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**Unit of Forensic Medicine, Department of Diagnostics and Public Health  
University of Verona, Verona, IT**  
&  
**Institute Translational Medicine and Biotechnology,  
Sechenov First Moscow State Medical University, Moscow, RU**





**ALCOHOL ASSOCIATED TRAFFIC  
INJURIES IN VERONA TERRITORY:  
A 10 YEAR SURVEY**

*N. Pigaianni, M. Colombari, G. Musile, F. Bortolotti & F. Tagliaro*



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Verona**



**ALCOHOL AND TRAFFIC ACCIDENTS**

**“World Report on Traffic Injury Prevention”, WHO, 2004**  
From the foreword by  
**L. Jong-Wook**, Director general of the WHO  
and  
**J.D Wolfensohn**, President of the World Bank Group:

*"Everyday thousands of people are killed and injured on our roads. Men, women or children walking, biking or riding to school or work playing in the streets or setting out on long trips will never return home leaving behind shattered families and communities.  
...  
Current efforts to address road safety are minimal in comparison to this growing human suffering..."*

## ALCOHOL AND TRAFFIC ACCIDENTS

### DALY Disability-Adjusted Life Years

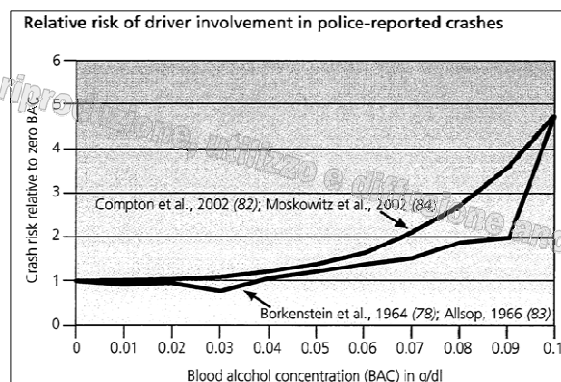
Change in rank order of DALYs for the 10 leading causes of the global burden of disease

1990		2020	
Rank	Disease or injury	Rank	Disease or injury
1	Lower respiratory infections	1	Ischaemic heart disease
2	Diarrhoeal diseases	2	Unipolar major depression
3	Perinatal conditions	3	Road traffic injuries
4	Unipolar major depression	4	Cerebrovascular disease
5	Ischaemic heart disease	5	Chronic obstructive pulmonary disease
6	Cerebrovascular disease	6	Lower respiratory infections
7	Tuberculosis	7	Tuberculosis
8	Measles	8	War
9	Road traffic injuries	9	Diarrhoeal diseases
10	Congenital abnormalities	10	HIV

DALY: Disability-adjusted life year. A health-gap measure that combines information on the number of years lost from premature death with the loss of health from disability.

## ALCOHOL AND TRAFFIC ACCIDENTS

The correlation of the increase of crash risk with BAC is clear since the 1960's (Grand Rapids Study)

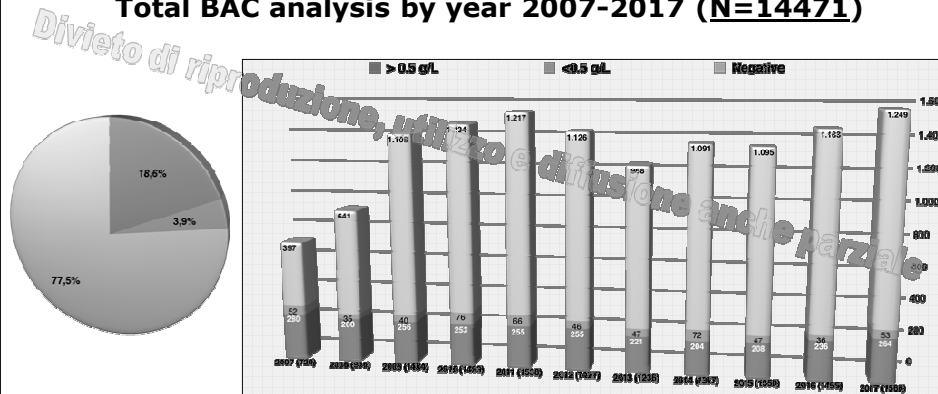


A metanalysis of 554 papers confirms the influence of alcohol concentration on driving safety down to 0.5-0.4 mg/mL (*Canfield DV et al. Alcohol limits and public safety. Forensic Science Review 2014; 26: 10-19*).

## ALCOHOL AND TRAFFIC ACCIDENTS

**Casework in the province of Verona**  
(traffic accidents with admission of the driver to hospital)

**Total BAC analysis by year 2007-2017 (N=14471)**



**18,6 % of injured drivers was under influence of alcohol**

## ALCOHOL AND TRAFFIC ACCIDENTS

**BAC > 0.01 g/L 2007-2017 (N=3262; 22.5%)**



### Strange finding:

The number of cases with BAC within the legal limit ( $\leq 0.5$  g/L) is the double than that of the cases with BAC between 0.51 and 0.80 g/L (**WHY???**)

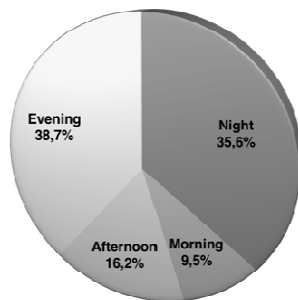
### Tentative answer:

The percentage of drivers with BAC within the legal limit is much higher in the general population than the percentage of those in the 0.51-0.80 range

## ALCOHOL AND TRAFFIC ACCIDENTS

### Frequency of BAC positives in function of the day hour

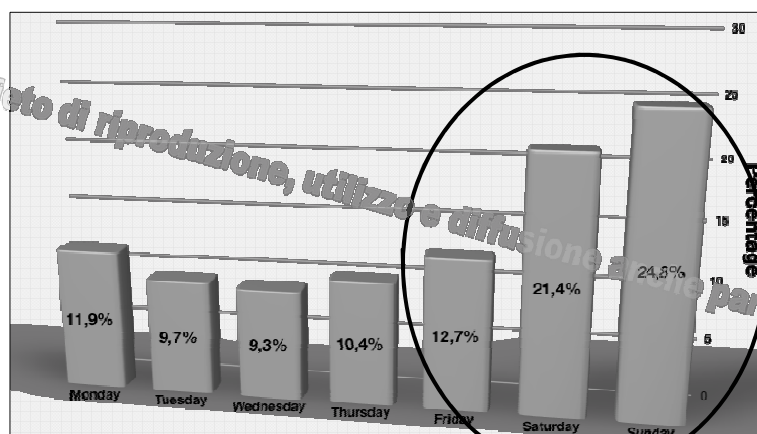
- **Night** (00:00 - 05:59)
- **Morning** (06:00 - 11:59)
- **Afternoon** (12:00 - 17:59)
- **Evening** (18:00 - 23:59)



As many as **74,3 %** of BAC positives-related accidents occur between **h 18:00 and h 06:00**

## ALCOHOL AND TRAFFIC ACCIDENTS

### Frequency of BAC positives in function of the day of the week



As much as **58.9%** of alcohol positive cases are concentrated in the **weekend**

## ALCOHOL AND TRAFFIC ACCIDENTS

### DISCUSSION & CONCLUSION

- As much as **18 %** of road traffic injuries occurs under the effect of alcohol
- The **vast majority** of alcohol related accidents occurs from 6:00 PM to 6:00 AM
- Roughly **60%** of alcohol related accidents occurs in the week-end

#### Two strategies:

#### PREVENTION (Excluding chronic alcohol abusers from driving vehicles)

- Education
- Biomedical «filtration» of applicants in driving license issuing

#### DETERRENCE (Applying sanctions on "Drunk Driving")

- - Roadside Breath Testing
- - Mandatory alcohol analysis in injured drivers

## ALCOHOL AND TRAFFIC ACCIDENTS

### Deterrence: sanctions on "Drunk Driving"

Italian laws on traffic safety  
(Codice della Strada & Law 41/2016)

BAC	PENALTY
> 0.5 up to 0.8 g/L	Fine (administrative sanction) from 500 to 2.000 euro. Confiscation of driving license from 3 to 6 months.
> 0.8 up to 1.5g/L	Fine (penal sanction) from 800 to 3.200 euro, in jail up to 3 months. Confiscation of driving license from 6 months to 1 year. In case of death or severe injuries: imprisonment for 5-10 years
over 1.5 g/L	Fine (penal sanction) from 1.500 to 6.000 euro, in jail up to 6 months . Confiscation of driving license form 1 to 2 years. In special cases revocation of the license. Confiscation of the vehicle. In case of death or severe injuries: imprisonment for 8-12 years

## ALCOHOL AND TRAFFIC ACCIDENTS

### Deterrence: sanctions on "Drunk Driving"

#### ALCOHOL ANALYSIS IN INJURED DRIVERS

(C.O.R. Verona: **D. R. n. 468 6<sup>th</sup> April 2017**)

##### C.O.R. Verona:

- clinical and laboratory protocols
- P.O.T. training activities
- toxicological analysis
- forensic toxicology reports
- coordination of the P.O.T.

##### P.O.T. Verona and Vicenza:

- biological samples
- physical examination
- chain of custody
- send samples to C.O.R.

➤ 1<sup>st</sup> January – 31<sup>th</sup> August 2017: **974** samples



➤ 1<sup>st</sup> January – 31<sup>th</sup> August 2018: **1207** samples

Othello

Act II, Scene 3

Cassio «*O thou invisible spirit of wine,  
if thou hast no name to be known by, let us call thee devil!...*»

William Shakespeare (1564 – 1616)

**Thanks for  
the  
attention**