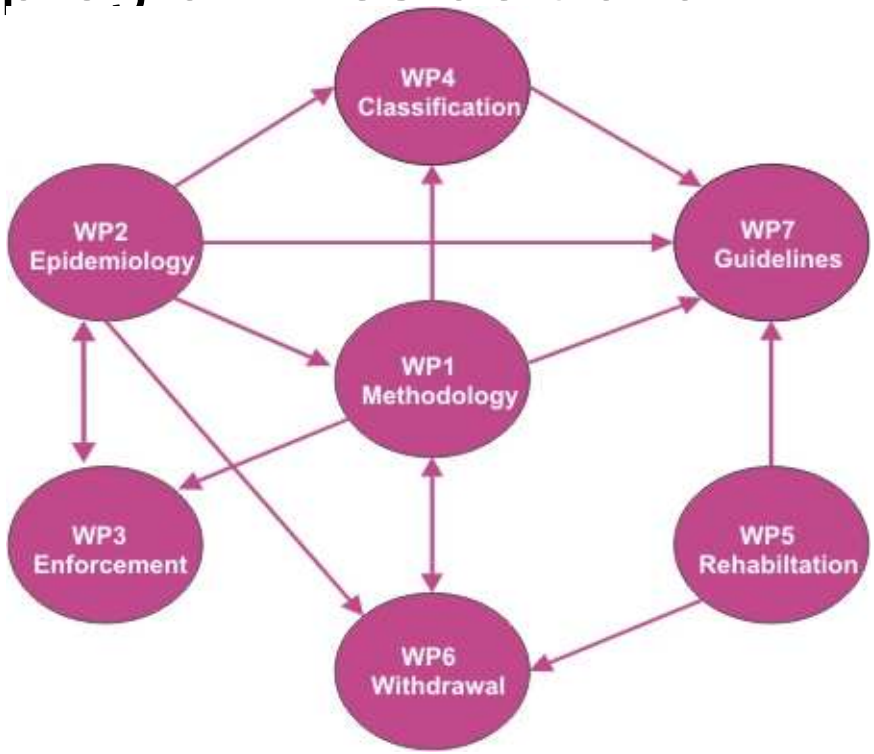
Le projet DRUID

- Projet soutenu par la Commission européenne
- « Conduire sous l'influence de drogues, de l'alcool et de médicaments »
- Cf. http://www.druid-project.eu/ :



Programmes de travail DRUID

- Etude hospitalière BE fait partie du programme de travail Epidémiologie
- Autres programmes de travail :

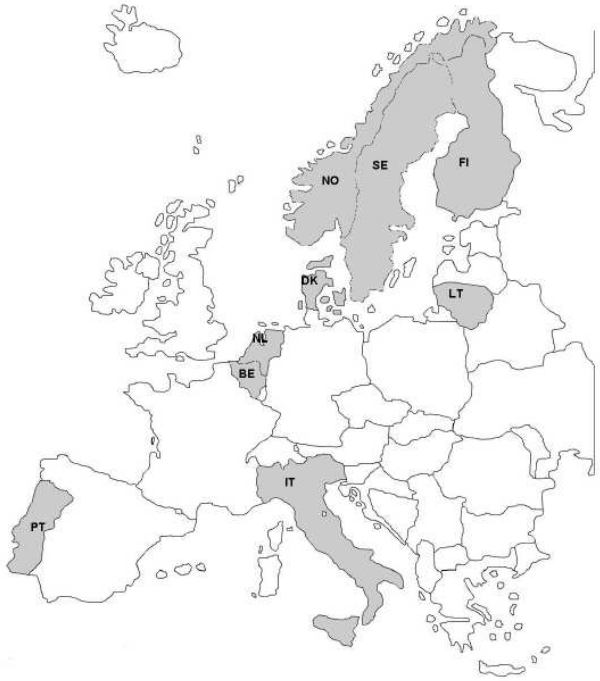


Programme de travail Epidémiologie

- Objectifs principaux :
  - Estimation de la prévalence de la conduite sous influence (CSI)
    - dans la population générale des conducteurs (=> road side surveys)
    - chez les conducteurs gravement blessés ou décédés (=> études hospitalières)
  - Estimation du risque relatif de la CSI
    - de l'alcool
    - de drogues illicites (THC, XTC, cocaïne, amphétamines...
    - de certains médicaments
    - via comparaison prévalences général vs dans les accidents

Pays participants

Etudes hospitalières :



Road side surveys:

Etudes hospitalières

- Cf. DRUID deliverables list: résultats restants pas encore publiés (attendus pour le 1er octobre 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

Inclusion - général

- Période octobre 2007 jusqu'en mai 2010 (extended)
- Critères de sélection :
  - Admis d'urgence après accident de la circulation
  - MAIS ≥ 2
  - 18+
  - En Belgique : informed consent (participation volontaire)
    - taux de participation ± 95%
    - taux de participation non lié aux caractéristiques des patients
    - => déformation par absence de réponse très improbable

Méthode - général

- Echantillon de sang
- Questionnaire
  - Caractéristiques sociodémographiques
    - âge
    - sexe
    - médicaments administrés après l'accident
    - ...
  - Caractéristiques d'accidents
    - date
    - heure
    - type de véhicule
    - port de la ceinture
    - ...

Analyse - général

- Echantillons de sang
  - BE: Département biologie clinique UGent
  - Critère : « Druid cut-offs »
  - valeurs limites DRUID vs valeurs limites légales

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

Hôpitaux belges participants

CHU Gand
CHU Louvain
CHU Liège (Sart Tilman)
Hôpital régional de Namur
CHU Bruxelles

Résultats

- nombres (tous les types de conducteurs y compris cyclistes, cyclomotoristes, etc.) :

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

- dont automobilistes en Belgique (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	

- critère additionnel < 3h après l'accident => 348 BE car drivers
- dont analyse toxicologique complète : 325

Spécificité échantillon belge

- Cf. inclusion par hôpital :

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

- => surreprésentation relative cyclistes & usagers faibles
- => comparaisons internationales :
- exclusivement voitures / camionnettes

Résultats

1. International – principales substances – conducteurs blessés non décédés
2. International – consommation combinée
3. Détails échantillon belge complet

Alcool - international

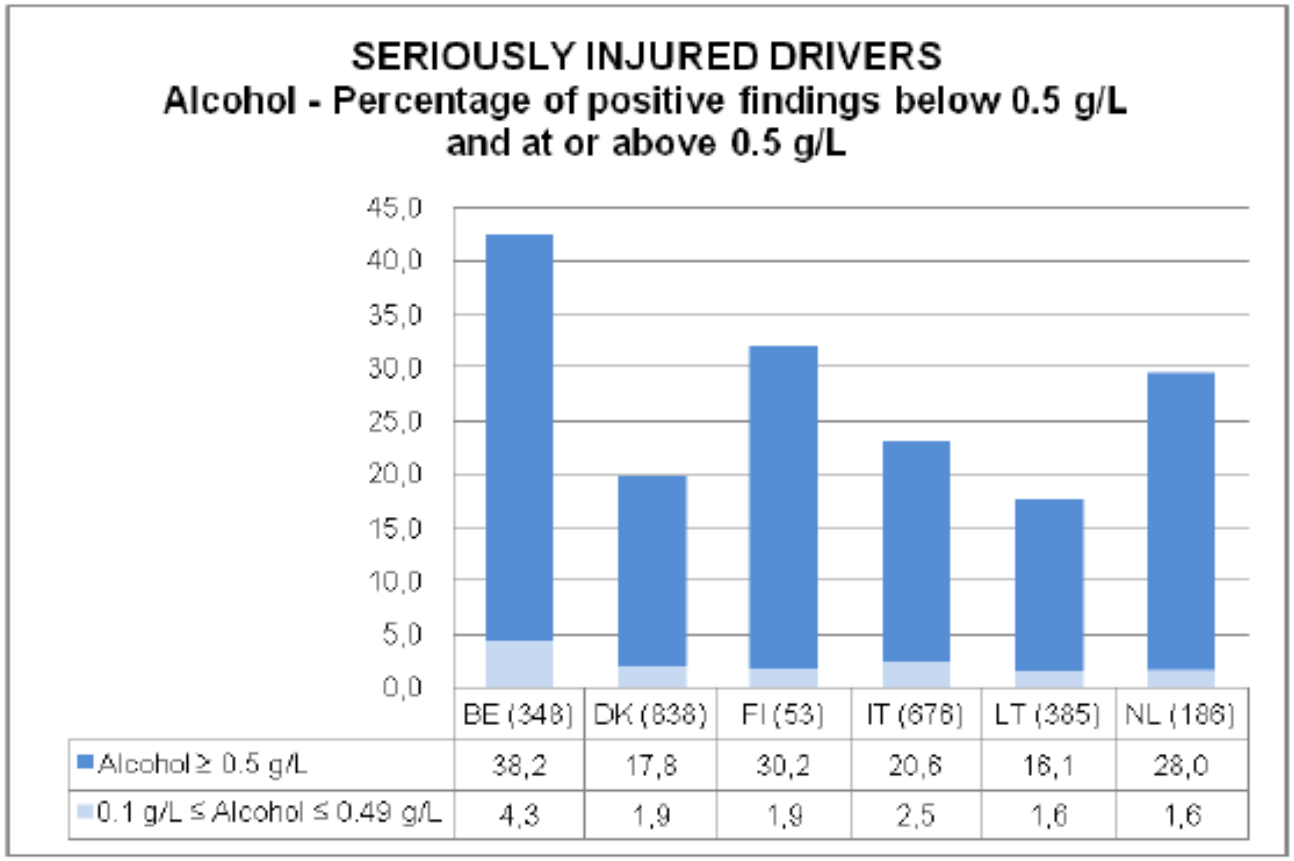
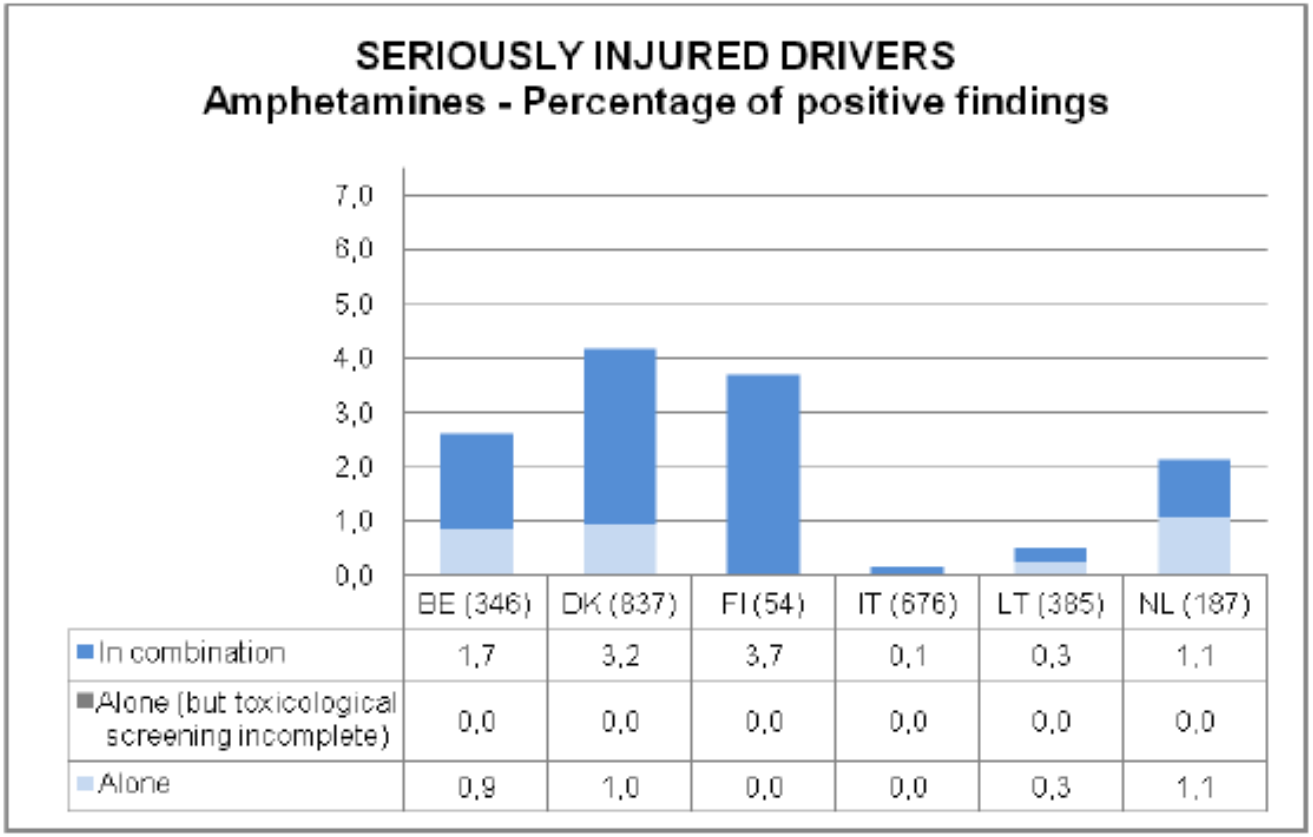


Figure 21. Prevalence of uses – alcohol (≥0.5g/L)

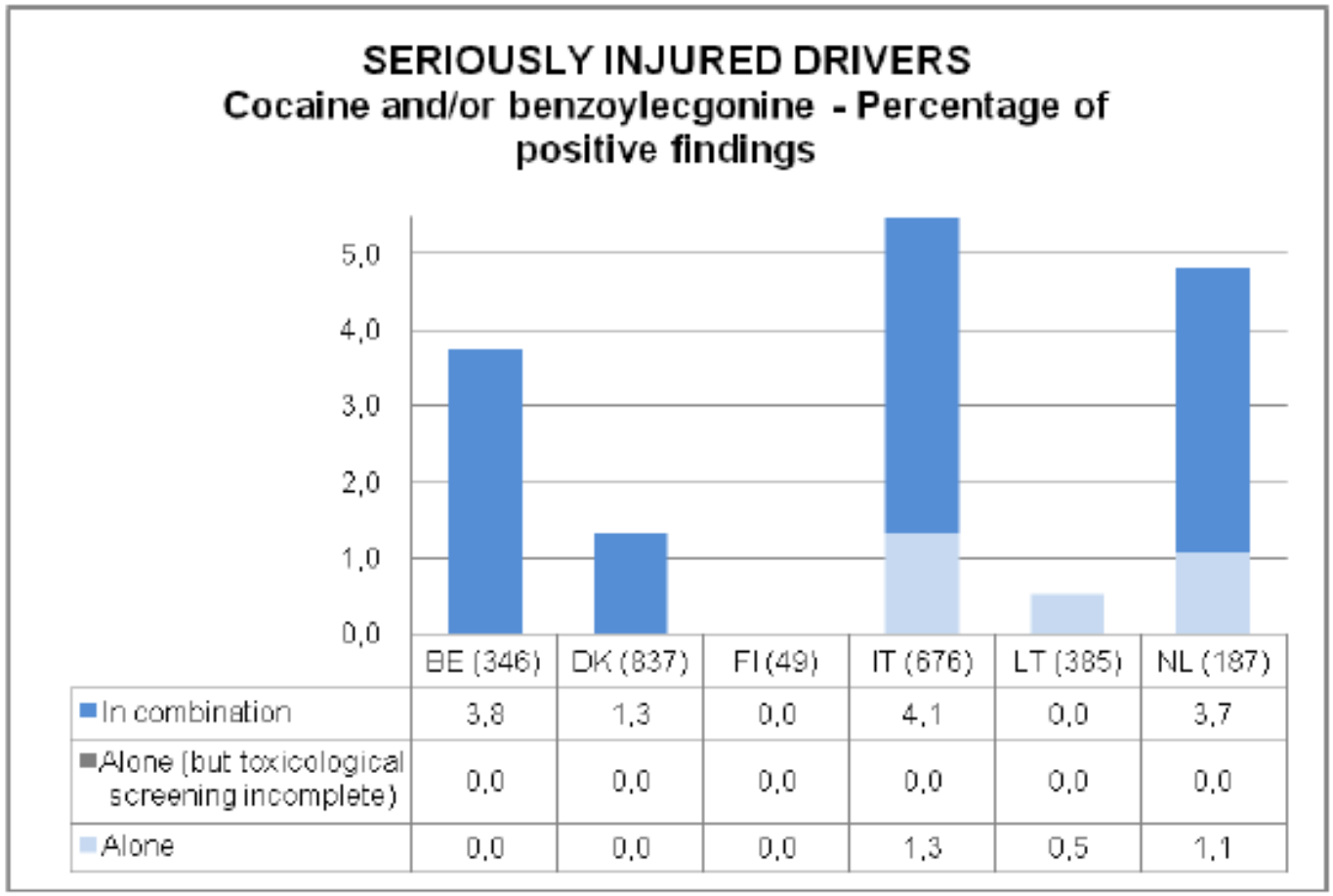
Amphétamines (incl. MDMA) - internat.



	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

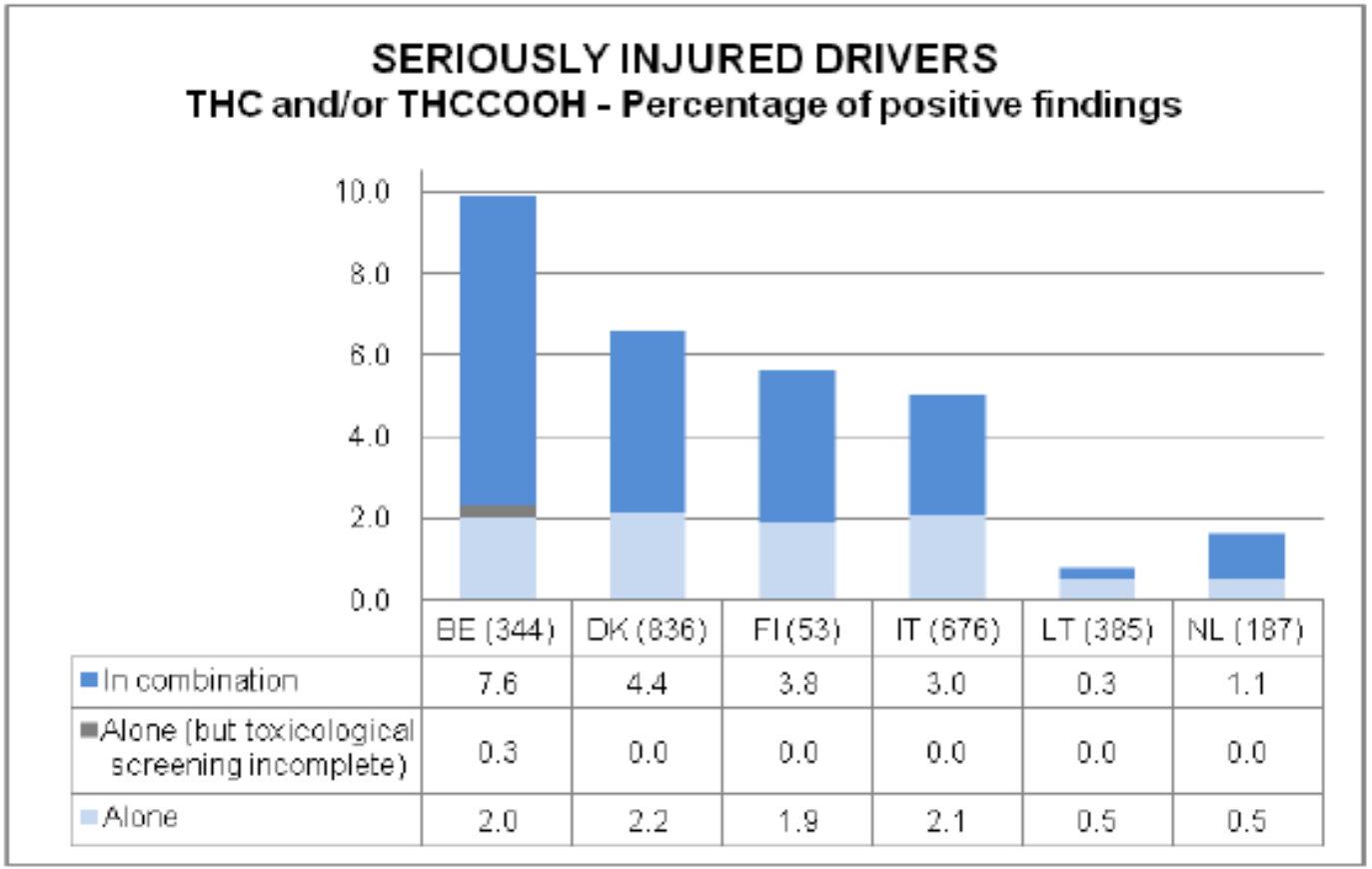
Cocaïne - international



	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

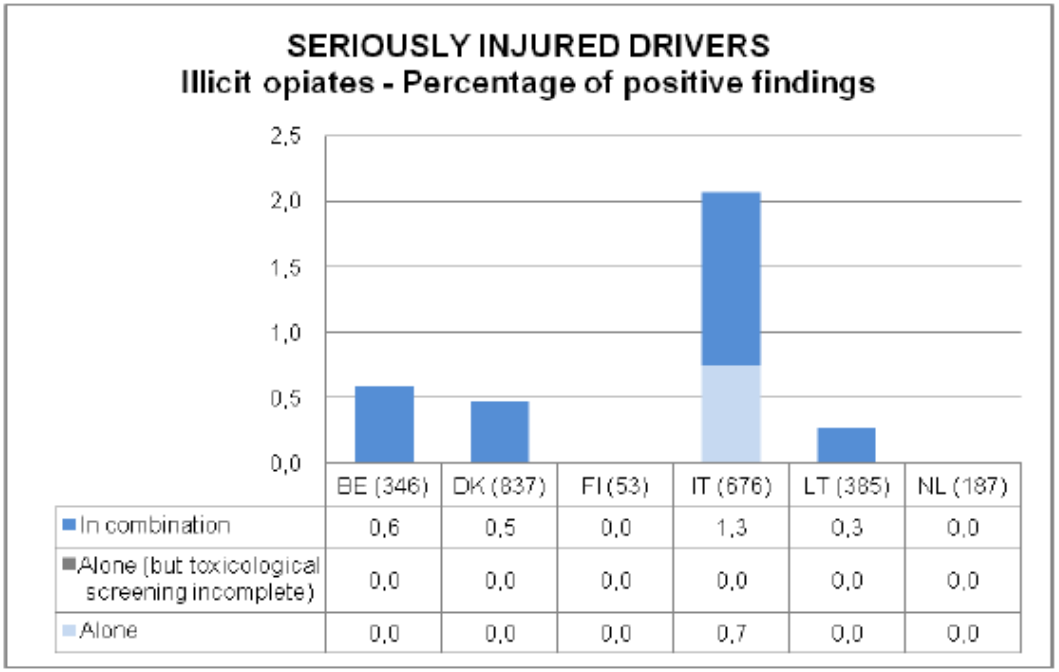
Cannabis - international



	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

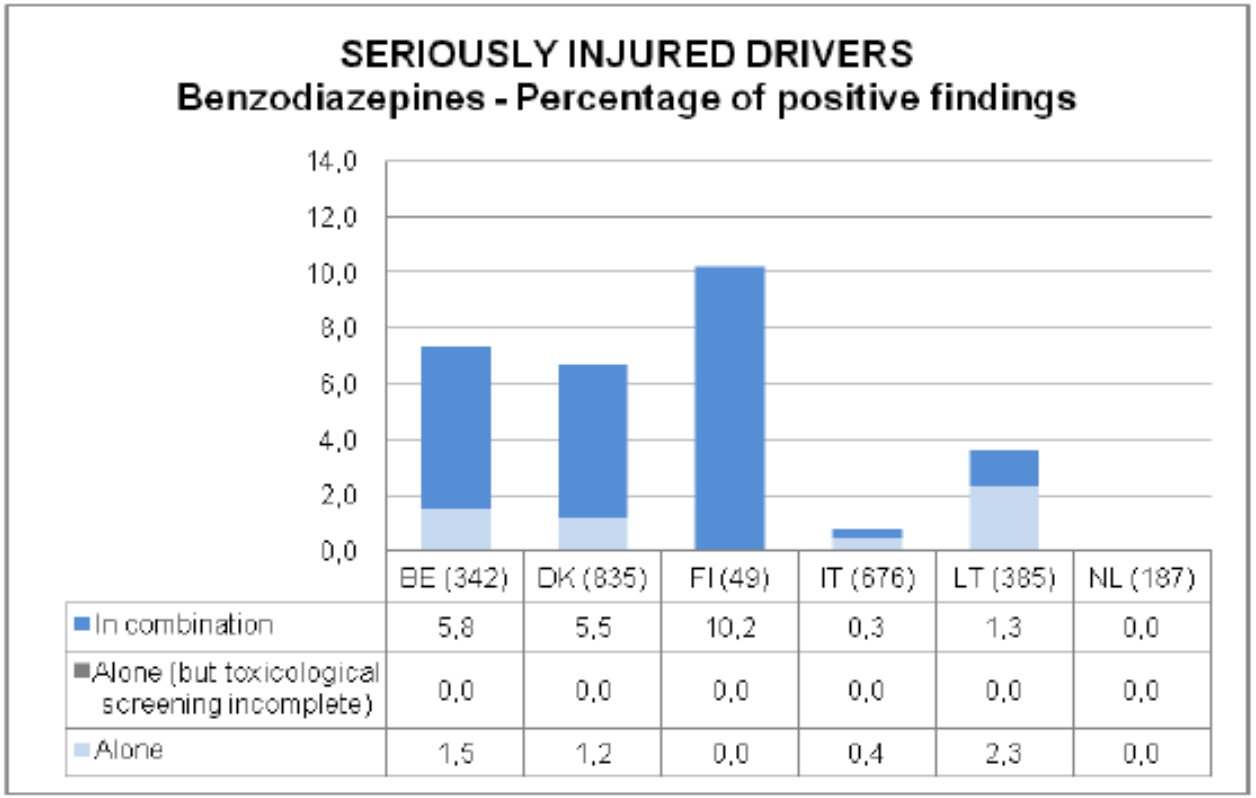
Héroïne – Opiacés illicites



	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

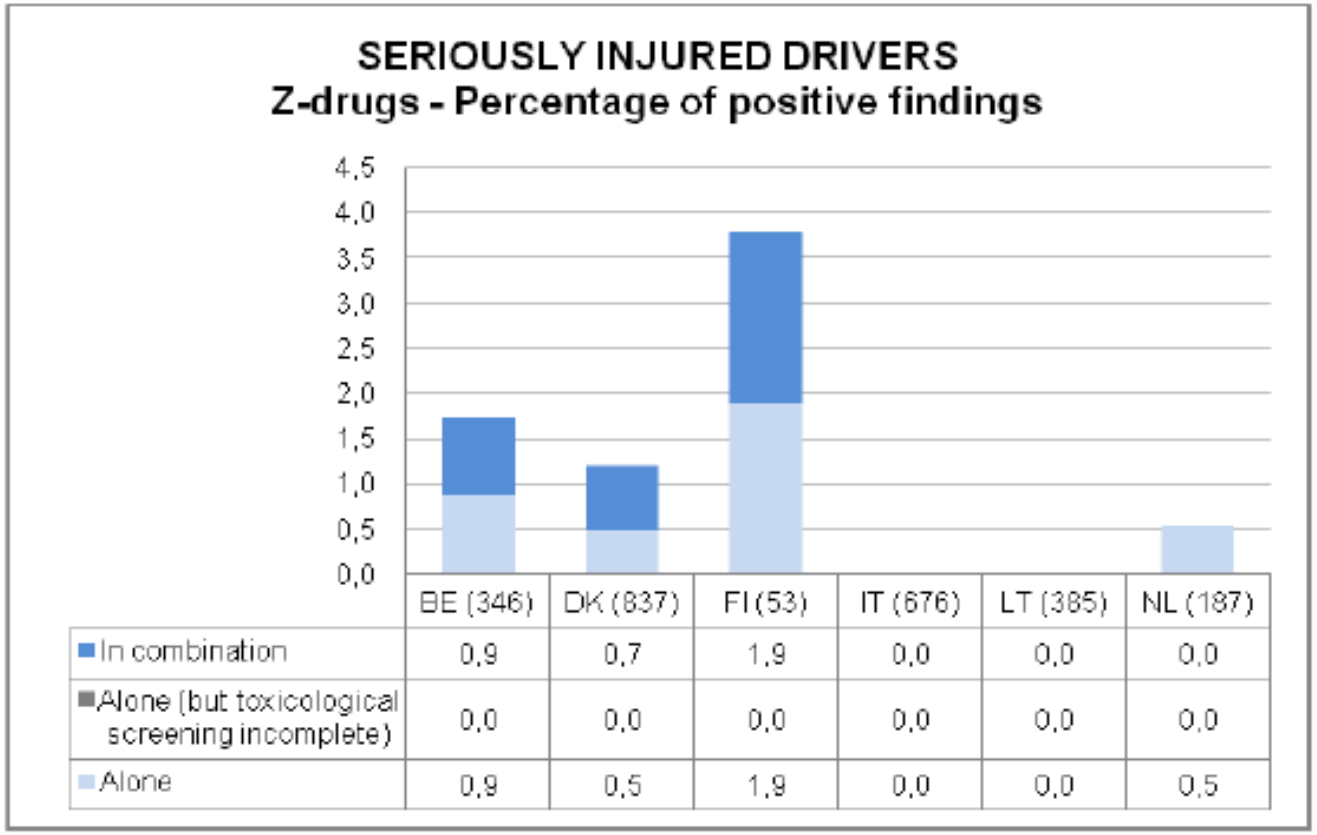
Benzodiazépines - international



	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

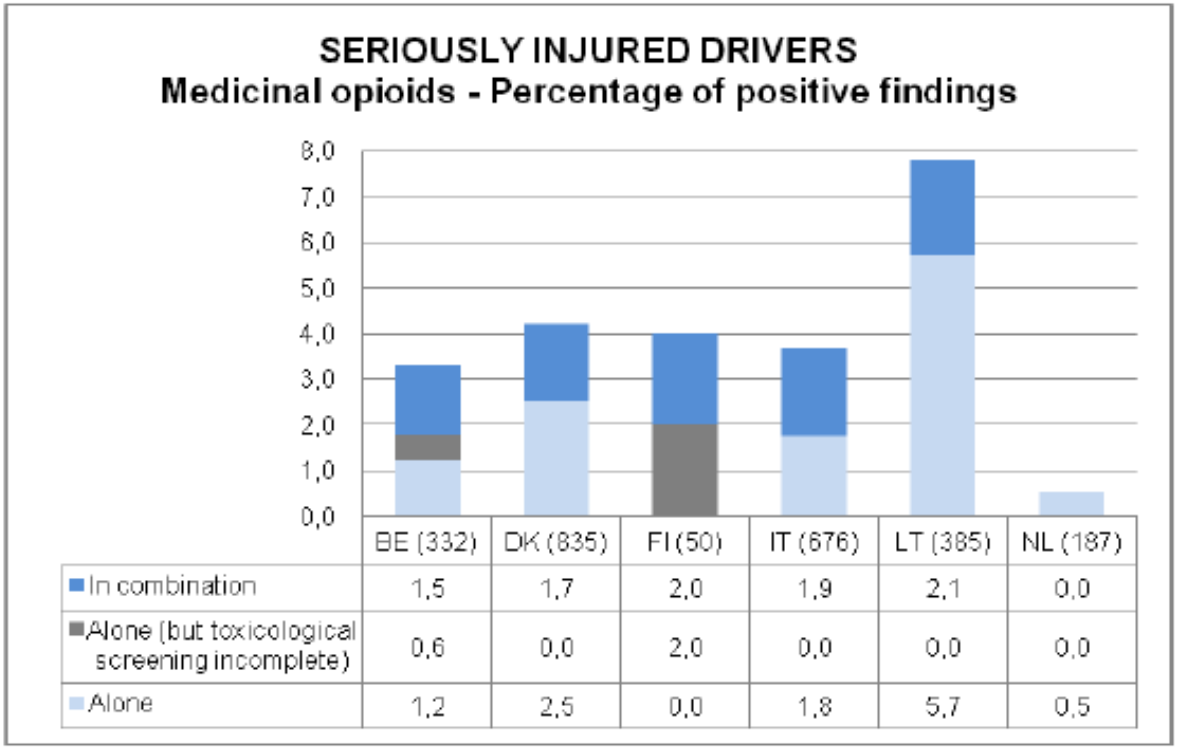
Drogues Z - international



	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

Opiacés médicinaux- international



	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

Consommation combinée - international

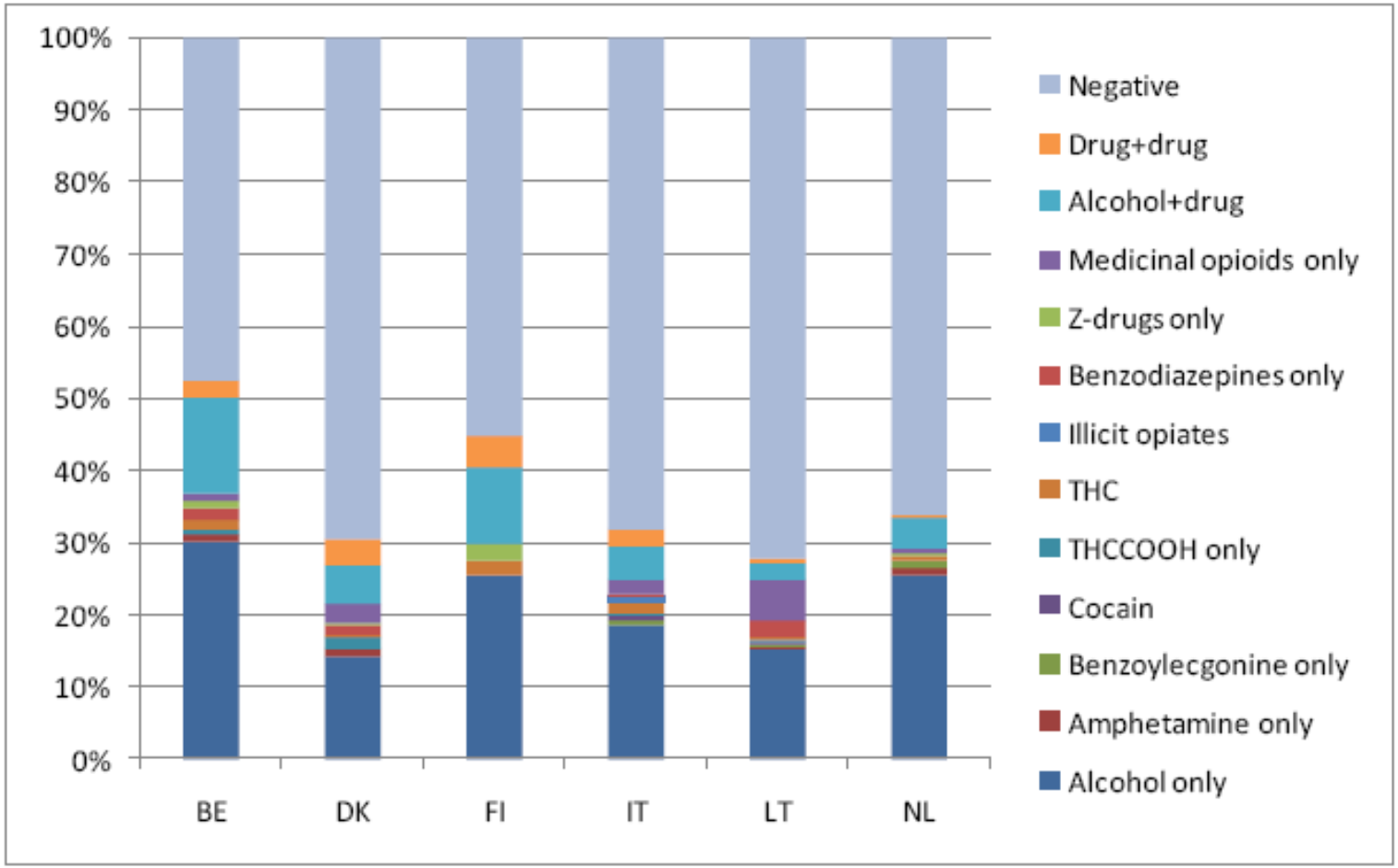


Figure 85. Seriously injured drivers – Distribution of positive drivers by substance groups

Influence du sexe et de l'âge - int.

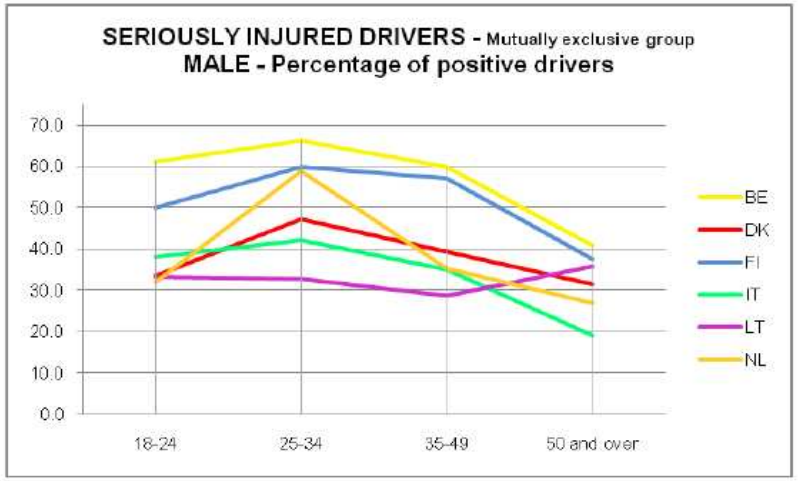


Figure 83. Mutually exclusive groups – Percentage of positive drivers: male

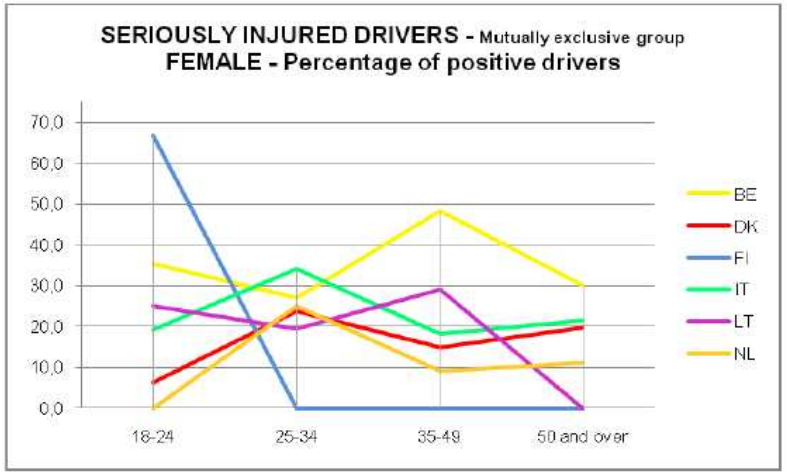


Figure 84. Mutually exclusive groups – Percentage of positive drivers: female

Détails échantillon BE complet

- Résultat secondaire intéressant
- (résultats pour 4 roues non compris)

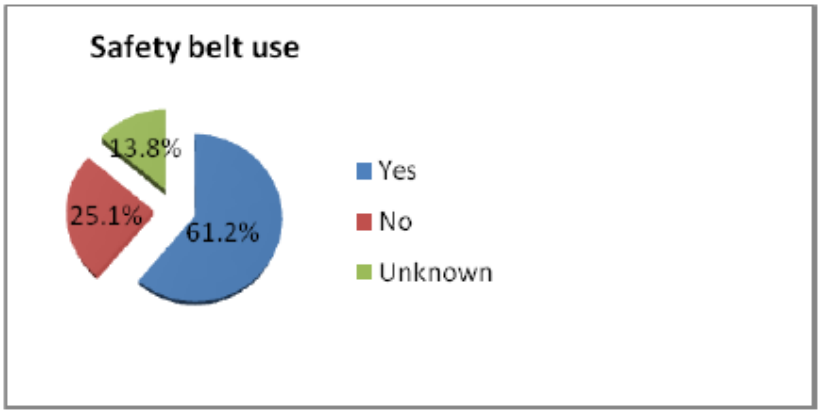
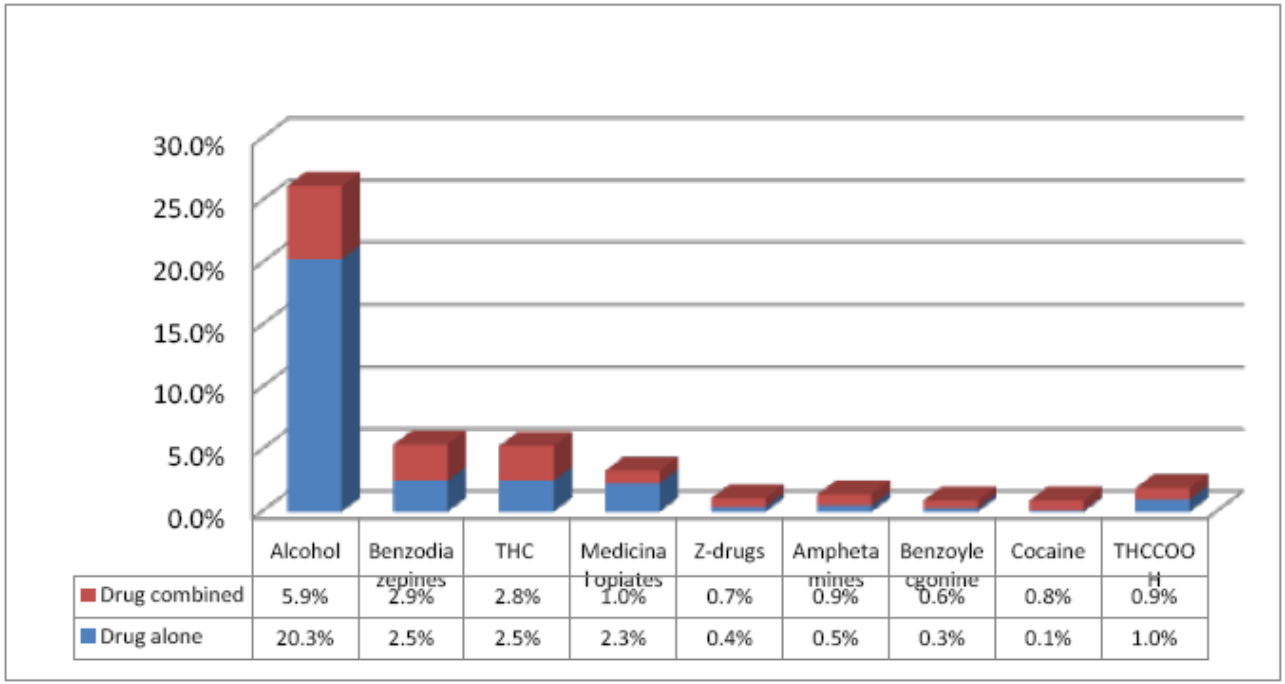


Figure 5. Safety belt use in vehicles fitted with safety belts

Prévalences échantillon BE complet



	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

- => chiffres de prévalence moins élevés faibles que l'échantillon international ~ surreprésentation des usagers vulnérables + plus faible prévalence à ce niveau

Détails échantillon BE complet

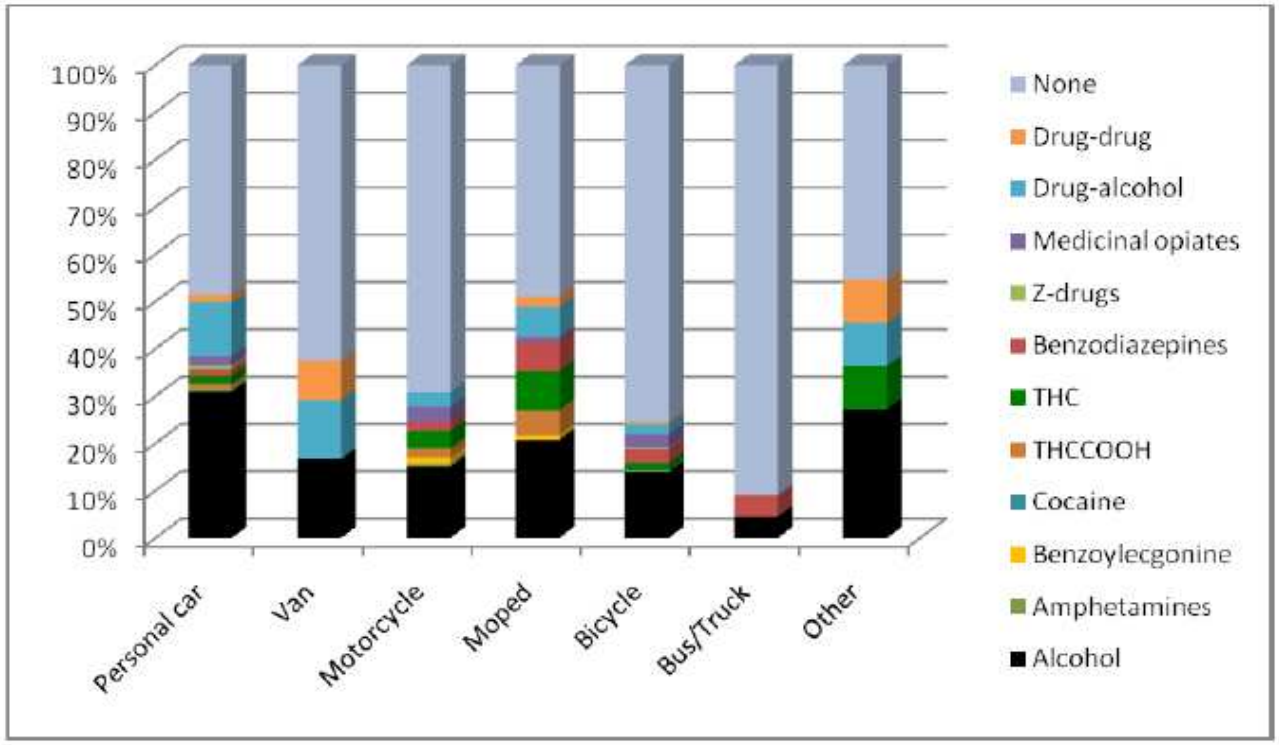


Figure 9. Distribution of substance groups by vehicle type

Plus de détails cf. D 2.2.5

- Jour vs nuit
- Semaine vs week-end
- Régimes de vitesse
- Single vs multiple vehicle accidents
- ...

Conclusions

- Conclusions finales dépendent des estimations des risques relatifs
- Enquête antérieure (e.a. IMMORTAL) a montré que :
  - Risque exponentiellement élevé pour les combinaisons alcool-drogue et drogue-drogue
  - Suffisamment connu : risque d'alcool > .5 g/l
- Conclusions :
  - Chiffres de prévalence belges relativement élevés en UE cf.
  - Attention particulière (politique criminelle/sensibilisation) pour :
    - CSI alcool : 38.2% > .5 g/l
    - Combinaisons alcool-drogue : 13.2% positif