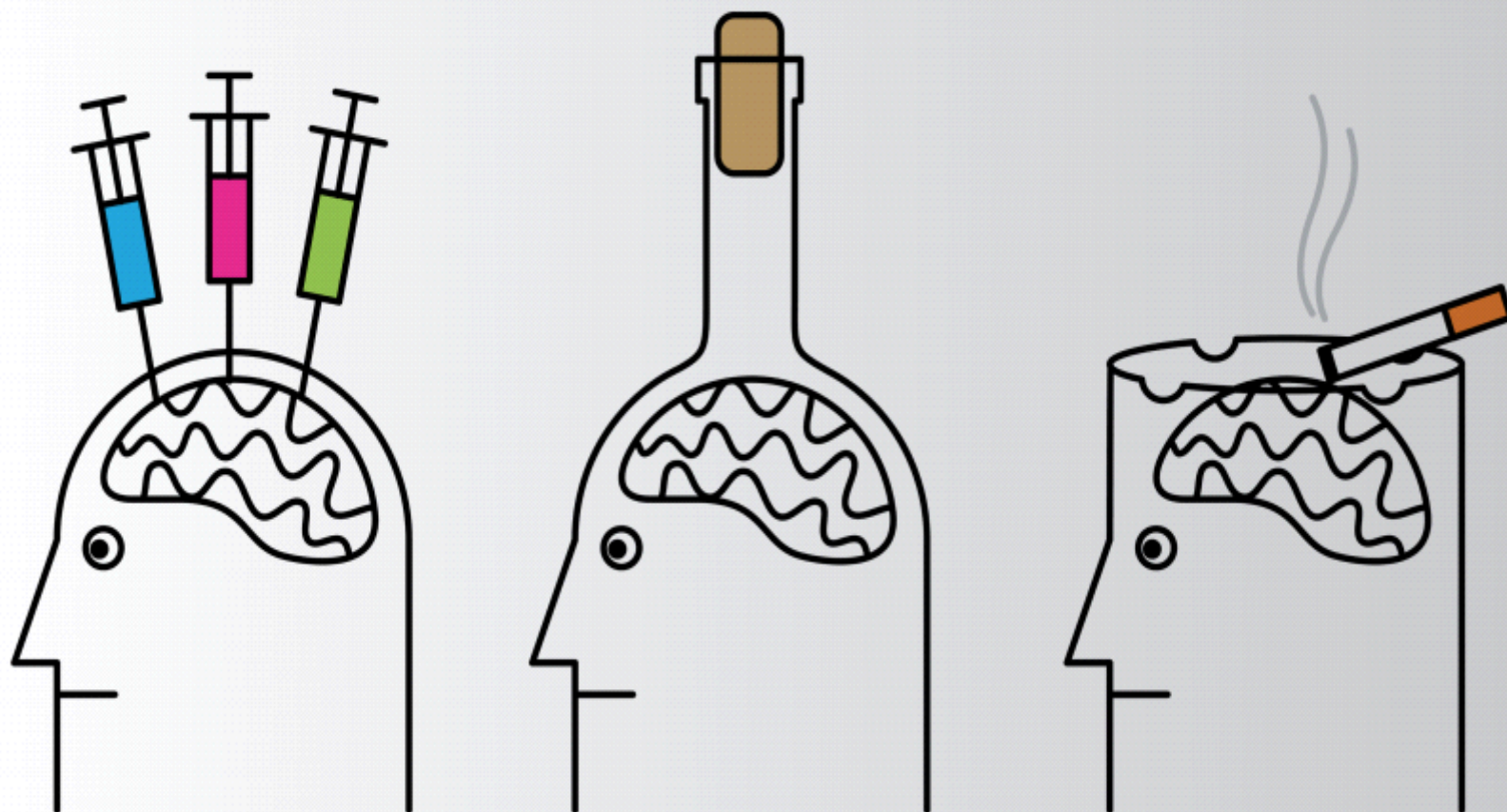


NEW DRUGS 2014 – Congresso Internazionale
Aggiornamento tecnico-scientifico sulle nuove sostanze psicoattive
14-15 Maggio 2014 ROMA



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**A STRATEGY TO PASS
TOXICOLOGICAL TESTS
ON ROAD
AND
THOSE FOR THE ISSUING OF
THE DRIVING LICENCE**

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Sez. Medicina Legale
Università di Verona

HOW TO PASS A TOXICOLOGICAL TEST?



4.100.000 risultati (0,38 secondi)

Beating The Drug Test System - Toxassociates

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Forensic **Toxicology** ... The following information explains how the drug **test** system can currently be defeated. ... How it's done (How People **Beat** the Drug **Test**).

How to prepare for Urine toxicology test? and more ...

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Toxicology tests are conducted to check a person for the consumption of drugs, by collecting and ... Can you **beat** a cotinine urine test by drinking a lot of water?

How to pass a drug test for weed and oxy - HealthTap

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Related to **how to pass** a drug **test** for weed and oxy: Baby Caffeine ... Drug **testing**
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pass home urine **tests** household · HOW LONG DOES ... **toxicological** urine **test pass**
· how long ... **how to pass** a urine **test** without buying anything · **how to pass** ...

Category: Pass A Drug Test - American Toxicology

www.american toxicology.com/.../pass%20a%20dr... ▾ Traduci questa pagina

27/set/2013 - American **Toxicology** News, Funny Drug **Testing** Stories & Other Fun Facts. And Important Closure Dates.

Google HOW TO PASS A HAIR TEST Google

wikiHow
to do anything

How to Pass a Hair Follicle Drug Test: 23 Steps (with Pictures)

www.wikihow.com > ... > Drug Addictions ▾ Traduci questa pagina

How to Pass a **Hair** Follicle Drug **Test**. A drug **test** is sometimes the one roadblock that prevents otherwise sane and healthy people from succeeding. It can keep ...

Part 1 of 4: Determining your Odds

- Know when you'll have to take a drug test
- **Know which drugs are most commonly tested for**
- **Know which drugs employers may also choose to screen**
- **Know which drugs aren't usually screened for**
- Understand how a hair test works
- Understand how your hair is processed
- Immediately stop any drug use
- If you're desperate, **try a home remedy**
- Part 2 of 4: Vinegar Rinse Home Remedy
- soak your hair with a salicylic acid acne treatment
- Work one capful of liquid detergent through your hair thoroughly
- Add a dash of water to 1 scoop of powder detergent to make a paste
- Rinse all the products out of your hair
- Dye your hair using a standard store-bought dying kit
- ...



BEATING THE DRUG TESTING SYSTEM

A good plan of action

1. Abuse of **drugs not detected** with routine drug testing



2. **Stop drug use** before drug testing

Specimen	Detection window
Blood (serum)	several hours- 1-2 days
Urine	several hours - 3 days (1 month → THC)
Oral fluid	several hours - 1-2 days (or more for basic drugs)
Sweat (patch)	weeks
Hair	months/years

**USE OF DRUGS
NOT DETECTED
BY ROUTINE ANALYSES**



NPS use to cheat the toxicological screening



Study Group: 600 subjects undergoing toxicological tests to obtain/renew the driver's license

- Area: North-East of Italy (*Bolzano, Verona, Vicenza*)
- Time-frame: 2009-2013
- Each selected subject tested
 - **positive** to THC metabolites in **Old** urine **samples**
 - **negative** to THC metabolites → **Recent** urine **samples**





HAIR SAMPLE EXTRACTION



- ~100 mg of hair
- *Incubation:* o.n. at 45° C in 1 mL of 0.5 mol/L NaOH
- 5 mL hexane/ethylacetate (9:1)
- Vortex @ 3500 rpm → 15 min
- Re-extraction of the aqueous phase
- Dry the organic phase
- Addition of 100 µL of methanol



ANALYSIS



Screening HRMS LC-ESI-QTOF MS

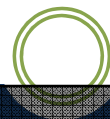
Panel of > 50 molecules reported to the
NEWS during 2009-2012



Quantitative analysis → LC-ESI-QQQ MS



RESULTS



Sample n.	Age	Sampling Year	Results
1	21	2009	JWH-250: 3 pg/mg, JWH-073: 17 pg/mg, JWH-018: 6 pg/mg
2	40	2010	JWH-081: 16 pg/mg
3	22	2010	JWH-122: 125 pg/mg
4	29	2010	JWH-081: 1280 pg/mg
5	20	2010	JWH-018: 10 pg/mg
6	28	2011	JWH-081: 24 pg/mg
7	27	2011	JWH-018: 11 pg/mg
8	19	2011	JWH-210: 1.2 pg/mg
9	45	2011	JWH-081: 11 pg/mg
10	29	2011	JWH-015: 10 pg/mg, JWH-073: 13 pg/mg
11	21	2011	JWH-081: 37 pg/mg
12	30	2012	JWH-081: 14 pg/mg
13	32	2012	JWH-210: 1 pg/mg
14	23	2013	JWH-073: 4pg/mg, JWH-081: 132 pg/mg, JWH-018: 4 pg/mg

RESULTS

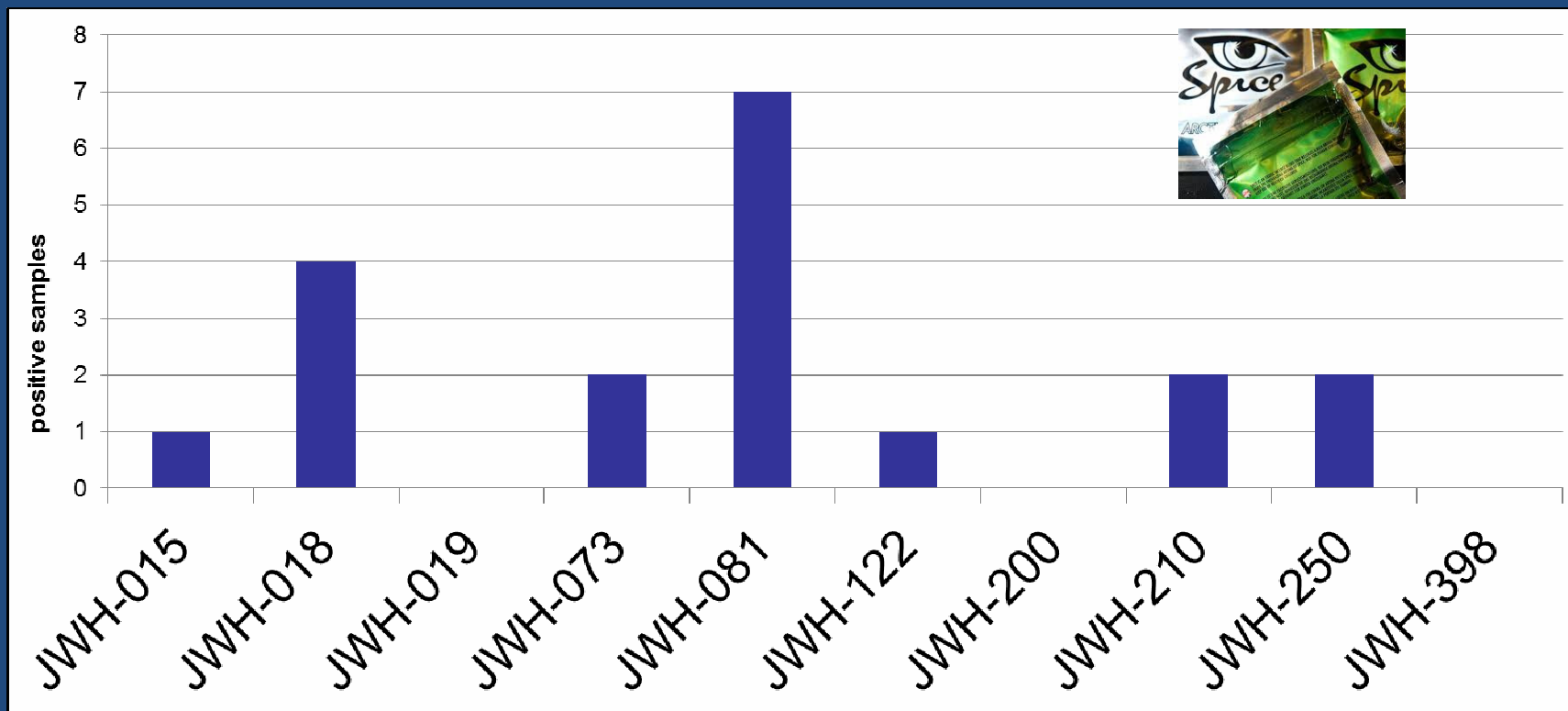
Drug abstinence
at the tox screening

Negative at the
routine GC/MS
(Hair/Urine)

2,3 % positive
***Synthetic
cannabinoids***

100 % **Males**
Mean age: **27.6±6.3** y.o.
Range: 19-45 years

Distribution of positive samples



Hair analysis (P.L.)



- Male, age 22
- Tested periodically since 2009
- Previous abuse of Cannabis
- Deny any drug assumption since 2009

Typical example (P.L.)

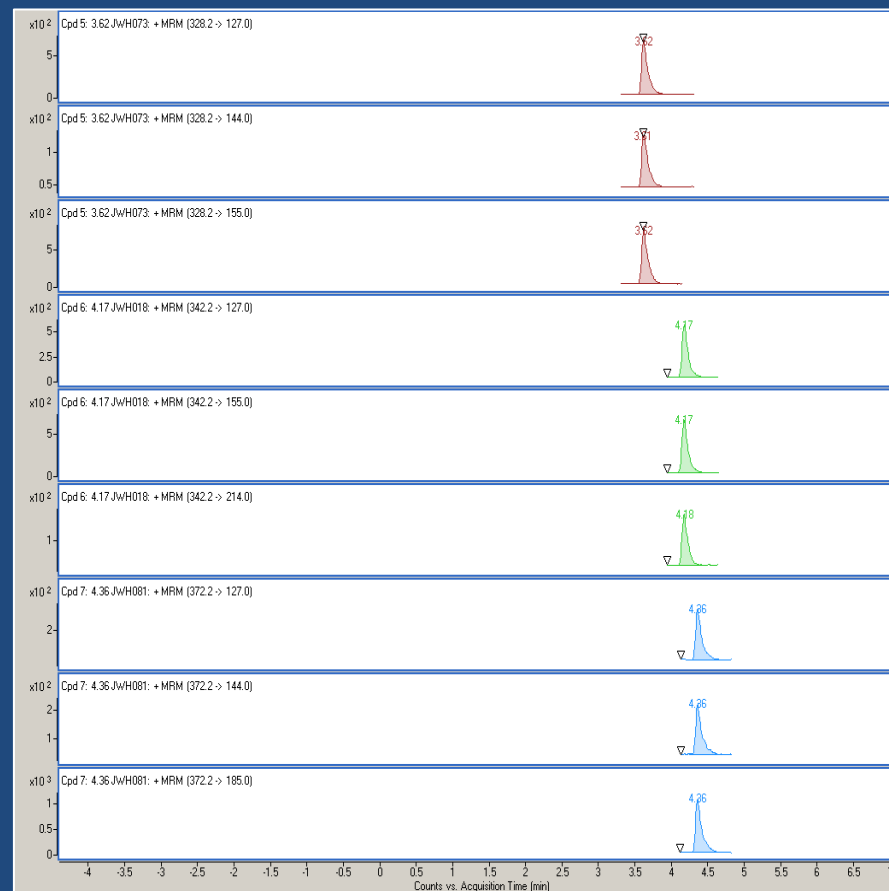
Year of Sampling	Hair analysis Synthetic Cannabinoids	Sample Length	Urine Analysis (THC-COOH)
2009	Negative for JWH's	3-4 cm	During the month prior to hair analysis resulted positive in 2/8 of urine samples
2010	positive: JWH-018: 10 pg/mg JWH-073: 750 pg/mg	4 cm	During the month prior to hair analysis resulted Negative in all the urine samples (8/8)
2011	positive: JWH-081: 37 pg/mg	3 cm	During the month prior to hair analysis resulted Negative in all the urine samples (8/8)
2013	positive: JWH-073: 4 pg/mg JWH-081: 132 pg/mg JWH-018: 4 pg/mg	4-5 cm	During the month prior to hair analysis resulted Negative in all the urine samples (8/8)

Results (P.L.)

JWH-073: 4 pg/mg

JWH-018: 132 pg/mg

JWH-081: 4 pg/mg



Conclusions



- Hair is suitable to test and monitor NPS abuse
- LC-QTOF MS e LC-QQQ MS were suitable for the screening, the confirmation and the quantitative analysis of NPS
- This preliminary study indicates that the use of Synthetic Cannabinoids may be started to cheat routine toxicological testing

*Data obtained in the frame of the
project “Smart Search 2”
fundend by Dipartimento Politiche Antidroga
Presidenza del Consiglio dei Ministri*

**A simpler method to cheat
toxicological-testing :
“JUST SMOKING CANNABIS”**



THC & Road Traffic Injuries (RTI)

Axiom of clinical and forensic toxicology

Blood THC +

**Blood THC –
Urine THC-COOH+**

**Driving
impairment**

**NO Driving
impairment**

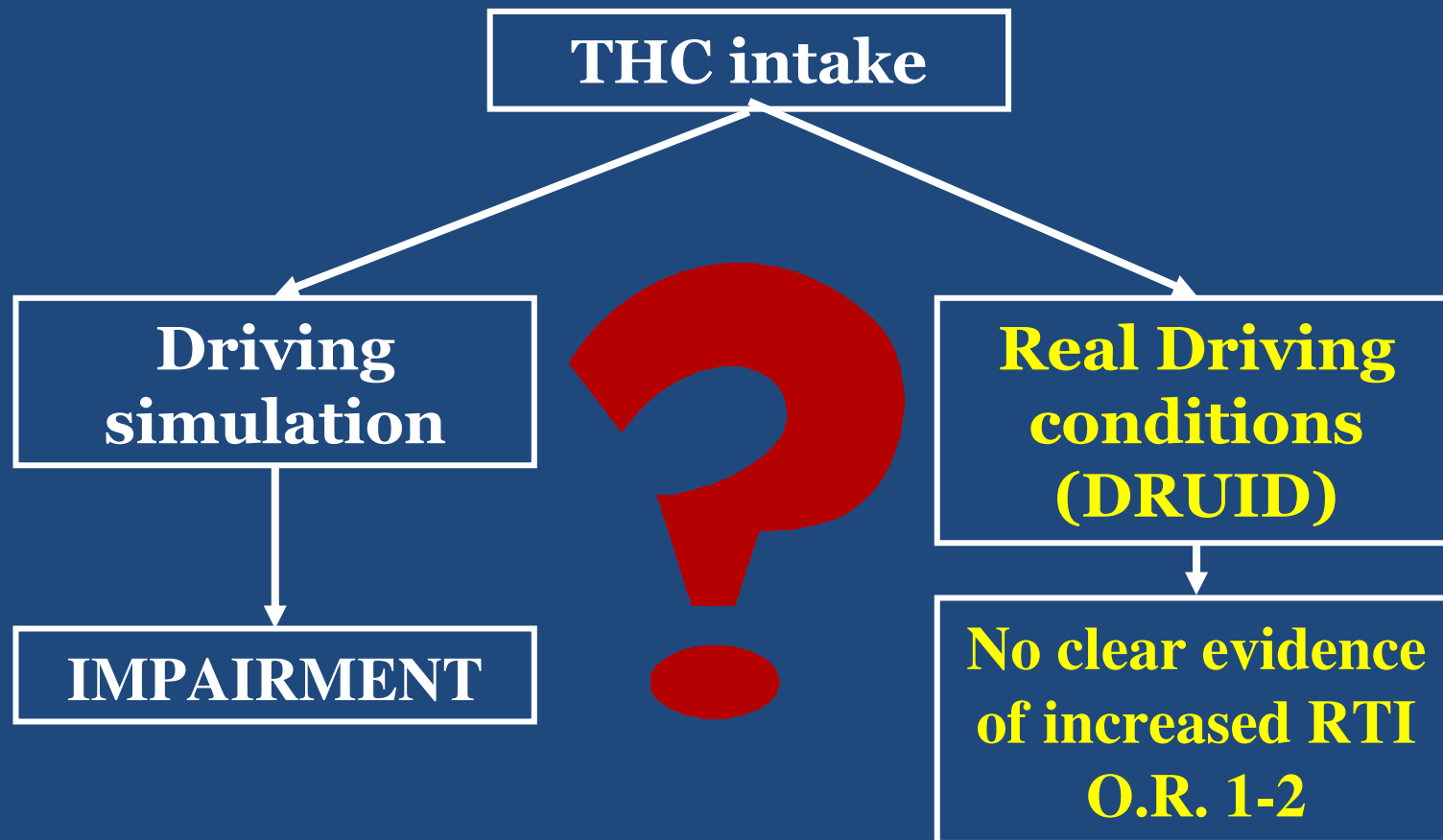
**↑ RISK of ROAD
ACCIDENTS**

**NO
INCREASED RISK**



THC & Road Traffic Injuries (RTI)

Driving Simulations VS Risk of RTI



THC & Road Traffic Injuries (RTI)



Is blood the most appropriate specimen to test THC in drivers



Aim of the Study



Verify the hypothesis of a positive association between

**Urine
THC-COOH**



↑ of RTI

THC & Road Traffic Injuries (RTI)



Materials & Methods

Group 1: Case population (1406 subjects)

- ✓ drivers admitted to hospital for a road traffic injury (RTI) (*Verona, Cesena, Forlì, Ravenna and Rimini - 2009-10*)
- ✓ Blood alcohol → negative
- ✓ major drugs of abuse → tested in urine
- ✓ **Positive** case → THC-COOH + in Urine
- ✓ **Negative** case → THC-COOH – in Urine
- ✓ Co-positives to other substances → Excluded

THC & Road Traffic Injuries (RTI)



Materials & Methods

Group 2: Control population (23,967 subjects)

- ✓ employees with safety-sensitive jobs
 - mandatory toxicological screening in Italy at random
- ✓ major drugs of abuse → tested in urine
- ✓ **Positive** case → THC-COOH+ in Urine
- ✓ **Negative** case → THC-COOH – in Urine
- ✓ Co-positives to other substances → Excluded

THC & Road Traffic Injuries (RTI)

Results

	GROUP 1	GROUP 2
POSITIVE CASES	116	37
NEGATIVE CASES	1290	23904
TOTAL POPULATION	1406	23941

Group 1

$$\text{Odds} = 116/1290 = 0.0899$$

Group 2

$$\text{Odds} = 37/23904 = 0.0015$$

ODDS RATIO = 60

THC & Road Traffic Injuries (RTI)

Discussion

THC + VS Risk of RTI

Blood THC +
Odds ratio = $\sim 2^$*

**Urine
THC-COOH +**
Odds ratio = ~ 60



* Asbridge M, Hayden JA, Cartwright JL. Acute cannabis consumption and motor vehicle collision risk: systematic review of observational studies and meta-analysis. *BMJ*. 2012 Feb 9;344:e536. Review.

*Data obtained in the frame of the
project “Safe Drive”
fundend by Dipartimento Politiche Antidroga
Presidenza del Consiglio dei Ministri*

*Thanks to:
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Direzione Sanità RFI*

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