Traffic Safety Basic Facts 2012

Cyclists

Introduction

This fact sheet explores the known characteristics of cyclist fatalities. Cyclists, while relatively small in proportion with respect to motorized vehicles, have a high level of vulnerability, creating a significant need to better understand the characteristics specific to this user group. A good insight into the problem provides an opportunity to improve the safety of this cheap, convenient and environmentally safe mode of transport.

Fatality refers to any road user who was killed outright or who died within 30 days as a result of the accident. This fact sheet addresses the fatalities of cyclists and all references to fatalities thus refer to a fatal injury of a cyclist. The term “bicycles” refers only to push bikes. The most recent year or period for which data are available has been analysed. A note is made of anomalies to the main year.

In 2010, 1.994 cyclists were killed in road accidents in the EU-20a countries, 6,8% of all fatalities.

How Big is the Problem?

Bicycle fatalities make up 6,8% of the total number of road accident fatalities in 2010 in the EU-20a[1] countries. In these countries, 1.994 people riding bicycles were killed in traffic accidents in 2010, which is 9% less than the 2.196 bicycle fatalities reported in 2009. In these countries, there was a decrease of 38% during the decade 2001-2010 in the number of bicycle fatalities.

Table 1 shows the number of bicycle fatalities for 27 European Union countries from 2001 up to 2010. For some EU-countries (Bulgaria, Estonia, Cyprus, Latvia, Lithuania, , Malta and Slovakia) data is not (for all years) available. Those countries are not included in the EU-20a total.

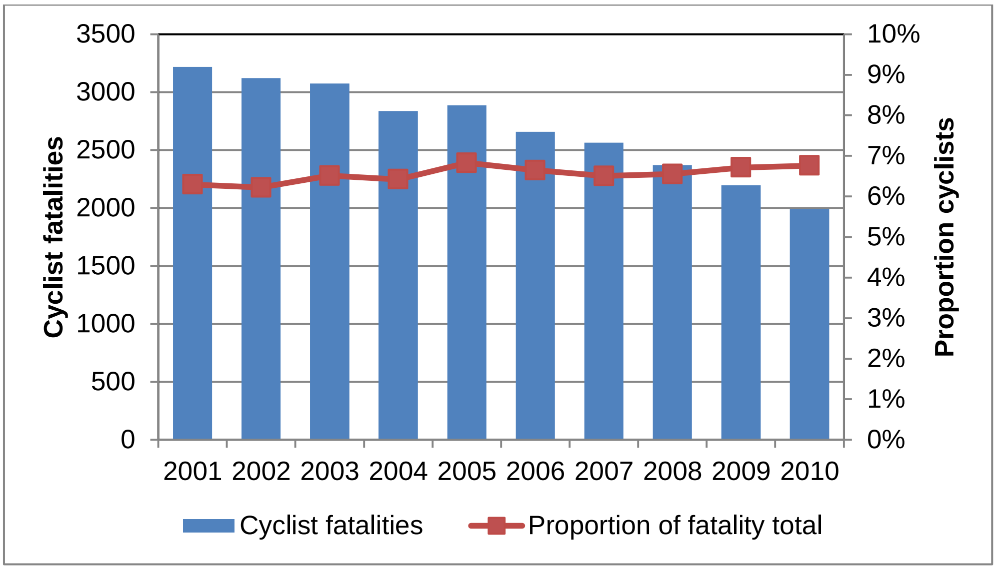
[1] A list of the countries which are within the EU-total can be found at the end of this BFS. Not all tables and figures have the same EU-total.

Table 1: The number of cyclist fatalities by country, 2001-2010[2]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
BE	130	105	110	79	71	92	90	86	89	70
CZ	141	160	159	131	115	110	116	93	84	80
DK	56	52	47	53	41	31	54	54	25	26
DE	635	583	616	475	575	486	425	456	462	381
IE	12	18	10	11	10	9	15	13	7	5
EL	29	14	21	24	18	21	16	22	15	23
ES	100	96	78	88	82	72	90	59	57	67
FR	256	223	201	177	180	181	142	148	162	147
IT	366	326	355	322	335	311	352	288	295	263
LU	1	1	0	0	1	0	1	0	2	1
HU	-	-	178	183	152	153	158	109	103	92
NL	195	169	188	157	151	179	147	145	138	-
AT	55	80	56	58	47	48	37	62	39	32
PL	610	681	647	691	603	509	498	433	371	280
PT	50	58	63	47	48	40	34	42	29	33
RO	145	132	156	130	206	198	179	179	157	182
SI	16	18	0	22	19	15	17	17	18	17
FI	59	53	39	26	43	29	22	18	20	26
SE	43	42	35	27	38	26	33	30	20	-
UK	140	133	116	136	152	147	138	117	104	111
EU-20a	3.217	3.122	3.075	2.836	2.886	2.657	2.564	2.371	2.196	1.994
Yearly reduction		3%	2%	8%	-2%	8%	4%	7%	7%	9%
BG	-	-	-	-	-	-	-	-	-	-
EE	-	-	-	-	7	13	13	9	7	
CY	-	-	-	2	-	-	-	-	-	-
LV	-	-	-	30	31	33	18	15	26	13
LT	-	-	-	-	-	-	-	-	-	-
MT	-	-	-	-	0	0	0	0	0	0
SK	-	-	-	-	56	52	61	46	22	27

Source: CARE database / EC
Date of query: October 2012

Figure 1: Number and proportion of cyclist fatalities in the EU-20a countries between 2001 and 2010[2]



Source: CARE database / EC
Date of query: October 2012

The total number of bicycle fatalities in the EU-20a countries decreased with 38% between 2001 and 2010

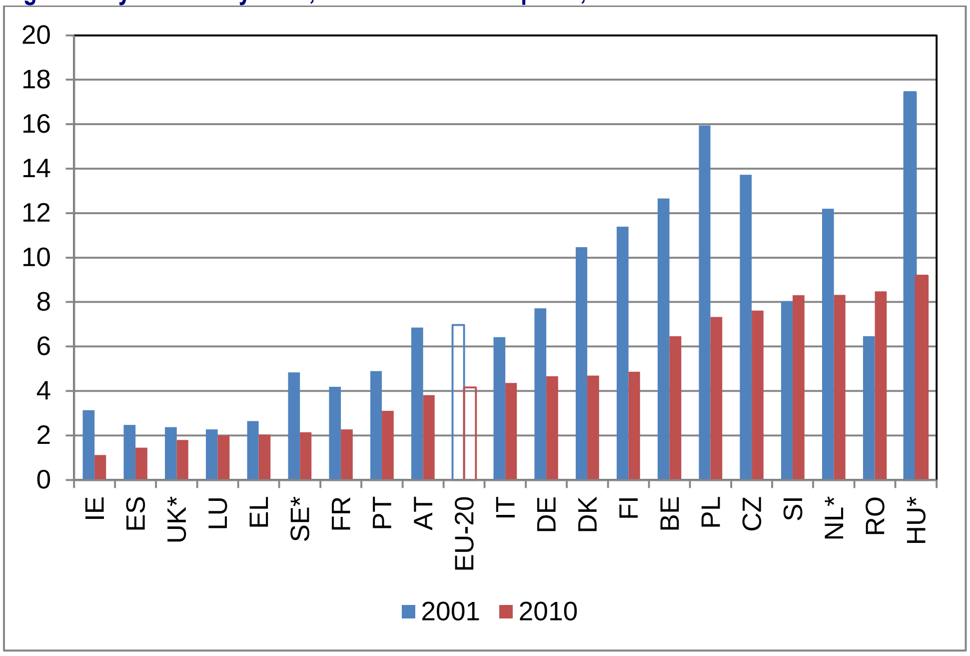
[2] There is no data available in 2001 and 2002 for Hungary and in 2010 for The Netherlands, Sweden and Northern Ireland (part of the UK); therefore data of the next/previous year of that country has been used in the EU-total and the yearly reduction.

Figure 1 shows both the number of cyclist fatalities and the proportion of the fatality total in the EU-20a countries between 2001 and 2010. In this period the decrease of bicycle fatalities was 38%.

Figure 2 shows the fatality rate for the EU-20a countries for 2001 and 2010. This is defined as the number of bicycle fatalities per million inhabitants. While these rates fluctuate somewhat from year to year, there has been a general notable decrease in rates for the EU-20a countries over a ten-year period. Fatality rates in Romania and Slovenia presented an exception in which an increase in the ten-year comparison was evident.

There has been a general notable decrease in bicycle fatality rates for the EU-20a countries over a ten year period.

Figure 2: Cyclist fatality rates, 2001 and 2010 compared, EU-20a



* Data of 2003 for HU
Data of 2009 for NL, SE and NI

Source: CARE database / EC
Date of query: October 2012
Source of population: Eurostat
Date of query: October 2012

It can be seen from Table 2 that the EU countries with the highest percentage of bicycle fatalities in 2010 were The Netherlands (21%)[3] and Hungary and Slovenia (both 12%). In contrast, in Greece and Ireland cyclists constitute only a small part (2%) of the road accident fatalities.

[3] Although for The Netherlands data of 2009 has been used, it very likely that this country in 2010 also had the highest percentage. Table 2 shows a very high percentage in the whole period.

The Netherlands, Hungary and Slovenia have the highest percentages of cyclist fatalities in the total number of road accident fatalities.

Half of the cyclists in the EU-23 were at least 60 years old when they died in an accident.

Table 2: Percentages of cyclist fatalities in the total number of road accident fatalities, 2001-2010[4]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
BE	9%	8%	9%	7%	7%	9%	8%	9%	9%	8%
CZ	11%	11%	11%	9%	9%	10%	10%	9%	9%	10%
DK	13%	11%	11%	14%	12%	10%	13%	13%	8%	10%
DE	9%	9%	9%	8%	11%	10%	9%	10%	11%	10%
IE	3%	5%	3%	3%	3%	2%	4%	5%	3%	2%
EL	2%	1%	1%	1%	1%	1%	1%	1%	1%	2%
ES	2%	2%	1%	2%	2%	2%	2%	2%	2%	3%
FR	3%	3%	3%	3%	3%	4%	3%	3%	4%	4%
IT	5%	5%	5%	5%	6%	5%	7%	6%	7%	6%
LU	1%	2%	0%	0%	2%	0%	2%	0%	4%	3%
HU	-	-	13%	14%	12%	12%	13%	11%	13%	12%
NL	20%	17%	18%	20%	20%	25%	21%	21%	21%	-
AT	6%	8%	6%	7%	6%	7%	5%	9%	6%	6%
PL	11%	12%	11%	12%	11%	10%	9%	8%	8%	7%
PT	3%	3%	4%	4%	4%	4%	4%	5%	3%	4%
RO	6%	5%	7%	5%	8%	8%	6%	6%	6%	8%
SI	6%	7%	0%	8%	7%	6%	6%	8%	11%	12%
FI	14%	13%	10%	7%	11%	9%	6%	5%	7%	10%
SE	7%	8%	7%	6%	9%	6%	7%	8%	6%	-
UK	4%	4%	3%	4%	5%	4%	5%	4%	4%	6%
EU-20a	6,3%	6,2%	6,5%	6,4%	6,8%	6,6%	6,5%	6,6%	6,7%	6,8%
BG	-	-	-	-	-	-	-	-	-	-
EE	-	-	-	-	4%	6%	7%	7%	7%	-
CY	-	-	-	2%	-	-	-	-	-	-
LV	-	-	-	7%	8%	8%	6%	6%	12%	7%
LT	-	-	-	-	-	-	-	-	-	-
MT	-	-	-	-	-	-	-	-	-	-
SK	-	-	-	-	9%	8%	9%	8%	6%	7%

Source: CARE database / EC
Date of query: October 2012

Who is involved?

Table 3 indicates that, across the EU-23 countries, the majority of cyclist fatalities are males (78%). For the larger countries, Belgium and The Netherlands had the highest proportion of female cyclist fatalities (> 30%), while Romania had 7% female fatalities. Across the EU-23 countries, there appears to be a large proportion of cyclists of 60 years or older who die as the cause of an accident (50%).

[4] For Hungary (2001 and 2002), The Netherlands (2010), Sweden (2010) and Northern Ireland (2010) data of the next/previous year has been used in the EU-total.

Table 3: Percentage of cyclist fatalities by age and gender, 2010

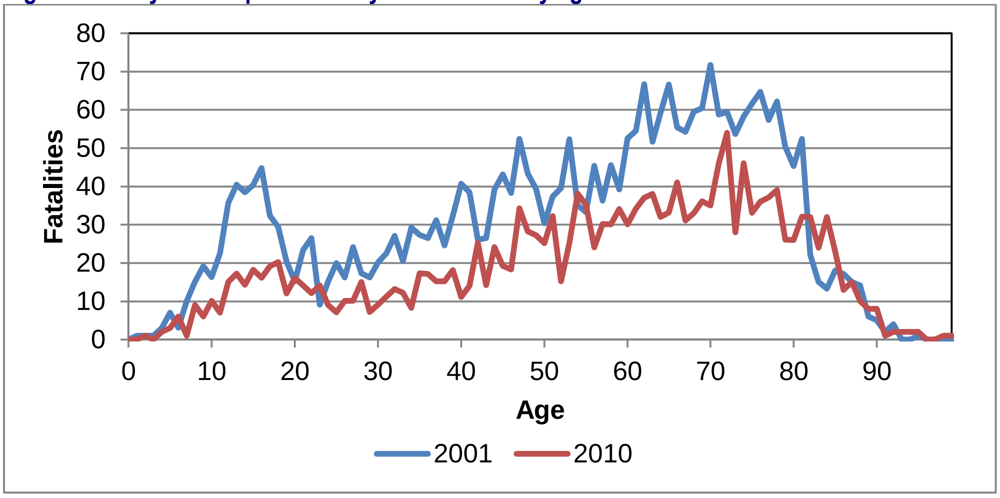
	0-14		15-24		25-39		40-59		60+		All ages		Number known	Total
	F	M	F	M	F	M	F	M	F	M	F	M		
BE	1%	3%	3%	10%	1%	4%	7%	13%	25%	32%	38%	62%	69	70
CZ	0%	0%	3%	4%	1%	11%	5%	40%	11%	25%	20%	80%	80	80
DK	4%	0%	0%	12%	4%	0%	4%	19%	27%	31%	38%	62%	26	26
DE	2%	3%	2%	4%	2%	6%	9%	14%	15%	44%	29%	71%	381	381
EE*	0%	0%	14%	0%	0%	29%	0%	14%	0%	43%	14%	86%	7	7
IE	0%	0%	0%	0%	0%	0%	20%	20%	0%	60%	20%	80%	5	5
EL	0%	5%	0%	18%	0%	23%	0%	27%	5%	23%	5%	95%	22	23
ES	0%	1%	2%	11%	5%	17%	3%	25%	0%	36%	10%	90%	67	67
FR	2%	6%	2%	12%	2%	5%	4%	20%	8%	38%	18%	82%	147	147
IT	0%	2%	2%	2%	1%	8%	3%	17%	12%	52%	18%	82%	262	263
LV	0%	0%	0%	0%	11%	11%	0%	56%	0%	22%	11%	89%	9	13
LU	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	100%	1	1
HU	0%	3%	0%	4%	1%	8%	4%	35%	9%	35%	14%	86%	91	92
NL*	4%	7%	5%	7%	1%	4%	5%	10%	16%	41%	32%	68%	138	138
AT	3%	3%	0%	0%	3%	3%	13%	22%	16%	38%	34%	66%	32	32
PL	2%	4%	2%	5%	2%	6%	8%	23%	8%	40%	22%	78%	277	280
PT	0%	0%	0%	3%	0%	15%	3%	15%	0%	64%	3%	97%	33	33
RO	1%	2%	1%	5%	2%	13%	1%	36%	2%	37%	7%	93%	182	182
SI	0%	0%	6%	12%	0%	6%	18%	29%	0%	29%	24%	76%	17	17
SK	0%	4%	0%	8%	0%	8%	8%	38%	12%	23%	19%	81%	26	27
FI	4%	4%	0%	0%	0%	4%	8%	19%	23%	38%	35%	65%	26	26
SE*	5%	0%	5%	0%	0%	5%	5%	10%	20%	50%	35%	65%	20	20
UK*	2%	5%	2%	14%	5%	14%	8%	24%	6%	20%	23%	77%	111	111
EU-23	1%	3%	2%	6%	2%	8%	6%	22%	11%	39%	22%	78%	2.029	2.041

*Data from 2009

Source: CARE database / EC
Date of query: October 2012

Figure 3 indicates that over a ten-year period (2001-2010), there has been a marked reduction in cycling fatality numbers across almost all ages in the EU-19 countries. This figure displays also a clear trend in fatalities evident both in 2001 and 2010: there appears to be a peak in fatalities of cyclists aged between 12 and 17, the age where children are likely to increasingly be undertaking independent, solo cycle travel. A general decrease in fatality risk then follows till around 30 years, at which point a continuous if jagged increase in fatality numbers is evident till around 80 years. After this, there is a relatively sharp decline.

Figure 3: Ten-year comparison of cyclist fatalities by age in EU-19 countries*



* Data of 2009 for NL, NI and SE

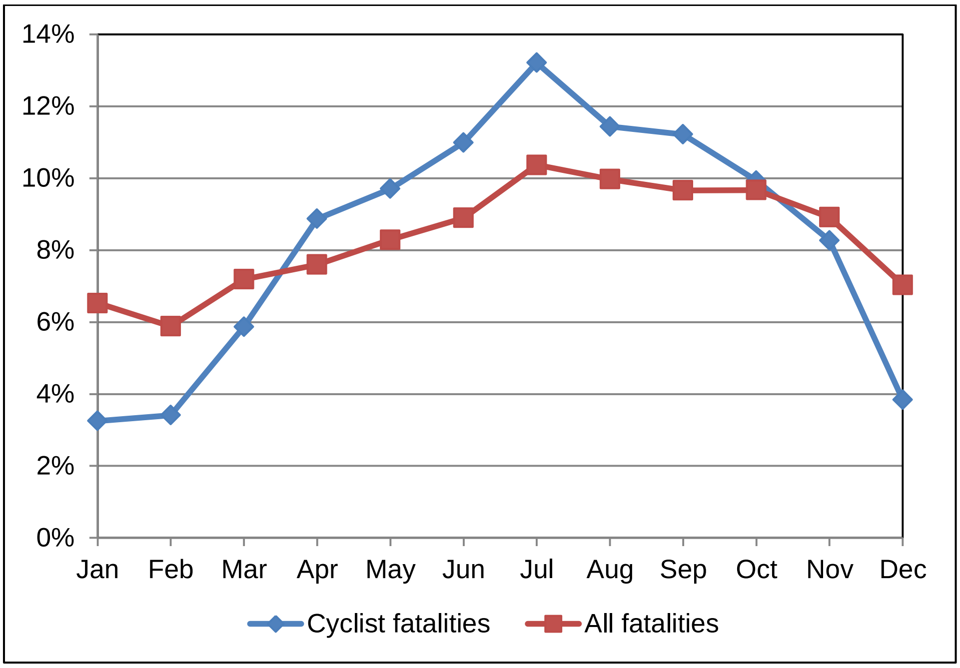
Source: CARE Database / EC
Date of query: October 2012

When do these Crashes Occur?

Figure 4 shows that 35% of cyclist fatalities in 2010 in the EU-23 countries occurred in July, August and September. The proportion of cyclist fatalities during January, February and March is only 13%. This is less than the proportion of all fatalities during these months: 20%. As the slippery wet conditions of many European winters are conducive to high severity accident injuries, these analysis outcomes are likely to be associated with the actual number of cyclists on the road during these seasons rather than an indication of risk of injury per cyclist.

35% of cyclist fatalities in 2009 occurred during July, August and September, against 13% during January, February and March.

Figure 4: Proportion of cyclist fatalities and all fatalities per month in 2010, EU-23*



* Data of 2009 for EE, NL,SE and NI

Source: CARE Database / EC
Date of query: October 2012

Table 4 shows that there is no clear trend in the incidence of cyclist fatalities by month among individual countries. The peak for the EU-23 countries occurred in July (13% of cyclist fatalities) and the fewest fatalities occurred in January and February (3% of cyclist fatalities).

Table 4: Cyclist fatalities by month in 2010, EU-23

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
BE	0%	1%	13%	13%	7%	9%	9%	13%	7%	11%	11%	6%	70
CZ	3%	0%	4%	10%	11%	11%	20%	18%	11%	9%	4%	0%	80
DK	4%	4%	8%	8%	8%	15%	8%	12%	19%	4%	12%	0%	26
DE	3%	2%	6%	13%	10%	12%	17%	7%	12%	10%	8%	1%	381
EE*	14%	0%	0%	0%	0%	0%	0%	0%	57%	14%	14%	0%	7
IE	0%	0%	0%	0%	0%	20%	20%	0%	20%	20%	20%	0%	5
EL	4%	9%	17%	4%	17%	9%	17%	9%	4%	0%	0%	9%	23
ES	4%	2%	10%	9%	12%	12%	10%	13%	13%	4%	4%	7%	67
FR	5%	5%	6%	12%	7%	7%	14%	15%	10%	8%	7%	3%	147
IT	5%	5%	6%	8%	10%	11%	14%	10%	10%	9%	6%	7%	263
LV	0%	0%	8%	15%	8%	8%	8%	8%	23%	8%	15%	0%	13
LU	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	1
HU	4%	3%	7%	10%	8%	7%	11%	12%	8%	16%	8%	8%	92
NL*	6%	7%	7%	6%	12%	7%	12%	9%	13%	10%	7%	5%	138
AT	0%	3%	6%	3%	19%	13%	16%	9%	16%	6%	6%	3%	32
PL	2%	1%	4%	7%	7%	14%	11%	14%	13%	14%	11%	2%	280
PT	6%	6%	3%	9%	12%	3%	12%	15%	12%	3%	9%	9%	33
RO	2%	4%	6%	7%	9%	10%	12%	9%	11%	10%	13%	7%	182
SI	0%	0%	0%	6%	12%	12%	29%	24%	12%	6%	0%	0%	17
SK	4%	7%	0%	4%	7%	15%	4%	11%	15%	11%	15%	7%	27
FI	4%	0%	0%	8%	15%	19%	15%	19%	4%	8%	4%	4%	26
SE*	0%	0%	0%	0%	20%	25%	5%	30%	10%	5%	5%	0%	20
UK*	3%	6%	8%	7%	10%	13%	11%	15%	7%	10%	7%	3%	111
EU-23	3%	3%	6%	9%	10%	11%	13%	11%	11%	10%	8%	4%	2.041

* Data of 2009 for EE, NL,SE and NI

Source: CARE Database / EC
Date of query: October 2012

Table 5 shows the distribution of cyclist fatalities by day of the week in 2010. The distribution is equal for all days (14% of 15%), but on Sunday only 12% of the cyclist fatalities occurred.

Slightly less cyclists were killed on Sundays than on other days.

Table 5: Cyclist fatalities by day of week in 2010, EU-23

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
BE	9%	6%	23%	17%	19%	13%	14%	70
CZ	14%	19%	11%	15%	10%	21%	10%	80
DK	15%	12%	23%	12%	15%	0%	23%	26
DE	14%	17%	14%	17%	13%	14%	12%	381
EE*	43%	0%	0%	14%	14%	29%	0%	7
IE	0%	0%	40%	0%	20%	0%	40%	5
EL	22%	22%	26%	9%	9%	9%	4%	23
ES	7%	14%	13%	20%	12%	15%	19%	67
FR	13%	16%	17%	12%	17%	14%	12%	147
IT	16%	13%	16%	16%	14%	13%	11%	263
LV	8%	15%	23%	0%	8%	23%	23%	13
LU	0%	0%	0%	0%	100%	0%	0%	1
HU	16%	14%	16%	12%	14%	16%	11%	92
NL*	18%	14%	17%	11%	11%	16%	12%	138
AT	13%	13%	16%	9%	28%	13%	9%	32
PL	17%	14%	12%	15%	17%	18%	8%	280
PT	3%	15%	15%	12%	18%	18%	18%	33
RO	18%	10%	13%	13%	21%	13%	13%	182
SI	18%	12%	12%	0%	29%	12%	18%	17
SK	15%	30%	15%	11%	11%	11%	7%	27
FI	12%	23%	15%	8%	23%	15%	4%	26
SE*	15%	15%	15%	20%	20%	0%	15%	20
UK*	10%	15%	13%	10%	17%	17%	18%	111
EU-23	15%	14%	15%	14%	15%	15%	12%	2.041

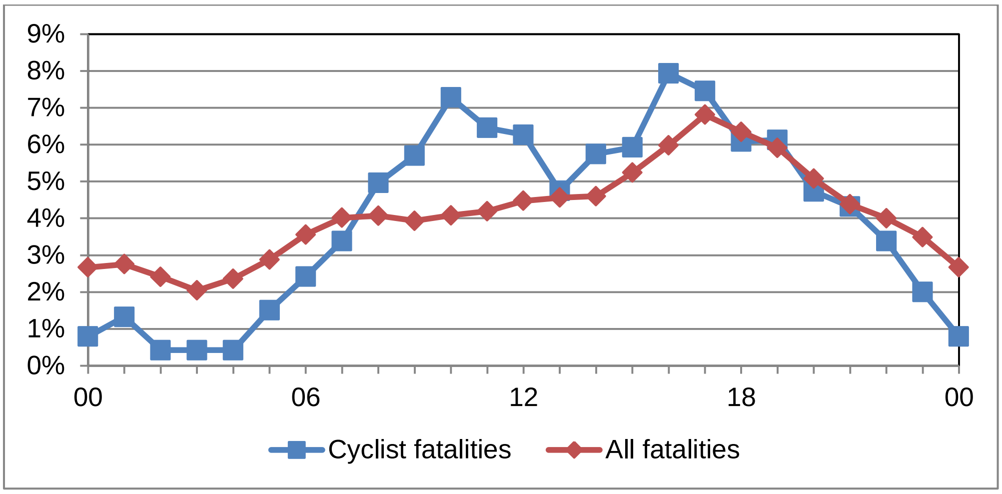
* Data of 2009 for EE, NL,SE and NI

Source: CARE Database / EC
Date of query: October 2012

More than one fourth of cyclist fatalities occurred between 16:00 and 20:00 hours.

Figure 5 presents the distribution of cyclist fatalities over 24 hours for the EU-22 countries[5]. A large percentage of cyclist fatalities across the countries occurred in the 16:00-20:00 period (28%). Also, more bicyclists are killed in accidents in the 08:00-12:00 and 12:00-16:00 periods (24% and 23% respectively) than in the other four-hour periods. Compared to other transport modes, relatively many cyclists are killed between 08:00 and 18:00 and relatively few between 22:00 and 07:00.

Figure 5: Distribution of cyclist fatalities and of all road fatalities by hour of day in 2010, EU-22*



* Data of 2009 for EE, NI, NL and SE

Source: CARE Database / EC
Date of query: October 2012

Table 6 shows the distribution over six four-hour periods for each of the EU-22 countries.

Table 6: Distribution of cyclist fatalities by hour of day in 2010, EU-22

	0:00-3:59	4:00-7:59	8:00-11:59	12:00-15:59	16:00-19:59	20:00-23:59	Number known	Total
BE	3%	7%	21%	31%	30%	7%	70	70
CZ	6%	10%	9%	34%	19%	20%	78	80
DK	4%	8%	38%	19%	23%	8%	26	26
EE*	0%	0%	0%	14%	71%	14%	7	7
IE	0%	0%	40%	0%	40%	20%	5	5
EL	4%	4%	4%	17%	35%	35%	23	23
ES	2%	9%	36%	26%	17%	10%	67	67
FR	3%	7%	33%	21%	30%	7%	147	147
IT	4%	3%	36%	20%	24%	13%	263	263
LV	8%	0%	8%	31%	31%	23%	13	13
LU	0%	0%	100%	0%	0%	0%	1	1
HU	5%	14%	18%	12%	41%	9%	92	92
NL*	4%	7%	18%	35%	25%	10%	137	138
AT	0%	6%	31%	34%	9%	19%	32	32
PL	1%	10%	20%	21%	29%	19%	280	280
PT	0%	12%	12%	21%	42%	12%	33	33
RO	2%	7%	19%	16%	31%	25%	182	182
SI	6%	6%	35%	18%	18%	18%	17	17
SK	4%	15%	22%	22%	30%	7%	27	27
FI	4%	12%	35%	19%	19%	12%	26	26
SE*	0%	5%	30%	35%	20%	10%	20	20
UK*	4%	7%	25%	25%	28%	11%	111	111
EU-22	3%	8%	24%	23%	28%	14%	1.657	1.660

* Data of 2009 for EE, NI, NL and SE

Source: CARE Database / EC

[5] For DE the hour of day is not available in CARE, therefore DE is excluded.

Date of query: October 2012

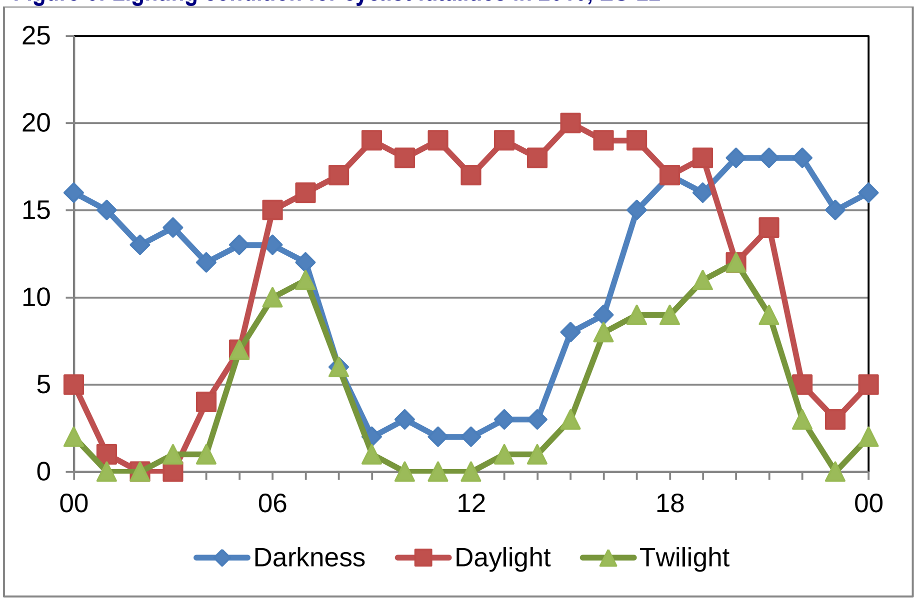
There is no clear trend in the times of collisions for individual countries – for example: the fatality proportion between 04:00 and 08:00 was slightly above average in Hungary; between 08:00 and 12:00 it was above average in Spain and Italy. Some of the numbers of fatalities in individual countries were low, and differences are unlikely to be statistically significant.

Almost one third of cyclist fatalities in the EU-23 countries were killed in poor lighting conditions

Of countries with larger fatality numbers, the highest number of fatalities in Spain, France and Italy occurred between 08:00 and 12:00 hours; from 12:00 to 16:00 hours in Belgium, the Czech Republic and the Netherlands; and from 16:00 to 20:00 hours in Hungary, Poland, Romania and the United Kingdom.

The role of light conditions on the incidence of cyclist fatalities is demonstrated in Figure 6 and Table 7. Some fatalities occurring between 16:00 and 20:00 hours may be related to lighting conditions: around 31% of accidents occurred in the dark. On the other hand, accidents between 08:00 and 12:00, and between 12:00 and 16:00 hours have few fatalities related to darkness, and relatively few to twilight. However, this is comprehensible if we look at the hours when there is daylight.

Figure 6: Lighting condition for cyclist fatalities in 2010, EU-22*



* Data of 2009 for EE, NI, NL and SE

Source: CARE Database / EC
Date of query: October 2012

Table 7 shows that in the EU-23 countries almost one-third of cyclist fatalities were killed when lighting was poor (twilight or darkness). Among the larger countries, the proportion exceeded 43% in Romania.

Main Figures
Children (Aged < 15)
Youngsters (Aged 15-17)
Young People Aged 18-24)
The Elderly (Aged > 64)
Pedestrians
Bicycles
Motorcycles & Mopeds
Car occupants
Heavy Goods Vehicles
Motorways
Junctions
Roads in urban areas
Roads outside urban areas
Seasonality
Single vehicle accidents
Gender
Causation

Table 7: Number of cyclist fatalities by lighting condition in 2010, EU-23

	Darkness	Daylight	Twilight	Number known	Total	% dark of twilight
BE	10	56	4	70	70	20%
CZ	26	52	2	80	80	35%
DK	5	21	0	26	26	19%
DE	59	307	15	381	381	19%
EE*	3	4		7	7	43%
IE	0	4		4	5	0%
EL	11	11	1	23	23	52%
ES	7	58	1	67	67	13%
FR	18	120	9	147	147	18%
IT				0	263	-
LV	6	7	0	13	13	46%
LU	0	0		0	1	-
HU	34	58		92	92	37%
NL*	24	110	3	137	138	20%
AT	7	25	0	32	32	22%
PL	79	177	24	280	280	37%
PT	11	21	1	33	33	36%
RO	61	104	17	182	182	43%
SI				0	17	-
SK	8	17	1	26	27	35%
FI	4	20	2	26	26	23%
SE*	0	15	0	15	20	0%
UK*	26	85	0	111	111	23%
EU-23	399	1.272	80	1.752	2.041	27%

* Data of 2009 for EE, NI, NL and SE

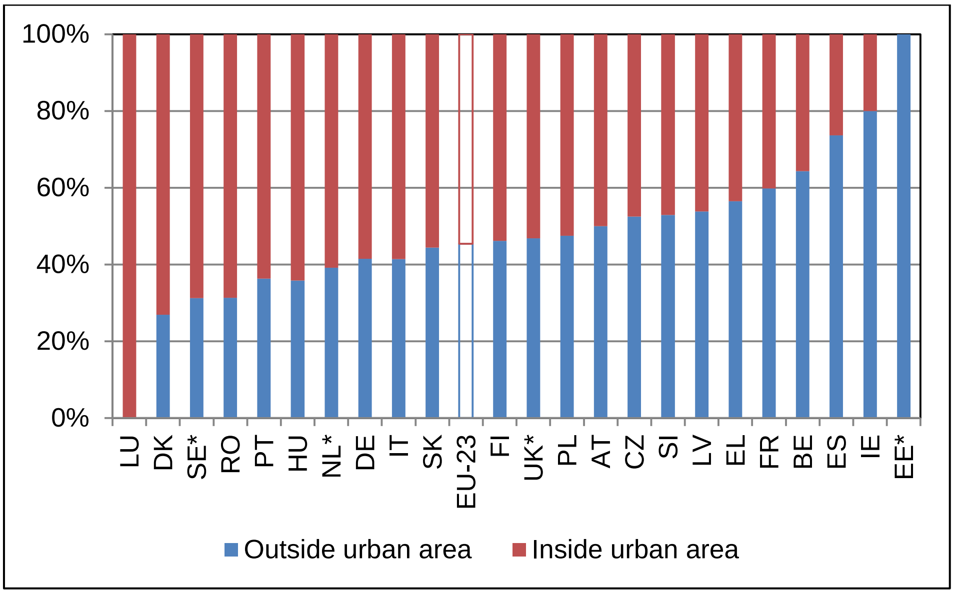
Source: CARE Database / EC
Date of query: October 2012

55% of the cyclist fatalities in the EU-23 countries occur in urban areas.

Where Do These Fatalities Occur?

In general, 55% of the bicycle fatalities in the EU-23 countries were killed inside urban areas but there are large differences between the countries, as follows from Figure 7. In Romania, almost 70% of cyclist fatalities were killed in urban areas, in Spain only 26%.

Figure 7: Distribution of cyclist fatalities by area type in 2010, EU-23



* Data of 2009 for EE, NI, NL and SE

Source: CARE Database / EC
Date of query: October 2012

The percentage of fatalities at junctions in larger countries varied from 12% to 63%.

Table 8 shows that among larger countries, the highest proportion of cyclist fatalities at junctions were in The Netherlands (63%, data of 2009) and Germany (51%). In Romania only 12% of cyclist fatalities occurred at junctions.

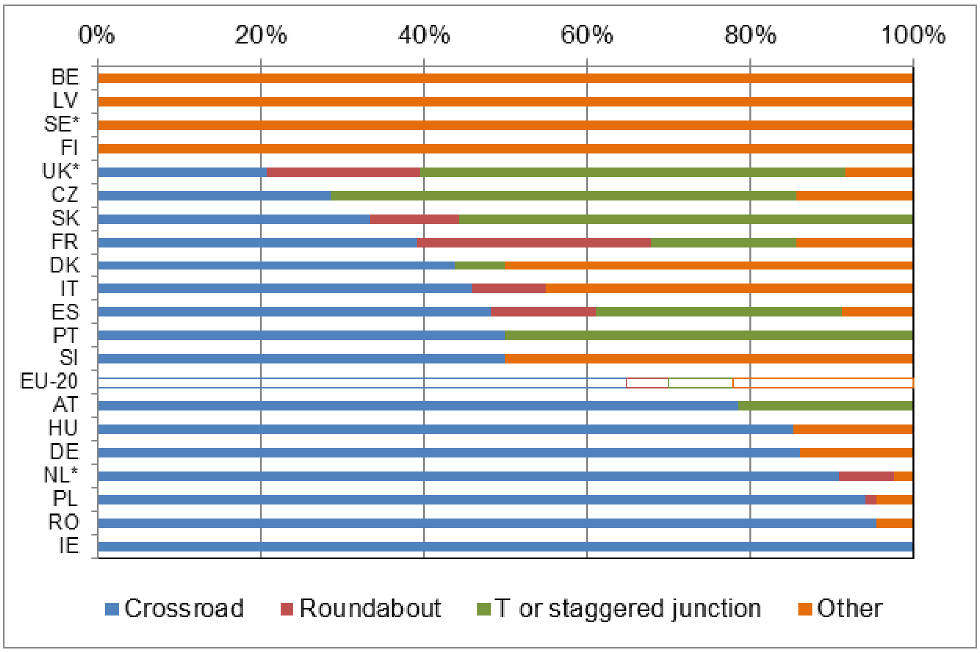
Table 8: Number of cyclist fatalities by junction type in 2010, EU-23

	Not at junction	At junction				% at junction	Total
		Crossroad	Roundabout	T or staggered junction	Other		
BE	39		0		31	44%	70
CZ	59	6	0	12	3	26%	80
DK	10	7	0	1	8	62%	26
DE	70	166			27	51%	381
EE*	7					0%	7
IE		1		0		20%	5
EL	22					0%	23
ES	51	8	2	5	1	23%	67
FR	119	11	8	5	4	19%	147
IT	152	51	10		50	42%	263
LV	12				1	8%	13
LU	1	0			0	0%	1
HU	58	29	0		5	37%	92
NL*	51	79	6		2	63%	138
AT	18	11	0	3	0	44%	32
PL	212	64	1		3	24%	280
PT	29	2	0	2		12%	33
RO	160	21			1	12%	182
SI	15	1			1	12%	17
SK	17	3	1	5		33%	27
FI	15				11	42%	26
SE*	13		0		7	35%	20
UK*	63	10	9	25	4	43%	111
EU-23	1.193	470	37	58	159	35%	2.041

* Data of 2009 for EE, NI, NL and SE

Source: CARE Database / EC
Date of query: October 2012

Figure 8: Distribution of cyclist fatalities by junction type in 2010, EU-20b

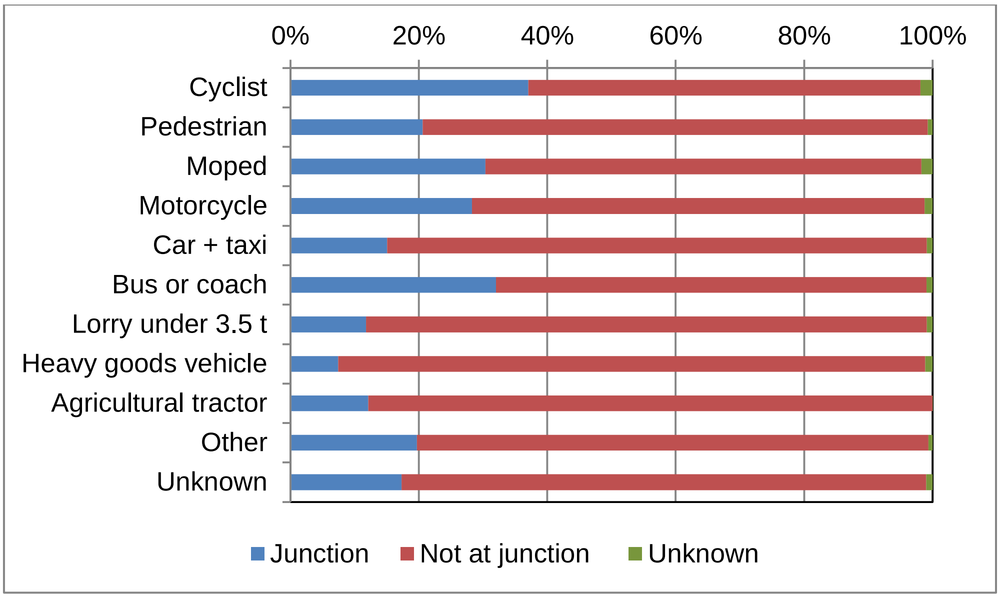


* Data of 2009 for NI, NL and SE Source: CARE Database / EC Date of query: October 2012

Figure 8 shows the distribution of cyclist fatalities by junction. Focusing on cyclist fatalities at junctions, 55% occurred at crossroads and 7% at T-junctions or staggered junctions. In Germany, The Netherlands and Poland more than 85% of cyclist fatalities at junctions occurred at crossroads. In The United Kingdom 52% of the junction cyclist fatalities occurred at T-junctions or staggered junctions.

As a comparison of these proportions to other modes of transport, Figure 9 presents the percentage of cyclist fatalities at junctions compared to other modes of transport.

Figure 9: Fatality proportions involving cyclists at junctions compared to other modes of transport in 2010, EU-23*



* Data of 2009 for EE, NL,SE and NI

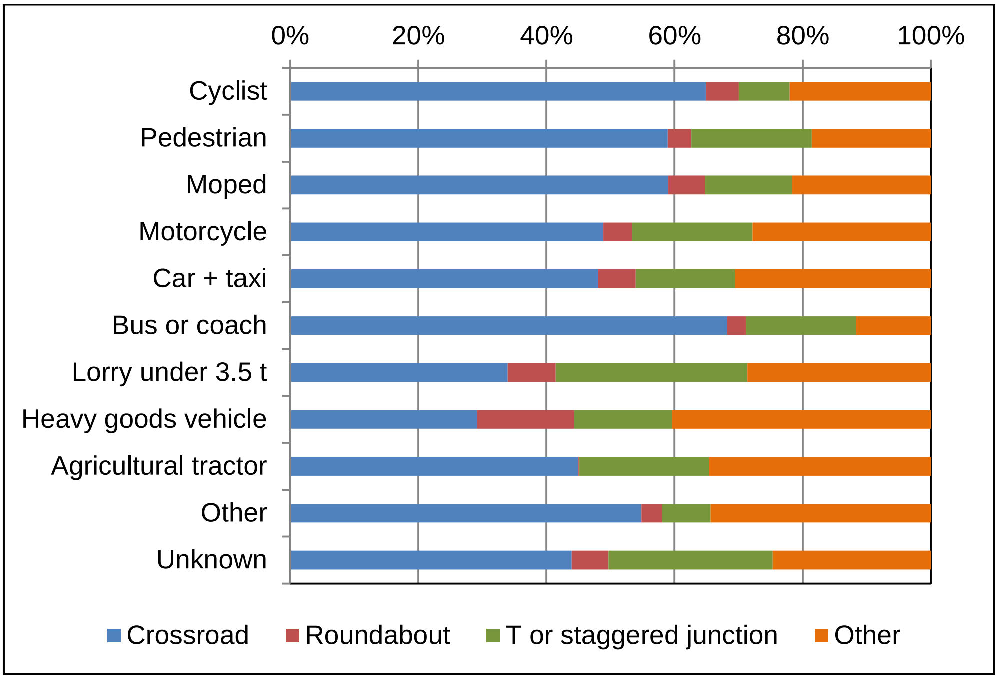
Source: CARE Database / EC
Date of query: October 2012

Nearly 40% of cyclist fatalities occurred at junctions, against less than 15% of car occupant fatalities

This indicates that nearly 40% of cyclist fatalities occur at junctions. Bicycles have the highest fatality rates at junctions. Fatalities with buses/coaches and mopeds are the next highest frequency occurring at junctions (32% and 30% respectively). In comparison, 15% of car occupant fatalities occurred at junctions.

When comparing fatalities at the various types of junctions with the different modes of transport, it is evident that bicycle fatalities, together with buses and coaches, are over-represented at crossroads (Figure 10). 65% (68% for the buses/coaches) occurring at crossroads compared to 48% for car and taxi occupants. The percentage occurring at T-junctions was relatively smaller than many of the other modes of transport.

Figure 10: Distribution of fatalities on junctions over junction types in the EU-23 countries in 2010*



* Data of 2009 for EE, NL,SE and NI

Source: CARE Database / EC
Date of query: October 2012

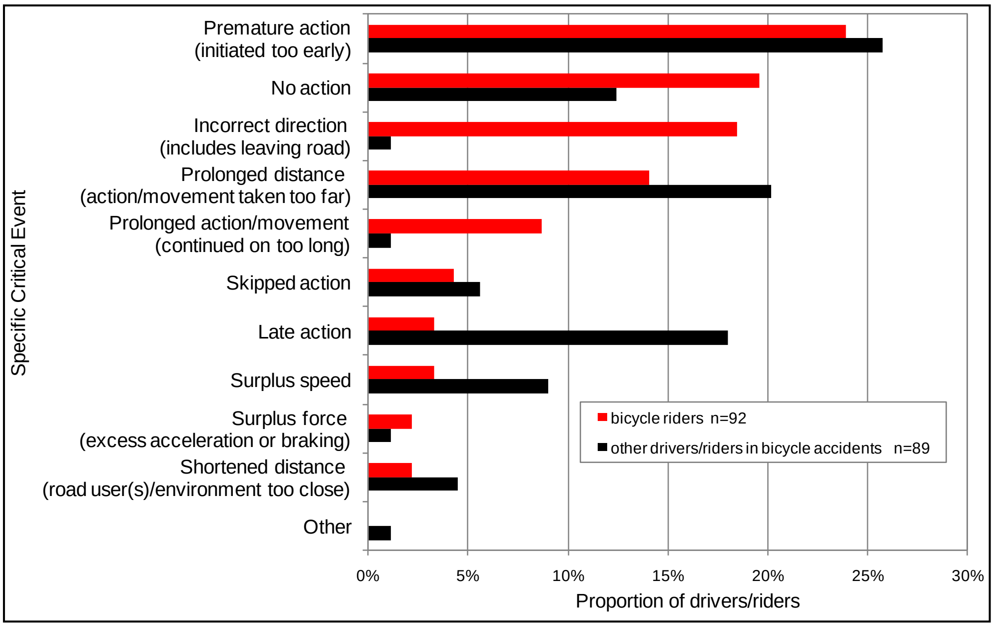
Accident Causation

Between 2005 and 2008, data of 1.006 accidents (involving all road user types and all injury severities) was collected in Germany, Italy, The Netherlands, Finland, Sweden and the UK[6 7].

In the database, 9% (91) of the accidents involve the rider of a bicycle. Males account for 50% of this group and the mean age is 47 years. Figure 11 compares the distributions of specific critical events for bicycle riders and other drivers/riders in bicycle accidents.

[6] SafetyNet D5.5, Glossary of Data Variables for Fatal and Accident Causation Databases
[7] SafetyNet D5.8, In-Depth Accident Causation Database and Analysis Report

Figure 11: Distribution of specific critical events - bicycle riders and other drivers/riders in bicycle accidents



N=181

Source: SafetyNet Accident Causation Database 2005 to 2008 / EC
Date of query: 2010

Although ‘premature action’ is recorded most frequently for both bicycle riders and those others involved in bicycle accidents, it is the difference for ‘incorrect direction’ that is most striking. ‘Incorrect direction’ refers to a manoeuvre being carried out in the wrong direction (for example, turning left instead of right) or leaving the road (not following the intended direction of the road). ‘Premature action’ describes a critical event with an action started too early, before a signal was given or required conditions established. In combination with prolonged distance and prolonged action/movement - movements taken too far and manoeuvres that last for too long (for example, not returning to correct lane) – scenarios start to emerge of conflict between bicycle riders and other road users when sharing road space.

Table 9 gives the most frequent links between causes for injury accidents involving bicycle riders. For this group there are 74 such links in total.

18% of the links between causes are observed to be between 'faulty diagnosis' and 'information failure'.

Table 9: Ten most frequent links between causes – bicycle riders

Links between causes	Frequency
Faulty diagnosis - Information failure (driver/environment or driver/vehicle)	13
Observation missed - Faulty diagnosis	6
Observation missed - Inadequate plan	6
Observation missed - Temporary obstruction to view	5
Observation missed - Distraction	4
Observation missed - Permanent obstruction to view	4
Faulty diagnosis - Communication failure	4
Inadequate plan - Insufficient knowledge	4
Observation missed - Inattention	3
Information failure (driver/environment or driver/vehicle) - Inadequate information design	3
Others	22
Total	74

Source: SafetyNet Accident Causation Database 2005 to 2008 / EC
Date of query: 2010

The numbers here are low but the links are similar to those seen for driver and rider groups in other Traffic Safety Basic Facts, with 'faulty diagnosis' and 'observation missed' being the common causes, closely followed by 'inadequate plan' (a lack of all the required details or that the driver's ideas do not correspond to reality).

'Faulty diagnosis' is an incorrect or incomplete understanding of road conditions or another road user's actions. It is linked to both 'information failure' (for example, a rider thinking another vehicle was stopped when it was in fact moving and colliding with it) and 'communication failure' (for example, pulling out in the continuing path of a driver who has indicated for a turn too early). The causes leading to 'observation missed' can be seen to fall into two groups: 'physical 'obstruction to view' type causes (for example, parked cars at a junction) and 'human factor' type causes (for example, not observing a red light due to distraction or inattention).

By 2012, thirteen member states routinely collected data in a sample of hospitals and contributed them to the EU injury Database.

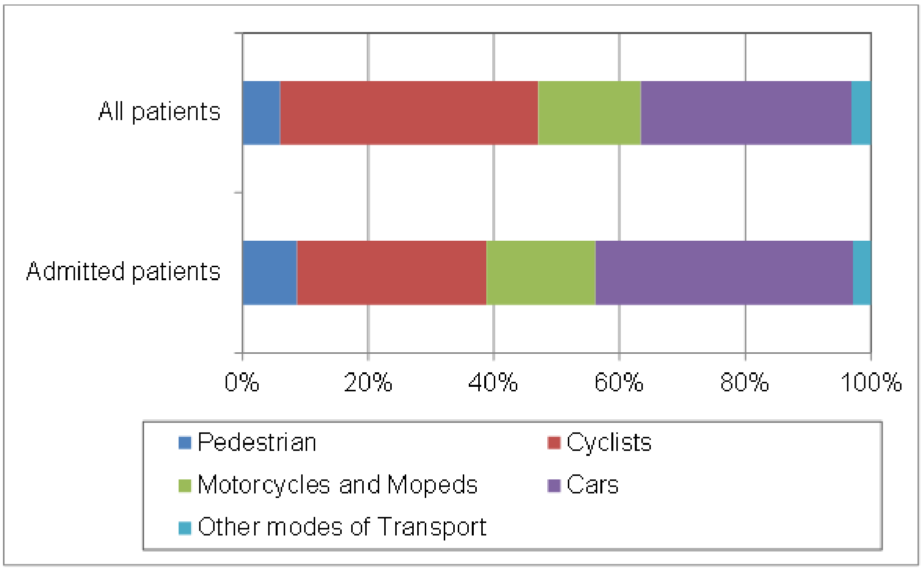
According to estimates based on the EU IDB more than four million people are injured annually in road traffic accidents, one million of whom have to be admitted to hospital.

ROAD ACCIDENT HEALTH INDICATORS

Injury data can be obtained from a wide range of sources, such as police and ambulance reports, national insurance schemes, and hospital records, each of which provides a specific but yet incomplete picture of the injuries suffered in road accidents. In order to obtain a comprehensive view of these injuries, the EU Council issued a Recommendation that urges member states to use synergies between existing data sources and to develop national injury surveillance systems rooted in the health sector.[8] At present, thirteen member states are routinely collecting injury data in a sample of hospitals and delivering these data to the Commission. This system is called the EU Injury Database (EU IDB).[9]

Within the EU IDB "transport module" injuries suffered in road accidents are recorded by "mode of transport", "role of injured person" and "counterpart". These variables can complement information from police records, in particular for injury patterns and the improved assessment of injury severity. The indicators used include the percentage of casualties attending hospital who are admitted to hospital, the mean length of stay of hospital admissions, the nature and type of body part injured, and potentially also long term consequences of injuries.

Figure 12: Distribution of non-fatal road accident casualties attending hospital, by mode of transport



EU Injury Database (EU IDB AI) - hospital treated patients. IDB AI Transport module and place of occurrence (code 6.n [public road]); n-all = 73 600: n-admitted = 23.568 (DE, DK, LV, MT, AT, NL, SE, SI, CY, years 2005-2008).

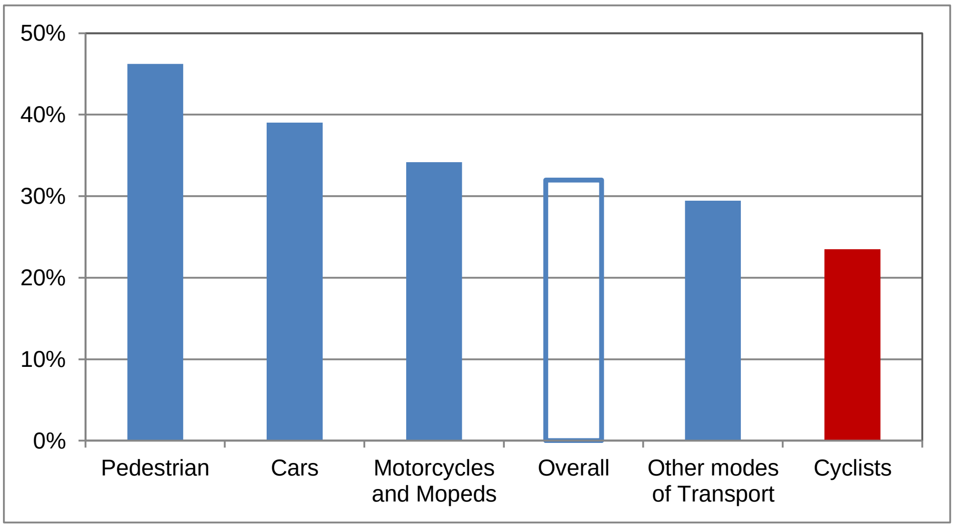
Figure 12 is based on IDB data from nine countries for accidents that occurred between 2005 and 2008. Vulnerable road users (pedestrians, cyclists, motorcycles and mopeds) accounted for almost two thirds (63%) of road accident casualties attending hospital, and for over half of casualties admitted to the hospital (56%).

[8] OJ C 164/1, 18.7.2007
[9] https://webgate.ec.europa.eu/sanco/heidi/index.php/IDB

Figure 13 shows that 32% of road accident casualties recorded in the IDB were admitted to the hospital overall, and 23% for cyclists. Figure 14 shows that the average length of stay was eight days, for cyclists and overall.

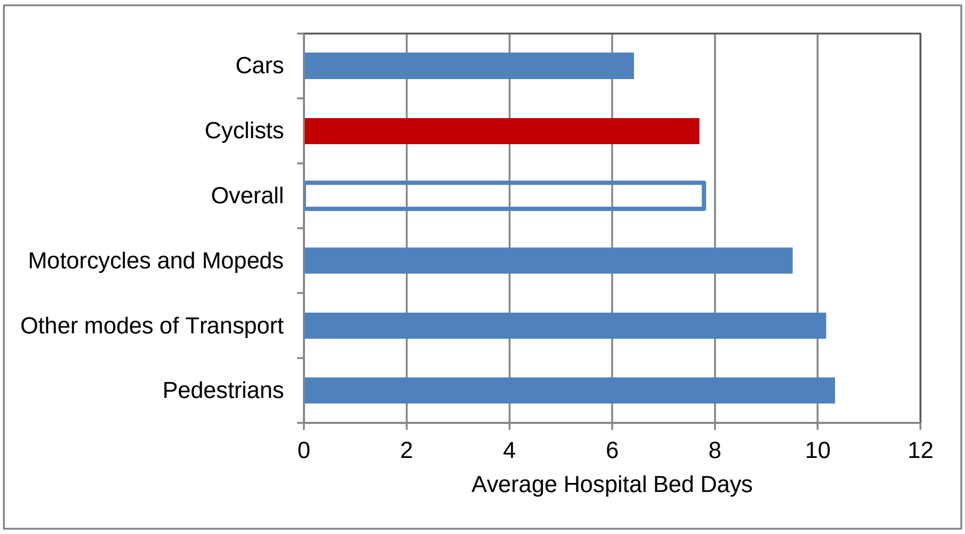
About 25% of the cyclists casualties who attended a hospital were admitted to the hospital; their average stay in hospital was almost eight days.

Figure 13: Share of casualties who attended a hospital who were admitted to hospital, by mode of transport



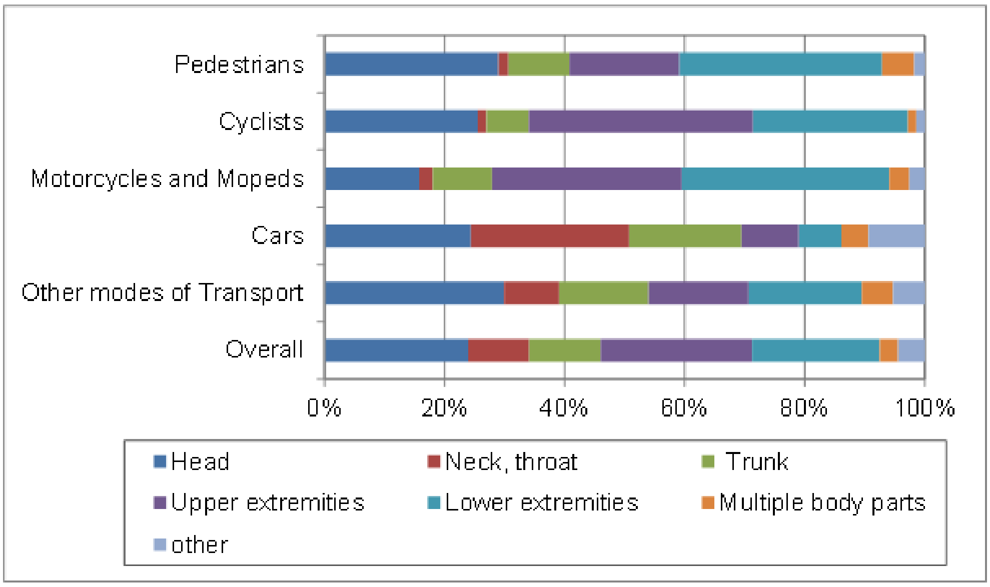
Source: See Figure 12.

Figure 14: Average length of stay (hospital bed days), by mode of transport



Source: See Figure 12.

Figure 15: Body part injured, by mode of transport



Source: See Figure 12.

Fractures, contusions and bruises account for almost two thirds of all injuries inflicted on cyclist casualties attending hospital.

Naturally, hospital data can provide information on the injury patterns sustained by the accident victims. Figure 15 illustrates the distribution of body parts injured of the various road user types. Cyclists, for example, show a high proportion of injuries of the upper extremities.

Table 10 shows the types of injuries most frequently recorded in the EU IDB. It compares the distribution of injuries among cyclists and all types of road users.

Table 10: Top ten types of injury in cyclists and all modes of transport

	Cyclists	All modes of Transport
Contusion, bruise	31%	34%
Fracture	34%	27%
Open wound	13%	10%
Distortion, sprain	6%	8%
Concussion	6%	7%
Other specified brain injury	2%	2%
Luxation, dislocation	3%	2%
Injury to muscle and tendon	1%	2%
Abrasion	1%	1%
Injury to internal organs	0%	1%
Other specified types of injury	3%	6%
Total	100%	100%

Source: See Figure 12.

Disclaimer

For more information

Further statistical information about fatalities is available from the CARE database at the Directorate General for Energy and Transport of the European Commission, 28 Rue de Mot, B -1040 Brussels.

Traffic Safety Basic Fact Sheets available from the European Commission concern:

- Main Figures
- Children (Aged <15)
- Youngsters (Aged 15-17)
- Young People (Aged 18-24)
- The Elderly (Aged >64)
- Pedestrians
- Cyclists
- Motorcycles and Mopeds
- Car occupants
- Heavy Goods Vehicles
- Motorways
- Junctions
- Roads in urban areas
- Roads outside urban areas
- Seasonality
- Single vehicle accidents
- Gender
- Accident Causation

Country abbreviations used and definition of EU-level

EU - 16	
BE	Belgium
CZ	Czech Republic
DK	Denmark
IE	Ireland
ES	Spain
FR	France
IT	Italy
NL	Netherlands
AT	Austria
PL	Poland
PT	Portugal
RO	Romania
SI	Slovenia
FI	Finland
SE	Sweden
UK	United Kingdom (GB+NI)

EU-19 = EU-16 +	
DE	Germany
EL	Greece
LU	Luxembourg

EU-20a = EU-16 +	
DE	Germany
EL	Greece
LU	Luxembourg
HU	Hungary

EU-20b = EU-16 +	
DE	Germany
LV	Latvia
HU	Hungary
SK	Slovakia

EU-22 = EU-16 +	
EE	Estonia
EL	Greece
LV	Latvia
LU	Luxembourg
HU	Hungary
SK	Slovakia

EU-23 = EU-16 +	
DE	Germany
EE	Estonia
EL	Greece
LV	Latvia
LU	Luxembourg
HU	Hungary
SK	Slovakia

Detailed data on traffic accidents are published annually by the European Commission in the Annual Statistical Report. This includes a glossary of definitions on all variables used.

More information on the DaCoTA Project, co-financed by the European Commission, Directorate-General for Mobility and Transport is available at the DaCoTA Website: http://www.dacota-project.eu/index.html.

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