Deliverable D3.11a:

Road Safety Performance Indicators Updated Country Comparisons

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Executive Summary

This report presents an overview of recent figures of chosen safety performance indicators of 29 European countries – the 27 EU member states, complemented with Norway and Switzerland. The comparison is done for five road safety performance indicators in the following areas: alcohol and drugs, speeds, protective systems, daytime running lights, and trauma management. These indicators were developed earlier within the SafetyNet project (Hakkert, Gitelman and Vis[1] (2007)). On the basis of the data obtained from the collaborating countries, a first cross-country comparison of safety performance was presented (see Vis and Van Gent, Eds.[2] (2007)). The aim of this report is to present and analyze updated figures of safety performance indicators and to show their recent development.

The comparison could be made for 29 countries (27 EU countries, Switzerland and Norway). The response on the update questionnaire distributed to the National experts was received from 21 countries, thus not allowing exhaustive comparisons of developments in time.

In general, comparing the countries' performances remains difficult in several areas of SPIs. The main reasons are the lack of data, poor quality of the data, or the incomparability of the (seemingly similar) data due to different national definitions or circumstances of measurement. The improvement in data quality through the applications of guidelines introduced earlier by the SafetyNet Road Safety Performance Indicators team was noticed for several countries.

In spite of all considerations and limitations, we are able to present a great number of comparisons in this report, or to present the figures that can form the basis for future comparisons. Reliable comparisons are made for the areas daytime running lights, protective systems, and trauma management. Only limited comparisons are made for the areas speeds and alcohol and drugs. The number of countries collecting data on SPIs has slightly grown since the previous comparison and the data quality and comparability have improved in certain countries as well.

At EU level, no major differences were found in the performance in 2005 and in 2007 for most SPIs, but the performance of certain countries has likely improved considerably. The data for 2008 and 2009 must however be assessed in order to determine whether the trend is sustainable or short term one only.

[1] Hakkert, A.S, Gitelman, V. and Vis, M.A. (Eds.) (2007) *Road Safety Performance Indicators: Theory*. Deliverable D3.6 of the EU FP6 project SafetyNet.

[2] Vis, M.A. and Van Gent, A.L. (Eds.) (2007) *Road Safety Performance Indicators: Country Comparisons*. Deliverable D3.7a of the EU FP6 project SafetyNet..

Contents

1 Introduction

This document presents the comparison of the road safety performance of 29 European countries – the 27 EU member states, Norway and Switzerland. The performance of these countries is based on their score on so-called 'safety performance indicators' in five road-safety related areas: alcohol and drugs, speed, protective systems, daytime running lights and trauma management. We developed road safety performance indicators for each of these areas in Hakkert, Gitelman and Vis (2007) and compared countries performance in Vis and Van Gent (2007). This report presents updated figures on countries' performances and allows judgements to be made about their recent development. Two more countries' figures are included in this report, those of Romania and Bulgaria.

Safety performance indicators are seen as any measurement that is causally related to crashes or injuries and is used in addition to the figures of accidents or injuries, in order to indicate safety performance or understand the process that leads to accidents (ETSC, 2001). They also provide the link between the casualties from road accidents and the measures to reduce them (ETSC, 2006).

Safety performance indicators help illustrate how well road safety programs are doing in meeting their objectives or achieving the desired outcomes. They are a means of monitoring, assessing and evaluating the processes and operations of road safety systems concerning their potential to solve the problems they are up against. They use qualitative and quantitative information to help to determine a program's success in achieving its objectives. They could be used to track progress and could provide a basis to evaluate and improve performance.

SafetyNet's Road Safety Performance Indicators team has worked closely together with national representatives of the 29 countries to obtain as much of the data relevant for calculating the indicator values. The current report presents the indicator values as far as they were found suitable for comparison with other countries' indicator values. In many cases, we found that essential data were missing or that the quality of the data was too poor to use for country comparisons. For example, this was the case for the areas related to alcohol and drugs use and to roads. Yet, even in these cases, we have often presented the indicator values, but explicitly stated the extent to which we found the comparisons valid.

Chapter 2 first gives an overview of the indicators used for the country comparisons in this report.

Chapters 3 to 7 present the results for each indicator area consecutively. For each area, the definition of the indicator is given and an overview of the figures is presented in terms of graphs and tables. These chapters also show to what extent relevant data was obtained from the 29 countries for the five SPI areas studied in this report.

In chapter 8 we present our overall conclusions.

The appendices contain data underlying some of the figures that are presented in the chapters.

2 Overview of SafetyNet SPIs

This chapter gives a quick overview of the road safety performance indicators (SPIs) that were developed for seven different road safety related: alcohol and drugs; speed; protective systems; daytime running lights; vehicles; roads; and trauma management. The full theory behind the developed indicators can be found in Hakkert, Gitelman and Vis (2007).

Indicator area	Developed indicator
Alcohol and drugs	**Alcohol** The percentage of fatalities resulting from accidents involving at least one *driver* impaired by alcohol **Drugs** The percentage of fatalities resulting from accidents involving at least one *driver* impaired by drugs other than alcohol
Speeds	**The average speed either during daytime or during the night** **The percentage of speed limit offenders.**
Protective systems	**Daytime wearing rates of seat belts** A – Front seats – passenger cars + vans under 3.5 tons B – Rear seats – passenger cars + vans under 3.5 tons C – Children under 12 years old - restraint systems use in passenger cars D – Front seats – heavy good vehicles (HGV) + coaches above 3.5 tons E – Passenger seats - coaches **Daytime wearing rates of safety helmets** F – Cyclists G – Moped riders H – Motorcyclists
Daytime running lights	The total usage rate of daytime running lights The usage rate of daytime running lights per road type (4 types) The usage rate of daytime running lights per vehicle type (4 types)
Trauma management	**Availability of Emergency Medical Services (EMS) stations** The number of EMS stations per 10,000 citizens **Availability and composition of EMS medical staff** Percentage of physicians and paramedics out of the total number of EMS staff The number of EMS staff per 10,000 citizens **Availability and composition of EMS transportation units** Percentage of Basic Life Support Units (BLSU), Mobile Intensive Care Units (MICU) and helicopters/planes out of the total number of EMS transportation units The number of EMS transportation units per 10,000 citizens The number of EMS transportation units per 100 km of total road length **Characteristics of the EMS response time** The demand for EMS response time (min) Percentage of EMS responses meeting the demand Average response time of EMS (min) **Availability of trauma beds in permanent medical facilities** Percentage of beds in trauma centres and trauma departments of hospitals out of the total trauma care beds The total number of trauma care beds per 10,000 citizens Furthermore, a **combined** indicator was developed to measure a country's overall performance for trauma management.

Table 2.1 Overview of the developed safety performance indicators per indicator area.

3 Alcohol and drugs

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3.1 Alcohol

The developed safety performance indicator for alcohol is:

> The percentage of fatalities resulting from accidents involving at least one driver impaired by alcohol.

3.1.1 Most recent values for the SPI for alcohol

Data needed to calculate the safety performance indicator for alcohol are available in 26 out of 29 countries. Ireland, Malta and Luxembourg have not provided data.

Since the SPI value is expected to relate to the national legal limit of blood alcohol concentration (BAC), it is reasonable to group countries according to the legal limit and rank them within these groups. Another argument is that most countries provide data for drivers above the legal alcohol limit. As seen from Figure 3.1 this limit varies from 0.0 to 0.8 g/l BAC. The difference in legal limit may have two opposite effects. On the one hand the higher the limit, the lower the percentage of drivers who should be above this limit. On the other hand, if low legal limits have deterrent effects, there may be relatively fewer drivers above the legal limit in countries with low legal limits.

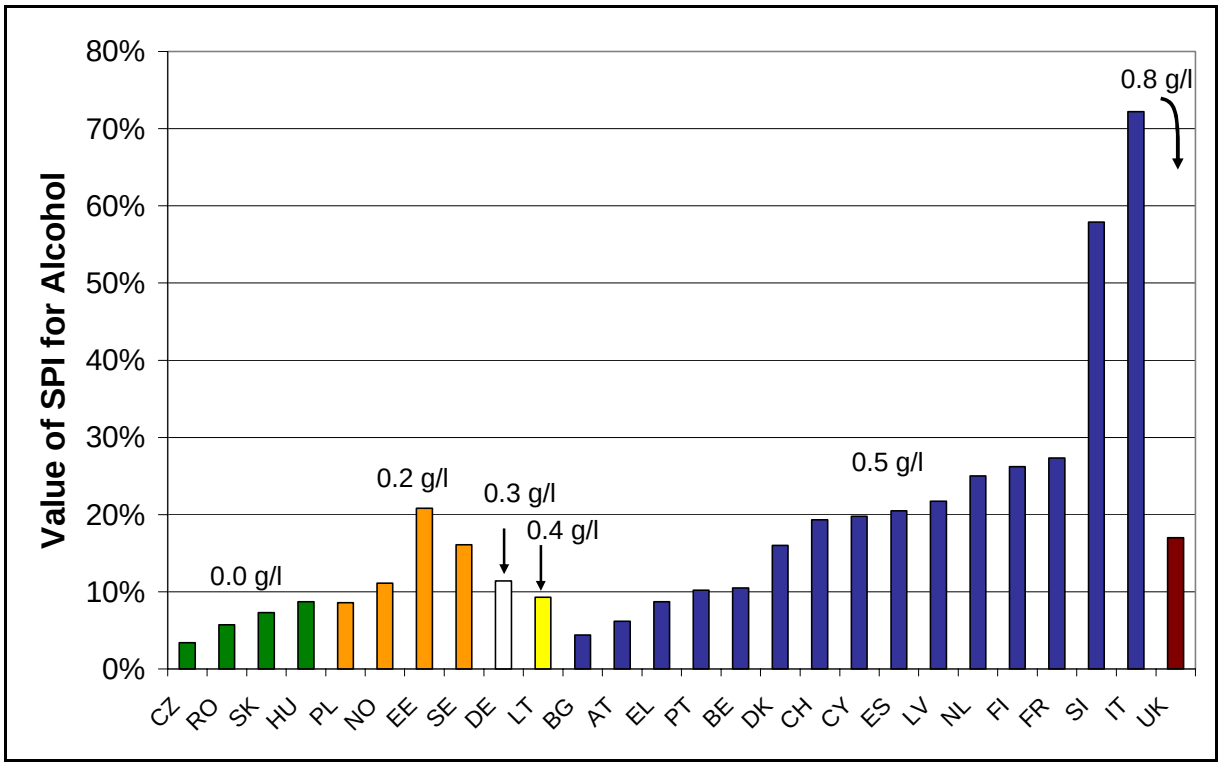

Figure 3.1 Most recent values for the SPI for alcohol: the percentage of fatalities resulting from accidents involving at least one driver impaired by alcohol. Colours indicate the same BAC legal limits. For most countries 2007 figures were not available and values for earlier years were used (see text for details). For ES (Spain) see comment in Table A.3 in Appendix A. For DE (Germany) see comment in Table A.4 in Appendix A.

Figure 3.1 shows the most recent SPI values that countries could provide. Regarding alcohol, from the 26 countries that provided data, eight countries have been able to produce data for 2007 (CZ, RO, PL, SE, LT, BG, PT, LV), for twelve countries the most recent data stems from 2006 (BE, DE, EL, FR, CY, ES, AT, SI, SK, FI, UK, NO), five countries have data for 2005 (DK, EE, HU, NL, CH), and one country has data for 2004 (IT). The prevalence of impaired drivers in a national population of drivers could be expected to be rather stable from one year to the next, and thus the number of fatal accidents involving impaired drivers could also be expected to be rather stable over a few years, except for the random variation mentioned below.

3.1.2 Comparison between consecutive years

Figure 3.2 shows the values of the SPI for alcohol for all years from 2004 to 2007, where available.

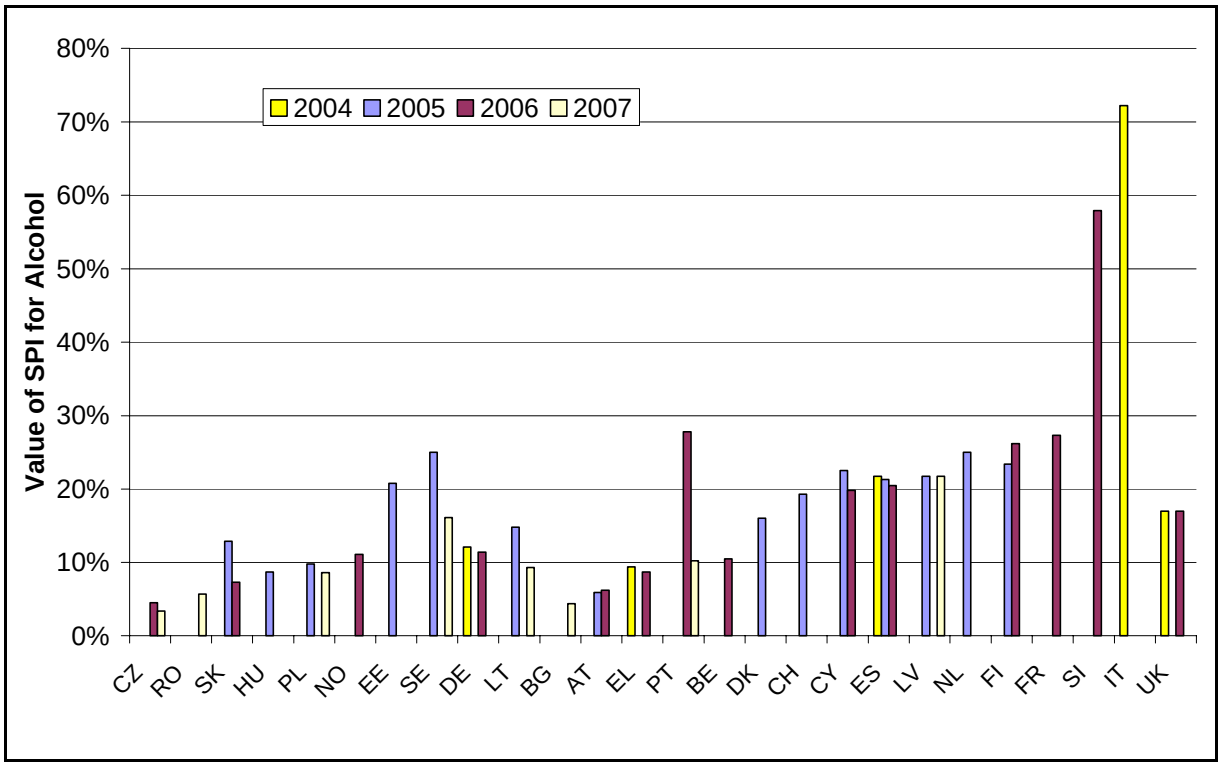

Figure 3.2 Values of the SPI for alcohol for the year 2004 to 2007, where available.

No major differences were found in the values of SPIs produced in consecutive years. Differences found in Sweden and Portugal are due to the change in the calculation of the indicator in these countries.

3.1.3 Synthesis

The comparison of SPI values for alcohol between countries remains difficult due to the differences in calculation methods and underlying reporting practices, leading to various levels of underreporting.

Some countries include all fatalities from accidents where drivers under the influence have been involved, whereas others include only fatalities from accidents *caused* by drivers under the influence. The concept of cause is problematic in road accidents research. Consequently, including only fatalities from accidents caused by drivers under the influence may reduce the value of the indicator.

The number of fatalities is small in many smaller countries and thus subject to random variation. To reduce the effects of random variation the safety performance indicators should preferably be computed based on data for several years, rather than for one year.

The BAC limit does not appear to be the main determinative factor for the value of SPI.

3.2 Drugs

The developed safety performance indicator for drugs is:

> The percentage of fatalities resulting from accidents involving at least one driver impaired by drugs other than alcohol.

3.2.1 Values for the SPI for drugs

Only seven countries could provide data that could be used to calculate the value of the performance indicator for drugs. Table 3.1 provides an overview of this indicator for those countries.

Country	Year	SPI-drug (%)	Comment
Belgium	2002	0.9	
Czech rep.	2004	0.1	
Spain	2006	11.8	Killed drivers impaired by drugs as percentage of all killed drivers. This figure is likely to yield an overestimation of the indicator value.
Cyprus	2006	8.1	
Finland	2005	1.8	
Norway	2006	8.0	
Switzerland	2005	7.6	

Table 3.1 Comparison of the drugs SPI based on available data.

Only Spain and Switzerland list the drugs tested for, i.e. both medicinal and illegal drugs. Consequently, the figures in the table above should be considered as an example of the drug SPI rather than comparable figures.

3.3 Underlying data

For underlying data see Assum and Sørensen (5) and Appendix A.

4 Speed

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The developed safety performance indicators for Speed are:

1. The average speed either during daytime or during the night
2. The percentage of speed limit offenders

International comparisons of speeding performances should only be carried out for roads of similar category and for which similar methods of speed data collection are used. In this respect, only comparisons concerning motorways are presented in this document, as it is the type of road showing the more similarities between countries. Still, several comparability issues are remaining, such as the different speed limits, different methods of data collection and the different categories of vehicles and periods of measurement that are considered.

Only nine countries are included in the comparison. Different reasons explain the absence of the other European countries: they may not have motorways, may not register speed on their motorways, may not have speed data in a comparable format or may not have delivered their data to the SafetyNet project.

4.1 SPI values in 2007 versus 2002

4.1.1 Average speed

Figure 4.1 shows the average speed of light vehicles on motorways for the year 2007, compared with the average speeds five years earlier in 2002. The different speed limits are indicated by different colours. For Denmark and the Netherlands, only monthly indicators were available. The annual figures that are reported on the graph are simple averages of these monthly figures but not official indicators reported by Danish or Dutch authorities.

Unsurprisingly, the motorways with the highest speed limits (Austria, France and Denmark) are showing the highest average speeds. The 2007 average speed on these motorways is approximately 10 km/h below the speed limit. The latter observation is also valid concerning Ireland and Switzerland. It should however be noted that all types of vehicles are included in the speed indicators for Switzerland, which likely has the consequence of significantly lowering the average speed comparing to a “light vehicles-only” situation. The scheme is really different for Finland's 100 km/h motorways and the UK where the average speed is slightly higher than the speed limit. The worst result in terms of differential between average speed and the speed limit is encountered on Denmark's 110 km/h motorways, where the average speed exceeds the speed limit by more than 5 km/h. In contrast, the average speed in the Czech Republic is impressively low in comparison with the speed limit but this indicator, similarly to the Swiss one, includes all types of vehicles and not only light vehicles.

Since 2002, two countries have experienced significant decreases in average speed of light vehicles on motorways: Switzerland and especially France. A parallel can be drawn between these decreases and the serious intensification of speed enforcement in both countries between 2002 and 2007. Ireland is the only country where the average speed has significantly increased since 2002. It may probably be attributed to the change of speed limit that followed the adoption of a metric speed system in Ireland in January 2005 and to the delivery of new motorways. The increase in average speed is about equal to half of the increase of the speed limit. On Denmark 130 km/h motorways, the average speed did not increase much considering that the speed limit increased by 20 km/h since 2002.

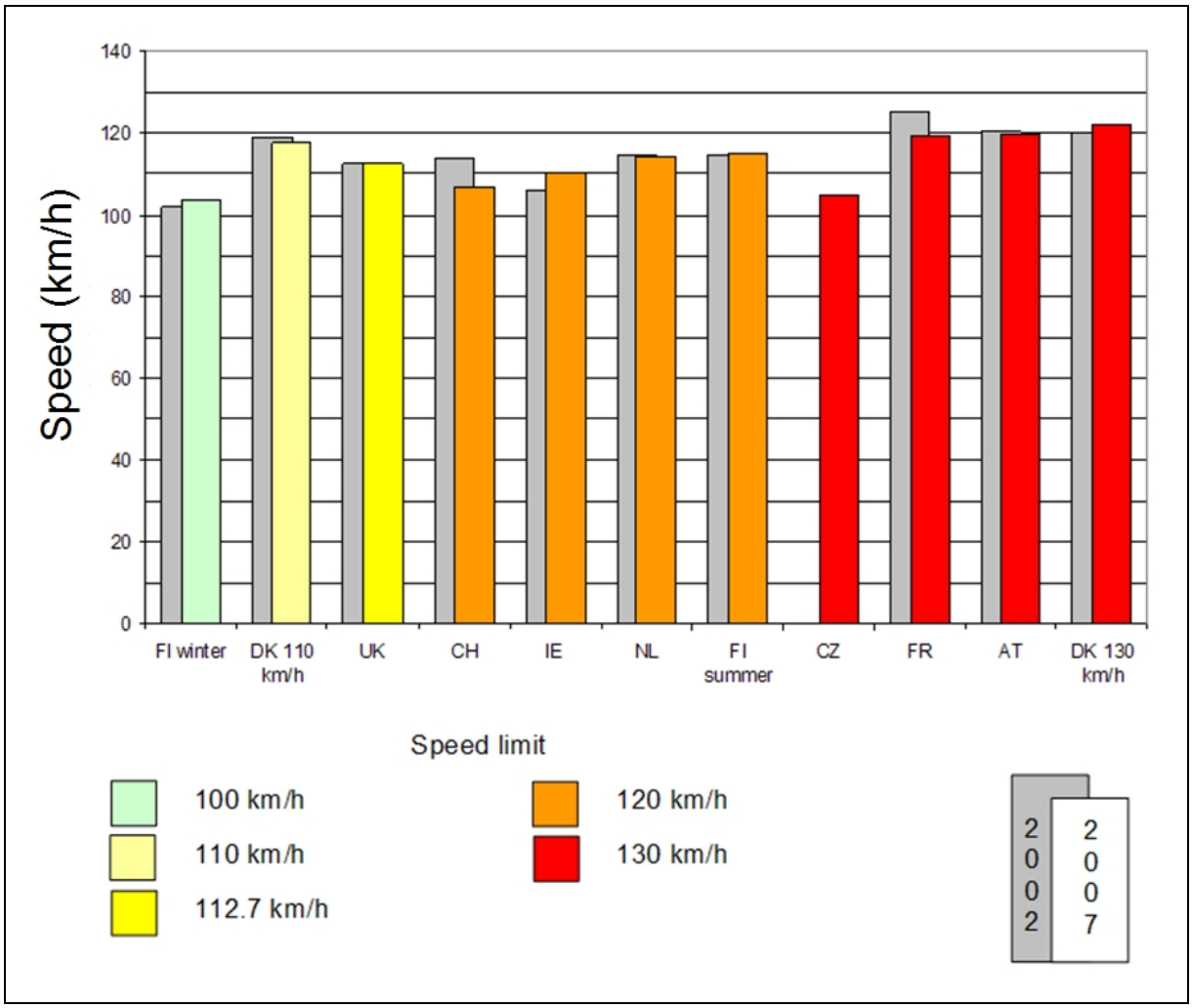

Figure 4.1 Average speed of light vehicles on motorways in 2007 (coloured) and 2002 (gray). (CH, CZ, DK: all types of vehicles are considered. CZ, IE, AT, NL: figures from 2006. IE: speed limit in 2002 was 112.6 km/h (70 mph). DK: in 2002, the speed limit for all motorways was 110. Since 2004 about 50% of the motorways have a new speed limit of 130 km/h.)

4.1.2 Percentage of speed limit offenders

The SPI "percentage of speed limit offenders" confirms that a high proportion of drivers do not comply with the legal speed limit. Figure 4.2 shows the SPI values for seven European countries. The SPI values are highest in the UK and in Finland. More than half of the light vehicles are exceeding the speed limit in the UK and no improvement has been observed since 2002. In Finland the wintertime speed limit of 100 km/h is barely respected. In the Netherlands, more than one third of the vehicles do not comply with the speed limit. The lowest percentages of offenders are observed in Ireland and Switzerland despite the fact that the speed limit is lower in these countries than in France and Austria. A lower speed limit is thus not always synonymous to a higher proportion of offenders. The percentage of offenders is higher in France than in Austria, even though the average speeds are similar. Interestingly, the decreases in average speeds in Switzerland and France since 2002 go in hand with impressive drops in terms of the percentage of vehicles over the limit.

Austria experienced a small decrease in the percentage of offenders, while maintaining the average speed at the same level as of 2002. In Ireland, considering the increase of the speed limit, the decrease in the proportion of offenders is not a surprise.

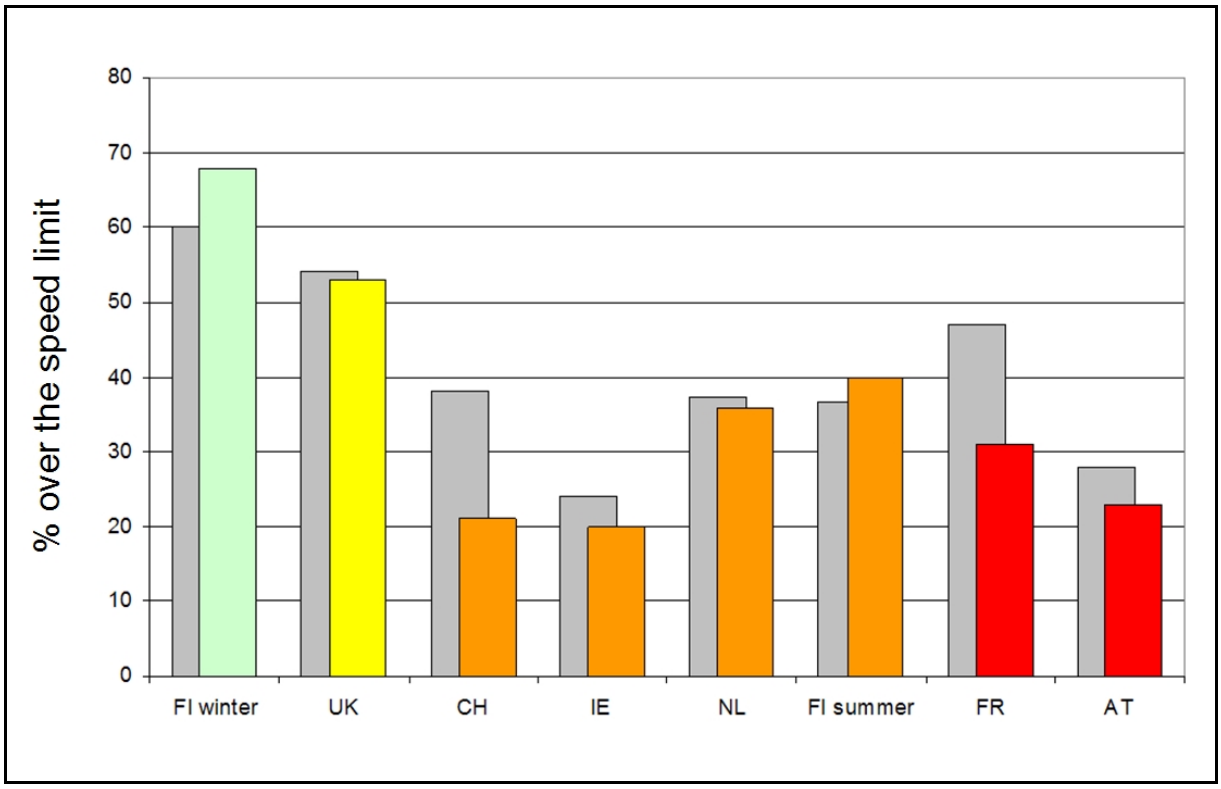

Figure 4.2 Percentage of speed limit offenders on motorways in 2007 and 2002. (CH: all types of vehicles are considered. IE, AT, NL: figures from 2006. IE: speed limit in 2002 was 112.6 km/h (70 mph))

4.2 Synthesis

It is very difficult to carry out robust comparisons of speed performances between countries in Europe. In essence, the road networks of the different countries may differ greatly, which prevents a comparison of the speed behaviour of drivers with all other factors being equal. The differences in methodologies are further complicating the comparisons. When an analysis is carried out country by country, one can mostly observe that significant changes in speed indicators are associated with changes in the number of accidents and fatalities. France is the best recent example of that phenomenon: 75% of the important decrease of the number of fatalities between 2003 and 2005 is attributed to the decrease in speeds. Acting in order to decrease the speeds has thus a high life saving potential. However, the improvements in Europe concerning speed are globally weak. The percentages of offenders on every type of roads are often impressive.

4.3 Underlying data

For underlying data see Appendix B.

5 Protective systems

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The developed safety performance indicators for protective systems are:

Daytime wearing rates of seat belts

- A – Front seats – passenger cars + vans under 3.5 tons
- B – Rear seats – passenger cars + vans under 3.5 tons
- C – Children under 12 years old - restraint systems use in passenger cars
- D – Front seats – heavy good vehicles (HGV) + coaches above 3.5 tons
- E – Passenger seats - coaches

Daytime wearing rates of safety helmets

- F – Cyclists
- G – Moped riders
- H – Motorcyclists

5.1 Comparison 2007 versus 2005

5.1.1 Daytime seat belt wearing rates (SPI-A, SPI-B, SPI-C)

Figure 5.1 shows that only Germany, France and Malta register wearing rates above 95%, while the rates under 75% are registered in Belgium, Czech Republic, Estonia, Spain, Hungary and Poland. The rates in Slovakia, Lithuania and Greece, where the surveys have not been performed yet are presumably even lower, as foreshadowed by available data on the indirect indicator (usage rates by accident fatalities).

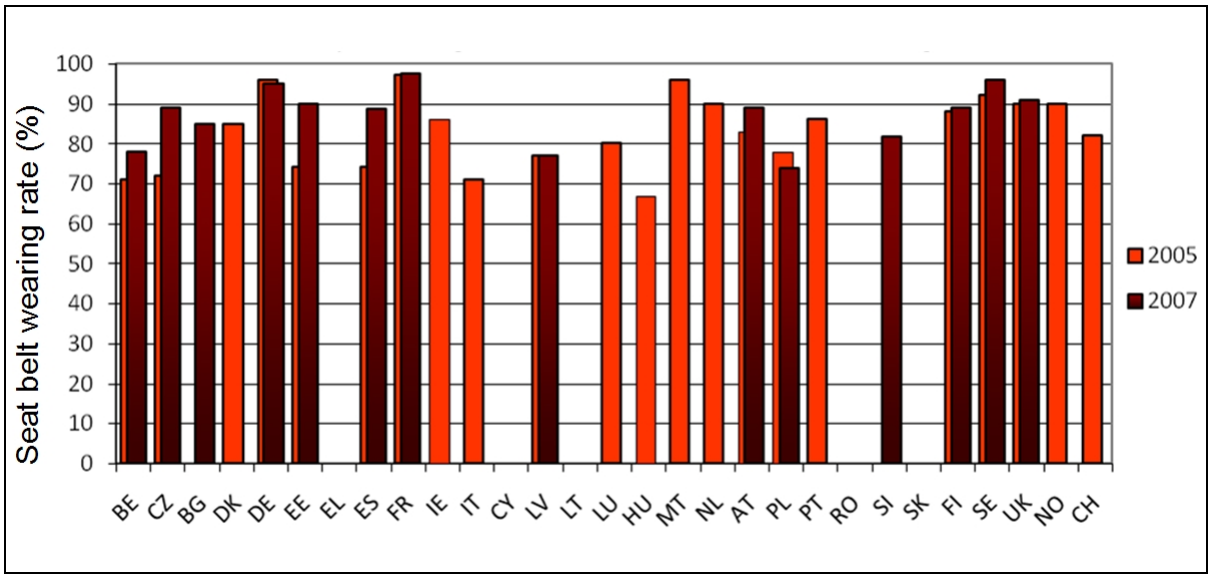

Figure 5.1 SPI-A: Daytime seat belt wearing rate on front seats of passenger cars and vans under 3.5 tons in 2007 and 2005. (LU: 2003; LV,MT: 2006; DK,DE,EE,IT,FR,PT,LU,CH: only driver wearing rates considered; FR: vans not included; IT,LV,MT,PL,PT does not fit fully to defined requirements.)

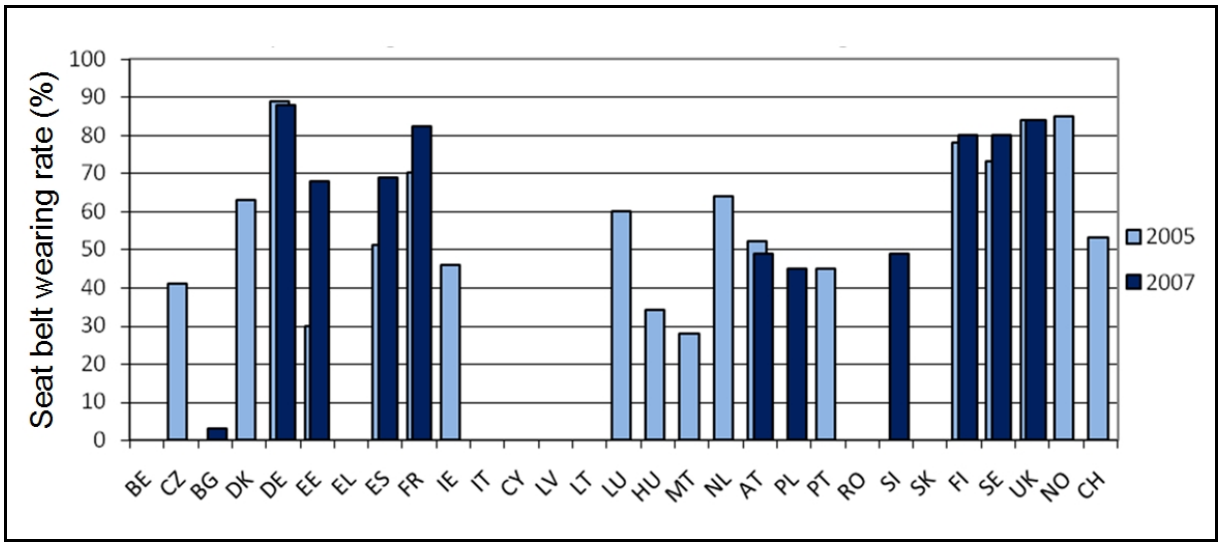

Figure 5.2 SPI-B: Daytime seat belt wearing rate on rear seats of passenger cars and vans under 3.5 tons by persons above 12 years old (SPI-B); (LU: 2003, CZ, LV, MT: 2006; DK>16 years old, AT, IE>18 years old.)

For all countries, the wearing rates on rear seats (SPI-B, see Figure 5.2) are substantially lower in comparison with the wearing rates on front seats (SPI-A) and in general are higher in those countries with higher rates for front seats and lower in those countries with lower rates for front seats. This can be seen from a comparison of Figure 5.1 and Figure 5.2.

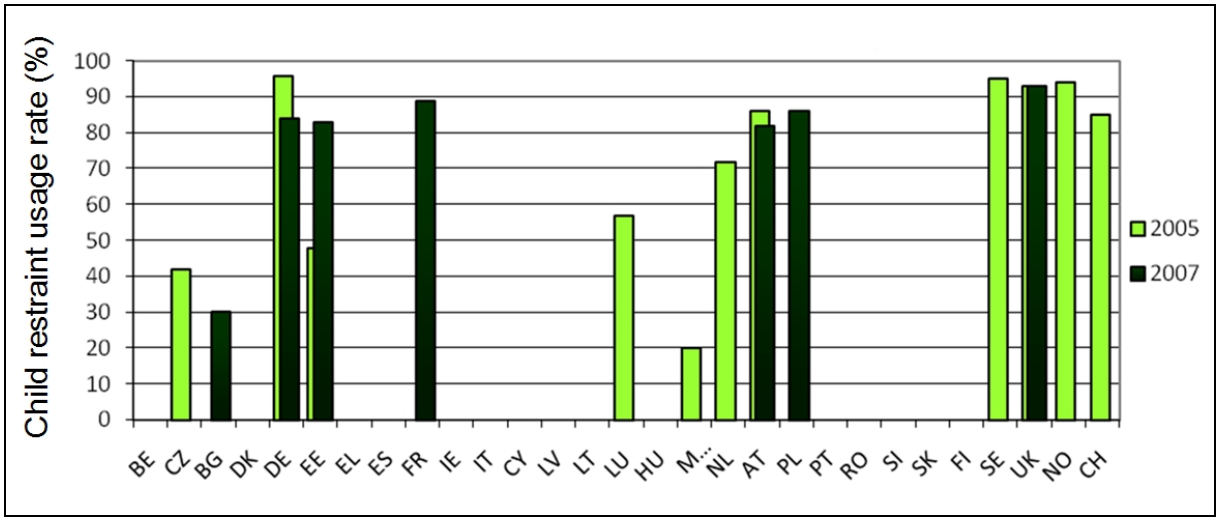

Figure 5.3 SPI-C: SPI-C: Daytime usage of child restraints by children under 12 years old. (MT: 2004; AT under 150 cm, NL: under 135 cm.)

The usage rate of child restraints varies greatly throughout Europe. But most importantly, it is registered in only a few countries. This is shown in Figure 5.3.

5.1.2 Daytime helmet wearing rates

In general, when assessing helmet use, both riders and their passengers are observed on motorized two-wheelers. Figure 5.4 presents the daytime usage rates of helmets by two-wheelers throughout Europe, to the extent data could be obtained. Presented estimates can be biased by the use of a limited number of observation sites, and observed individuals.

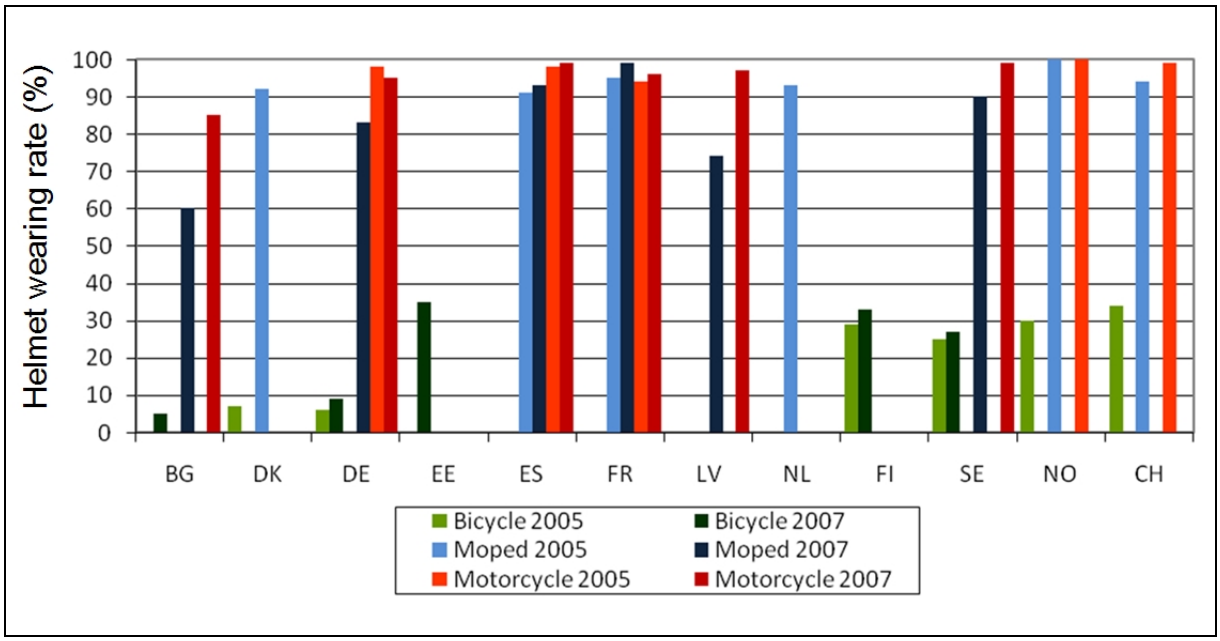

Figure 5.4 SPI-F to SPI-H Daytime usage rates of safety helmets by two-wheelers (SPI-F: cyclists; SPI-G: moped riders; SPI-H: motorcyclists). Dark colour for 2007, light colour for 2005.

5.2 Synthesis

The usage rate of protective systems in the EU-27 remains unsatisfactory low and improved only marginally in the past two years. Aggregated rates of seat belt use are roughly estimated as follows (see Appendix C): SPI-A: Daytime usage rate of seat belts on front seats of passenger cars and vans as 87% and SPI-B: Daytime usage rate of seat belts on rear seats of passenger cars and vans as 65%.

The seat belts saved some 14,200 car occupants from dying in road crash in EU-27 in 2007, while additional 4,700 lives could be saved if all car occupants were belted in crash.

5.3 Underlying data

For underlying data see Appendix C.

6 Daytime running lights

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The developed safety performance indicators for daytime running lights (DRL) are:

1. The total usage rate of daytime running lights
2. The usage rate of daytime running lights per road type (four road types)
3. The usage rate of daytime running lights per vehicle type (four vehicle types)

6.1 DRL SPIs available

The DRL usage rate is the percentage of the motorized vehicles that have switched on their lights during daytime. These rates can be determined per vehicle type and per road type. During the last SPI survey (carried out in 2008), only seven countries provided recent data on usage rates of daytime running lights. Among the countries that responded, four countries (Austria, Czech Republic, Latvia and Bulgaria) provided the data based on national DRL surveys, while three other countries (Poland, Sweden and Finland) stated that current DRL usage rates are about 100%.

Adding to previously available data on the DRL use the data for several more countries, the DRL usage rates can be considered for 11 countries, as presented in Appendix D. (To note, only the data collected over the last years were left for consideration; the extreme case of The Netherlands with DRL rates from 1993 was excluded).

6.2 Country comparison

Figure 6.1 shows the DRL usage rates that were presented in Table D.5 in a bar chart.

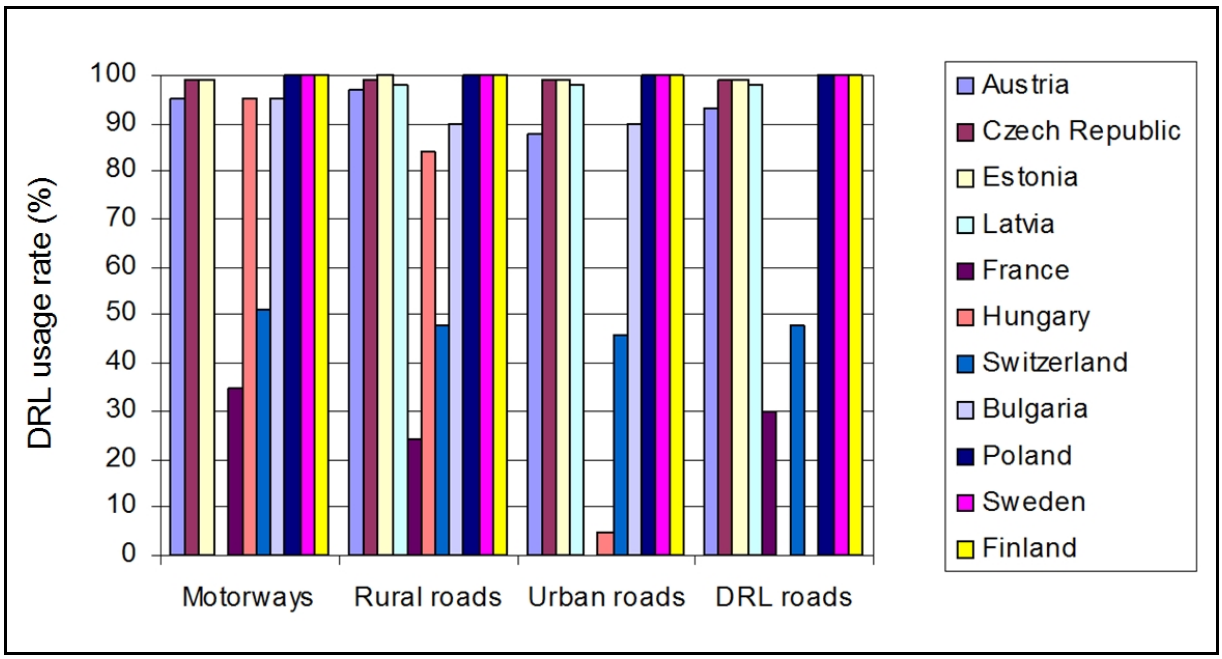

Figure 6.1 Daytime running lights usage rates on different road types for 11 countries.

As seen from the available data, the DRL usage rates are highest in the countries and at the road types where DRL is obligatory. For example, the DRL usage rates are high for DRL roads in Austria, Czech Republic, Estonia, Latvia, Poland, Finland and Sweden. High DRL usage rates are reported for motorways in eight countries, for rural roads in nine countries and for urban roads in eight countries. In Hungary, DRL usage is high on roads outside urban areas, where inside urban areas (where the DRL use is not compulsory) the usage rate is 5% only. Switzerland has relatively high usage rates, considering the fact that the use of DRL is not compulsory in this country.

When comparing the DRL rates between the countries, three aspects should be borne in mind. First, the most important characteristic influencing the DRL use is the DRL legislation. There are major differences between the countries in whether or not DRL is obligatory, recommended or neither of the two. Furthermore, there may be differences in vehicle type, road type and time of year for which the regulations are valid. Subsequently the automatic switch-on of lights in vehicles is a relevant factor.

Considering the data on the DRL usage rates (see Table D.5), one should remember that in Austria, Czech Republic, Estonia, Latvia, Bulgaria, Poland, Finland and Sweden, DRL is obligatory on all road types (all year long in most countries except for Bulgaria and Poland where the DRL use is obligatory for winter months only); in Hungary the application of the same law is restricted to roads outside urban areas (all year long). DRL is recommended for use (but not obligatory) in France and in Switzerland.

Second, most countries are able to deliver data on DRL usage rates per road types, where for the DRL usage rates per vehicle type the data are not available for the majority of countries (except for Switzerland). The DRL usage rate at the road type 'DRL roads' consists of the DRL rates at the road types at which the usage of DRL is obligatory by law in a country. For Hungary and Bulgaria this value was not reported. Furthermore, it is likely that some countries have calculated the total usage rate at 'DRL roads' using their own method and not following the recommendations by the SPI Manual (Hakkert and Gitelman, 2007). Therefore the comparison of countries is not possible for the SPIs of 'DRL usage rates per vehicle type', where the comparison according to the 'total DRL usage rate' should be performed with caution.

Third, it must be noted that the data for the different countries pertain to different years.

6.3 Underlying data

For underlying data see Appendix D.

7 Trauma management

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The developed safety performance indicators for trauma management are:

Availability of Emergency Medical Services (EMS) stations

- the number of EMS stations per 10,000 citizens

Availability and composition of EMS medical staff

- percentage of physicians and paramedics out of the total number of EMS staff
- the number of EMS staff per 10,000 citizens

Availability and composition of EMS transportation units

- percentage of Basic Life Support Units (BLSU), Mobile Intensive Care Units (MICU) and helicopters/planes out of the total number of EMS transportation units
- the number of EMS transportation units per 10,000 citizens
- the number of EMS transportation units per 100 km of total road length

Characteristics of the EMS response time

- the demand for EMS response time (min)
- percentage of EMS responses meeting the demand
- average response time of EMS (min)

Availability of trauma beds in permanent medical facilities

- percentage of beds in trauma centres and trauma departments of hospitals out of the total trauma care beds
- the total number of trauma care beds per 10,000 citizens

Furthermore, a **combined indicator** was developed to measure a country's overall performance for trauma management.

7.1 SPIs in 2006

In total, the trauma management data are available for 21 countries, of them 13 countries with data updates for 2006 (Appendix E). Depending on SPIs, the countries have various levels of missing data.

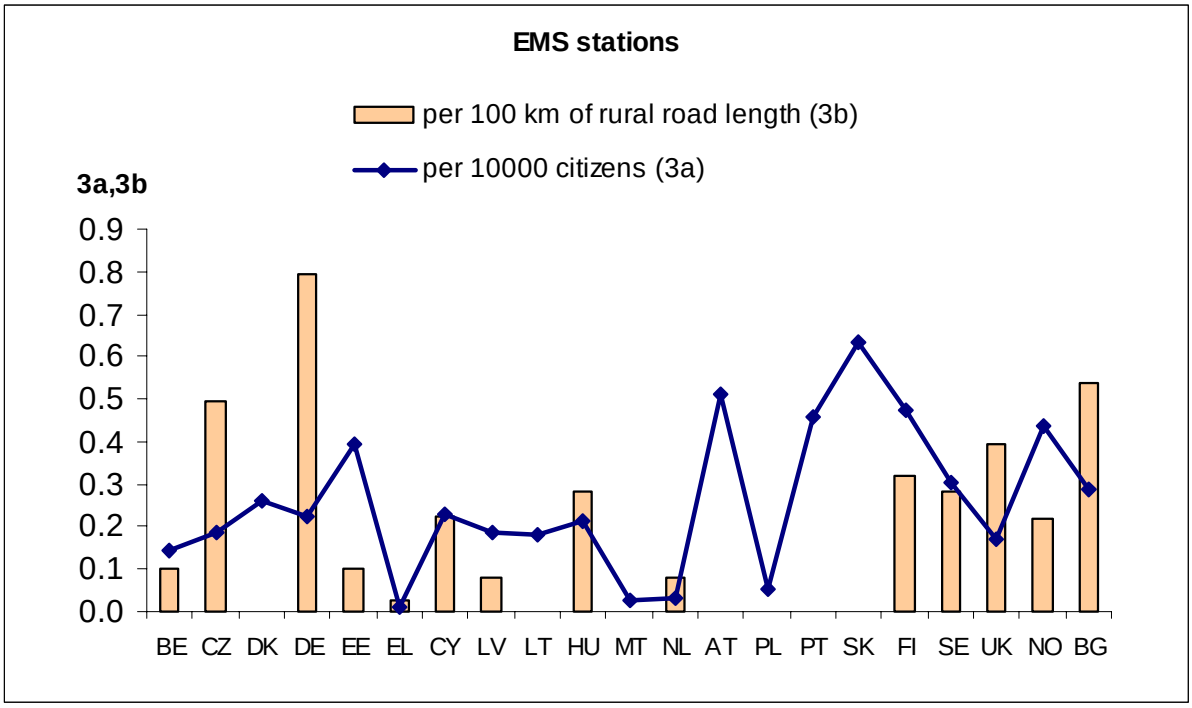

Figure 7.1 Number of EMS stations per 10,000 citizens and per 100 km of rural road length. (For underlying data see Appendix E.)

Figure 7.1 to Figure 7.3 show the country comparisons by selected indicators on the EMS availability and composition. It can be seen that Germany is characterized by the highest density of the EMS stations per road length, and the Czech Republic, Bulgaria and the United Kingdom have relatively high values of this index, as well. The number of the EMS stations per population is high for Austria, Slovakia, Portugal, Finland, Norway and Estonia. Low values of both of these indicators were obtained for Greece, the Netherlands and Malta.

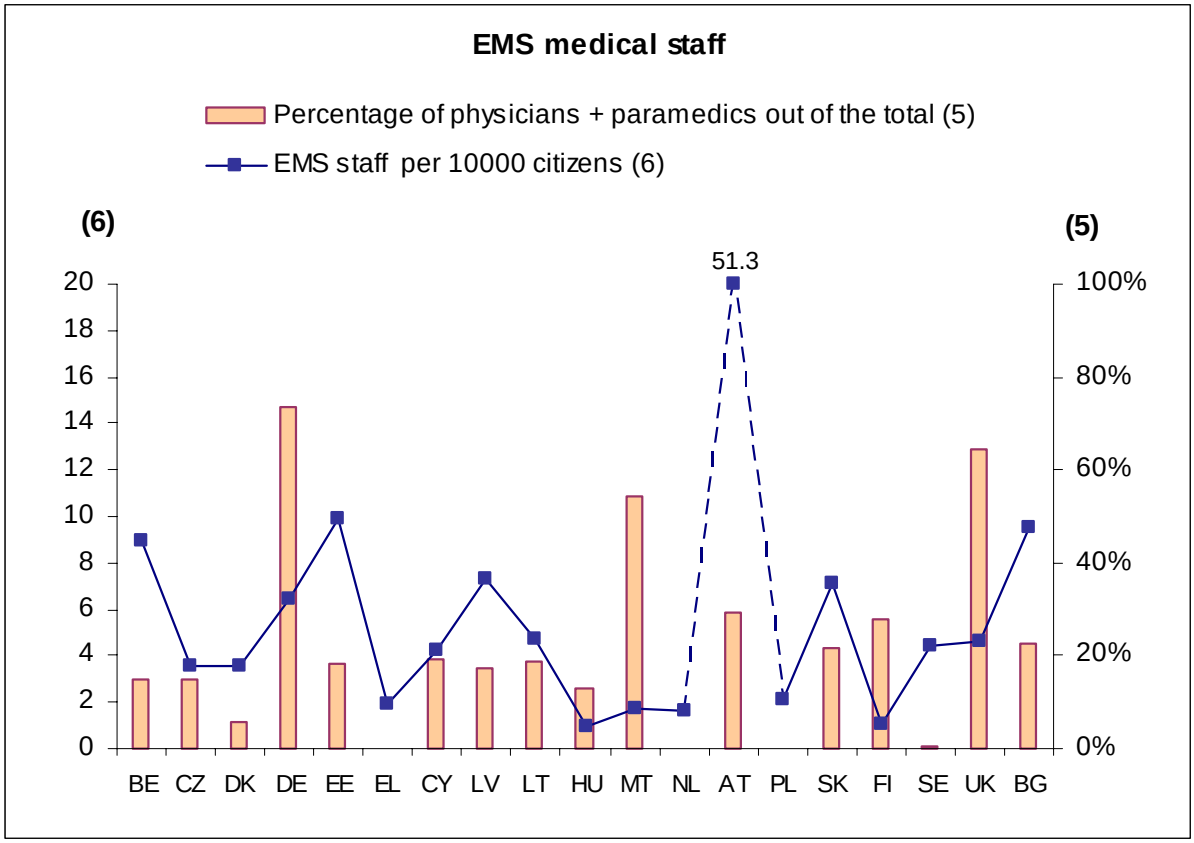

Figure 7.2 Number of EMS medical staff per 10,000 citizens and the percentage of physicians and paramedics out of the total EMS staff. (For underlying data see Appendix E.)

An extremely high value of the EMS medical staff per population was found in Austria. Other countries with relatively high values of this SPI (over 5 EMS staff members per 10,000 citizens) are: Belgium, Germany, Estonia, Latvia, Slovakia and Bulgaria. Furthermore, Austria and the United Kingdom show the highest values of the EMS transportation units per 10,000 citizens, whereas these two alongside Latvia and Slovakia have the highest values of the EMS transportation units per 100 km of road length. At the same time, low values of the EMS transportation units per population are observed for Hungary and Finland, while Estonia, Finland and Sweden reveal low values of the EMS transportation units per road length.

High shares of a highly-qualified EMS medical staff (physicians and paramedics) out of the total EMS medical staff were reported for Germany, Malta and the United Kingdom. High shares of specially equipped vehicles (BLSU, MICU and helicopters/ planes) out of the total EMS transportation units were reported by the majority of countries, except for Slovakia and the United Kingdom.

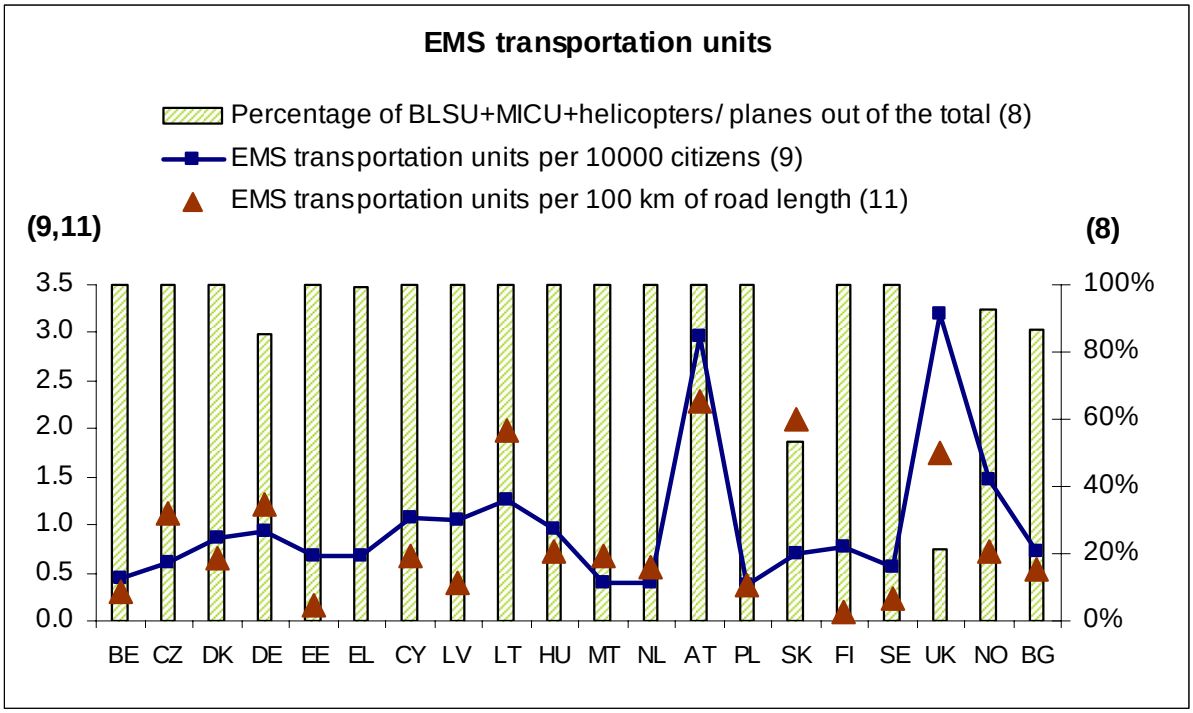

Figure 7.3 Number of EMS transportation units per 10,000 citizens and per 100 km of total public roads, and the percentage of highly-equipped EMS units out of the total. (For underlying data see Appendix E.)

Country	(19) The demand for response time, min	(20) Percentage of EMS responses meeting the demand	(21) Average response time of EMS, min
BE	15 min	100%*	6 min*
CZ	15 min	89.2%	7.83 min*
DK	5-10 min*	100%	8.0 min**
DE	15 min*	91.5%**	8.1 min
EE	15 min*	64%	23 min
EL	n/a	n/a (no demand)	15 min
CY	n/a	60% within 10 min	n/a
LV	25 min*	88%**	17 min***
LT	20 min*	n/a	n/a
HU	15 min*	72%**	12-20 min***
MT	n/a	n/a (no demand)	15-30 min
NL	15 min*	n/a	n/a
AT	15 min	95%	n/a
PL	15 min*	90%	n/a
SK	15 min	n/a	n/a
SE	15 min for 90%	n/a	10-15 min
UK	8 min for 75%*	100%**	n/a
NO	n/a*	app. 90%	n/a
BG	n/a	n/a	15 min

Table 7.1 Characteristics of the EMS response times. (See comments in Appendix E.)*

The countries have different demands for the EMS response time and also differ by estimation methods of this indicator. (The values of the EMS response time were requested

for rural areas where the problem of response time typically exists). Average values of the EMS response time and percentages of EMS responses meeting the demands were received from the countries (see Table 7.1). It can be seen from the table that the internationally accepted value of 15 min is prevailing in the demands, while the actual values of the EMS response time vary between the countries.

Characteristics of permanent medical facilities – the numbers of trauma beds and their shares in different types of facilities, were reported by twelve countries (Table 7.2). It can be seen from the table that in the countries where trauma centres and/or trauma departments of hospitals are common, the trauma beds mostly belong to these facilities. Moreover, the rates of trauma beds per population range widely; very high values of this indicator were reported for Germany, Austria and Greece.

Country	Percentage of beds in trauma centers + trauma departments of hospitals (24a)	The total number of beds per 10000 citizens (25)
BE	100%	0.69
CZ	100%	10.41
DE	n/a	61.96
EE	95%	2.31
EL	0%	46.19
CY	0%	1.28
HU	n/a	3.34
MT	100%	0.41
AT	7%	78.53
PL	100%	0.56
SK	100%	1.68
BG	100%	1.09

Table 7.2 Availability of trauma beds in permanent medical facilities.

No country keeps the same position according to all safety performance indicators. However, groups of countries with relatively high or low levels of most indicators can be recognized using a combined indicator.

A combined indicator was developed by means of ranking the values of separate safety performance indicators and weighting the results together. In total, seven variants of the combined indicator were estimated using two methods of ranking with different sets of basic trauma management indicators (see details in Gitelman et al., 2008).

By each ranking procedure, each country is attributed to one of five levels of the trauma management system's performance, which are "high", "relatively high", "medium", "relatively low" or "low". Finally, based on the results of seven trials, the final category for a country is defined.

The combined indicators (ranks) of the trauma management systems' performance in the countries, both received by each ranking procedure and defined as the final ones, are presented in Table 7.3. It can be seen that:

- a consistently high level of the trauma management system's performance was found for Germany and Austria;
- a relatively high level of the trauma management system's performance was found for Bulgaria, Slovakia, Czech Republic, Norway and the United Kingdom, while the results of different rankings were especially consistent for Bulgaria and Slovakia;
- a medium level of the trauma management system's performance is attributable to Lithuania, Denmark, Latvia, Belgium, Cyprus, Estonia and Hungary, because for all these countries some differences were observed between the different rankings;

- countries such as Malta, Finland, Sweden and Poland are characterised by a relatively low level of the trauma management system's performance;
- a consistently low level of the trauma management system's performance was received for Greece and the Netherlands.

Country	Ranks A	Ranks B	Ranks A2	Ranks A1	Ranks A3	Ranks B1	Ranks B3	Final	
AT	1	1	1	1	1	1	1	**1**	High
DE	1	1	1	1	1	1	1	**1**	High
BG	2	2	2	2	2	2	2	**2**	Relatively high
SK	2	2	2	2	2	2	2	**2**	Relatively high
CZ	2	2	2	2	3	3	2	**2**	Relatively high
NO	2	3	2	1	3	2	3	**2**	Relatively high
UK	3	2	3	2	2	2	2	**2**	Relatively high
LT	3	2	3	2	4	2	3	**3**	Medium
DK	4	2	4	3	2	2	2	**3**	Medium
LV	2	3	2	3	3	4	4	**3**	Medium
BE	4	3	3	4	2	3	2	**3**	Medium
CY	2	4	2	3	3	4	4	**3**	Medium
EE	3	4	3	3	2	4	3	**3**	Medium
HU	3	3	3	4	4	3	3	**3**	Medium
MT	4	4	4	4	4	4	3	**4**	Relatively low
FI	4	4	4	4	4	3	4	**4**	Relatively low
SE	4	4	4	4	5	4	4	**4**	Relatively low
PL	4	4	4	5	5	4	5	**4**	Relatively low
EL	5	5	5	4	5	5	5	**5**	Low
NL	5	5	5	5	5	5	5	**5**	Low

Table 7.3 Combined estimates of the trauma management systems' performance in the countries considered: results of seven trials and the final estimate. Note that Portugal does not appear in the combined ranking due to a high number of missing values for the trauma management safety performance indicators.

7.2 Synthesis

Current country comparisons by the trauma management safety performance indicators were based on more comprehensive and accurate data than those reported in Vis and van Gent (2007). The reason for this lies in the additional information collected by means of the second safety performance indicator questionnaire which was distributed this year to collect the trauma management data for year 2006. For some countries, discrepancies were revealed in some data items reported for year 2006 in comparison with 2003. In such cases, the latest information reported was verified, through a direct correspondence with the national experts.

Due to obvious difficulties in the trauma management data collection and some inaccuracies revealed in the data reported in the past, it was decided that the database available is not sufficient for performing comparisons of changes over time in the trauma management SPIs. Instead, the estimation of the trauma management SPIs, including the combined indicator, was performed using the latest available data for all the countries supplying the information in the current and/or previous surveys.

It was demonstrated that the results of different country rankings were stable and consistent for the countries with "high" and "low" levels of the trauma management system's performance, where the ranks of countries with intermediate levels of the systems' performance were more sensitive to the method of ranking. However, the changeability of the

latter results was not high, typically indicating a country's moving to a "neighbour" category of the performance level. This means that based on the defined set of the trauma management data, it is possible to produce a relatively stable and reasonable categorization of countries into several groups, in accordance with the level of the trauma management system's performance.

At the same time, one should remember that the trauma management indicators estimated characterize the EMS treatment potential, EMS response time and the treatment potential of permanent medical facilities. In other words, their message is limited mostly to the availability of trauma care services and, to a lesser extent, to their quality, e.g. in terms of shares of higher-quality resources. Neither separate trauma management performance indicators nor the combined indicator should be considered as an absolute estimate of the trauma care system in the country. The combined indicator should be treated only as an indication of a "higher"/ "lower" level of the trauma management system's performance *relative* to other countries compared.

7.3 Underlying data

For underlying data see Appendix E.

8 Conclusions

This report compared the safety performance of 29 European countries – the 27 EU member states, Norway and Switzerland. The comparison was done for five road safety related areas: alcohol and drugs, speeds, protective systems, daytime running lights, and trauma management. When indicator values were available but not comparable due to e.g. lack of data quality, this was explained.

In general, comparing the countries' performances is difficult. The main reasons are the lack of data, suspicious quality of the data, or the incomparability of the (seemingly similar) data due to different circumstances of measurement.

In a number of cases, the choice of a specific performance indicator has depended on the availability of data. This has, for example, been the case for the indicator for alcohol usage; while the optimal indicator would concern the usage rate of alcohol in the general driver population, the unavailability of data in a number of the (larger) countries, has led to a more indirect indictor. Details about the development of the safety performance indicators can be found in Hakkert, Gitelman and Vis (2007).

In spite of all considerations and limitations, we have been able to present a great number of comparisons in this report, or to present the figures that can form the basis for future comparisons. Reliable comparisons could be made for the areas of daytime running lights, protective systems, vehicles (passive safety), and trauma management. Only limited comparisons could be made for the areas of speeds, alcohol and drugs and roads. The results for that area are presented for information only and will form the basis for future study.

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Acknowledgement

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Appendix A Background data for Alcohol and drugs

This section contains the underlying data for the SPI on alcohol as presented in the figures in Chapter 3.

Country	Year	SPI-alcohol (%)	BAC limit (g/l)	Comment
Czech Republic	2007	3.4	0.0	Extremely low value. An in depth study indicates that the SPI may be low due to reporting practices.
Hungary	2005	8.7	0.0	
Slovakia	2006	7.3	0.0	
Romania	2007	5.7	0.0	

Table A.1 Comparison of the alcohol SPI for countries with a BAC limit of 0.0 g/l.

Country	Year	SPI-alcohol (%)	BAC limit (g/l)	Comment
Estonia	2005	20.8	0.2	
Poland	2007	8.6	0.2	
Sweden	2007	16.1	0.2	
Norway	2006	11.1	0.2	

Table A.2 Comparison of the alcohol SPI for countries with a BAC limit of 0.2 g/l.

Country	Year	SPI-alcohol (%)	BAC limit (g/l)	Comment

Belgium	2006	10.5	0.5	Only 33.4% of the drivers involved in fatal accidents were tested for alcohol*.
Denmark	2005	16.0	0.5	
Greece	2006	8.7	0.5	85.1% of the drivers involved in fatal accidents were tested for alcohol*.
Spain	2006	(20.5)	0.5	Spain can only provide data on killed drivers. In 2006, from the drivers killed, 52.9% was tested for alcohol. Of those, 26,8% was found positive for alcohol usage. To calculate the SPI value, assumption* was used
France	2006	27.3	0.5	84.1% of the drivers involved in fatal accidents were tested for alcohol*.
Italy	2004	(72.2)	0.5	Extreme high value. Request for confirmation submitted, but no reply received.
Cyprus	2006	19.8	0.5	79.1% of the drivers involved in fatal accidents were tested for alcohol*. BAC limit changed from 0.9 to 0.5 in 2006
Hungary	2005	8.4	0.5	Legal limit 0.0, but data also provided for BAC>0.5.
Latvia	2007	21.7	0.5	
The Netherlands	2005	25.0	0.5	
Austria	2006	6.2	0.5	Extremely low value. An in depth study indicate that the SPI is to low due to methodological reasons.
Portugal	2007	(10.2)	0.5	Only 48.3% of the drivers involved in fatal accidents were tested for alcohol*.
Slovenia	2006	57.9	0.5	Extremely high value. However according to the questionnaire 92.8% of the drivers involved in fatal accidents were tested for alcohol*.
Finland	2006	26.2	0.5	
Switzerland	2005	19.3	0.5	
Bulgaria	2007	4.4	0.5	Extremely low value.

Table A.3 Comparison of the alcohol SPI for countries with a BAC limit of 0.5 g/l.

**The SPI is estimated under the hypothesis that the percentage of alcohol impaired drivers involved in fatal accidents among untested, involved drivers is half that of the tested drivers.*

Country	Year	SPI-alcohol (%)	BAC limit (g/l)	Comment
Germany	2006	11.4	0.3	0.3 g/l is BAC limit of accident involved drivers. The general BAC level is 0.5 g/
Lithuania	2007	9.3	0.4	
UK	2006	17.0	0.8	Estimated by Department of Transport, UK, adjusted for underreporting

Table A.4 Alcohol SPI for countries with BAC limits other than 0.0, 0.2 or 0.5 g/l.

A.1 Underlying data

For more information about the underlying data, see Assum and Sørensen (5).

Appendix B Background data for Speed

This section contains the underlying data on the speed SPI as presented in the figures in Chapter 4.

	Speed Limit (km/h)	Mean speed 2002 (km/h)	Mean speed 2007 (km/h)	Percentage of offenders 2002 (%)	Percentage of offenders 2007 (%)
Czech Republic	130	-	105	-	-
Ireland	120 (112.7 in 2002)	106	110	24	20
United Kingdom	112.7	112.7	112.7	-	-
France	130	125.5	119.4	47	31
Switzerland	120	114	107	38	21
Austria	130	120.5	119.9	27.9	23
Finland	100	102.1	103.1	60.0	67.8
Finland	120	114.8	115.1	36.6	39.9
Denmark	110	119.1	117.7	-	-
Denmark	130 (110 in 2002)	120	122.2	-	-
The Netherlands	120	114.9	114.3	-	-

Table B.1 Data underlying the speed SPI figures in Chapter 4.

Appendix C Background data for Protective systems

This section contains the underlying data on protective system use as presented in the figures presented in Chapter 5

C.1 SPI values and conversion rates for 2007 vs. 2005

For each indicator (A-H) in Table 9.6, the first column refers to 2005 value (usage rate), the second shows 2007 value when available and the third column presents the conversion rate between the years 2005 and 2007. The conversion rate stands for the percentage of 'non-wearers' in 2005 who converted to 'wearers' in 2007.

	A	A+	*AA*	B	B+	BB	C	C+	CC	F	F+	FF	G	G+	GG	H	H+	HH
BE	71	78	*24*															
CZ	72	89	*61*	41			42											
BG		85			3			30			5			60			85	
DK	85			63						7			92					
DE	96	95	*-25*	89	88		96	84		6	9			83		98	95	
EE	*74*	90	*62*	30	68		48	83			35							
EL																		
ES	74	89	*57*	51	69								91	93		98	99	
FR	97	98	*18*	70	82			89					95	99		94	96	
IE	86			46														
IT	71																	
CY																		
LV	*77*	*77*	*0*											74			97	
LT																		
LU	80			60			57											
HU	67			34														
MT	*96*			28			20											
NL	90			64			72						93					
AT	83	89	*35*	52	49		86	82										
PL	*78*	74	*-18*		*45*			86										100
PT	86			45														
RO																		
SI		82			49													
SK																		
FI	88	89	*8*	78	80					29	33							
SE	92	96	*50*	73	80		95			25	27			90			99	
UK	90	91	*10*	84	84		93	93										
NO	90			85			94			30			100			100		
CH	*82*			53			85			34			94			99		

Table C.1 Overview of SPI values in the area of protective systems.

C.2 Estimation of SPI-A and SPI-B values in EU-27 countries

In Table 9.7, the EU-27 estimate of the SPI A and SPI B is determined, based on the weighting by person travel in passenger cars. The missing values of the indicators for certain countries were filled by estimates.

Country	Pkm	Weight (w)	A in %	B in %	w.A	w.B
BE	109,9	0,02416	78	*40*	1,884	0,966
BG	31	0,00682	85	*3*	0,579	0,020
CZ	69,6	0,01530	89	*41*	1,362	0,627
DK	*64,0*	0,01407	*85*	*63*	1,196	0,886
DE	869,0	0,19104	95	88	18,149	16,812
EE	*11,5*	0,00253	*90*	68	0,228	0,172
EL	*90,0*	0,01979	*60*	*25*	1,187	0,495
ES	340,9	0,07494	89	69	6,670	5,171
FR	723,8	0,15912	98	82	15,594	13,048
IE	*28,0*	0,00616	*86*	*46*	0,529	0,283
IT	629,7	0,13844	*71*	*30*	9,829	4,153
CY	*5,0*	0,00110	*70*	*30*	0,077	0,033
LV	*15,5*	0,00341	77	*32*	0,262	0,109
LT	39,5	0,00868	*75*	*30*	0,651	0,261
LU	*6,5*	0,00143	*80*	*60*	0,114	0,086
HU	46,9	0,01031	*67*	*34*	0,691	0,351
MT	*2,0*	0,00044	*96*	*28*	0,042	0,012
NL	148,0	0,03254	*90*	*64*	2,928	2,082
AT	71,9	0,01581	83	52	1,312	0,822
PL	219,2	0,04819	74	45	3,566	2,169
PT	*72,0*	0,01583	86	45	1,361	0,712
RO	*60,0*	0,01319	65	5	0,857	0,066
SI	*23,0*	0,00506	82	49	0,415	0,248
SK	26,3	0,00578	*65*	*45*	0,376	0,260
FI	62,5	0,01374	89	90	1,223	1,237
SE	97,0	0,02132	96	80	2,047	1,706
UK	686,0	0,15081	91	84	13,724	12,668
EU-27			**87**	**65**	**86,85**	**65,46**

Table C.2 Estimation of the average SPI values for EU-27 countries (pkm = person kilometres in passenger cars, in 1,000 million) in 2006.

C.3 Estimation of lives saved by seat belts in cars and lives saved potential for EU-27 in 2007

The following estimation is based on most recent data available in ERSO and on the methodology developed within the SafetyNet project and available in the SPI Manual.[3]

Aggregated rates of seat belts use are roughly estimated as (Table C.):

SPI-A: Daytime usage rate of seat belts on front seats of passenger cars and vans: 87%

[3] Hakkert, A.S and V. Gitelman (Eds.) (2007) Road Safety Performance Indicators: Manual. Deliverable D3.8 of the EU FP6 project SafetyNet.

SPI-B: Daytime usage rate of seat belts on rear seats of passenger cars and vans: 65%

Seat belt wearing rates by occupant fatalities (termed *F(x)*) can be additionally estimated from the known daytime wearing rate as observed during the survey and after a repartition of killed occupants into belted and unbelted, as follows:

$$F(x) = \frac{x(1-e)}{x(1-e)+R(1-x)}$$

where *x* stands for daytime usage rate of the device use, *e* stands for the effectiveness and *R* is a risk factor showing how many times the risk of being involved in fatal crash for those users not using the system is higher than the risk for those using the system.

Applying the above equation, and assuming the risk factor (*e*) equals 1.5, the estimated rate of using seat belts by fatally injured front seat occupants is:

*F(x)=(1-0.52)*0.87/(0.87(1-0.52)+1.5(1-0.87))=0.682 ≈ 68%*

Similarly, the estimated rate of using seat belts by fatally injured rear seat occupants is:

*F(x)=(1-0.48)*0.65/(0.65(1-0.48)+1.5(1-0.65))=0.392 ≈ 39%*

The number of killed car occupants in EU-27 in 2007 is not directly available in CARE, or other database, therefore it must be estimated: The car occupants represented 53.7% of all road fatalities in 2005 in EU-14 countries[4]. Altogether 36.5% of all killed were front seat occupants and 17.2% rear seats occupants. There were altogether 42,750 registered road fatalities in 2007 in EU-27[5]. Assuming that the proportion of occupant fatalities of EU-14 countries registered in 2005 applies for EU-27 in 2007, the number of fatally injured car occupants is estimated as 42,750*0.537=22,960, of whom 15,610 front seat occupants and 7,350 rear seats occupants.

Indicator 2007	Seat	Daytime rate	Rate by fatality	Killed total	Effectiveness	Killed belted	Killed unbelted	Lives saved	Potential
		R_t	R_{fa}	N	e (x100%)	D_s	D_0	$N_s=(e/(1-e))*D_s$	$N_p=e*D_o$
SPI-A	Front	87%	68%	15,610	0,52	10,650	4,960	11,540	2,580
SPI-B	Rear	65%	39%	7,350	0,48	2,880	4,470	2,660	2,150
Both				23,960				14,200	4,730

Table C.3 Estimation of lives saved and life save potential in EU-27, SPI-A and SPI-B.

The seat belts saved some 14,200 car occupants from dying in road crash in EU-27 in 2007, while additional 4,700 lives could be saved if all car occupants were belted in crash.

[4] Traffic Safety Basic Facts 2007, Car occupants, ERSO 2008

[5] ETSC (2008). Countdown to 2010. Only two more years to act, 2nd PIN annual report, ETSC, Brussels

Appendix D Background data for Daytime running lights

This section contains the underlying data on the speed SPI as presented in the figures in Chapter 6.

Country	Year	Motorways	Rural roads	Urban roads	DRL roads	Source of data
Austria	2006	95%	97%	88%	93%	Survey 2008
Czech Republic	2007	99%	99%	99%	99%	Survey 2008
Estonia	2004	99%	100%	99%	99%	Previous survey
Latvia	2007	-	98%	98%	98%	Survey 2008
France	2004	35%	24%	-	30%	Previous survey
Hungary	2005	95%	84%	5%	-	Previous survey
Switzerland	2004	51%	48%	46%	48%	Previous survey
Bulgaria	2007	95%	90%	90%	-	Survey 2008
Poland	2007	100%	100%	100%	100%	Survey 2008: estimated
Sweden	2007	100%	100%	100%	100%	Survey 2008: estimated
Finland	2007	100%	100%	100%	100%	Survey 2008: estimated

Table D.5 Daytime running lights usage rates on different road types for 11 countries.

Appendix E Background data for Trauma management

	Year	(1) No of dispatching centers	(2) No of EMS stations	(2a) with at least one physician	(2b) % with at least one physician	(3a) EMS stations per 10000 citizens	(3b) EMS stations per 100 km of rural road length	(4a) No of physicians	(4b) No of paramedics	(4c) No of nurses	(4d) No of medical technicians	(4f) Total
BE	2006	11	151	40	26.5%	0.14	0.10	1400	0	450	7500	9350
CZ	2006	14	191	n/a	n/a	0.19	0.49	558	0	1150	1983	3691
DK	2003	8	140	n/a	n/a	0.26	n/a	96	12	30	1800	1938
DE	2006	270	1832	n/a	39.4%	0.22	0.79	17000	22000	0	8800	53000
EE	2006	6	53	29	54.7%	0.39	0.10	194	52	685	405	1336
EL	2006	10	12	n/a	n/a	0.01	0.03	150	2000	0	0	2150
CY	2006	8	18	18	100.0%	0.23	0.22	62	0	180	0	326
LV	2006	40	42	42	100.0%	0.18	0.08	288	0	465	0	1675
LT	2006	1	61	61	100.0%	0.18	n/a	300	0	1300	0	1600
HU	2003	25	216	n/a	n/a	0.21	0.28	128	0	0	847	975
MT	2003	1	1	1	100.0%	0.03	n/a	36	0	30	0	66
NL	2003	24	51	n/a	n/a	0.03	0.08	0	0	1400	1240	2640
AT	2006	60	424	123	29.0%	0.51	n/a	2500	10000	0	30000	42500
PL	2006	130	211	211	100.0%	0.06	n/a	n/a	n/a	n/a	8021	8021
PT	2003	4	480	n/a	n/a	0.46	n/a	n/a	n/a	n/a	n/a	n/a
SK	2006	49	341	341	100.0%	0.63	n/a	818	0	1216	0	3822
FI	2006	15	250	6	2.4%	0.47	0.32	6	150	0	400	556
SE	2006	18	275	n/a	n/a	0.30	0.28	10	0	2000	2000	4010
UK	2003	37	979	n/a	n/a	0.17	0.39	0	17272	0	9630	26902
NO	2003	44	200	n/a	n/a	0.44	0.22	n/a	n/a	n/a	n/a	n/a
BG	2006	28	220	220	100.0%	0.29	0.54	1643	0	2585	0	7336

	(5a) physicians out of EMS staff	(5) physicians+ paramedics out of EMS staff	(6) EMS medical staff per 10000 citizens	(7a) No of BLSU	(7b) No of MICU	(7d) No of helicopters/ planes	(7e) Total	Comments
BE	15.0%	15.0%	8.90	357	100	2	459	4a-4f of 2003
CZ	15.1%	15.1%	3.60	251	365	11	627	all TM data for 2003
DK	5.0%	5.6%	3.60	450	16	3	469	
DE	32.1%	73.6%	6.43	2673	3709	91	7600	TM data for 2003; 2b estimated as average btw states
EE	14.5%	18.4%	9.94	84	6	2	92	
EL	7.0%	n/a*	1.93	735	20	3	765	TM data for 2003; *for (5) 100% does not seem reliable
CY	19.0%	19.0%	4.18	41	41	1	83	
LV	17.2%	17.2%	7.34	0	239	2	241	(2a) assumed
LT	18.8%	18.8%	4.75	425	0	0	425	
HU	13.1%	13.1%	0.96	847	128	5	978	* (4a) physicians and paramedics together
MT	54.5%	54.5%	1.70	15	0	?	15	(2a) assumed;(7e) at least
NL	0.0%	0.0%	1.62	650	0	4	654	drivers
AT	5.9%	29.4%	51.32	2300	133	25	2458	
PL	n/a	n/a	2.10	900	500	21	1421	*(4f) at least
PT	n/a	n/a	n/a	n/a	31	2	n/a	
SK	21.4%	21.4%	7.09	190	4	6	376	(2a) assumed
FI	1.1%	28.1%	1.05	300	100	6	406	(7) is probably higher as each municipality (of 400) has EMS transport
SE	0.2%	0.2%	4.41	50	450	8	508	
UK	0.0%	64.2%	4.65	123	0	14	640	*(4d) ambulance support staff; EMS transport for West Yorkshire
NO	n/a	n/a	n/a	604	0	19	672	
BG	22.4%	22.4%	9.55	177	300	3	554	(2a) assumed

	Year	(8b) MICU out of the total	(8) BLSU+MICU+ helicopters/ planes out of the total	(9) EMS transportation units per 10000 citizens	(11) EMS transportation units per 100 km of road length	Population, mln	Road length - total, km	Road length-public, outside built-up areas, km	Comments
BE	2006	22%	100%	0.44	0.30	10.5	152256	149028	
CZ	2006	58%	100%	0.61	1.13	10.3	55510	38768	TM data of 2003
DK	2003	3%	100%	0.87	0.65	5.4	72074	n/a	
DE	2006	49%	85%	0.92	1.21	82.4	626981	231480	TM data of 2003
EE	2006	7%	100%	0.68	0.16	1.3	56850	53640	
EL	2006	3%	99%	0.69	n/a	11.1	n/a	41100	TM data of 2003
CY	2006	49%	100%	1.07	0.68	0.8	12280	8101	
LV	2006	99%	100%	1.06	0.41	2.3	59180	51599	
LT	2006	0%	100%	1.26	1.99	3.4	21345	n/a	
HU	2003	13%	100%	0.96	0.72	10.1	135555	76588	
MT	2003	0%	100%	0.39	0.67	0.4	2227	n/a	
NL	2003	0%	100%	0.40	0.56	16.3	117430	63280	
AT	2006	5%	100%	2.97	2.30	8.3	106962	n/a	
PL	2006	35%	100%	0.37	0.37	38.1	382615	n/a	
PT	2003	n/a	n/a	n/a	n/a	10.5	n/a	n/a	
SK	2006	1%	53%	0.70	2.11	5.4	17833	n/a	
FI	2006	25%	100%	0.77	0.09	5.3	453161	78161	In rural roads not included: 375000 km of private roads
SE	2006	89%	100%	0.56	0.24	9.1	210000	98000	
UK	2003	0%	21%	3.20	1.74	57.9	392321	249649	data for GB; *EMS transport data for West Yorkshire
NO	2003	0%	93%	1.47	0.73	4.6	91825	90663	
BG	2006	54%	87%	0.72	0.54	7.7	101659	40725	

	Year	(19) The demand for response time, min	(20) Percentage of EMS responses meeting the demand	(21) Average response time of EMS, min	Comments
BE	2006	15 min	100%*	6 min*	*based on local EMS service, region Antwerp; data of 2003
CZ	2006	15 min	89.2%	7.83 min*	* in Prague (1.2 mio); data of 2003
DK	2003	5-10 min*	100%	8.0 min**	*varies in counties; ** outside Copenhagen; in: 3-4 min
DE	2006	15 min*	91.5%**	8.1 min	* to be met in 95% of all cases; **est'd based on: p95:16.3 min
EE	2006	15 min*	64%	23 min	*30 minutes for 70% of responses to low priority calls; 15 minutes for 90% of responses to high priority calls; 10 minutes for 55% of responses to high priority calls
EL	2006	n/a	n/a (no demand)	15 min	
CY	2006	n/a	60% within 10 min	n/a	
LV	2006	25 min*	88%**	17 min***	*25 min ouside and 15 min inside built-up area; **96% inside built-up areas; ***6 min inside
LT	2006	20 min*	n/a	n/a	*20 min in rural, 10 min in urban areas
HU	2003	15 min*	72%**	12-20 min***	* no official demand ** range 61%-82%; *** in rural areas (8 min in capital)
MT	2003	n/a	n/a (no demand)	15-30 min	
NL	2003	15 min*	n/a	n/a	*internal standard: up to 15 min in 95% of cases
AT	2006	15 min	95%	n/a	*internal standard: up to 15 min in 95% of cases
PL	2006	15 min*	90%	n/a	*8 min in urban areas, 15 min in rural areas
PT	2003	n/a	n/a	n/a	
SK	2006	15 min	n/a	n/a	
FI	2006	n/a	n/a	n/a	
SE	2006	90%	n/a	10-15 min	different rules for northern vs southern regions
UK	2003	8 min for 75%*	100%**	n/a	*of Cat A; 14/19 min for 95% of Cat B, C; because 75.7% of Cat A get a response within 8 min
NO	2003	n/a*	app. 90%	n/a	*Standards defined for urban areas and non-urban areas
BG	2006	n/a	n/a	15 min	

	Year	(22a) In certified trauma centres	(22b) In trauma department of hospitals	(22d) Total	(24a) % of beds in certified trauma centres and trauma departments of hospitals	(25) Number of trauma care beds per 10000 citizens	Population, mln	Comments
BE	2006	0	722	722	100%	0.69	10.5	
CZ	2006	850	9842	10692	100%	10.41	10.3	TM data are for 2003
DK	2003	n/a	n/a	n/a	n/a	n/a	5.4	
DE	2006	n/a	n/a	510767	n/a	61.96	82.4	
EE	2006	0	296	310	95%	2.31	1.3	*85 beds for trauma; 211 beds for orthopedics; 14 beds for children trauma and orthopedics
EL	2006	0	0	51500	0%	46.19	11.1	TM data are for 2003
CY	2006	0	0	100	0%	1.28	0.8	
LV	2006	n/a	n/a	n/a	n/a	n/a	2.3	
LT	2006	n/a	n/a	n/a	n/a	n/a	3.4	
HU	2003	n/a	n/a	3391	n/a	3.34	10.1	
MT	2003	0	16	16	100%	0.41	0.4	
NL	2003	n/a	n/a	n/a	n/a	n/a	16.3	
AT	2006	771	3874	65035	7%	78.53	8.3	
PL	2006	0	2140	2140	100%	0.56	38.1	
PT	2003	n/a	n/a	n/a	n/a	n/a	10.5	
SK	2006	0	904	904	100%	1.68	5.4	
FI	2006	n/a	n/a	n/a	n/a	n/a	5.3	
SE	2006	0	n/a	n/a	n/a	n/a	9.1	*emergency care is integrated with other e.g. surgery departments; no trauma dep's are defined
UK	2003	n/a	n/a	n/a	n/a	n/a	57.9	data for GB
NO	2003	n/a	n/a	n/a	n/a	n/a	4.6	
BG	2006	728	111	839	100%	1.09	7.7	*(22d) at least