

## INTRODUCTION

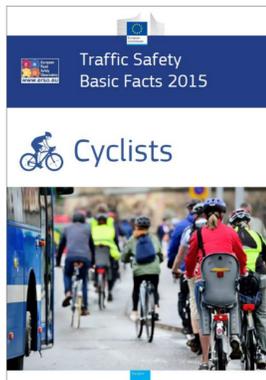
- ❖ Cyclists, while still relatively small in proportion with respect to motorized vehicles users, are increasing since cycling is a very effective and contemporary way of commuting.
- ❖ Cyclists have a high level of vulnerability, since they are unprotected road users interacting with traffic of high speed and mass, suffering most severe consequences in collisions with other road users.
- ❖ In 2013 cyclists killed in road traffic accidents in the EU constituted almost 8% of all road accident fatalities.

## OBJECTIVE

The objective of this research is the analysis of basic road safety parameters related to cyclists in European countries, using the EU CARE database with disaggregate data on road accidents, the EU Injury Database (EU IDB) and the SafetyNet Accident Causation System (SNACS).

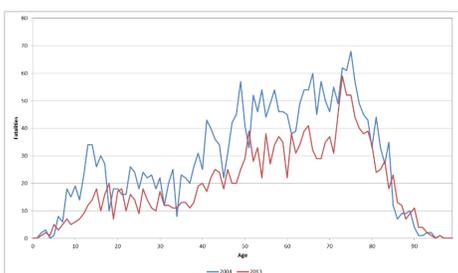
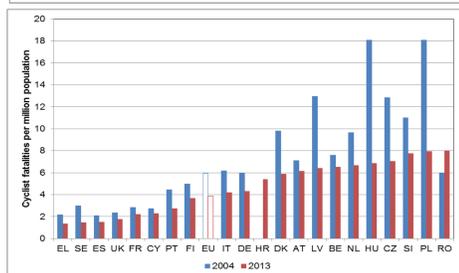
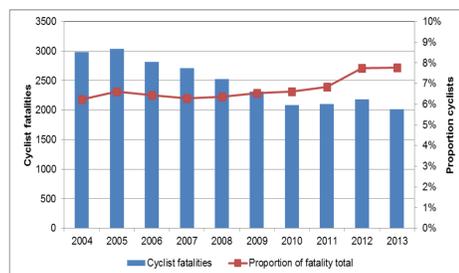
## METHODOLOGY

- ❖ Macroscopic road accident data from the EU CARE database, in-depth accident data from the SafetyNet Accident Causation System (SNACS) and injury data from the EU Injury Database (EU IDB).
- ❖ Macroscopic time series data from 27 EU countries for the period 2004-2013.
- ❖ In-depth data from 6 EU countries for the period 2005-2008 using a common methodology.
- ❖ Injury data from hospitals in 9 EU countries for the period 2005-2008 using a common methodology.
- ❖ Road accident data involving cyclists correlated with basic safety parameters:
  - area type
  - junction type
  - season of the year
  - casualty age and gender
  - day of week and time of day
- ❖ Available risk exposure data from other international data files (Eurostat, etc.).



## OVERALL ROAD SAFETY TRENDS

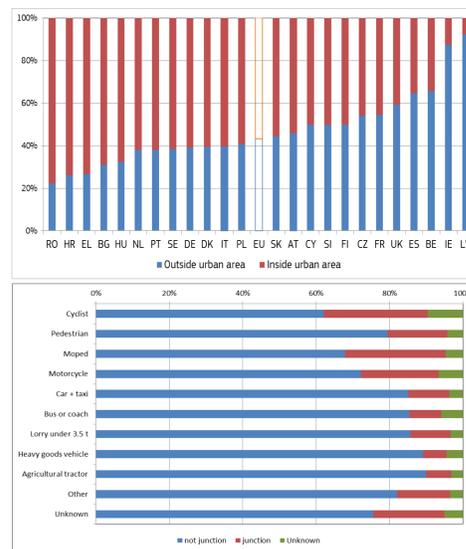
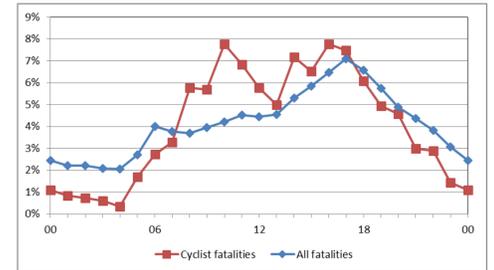
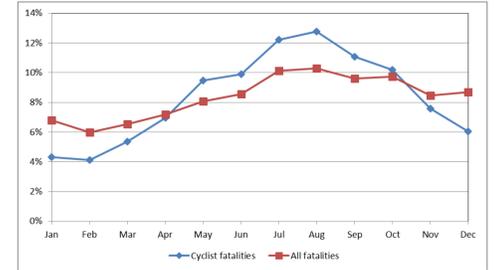
- ❖ 2,017 cyclists were killed in road traffic accidents in the 27 EU countries in 2013.
- ❖ Although the number of cyclist fatalities has decreased by 32% over the decade 2004-2013, the share of bicycle fatalities in all road fatalities in the EU increased from about 6% to 8%.
- ❖ A general notable decrease in bicycle fatality rates was recorded for almost all EU countries between 2004 and 2013.
- ❖ Romania, Poland and Slovenia had the highest cyclist fatality rates in 2013.



- ❖ Over the period 2004-2013 there has been a marked reduction in cycling fatality numbers across almost all ages in the EU countries.
- ❖ The least reduction was noted for cyclists aged around 75 years old confirming that elderly cyclists are almost three times more at risk for an injury than the average cyclist.
- ❖ Cyclists aged between 12 and 17 years old had the most visible reduction.

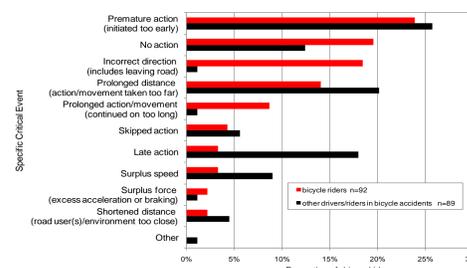
## ROAD SAFETY PARAMETERS OF THE CYCLISTS IN THE EU

- ❖ In 2013 the peak of cyclist fatalities for the EU countries (13%) occurred in August whereas the fewest fatalities (4%) were recorded in February.
- ❖ About one third of cyclist fatalities in 2013 in the EU countries occurred in July, August and September.
- ❖ Compared to other transport modes relatively many cyclists were killed between 08:00 and 18:00 and relatively few between 21:00 and 07:00.



- ❖ 55% of the bicycle fatalities in the EU countries occurred inside urban areas, but there are significant differences among the countries.
- ❖ In Romania, almost 80% of bicycle riders were killed inside urban areas, whilst in Belgium less than 40%.
- ❖ Bicycles compared to other modes of transport had the highest share of fatalities at junctions (30%) in 2013 in the EU followed by the mopeds.
- ❖ More than 55% of the cyclist fatalities occurred at crossroads, comparing to 24% occurring at T or staggered junctions.

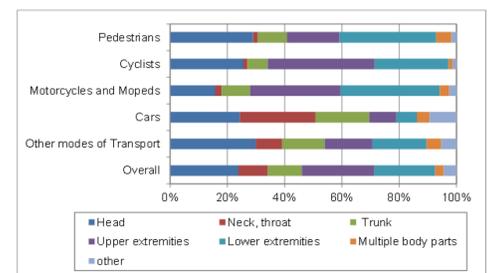
## ACCIDENT CAUSATION ANALYSIS



- ❖ 'Premature action' is recorded most frequently for both bicycle riders and those others involved in bicycle accidents.
- ❖ A striking difference is noted for 'incorrect direction'.

## ROAD ACCIDENT HEALTH INDICATORS

- ❖ 32% of road accident casualties recorded in the IDB were admitted to the hospital overall, with the respective percentage being 23% for cyclists.
- ❖ Fractures, contusions and bruises account for almost two thirds of all injuries inflicted on cyclist casualties.



## DISCUSSION

- ❖ The safety problem for cyclists varies systematically by region, reflecting different climates, cultures and behavioural characteristics, modal shares, levels of cycling infrastructure development etc.
- ❖ The analysis in-depth accident data and injury data, allows for additional insight into accident causation recorded for bicycle drivers and riders and for identification of injury patterns of this road user group.
- ❖ The results of the analysis allow for an overall assessment of the bicycle safety level in the European road network relative to other modes of transport.

## ACKNOWLEDGEMENTS

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