



# Comparative Analysis of Road Safety of the Elderly in Europe

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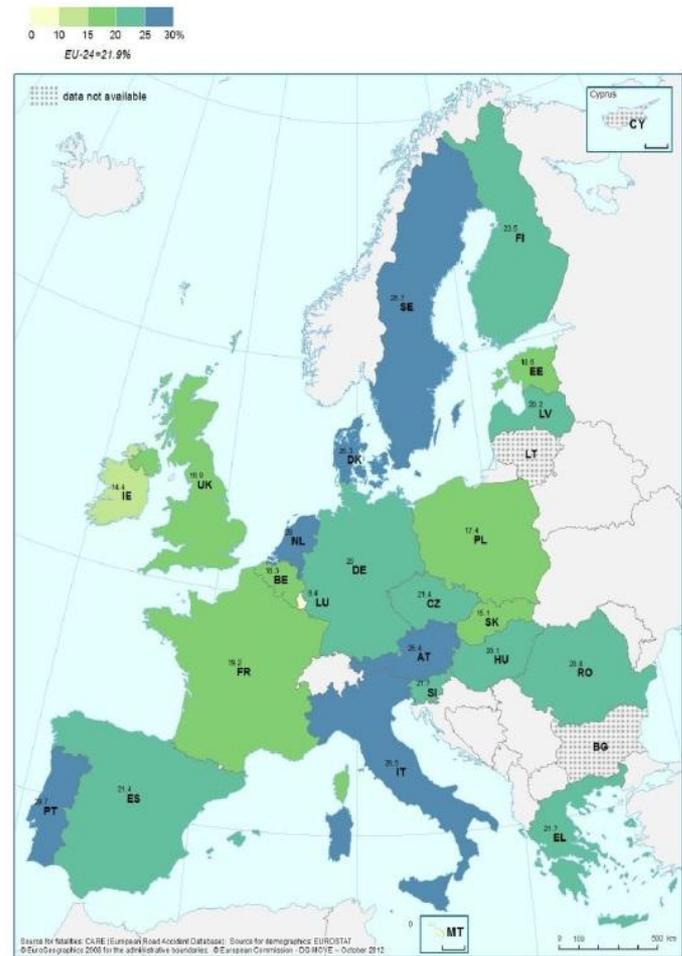
Pete Thomas, Alan Kirk 

20 June 2013, Vienna



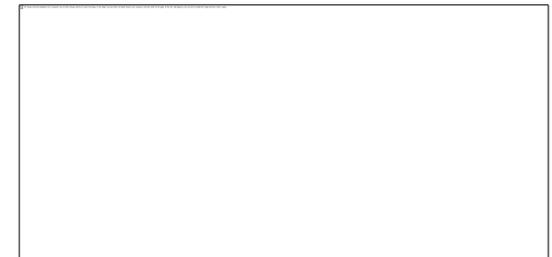
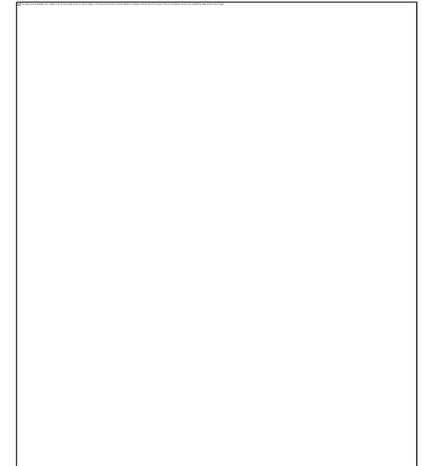
# Introduction

- Elderly people (> 64 years old) are vulnerable road users
- In 2010, over 6.500 elderly people died in road traffic accidents in 24 European countries
- The number of elderly people who died in the EU-19 countries fell by 30% between 2001 and 2010
- Elderly fatalities constitute 22% of fatalities of all ages
- Among the larger countries, the proportion of elderly fatalities ranged between 17% in Poland and 29% in the Netherlands



## Objectives

- Macroscopic analysis of basic road safety parameters related to elderly people, using data from the EU CARE database with disaggregate data on road accidents, together with data from other international data files
- Comparative analysis among countries will allow for drawing an overall picture of the safety level of elderly people in Europe
- Provide useful support to all decision makers working for the improvement of safety in the European road network



*This work was carried out within DaCoTA project of the 7<sup>th</sup> framework programme on transport research of the European Commission.*

# Methodology

- Road accident data from the EU-CARE database:
- 24 EU countries (BE, CZ, DK, DE, IE, EE, EL, ES, FR, IT, LV, LU, HU, MT, NL, AT, PL, PT, RO, SI, SK, SE, FI, UK)
- Data for the period 2001- 2010
- Road accident data on elderly people and other age groups correlated with basic safety parameters:
  - mode of transport
  - casualty age & road user type
  - road network type
  - day of week and time of day
  - seasonality
- Available risk exposure data from other international datafiles (Eurostat, etc)

**Traffic Safety Basic Facts 2012**  
The Elderly (Aged >64)

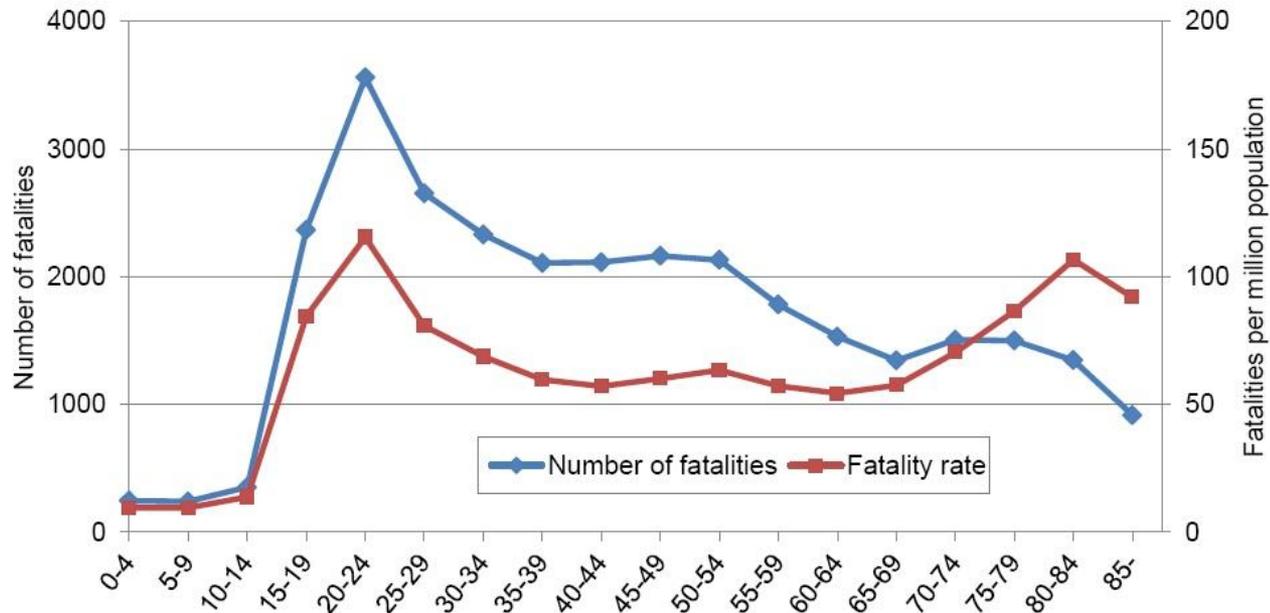
Due to their greater frailty, the elderly are more likely to be seriously injured in any given accident than younger people. In 2010, 6.563 elderly people were killed in road traffic accidents in the 24 Member States for which CARE are available, as shown in Table 1 (2010 CARE data were unavailable for 4 Member States and Northern Ireland at the time of the query, so 2009 data were used instead). This constitutes 21,7% of fatalities of all ages in 2010. Table 1 presents the annual data by country from 2001, with the totals for the 19 countries with CARE data available for most of the decade. This total is presented in Figure 1; it fell by 30% between 2001 and 2010.

**Table 1: Number of elderly fatalities by country, 2001-2010<sup>1</sup>**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
BE	264	210	240	201	186	193	170	149	163	153
CZ	241	241	231	247	202	173	201	186	167	172
DK	102	103	99	80	70	72	95	97	61	67
DE	1.283	1.236	1.329	1.201	1.162	1.154	1.153	1.066	1.094	910
IE	47	40	53	61	56	69	59	47	26	30
EL	385	340	322	317	323	327	330	328	275	268
ES	667	635	617	746	719	671	604	544	507	527
FR	1.383	1.361	1.120	862	1.014	921	866	823	796	765
IT	1.369	1.461	1.378	1.293	1.199	1.220	1.105	1.099	1.111	1.059
LU	7	5	6	14	8	3	7	4	9	3
NL	222	213	221	199	180	209	161	174	187	-
AT	186	211	197	177	151	156	145	175	156	140
PL	910	976	885	865	931	888	943	962	810	674
PT	320	304	304	230	232	215	225	197	205	278
RO	417	458	417	483	491	504	617	570	593	494
SI	46	47	53	49	41	33	51	34	39	30
FI	36	29	46	37	31	11	29	33	66	64
SE	147	139	119	139	104	95	105	102	82	-
UK	652	655	650	589	616	572	573	499	432	391
EU-19	8.955	8.924	8.546	8.050	7.773	7.543	7.542	7.148	6.805	6.304
Yearly reduction	2.0%	0.3%	4.2%	5.8%	3.4%	3.0%	0.0%	5.2%	4.8%	7.4%
EE	-	-	-	-	21	32	41	29	18	-
HU	-	-	232	214	206	216	209	178	166	140
LV	-	-	-	-	-	61	73	55	-	44
MT	-	-	-	-	3	1	3	2	5	0
SK	-	-	-	-	77	95	97	72	51	48

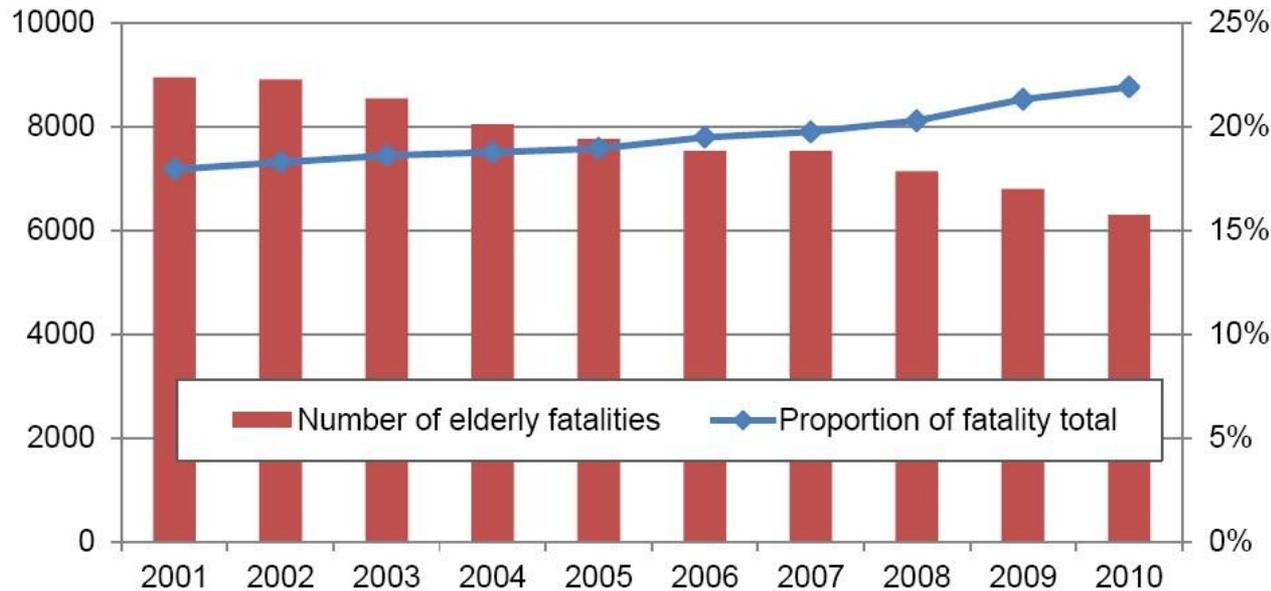
<sup>1</sup> 2009 data for NI are used to estimate 2010 data for UK. Source: CARE Database / EC. Date of query: September 2012.

# Number of fatalities and fatality rate by age group



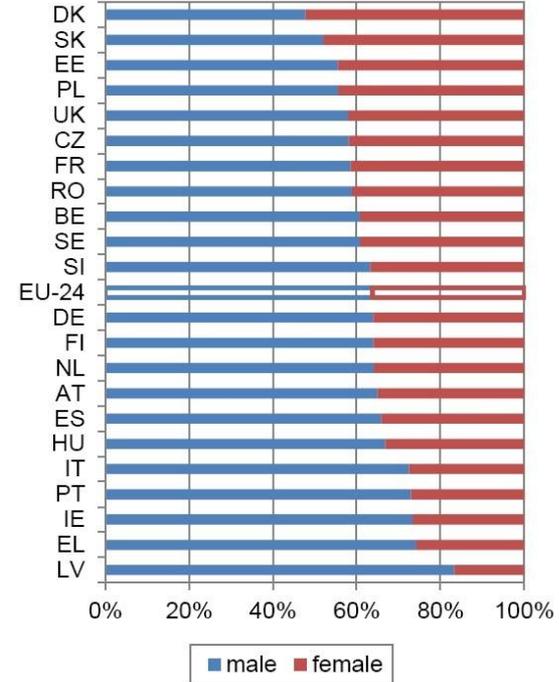
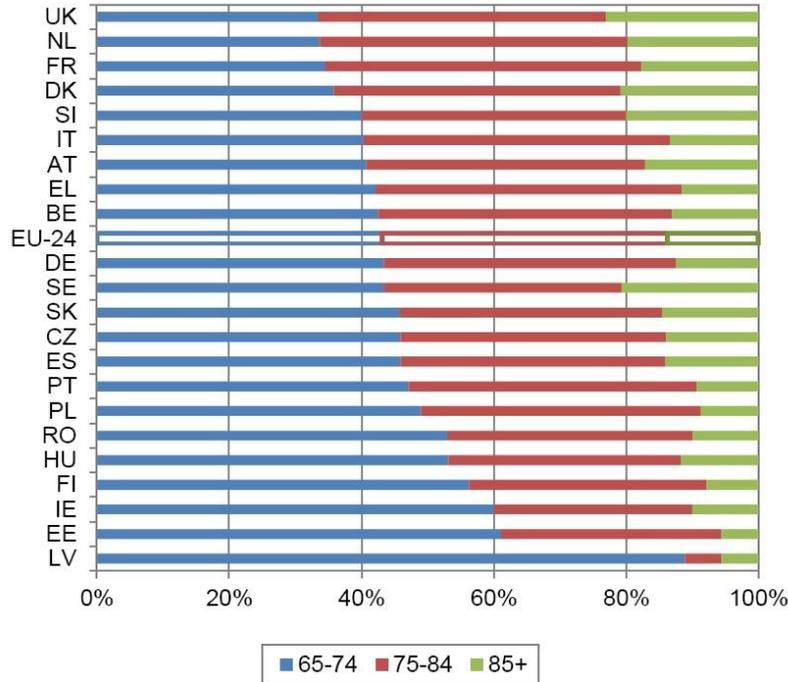
- The elderly suffered fewer fatalities than the younger adult groups, but their fatality rates were amongst the highest
- The rate of road traffic fatalities per million population begins to rise about the age of 65

## Number of elderly fatalities and share of fatality total



- The number of elderly people who died in the EU-19 countries fell by 30% between 2001 and 2010
- Although the number of elderly fatalities has decreased over the last decade, the total number has fallen faster and the proportion of all fatalities who were elderly has tended to rise

# Elderly fatalities by age group and gender



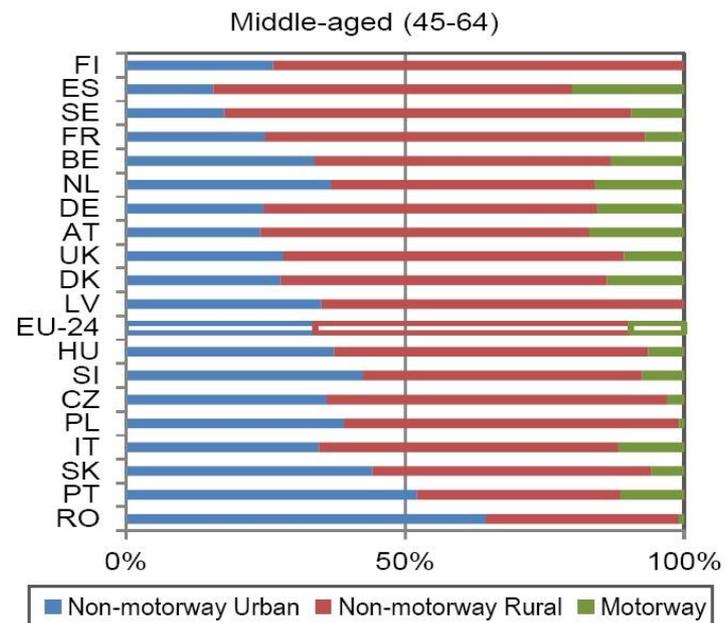
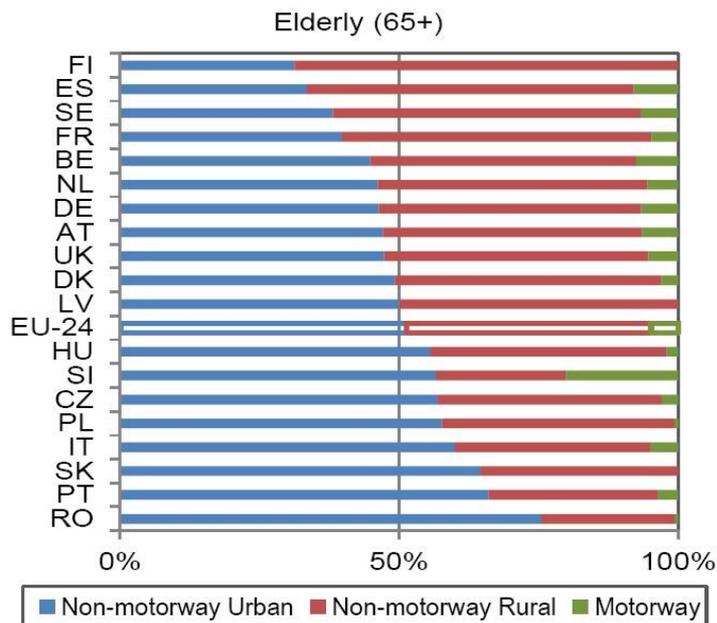
- The highest proportions of female elderly fatalities occur in Denmark (52%) and Slovakia (48%)
- The highest proportions of elderly fatalities aged 65-74 occur in Ireland (60%) and Estonia (61%)

## Elderly fatalities by road user type



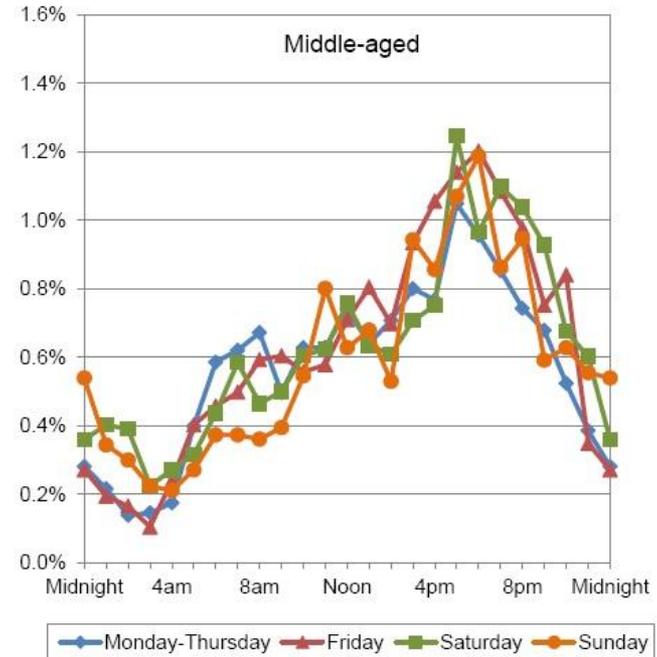
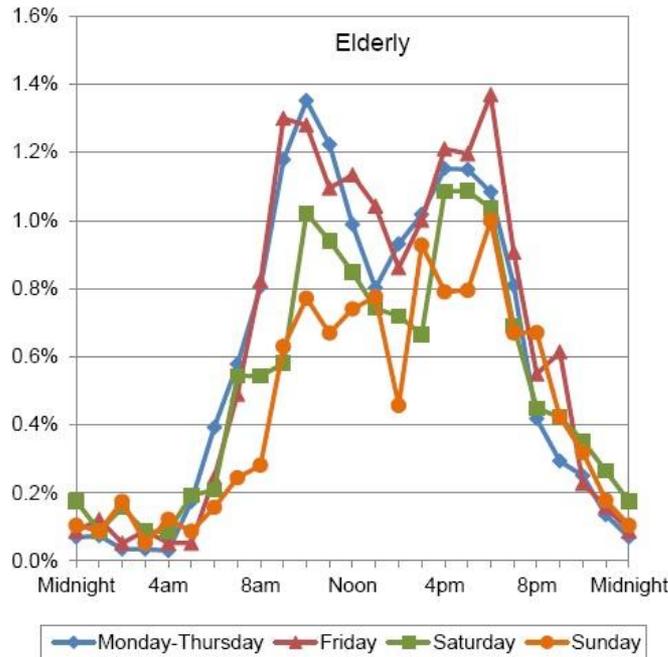
- 38% of elderly fatalities were pedestrians in the EU-24 countries
- Among the larger countries, the percentage of elderly fatalities who were pedestrians is greatest in Romania (62%) and least in the Netherlands (14%)
- The proportion of elderly fatalities who were car drivers ranged between 6% in Romania and 50% in Ireland

# Elderly fatalities by type of road



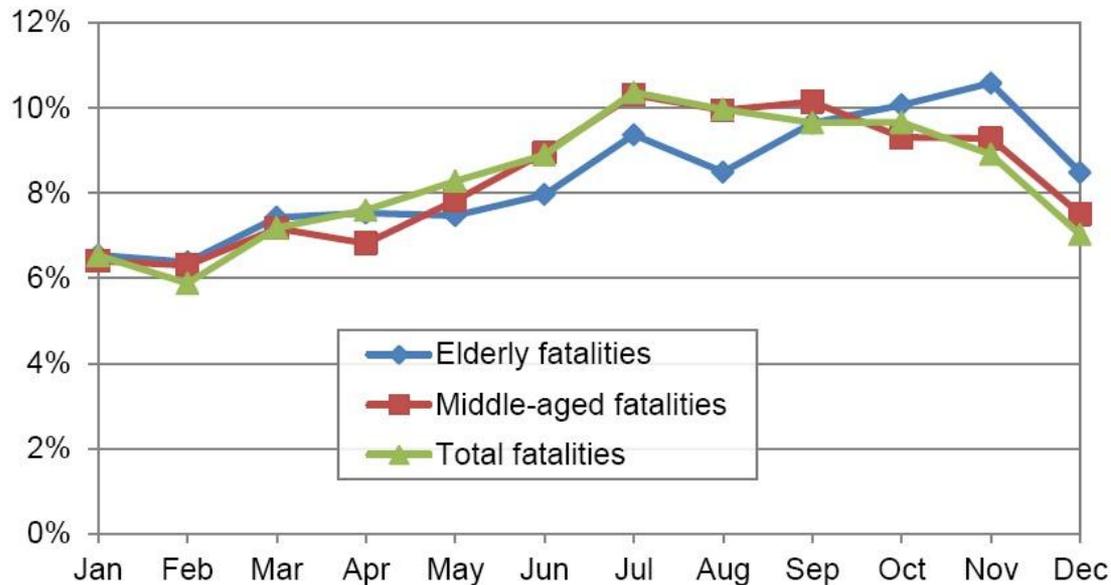
- By comparison with the middle-aged fatalities, there are fewer elderly fatalities on motorways and on rural roads, but more on urban roads
- The national distributions vary greatly between the member states.

# Fatalities by day of week and time of day



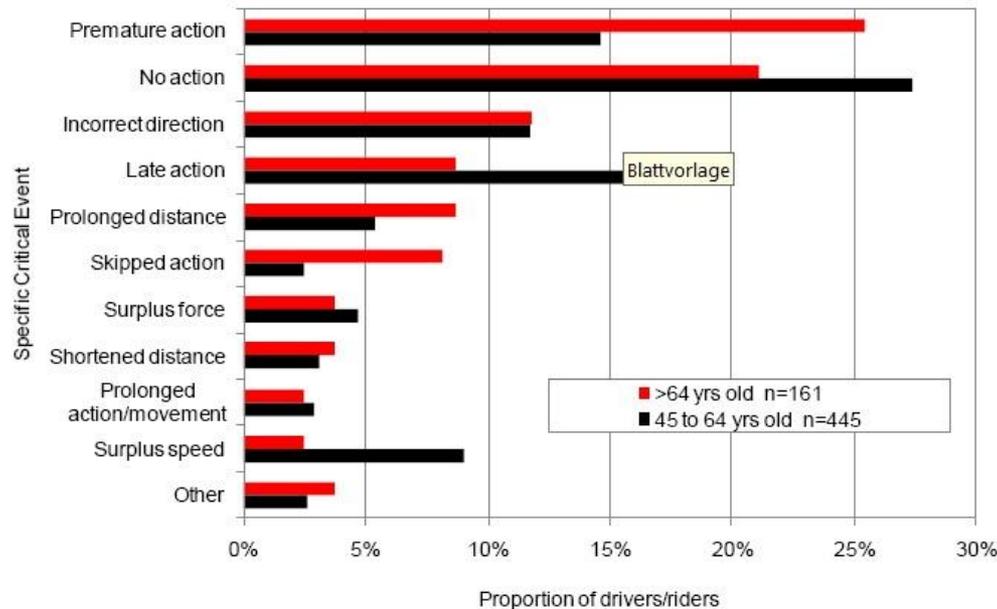
- More than 80% of all elderly fatalities occur between 8am and 8pm
- The greatest number of elderly fatalities occurs on Fridays, and the lowest on Sundays
- The peak of the fatality distribution occurs earlier in the afternoon for the elderly than for middle-aged, with a secondary peak before noon

## Distribution of fatalities by month



- There are relatively few elderly fatalities between May and August, and relatively many between October and December
- The lowest number of fatalities in 2010 occurred in February
- The number of elderly fatalities rose steadily to a peak in November, then declined in December

# Distribution of specific critical events – elderly and middle-aged drivers/riders

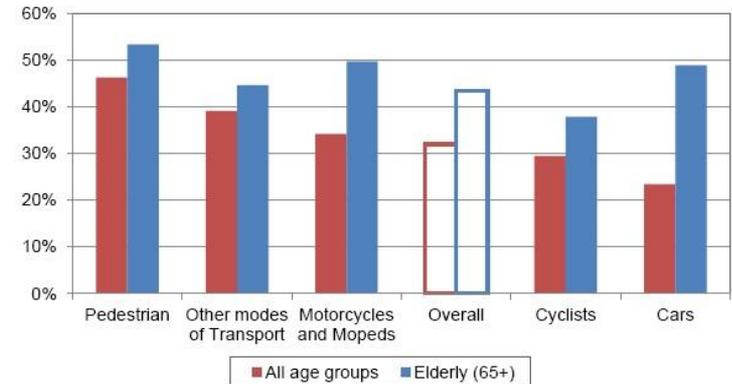


- Specific critical events under the general category of ‘timing’, no action, premature action and late action, are important for both the elderly and middle-aged groups
- Specific critical events relating to ‘timing’ are recorded for 55% of elderly drivers and riders in the sample

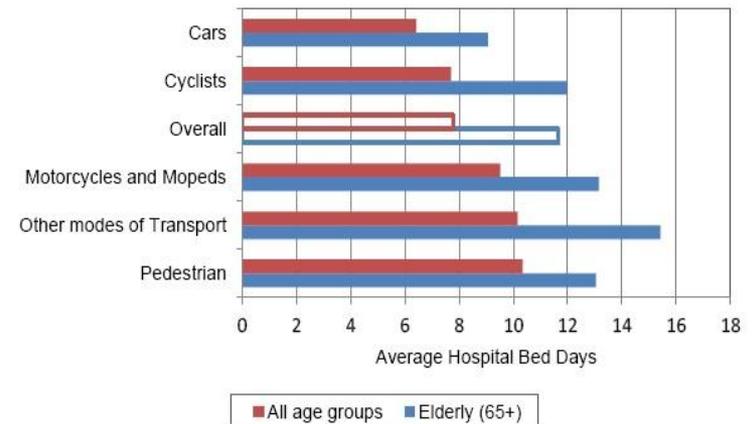
## Road accident health indicators

- By 2012, thirteen member states routinely collected data in a sample of hospitals and contributed them to the EU injury Database (EU IDB)
- According to estimates based on the EU IDB more than four million people are injured annually in road traffic accidents, one million of whom have to be admitted to hospital
- 32% of road accident casualties recorded in the IDB were admitted to the hospital overall, and 43% for older people.
- The average length of stay was eight days overall, and twelve for older people

Proportion of casualties who were admitted to hospital, by age group and mode of transport



Average length of stay (hospital bed days), by age group and mode of transport



## Conclusions & Recommendations

- The results of the analysis allow for an overall picture of the safety level of elderly people in Europe, providing thus useful support to all decision makers working for the improvement of safety in the European road network
- The elderly road fatalities patterns reflect also their exposure patterns. Exposure data are needed for a more complete picture.
- Significant decrease in elderly fatalities in 2010 compared to 2001, but less than in other ages.
- Elderly people between 80 and 84 years old are at greater risk of being killed than the average person.
- 38 % of elderly fatalities were pedestrians and elderly people are proportionately more likely than middle-aged people to be killed in an accident in urban roads



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