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# Effectiveness of Breath Testing of Drivers for Alcohol at Road Checks

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# Acknowledgments

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# Introduction

1. **As of 1 January 2010, mandatory screening breath testing of drivers for alcohol during all road checks** was introduced in the Czech Republic by virtue of a binding guideline of the Czech Traffic Police Directorate.
2. Until then tests for alcohol had been carried out as part of specific one-off campaigns or, as required practice, after accidents. As a result, the Czech Republic has become the first country in the EU to introduce such rigorous checks for drink-driving.
3. The presentation provides a preliminary evaluation of the impact of the change in terms of road safety as reflected in the numbers of accidents and fatalities associated with driving under the influence of alcohol.

## Czech drivers' attitudes (The Sartre Project)

1. The issue of road safety in the Czech Republic and other 22 European countries was investigated by the SARTRE 3 Project (Skládaná, 2005). The project produced data about the attitudes, opinions, and behaviours of drivers in 23 European countries.
2. This project found that drivers in the Czech Republic are aware of shortcomings in road safety. In addition, Czech drivers are even willing to accept unpopular measures (including more intensive checks and stricter sanctions) in relation to the violation of traffic regulations such as speeding and impaired driving.
3. The drivers do not want an increase in the permitted blood alcohol level and readily accept rigorous checks for blood alcohol (Skládaná, 2005).

## Study objectives

The objective of the study was to test the effectiveness of the new measure (*mandatory breath testing for alcohol*) in terms of:

1. road accidents caused by drink-driving
2. the number of alcohol-related road fatalities
3. the number of positive tests for alcohol and other drugs

## Design and data collection

The study involved the comparison of the selected indicators for the first six months of the years 2009 and 2010. To illustrate the trends, the results are presented in the context of the development of the indicators since 2000.

### The indicators under study included:

- the number of road fatalities in general
- the number of alcohol-related road fatalities
- the number of road accidents in general
- the number of alcohol-related road accidents
- the number of positive tests - alcohol
- the number of positive tests – other drugs (other than alcohol)

The study data were provided by the Czech Traffic Police Directorate.

## Statistical data processing

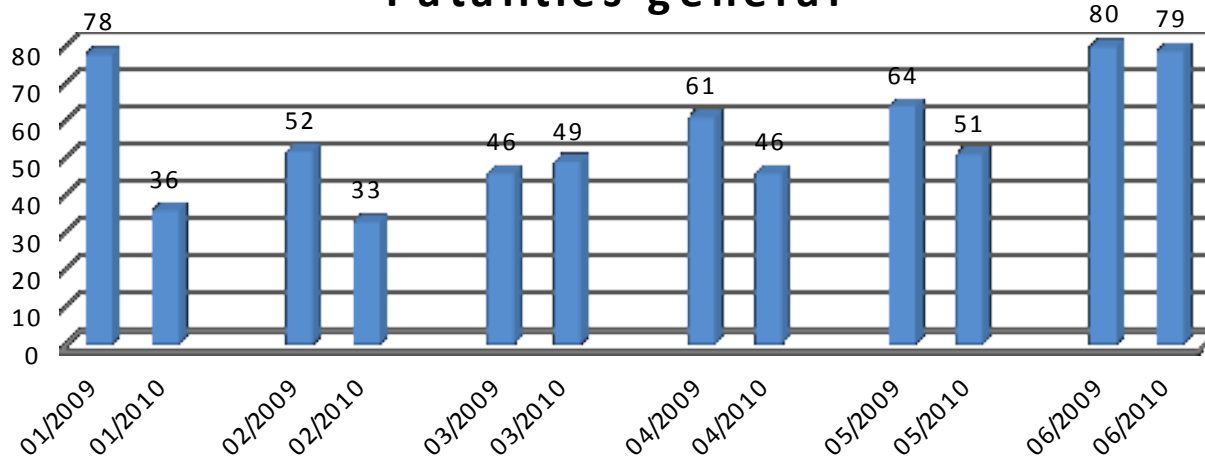
- Descriptive statistics (description of trends)
  - The statistical processing of data was conducted using the Wilcoxon Signed-Rank Test for related samples
  - Given the limited number of observations (only the period of the first six months), it was decided to use non-parametric statistics and work with aggregate data
  - Null hypothesis (the two samples for 2009 and 2010 – the first six months – show no statistically significant differences)
  - Tested at the 0.05 level of significance



## Results - trends

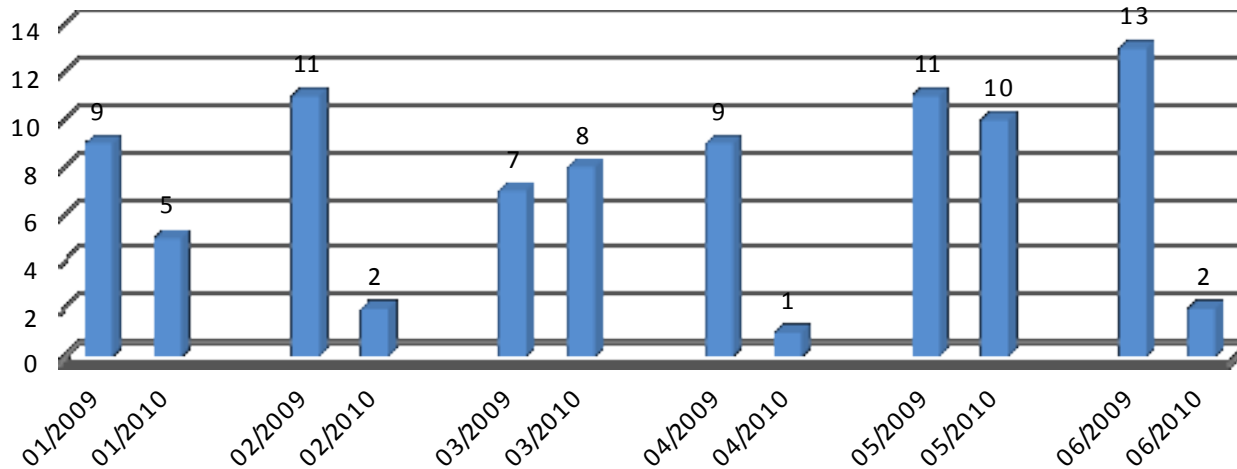
Year	Accidents	Accidents – alcohol	Accidents – alcohol/accidents general (%)	Fatalities	Fatalities general/accidents general (%)	Fatalities – alcohol
2000	211 516	5 724	2,71	1 336	0,63	n/a
2001	185 664	6 672	3,59	1 219	0,66	n/a
2002	190 718	8 299	4,35	1 314	0,69	n/a
2003	195 581	9 081	4,64	1 319	0,67	n/a
2004	196 484	7 227	3,68	1 215	0,62	n/a
2005	199 262	2 821	1,42	1 127	0,57	n/a
2006	187 965	6 807	3,62	956	0,51	42
2007	182 736	7 466	4,09	1 123	0,61	36
2008	160 376	7 252	4,52	993	0,62	80
2009	74 815	5 725	7,65	833	1,11	123

### Fatalities general

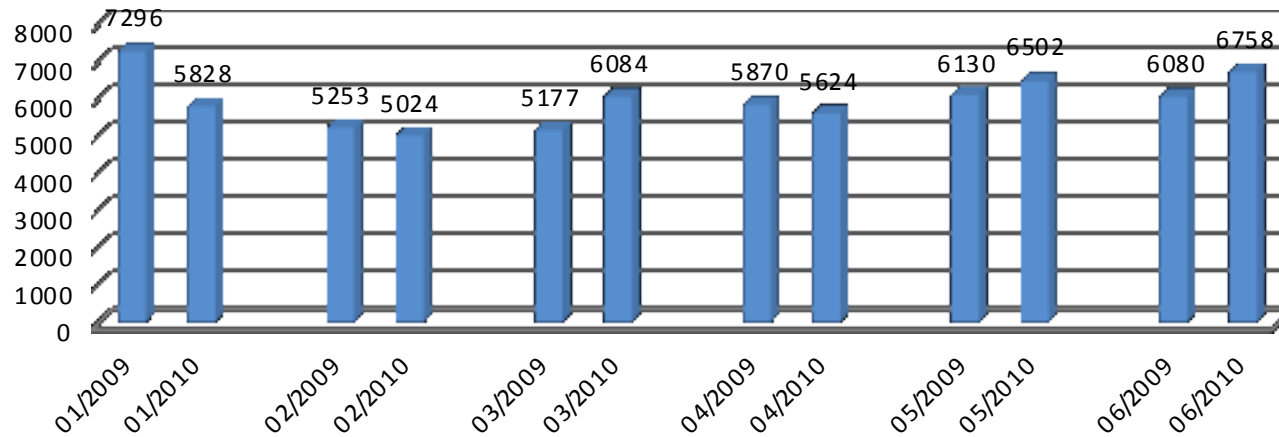


## Results – Months 1-6 2009/2010

### Fatalities - alcohol

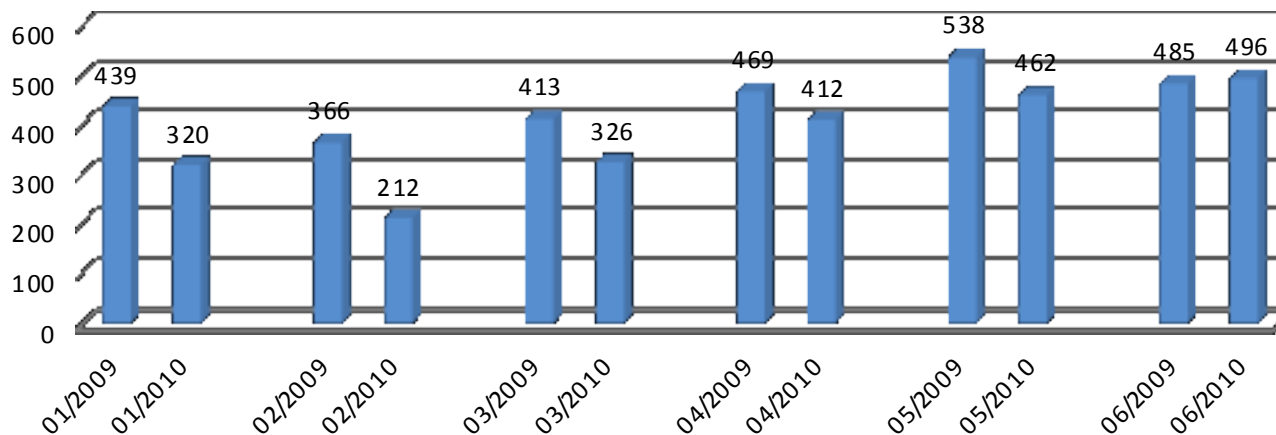


### Accidents general

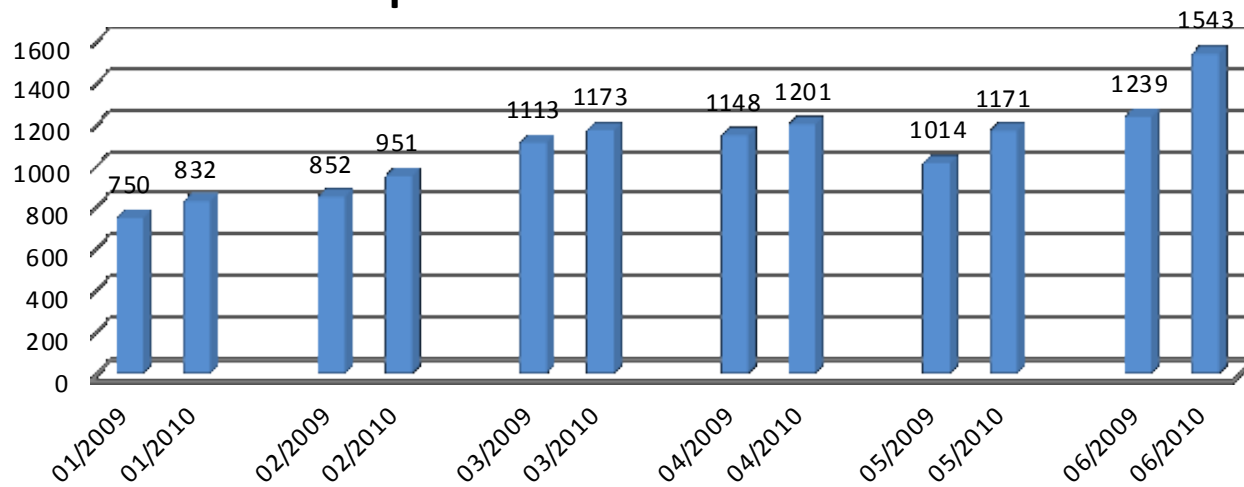


**Results –  
 Months 1-6  
 2009/2010**

### Accidents - alcohol

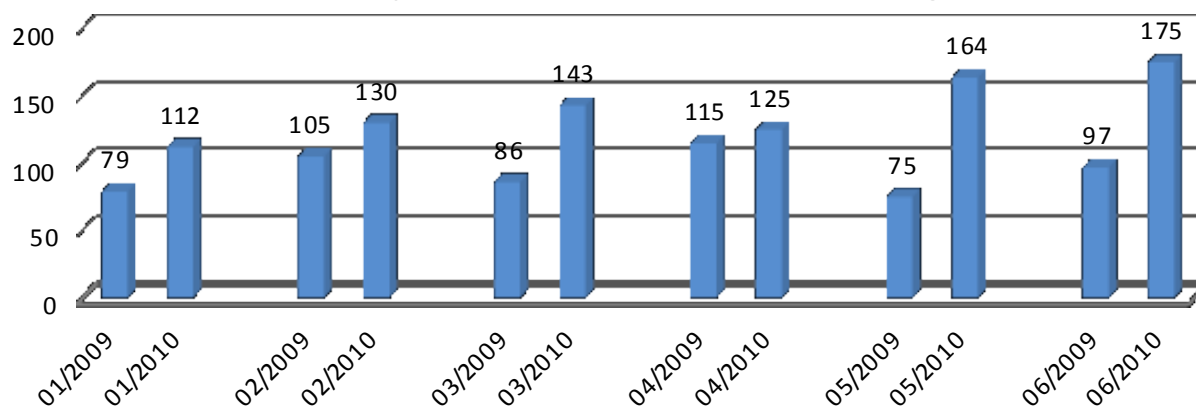


**No. of positive checks - alcohol**



**Results –  
Months 1-6  
2009/2010**

**No. of positive checks - drugs**



## Results – testing for statistical significance of differences Months 1-6 2009/2010

Year	Indicator	2010					
		Fatalities general	Fatalities alcohol	Accidents general	Accidents alcohol	Positive checks alcohol	Positive checks other drugs
2009	Fatalities general	0,075					
	Fatalities alcohol		0,058				
	Accidents general			0,753			
	Accidents alcohol				0,046		
	Positive checks alcohol					0,028	
	Positive checks other drugs						0,028

**Statistically significant differences (0.5 significance level ) between the first six-month periods of 2009 and 2010 were shown for the “positive checks for alcohol” and “positive checks for other drugs” indicators. No statistically significant differences were found for the “fatalities general”, “fatalities alcohol” and “accidents alcohol” indicators, although the measures show borderline levels. No statistically significant difference was identified for the “accidents general” indicator.**

## Discussion

1. The differences between the first six months of 2009 and 2010 showed statistical significance when model-based estimates for the 7th and 9th months were included in the calculation.
2. As a result, we can assume that the study indicators (especially the numbers of accidents and fatalities related to drink-driving) will show statistically significant differences in the future.
3. The interpretation must consider all factors which may be associated with the change, including:
  - mandatory breath tests effective from 1 January 2010
  - preventive campaigns (such as Pay Attention or Pay the Price), and
  - penalty point system (repressive effect – behavioural changes in drivers with a certain number of points)

## Discussion

Allowing for alternative interpretations, the results suggest that the binding guideline of the Czech Traffic Police Directorate, effective **from 1 January 2010**, introducing **mandatory screening breath testing of drivers for alcohol during all road checks**, contributed to reductions in the numbers of **alcohol-related accidents and fatalities on Czech roads**.



# Thank you for your attention

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