



# 2010 on the Horizon

3<sup>rd</sup> Road Safety PIN Report



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Written by

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June 2009



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This report forms part of ETSC's Road Safety PIN Programme. The PIN Programme relies on the Panellists in the participating countries to provide the data for their countries and to confirm the quality of the data. This forms the basis for all PIN publications, which are circulated in draft to the PIN Steering Group and Panel for comment and are finalised after taking account of comments received from them.

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## The European Transport Safety Council

The European Transport Safety Council (ETSC) is an international non-governmental organisation which was formed in 1993 in response to the persistent and unacceptably high European road casualty toll and public concern about individual transport tragedies. ETSC provides an impartial source of advice on transport safety matters to the European Commission, the European Parliament and to national governments and organisations concerned with safety throughout Europe.

ETSC brings together experts of international reputation and representatives of a wide range of national and international organisations with transport safety interests to exchange experience and knowledge and to identify and promote research-based contributions to transport safety.

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# Executive summary

This 3<sup>rd</sup> PIN Report provides an overview of European countries' performance in four areas of road safety. It builds on the 1<sup>st</sup> and 2<sup>nd</sup> Road Safety PIN Reports published in June 2007 and 2008 respectively<sup>1</sup>. It shows how countries have progressed in reducing road deaths between 2001 and 2008 and how they perform in protecting a particular vulnerable group: children. It also gives an overview of the striking disparities in the market penetration of safe cars and outlines the role of European capitals as exemplars for other cities in reducing road mortality.

These rankings have been carried out during the third year of the Road Safety Performance Index (PIN) between September 2008 and April 2009. They cover 30 countries, all 27 Member States of the European Union, together with Israel, Norway and Switzerland.

## Progress toward the target

The European Union has set itself the ambitious target of reducing the yearly number of road deaths by 50% by 2010 compared to 2001. Comparison of developments up to 2008 shows that some countries have reached reductions of more than 40%. **Luxembourg** (-49%), **France** (-48%) and **Portugal** (-47%) have progressed best and are well on track to reach the target ahead of 2010. **Spain** and **Latvia** are catching up with reduction of more than 43% for which they have been recognised with the "2009 Road Safety PIN Award". **Belgium** with 38% resumed in 2008 the good progress it was making between 2001 and 2005. If **Luxembourg**, **France**, **Portugal**, **Spain**, **Latvia** and **Belgium** maintain their efforts, they might halve their numbers of deaths by 2010. All other countries have progressed to a lesser extent. In **Romania** and **Bulgaria**, the numbers of road deaths were higher in 2008 than in 2001.

After a particularly bad 2007, 2008 saw a promising decrease in road deaths by 8.5%. This has been the best year-to-year reduction since 2001. **Estonia** (-33%), **Lithuania** (-33%), **Slovenia** (-27%) and **Latvia** (-25%) achieved the best reductions in 2008 but still have some of the highest mortality rates in the EU. In 2008 for the first time ever the EU10 achieved the same year-on-year percentage reduction in road deaths as the EU15.

Still 39,000 people lost their lives in road collisions in 2008; 15,400 less than in 2001 but still far from the 27,000 deaths limit which the EU set for itself in its Road Safety Target for 2010. The average annual progress since 2001 has been 4.4% instead of the 7.2% needed. This could delay the EU in reaching the 2010 target until 2017.

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<sup>1</sup> ETSC (2007), 1<sup>st</sup> PIN Report and ETSC (2008) 2<sup>nd</sup> PIN Report are available on [www.etsc.eu/PIN-publications.php](http://www.etsc.eu/PIN-publications.php).

## Boosting the market for safer cars

Constantly improving vehicle passive safety has helped to prevent some 10,600 car occupants from dying in road crashes in the EU over the past 10 years. Yet European citizens do not benefit equally from these improvements. **Sweden, Ireland and Norway** are the countries with the highest proportion – above 60% – of cars awarded 5-stars for *occupant protection* amongst new cars sold in 2008. In **Portugal, Norway, Sweden and France**, the proportion cars sold having 4 or 5 stars was highest at over 90%. Occupant safety levels are notably lower in the new Member States than in the older EU-15 ones, with the exception of **Slovenia**.

Improvements in *pedestrian protection* have developed more slowly than for occupant protection. Still only 21% of the new cars sold in the EU are 3-star, 42% were 2-star and 29% only 1-star. Consumers in **Southern, Central and Eastern** European countries buy smaller cars, which provide better pedestrian protection, but less good occupant protection. Consumers in some **Northern European countries, Germany or Switzerland**, tend to buy larger cars, performing less well on pedestrian protection but providing better occupant protection.

## Reducing child deaths

Some **18,500** children aged up to 14 years have been killed in road collisions over the past ten years in the EU-27, around **1,200** of them in 2007 alone. At least half of those deaths, **600**, could have been avoided had the level of child road safety been the same across Europe as in **Sweden**, the best performing country in terms of road mortality of children (number of children killed on the roads per million child population). Nevertheless road mortality of children across the EU is only about one-sixth of road mortality among people aged 15 or over.

Road safety of children has improved considerably in all 30 countries covered by PIN over the past decade. **Portugal** achieved the best annual average reduction in child road mortality of 15%, followed by **France, Slovenia, Switzerland, Ireland and Belgium**, all above 10%. In contrast, **Bulgaria, Hungary, Italy, Czech Republic, Greece and Romania** performed poorly with average annual reductions of less than 5%.

## Capital cities as role models

At least **24,000** people were killed in road accidents in the EU-27 capitals over the past decade, but the yearly numbers are falling. **Dublin, Lisbon and Oslo** scored the best year-to-year reductions, of 9-12%, in the number of victims per 100,000 residents.

While in general the risk of dying on the capital cities' roads is half the risk of dying in a road collision in the rest of the country, vulnerable road users are particularly exposed to danger while using the capital cities' roads. One out of two road victims in capitals is either a pedestrian or a cyclist. Providing safe mobility to vulnerable road users represents a major challenge – a challenge which has been taken up by authorities in a number of capitals, and particularly vigorously by some mayors.

# Introduction

In 2008, about **39,000** people were killed in Europe as a consequence of road collisions. Many more were injured. While the number of deaths is falling, studies have shown that faster progress is possible if all effective means are applied (Elvik, Erke 2006).

The European Union has set itself a target of halving the yearly number of road deaths between 2001 and 2010. The European Commission's Mid-term Review of progress toward this target has however shown that Europe is off target and greater efforts are needed (EC 2006), at both the European and national levels.

Against this background, the European Transport Safety Council (ETSC) set up in April 2006 the Road Safety Performance Index (PIN) as an instrument to spur European countries to greater efforts to enhance road safety. By comparing Member States' performance, it serves to identify and promote Best Practice in Europe and bring about the kind of political leadership that is needed to create what citizens deserve - a road transport system that offers a maximum of safety.

The Index covers all relevant areas of road safety including road user behaviour, infrastructure and vehicles, as well as road safety policymaking more generally. Over the three initial years, 13 cross-country comparisons on ten different areas of road safety have been presented in a series of **PIN Flashes**. The findings from those country rankings have been discussed in 22 national debates (**PIN Talks**) gathering key road safety policymakers to an informal lunch to discuss national road safety policy, targets and strategies. National decision-makers were confronted with both the successes and shortcomings of their road safety policy.

Flashes 1 to 5 are compiled in the **1<sup>st</sup> PIN Annual Report** (2007) showing how countries progressed in reducing road deaths between 2001 and 2005 and on how they performed in the three key areas of road user behaviour: seat belt use, drink driving and speeding. To complement the evidence in the area of seat belt use, countries were also compared in relation to the availability of seat belt reminders in new cars. The **2<sup>nd</sup> PIN Annual Report** (2008) summarises the findings of Flashes 6 to 9 showing how countries progressed in reducing road deaths between 2001 and 2007, and how they performed in protecting two road users group particularly at risk: older people and motorcyclists. It also gives an overview of the disparities in motorway safety at a time when the EU was adopting a European Directive on road infrastructure safety management.

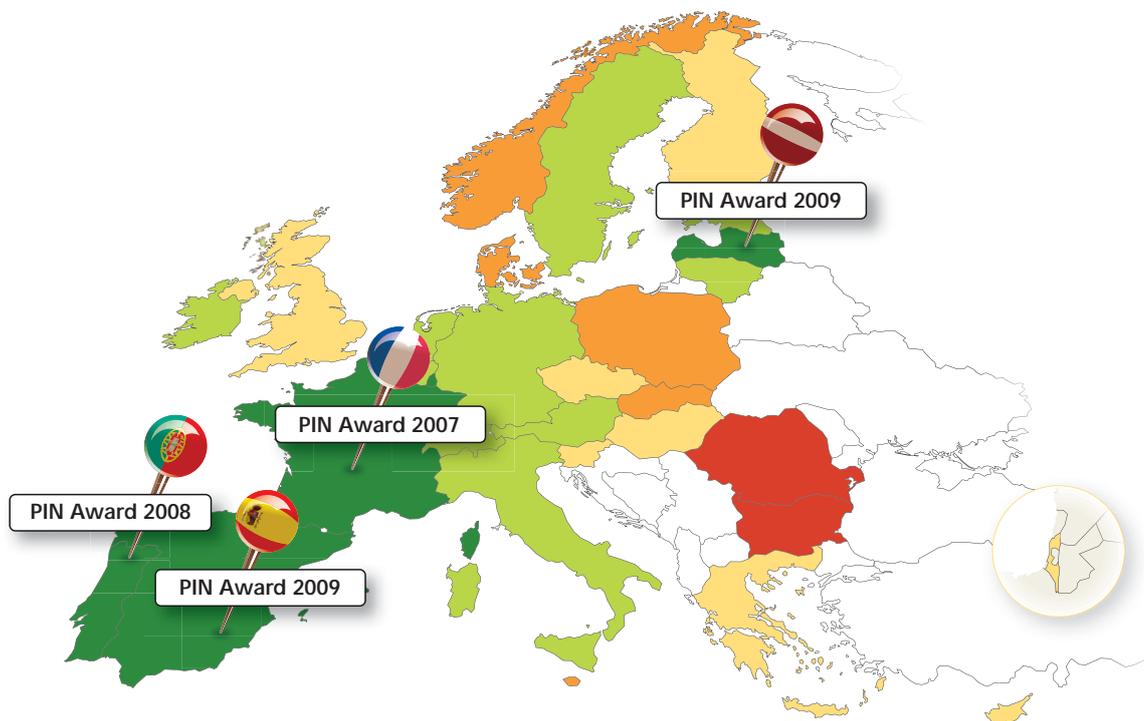
This **3<sup>rd</sup> Annual Report** presents in Chapter 1 an update of the developments in reducing road deaths up to 2008 and the findings of the country rankings published during the 3<sup>rd</sup> year of the PIN in Chapter 2 (Flash 13 concerning safer cars), Chapter 3 (Flash 12 concerning deaths among children) and in Chapter 4 (Flash 11 concerning road safety in capital cities). In a last Chapter, the reader will find recommendations to EU institutions and Member States' authorities.

## 1| Six countries within sight of the EU target

The European Union has set itself the ambitious target of reducing the number of road deaths by 50% between 2001 and 2010. The European Transport Safety Council, under its Road Safety Performance Index (PIN) Programme, is monitoring progress toward the EU target for the EU as a whole, as well as the contribution of individual Member States.

Comparison of developments up to 2008 shows that **Luxembourg** (-49%), **France** (-48%) and **Portugal** (-47%) have progressed best and are well on track to reach the target ahead of 2010. **Spain** and **Latvia** are catching up with reduction of more than 43% for which they have been recognised with the "2009 Road Safety PIN Award". **Belgium** with 38% resumed in 2008 the good progress it was making between 2001 and 2005. If **Luxembourg**, **France**, **Portugal**, **Spain**, **Latvia** and **Belgium** maintain their efforts, they might halve their numbers of deaths by 2010. All other countries have progressed to a lesser extent. In **Romania** and **Bulgaria**, the numbers of road deaths were higher in 2008 than in 2001.

After a particularly bad 2007, 2008 saw a promising decrease in road deaths by 8.3%. This has been the best year-to-year reduction since 2001. **Estonia** (-33%), **Lithuania** (-33%), **Slovenia** (-27%) and **Latvia** (-25%) achieved the best reductions in 2008 but still have some of the highest mortality rates in the EU. In 2008 for the first time ever the EU10 achieved the same year-on-year percentage reduction in road deaths as the EU15.



Still **39,000** people lost their lives in road collisions in 2008; 15,400 less than in 2001 but still far from the 27,000 deaths limit which the EU set for itself in its 2010 Road Safety Target. The average annual progress since 2001 has been 4.4% instead of the 7.2% needed. This could delay the EU in reaching the 2010 target until 2017.

It is high time for the EU to come forward with a new **Road Safety Action Programme** for the next decade. New targets must be set for 2020 which will mobilise action at a joint European level, and more EU instruments, like structural funds for transport, should be used in order to further bring down deaths and disabilities on our roads.

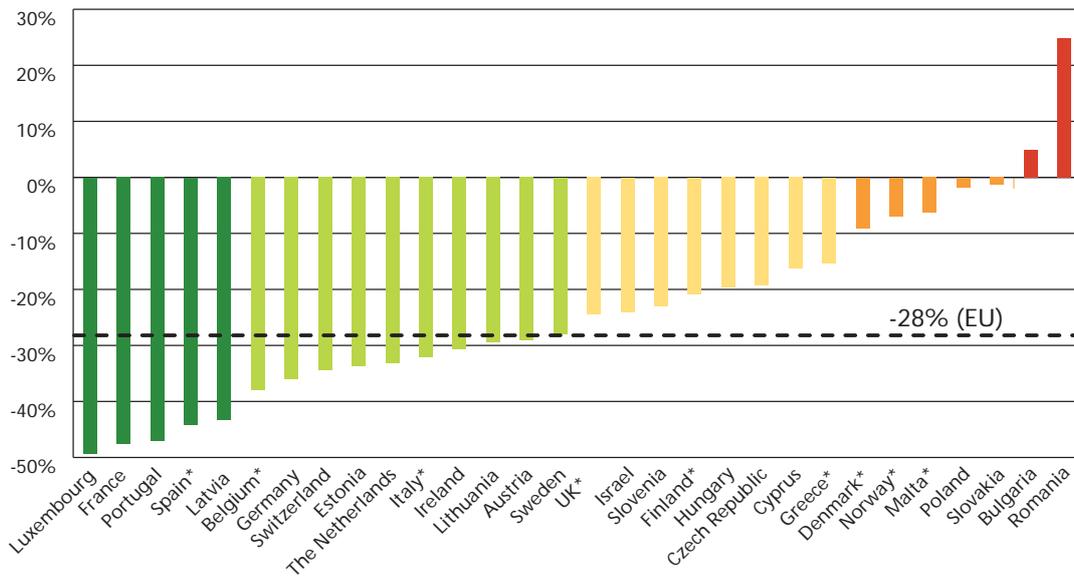


Fig. 1: Percentage change in road deaths between 2001 and 2008

\* Provisional figures or national estimates based on provisional figures were used for 2008 as final figures for 2008 were not yet available at the time of going to print.

Note Belgium: Estimate based on the number of killed people on the spot (834). Baromètre de la sécurité routière, December 2008.

Best results in reducing road deaths between 2001 and 2008 have been achieved by countries with a medium level of safety (Fig. 1). **Luxembourg, France and Portugal**, already the top three for reductions up to 2007, keep their leading positions with outstanding reductions of **49%**, **48%** and **47%** respectively up to 2008. **Spain and Latvia** are catching up with reductions of more than **43%** just about the reduction needed to be on track. **Belgium** with **38%** resumed in 2008 the good progress it was making between 2001 and 2005. Good progress was also made by countries with a longer tradition of road safety such as **Germany (-36%)**, **Switzerland (-34%)**, the **Netherlands (-31%)** and **Sweden (-28%)**.

The three Baltic countries, **Latvia (-43%)**, **Estonia (-34%)** and **Lithuania (-29%)** are taking the lead among the Central and Eastern European countries. In **Romania** and **Bulgaria**, however, the number of road deaths was higher in 2008 than in 2001. **Slovakia** and **Poland** have not made any substantial progress.

## The Indicator

This ranking uses as main indicators the **percentage change** in the numbers of people killed on the road between 2001 and 2008 (Fig. 1) and the estimated **annual average percentage change** over the period 2001-2008 (Fig. 2). A person killed in traffic is someone who died immediately or within 30 days from injuries sustained in a crash. We also used the **road mortality** indicator (Fig. 5). It refers to the number of road deaths per million inhabitants.

The data collected to calculate the indicators are from the national statistics supplied by the PIN Panellist in each country. CARE and IRTAD databases were used for verification. Population figures were retrieved from the EUROSTAT database.

The numbers of road deaths in Belgium, Denmark, Finland, Greece, Italy, Malta, Norway, Spain and the UK are provisional as provided by PIN Panelists as final figures were not yet available at the time of going to print<sup>2</sup>. Numbers of deaths in **Luxemburg** and **Malta** are small and therefore subject to substantial annual fluctuation. The full dataset is available in the Annex (Background Tables - Chapter 1).

As well as calculating the actual percentage change in the number of deaths between 2001 and 2008, it is also possible to make an estimate of the average annual percentage change achieved by each country over the same period in a way that reflects the numbers of deaths in the intervening years. This second indicator (shown in Fig. 2) has the advantage that it is less sensitive to exceptional circumstances in 2008, and can therefore be helpful in interpreting the values of the principal indicator shown in Fig. 1.

To reach the EU target in 2010, a year-to-year reduction of at least **7.4%** on average is needed. **France**, **Luxembourg** and **Portugal** are well on track to hit the EU target. They reduced road deaths by more than 8% per year on average. If efforts are maintained, **France** and **Luxembourg** could reach the target already this year, while **Portugal** is expected to hit it in 2010. **Belgium** and **Spain** reduced road deaths by more than 6% per year on average and **Latvia** by 5.9%. If those three countries increase their efforts in 2009 and 2010, they might just reach the target on time.

If current trends continue, **Germany** and **Switzerland** are likely to halve the number of road deaths by 2013. The **Netherlands**, **Israel**, **Italy** and **Austria** also achieved better-than-average reductions. They might halve the number of road deaths by 2015.

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<sup>2</sup> The basis for the national estimations is provided in the Methodological Note on [www.etsc.eu/PIN-publications.php](http://www.etsc.eu/PIN-publications.php), as well as the method to estimate the average year-on-year percentage change in road deaths over 2001-2008 and the expected year of reaching the target.

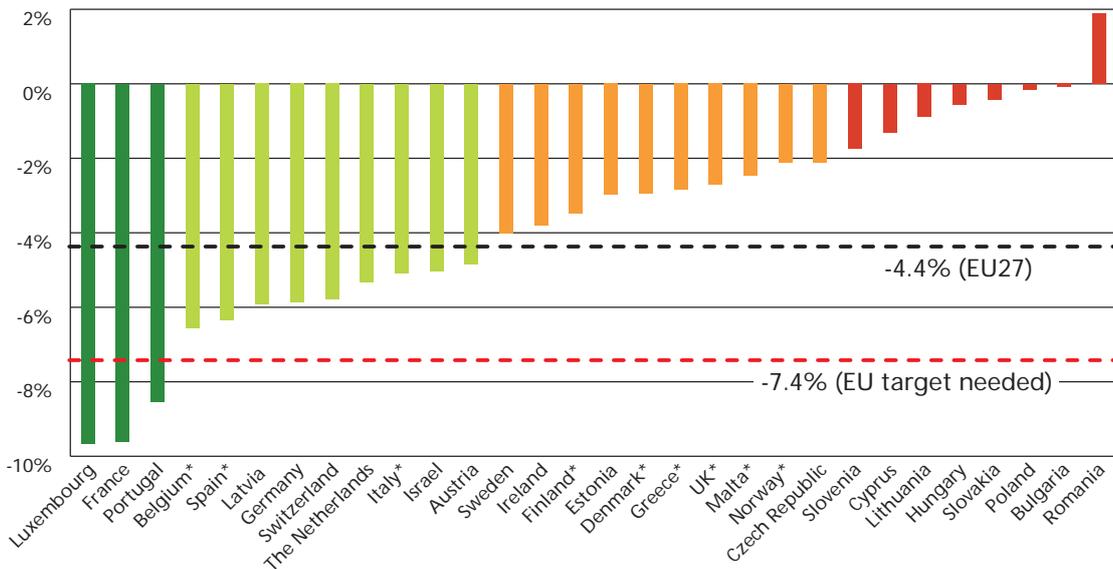


Fig. 2: Estimated average annual percentage change in road deaths over the period 2001-2008

\* Provisional figures or national estimates based on provisional figures were used for 2008 as final figures for 2008 were not yet available at the time of going to print

Slowest progress has been made by Central and Eastern European countries where 2001-2008 annual reductions did not exceed 0.8% on average.

### 1.1 Insufficient progress

Some **39,000** people were killed in road traffic crashes in the European Union in 2008. This is **15,400** less than in 2001, when **54,400** people were killed on EU27 roads, but still far from the **25,000** deaths limit which the EU set for itself in its 2010 Road Safety Target.

Despite individual countries' progress, the EU as a whole is likely to fail to reach its target for 2010. Reductions between 2001 and 2008 did not exceed **29%** (Fig. 1). The annual progress since 2001 has been only **4.4%** on average (Fig. 2). This could delay the EU in reaching the 2010 target until 2017 (Fig. 3). The EU15, which originally set the target, might halve the number of deaths with only two years' delay. But for the EU27 reaching the target on time would require an annual reduction of **17%** in both 2009 and 2010.

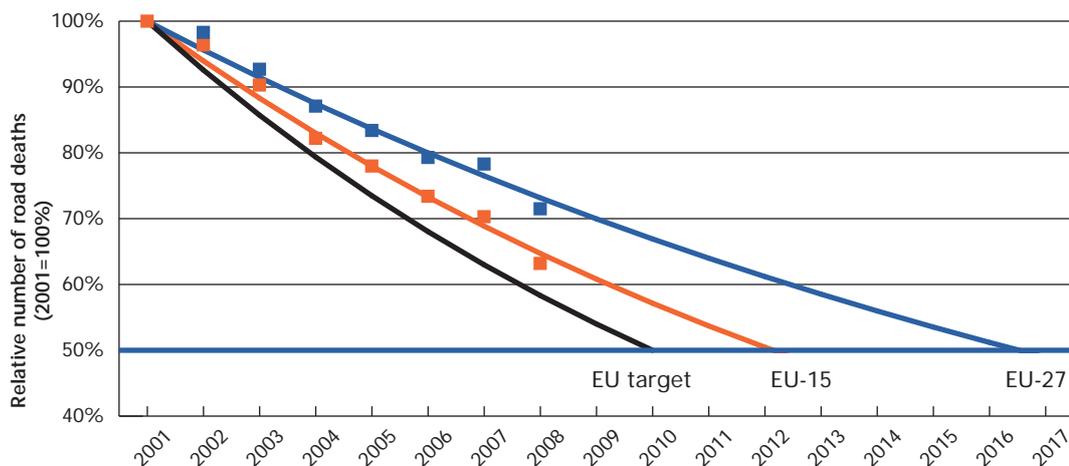


Fig. 3: Estimated trends in road deaths in the EU15 and the EU27, based on developments in 2001-2008

## 1.2 Exceptional reduction in 2008...

After a particularly bad 2007, 2008 saw a promising decrease in road deaths by 8.3%. This has been the best year-to-year reduction since 2001. Road deaths decreased in all countries, except in **Norway, Israel, Malta, Romania and Bulgaria** (Fig. 4).

Last year's best reductions were achieved by **Lithuania, Estonia, Slovenia, Latvia and Hungary**, five countries who all joined the EU in 2004, probably partly through taking advantage of the benefit that the EU accession brings; in particular EU legislation, EU funds and the EU shared target. In 2008 for the first time ever, the EU10 achieved the same year-on-year percentage reduction in road deaths in 2008 as the EU15.

*“Following several years of disappointing results, we are starting to see the results of the intensified effort initiated by the Estonian Road Administration to tackle road deaths. Among other measures, a High Level inter-ministerial Road Safety Commission was created, gathering the relevant Ministries and the police. Police enforcement has been made more visible. Road safety campaigns contributed to make it acceptable to road users. Finally, we applied low cost infrastructure remedial schemes and road safety audits to reduce accidents on high risk sites”.*

Dago Antov, Tallinn University of Technology, Estonia

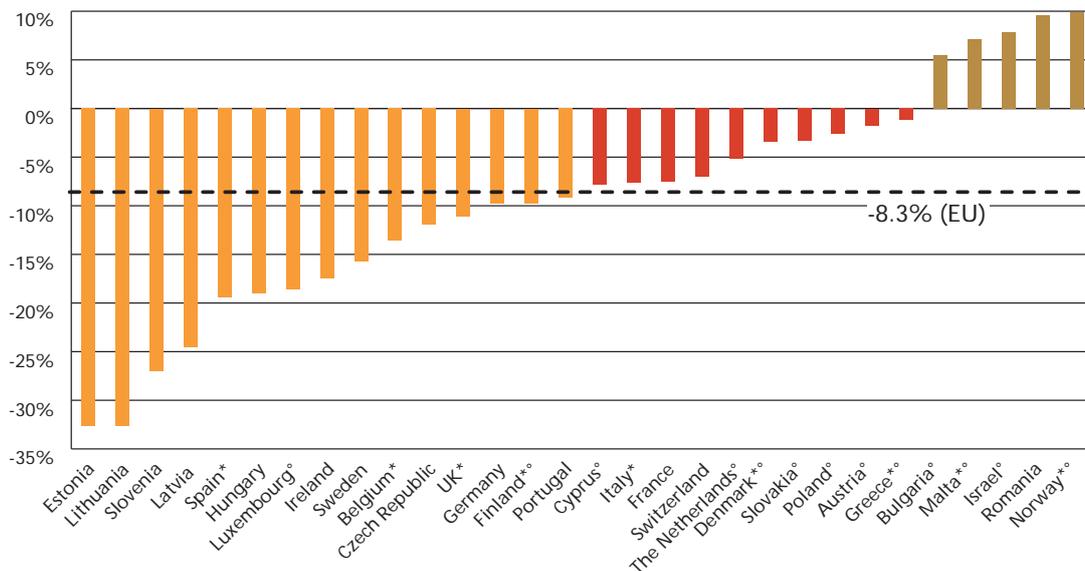


Fig. 4: Percentage change in road deaths between 2007 and 2008

\* Provisional figures or national estimates based on provisional figures for 2008

° In these countries the changes in numbers of deaths between 2007 and 2008 are small enough to have arisen from random fluctuation without any change in the underlying road death rate.

In **Romania**, however, road deaths increased in 2008 by 10% from 2,794 in 2007 to 3,063 in 2008. The increase in road deaths is large enough to provide clear evidence of an increase in the road death rate. Increases in **Norway**, **Malta** and **Bulgaria** are within the range of random year-to-year fluctuation. In **Israel**, most of the increase in 2008 is accounted for by a single accident involving a coach transporting tourists, in which 24 people died.

### 1.2.1 ... partly attributable to reduced traffic...

The reduction in road deaths in 2008 can be partly attributed to reduced traffic volume following the recent economic recession and relatively high petrol prices earlier in the year. Some countries do not have reliable estimations of traffic volume but it probably decreased in many PIN countries. The Baltic States and Hungary were particularly affected, and others to a lesser extent, including the UK, France and Germany.

Lithuania (-33%) and Hungary (-19%) have both seen an exceptional drop in road deaths in 2008, to which the severity of the economic recession may well have contributed.

*“The Finnish Road Statistics 2008 published by the Finnish Road Administration show a sharp vehicle-km decrease in Finland following the economic crisis. The impact was particularly important for heavy good vehicle traffic mainly because the transport needs of the Finnish industry, especially the woodwork and paper industry, has decreased. Furthermore, the transport of new cars from Finnish harbours to Russia practically stopped in the second half of 2008”.*  
Esa Raty, Finnish Motor Insurer’s Center (VALT)

### 1.2.2 ...and partly to improved road safety

*“The 19% reduction in road deaths in Hungary can be explained by the implementation of strict and consistent road safety measures. The introduction of the owner responsibility for traffic offences removed the final legal obstacle for the introduction of automatic speed camera enforcement. Penalties for major traffic offences have been increased and a drink driving „zero tolerance” policy was enacted under which drunk drivers see their licence withdrawn immediately. According to the preliminary statistics, vehicle kilometres decreased by only 3% between 2007 and 2008”.*

Peter Hollo, Institute for Transport Science (KTI), Hungary

*“With the further reduction in 2008, we already achieved our 2010 target of no more than 750 killed people. This is the result of a long-term commitment to improve infrastructure (with the implementation of 30km/h zones in urban areas, roundabouts etc.), intensified speed enforcement program, and several other safety measures, as well as improved vehicle safety, and a steady shift from risky traffic modes to safer traffic modes. A stronger reduction of the number of hospitalised casualties is high on the agenda now. The 2008 survey on distance travelled by car, bicycle or public transport also indicates a decrease in vehicle mileage. Unfortunately, the size of this decrease, as well as its contribution to road safety, cannot yet be determined.”*

Peter Mak, Ministry of Transport, The Netherlands.

*“After a disappointing 1.9% reduction in 2007, in 2008 we almost achieved our year-to-year reduction target of 8.5% needed to achieve the target of no more than 3,000 deaths per year by 2012. Last year’s decrease of 7.5% can be explained both by a reduction in traffic of the order of 2 or 3% and by new progress in speed management”.*

Jean Chapelon, ONISR, France.

*“It is difficult to evaluate the exact influence of the economic situation on road safety be it in a time of recession or economic boom. More research should be made in this area”.*

Rune Elvik, TOI, Norway

### 1.3 Road safety league

Sweden, the Netherlands and the UK remain the safest European countries roadwise, behind Malta, where there are special reasons for its low road mortality. Switzerland and Norway have been among the frontrunners in Europe for some time and Germany is close on the heels of the leading group. Ireland, Spain, France, Luxembourg, Portugal and Belgium all used to be underperformers, but now have a medium level of road safety.

In the EU there are 79 people killed per million inhabitants compared to 113 in 2001. Disparity in road death rates across Europe has decreased since 2001, and in 2008 there was no longer any EU country with more than 150 road deaths per million inhabitants. But there is still a fourfold difference in road mortality between Malta and Lithuania.

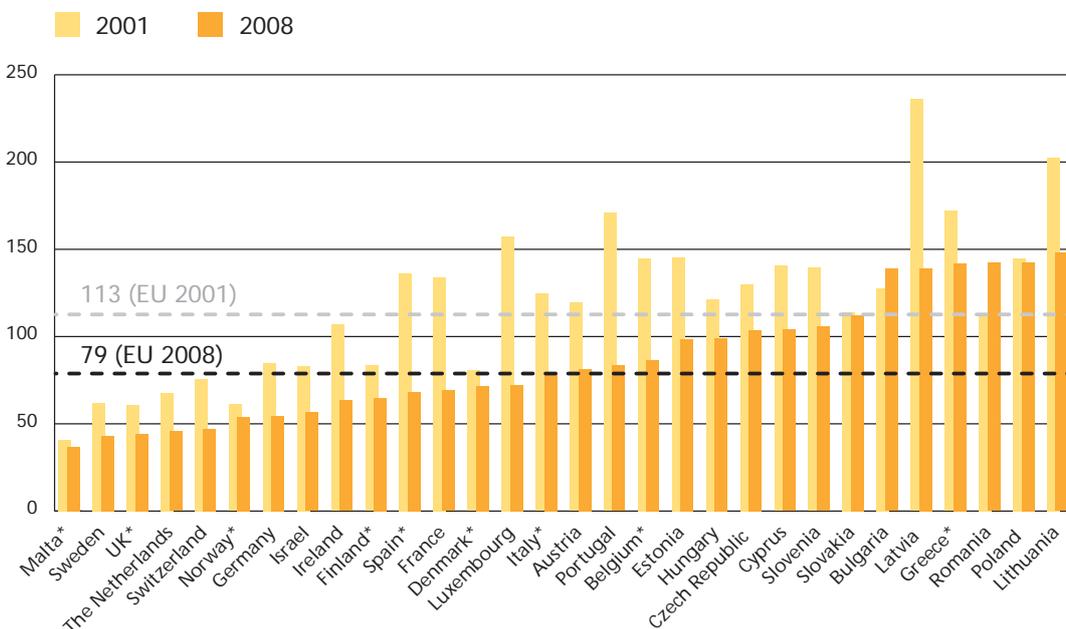


Fig. 5: Road deaths per million population in 2008 (with road deaths per million population in 2001 for comparison)

\* 2008: Provisional figures or national estimates based on provisional figures as final figures for 2008 were not yet available at the time of going to print.

*“Ireland is now 6th out of the 27 EU Member States in road deaths per million population (compared to 8th in 2001) (Fig. 5). This represents an improvement of 41% from 107 people killed per million inhabitants in 2001 to 63 in 2008. Major progress has been made in addressing Ireland’s chronic drink driving problem. Speed, however, remains the biggest contributory factor to deaths and injuries on Irish roads. The biggest challenge facing Irish Authorities today is to change this culture of speeding through awareness raising, education, detection and enforcement”.*

Michael Rowland, Road Safety Authority, Ireland.

In the EU27 in 2008 79 people were killed on the roads per million inhabitants compared to 122 in the USA and 69 in Australia. The reduction in road deaths between 2007 and 2008 was roughly the same in the EU, the USA and Australia (around -9%).

## 1.4 Recent road mortality versus annual reduction over 2001-2008

In Fig. 6, road mortality in each of the 30 PIN countries is plotted horizontally against the estimated average annual percentage change in road deaths over the period 2001-2008. The EU averages of the two indicators are used to divide the diagram into four quadrants.

France, Luxembourg, Spain, Germany, the Netherlands, Switzerland and Israel achieved lower than average mortality after higher than average reductions. The above-average progress made by Portugal, Belgium, Latvia and Italy over the period 2001-2008 has not been quite sufficient to bring them into the favourable lower left quadrant. Malta, the UK and Norway have lower than average mortality despite lower than average progress in reducing road deaths. Romania, Bulgaria, Poland and Lithuania not only have high mortality rates, but were also scarcely able to reduce them over the past decade.

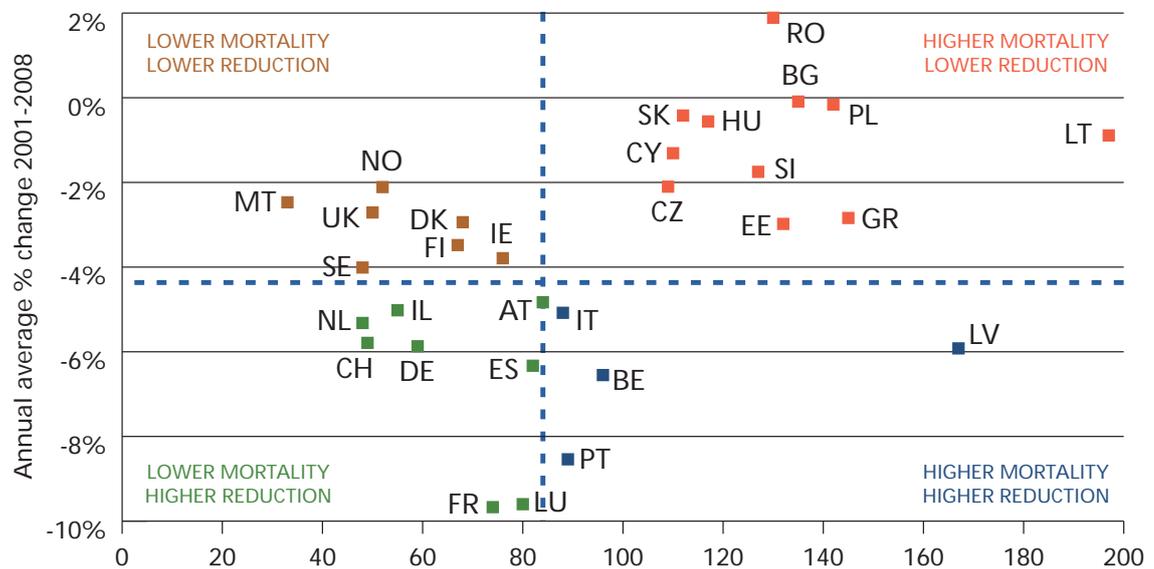


Fig. 6: Road mortality (average of 2006, 2007 and 2008) plotted against the percentage change in road deaths (2001-2008)

Extra efforts from the EU and from the less well performing countries must be made until 2010 and beyond to raise the common road safety level in the EU. Structural funds for transport could be used to improve road safety as it has already been the case for Poland.

*Of course setting targets does not guarantee their achievement. Although ambitious, the EU target could have been achievable had all countries provided stronger political will for the required interventions."*

Claes Tingvall, Swedish Road Administration.

However, EU targets are shared targets and each country should strive for improvement in the next decade regardless as to whether it is already a best performer or not.

## 1.5 Interviews

### 1.5.1 The Spanish experience

Spain has seen a rapid improvement of road safety over the past years. Since 2001, road deaths went down by 44%, which represents the fourth best progress among EU countries. ETSC has asked **Pere Navarro**, Director General of the General Directorate for Traffic (DGT) at the Ministry of Interior, about past and future priorities of Spain's road safety policy.

*ETSC: Concerns for road safety has been recognised only relatively recently by the Spanish Government. In 2004, Spain adopted its first multi-annual Road Safety Plan and road deaths have since dropped steeply. What is the background to this?*

In 2004, road safety has been made one of the top priorities of the Spanish Government. A Special Committee on Road Safety was set up in the Spanish Parliament, together with a Road Safety Observatory under the auspices of the DGT. The same year, the first multi-annual Road Safety Plan was launched, aiming at reducing the road toll by 40% in five years (2004-2008), in line with the EU 50% target. Considered by many as a best practice, the Spanish Plan set a vision, a strategy and 26 quantitative indicators to be monitored, with a corresponding budget and a political authority responsible for its implementation.

The civil society and victim associations have been instrumental in helping advancing the road safety agenda. The media has also been extremely helpful to pass on the message to the general public.

As a result of this combined national effort, road mortality has been divided by two from 136 killed people by million of inhabitants in 2001 to 68 in 2009, which is below the EU average of 79. When we started we would not have thought we would be able to achieve such fast progress.

*ETSC: Which are the actions that have been implemented successfully?*

The introduction of the penalty point system in 2006. This system introduced new ways of penalising dangerous behaviour. Its content was widely communicated to Spanish drivers who became more aware of the negative consequences of drink driving, speeding, not wearing their seat belts or using the mobile phone on the roads. The reform of the Criminal Code in December 2007 made drink driving (BAC above 1.2g/l or 0.6g/l for professional and novice drivers), speeding (by more than 60km/h in urban areas or 80km/h in interurban areas) and driving without licence criminal offences. According to a recent opinion poll, 92% of the people surveyed thought that the penalty point system has been one of the most important road safety measures.

In parallel, enforcement of major traffic offences intensified in combination with campaigns and press work. One year after the introduction of the penalty point system, seat belt wearing rates increased from 83% to 93% on front seats and from 52% to 70% on rear seats. In 2007, 4.5 million random breath tests were carried out (compared to 2 million in 2003). Drivers tested positively for alcohol decreased from 4.3% in 2003 to 1.9% in 2007. Speed cameras were progressively installed along the national road network, to reach x cameras in June 2009. The objective is to have 2000 safety camera installed in 2012.

*“The possibility of losing the license through the penalty system has worked as a powerful tool to change bad driving behaviour of Spanish drivers, particularly those dependant on their licences for their jobs.”*

The Spanish Parliament is currently examining ways to reduce the long and bureaucratic sanction procedure. In the worst case scenario, the whole procedure could last up to two years before the sanction was finally implemented. Under the new proposal, even considering the citizen's appeals (needed to safeguard the legitimacy of the process), time between the communication of the sanction and the final resolution will be maximum 5 months. The costs of the procedure will be therefore enormously reduced, and the sanctions procedure clarified to the citizens.

“We want to ingrain the habit of respecting the traffic rules.

*ETSC: What are the next priorities for the coming years?*

The improvement of the safety of our motorcyclists. Every sixth road accident victim in Spain is a motorbike rider. Our Strategic Plan developed in 2007 in cooperation with all stakeholders concerned aims to reverse the rising trend of the number of deaths and serious injuries among motorbike users. The Plan prioritises 36 measures, 19 of which have been implemented in 2008. Measures that are high on the agenda now are to improve the progressive access to powerful machines and to make our roads more motorcyclist-friendly.

DGT is keen to develop a new area of work: road safety at work and to work where a lot of progress can still be made. We also need to make use of vehicle technologies such as speed limiters.

*ETSC: How much would you say the EU helped Spain to reduce deaths? How can the EU help underperforming countries? What are the measures that you would like to see being adopted in Brussels?*

The adoption of the EU common target and the 3rd Road Safety Action Plan has been the tipping point for the adoption of the Spanish strategy. We have also carefully applied the Commission's recommendations on enforcement. In addition, Spain benefited from best practice exchanges with its neighbours, in particular France and its "battle against road violence". We are now looking in the direction of other countries as well for best practices in the framework of our preparatory discussions on our next Strategic Plan 2010 to 2015.

I hope the European Commission will soon adopt a Proposal for a 4th Road Safety Action Programme which will call for an ambitious EU common target and that all Member States could agree upon.



Since 2004, Pere Navarro is General Director of the General Directorate for Traffic (DGT), the Spanish governmental body in charge of traffic management at the Ministry of Interior.

## 1.5.2 The Latvian experience

Road deaths went down by 43% since 2001 in Latvia, the fifth best reduction in road deaths among EU countries. But little is known about road safety policy in this Baltic State who joined the EU in 2004. ETSC talked with our PIN Panelist for Latvia, **Aldis Lama**, at the Road Traffic Safety Directorate under the Ministry of Transport, to learn more about past and future priorities for road safety.

*Aldis Lama:* In 2000, Latvia adopted its second National Road Safety Plan (2000-2006) aiming to cut road deaths by 50% in 6 years from 652 (in 1999) to 325 (in 2006). We did not achieve the target as still 407 people were killed in 2006 but managed to reduce the number by 37%. Based on this experience, Latvia adopted its third National Road Safety Plan 2007-2013. The Plan aims to cut road deaths by 70% in 2013. It also sets an interim objective of no more than 342 killed people in 2008 to be able to reach the 50% EU target in 2010. With 316 people killed in 2008 (compared to 419 in 2007) we have achieved this objective. 2008 was the best year-to-year reduction since 2001 with a 25% reduction in road deaths between 2007 and 2008. The first months of 2009 seem to confirm this downward trend.

Still we cannot be satisfied as Latvia has one of the highest mortality rates among the EU countries. 139 people are killed per million population compared to 79 for the EU27. The number of road victims is higher than that of suicides and homicides taken together. Financial losses are estimated to be as high as 350 million EUR annually.

*ETSC: Which are the actions that have been implemented successfully?*

One of the most important measures has been the introduction of penalty point system in 2004. Points as well as fines for major traffic offences such as speeding, drink driving, non use of seat belt or child restraints and non use of helmet, have been tightened in 2005 and 2006. For instance, a driver caught with 1.0 BAC faces an administrative sentence of 10 to 15 days in prison, a fine and 8 penalty points. Driving licence is withdrawn after reaching 16 points (10 for novice drivers). Police checks of major traffic offences have increased, in particular to combat drink driving as 68,000 random breath tests were carried in 2008. Still, the risk perceived by drivers of being caught is too low. The 2007-2013 Plan aims to increase the number of speed checks and random breath tests but fails to give any specific targets.

The government has also been funding three to four big road safety campaigns a year. A budget of around 500.000 EUR a year is foreseen in the 2007-2013 Plan to carry road safety campaigns. We can see some results of those campaigns already as the mentality on road safety is slowly starting to change amongst the population, in particular amongst young drivers. Still, some, in particular middle aged males, continue to think that they can drive fast, disregarding all evidence that speed kills and daydreaming an accident will not happen to them.

*ETSC: A lot still needs to be done to sustain progress. What are the most pressing priorities to reduce the high level of road mortality?*

Improve the safety of vulnerable road users. Compared to other EU countries pedestrians and motorcyclists face a much higher risk in Latvia. Same goes for our children and our seniors. A great deal of progress will be made by lowering driving speeds. Four safety cameras were installed in July 2008. It is a starting point. I hope we can implement an automated safety camera system as in France. This would increase the risk perceived by drivers of being caught and free some time up for our police forces to do other checks.

We also need to invest more in improving parts of our road network that are in bad shape. Measures are known but the budget is missing. More high risk sites are waiting to be treated; fast moving traffic should be separated from pedestrians when possible; median barriers installed on dual carriageway roads; traffic on dangerous rural roads transferred to safe motorways.

Although the situation has been improving in the last couples of years, our vehicle fleet is older than in other EU countries. It is estimated that around 70% of all cars are up to 10 years old.

Road safety education at school must be improved as well to raise awareness among our future road users. The 2007-2013 Plan includes recommendations to introduce an Educative Continuum as in the French education system. With the help of EU funding, a Safe routes to school programme was implemented in Riga to encourage and enable more children to walk and bike to school safely. Recommendations about how to teach traffic rules and guidelines for teaching staff were gathered and a traffic safety handbook produced. For the past 10 years a special TV show called "ZEBRA" dedicated to road safety and broadcasted once a week has benefited from one of the highest viewing audience. Twice a month a specific TV show on road safety is produced for children.

*ETSC: What are your hopes for the future?*

I hope that all the 49 measures detailed in the 2007-2013 Plan will be implemented, as well as the timetables and financial resources for implementation detailed in the Plan. I hope road safety could be featured as one of the top priorities of our government.

I hope that the road safety community could mobilise local communities and encourage a multi-sectoral collaboration for better road safety. We also need NGOs working on road safety to maintain the pressure on our government and make road safety a priority above any political divisions.



Aldis Lama is a road safety expert in the Road Traffic Safety Directorate (CSDD) under the Ministry of Transport. He is also a Senior Researcher at the Road Traffic Research, Ltd whose aim is to carry out research in road safety and make recommendations. Aldis is also the national expert for the EC CARE database. He has worked on a variety of EU projects, in particular Phare, ROSEBUD (Road Safety and Environmental Benefit-Cost and Cost-Effectiveness Analysis for Use in Decision-Making) and SUPREME (Summary and Publication of best Practices in Road Safety).

For more information: <http://www.csdd.lv/?lngID=EN> and <http://www.csizpete.lv/index.html>

### 1.5.3 The way forward: Inspirations for the 4th Road Safety Action Programme

**Murray Mackay** is an ETSC Board Director, where he has represented PACTS, the British Parliamentary Advisory Council for Transport Safety, one of the founding members of ETSC. Murray chaired the group of experts for ETSC publication Blueprint for the EU's 4<sup>th</sup> Road Safety Action Programme.

*ETSC: What do you expect from the upcoming 4th Road Safety Action Programme?*

The most important element of the new Programme must be to include targets for the reduction in seriously injured people alongside deaths. For every death there are an estimated four survivors with brain damage, spinal cord injury or other injuries leading to permanent disability.

Including the seriously injured survivors as a specific target group will mobilise additional stakeholders such as the medical and public health sectors. This would also offer more benchmarks for measuring progress in reducing the overall consequences of road casualties.

*ETSC: Why does the EU need a vision and what should this be?*

By almost any measure the risks we run in using Europe's roads are much greater than any other mode of transport or indeed the risks in almost all industries. We should ultimately aim to reduce the risks we face in traffic in the levels of risk in these other everyday activities.

Every citizen has a fundamental right to, and responsibility for, road traffic safety. These rights and responsibilities should serve to protect citizens from the loss of life and health caused by road traffic. This requires that we redefine our commitment and the resources we provide to fulfil what is a human right of an acceptably safe transport system.

*ETSC: What sort of targets are needed to mobilize EU action up until 2020 and beyond?*

If current trends continue there will be 37,000 deaths in 2010 in the EU totalling a 33% reduction from the 54,000 deaths in the EU 27 in 2001. ETSC would propose a more ambitious target of a 40% reduction of deaths from 2010 to 2020. To achieve this target the EU would have to go above and beyond current reduction trends by implementing new measures including those recommended by ETSC in its Blueprint for the EU's 4<sup>th</sup> Road Safety Action Programme.

ETSC proposes two additional targets: reducing injuries with lasting effects in all age groups and a more stringent target for reducing deaths in childhood in Europe.

ETSC is proposing that each country adopts a target of reducing their serious injuries by 20% by 2020. Although the definitions of a serious injury vary across the EU, in the short term each country should aim to reduce their serious casualties using their current definition. At the same time the EU should encourage each country to examine their data systems to reconcile their definitions of a serious injury to a standard EU definition of an overnight admission to hospital. Also comparison studies should be made to compare hospital records with police records to address the substantial under-reporting that occurs in all Member States.

Finally, ETSC proposes that child deaths should be specifically addressed with a target of a 60% reduction by 2020.

*ETSC: Which priority measures should be included in the 4th RSAP?*

The strategy should include elements of the future characteristics of safe road transport, what the basic lines of work are. It should also identify who the main players are to make that future become a reality.

The measures identified for priority relate to the main causes of deaths and injuries on EU roads: speeding, drink driving, lack of seat belt and child safety restraint use, inadequate road design and management, delay in incorporating safety features and designs into all road vehicles, be they cars, trucks, buses, motorcycles and bicycles.

Other features of 21<sup>st</sup> century mobility should also be taken into account such as the use of motorcycles and factoring in the implications of ageing society. ETSC thus would like to see measures targeting particular road user groups as a second area of priority, namely: motorcyclists, elderly people, young people, pedestrians and cyclists.



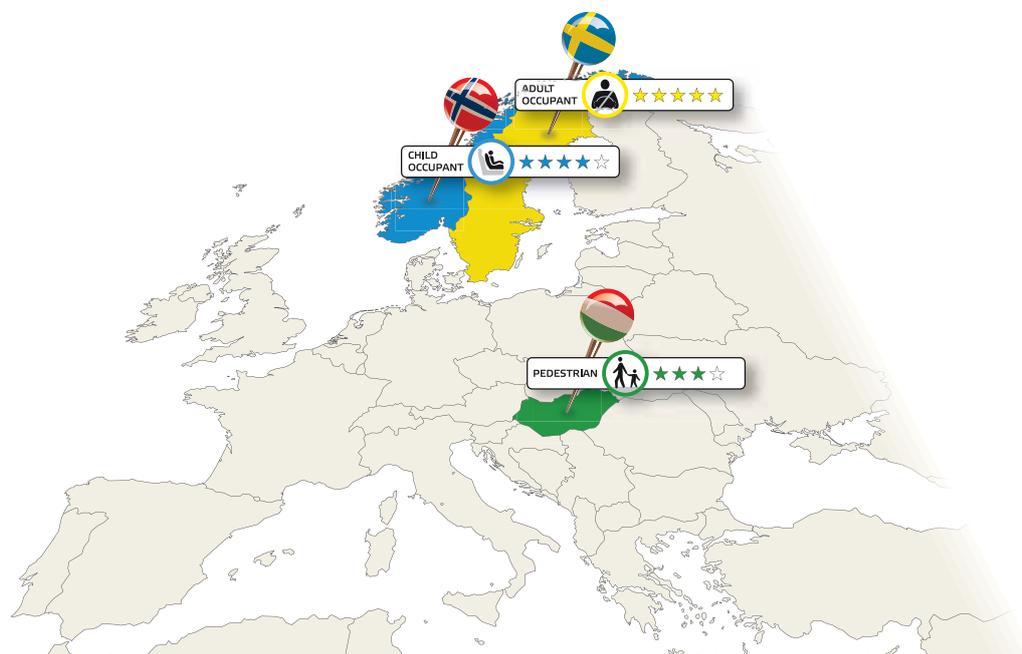
Dr. Murray Mackay, established the Birmingham Accident Research Centre at the University of Birmingham in 1964, and ran it until 1996. He has specialised in in-depth crash investigation, in understanding the epidemiology of traffic crashes, the mechanisms of impact injury and the performance of safety systems and their limitations. For several years he worked with the WHO in developing science-based traffic safety policies in developing countries. He is a founding director of the Parliamentary Advisory Council on Transport Safety (PACTS) and ETSC.

## 2| Boosting the market for safer cars across the EU

Each year until the recent economic downturn, around 15 million new passenger cars have been sold in Europe, 14.35 million in 2008. These new cars made up 6% of the 250 million cars registered in EU member states.

Vehicle passive safety has improved considerably over the past decade because of increased minimum standards laid down by EU type approval regulations and car manufacturers' efforts to meet consumer demands for safer cars. When the European New Car Assessment Programme (Euro NCAP) started to test the crash performance of cars ten years ago, the average car was awarded 2 stars for occupant protection. In 2008, 90% of the new cars tested under Euro NCAP protocol were awarded either 4 or 5 stars, 5 being the maximum for occupant protection.

Improved passive safety has helped to prevent some **10,600** car occupant deaths over the past 10 years and some **5,500** since 2001. Yet European citizens do not benefit equally from improvements in passive safety as huge differences persist between countries in the market penetration of safe cars. **Sweden, Ireland and Norway** are the countries with the highest proportion of cars awarded 5 stars for *occupant protection* among new cars sold in 2008. Improvements in *pedestrian protection* have developed more slowly than for occupant protection. Still only 21% of the new cars sold in the EU are 3-star, 42% were 2-star and 29% only 1-star, 5 being the maximum. **Hungary, Portugal and Spain** are the countries with the highest proportion of cars awarded 3-stars for pedestrian protection, closely followed by **Israel and Greece**, while **Sweden** surprisingly finds itself in the second to last position.



Government bodies, local authorities and companies, alongside consumers, have a role to play to support the market for safe cars by including safety in their vehicle purchase and leasing policies, providing tax incentives for safe cars or set strict safety requirements (for the purchase of new cars under scrappage schemes. Current concerns over climate change have led several Member States to adopt measures to promote environmentally-friendly cars. Unfortunately a similar approach promoting safe cars is limited to very few countries. Policymakers are challenged to look for policy options that would bring about synergies and help to achieve simultaneously two key EU commitments: reducing road deaths and CO2 emissions from road transport.

## 2.1 Comparison between countries

### 2.1.1 Adult occupant protection

Sweden, Ireland and Norway are the countries with the highest proportion of cars awarded 5 stars for occupant protection among new cars sold in 2008 (Fig. 7). In these three countries, more than 60% of the new cars sold in 2008 had been awarded 5-stars for occupant protection by Euro NCAP. If we look at 4 and 5-star cars taken together, Portugal, Norway and Sweden take the lead, with over 90% of the new cars sold awarded either 4 or 5 star for occupant protection.

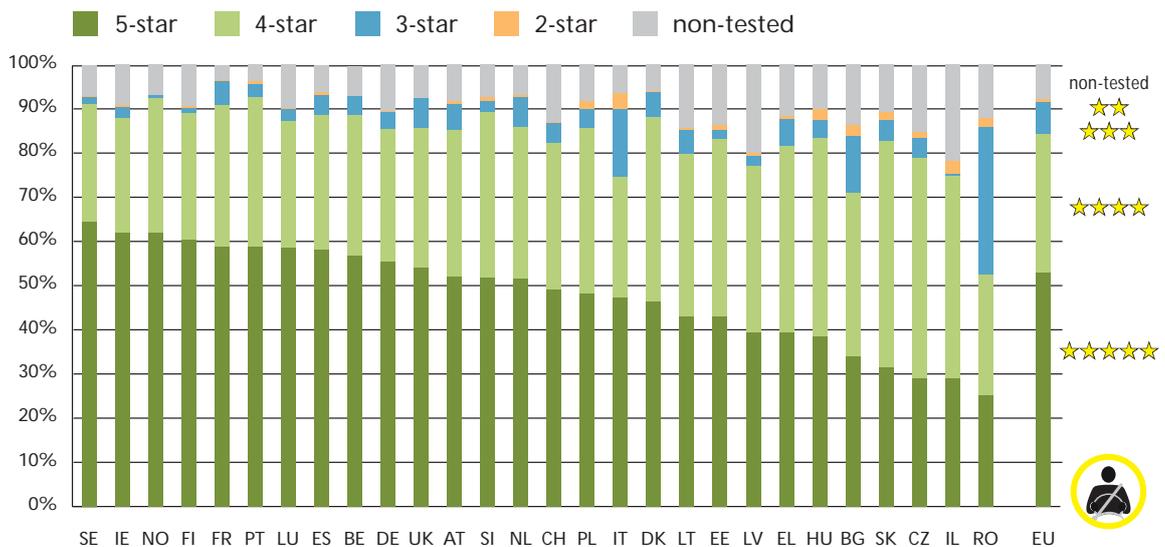


Fig 7: Occupant protection of new passenger cars sold in 2008

Proportion of cars awarded 5, 4, 3 and 2 stars and proportion of non-tested passenger cars, ranked by the number of cars awarded 5 stars. None of the cars tested in 2008 were awarded 1 star only.

Note: Cyprus and Malta are excluded from Fig. 7 as the proportion of non-tested cars represented more than 50% of the new car sold in 2008.

On average in the EU, 53% of the new cars sold were 5-star cars, 31% 4 stars, 7% 3 stars and still 1% only 2-stars. Occupant safety levels are appreciably lower in the new Member States (EU-10+2)

*“We are pleased about the position of Ireland in this ranking. We are working with the Society of the Irish Motor Industry (SIMI) to promote Euro NCAP as a key consideration for people when changing their cars”.*

Michael Rowland, Road Safety Authority, Ireland

than in the older ones (EU-15), with the notable exception of Slovenia. In Romania, Italy, and Bulgaria, the share of 3-star cars is relatively higher than in the rest of the EU.

*“Sweden considers vehicle safety to be one of the most important strategic tools to improve traffic safety. SRA has introduced new methods to stimulate the market and has acted as an informed customer when purchasing and renting vehicles. In doing so, we have set an example on how a serious body should act in a modern society - by demanding the highest level of safety. The Swedish Government today puts demands on all governmental bodies to do the same”.*

Claes Tingvall, Euro NCAP Chairman, SRA

*“It is not surprising to see Sweden at the first place in Fig. 7. This rightly reflects SRA’s and other Swedish actors’ tireless commitment to Euro NCAP and the long-standing tradition of safety of Swedish car makers Volvo and Saab”.*

Michiel van Ratingen, Euro NCAP Secretary General

## The indicator

There is no overall indicator of what is a safe car. Since 1997, however, the European New Car Assessment Programme (Euro NCAP) provides an objective assessment of the protection provided by a car in case of a crash for the occupants of the vehicle and pedestrians outside the vehicle. Euro NCAP introduced in 2002 additional point bonus under its occupant protection score for cars equipped with seat belt reminders.

This Chapter uses as main indicators of the penetration rates of safe cars among new cars sold two indicators that have equal importance: the penetration of cars awarded 5, 4, 3 or 2 stars for occupant protection and the penetration of cars awarded 3, 2 and 1 star for pedestrian protection. Two additional indicators are used: the penetration of cars awarded 4, 3 or 2 stars for child occupant protection and the penetration rates of seat belt reminders. New cars sold in the first nine months of 2008 are considered.

Data concerning the number of passenger cars sold by models and by countries come from a German consultancy R.L. Polk Marketing Systems GmbH and date from February 2009. The information on Euro NCAP scores and star ratings for particular models was provided by Euro NCAP. Data analysis was performed with the assistance of Johan Strandroth and Anders Lie (SRA). The dataset is available in the Annex. Estimation of the number of deaths prevented thanks to the improvement in occupant protection is described in the PIN Flash 13 Methodological Note available on [www.etsc.eu/PIN-publications.php](http://www.etsc.eu/PIN-publications.php), as well as other background information.

## European New Car Assessment Programme (Euro NCAP)

Euro NCAP tests around 30 car models each year. 250 car models have been crash tested to date. Euro NCAP test results were available for 90% of the new cars sold in 2008. Details of the tests used and the results are available on Euro NCAP’s web site [www.euroncap.com](http://www.euroncap.com). It should be noted that most car models are available in different variants that may have different safety equipment. Euro NCAP typically tests the best selling variant (identified by the car manufacturer). For example, the Volkswagen Polo is sold in Europe in hatchback, saloon, coupé and estate variants. Euro NCAP tested the 5-door hatchback variant in 2002. For the purpose of this report, those results are assumed to apply to most other variants as well.

In 2009, Euro NCAP introduced a new overall rating that will challenge vehicle manufacturers to make all-round safer cars (see Interview with Michiel van Ratingen). In April 2009, 6 car models had been tested under the “2009 protocol” and scores of 7 other models tested under the “pre-2009 protocol” had been converted into the new format. It would however not have been possible to use this new protocol for a pan-European comparison. Results are therefore based on the “pre-2009 protocol”.

Another way to measure the penetration of safe cars for occupant protection is to look at the average occupant protection scores across the fleet of new sold cars in 2008 by countries (Fig. 8). Tab. 1 summarises the correspondence between scores and stars for occupant protection.

Fig. 8 gives a slightly different picture than Fig. 7. Fig. 7 shows the results for occupant protection based on the simplified star award system. Fig. 8 uses the scores in points and shows their percentage of the maximum.

In **Norway**, the average score of new cars sold in 2008 was **32.8** - equivalent to **93%** of the maximum of 35 points for occupant protection. In **Ireland, Finland and Sweden**, new cars received **92%** of the maximum number of points. In the EU, the new cars sold in 2008 received on average **88%** of the total points for occupant protection.

Occupant stars	☆	☆☆	☆☆☆	☆☆☆☆	☆☆☆☆☆
Score in points	1-8	9-16	17-24	25-32	33-37
Percentage score (out of 35)	3-23%	26-46%	49-69%	71-91%	94-100%

Table 1: Scores and corresponding stars for occupant protection under the "Pre-2009 protocol"

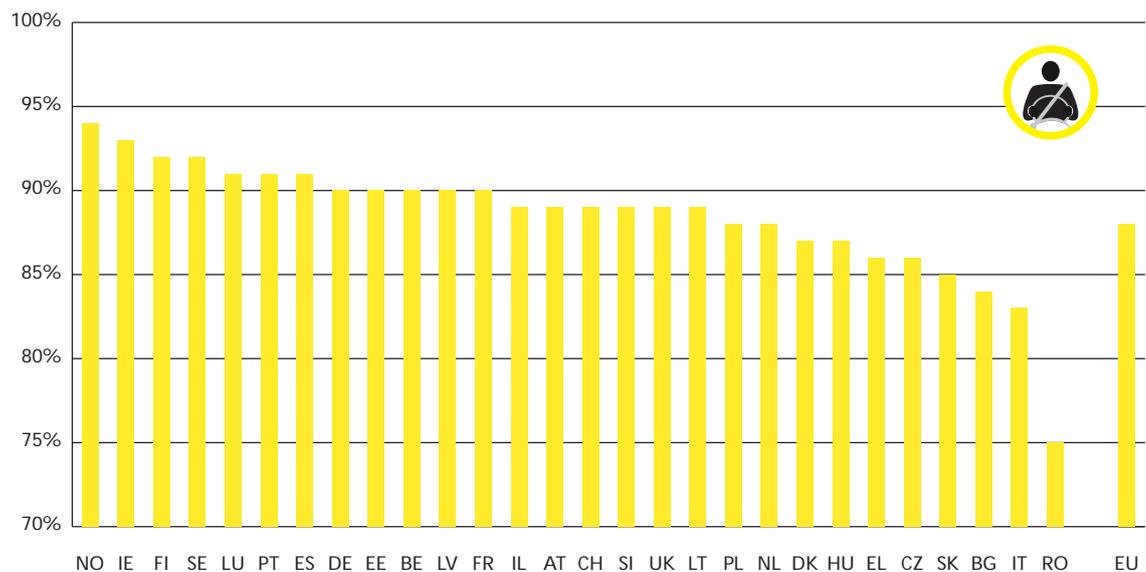


Fig. 8: Average percentage score of occupant protection for new passenger cars sold in 2008.

Note 1: Cyprus and Malta are excluded from Fig. 8 as non-tested cars represented more than 50% of the new car sold in 2008.

Note 2: Fig. 8 does not take into account the different proportions of non-tested cars (the average is of the scores for tested cars).

**Norway, Ireland, Finland and Sweden** keep the good position they had in Fig. 7, while **Italy** is in the second to last position in Fig. 8. This can be partly explained by the fact that Italy had larger proportions of 3-star and 2-star cars, and a bigger proportion of its cars awarded 5 stars received the minimum points needed (33), while in **Norway** they had a comfortable margin. **Estonia, Israel and Latvia** are better placed than in Fig 7 because of their relatively high proportions of untested cars. The positions of other countries in the two rankings are broadly similar.

## 2.1.2 Pedestrian protection

The safety of car occupants is only a part of the story, as some 10,000 pedestrians die each year on European roads after being hit by a vehicle, and many more sustain life-long lasting injuries.

**Hungary, Portugal and Spain** are the countries with the highest proportion of new cars awarded 3-stars for pedestrian protection, 5 being the maximum, closely followed by **Israel** and **Greece** (Fig. 9). In **Slovakia** and **Denmark** the proportion of cars sold having 2 or 3 stars was highest at over 70%. **Sweden** is surprisingly in the second to last position in this ranking, though 5th in terms of 3-star and 2-star cars taken together.

The positions of countries in Fig. 9 are very different than in Fig. 7 on occupant protection. There are several reasons for this, in particular, different consumers' demands for car categories. Consumers in **Southern, Central and Eastern European** countries buy smaller cars, providing good pedestrian protection, but less good occupant protection. Consumers in some **Northern European countries, Germany or Switzerland** tend to buy larger cars, performing less well on pedestrian protection but providing better occupant protection (See Fig. 13 and Fig. 14). There is also often a discrepancy between the individual model performance on occupant and pedestrian protection.

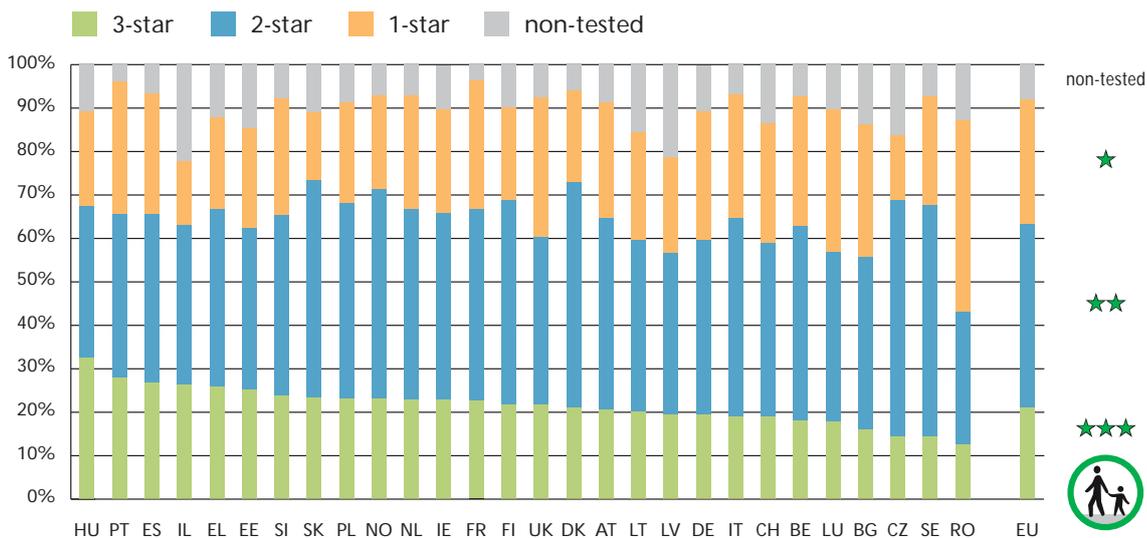


Fig. 9: Pedestrian protection of new passenger cars sold in 2008.

Proportion of cars awarded 3, 2 and 1 star and proportion of non-tested passenger cars, ranked by the number of cars awarded 3 stars.

Note: Cyprus and Malta excluded because of their high proportions of non-tested new cars.

Improvements in pedestrian protection have been provided more slowly than for occupant protection. Ten years after the introduction of the Euro NCAP pedestrian protection rating, still only 21% of the new cars sold in the EU were 3-star, 42% were 2-star and 29% only 1-star cars. The new 2009 protocol will challenge car makers by increasing the emphasis on all-round safety performance and demanding higher levels of achievement in pedestrian protection.

Fig. 9 shows the results for pedestrian protection based on the simplified star award system. Fig. 10 uses the scores in points. Tab. 2 summarises the correspondence between scores and stars for pedestrian protection.

Pedestrian stars	☆	☆☆	☆☆☆	☆☆☆☆	☆☆☆☆☆
Score	1-8	9-16	17-24	25-32	33-36
Percentage scores	3-22%	25-44%	47-67%	69-89%	92-100%

Table 2: Scores and corresponding stars for pedestrian protection under the Euro NCAP's "Pre-2009 protocol".

In **Israel**, the average score of new cars sold in 2008 was **15.2** - equivalent to **42%** of the maximum of 36 points for pedestrian protection. In **Slovakia** and **Hungary**, new cars received on average **40%** of the maximum number of points. Israel is better placed than in Fig. 9 because of its relatively high proportion of untested cars; **Portugal** is worse placed because of its relative low proportion. Countries such as **Norway** and **Finland** with higher proportion of 3-star and 2-star cars taken together are better placed in Fig. 10 as well. In the EU, the new cars sold in 2008 received on average only **36%** of the maximum number of points for pedestrian protection.

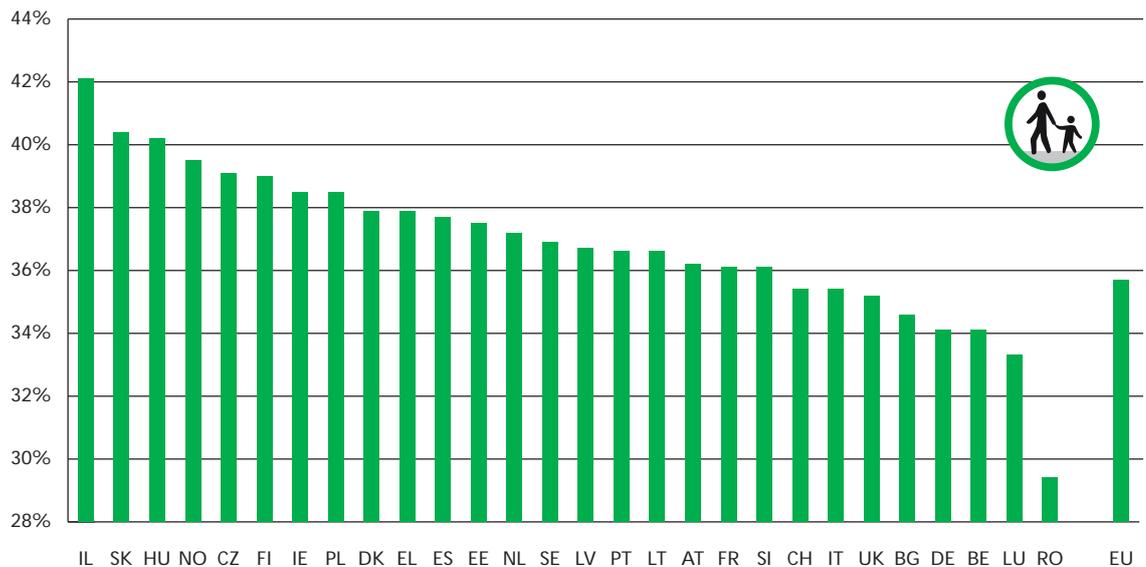


Fig. 10: Average percentage score of pedestrian protection for new passenger cars sold in 2008.

Note: Cyprus and Malta are excluded due to high proportion of non-tested new cars.

### 2.1.3 Child protection

Around 40% of children (0-16) killed in road accidents are killed when travelling in cars. Since 2004, Euro NCAP assesses how well the car and the manufacturer's recommended child restraints protect young children in cars in the event of a crash.

**Norway, Finland, Ireland** and **Sweden** are the countries with the highest proportion of cars awarded 4 stars for child protection among new cars sold in 2008 (Fig. 11). On average in the EU, **44%** of the new cars sold in 2008 were 4-star cars, **27%** 3-star and only **2%** 2-star. In general, cars that offer good occupant protection to adults also offer good protection to children in cars.

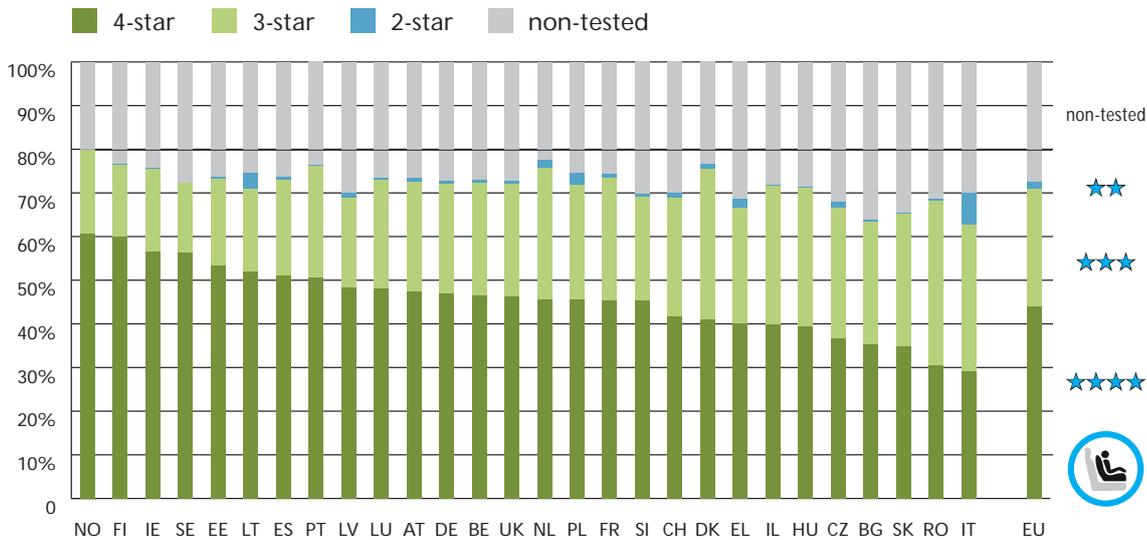


Fig. 11: Child protection of new passenger cars sold in 2008.

Proportion of cars awarded 4, 3 and 2 stars and proportion of non-tested passenger cars, ranked by the number of cars awarded 4 stars. None of the cars tested in 2008 was awarded 1 star only.

*Note: Child protection scores are not available for 27% of new cars sold. Differences in this percentage between countries can influence the ranking.*

#### 2.1.4 Seat belt reminders

In the event of a crash, the seat belt remains the single most important passive safety feature in vehicles. Yet, despite the legal obligation to wear a seat belt, wearing rates still vary greatly across Europe especially between front and rear seats and between urban and rural areas. Wearing seat belts saved some 14,000 car occupants from dying in road crashes in the EU-27 in 2007. An additional 4,700 deaths could have been prevented if all car occupants in crashes had been belted, which represents an 11% reduction of road deaths in the EU-27<sup>3</sup>.

All Euro NCAP crash tests for occupant safety are based on the assumption that the driver and passengers are wearing seat belts. Euro NCAP introduced in 2002 additional bonus points under its occupant protection score for cars equipped with seat belt reminders (SBR). One bonus point is given to cars equipped with SBR as a standard on the driver's seat, two points to cars with SBRs on front seats and three points to cars with SBRs on all seats<sup>4</sup>.

In **Israel** and **Estonia**, **19%** of the new cars are equipped with SBRs on all seats (Fig. 12), closely followed by **France**, **Finland** and **Norway (18%)**, compared to **13%** for the EU.

<sup>3</sup> Vis, M.A. and Eksler, V. (Eds.) (2008).

<sup>4</sup> To fulfil Euro NCAP criteria, SBR must use a combination of visual and sound signals. See ETSC (2007), 1<sup>st</sup> PIN Report, Chapter 5.

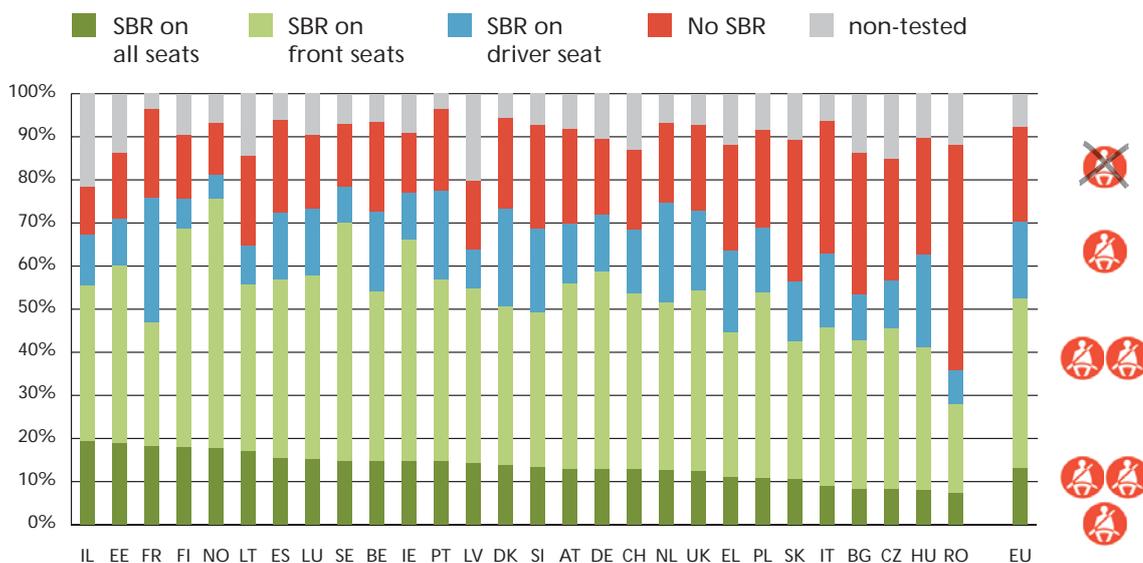


Fig. 12: Seat belt reminders in new passenger cars sold in 2008.

Proportion of cars awarded 3, 2, 1 and 0 point and proportion of non-tested passenger cars, ranked by the number of cars awarded 3 points for SBRs.

The penetration of SBRs on drivers' seats has increased in EU-27 since 2005. In 2005, some **56%** of cars were equipped with a SBR for the driver's seat<sup>5</sup>; in 2008, it was **70%**. Still, big differences persist between particular types of vehicles (Fig. 14). Whereas **97%** of the Executive Cars sold in 2008 were equipped with a SBR for the driver's seat, only **83%** of the Multi Purpose Vehicles (MPVs) and **68%** of the Superminis were.

### 2.1.5 Car occupant deaths prevented over the past decade

Vehicle passive safety has improved considerably over the past decade. When Euro NCAP started to test the crash performance of cars ten years ago, the average car was awarded 2 stars for occupant protection. **90%** of the new cars sold in 2008 tested under Euro NCAP's "pre-2009 protocol" were awarded either 4 or 5 stars.

Lie and Tingvall estimated that an increase in occupant protection from 4 to 5 stars reduces the risk of fatal injury by 12%<sup>6</sup>. Based on the hypothesis that the new cars represent 7% of the total car fleet and are involved in the same proportion of road crashes<sup>7</sup>, one can determine the number of car occupant deaths prevented thanks to improvements in vehicle passive safety.

Improvement in occupant protection has helped to prevent some **10,640** adult car occupant deaths over the past decade and **5,470** since 2001 in the EU-27. Similarly ESC has helped to prevent some **7,200** car occupant deaths over the past decade and **2,500** since 2001<sup>8</sup>.

<sup>5</sup> ETSC (2007), 1<sup>st</sup> PIN Report, Chapter 5.

<sup>6</sup> Lie A.; Tingvall C. (2002).

<sup>7</sup> Given their relatively higher usage rate but compensated by the lower accident risk of their users.

<sup>8</sup> PIN Flash 13 Methodological Note available at [www.etsc.eu/PIN-publications.php](http://www.etsc.eu/PIN-publications.php).

## 2.2 Background

No specific studies have been carried out to identify the causes of the differences in safety levels of average new cars sold in different countries, but they are likely to follow from a combination of factors. These include differences in national market characteristics such as purchasing power, tax levels, availability of models, or cultural and mobility patterns.

Fig. 13 shows big differences between countries in consumers' preferences for particular car categories. Grouping of new cars into specific categories helps towards some understanding of the national market differences. More particularly, the proportion of Supermini vehicles among all new cars partly explains the relatively good occupant protection scores of Nordic countries and less good performance of some Central European countries. It also explains in reverse the bad pedestrian protection performance of cars sold in Nordic countries and the good performance for certain Eastern European countries.

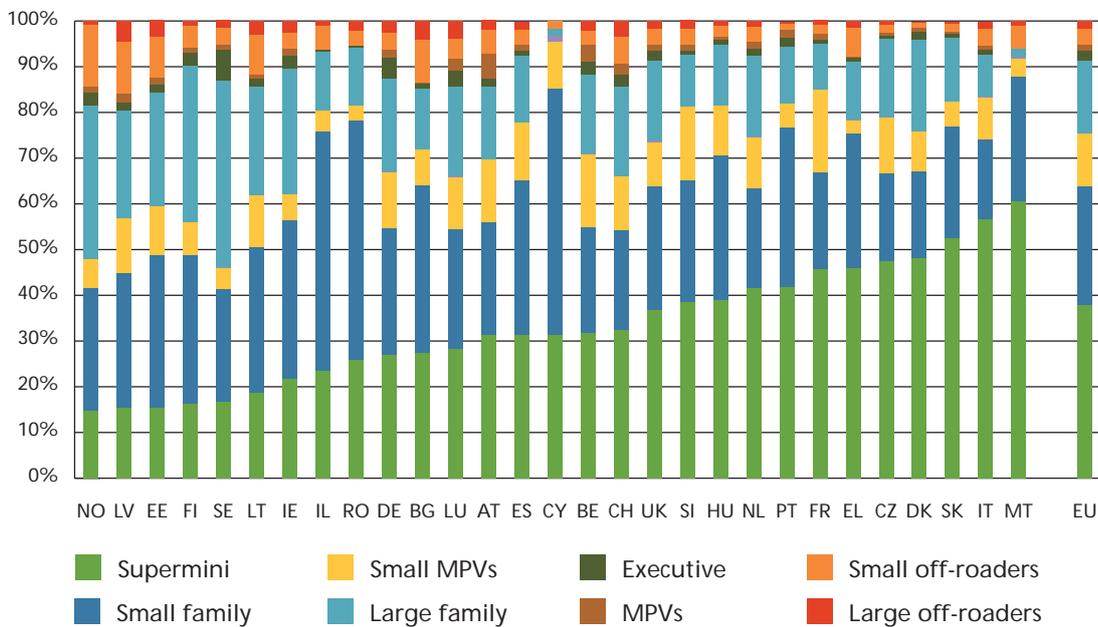


Fig. 13: The percentage share of vehicles according to Euro NCAP vehicle category among the new cars sold in 2008, in the reverse order of the proportion of Superminis.

## Euro NCAP car classification categories

Euro NCAP uses ten passenger car categories<sup>9</sup>

- Superminis (subcompacts, city cars), e.g. Ford Fiesta
- Small family cars (compact cars), e.g. VW Golf
- Large family cars (mid-size cars, compact executive cars), e.g. Audi A4
- Executive cars (full-size cars), e.g. Mercedes E-class
- Roadsters sports (roadster), e.g. Audi TT
- Small off-roaders (mini-, compact Sport Utility Vehicle (SUV)), e.g. Toyota RAV4
- Large off-roaders (mid-, full- size SUV), e.g. Range Rover
- Small Multi Purpose Vehicles (MPVs) (compact minivans), e.g. Renault Scenic
- Large MPVs (minivans), e.g. Ford Galaxy
- Pick-ups (pick-up trucks), e.g. Nissan Navara (not included in this analysis).

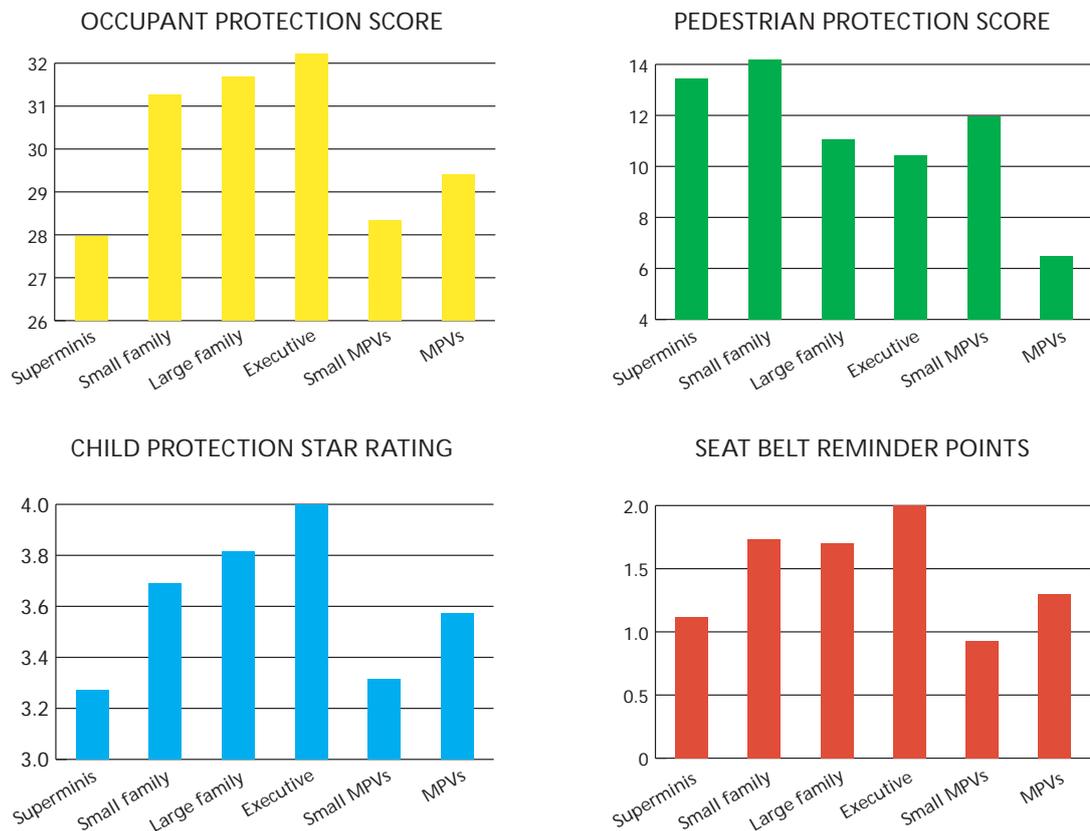


Fig. 14: Average EU-27 scores, stars or points for particular Euro NCAP car classification categories of vehicles sold in 2008 and tested under Euro NCAP "pre-2009 protocol".

<sup>9</sup> Opland, L. (2007), Size classification of passenger cars, p. 49.

## The question of car crash compatibility

Euro NCAP's frontal impact test simulates a car crashing into another of similar mass and structure<sup>10</sup>. In real life, when two cars collide the heavier vehicle has an advantage over the lighter one. Moreover, generally speaking, vehicles with higher structures tend to fare better in accidents than those with lower structures but they are more dangerous to vulnerable road users. Ratings are comparable only between cars of similar mass and with broadly similar structures. Within each of those categories as mentioned above, cars which are within 150kg of one another are considered comparable.

But the new cars represent only the tip of the iceberg. More than half of all registered vehicles are older than 7 years. The renewal rate is a possible measure of the rate at which the new vehicles affect the make up of the fleet (Fig. 15).

In 2007 it varied from around 10% in **Belgium, Ireland and Cyprus** to less than 2% in **Poland, Bulgaria and Latvia**. Renewal rates are lower in Central and Eastern European countries in part because of higher imports of second-hand cars from Western neighbours. Second hand cars are less safe because they are older and may pose additional hazards as they might have been involved in a crash. The car might have been improperly repaired or simply not restored to the original safety specification for cost reasons. For example, airbags might have deployed but not been replaced before the car was sold again.

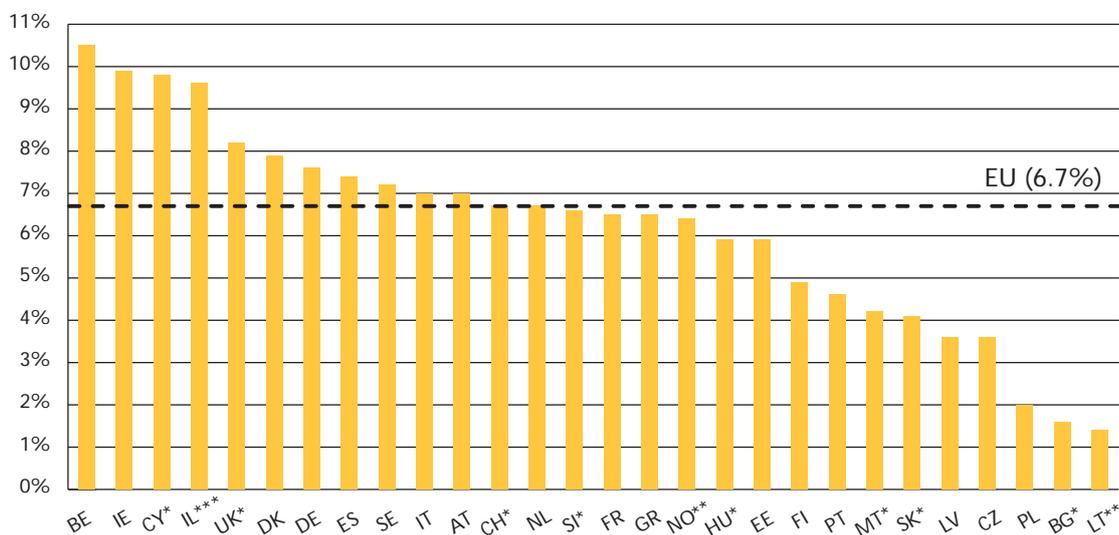


Fig. 15: Annual renewal rate of passenger cars in 2007 (Percentage of new cars among all registered passenger cars).

Source: ANFAC (Spanish Automobile Association) (2009).

Except for: \* Estimation based on EUROSTAT data for 1994-2004, \*\* UNECE 2004 data, \*\*\* National data.

<sup>10</sup> [www.euroncap.com/Content-Web-Page/0f3bec79-828b-4e0c-8030-9fa8314ff342/comparable-cars.aspx](http://www.euroncap.com/Content-Web-Page/0f3bec79-828b-4e0c-8030-9fa8314ff342/comparable-cars.aspx).

According to the European car manufacturers association (ACEA), the average age of cars is 8 years in the EU-15 and up to 14 years in Central and Eastern European Countries (CEEC). It is however in the CEEC that safer cars could make the greatest difference. The situation in CEEC is particularly

*“Statistics reported by our investigation teams show that the frequency of dying in cars increases dramatically with the age of the vehicle. The average age of cars in Finland is about 10 years.*

*Older cars are overrepresented in road accidents, especially among young drivers. Governments should provide incentives for consumers to purchase new cars with safety equipments.”*

Esa Rätty, VALT, Finland

unfortunate as the older car fleet combined with the high proportion of imported second-hand cars is holding back an improvement in road safety.

### 2.2.1 What national governments can do

Even though vehicle standards are set at an international level, national governments can influence the consumer's choice of vehicle. They can provide incentives, for example in the form of tax breaks, to purchase safer cars. Governments can also play a role in promoting safety as a criterion for consumers to consider by running consumer awareness campaigns.

In Europe, a large proportion of new cars are purchased by non-private customers. All non-private customers, such as governmental bodies, local authorities and companies can play an important role by including specific requirements on minimum safety levels in their vehicle purchase and leasing policies. In doing so, public authorities and companies contribute to the market penetration of safer cars by supporting the demand for such cars and for safety technologies, which hopefully in turn will help lowering the price of safety technologies.

Governments should also set strict safety requirements for scrappage schemes.

#### ***Sweden takes the lead on occupant protection but fails to impress on pedestrian protection***

As part of its travel policy, the Swedish Road Administration (SRA) has set up strict requirements for cars used on official business. Requirements are regularly updated and will continue to be in order to raise the standards on energy efficiency, vehicle emissions and safety<sup>11</sup>. Cars rented for less than 6 months must meet specific requirements such as:

- Be awarded 5 stars for occupant protection by Euro NCAP
- Be equipped with Electronic Stability Control (ESC)
- Be equipped with a SBR on the driver seat that meets Euro NCAP requirements.

Cars rented for more than 6 months must also meet additional requirements such as:

- Be awarded at least 2 stars for pedestrian protection by Euro NCAP
- Be equipped with an alcohol ignition interlock
- Be equipped with an informative or supportive Intelligent Speed Assistance system.

*“We are working hard at SRA to increase the market penetration of safe cars. We are pleased to see the results of this long-term commitment with Sweden being the country with the highest proportion of cars awarded 5 stars for occupant protection. At the same time, we are worried about our situation regarding pedestrian protection. We hope that we can soon adopt an overall system that promotes the purchase of cars that are both environmentally-friendly and safe”.*

Anders Lie, Swedish Road Administration

<sup>11</sup> <http://www.vv.se/Andra-sprak/English-engelska/Facts-about-the-Swedish-Road-Administration-/Policy-documents/Travel-policy/>.

Those requirements are also used by other public bodies and private companies. A brand new national law requires all government bodies to buy or rent only 5-star Euro NCAP cars for occupant protection (“government specification” as it is the case for environment standards).

Rental companies, such as Hertz, Avis and Europcar, are upgrading their whole fleet to offer ‘SRA recommended cars’ to all their customers.

New Euro NCAP test results are promoted in press events in Stockholm by SRA leaders.

*“What pleases me is Volvo’s 2020 target, that no one will be killed or seriously injured by, or in, a Volvo by model year 2020. I see this as a societal shift that a private company has placed the life and health of its customers and those affected by the use of its cars as key. I am also really happy with the new ISO 39001 management standard for traffic safety, for those organisations that wish to eliminate health losses as a result of traffic accidents at work”.*

Claes Tingvall, Swedish Road Administration

*“The application of SRA’s strict environmental and safety criteria for their car fleet was a real challenge for Hertz, as its major car rental supplier. Today, more than 60% of our vehicle fleet consist of “green cars”, all following 5-star occupant protection standards. In the near future, a part of the Hertz fleet will also be equipped with alcolocks”.*

Ylva Ekmark, Hertz Sweden

#### **What role for insurance companies: the example of Folksam**

Folksam is one of the largest insurance companies in Sweden and a driving force for road safety. Since 1984, Folksam published regular reports on “How safe is your car?”. The latest one from 2007 presents roadworthiness results of 172 car models as well as environmental rating<sup>12</sup>. To be listed as ‘safe’, cars should prove safe in Folksam’s results from real-life accidents or have at least 5 stars Euro NCAP for occupant protection, approved whiplash protection and ESC.

*“The safety level of a car can make the crucial difference between life and death in the event of a crash. Today it is fortunately possible to find safe cars that also have a small environment impact. This applies to all size categories apart from SUVs”.*

Anders Kullgren, Folksam, Sweden

#### **Towards intelligent all-round car taxation in the EU?**

Taxation should reflect new climate change challenges and address road safety. At the moment this is unfortunately not the case, and schemes to promote the purchase of environmentally friendly cars might have unforeseen adverse impact on safety and vice-versa.

**Denmark** has one of the highest levels of car registration tax in Europe. However, safety equipments such as airbags and ABS are not subject to taxation. Vehicles with three and more airbags also receive a tax rebate. As a result, Denmark is one of the countries with the highest rate of new cars with double airbags. A tax deduction on Electronic Stability Control (ESC) was also introduced in 2003. The percentage of new cars equipped with ESC rose from 30% in 2003 to 90% in 2008. Denmark is the country in Europe with the highest proportion of cars fitted with ESC as standard<sup>13</sup>.

*“I am convinced that the Danish tax system has played a strong role in influencing consumers to purchase cars equipped with safety technologies”.*

Jesper Sølund, Danish Road Safety Council

<sup>12</sup> Folksam (2007), How safe is your car?

<sup>13</sup> Euro NCAP ESC Fitment Rating: <http://www.euroncap.com/esc.aspx>.

### ***The power of consumer organisations: the example of the “Citizen car”***

The French League Against Road Violence (LCVR) and the French magazine “60 millions of consumers” regularly publish rankings of cars sold on the French market according to their ‘citizenship’ based on four criteria:

- Protection of car occupants (based on Euro NCAP test results for occupant protection)
- Protection of vulnerable road users outside the vehicle (based on Euro NCAP test results for pedestrian protection)
- Protection of occupants in other cars (based on the level of “aggressiveness” of the vehicle characterised by its mass and maximum speed)
- Respect for the environment (based on the average CO2 emissions in urban area)

*“Our goal is to help car buyers make a responsible choice. Cars buyers and users must demand vehicles that protect both themselves and others. Their safety must not come at the expense of that of others or the protection of the planet. We want to bring about a change in the current cars offered on the market through demand for more community-friendly cars.”*

Chantal Perrichon, League Against Road Violence, France  
[www.voiturecitoyenne.fr](http://www.voiturecitoyenne.fr)

### **2.2.2 What the EU is doing and could do**

To build on the EU’s reputation as the home of the safest vehicles now and in the future, the EU has a crucial role to play by raising EU common minimum standards and prioritise proven life-saving technologies. All cars produced in the EU or imported to the EU have first to meet EU common minimum standards laid down by EU type approval regulations. Those regulations cover general safety of vehicles, nameplates, availability of seat belts and head restraints, tyres, pedestrian protection, side and frontal impact protection, Daytime Running Light (DRL) amongst others<sup>14</sup>.

#### ***Proposal for a regulation on type-vehicle approval***

The European Union is currently negotiating a new regulation on type-approval requirements for the general safety of motor vehicles<sup>15</sup>. The proposal is addressing the recommendations of the CARS21 High-Level Group<sup>16</sup>. If adopted, all new cars will have to be equipped with Electronic Stability Control (ESC) systems by 2014. The introduction of ESC is estimated to save around 2,000-2,500 lives per year. The proposal also sets a minimum standard on wet grip of tyres and the introduction of tyre pressure monitoring systems. It is also hoped that the proposal will ensure that priority is given to the other technologies and systems that bring about the greatest life saving potential, namely seat belt reminders, alcolocks and speed management systems.

#### ***New regulation on pedestrian protection***

This brand new regulation lays down type approval requirements with respect to the protection of pedestrians and other vulnerable road users. It provides for the mandatory installation of Brake Assist Systems on new vehicles in an attempt to compensate for the relaxation of certain parameters on passive safety performance tests<sup>17</sup>.

<sup>14</sup> [http://ec.europa.eu/enterprise/automotive/index\\_en.htm](http://ec.europa.eu/enterprise/automotive/index_en.htm).

<sup>15</sup> [http://ec.europa.eu/enterprise/automotive/safety/new\\_package.htm](http://ec.europa.eu/enterprise/automotive/safety/new_package.htm).

<sup>16</sup> <http://ec.europa.eu/enterprise/automotive/pagesbackground/competitiveness/cars21.htm>.

<sup>17</sup> Regulation (EC) No 78/2009 of 14 January 2009, Ref.: OJ L 035, 04.02.2009.

### ***Towards Intelligent Transport Systems***

The European Commission has recently published a proposal for an Action Plan and accompanying Directive on the deployment of Intelligent Transport Systems. As in the case of the vehicle safety regulation, SBR, alcolocks and speed management devices should be fast tracked for deployment<sup>18</sup>.

The European vehicle industry faces a time of crisis. Beating off the international competition will be a challenge but developing its safety credentials and profiling itself as the producers of the world's safest vehicles can play a crucial role.

## **2.3 Recommendations**

### ***To national authorities and the EU:***

- Revise legislation on advertisement of cars requiring inclusion of CO2 emission level to require also the inclusion of the Euro NCAP test results when they are available (“Stars on cars!”).
- Regularly monitor developments in passive and active safety technologies for market penetration and/or eventual legislation.
- Fund accident studies to compare the injuries posed by car models with good and bad bonnet leading edges identified in Euro NCAP tests.
- Adopt the ITS Directive promoting technologies and systems that bring about the greatest life saving potential.
- Ensure that robust in-vehicle safety technologies are mandated in new legislation (as it is the case for ESC). This would prevent such safety technologies being sold as standard in one EU country whilst being offered only as an option or not at all in another.
- Set strict safety requirements (5 star Euro NCAP cars) for the purchase of new cars under scrappage schemes.
- Provide tax incentives for purchase and use of safe cars (5 star Euro NCAP cars).

### ***To Euro NCAP:***

- Extend its membership to countries and organisations from Central and Eastern Europe (CEE) to raise awareness among CEEC customers.
- Mobilise media, Euro NCAP member organisations, fleet buyers, rental car companies, insurers and consumer groups to reach out to more consumers in an attempt to close the vehicle safety gap between EU countries.

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<sup>18</sup> [http://ec.europa.eu/transport/its/road/action\\_plan\\_en.htm](http://ec.europa.eu/transport/its/road/action_plan_en.htm).

## 2.4 Interview: The Euro NCAP experience

The European New Car Assessment Programme (Euro NCAP) has been the main driver in encouraging consumers in Europe to buy safe cars. ETSC has talked with Michiel Van Ratingen, Euro NCAP Secretary General, about the new Euro NCAP 2009 protocol. This represents nothing less than a revolution for many.

*ETSC: How did Euro NCAP start?*

Euro NCAP was originally developed by the Transport Research Laboratory for the UK Department of Transport. Current members include the Catalonian region of Spain, France, Germany, the Netherlands, Sweden and the UK, the International Consumer Research and Testing, the FIA Foundation, ADAC and Thatcham. The European Commission is an observing member of Euro NCAP's board and provides additional support. We encourage other countries and organisations to join.

*"The Euro NCAP has become a world reference for vehicle safety, and is on the move to pick up more aspects of integrated safety. Euro NCAP has demonstrated that the market is reacting strongly to information about safety and the supply from the car manufacturers, in a fashion that can never be achieved by regulation. On the other hand, regulation needs to keep up with the fast improvement created by the marketplace in order to make sure that no one falls behind."*

Claes Tingvall, SRA, Euro NCAP Chairman

Since 1997 Euro NCAP has provided consumers with a realistic and independent assessment of the safety performance of some of the most popular cars sold in Europe. It has also provided an incentive to manufacturers to improve passive safety of cars. We work in close cooperation with the media, Euro NCAP members, fleet buyers, rental car companies and insurers to reach out to consumers.

*ETSC: What do you think about the different rankings? Were you surprised by the position of some countries?*

This is a unique set of data that clearly highlights the extent of the difference between EU countries. The data are encouraging for some, yet disappointing for others. Overall, it demonstrates that the mission for safer cars has by no means run its course on all aspects, not even for the best amongst the countries.

*ETSC: We can see big differences in the safety level of new cars sold in Western countries and in CEEC. What can you do to encourage consumers in CEEC to buy safer cars? What can other actors do?*

In 2007 Euro NCAP has changed its car selection process, from best selling variant to "lowest safety specification", a stepwise process that will take until 2012. By doing this, the rating given to the cars will better reflect the variants mostly on sale in CEEC. We hope that by following this course we will promote standard fitment of safety equipment across the EU 27 and address the differences observed in safety levels. We would also encourage new members especially from this region to support our mission.

*ETSC: What can governments do to promote the purchase of safer cars?*

Governments could run awareness campaigns informing European consumers of the benefits of buying safer cars for their family and for vulnerable road users. Governments should also provide incentives to consumers to purchase 5-star Euro NCAP cars. When choosing a new car, consumers should have in mind that their decision about which model to choose can make the crucial difference between life and death in the event of a crash.

Like in the case of Sweden, government bodies could set the example and adopt strict requirements for cars used on official business. They could for instance only buy or rent 5-star Euro NCAP cars to ensure safety for their employees and support the market for safety.

*ETSC: What will the Euro NCAP new 2009 rating system bring to safety?*

Until 2009, Euro NCAP made three separate ratings available for each vehicle. From now on, Euro NCAP will publish a new overall rating for every vehicle that will cover Adult Occupant Protection, Child Occupant Protection, Pedestrian Protection and a new area of assessment: Safety Assist.

Under the new testing regime, vehicles are awarded a single overall score from one to five stars. This will make it easier for car buyers to choose the 'stand-out' safest vehicles. Car buyers interested in a particular area of assessment such as adult protection or child protection will still be able to compare different vehicles as the individual scores that make up the overall rating will also be available on Euro NCAP's website.

The assessment incorporates all previous aspects and includes the recently introduced Rear Impact (Whiplash) tests. In addition, the availability of ESC and speed limitation devices is considered. The overall rating is based on the car's performance in each of the four main areas and the scores are weighted with respect to each other. Over the next three years, stricter requirements will be introduced increasing the emphasis on all-round safety performance and demanding higher levels of achievement in each area.

Of the six cars tested until February 2009 under the new 2009 Protocol, four achieved the maximum award of 5 stars: the Mazda 6, Mitsubishi Lancer, Toyota Avensis and Toyota iQ. The Citroen C3 Picasso and the Subaru Impreza were awarded four stars. Following Euro NCAP's assessment, Mitsubishi and Subaru both committed to changing their ESC fitment policies for the Lancer and Impreza, as variants without optional ESC were offered in some countries.

*“ESC, which is the most significant life-saving technology since the introduction of the seat belt, will make the crucial difference between 4 and 5 stars. It will be impossible for a carmaker to achieve 5 stars without the standard fitment of ESC in the majority of variants sold.”*

Toyota with the Avensis and iQ demonstrated that car size does not stand in the way of all-round safety. The Citroen C3 Picasso is the first of the tested cars that received points for its onboard speed limitation device.

Still, the test results clearly reveal potential for improvement. Most cars tested showed a weak performance in the side impact pole test. All cars tested, except the Subaru Impreza, still failed to impress on pedestrian protection.

*“We will continue to set benchmarks higher and reward those manufacturers who make safety their ultimate goal.”*

We acknowledge that this new rating scheme is more challenging in some areas, but it does offer lead time to manufacturers in others. We call this 'smart pressure'. Euro NCAP is well aware that in times of economic crisis priorities are affected. But we want to make sure that safety remains a top priority.



Michiel van Ratingen is a Mechanical Engineer with extensive experience in the field of vehicle safety. He worked at TNO, as head of Automotive Safety, and later at First Technology Safety Systems. Since October 2007, Michiel is Euro NCAP Secretary General.

### 3| Reducing Child Deaths on European Roads

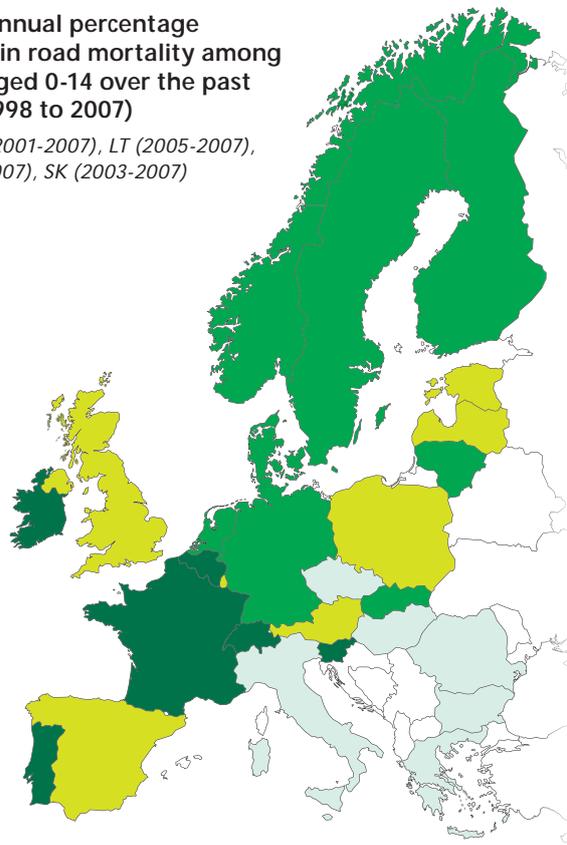
Some **18,500** children aged 0 to 14 have been killed in road traffic over the past ten years in the EU-27. In 2007 alone, the lives of more than **1,200** families were torn apart by the loss of a child killed in traffic. Every tenth child death is a result of a road collision. Road collisions are also a major cause of disability among children, which can have a long-lasting impact on their physical and psychological growth.

Yet, there is cause for hope. Commitment to prevent child deaths on the road has progressively increased, along with awareness of the need to reduce other causes of child injuries, and initiatives are starting to pay off. Road safety of children has improved considerably in all PIN countries over the past decade. **Portugal** achieved the best annual average reduction, of almost 15%, in road mortality among children, followed by **France, Slovenia and Switzerland** with just over 10% and **Ireland and Belgium** with just under 10%.

Average annual percentage reduction in road mortality among children aged 0-14 over the past decade (1998 to 2007)

*Except BG (2001-2007), LT (2005-2007), RO (2000-2007), SK (2003-2007)*

- ≥10%
- >7%
- 5-7%
- <5%



Road safety of children under 15 has improved even faster than their safety in other widespread everyday activities and from fatal illness. Today, children aged 0 to 14 experience only about one-sixth of the mortality on the roads experienced by the rest of the population. Still, children in **Lithuania** have 7 times higher probability of being killed in road traffic than children in **Sweden**, the best performing country in terms of road mortality of children. At least 600 child deaths could be avoided each year if the level of child mortality from road collisions were the same across Europe as in Sweden.

In its Blueprint for the EU's 4<sup>th</sup> Road Safety Action Programme 2010-2020 (ETSC 2008b), ETSC proposes a **separate target for reducing road deaths amongst children**. As population forecasts predict that the proportion of the EU population aged 0 to 14 is likely to continue falling steadily in the next decade, ETSC argues that a single target for all ages would be less challenging in respect of children than other age groups. ETSC therefore recommends the EU to adopt a target of a 60% reduction between 2010 and 2020 in child deaths on the roads (compared to a 40% overall reduction).

## 3.1 Comparison between countries

### 3.1.1 Children are a lot safer today than ten years ago

Road safety of children has improved considerably in all PIN countries over the past decade. **Portugal** deserves special praise with an average annual reduction in child road mortality of almost 15% (Fig. 16). **France, Slovenia, Switzerland, Ireland and Belgium** also rank highly with reductions close to 10%. In contrast, **Bulgaria, Hungary, Italy, Czech Republic, Greece and Romania** performed poorly with reductions of less than 5%.

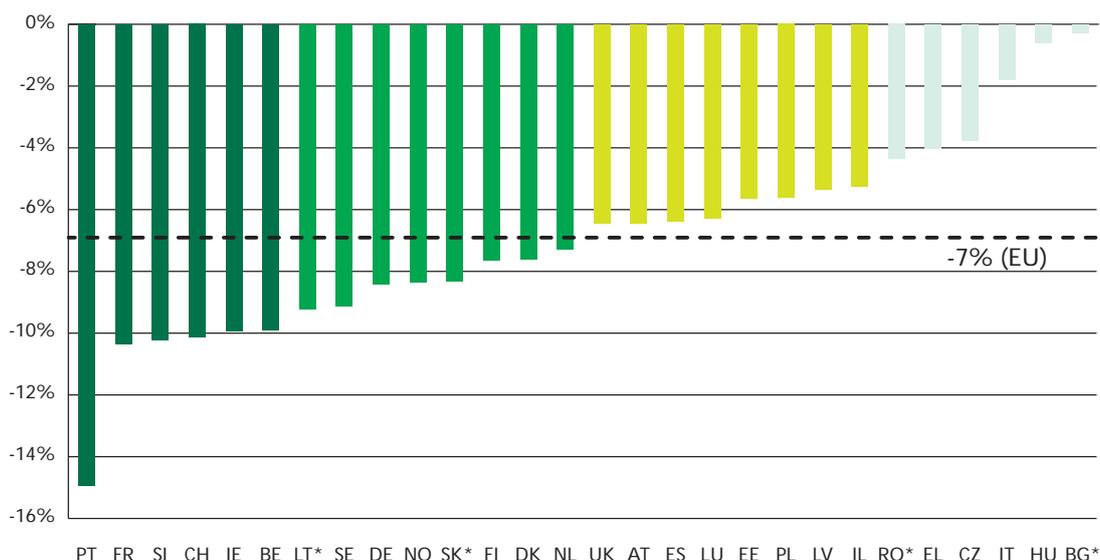


Fig. 16: Average annual percentage change in road mortality among children aged 0-14 over the past decade (1998 to 2007)

\* BG (2001-2007), LT (2005-2007), RO (2000-2007), SK (2003-2007),

Note: MT and CY are excluded from this ranking because the numbers of deaths in those countries are so small as to be subject to substantial random fluctuation.

### Why children and why up to 14 years old only?

In this report we consider children to be those aged 0 to 14 (inclusive). While this definition is somewhat arbitrary, 15 is in many EU countries the age at which one finishes compulsory school attendance. Up to 14, the ways children travel are often dictated by the choice of parents, environment and policies in general. Moreover, in some countries, 15 is the age at which you are considered to be responsible of your acts (legal responsibility).

At least 1,219 children were killed in 2007 representing around 3.5% of overall road deaths, while they make up almost one sixth of the population. Children are therefore relatively safer than adults probably because of lower exposure to road traffic. But children are extremely vulnerable on roads because of their lack of experience, reduced visibility and bodily fragility. They also are often unaware of the risks they take unintentionally and more easily become innocent victims in road traffic collisions. It is therefore essential that the road system is adapted to account for their limited capabilities and for their limited access to alternatives.

## The indicator

The safety of children on the road is expressed in terms of **mortality**, i.e. the number of children 0 to 14 killed in road collisions divided by their population size (in millions). Road deaths by population give a good estimate of the overall impact of road safety on the age group, while taking account of changes of birth rates in time.

Data concerning children killed are from the national statistics supplied by the PIN Panellists. The dataset is available in the Annex. Population figures were retrieved from the Eurostat database.

Child mortality from road collisions is compared with child mortality from all other causes of death. Data concerning general mortality among children were retrieved from the Eurostat database. We have not compared road mortality with the mortality from other unintentional injury.

Children in this age group are mainly killed as car passengers, pedestrians or cyclists. Unfortunately, estimation of time spent in traffic or the amount of travel by children is available for only few countries<sup>19</sup>. Exposure in traffic resulting from different mobility needs and patterns is therefore not taken into consideration in this publication when comparing countries.

The method used to estimate the average annual percentage change in child mortality over the past decade is described in the PIN Flash 12 Methodological Note on [www.etsc.be/PIN-publications.php](http://www.etsc.be/PIN-publications.php).

### 3.1.2 Road safety of children has improved faster than overall road safety

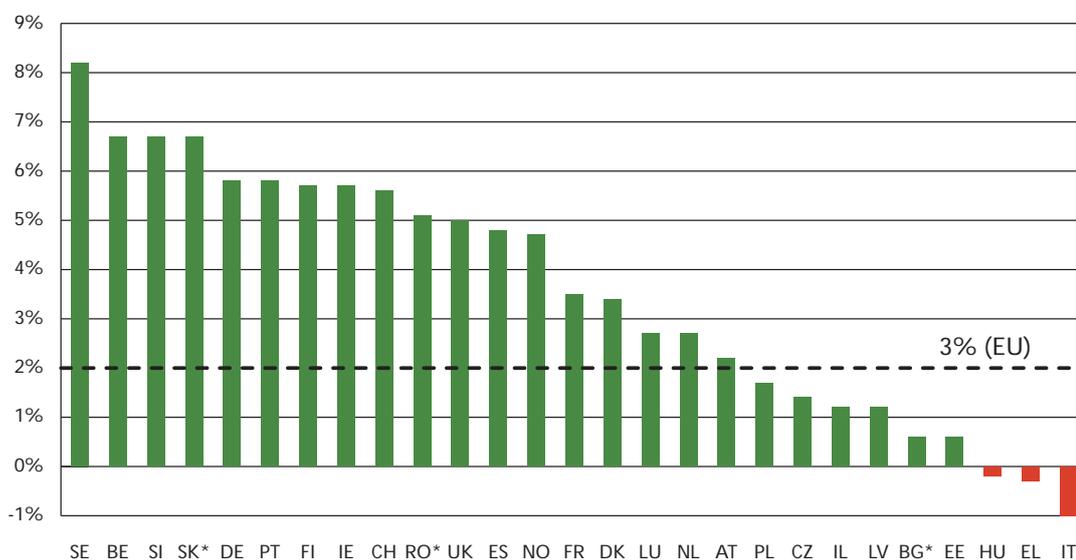


Fig. 17: Difference between the average annual reduction in road mortality among children aged 0-14 and the corresponding reduction for the rest of the population (aged 15+) over the period 1998-2007;

\* BG: 2001-2007, RO: 2000-2007, SK: 2003-2007

Note: Malta and Cyprus are excluded because the numbers of deaths in those countries are so small as to be subject to substantial random fluctuation.

<sup>19</sup> Christie N., Cairns S., Towner E., Ward H. (2007).

On average in the EU-27, road safety of children has improved faster than road safety of the rest of the population over the past decade (Fig. 17). In **Sweden, Belgium, Slovenia and Slovakia**, the annual average reduction in road mortality among children is more than 6 percentage points higher than the corresponding reduction for adults. In **Italy, Greece and Hungary**, the opposite is true and the road safety of the population aged 15 and above has improved faster than road safety of children. Governments of these three countries need to attend to this trend and adopt a comprehensive strategy to reduce child deaths.

*“We have been able to reduce steadily child deaths on the road, from 25 in 1998 down to 6 in 2008. Since the 1970s, most of the children under 4 years old are seated in rear-facing seats which we believe played a major role.”*  
Claes Tingvall, Swedish Road Administration

*“Sadly, Italy is developing in the opposite direction compared to the rest of the EU. The road mortality of children aged up to 14 is improving at a lower pace than that for the rest of the population. We need to reach higher levels of child restraint use and, to achieve that, we need to increase awareness of parents. We need to generally reduce driving speeds in urban areas where pedestrians are particularly at risk. The introduction of a mandatory practical training test for moped drivers would also help improving their safety.”*  
Umberto Guidoni, Fondazione ANIA.

The annual average reduction in child mortality in the EU over the decade was 7% compared to 4.3% for all other age groups. Road safety of children has improved even faster than their safety in other widespread everyday activities and from illness. Indeed, mortality from other causes of deaths among children has been decreasing by some 5% per year.

### 3.1.3 Half of the 1,200 children dying on EU roads could be saved

The mortality of children from road collisions is about one-sixth of the corresponding mortality for road users aged 15 and above. In the EU, there are 16 child deaths per million child population, compared to 95 deaths for the rest of the population.

But children do not benefit from the same level of safety everywhere in the Europe. Children in **Lithuania** have 7 times higher probability of being killed in road traffic than their **Swedish** counterparts.

About half of all road related child deaths in EU-27 could be avoided each year if the level of child mortality from road collisions were the same across Europe as in **Sweden**, the best performing country in terms of child road mortality. This means that for 2007 alone around 600 children would have been killed instead of 1,219.

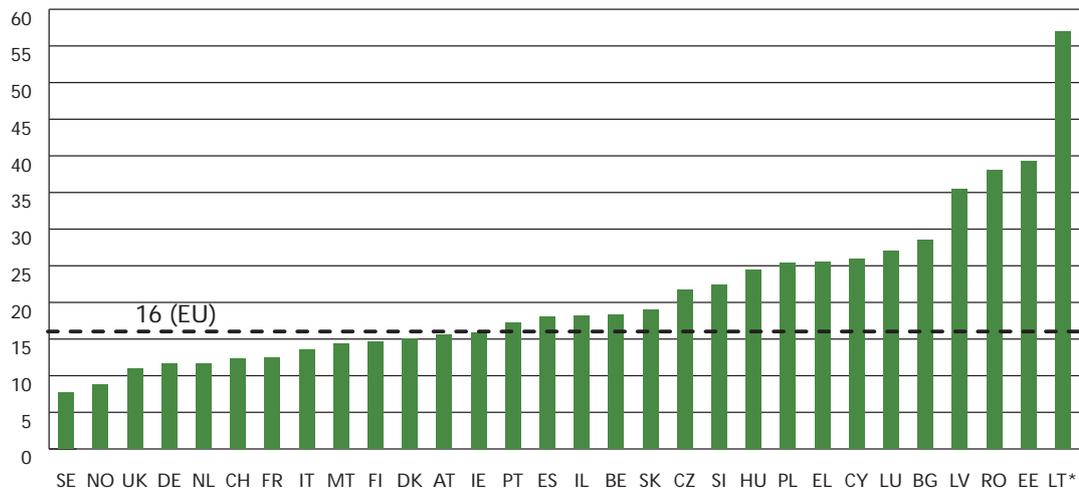


Fig. 18: Child road mortality. Average values for years 2005, 2006 and 2007  
 \*LT (2006-2007).

### 3.1.4 Recent child road mortality versus annual reduction over last decade

In Fig. 19 the recent level of road mortality among children in the PIN countries is plotted horizontally against the average annual reduction over the last decade plotted vertically. The EU averages of the two indicators are used to divide the diagram into four quadrants.

Sweden, Switzerland, France, Germany, Norway, the Netherlands, Finland and Denmark achieved lower than average mortality after higher than average reduction. The above-average progress made by Portugal, Slovenia, Belgium and Ireland over the past decade has not been quite sufficient to bring them into the favourable lower left quadrant. Italy and the UK have lower than average mortality despite lower than average (in Italy much lower) reductions.

Romania, Latvia, and Estonia, have achieved appreciable reductions but still have the highest mortalities. Bulgaria and Hungary not only have high mortality rates, but were also scarcely able to reduce them over the past decade.

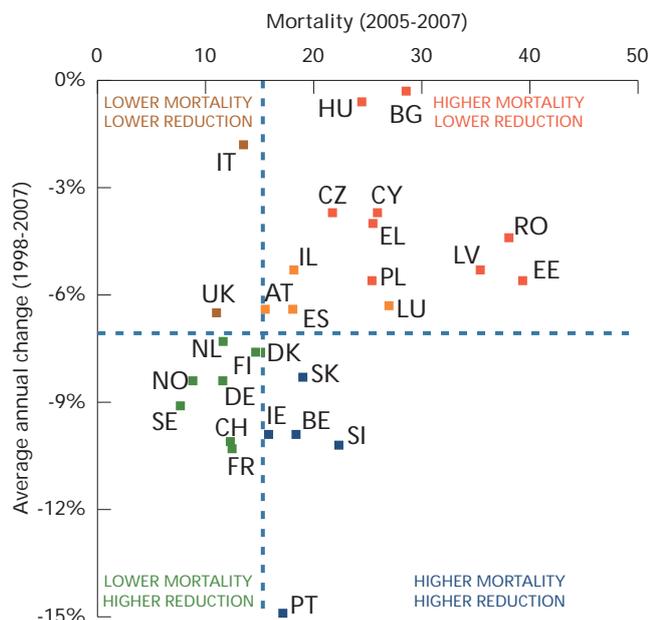


Fig. 19: Road mortality among children plotted against the annual average % change (1998-2007).

*“There is a relatively close correlation between the level of overall road safety and that of children. Unfortunately, Hungary has had a deteriorating trend in road deaths since 2001. Yet, the progress in 2008 gives us some reasons to hope. We also welcome the announcement by the government that the Hungarian Child Safety Action Plan will be elaborated in the near future in close co-operation with all ministries involved”.*

Peter Hollo, KTI, Hungary

*“We were already aware of the alarming road mortality among children in Estonia. Yet, for the first time our performance was compared against other EU countries’ and the results clearly cannot satisfy us. The National Road Safety Committee met to attend to this trend and informed other actors involved, especially the Ministry of Education and local municipalities. We hope the new measures adopted in the Road Safety Action Plan (2007-2011) aiming at improving the safety of vulnerable road users, in particular children, will be fully implemented and results will come soon.”*

Dago Antov, Tallinn University of Technology, Estonia

### 3.1.5 Every tenth child death results from a road collision

While on average, in the EU, every tenth child death after their first birthday results from a road collision, this share varies from 5% in **Norway** and **Sweden**, and almost 20% in **Luxembourg** and **Slovenia** (Fig. 20). Infants up to 1 year old are excluded from this calculation because they are particularly vulnerable to deaths from natural causes.

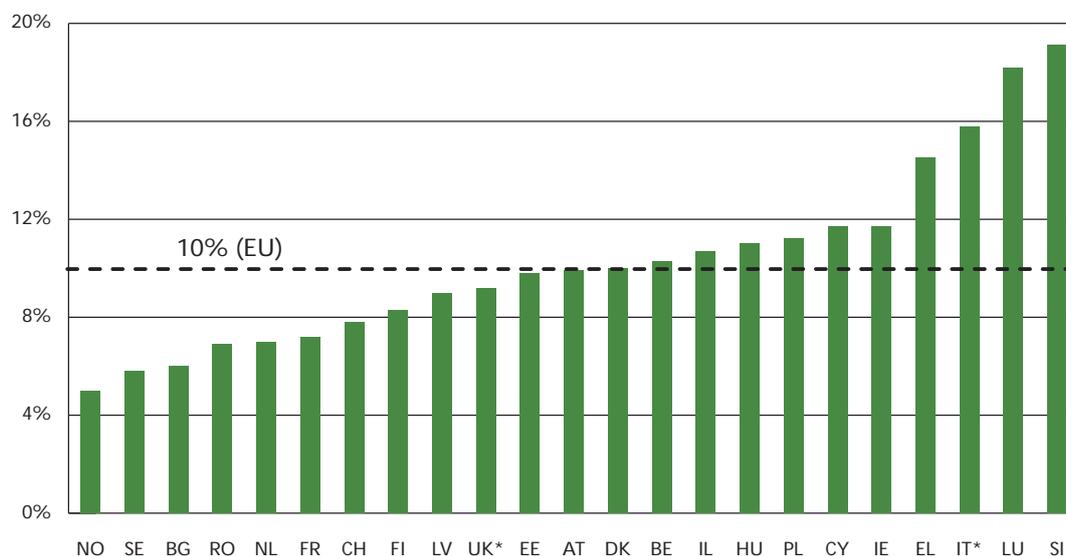


Fig. 20: Road deaths as a percentage of deaths from all causes in age group 1-14.

\* UK (2004-2005), \*IT (2004-2005),

Note: CZ, DE, LT, PT, SK, ES are excluded because of different age groupings for all causes of deaths.

### 3.1.6 Mortality increases steeply after 14

Children aged 7-14 have higher road mortality than children aged 0-6 (Fig. 21). This is in part because, as part of normal child development, children aged 7-14 are more likely to move around unaccompanied by adults, in particular travelling to and from school. But, once they reach the age of 14 and progressively acquire access to motorcycles and cars, their road mortality starts to increase steeply.

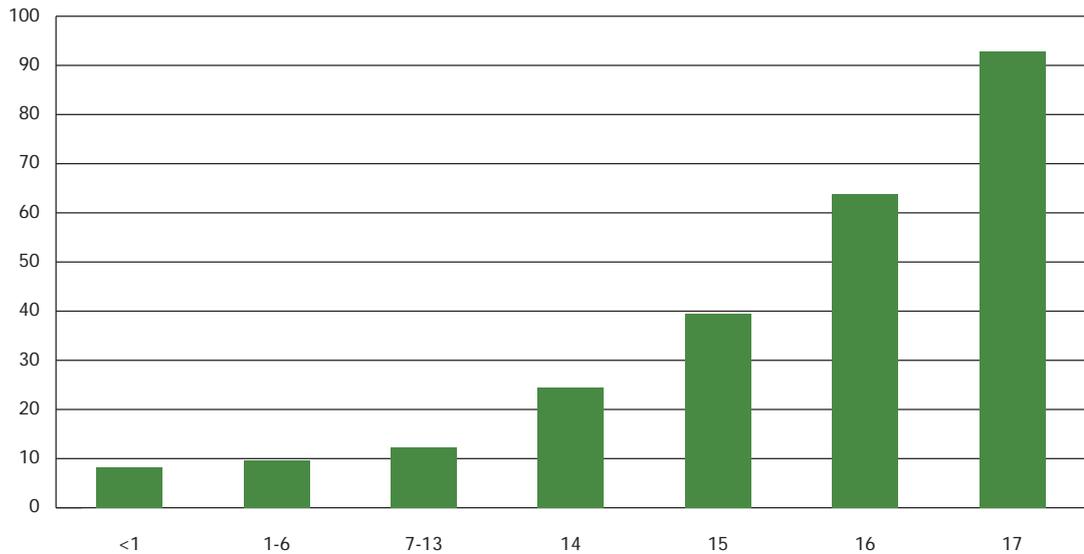


Fig. 21: Road mortality for different age groups.

*Average values for 2005, 2006 and 2007 for the EU-27.*

Still, big differences exist between countries (Fig. 22). In **Austria, Denmark, France, Ireland, Italy, Norway, Sweden** and **the UK**, adolescents older than 14 represent more than 60% of all road deaths under 18.

The access at an earlier age to moped driving in **France, Italy, Spain** (from the age of 14) and **Poland** (from 13) could probably partly explain that adolescents represent a higher share of all road deaths under 18 in some of these countries<sup>20</sup>. Similarly, only in the **UK, Ireland** and **Poland** can adolescents nowadays hold a full driving licence permitting independent driving of cars from 17-years old.

<sup>20</sup> ACEM, Yearbook 2008 (2009).

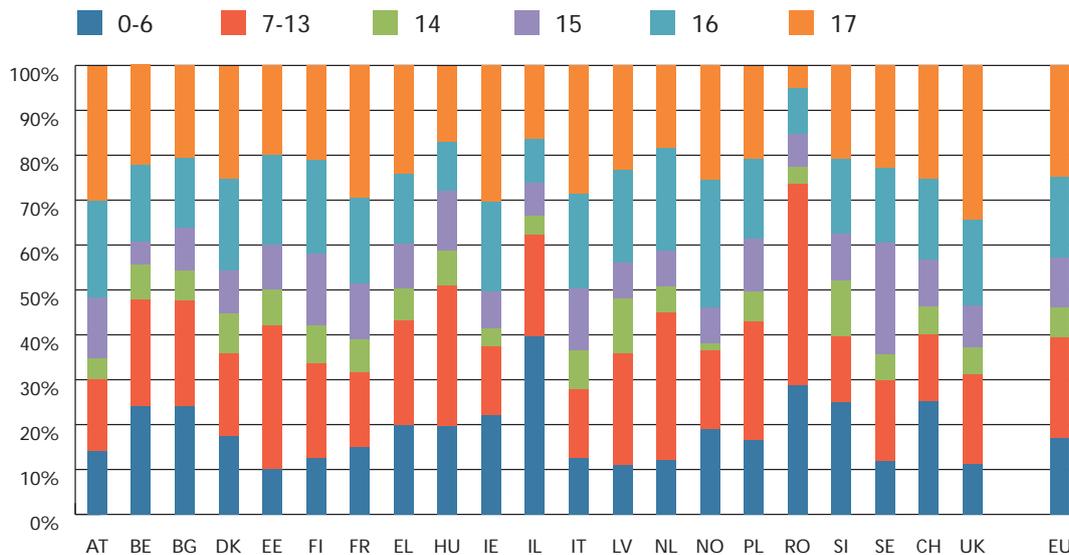


Fig. 22: Percentage share of road deaths in age groups among all road deaths under 18 presented in alphabetical order. Average values for 2005, 2006 and 2007.

Note: CZ, DE, ES, PT, MT, LT, excluded because of different age groups in their data. LU and CY excluded because of too low numbers in age groups.

*“In Sweden, you can drive a moped from the age of 15. That can be part of the explanation of the relative higher share of 15-17 year olds (in particular 15 year old) in Fig. 22. Reducing road deaths from the age group 15-17 will be a challenge for Sweden in the next coming years! There are ongoing discussions about whether to keep the age limit of 15 or to raise it to 16 to comply with the upcoming EU Directive on Driving Licences”.*

Anna Vadeby, VTI, Sweden

Driving a moped with no driving licence as it is the case in Sweden or Italy will no longer be possible after 2013. **EU Directive 2006/126/EEC on Driving licences** (replacing Directive 91/439) introduces a new category AM and a mandatory theory driving test for moped riders. Minimum age for category AM will be 16 years but Member States may lower it down to 14 years or raise it up to 18 years. Minimum age for driving a car will be 18 but Member States may lower it down to 17 years.

### 3.2 Background

Efforts in improving child safety need to incorporate a variety of different measures. Survey findings from 2004 indicated that most OECD countries had had national plans for reducing child deaths and injuries in road traffic for at least ten years, but that the best-performing countries had adopted a holistic approach<sup>21</sup>. Success stories suggest that improving road safety for children is most likely to be achieved through combining measures to address the behaviour of all road users, improve the road environment, design vehicles that better protect both their occupants and those at risk outside the vehicle, and promote the use of appropriate restraint systems by children.

<sup>21</sup> OECD (2004), Keeping children safe in traffic.

EU legislation, including the Directive on seat belts and child safety restraints, also played a key role in contributing to improvements in road safety among children over the past decade.

### 3.2.1 Experience from best performing countries

#### **Setting a separate target for children: success story from Great Britain**

In 2000, **Great Britain** set a target to reduce the number of children aged 0-15 killed and seriously injured while on the road by 50% by 2010 and is well on target. Children, in particular child pedestrians, were identified as amongst the most vulnerable road users. Great Britain's safety strategy for children also cited the ethical concern for preventing children's deaths<sup>22</sup>.

*"2007 results show considerable improvement across all categories of child casualties, an area where historically we have been worse than the European average. Still, more than 9,000 children were killed or injured on our roads in 2007. I am delighted to see that the UK Government is taking new measures on child road safety using bolder and more forthright communication about road danger than ever before".*

Robert Gifford, PACTS, UK

The UK Government is also investing £140m in the Travelling to School project and another £140m in cycling, which includes funding for an extra 500,000 10 year-olds across England to take part in Bikeability cycle training. The THINK! Copycat campaign reminds parents of the need to set a good example to their children on road safety.

Deprivation has also been found to be a risk factor, particularly for child pedestrians. The reasons for this are multi-factorial but a significant factor is speeding. Families in deprived communities have

also less resource, such as education, professional knowledge and economic power, with which to articulate demands for safety improvements. An additional target for a faster rate of improvement in deprived areas was therefore set in 2002 matched by further government funding. This was achieved in 2005, with child casualties in neighbourhood renewal areas falling by over 6% more than in the rest of England.

#### **Setting a holistic approach: success story from the Netherlands**

SWOV recently surveyed the safety of children in traffic in **the Netherlands** and identified success factors and room for improvement. The recent decrease in deaths among children is likely to stem from a combination of measures in spatial and urban planning, infrastructure, vehicles and education. Especially important was the generalisation of 30 km/h zones in residential areas, initiated by the Sustainable Safety programme. Improvements of passenger car safety and increased use of child safety restraints and seat belts by children also made a contribution. In its study, SWOV recommends increasing the awareness among parents about the effectiveness of cycle helmets for children<sup>23</sup>.

*"On the basis of such recommendations and others, our new Strategic Road Safety Plan for 2008-2020 identifies a number of priorities for children. Among them: to increase the use of helmet for cyclists, increase the use of child seats, increase awareness of the blind spot on the nearside of trucks and exchange best practices on safe school environment".*

Peter Mak, Ministry of Transport, the Netherlands

<sup>22</sup> Department for Transport (2000) Tomorrow's Roads – Safer for Everyone.

<sup>23</sup> Rijk, A. (2008). The road safety of children: A crash analysis and literature study.

## The story of Goochem, the Armadillo

The Armadillo (or Goochem) campaign, launched in 2004 in the Netherlands, has since been taken as a model by many other European countries. The Armadillo concept was also a key element in the European Commission funded campaign Euchiress on seat belts and child restraints.

The campaign aims at increasing the use of seat belts among children. A rubber gadget in the shape of an Armadillo is offered to children that are fastened correctly. Attached to the seat belt with Velcro, the soft latex toy is the children's cheerful little mate for safety in the backseat. In case of danger, the real armadillo rolls up to protect itself. The toy too can be folded.

### ***Vision Zero for children: Success story from Sweden***

Sweden also implemented a holistic approach to protect children from road dangers. The approach was based on a new philosophy: it should no longer be the child that should adapt to traffic conditions but the traffic conditions that should be adapted -as far as possible- to children' limitations. The responsibility to prevent children from road danger always lies with the adults.

Sweden also has had a history of high seat belt usage. In addition, parents place children in rearward facing restraints up to the age of 4, as recommended by the government. As a result, only two children (0-6) were killed in a car in 2008.

The compulsory curriculum for schools does not stipulate a minimum number of hours of road safety education but only mentions that traffic should be integrated into other subjects. *"There has been intensive discussion in Sweden about traffic education for children. The prevalent view is that it is not feasible to educate small children about traffic, at least not up to the age of 12, as they are not developed enough to handle complex situations such as road traffic. Instead, SRA and Local Authorities are trying to improve the environment to make it more suitable for them. Since the 1960s, road safety education in school has been reduced by more than 50%, while road deaths of children (0-14) decreased from 120 down to 6 in 2008. This supported the idea that there is no direct connection between road safety education and low road mortality among children. Having said that, it is of course of the utmost importance to continue passing direct, concrete information on the importance of using a cycle helmet or putting their seat belt on. Children will keep that habit as they grow up and could also influence their parents"* said Åsa Ersson, SRA, Sweden.

*"We are very proud to see that in 2008 one child below 18 was killed as pedestrian; none as bicyclist. We believe that a Vision zero for children is realistic for a great number of EU countries. Countries can for example start by setting Vision zero targets for sub-groups, such as young children or children as cyclists and pedestrians".*

Åsa Ersson, SRA.

Those good results can be partly explained by the generalisation of speed reduction measures on roads often crossed by children, as well as the provision of separate pedestrian and cyclist lanes. Children are also less exposed to road traffic as parents more often drive them to school while they used to walk or cycle on their own.

The **Safe smart school bus** pilot project aims to better protect pedestrians crossing behind or in front of school buses by supporting the school bus driver. In order to communicate with the system children

wear a tag that transmits the information to the bus unit, making it possible for the driver to know if the child is within 100 meters of the bus. The tag is also connected to a bus stop unit warning other passing vehicles. The buses have also been fitted with technical equipment that provides the drivers with better visibility and improved opportunities for communicating with the children when they are outside the bus.

A new EU proposed **Action Plan and Directive on Intelligent Transportation Systems** includes the proposal to develop best practice guidelines concerning the impact of ITS applications and services on the safety and comfort of Vulnerable Road Users (VRUs). This could include promoting best practice examples of safe route choice for children especially on their way to school.

### 3.2.2 Experiences from fast progressing countries

**Portugal** leads the European Union in child mortality reductions. The Portuguese Road Safety Plan 2003-2010 helped to promote child road safety, albeit indirectly, with the adoption of a 60% reduction target in killed and serious injured in urban areas and for pedestrians. The Plan also targets a 70% use of child restraint systems and a 50% level of proper use. According to roadside surveys carried out by APSI, the Portuguese Association for Child Safety Promotion, the 70% target has been achieved, but still one adult out of two failed to use the child seat properly.

*“We have been very active in Portugal on all fronts to improve road safety among children. Together with others, we lobbied the government for lower urban speeds, targets for higher use of child safety restraints and safer transport of children in buses and coaches. We are also working closely with hospitals and paediatricians to make sure parents of newborns receive information on the importance of using child safety restraints and how to use them properly. We are also putting pressure on retailers to increase the offer of rear-facing seats for children up to 4 years old”.*

Sandra Nascimento, APSI, Portugal

Child safety has been for some time an important item in Portuguese road accident prevention activities, being carried out by both national government agencies and NGOs, in schools and nationwide<sup>24</sup>. Since 2006, children on organised trips in buses and coaches must be provided with seat belts and child seats. The adoption of this new law was accompanied with special training courses for drivers. Yet, more efforts are needed to further reduce child road mortality, in particular by improving the infrastructure in urban areas.

**Slovenia** achieved the third best reduction in child mortality from road collisions over the past decade. This is the result of the implementation of a ‘policy mix’ of different legislative, educational and infrastructural actions. Along with strict legislation, one of the most important measures was the introduction of free school buses for students having to cross dangerous areas on their way to school. The Armadillo campaign and other projects targeted parents and children in schools and kindergartens. As a result, the use of child restraint systems has increased from 53% in 2005 to almost 70% in 2008.

Infrastructure measures have also been highly prioritised with the introduction of 30 km/h zones, speed bumps and traffic lights at pedestrian crossings in the proximity of schools and kindergartens. Road safety is part of the educational objectives for children in nursery, elementary and high schools.

<sup>24</sup> For more information on safety campaigns (in Portuguese only): <http://www.prp.pt/informacao/campanhas/index.asp> and <http://www.apsi.org.pt>.

The current legislation requires:

- Adult supervision of children in traffic until they reach the age of 7;
- Supervision of children as cyclists in traffic until the age of 14, unless they have passed the cycle training;
- Compulsory use of the child restraint system until the age of 12 and of bicycle helmet until the age of 14;
- Free school bus service for 6 and 7-year olds (paid for by local communities);
- Free school bus service for children that have to cross unsafe areas on their way to school.

*“We tried to make use of all the means available to protect our children from road dangers: legislation, education, campaigns, infrastructure measures. We are proud of the results achieved over the past decade. Still, there is more to be done if Slovenia wants to reach the performance of best-performing countries”.*

Mateja Markl, Slovenian Roads Agency

### 3.2.3 Other examples of good practice

#### **Occupant safety**

Trends across Europe indicate an increase in journeys to school by car, which mirrors the rise in the level of car ownership in European countries, particularly in the Eastern and Central European countries<sup>25</sup>. Priority should therefore be given to enforcement of seat belt and child restraints legislation and proper use of child restraints.

#### **EU legislation on child safety restraints**

Directive 91/671/EEC requires that all children under 12 years have to be restrained by an approved restraint system suitable for the child’s height and weight. The legislation was later reinforced by Directive 2003/20/EU, which requires that all children up to 150 cm in height must use a child restraint appropriate to their size<sup>26</sup>.

The EU Directive 77/388/EEC enhances the affordability of safety restraints by including them in the category “essential product” on which VAT can be charged at only 5%. According to a 19-country review by APSI, only two EU Member States – the UK and Portugal – have passed on the benefit of reduced VAT to consumers<sup>27</sup>.

*“It is estimated that every euro spent on a child safety seat saves around 30 euros on health care costs. We therefore urge Member States to apply the lowered VAT rate. Lower prices could increase affordability of child car restraint equipment and reduce the use of second hand and old design seats. Rear facing and forward facing models range in cost from less than 20 to more than 300 euros and booster seats and cushions range in cost from less than 10 to more than 200 euros across Europe.”*

Morag Mackay, European Child Safety Alliance

<sup>25</sup> European Environment Agency (2008).

<sup>26</sup> All new child restraints sold in the EU must conform to UN-ECE Regulation 44/04 or Directive 77/541/EEC requirements.

<sup>27</sup> European Child Safety Alliance and Health and Environment Alliance Joint Press release (2007).

Estimates of child safety restraint use are available in only a very few countries. According to roadside surveys, use varies between 20% and 93%. While this figure is worrying in itself, the failure to use them properly also remains an important issue<sup>28</sup>.

### Drivers fail to protect child passengers

TISPOL, the European Traffic Police Network, regularly organises Europe-wide seat belt checks. At the last 'Operation Seat Belt', "Save Your Children. Adults have a choice, children do not" organised in February 2008, police forces were concerned to observe over 4,000 children who were not properly buckled up. "It was worrying to find that so many adults are prepared to take such a risk with the lives of their children" said Adam Briggs, President of TISPOL at that time.

### Forward-facing child restraints questioned by consumer organisation ANEC

Rearward-facing restraints offer a higher level of safety over forward-facing restraints to children aged up to four years. The study by the British firm Vehicle Safety Consultancy, commissioned by the European Association for the Co-ordination of Consumer Representation in Standardisation (ANEC), showed that children in forward-facing seats suffered head, neck, chest and abdominal injuries in circumstances in which a rearward facing restraint would have provided much better protection<sup>29</sup>.

Currently rearward facing restraints are used in Nordic countries up to the age of 3 or 4 years old, whereas in the rest of Europe children travel facing forwards already at one year of age or less, in accordance with the European legislation which implies that it is safe for a child to travel forward-facing from 9 kg onwards.

ANEC is urging legislators to revise the law on the use of child restraints, and calls on the manufacturers of child restraint systems and cars to collaborate voluntarily in order to make Scandinavian-style rearward-facing seats for children up to 4 years available to consumers throughout the rest of Europe.

### Alcolocks in school buses

In France, all school buses will have to have alcolocks from the start of the new school year in 2009 onwards. This will ensure sober transport of children and is also seen as a first step towards rolling out alcohol interlocks to other target groups.

<sup>28</sup> Vis, M.A.;Eksler, V. (Eds.) (2008).

<sup>29</sup> Gloyns P., Roberts J. (2008).

### ***Pedestrian and cyclist safety***

Leading recommendations of both OECD and UNICEF are to reduce speed limits to 30 km/h in residential areas and around schools and playgrounds, a practice that has proved to be effective. Car manufacturers should also invest more in pedestrian protection to reflect the upcoming rating from Euro NCAP. A new **Pedestrian protection Regulation** will also soon replace Directive 2003/102/EC and Directive 2005/66/EC on frontal protection systems.

In some European countries, it is mandatory for children to wear cycle helmets. It is the case in **Malta, Finland** and **Israel** for all cyclists regardless of the age, and in **Sweden, Slovenia, Portugal** and the **Czech Republic** up to 15. Implementers of helmet legislation may wish to address concerns regarding decreased cycling following introduction of legislation as part of their promotional activities, citing the benefit of cycling to children's health as those not in favour have stated this as an argument against this strategy<sup>30</sup>.

#### **Safe routes to schools**

Safe routes to schools programmes aim at encouraging and enabling more children to walk and bike to school safely. Implemented in numerous countries and cities, these community-based road safety programmes usually involve school jurisdictions, teachers, pupils, parents, local police, the municipality and local road operators.

#### **3.2.4 Safer at what price? The issue of mobility**

Concerns over children's safety and security have contributed to the increase in the number of parents driving their children to school. By driving cars to school, traffic increases, which reduces pedestrian and cyclist child safety and the quality of life of children. This in turn means more parents are inclined to use a car to take their children to school and thus the negative spiral continues<sup>31</sup>. This is a cause of concern as habits children develop in their youth may affect how they choose to travel later in their lives.

Concerns for the health of children, increased socialisation and a way to tackling child obesity would be counter arguments. In addition, walking and cycling to school increases children's appreciation of road dangers and further assists in the development of key skills which are important for future independence<sup>32</sup>.

*"In many countries, child casualties are going down not because of improved safety but rather due to reduced exposure to risk as they are driven to school and spend less time out on the streets playing. Cycling and walking should instead be encouraged but of course this should be made safe,"*

Ellen Townsend, ETSC

<sup>30</sup> European Child Safety Alliance (2006). Child Safety Good Practice Guide.

<sup>31</sup> European Environment Agency (2008).

<sup>32</sup> Cairns S., Sloman L., Newson C., Anable J., Kirkbride A., Goodwin P. (2004).

### 3.3 Recommendations<sup>33</sup>

#### *To Member States*

- Adopt a separate target for reducing deaths amongst children and accompanying measures.
- Strengthen the emergency medical care and rehabilitation services and ensure that they are designed and equipped with the needs of children in mind.

#### *Road environment:*

- Design road environments in ways that recognise children's capabilities and limitations. This will also benefit other road users, in particular older road users.
- Implement 30 km/h zones together with traffic calming measures to reduce vehicle speeds in residential areas, on the way to schools and around bus stops.
- Implement safe bicycle infrastructure separated from motorized traffic to make cycling to school safer
- Design parking areas to minimise opportunities for walking behind cars that may reverse.

#### *Safety equipment:*

- Enforce child restraint and seat belt legislation.
- Make rear facing seats mandatory for children up to 4 years of age.
- Increase parental awareness of the importance of child restraints and increase their availability and affordability, particularly for low income families
- Promote the use of bicycle helmets by children.
- Improve the visibility of children when walking or cycling.  
(e.g.: promote the use of retro-reflecting clothing or stripes).

#### *Education, training and publicity:*

- Shift the focus of responsibility for child road safety more towards drivers.
- Increase drivers' awareness of children's limitations.

#### *To EU institutions*

- Adopt a separate target for reducing road deaths among children and accompanying measures;
- Make rear facing seats mandatory for children up to 4 years of age;
- Launch a special effort to increase the use of child safety restraints in all EU countries. Health and community non-governmental organisations could be encouraged to include seat belt wearing information in their programmes;
- Make the fitting of ISOFIX child restraint anchorages mandatory in vehicle type approval;
- Adopt the Cross border enforcement Directive to encourage high levels of enforcement of use of seat belt and child safety restraints;
- Implement swiftly the EC's commitment to prioritise actions improving child safety in its proposed ITS Action Plan and Directive.

#### *To car manufacturers*

- Install advanced seat belt reminders on all seats.
- Improve the design of vehicles so that the injuriousness of any impact with pedestrians and cyclists is reduced.
- Accelerate the introduction of other in-vehicle technologies (alcohol-interlock systems, Intelligent Speed Assistance).
- Invest more in pedestrian protection to reflect the new rating from Euro NCAP.
- Install obstacle detectors (e.g. reversing radars, reversing cameras) in all buses and heavy vehicles.

<sup>33</sup> A comprehensive list of recommendations can be found in two international Reports: OECD (2004), Keeping children safe in traffic and WHO/UNICEF (2008), World report on child injuries prevention.

### 3.4 Interview: The experience of the European Child Safety Alliance

The European Child Safety Alliance (ECSA) is a Programme of EuroSafe, the European Association for Injury Prevention and Safety Promotion, and is supported by the Consumer Safety Institute in the Netherlands. ECSA's aim is to make life safer for children. ETSC talked with Morag Mackay, Programme Manager at ECSA, where she is managing the Child Safety Action Plan (CSAP) project.

#### *ETSC: Why focus on children?*

Children are not small adults. They have particular physical and psychological characteristics that put them at increased risk of injury. If we do not specifically focus on this age group and its unique characteristics, then the solutions that we come up with are less likely to prevent injuries in this age group.

While it is simple to say that children are our future, it is true and we therefore have a responsibility to protect them. Most countries have signed numerous declarations that acknowledge the need for preventing injuries, but investment has not been commensurate with the magnitude of the issue.

Children have no choice in where they live, they have little control over the environments and products they are exposed to and they have limited access to information. It is therefore imperative that society ensure the safety of children as a fundamental right so that they can live, learn and play in safe environments and grow up to be contributing members to society.

#### *ETSC: What do you do to improve road safety of children?*

The European Child Safety Alliance works to advance child injury prevention on the political agenda at all levels and to build capacity within Europe to address the child injury issue. We advocate for the use of evidence-based good practices and contribute to increase awareness of important injury issues through joint campaigns with our national partners.

Our biggest initiative is the Child Safety Action Plan (CSAP) project. We worked with our partners to assess current national policies related to child injury including road safety. National Child Safety Report Cards were developed to inform decision makers of current gaps that needed to be addressed. We are now supporting our partners as they work with decision makers to develop national action plans. We are also looking at how gaps between countries can be addressed by action at the EU level. This includes initial discussions with our partners and ANEC regarding the issue of how to support efforts to keep children rear-facing longer and how to strengthen data to monitor progress in vehicle safety.

Many of the proven good practices that are currently supported by evidence in Europe are not being implemented in all countries. Areas the Alliance is considering for further action include:

#### **Data**

- Increase the number of countries with data on exposure (e.g., child restraint and helmet use, mode of transport to school, etc.), including the issue of standardisation of data to allow European comparisons;
- Increase the number of countries with valid data on injuries;
- Ensure access to timely data on child injuries. Health sector data in international datasets are often 4-5 years behind which can limit the utility of the resulting information dismissed as being "old".

#### **Passenger safety**

- Increase the number of countries with legislation requiring children to remain in the rear seat until they reach the age of 12 and remain in rear facing child passenger restraint until the age of 4 years;

- Increase availability and affordability of child safety restraints, particularly for low income families.

#### **Pedestrian safety**

- Increase the number of countries with enhanced infrastructure to support safe walking (e.g., sidewalks, traffic calming measures, urban planning);
- Support efforts to require redesign of car fronts/bumpers;
- Encourage transfer of evidence-based practices that encourage safe walking (e.g., safe routes to school).

#### **Cycling safety**

- Increase the number of countries with legislation requiring use and correct fit of bicycle helmets.
- Increase the number of countries with enhanced infrastructure to support safe cycling;
- Increase availability and affordability of helmets.

*ETSC: In some countries, children are safer simply because they travel more in cars. How can we encourage safe walking and cycling?*

Many countries do not have the infrastructure to support safe walking and cycling. With the growing issue of child obesity and the associated chronic diseases, it is important that all levels of government begin to plan how to transfer proven good practices to increase safe walking and cycling. Initiatives that have served to mobilise local communities and encourage multi-sectoral collaboration, such as Safe Communities and Healthy Communities, will aid in these efforts and should be encouraged.

*ETSC: You are not only working on road safety. Which successful measures could be transferred from one area to the other?*

The greatest advances in child injury prevention have been made in the area of road safety. The multi-pronged approach that road safety has taken, developing strategies that include engineering, legislation, standards, enforcement and education provides a good example of how to combine approaches for success. Similar multipronged approaches are needed as well for other areas of child injury.

*ETSC: What are your hopes for the future?*

We hope to see all countries implementing and evaluating a national comprehensive government endorsed child safety action plan that covers all areas of child safety including road safety. We hope to see increased involvement of industry and other stakeholders in the development, implementation and evaluation of those plans. We hope to see strengthening of regulations and more accountability for adhering to those that exist. Ultimately we hope that more children in Europe will grow up injury free.



Morag is Programme Manager at the European Child Safety Alliance where she manages the Child Safety Action Plan (CSAP) project. The Child Safety Action Plan project is a large scale initiative whose aim is to develop government endorsed national action plans in European countries and contribute to the uptake of proven prevention strategies. [www.eurosafe.eu.com](http://www.eurosafe.eu.com)

## 4| En route to safer mobility in EU capitals

Almost 40 million people live in the 27 capital cities of the European Union, about 8% of the total EU population. At least 24,000 people were killed in road accidents in the EU-27 capitals over the past decade. Despite reduction over the decade, last year alone the total number of road victims in the EU capitals was 1,560.

**Dublin, Lisbon and Oslo** scored the best reduction in the number of victims per 100,000 residents, with respectively 12%, 10% and 9% average annual reduction. In **Sofia, Dublin and Oslo**, road mortality has decreased much faster in the capital than in the rest of the country. Road users in **Oslo, Vienna and Madrid** enjoy the lowest ratio of mortality in the capital to mortality in the rest of the country.

While the risk of dying on the capital cities' roads is half the risk of dying in a road collision in the rest of the country, vulnerable road users are particularly at risk when using the capital cities' roads. One out of two road victims in capitals is either a pedestrian or a cyclist. Providing safe mobility in particular to those vulnerable road users presents a major challenge - a challenge which has been taken up strongly by authorities in a number of capitals, and particularly vigorously by some mayors. Some of them have gone beyond national efforts and taken the lead in improving road safety of their citizens and visitors. As a result, cities that are looking for ways to make their people safer in traffic can now benefit from a range of successful experience. Only by implementing known countermeasures will it be possible to achieve increases in the use of healthier and more environmentally friendly means of transport and still reduce road deaths and injuries.

### 4.1 Comparison between countries

#### 4.1.1 EU-27 capitals are safer today than ten years ago

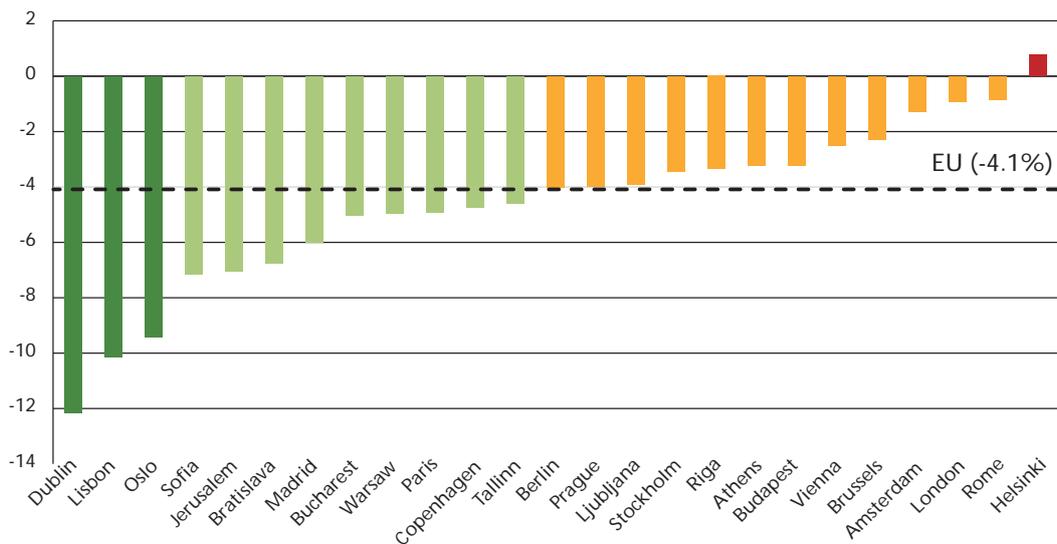


Fig. 23: Average annual percentage change in mortality over the period 1997-2007

**Dublin, Lisbon and Oslo** achieved the greatest reductions in the number of road victims per 100,000 residents, with respectively **12%, 10% and 9%** average annual reduction. Another nine capitals – **Sofia, Jerusalem, Bratislava, Madrid, Bucharest, Warsaw, Paris, Copenhagen and Tallin** – follow with better-than-average reductions. On average, over the past decade, road mortality in capital cities has been cut by **4.1%** yearly across Europe. In **Helsinki**, however, the number of people killed on the roads per 100,000 residents has increased slightly (Fig. 23).

*“The reduction of road deaths in Lisbon followed the good reduction in the total number of deaths observed in Portugal over the past decade. The measures implemented so far to increase citizens’ awareness of road safety and to improve the efficiency of the road transport system have had an impact on the capital too.*

*Safe crossing has been enhanced thanks to infrastructure upgrades and improved parking management. Better integration of different public transport modes (rail-metro-bus) contributed also to less dangerous walking journeys. Improvement in the management of emergency calls and in the emergency services contributed to increased efficiency of post-crash care and higher survival rates. Still, there is a huge potential for improvement as the Lisbon City Council has not yet adopted a Road Safety Plan and automatic speed cameras are being installed only slowly.”*

Joao Cardoso, LNEC, Portugal

*“The relatively good performance of several Central and Eastern European capitals, notably Sofia, Bucharest and Bratislava, can be partly attributed to the improvements in pedestrian safety through reduced speed and infrastructure improvements. The boom in motorisation has likely had a positive effect too, as it has led to lower travelling speeds. But more improvements could have been achieved had these cities applied road safety policies more systematically and rigorously.”*

Vojtech Eksler, CDV, Czech Republic

#### 4.1.2 Faster progress since the EU target was adopted

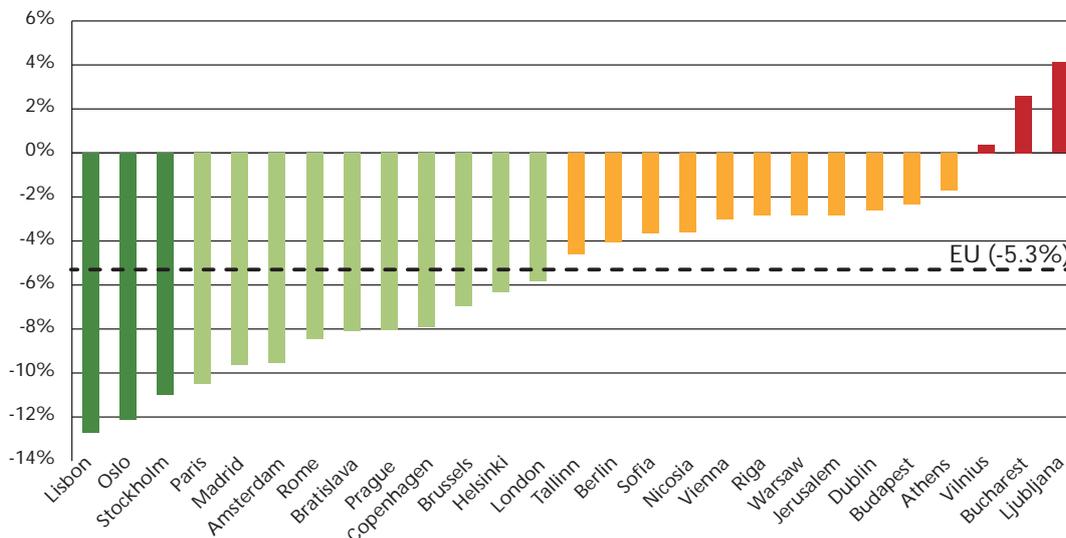


Fig. 24: Average annual percentage change in mortality over the period 2001-2007

The annual average reduction in road deaths per million residents in European capitals since 2001 has been greater than across European countries as a whole, at 5.3% yearly on average compared with about 4.2%. But to reach the EU target, a year-to-year reduction in deaths of at least 7.4% is needed. Altogether 10 capitals have achieved annual reduction of more than 7.4%, thus contributing their share to the European target. Only France, Luxembourg and Portugal have done so at country level.

**Lisbon** and **Oslo**, already among the top three for reductions since 1997, keep their lead position also over 2001-2007. **Stockholm**, ranking only fifteenth in reducing road mortality over the past decade, is catapulted to the 3<sup>rd</sup> position. **Paris** and **Amsterdam** also improved their position, the reduction of deaths in these cities following the good reduction of the total number of deaths at the national level. **Dublin**, in contrast, moves to near the bottom of the league.

*“The main reason for the good performance of Oslo is the reduction of travelling speeds. Our priority now is to further extend 30 km zones in residential areas. We run campaigns targeting the three main killers, as well as raising awareness about the vulnerability of pedestrians. Oslo also conducted a number of road safety inspections and high risk site removal schemes, especially by replacing dangerous crossroads by roundabouts. We have been working actively to make roads near schools safer. An evaluation study also pointed out that 25% of the decrease in serious accidents between 1996 and 2004 was due to the higher proportion of safer cars.<sup>34</sup> We want to continue to focus on measures that we see work so that we can sustain the positive decline in the number of accidents. Our vision is to make Oslo a safe, attractive and environmentally friendly city.”*

Arne Hvamstd, Agency for Road and Transport, City of Oslo

<sup>34</sup> Sakshaug, Lervåg and Engen (2006).

## The indicator

So far, no generally accepted methodology has been developed to benchmark differences in safety levels between cities and overcome methodological obstacles such as - among others - differences in size, function and morphology<sup>35</sup>.

This comparison therefore takes as a starting point the reduction over time in the number of people killed per 100,000 residents. Percentage changes in death rates over time are comparable across cities in so far as the number of deaths and the number of residents refer to the same administrative area and the recording and reporting practices remained consistent over time.

The reader should bear in mind the limitations of this exercise. We have confined comparisons to changes over time, ratios of capital to rest of the country and proportion of pedestrians and cyclists among those killed because our data does not take into account the differences among capital cities in commuting patterns, public transport availability, settlement structures, modal split or proportion of the administrative area that is urbanised.

Numbers of road deaths in capitals were supplied by the PIN Panellist in each country. The dataset is available in the Annex. Numbers of road deaths in Luxembourg and Nicosia are available since 2000 and in Vilnius since 2001. No one has been killed in road traffic in Valletta since 2000. Luxembourg and Bern are excluded from Fig. 23 and 24 because the numbers of person killed per year are below 10 and thus subject to substantial annual fluctuation, representing an obstacle which could not be overcome by the method applied<sup>36</sup>.

Yet road deaths are only part of the picture. Many more people sustain injuries in collisions occurring in cities. Unfortunately the lack of data for some countries and the different definitions of severe injuries together with differing levels of reporting have prevented us from presenting a ranking. We were able, however, to produce an estimation of the changes over time in serious injuries in 16 EU countries and their capitals applying similar definitions of a severe injury, i.e. spending at least one day as an in-patient<sup>37</sup>. Over the past decade, serious injuries per 100,000 residents decreased by 5.7% yearly on average, while serious injuries decreased by only 3.6% in the rest of those countries taken as a whole. For those 16 countries, there were some 9 seriously injured people for one death in cities and 8 seriously injured for one death in the rest of the country.

### 4.1.3 Some EU capitals taking the lead in reducing road deaths

On average, across Europe, road mortality decreased faster in capitals than in the rest of the country. In **Sofia, Dublin and Oslo**, road mortality decreased by more than 6% per year faster than in the rest of the country (Fig. 25). In **Amsterdam, Nicosia, Helsinki, Bern, Rome, Paris, Berlin, Vienna, London, Athens and Brussels**, however, developments in road mortality have not followed the same pace as in the rest of the country.

<sup>35</sup> Wegman et al. (2008), SUNFlowerNext.

<sup>36</sup> See Methodological Note PIN Flash 11 [www.etsc.eu/PIN-publications.php](http://www.etsc.eu/PIN-publications.php).

<sup>37</sup> Countries considered: AT, BE, CZ, DK, EE, ES, FR, EL, HU, NL, PL, PT, RO, SI, SE and the UK.

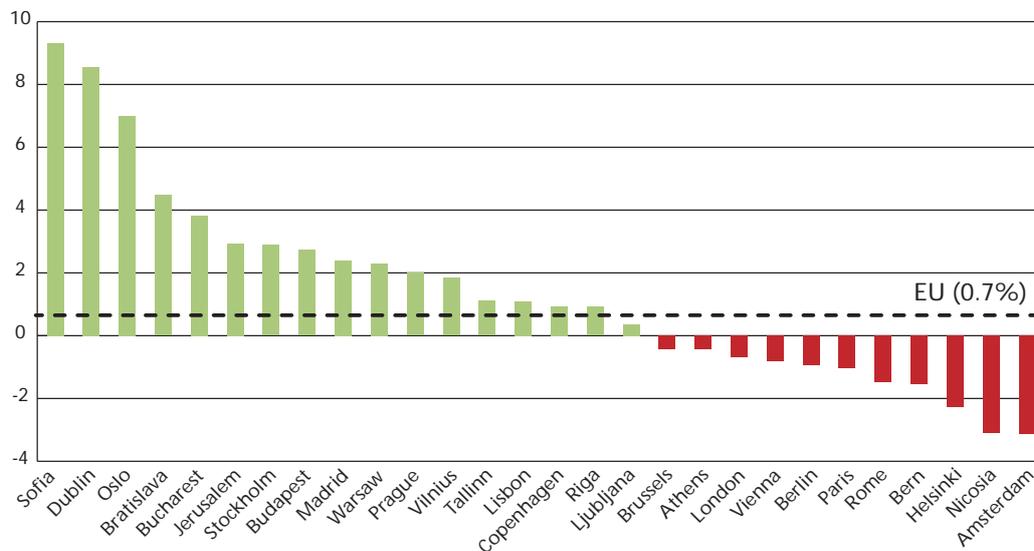


Fig. 25: Amount by which the annual average percentage reduction in road mortality in the capital exceeds that in the rest of the country over the period 1997-2007.

An indicator of the level of safety in capitals relative to that in the rest of their countries is provided by the ratio of road mortality in the capital to that in the rest of the country (Fig. 26). Across Europe the chance of being killed on capital cities' roads is less than half the chance of dying in a road collision in the rest of the country. This is partly because although road crashes in cities are more frequent than elsewhere, they are less violent due to lower travelling speed and thus result in less fatal injuries notwithstanding the larger proportion of vulnerable road users among the victims (see 4.2.3.).

Road users in **Oslo**, **Vienna** and **Madrid** enjoy the lowest ratio of mortality in the capital to mortality in the rest of the country. But the differences described by this ratio should be interpreted with care, given the many kinds of differences already mentioned between the capital cities.

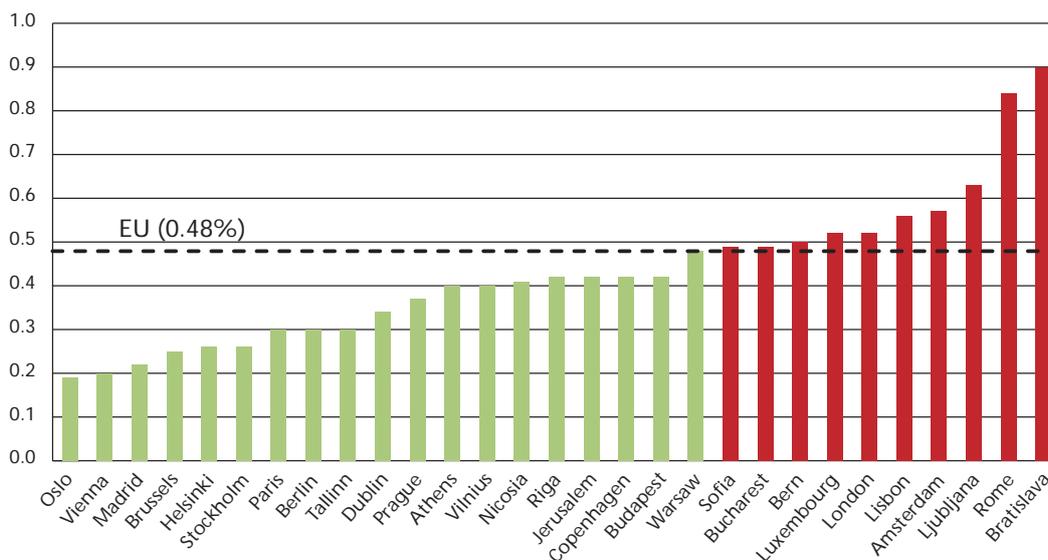


Fig. 26: Ratio of road mortality in the capital to road mortality in the rest of the country, based on the average values for the years 2005, 2006 and 2007

## 4.2 Background

Cities, in particular capital cities, have been focal points in the economic, social and cultural life of Europe throughout its history, since the times of ancient Athens and Rome. The industrial era brought with it a process of urbanisation that has led to a 21<sup>st</sup> century Europe in which the great majority of its citizens live in cities, and most of those who live elsewhere visit them regularly.

Prospering cities have always been concerned for the safety of their citizens and visitors. In earlier times their main concerns were for safety from marauders and from enemy attacks. More recently, these have been replaced by concerns for security from crime and terrorism and about threats to health. A factor these dangers have in common is that they derive from sources that most people are ready to unite against. But in today's cities, the greatest everyday threat to life comes from a source that most people rightly regard as one of the very good features of modern life – the use of motor vehicles.

Capital cities have always been regarded as showcases for their countries. They have long since come to take the lead in numerous areas of public life. Many capitals generate a good deal of the national wealth and command relatively large resources for improving quality of life for their citizens. They can therefore be expected to achieve high levels of safety on their roads and take a lead in improving road safety at the local level. EU capitals are all different, but they face similar challenges and are trying to find common solutions.

### 4.2.1 Making cities safer: the challenges...

Since the risk to life and limb in the road system stems very largely from the use of motor vehicles, the most fundamental challenge is to enable cities to enjoy at least as high a level of prosperity, and their people to enjoy at least as high a quality of life, with fewer vehicle-km driven per year, for example by:

- Promoting localisation of some activities so that they can be reached on foot or by bicycle, or at least by shorter car journeys than before;
- Centralising other activities so that they can be served better by public transport;
- Improving the quality of public transport to extend the range of circumstances in which it is chosen in preference to the car; and
- Discouraging access by car where there are reasonable alternatives.

If people are going to walk, cycle and use public transport more as a result of using cars more selectively (and there are environmental and public health reasons for encouraging this) then cities have to reduce the risks of death and injury while walking or cycling, for example by:

- Creating attractive and convenient routes for the journeys on foot or by bicycle that people would actually like to make – routes with less proximity to motor traffic and safer provision for crossing roads; and
- Moderating the speeds of motor vehicles where these still travel in proximity to people walking and cycling.

However successfully alternatives to car use are encouraged, the amount of motor vehicle use in European capitals is still likely to increase a good deal. A third challenge to cities is therefore to reduce the risks of death and injury for the users of motor vehicles themselves, for example by:

- Matching the use of each road to the functions that the road serves in terms of living space, access and through movement;

- Separating faster vehicles from slower ones and lighter vehicles from heavier ones, and separating vehicles that are making conflicting movements;
- Making the road system self-explaining to its users; and
- Achieving high levels of use of protective devices and understanding of how to drive to reduce risk.

Cities cannot address all these challenges by themselves. They need the right planning, traffic management and fiscal powers from central and regional government, they need traffic law that is clearly enacted by central government and enforced with conviction by the police and the courts, and they need the motor vehicle industry and commercial operators to design injury reduction into the vehicles themselves and into operating practices.

#### 4.2.2 ...and the opportunities: the importance of partnership

Cities that want to reduce death and injury on their roads can look to the experience of others across the EU who have done so or are doing so.

With particular reference to roads and their use in towns and cities, Britain has drawn upon a range of its own and other European countries' experience in formulating principles of *Urban Safety Management* which are also included in our recommendations under 4.3<sup>38</sup>.

#### **Polis - European cities and regions networking for innovative transport solutions**

Polis brings together local and regional authorities and transport organisations from across Europe, including most of European capitals and big cities. Polis supports the exchange of experiences and the transfer of knowledge about innovative transport solutions to promote sustainable and safe mobility. [www.polis-online.org](http://www.polis-online.org)

Polis, in close collaboration with ACEM, the European Motorcycle Industry, is in the process of setting up a European Urban Road Safety Platform. In a near future, this Platform will provide a common database on road accidents in cities and urban areas and best practices on urban road safety policies and local data collection. Some good practices are already available on [www.osmose-os.org](http://www.osmose-os.org).

<sup>38</sup> DfT, TRL, The Institution of Highways and Transportation, *Urban Safety Management Guidelines* (2003).

## EUROCITIES, the network of major European cities

The network brings together the local governments of more than 130 large cities in over 30 European countries. EUROCITIES gives cities a voice in Europe, by engaging in dialogue with the European institutions on a wide range of policy areas including transport and mobility. [www.eurocities.eu](http://www.eurocities.eu)

EUROCITIES actively motivates its Members to sign up to the European Road Safety Charter. Its Working Group on Road Safety provides a platform for its members to share knowledge and ideas, exchange experiences and develop innovative solutions.

EUROCITIES also coordinates together with Climate Alliance and Energie-Cités the European Mobility Week with the support of the European Commission. It is meant to influence mobility and urban transport issues for the long-term, improving health and quality of life of European citizens. [www.mobilityweek.eu/](http://www.mobilityweek.eu/)

## Actions at the EU level

In 2004, the EU launched the initiative of the European Road safety Charter. 21 capitals and more than 300 cities have signed the Charter committing to carry out road safety initiatives over three years (up to 1 October 2008).

To see commitments from capitals: <http://www.erscharter.eu/>

Interested in signing the EU Charter? [charter@paueducation.com](mailto:charter@paueducation.com)

In 2008, the EU adopted a Green Paper “Towards a New Culture of Urban Mobility”. This included certain recommendations specifically targeting road safety.

[http://ec.europa.eu/transport/urban/index\\_en.htm](http://ec.europa.eu/transport/urban/index_en.htm)

Cities were able to promote some of their road safety initiatives at the European Road Safety Day “Road Safety in our cities” organised by the European Commission in Paris on 13 October 2008.

[http://ec.europa.eu/transport/road\\_safety/index\\_en.htm](http://ec.europa.eu/transport/road_safety/index_en.htm).

### 4.2.3 Vulnerable road users: strong actions needed

It is known that pedestrians and cyclists are particularly vulnerable as road users and much of their travel is in cities. Indeed, one out of two road victims in capitals is either a pedestrian or a cyclist. Providing safe mobility in particular to those vulnerable road users presents a major challenge. Only by implementing known countermeasures will it be possible to achieve increases in the use of healthier and more environmentally friendly means of transport and still reduce road deaths and injuries<sup>39</sup>.

On average, 43% of road deaths in capitals are pedestrians, 5% cyclists, 21% PTW users, 26% car occupants.

<sup>39</sup> The EU funded project WALCYNG Final Report proposed a series of recommendations: <http://cordis.europa.eu/transport/src/walcyngrrep.htm>.

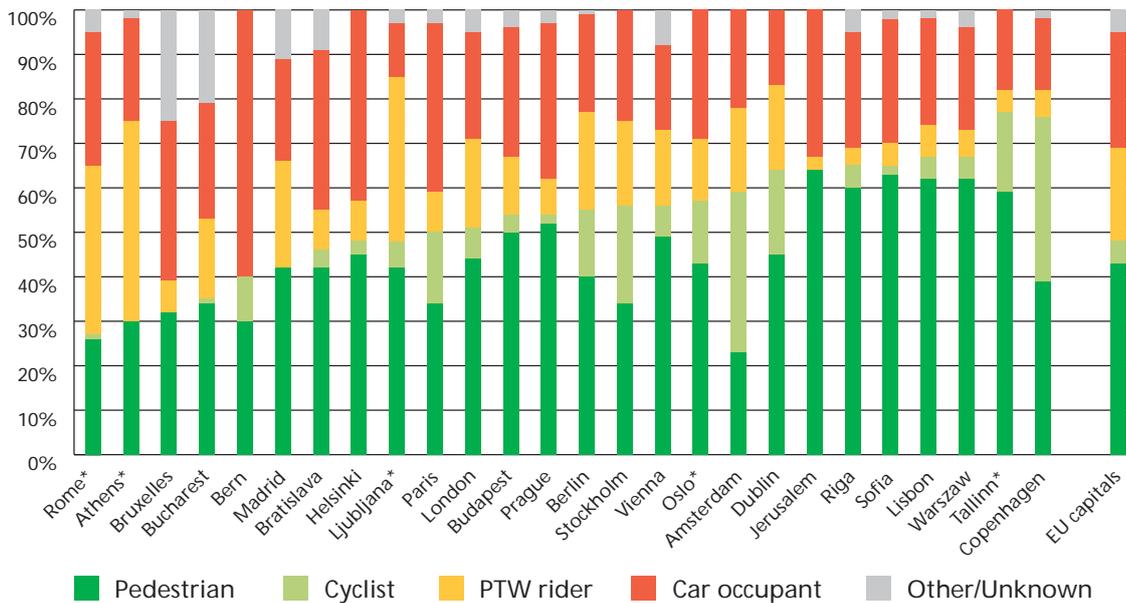


Fig. 27: Distribution of road deaths by road user group

Based on the average values for the year 2004, 2005 and 2006 and ranked according to the share of pedestrians and cyclists together

\* Rome, Oslo, Ljubljana, Tallinn, Athens: average of 2 years used instead of 3 (2005, 2006)

### 4.3 Recommendations

#### Adopt a strategic approach to road safety

- Consider all kinds of road user, especially the most vulnerable;
- Consider the functions and use of different kinds of road;
- Formulate a safety strategy for the city as a whole;
- Relate road safety objectives to other policy objectives for the city;
- Encourage all professional groups to help to achieve road safety objectives;
- Guard against adverse effects of other policies upon road safety;
- Ensure proper enforcement of speed limits through fix and mobile controls
- Translate strategy and objectives into actual local area safety schemes; and
- Monitor and evaluate progress in order to learn from experience and keep the strategy up to date.

#### Promote new patterns of mobility

- Promote localisation of some activities so that they can be reached on foot, by bicycle, or by public transport
- Improve the quality of public transport
- Discourage access by car where there are reasonable alternatives.
- Create attractive and safe routes for the journeys on foot or by bicycle
- Moderate the speeds of motor vehicles where there is still travel in proximity to people walking and cycling
- Promote 30km/h speed limit zones in residential areas.

## 4.4 Interviews

### 4.4.1 The Dublin experience

Dublin achieved the best reduction in the number of people killed over the past decade. Killed people dropped by 70% between 2007 and 1997. Unfortunately progress slowed down over the period 2001-2007. What is the background to this? ETSC has spoken to Michael Byrne, Road Safety Development Officer at the Dublin City Council.

A coordinated approach to tackling road accidents in Dublin began in 1995 with consultations with all concerned citizens and stakeholders including the Police, engineers, educationalists and City Councillors. This resulted in a 1<sup>st</sup> Road Safety Plan in 1996 and another in 1999-2003 to include all the four 'Es' Engineering, Education, Encouragement and Enforcement. This was the first ever strategy

*“Our aim is to achieve a 25% reduction of people killed and seriously injured over 3 years. Still in 2006, 16 people were killed and 746 injured in the City Council area.*

published by any Local Authority in Ireland. The 2005-2007 Plan developed to provide focus over a 3-year period, in line with the national road safety strategy, prioritises speeding, drink-driving and non-use of seat-belt and proposes a range of measures in enforcement, engineering, education and legislation.

*ETSC: What measures have been successful that other cities could learn from?*

One of the most important measures has been fostering a greater team effort by all stakeholders involved and having an overall road safety strategy linked to key performance indicators. Another factor was that the City Council provided ring fenced funding to undertake engineering and education measures.

*ETSC: What measures have been taken in particular to protect vulnerable road users?*

A strategic network of cycle lanes has been created to provide a safe network for cyclists to commute to work and school. A city wide ban on HGVs in the city has improved safety for PTW users, cyclists and pedestrians. Additional pedestrian crossings, improvements to junctions to allow pedestrians to cross safely, extra green time and countdown timers were installed.

*ETSC: Do inhabitants/commuters find themselves safe to travel in your capital city?*

Feedbacks received from some road users groups indicate that they have problems in the city, in particular cyclists. We have therefore appointed a Cycling Officer. Some elderly pedestrians find difficulty crossing some areas of the city. Parents still find difficulty allowing their child walk to school alone not because of traffic but fear of strangers.

*“The next road safety strategy 2009-2012 will shortly go for public consultation and will include measure to further combat crashes involving vulnerable road users.*

But, overall, pedestrians do feel safer crossing Dublin City streets while greater improvements are on-going for cyclists. Car drivers are more aware of pedestrian crossings. They are more aware of been caught while drinking and driving and have a far greater change of been caught for exceeding the speed limit.



Michael Byrne joined the Dublin City Council in 1980 as Road Safety Development Officer. Dublin City Council is the democratically elected organisation that governs Dublin City.

More information on <http://www.dublincity.ie/ROADSANDTRAFFIC/ROADSAFETY/Pages/RoadSafety.aspx>

#### 4.4.2 The Paris experience

##### A concerted effort initiated by the Mayor Delanoë

The City of Paris and the Prefecture are working closely together on preventive and enforcement actions, treating high risk sites and public information. The Prefecture and the City are sharing information about dangerous sites to better target enforcement and engineering measures. Enforcement targeted at the three main killers has increased since 2001. The number of fines imposed on careless motorcyclists and cyclists rose sharply between 2006 and 2007. Following the introduction of the self-service bike hire system Velib in July 2007, the number of daily trips by bikes doubled in 2007 compared to 2006<sup>40</sup>. A 'Monsieur vélo' has been appointed and classes for adults created. A guide of good practices was adopted in partnership with the French Association of Angry Motorcyclists ("Les Motards en colère").

*“Car drivers, riders and cyclists have to understand that because of traffic lights and traffic density, it is illusory to speed in Paris. On average speed of cars was 16km/h in 2006. On the bank holiday 15<sup>th</sup> of August, the average speed was 27km/h<sup>40</sup>. All road users have to integrate this notion of slow traffic and adapt their behavior accordingly.*

Philippe Cauvin, Road Safety Referent, City of Paris.

*“The priority for 2008 and onward is to sustain the high level of checks for speeding, drink driving, seat belt use and use of mobile phones and increase the probability of being prosecuted for high risk offences. In parallel, we will continue our educational work in schools and enterprises and towards elderly people.*

Roland Maucourant, Road safety Advisor for the Paris police.

*“With 37 people killed in central Paris and 127 in the larger administrative area with population about 7 million, an historically low level of deaths was reached in 2007. It might be difficult to sustain these good results in the coming years.*

Jean Chapelon, National Interministerial Road Safety Observatory, France.

<sup>40</sup> Préfecture de police de Paris, Sécurité routière et accidentologie à Paris, Bilan 2007

<http://www.prefecture-police-paris.interieur.gouv.fr/documentation/bilans.htm>

<sup>41</sup> Observatoire des déplacements à Paris, Bilan des déplacements en 2006 à Paris, p. 20, [http://www.paris.fr/portail/deplacements/Portal.lut?page\\_id=7627&document\\_type\\_id=4&document\\_id=26324&portlet\\_id=17647&multileveldocument\\_sheet\\_id=6563](http://www.paris.fr/portail/deplacements/Portal.lut?page_id=7627&document_type_id=4&document_id=26324&portlet_id=17647&multileveldocument_sheet_id=6563).

### 4.4.3 The London experience

Although London has done well in terms of reducing Killed and Seriously Injured (KSI), the figures for fatalities alone are not that good. One reason for this is that with the expansion of cycling, walking and motorcycling, there are many more vulnerable road users than 10 years ago. ETSC has spoken with Chris Lines, Head of Transport for London's Road Safety Unit.

London has seen a huge modal shift in the past decade with many more vulnerable road users. Despite this, London has already reached the 40% KSI reduction target set for 2010. Currently KSIs have fallen 43% lower than the baseline. New targets were set in 2006 to reduce KSIs by 50% by 2010. We are also working to reduce child KSI casualties by 60% by 2010.

*ETSC: What happened to improve the reduction in 2001?*

Transport for London (TfL) was set up in 2001 and the Road Safety Unit in 2002 with a centralised budget. A 1<sup>st</sup> Road Safety Plan was published in 2001 with KSI reduction targets and guidance for working with different partners.

Over the last 8 years we received tremendous support from the previous mayor of London who doubled the budget between 2001 and 2004. The mayor also appointed a special ambassador for London on road safety who worked to raise the profile with Londoners and the media. We also started to work much more on involving the press.

Now, we have over 850 safety cameras in London both checking speed and red light running. They are excellent at cutting road death and serious injury and have halved KSIs at the high risk sites they are placed at. They are only placed on roads where other measures such as infrastructure changes are not possible. We have also run campaigns about safety cameras and are now receiving more letters requesting safety cameras to be put in than complaints from London residents about them.

*ETSC: What was the impact of the Congestion Charge on road safety record in London?*

Before the Congestion Charge was introduced we were worried about a possible increase in KSIs as a result of expected increase of speeds because of less congestion. However the impact has been broadly neutral within the congestion zone itself. The Congestion Charge has certainly made the inner city a nicer place to be for Londoners.

*ETSC: What measures have been successful that others could learn from?*

A generous budget and political backing! Key to success is setting up a road safety plan with targets and measures. It's not rocket science. Running a large targeted campaign with a £1 million budget which allows us to get our ads into cinemas and on TV across London makes a huge difference and is much more likely to have an impact than many smaller campaigns on different issues. We also make sure that all our campaigns are data-led.

“ *Keys to success: political backing, a generous budget and a road safety plan!* ”

*ETSC: What measures have been taken to protect vulnerable road users?*

There has been a huge increase in cyclists in London. One area of our work on improving cyclist safety is raising the awareness of them on the roads, that is, making sure other road users are keeping an eye out for cyclists. One way we are doing this is with our award-winning advertising campaign called 'The Moon-Walking Bear'. We are also investing more in cycle lanes but this takes time and junctions are our main challenge.

There has also been a rapid increase in the number of powered two-wheelers (PTWs) on London's roads. Since 2003 we have been trying to reduce PTW KSIs against this increasing trend: 1286 KSIs in 2001 to 819 KSIs in 2007 but we are a long way from reaching our target of reducing PTW KSIs by 40% by 2010. It is very difficult to engineer infrastructure for PTW safety. Our safety cameras are adapted to also detect PTWs. We also run campaigns on increasing the understanding of other road users about PTWs and that they should look out for them.

*ETSC: How do you work to improve child road safety?*

We run campaigns targeting children at different ages. Our work with children starts with their participation in a free Children's Traffic Club for 3 and 4 year olds. We also work to ensure that road safety traffic education is integrated throughout the school curriculum. A special effort is also made to target children when they change schools at 11 years old and then again just before they start driving at around 16. We also run a special award winning campaign targeting teenagers entitled: "Don't die before you've lived" communicating via internet tools they use such as Beebo and Facebook.

*ETSC: What are the next priorities?*

Pedestrians, making sure pedestrian facilities on and around London's busiest roads are both accessible and meet safety requirements. Also we are trying to make it more pleasant to walk in London. We've also introduced signage for pedestrians (Legible London) encouraging them to walk more in between major landmarks in London. Many people do not simply know how close different parts of London are on foot and undertake complicated interchanges underground on the tube.

*ETSC: What are your plans for further improving London's road safety in the future?*

More use of smart technology. We are now working to introduce more section control cameras. These cameras measure the time it takes a car to enter and exit a road and can therefore measure the average speed and prevents the slow-down/speed-up effect of fixed point safety cameras. We'd also like to use them to enforce the 20 mph limit in residential areas. We have four pilots ready to start. They offer an excellent alternative to infrastructure measures such as road humps.

*“We are now working to introduce section control cameras.”*

TfL is also keen to encourage drivers in London to use Intelligent Speed Adaptation (ISA). A map of all the speed limits in London is available on a website where drivers can download the speed limits onto their Sat-Nav systems. We have one car fitted voluntary ISA already and aim to have 20 fitted by mid 2009. We also want to inform the media about the benefits of this technology. If a car can tell you the temperature outside then we should also use the technology that allows us to tell the speed limit on the road we are on!

*“TfL is fitting some of its car fleet with voluntary Intelligent Speed Adaptation to test it out.”*



Chris Lines joined Transport for London in February 2003 as Head of the London Road Safety Unit. The Unit has 4 main areas of activity – updating and producing casualty; funding and managing road safety engineering works on the TfL road network and borough roads via the Borough Partnership; developing pan-London Education Training and Publicity initiatives; and managing the London Safety Camera Partnership.

The Road Safety Plan for London is available on <http://www.tfl.gov.uk/corporate/projectsandschemes/2289.aspx>

## 5| Recommendations

### 5.1 General recommendations

#### *To Member States*

- Improve reliability and comparability of indicators using SafetyNet recommendations
- Regularly monitor road user behaviour according to latest standards
- Communicate compliance data to relevant stakeholders
- Use the data to monitor achievements and identify shortcomings to be addressed
- Set quantitative targets based on compliance indicators
- Seek to reach these targets by all available means, including applying proven enforcement strategies according to the EC Recommendation on enforcement.

#### *To EU Institutions*

- Adopt a new European Road Safety Action Plan for the period 2010 to 2020 which would propose a European vision, quantitative targets, a strategy and accompanying measures.
- Use the evidence gathered under the Road Safety PIN to devise relevant policies including European standards on traffic law enforcement and road safety management
- Support the implementation of in-car enforcement technologies such as seat belt reminders, alcolocks and Intelligent Speed Assistance technologies.
- Support countries in setting up data collection and evaluation procedures
- Stimulate the use of harmonised protocols for accident, exposure and performance indicator data

### 5.2 Vehicle safety

#### *To Member States and the EU:*

- Revise legislation on advertisement of cars requiring inclusion of CO2 emission level to require also the inclusion of the Euro NCAP test results when they are available (“Stars on cars!”).
- Regularly monitor developments in passive and active safety technologies for market penetration and/or eventual legislation.
- Fund accident studies to compare the injuries caused by car models with good and bad bonnet leading edges identified in Euro NCAP tests.
- Adopt the ITS Directive promoting technologies and systems that bring about the greatest life saving potential.
- Ensure that robust in-vehicle safety technologies are mandated in new legislation (as it is the case for ESC). This would prevent such safety technologies being sold as standard in one EU country whilst being offered only as an option or not at all in another.
- Set strict safety requirements (5 star Euro NCAP cars) for the purchase of new cars under scrappage schemes.
- Provide tax incentives for purchase and use of safe cars (5 star Euro NCAP cars).
- Revise legislation on the promotion of clean and energy-efficient road transport vehicles so that public bodies consider safety ratings when purchasing new cars.

#### *To Euro NCAP:*

- Extend its membership to countries and organisations from Central and Eastern Europe (CEE) to raise awareness among CEEC customers.
- Mobilise media, Euro NCAP member organisations, fleet buyers, rental car companies, insurers and consumer groups to reach out to more consumers in an attempt to close the vehicle safety gap between EU countries.

### **5.3 Child safety**

#### *To Member States*

- Adopt a separate target for reducing deaths amongst children and accompanying measures.
- Strengthen the emergency medical care and rehabilitation services and ensure that they are designed and equipped with the needs of children in mind.

#### *Road environment:*

- Design road environments in ways that recognise children's capabilities and limitations. This will also benefit other road users, in particular older road users.
- Implement 30 km/h zones together with traffic calming measures to reduce vehicle speeds in residential areas, on the way to schools and around bus stops.
- Implement safe bicycle infrastructure separated from motorised traffic to make cycling to school safer.
- Design parking areas to minimise opportunities for walking behind cars that may reverse.

#### *Safety equipment:*

- Enforce child restraint and seat belt legislation.
- Make rear facing seats mandatory for children up to 4 years of age.
- Increase parental awareness of the importance of child restraints and increase their availability and affordability.
- Promote the use of bicycle helmets by children.
- Improve the visibility of children when walking or cycling.  
(e.g.: promote the use of retro-reflecting clothing or stripes).

#### *Education, training and publicity:*

- Shift the focus of responsibility for child road safety more towards drivers.
- Increase drivers' awareness of children's limitations.

#### *To EU institutions*

- Adopt a separate target for reducing road deaths among children and accompanying measures.
- Make rear facing seats mandatory for children up to 4 years of age.
- Launch a special effort to increase the use of child safety restraints in all EU countries. Health and community non-governmental organisations could be encouraged to include seat belt wearing information in their programmes.
- Make the fitting of ISOFIX child restraint anchorages mandatory in vehicle type approval;
- Adopt the Cross border enforcement Directive to encourage high levels of enforcement of use of seat belt and child safety restraints.
- Implement swiftly the EC's commitment to prioritise actions improving child safety in its proposed ITS Action Plan and Directive.

#### *To car manufacturers*

- Install advanced seat belt reminders on all seats.
- Accelerate the introduction of other in-vehicle technologies (alcohol-interlock systems, Intelligent Speed Assistance).
- Improve the design of vehicles so that the injuriousness of any impact with pedestrians and cyclists is reduced.
- Invest more in pedestrian protection to reflect the new rating from Euro NCAP.
- Install obstacle detectors (e.g. reversing radars, reversing cameras) in all buses and heavy vehicles.

## 5.4 Safety in cities

#### *To capitals (and other cities)*

##### *Adopt a strategic approach to road safety*

- Consider all kinds of road user, especially the most vulnerable.
- Consider the functions and use of different kinds of road.
- Formulate a safety strategy for the city as a whole.
- Relate road safety objectives to other policy objectives for the city.
- Encourage all professional groups to help to achieve road safety objectives.
- Guard against adverse effects of other policies upon road safety.
- Secure effective enforcement of speed limits through fixed and mobile controls.
- Translate strategy and objectives into actual local area safety schemes and monitor and evaluate progress in order to learn from experience and keep the strategy up to date.

##### *Promote new patterns of mobility*

- Moderate the speeds of vehicles where these still travel in proximity to people walking and cycling.
- Promote 30km/h speed limit zones in residential areas.
- Improve the quality of public transport.
- Promote localisation of some activities so that they can be reached on foot, by bicycle, or by public transport.
- Create attractive and safe routes for the journeys on foot or by bicycle.
- Discourage access by car where there are reasonable alternatives.

#### *To Member States*

- Promote the extension, quality and use of public transport
- Provide cities with planning, traffic management and fiscal powers to be able to achieve the above recommendations to cities

#### *To EU institutions*

- Adopt an EU White Paper on urban mobility calling for strong action on road safety reflecting the above recommendations to cities
- Prioritise actions to improve the safety of pedestrians and cyclists in its 4th Road Safety Action Programme

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*Web links accessed on 9 June 2009.*

# Annex - Chapter 1

	2001	2002	2003	2004	2005	2006	2007	2008	2001-2008 (in %)
Luxembourg	69	62	53	49	46	36	43	35	-49
France	8,162	7,655	6,058	5,530	5,318	4,703	4,620	4,275	-48
Portugal	1,670	1,668	1,542	1,294	1,247	969	974	885	-47
Spain	5,517	5,347	5,399	4,741	4,442	4,104	3,823	3081*	-44
Latvia	558	559	532	516	442	407	419	316	-43
Belgium	1,486	1,306	1,214	1,162	1,089	1,069	1,067	922*	-38
Germany	6,977	6,842	6,613	5,842	5,361	5,091	4,949	4467*	-36
Switzerland	544	513	546	510	409	370	384	357	-34
Estonia	199	223	164	170	169	204	196	132	-34
Italy	7,096	6,980	6,563	6,122	5,818	5,669	5,131	4739*	-33
Ireland	411	376	335	374	396	365	338	279	-32
The Netherlands <sup>(1)</sup>	1,083	1,069	1,088	881	817	811	791	750	-31
Lithuania	706	697	709	752	773	760	739	498	-29
Austria	958	956	931	878	768	730	691	679	-29
Sweden	551	532	529	480	440	445	471	397	-28
UK	3,598	3,581	3,658	3,368	3,337	3,300	3,056	2718*	-24
Israel	542	525	445	467	437	405	382	412	-24
Slovenia	278	269	242	274	258	262	293	214	-23
Finland	433	415	379	375	379	336	380	343*	-21
Hungary	1,239	1,429	1,326	1,296	1,278	1,303	1,230	996	-20
Czech Republic	1,334	1,431	1,447	1,382	1,286	1,063	1,222	1,076	-19
Cyprus	98	94	97	117	102	86	89	82	-16
Greece	1,880	1,634	1,605	1,670	1,658	1,657	1,612	1593*	-15
Denmark	431	463	432	369	331	306	406	392*	-9
Norway	275	310	280	257	224	243	233	256*	-7
Malta	16	16	16	13	17	11	14	15*	-6
Poland	5,534	5,827	5,640	5,712	5,444	5,243	5,583	5,437	-2
Slovakia	614	610	645	603	560	579	627	606	-1
Bulgaria	1,011	959	960	943	957	1,043	1,006	1,061	5
Romania	2,454	2,414	2,232	2,446	2,623	2,573	2,794	3,063	25
PIN	55,724	54,762	51,681	48,601	46,426	44,143	43,563	40,076	-28
EU27	54,363	53,414	50,410	47,367	45,356	43,125	42,564	39,051	-28
EU25	50,898	50,041	47,218	43,978	41,776	39,509	38,764	34,927	-31
EU15	40,322	38,886	36,400	33,143	31,447	29,591	28,352	25,555	-37
EU10	10,576	11,155	10,818	10,835	10,329	9,918	10,412	9,372	-11
EU2 <sup>(2)</sup>	3,465	3,373	3,192	3,389	3,580	3,616	3,800	4,124	19

**Table 1. Percentage change in road deaths between 2001 and 2008**  
(Chapter 1 -Fig. 1)

Source: National statistics provided by the PIN panelists in each country

Note: Figures in *italic* are different from CARE

\* Provisional figures or national estimates for 2008 as final figures for 2008 were not yet available at the time of going to print  
Belgium: Estimate based on the number of killed people on the spot (834) from Baromètre de la sécurité routière

<sup>(1)</sup> Figures have been corrected for police underreporting. In The Netherlands, the reported number of fatalities is checked by Statistics Netherlands (CBS) and compared individually to the Death certificates and Court files of unnatural death. This results in the real number of road traffic fatalities, which is about 10% higher than the police reported number.

Underreporting is highest among bicyclists and non-motorvehicle accidents

<sup>(2)</sup> Romania and Bulgaria

	2001	2002	2003	2004	2005	2006	2007	2008	2007-2008 (in %)
Estonia	199	223	164	170	169	204	196	132	-33
Lithuania	706	697	709	752	773	760	739	498	-33
Slovenia	278	269	242	274	258	262	293	214	-27
Latvia	558	559	532	516	442	407	419	316	-25
Spain*	5,517	5,347	5,399	4,741	4,442	4,104	3,823	3081*	-19
Hungary	1,239	1,429	1,326	1,296	1,278	1,303	1,230	996	-19
Luxembourg°	69	62	53	49	46	36	43	35	-19
Ireland	411	376	335	374	396	365	338	279	-17
Sweden	551	532	529	480	440	445	471	397	-16
Belgium*	1,486	1,306	1,214	1,162	1,089	1,069	1,067	922*	-14
Czech Republic	1,334	1,431	1,447	1,382	1,286	1,063	1,222	1,076	-12
UK*	3,598	3,581	3,658	3,368	3,337	3,300	3,056	2718*	-11
Germany	6,977	6,842	6,613	5,842	5,361	5,091	4,949	4467*	-10
Finland*°	433	415	379	375	379	336	380	343*	-10
Portugal	1,670	1,668	1,542	1,294	1,247	969	974	885	-9
Cyprus	98	94	97	117	102	86	89	82	-8
Italy*	7,096	6,980	6,563	6,122	5,818	5,669	5,131	4739*	-8
France	8,162	7,655	6,058	5,530	5,318	4,703	4,620	4,275	-7
Switzerland	544	513	546	510	409	370	384	357	-7
The Netherlands°	1,083	1,069	1,088	881	817	811	791	750	-5
Denmark*°	431	463	432	369	331	306	406	392*	-3
Slovakia°	614	610	645	603	560	579	627	606	-3
Poland°	5,534	5,827	5,640	5,712	5,444	5,243	5,583	5,437	-3
Austria°	958	956	931	878	768	730	691	679°	-2
Greece*°	1,880	1,634	1,605	1,670	1,658	1,657	1,612	1593*	-1
Bulgaria°	1,011	959	960	943	957	1,043	1,006	1,061	5
Malta*°	16	16	16	13	17	11	14	15*	7
Israel°	542	525	445	467	437	405	382	412	8
Romania	2,454	2,414	2,232	2,446	2,623	2,573	2,794	3,063	10
Norway*°	275	310	280	257	224	243	233	256*	10
PIN	55,724	54,762	51,681	48,601	46,426	44,143	43,563	40,076	-8
EU27	54,363	53,414	50,410	47,367	45,356	43,125	42,564	39,051	-8
EU25	50,898	50,041	47,218	43,978	41,776	39,509	38,764	34,927	-10
EU15	40,322	38,886	36,400	33,143	31,447	29,591	28,352	25,555	-10
EU10	10,576	11,155	10,818	10,835	10,329	9,918	10,412	9,372	-10
EU2	3,465	3,373	3,192	3,389	3,580	3,616	3,800	4,124	9

**Table 2. Percentage change in road deaths between 2007 and 2008**  
(Chapter 1 -Fig. 4)

Source: National statistics provided by the PIN panelists in each country  
Figures in *italic* are different from CARE

\* Provisional figures or national estimates for 2008 as final figures for 2008 were not yet available at the time of going to print  
° In these countries the changes in numbers of deaths between 2007 and 2008 are small enough to have arisen from random fluctuation without any change in the underlying road death rate.

	2008			2001		
	Road deaths	Population	Road deaths per million population	Road deaths	Population	Road deaths per million population
Malta	15*	410	37	16	391	41
Sweden	397	9,183	43	551	8,883	62
UK	2718*	61,186	44	3,598	59,000	61
The Netherlands	750	16,405	46	1,083	15,987	68
Switzerland	357	7,593	47	544	7,204	76
Norway	256	4,737	54	275	4,503	61
Germany	4467*	82,218	54	6,977	82,260	85
Israel	412	7,290	57	542	6,509	83
Ireland	279	4,401	63	411	3,847	107
Finland	343*	5,300	65	433	5,195	83
Spain	3081*	45,283	68	5,517	40,477	136
France	4,275	61,876	69	8,162	60,915	134
Denmark	392*	5,476	72	431	5,349	81
Luxembourg	35	484	72	69	439	157
Italy	4739*	59,619	79	7,096	56,961	125
Austria	679	8,332	81	958	8,021	119
Portugal	882	10,618	83	1,670	9,780	171
Belgium	922*	10,667	86	1,486	10,263	145
Estonia	132	1,341	98	199	1,367	146
Hungary	996	10,045	99	1,239	10,200	121
Czech Republic	1,076	10,381	104	1,334	10,267	130
Cyprus	82	789	104	98	698	140
Slovenia	214	2,026	106	278	1,994	139
Slovakia	606	5,401	112	614	5,379	114
Bulgaria	1,061	7,640	139	1,011	7,929	128
Latvia	316	2,271	139	558	2,364	236
Greece	1593*	11,214	142	1,880	10,931	172
Romania	3,063	21,529	142	2,454	21,876	112
Poland	5,437	38,116	143	5,534	38,254	145
Lithuania	498	3,366	148	706	3,487	202
PIN	40,076	515,197	78	55,724	500,730	111
EU27	39,051	495,577	79	54,363	482,513	113
EU25	34,927	466,408	75	50,898	452,708	112
EU15	25,555	392,262	65	40,322	378,307	107
EU10	9,372	74,146	126	10,576	74,401	142
EU2	4,124	29,169	141	3,465	29,805	116

**Table 3. Road deaths per million population in 2008 (with road deaths per million population in 2001 for comparison)**  
(Chapter 1 -Fig. 5)

Sources: National statistics provided by the PIN panelists in each country. Population figures from Eurostat database.

\* Provisional figures or national estimates for 2008 as final figures for 2008 were not yet available at the time of going to print

## Annex - Chapter 2

	5-star cars	4-star cars	3-star cars	2-star cars	non-tested cars
SE	64%	27%	2%	0%	7%
IE	62%	26%	2%	0%	9%
NO	62%	31%	0%	0%	7%
FIN	60%	29%	1%	0%	9%
FR	59%	32%	5%	0%	4%
PT	59%	34%	3%	1%	4%
LU	59%	29%	3%	0%	10%
ES	58%	30%	5%	1%	6%
BE	57%	32%	4%	0%	7%
DE	55%	30%	4%	0%	10%
UK	54%	31%	7%	0%	7%
AT	52%	33%	6%	1%	8%
SI	52%	37%	3%	1%	7%
NL	52%	35%	7%	0%	7%
CH	49%	33%	5%	0%	13%
PL	48%	37%	5%	2%	8%
IT	47%	27%	15%	4%	6%
DK	46%	42%	6%	0%	6%
LT	43%	37%	5%	0%	14%
EE	43%	40%	2%	1%	14%
LV	40%	38%	2%	1%	20%
EL	39%	42%	6%	1%	12%
HU	38%	45%	4%	3%	10%
BG	34%	37%	13%	2%	14%
SK	32%	51%	5%	2%	11%
CZ	29%	50%	5%	1%	15%
IL	29%	46%	1%	3%	22%
RO	25%	27%	34%	2%	12%
EU	53%	31%	7%	1%	8%

**Table 4. Occupant protection of new passenger cars sold in 2008.**

Proportion of cars awarded 5, 4, 3 and 2 stars and proportion of non-tested passenger cars, ranked by the number of cars awarded 5 stars. None of the cars tested in 2008 was awarded 1 star only.  
(Chapter 2 -Fig.7)

*Note: Cyprus and Malta are excluded from Fig. 7 as the proportion of non-tested cars represented more than 50% of the new cars sold in 2008.*

Source: R.L. Polk Marketing Systems GmbH - Vehicle sales data by model and by country in 2008 (January to September) and Euro NCAP for Euro NCAP scores and star rating

	4-star cars	3-star cars	2-star cars	1-star cars	non-tested cars
HU	0%	32%	35%	22%	11%
PT	0%	28%	38%	30%	4%
ES	0%	27%	39%	28%	7%
IL	0%	26%	37%	15%	22%
EL	0%	26%	41%	21%	12%
EE	0%	25%	37%	23%	15%
SI	0%	24%	42%	27%	8%
SK	0%	23%	50%	16%	11%
PL	0%	23%	45%	23%	9%
NO	0%	23%	48%	22%	7%
NL	0%	23%	44%	26%	7%
IE	0%	23%	43%	24%	10%
FR	0%	23%	44%	29%	4%
FI	0%	22%	47%	21%	10%
UK	0%	22%	39%	32%	8%
DK	0%	21%	52%	21%	6%
AT	0%	21%	44%	27%	9%
LT	0%	20%	39%	25%	16%
LV	0%	19%	37%	22%	21%
DE	0%	19%	40%	30%	11%
IT	0%	19%	46%	29%	7%
CH	0%	19%	40%	28%	13%
BE	0%	18%	45%	30%	7%
LU	0%	18%	39%	33%	10%
BG	0%	16%	40%	30%	14%
CZ	0%	14%	54%	15%	16%
SE	0%	14%	53%	25%	7%
RO	0%	13%	31%	44%	13%
<b>EU</b>	<b>0%</b>	<b>21%</b>	<b>42%</b>	<b>29%</b>	<b>8%</b>

**Table 5. Pedestrian protection of new passenger cars sold in 2008.**

Proportion of cars awarded 3, 2 and 1 star and proportion of non-tested passenger cars, ranked by the number of cars awarded 3 stars.  
(Chapter 2 -Fig.9)

*Note: Cyprus and Malta excluded from Fig. 9 because of their high proportions of non-tested new cars.*

Source: R.L. Polk Marketing Systems GmbH - Vehicle sales data by model and by country in 2008 (January to September) and Euro NCAP for Euro NCAP scores and star rating

	5-star cars	4-star cars	3-star cars	2-star cars	non-tested cars
NO	0%	61%	19%	0%	20%
FI	0%	60%	17%	0%	23%
IE	0%	56%	19%	0%	24%
SE	0%	56%	16%	0%	28%
EE	0%	53%	20%	0%	26%
LT	0%	52%	19%	3%	26%
ES	0%	51%	22%	1%	26%
PT	0%	51%	25%	0%	24%
LV	0%	48%	21%	1%	30%
LU	0%	48%	25%	0%	27%
AT	0%	47%	25%	1%	27%
DE	0%	47%	25%	1%	27%
BE	0%	46%	26%	1%	27%
UK	0%	46%	26%	0%	27%
NL	0%	45%	30%	2%	23%
PL	0%	45%	26%	3%	26%
FR	0%	45%	28%	1%	26%
SI	0%	45%	24%	1%	30%
CH	0%	42%	27%	1%	30%
DK	0%	41%	34%	1%	23%
EL	0%	40%	27%	2%	31%
IL	0%	40%	32%	0%	28%
HU	0%	39%	32%	0%	29%
CZ	0%	37%	30%	1%	32%
BG	0%	35%	28%	0%	36%
SK	0%	35%	30%	0%	34%
RO	0%	30%	38%	1%	31%
IT	0%	29%	33%	7%	30%
<b>EU</b>	<b>0%</b>	<b>44%</b>	<b>27%</b>	<b>2%</b>	<b>27%</b>

**Table 6. Child protection of new passenger cars sold in 2008.**

(Proportion of cars awarded 4, 3 and 2 stars and proportion of non-tested passenger cars, ranked by the number of cars awarded 4 stars. None of the cars tested in 2008 were awarded 5 stars for child protection.

(Chapter 2 - Fig. 11)

*Note: Child protection scores are not available for 27% of new cars sold. Differences in this percentage between countries can influence the ranking.*

Source: R.L. Polk Marketing Systems GmbH - Vehicle sales data by model and by country in 2008 (January to September) and Euro NCAP for Euro NCAP scores and star rating

	SBR on all seats	SBR on front seats	SBR on driver seat	No SBR	Non-tested cars
IL	19%	36%	12%	11%	22%
EE	19%	41%	11%	15%	14%
FR	18%	29%	29%	21%	4%
FI	18%	51%	7%	15%	9%
NO	18%	58%	5%	12%	7%
LT	17%	39%	9%	21%	14%
ES	15%	41%	15%	21%	6%
LU	15%	43%	15%	17%	10%
SE	15%	55%	8%	15%	7%
BE	15%	39%	19%	21%	7%
IE	15%	51%	11%	14%	9%
PT	15%	42%	20%	19%	4%
LV	14%	41%	9%	16%	20%
DK	14%	37%	23%	21%	6%
SI	13%	36%	19%	24%	7%
AT	13%	43%	14%	22%	8%
DE	13%	46%	13%	18%	10%
CH	13%	41%	15%	19%	13%
NL	13%	39%	23%	18%	7%
UK	12%	42%	18%	20%	7%
EL	11%	34%	19%	24%	12%
PL	11%	43%	15%	23%	8%
SK	10%	32%	14%	33%	11%
IT	9%	37%	17%	31%	6%
BG	8%	34%	11%	33%	14%
CZ	8%	37%	11%	28%	15%
HU	8%	33%	21%	27%	10%
RO	7%	21%	8%	52%	12%
<b>EU</b>	<b>13%</b>	<b>40%</b>	<b>18%</b>	<b>22%</b>	<b>8%</b>

**Table 7. Seat belt reminders in new passenger cars sold in 2008.**

Proportion of cars awarded 3, 2, 1 and 0 point and proportion of non-tested passenger cars, ranked by the number of cars awarded 3 points for seat belt reminders.  
(Chapter 2 - Fig. 12)

Source: R.L. Polk Marketing Systems GmbH - Vehicle sales data by model and by country in 2008 (January to September) and Euro NCAP for Euro NCAP scores and star rating

## Annex - Chapter 3

Country	Children (0-14)* road deaths											
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
AT	51	34	43	37	27	26	25	37	22	25	23	13
BE	53	54	87	65	52	63	37	32	26	37	32	30
BG	NA	NA	NA	NA	41	38	37	35	43	28	32	30
CY	5	0	3	9	4	1	2	3	1	5	2	4
CZ	45	67	39	48	54	38	46	38	27	41	32	25
DK	37	24	20	38	25	21	14	22	20	13	13	20
EE	23	18	11	15	7	14	11	4	8	12	6	6
FI	31	34	16	26	20	19	18	22	13	21	5	14
FR	392	381	366	333	343	284	246	210	179	143	131	164
DE*	358	311	304	317	240	231	216	208	153	159	136	111
EL	75	71	56	54	40	47	47	45	43	44	36	42
HU	51	46	42	50	44	37	52	33	39	34	43	37
IE	25	27	34	23	22	26	18	16	7	9	16	16
IL	54	58	56	51	46	62	47	48	56	35	46	28
IT	173	158	134	143	136	187	196	148	124	131	110	95
LV	28	21	33	18	16	17	22	16	6	12	12	11
LT	NA	NA	NA	NA	NA	NA	NA	NA	17	34	31	NA
LU	2	4	2	2	3	4	3	1	0	4	1	2
MT*	NA	NA	NA	NA	NA	0	0	0	0	3	0	NA
NL	66	66	47	77	56	48	37	64	35	31	37	36
NO	17	19	16	19	20	7	15	20	10	4	10	10
PL	357	402	352	292	262	239	264	231	228	165	151	156
PT**	122	121	127	81	75	56	63	55	48	31	22	27
RO	NA	NA	NA	242	184	187	188	117	164	136	137	112
SK	NA	NA	NA	NA	NA	NA	28	19	28	16	10	25
SI	14	14	12	12	8	4	3	3	6	9	7	3
ES	192	183	202	203	181	159	147	153	124	121	115	108
SE	21	24	25	37	19	18	18	21	14	10	16	10
CH	36	30	42	42	28	22	21	23	23	14	16	14
UK	224	240	213	202	171	192	160	145	147	125	140	91
<b>EU-27</b>	<b>2,345</b>	<b>2,300</b>	<b>2,168</b>	<b>2,324</b>	<b>2,030</b>	<b>1,956</b>	<b>1,898</b>	<b>1,678</b>	<b>1,522</b>	<b>1,399</b>	<b>1,296</b>	<b>1,188</b>
<b>PIN</b>	<b>2,452</b>	<b>2,407</b>	<b>2,282</b>	<b>2,436</b>	<b>2,124</b>	<b>2,047</b>	<b>1,981</b>	<b>1,769</b>	<b>1,611</b>	<b>1,452</b>	<b>1,368</b>	<b>1,240</b>

**Table 8. Children (0-14) road deaths**

Source: National statistics supplied by PIN Panelists in each country

\* Children aged 0 to 14 (included) are considered except for Germany (0 to 15) and Malta (1 to 10).

\*\*Portugal: children killed in the islands of Madeira and Açores are not included

Country	Children road deaths per 1,000,000 children population / Year											Average annual % change in child road mortality (1998-2007)
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
PT	75	80	51	48	36	41	35	31	20	14	18	-14.9%
FR	33	32	29	30	24	21	18	15	12	11	14	-10.3%
SI	40	35	37	25	13	10	10	21	31	25	11	-10.2%
CH	24	34	34	22	18	17	19	19	12	13	12	-10.1%
IE	32	41	28	27	31	22	19	8	11	19	18	-9.9%
BE	30	48	36	29	35	20	18	14	21	18	17	-9.9%
LT*	NA	NA	NA	NA	NA	NA	NA	28	58	55	58	-9.2%
SE	14	15	22	12	11	11	13	9	6	10	6	-9.1%
DE	24	23	24	19	18	17	17	13	13	12	10	-8.4%
NO	22	18	22	22	8	17	22	11	4	11	11	-8.4%
SK*	NA	NA	NA	NA	0	28	19	30	17	11	29	-8.3%
FI	35	17	27	21	20	19	24	14	23	6	16	-7.6%
DK	26	21	39	25	21	14	22	20	13	13	20	-7.6%
NL	23	16	26	19	16	12	21	12	10	12	12	-7.3%
UK	21	19	18	15	17	14	13	13	12	13	8	-6.5%
AT	24	31	27	20	19	19	28	17	19	18	10	-6.4%
ES	29	33	34	30	27	25	25	20	19	18	17	-6.4%
LU	52	25	25	37	48	36	12	0	47	12	23	-6.3%
EE	64	41	58	28	58	47	18	37	58	30	30	-5.6%
PL	48	43	37	35	33	38	34	35	26	24	26	-5.6%
LV	43	70	40	37	41	56	43	17	35	37	35	-5.3%
IL	34	32	29	26	34	25	25	29	18	23	14	-5.3%
RO*	0	0	57	44	46	49	32	46	40	41	26	-4.4%
EL	39	32	31	24	28	29	28	27	28	23	34	-4.0%
CH	36	22	27	32	23	28	24	17	27	21	17	-3.7%
CY	0	19	56	25	6	13	20	7	35	14	29	-3.7%
IT	19	16	18	17	23	24	18	15	16	13	11	-1.8%
HU	25	23	28	25	22	31	20	24	22	28	24	-0.6%
BG*	NA	NA	NA	32	30	31	31	39	26	31	29	-0.3%
MT	NA	NA	NA	NA	NA	NA	NA	NA	42	NA	NA	NA
PIN	30	29	28	27	24	23	22	20	21	18	16	-6.9%
EU-27	30	29	28	27	24	23	22	20	21	18	16	-6.9%

**Table 9. Average annual percentage change in road mortality among children aged 0-14 over the past decade (1998-2007)**  
(Chapter 3 - Fig. 16)

Source: National statistics supplied by PIN Panelists in each country  
Children aged 0 to 14 (included) are considered except for Germany (0 to 15) and Malta (1 to 10).

\* Bulgaria (2001-2007), Lithuania (2005-2007), Romania (2000-2007), Slovakia (2003-2007)  
Malta and Cyprus are excluded from Fig. 16 because the numbers of deaths in those countries are so small as to be subject to substantial random fluctuation.

For the estimation of the average annual reduction, a three years moving average method is used.  
See PIN Flash 12 Methodological Note on [www.etsc.eu/PIN-publications.php](http://www.etsc.eu/PIN-publications.php)

Country	Children (0-14)
SE	8
NO	9
UK	11
DE	12
NL	12
CH	12
FR	12
IT	14
MT	14
FI	15
DK	15
AT	16
IE	16
PT	17
ES	18
IL	18
BE	18
SK	19
CZ	22
SI	22
HU	24
PL	25
EL	25
CY	26
LU	27
BG	29
LV	35
RO	38
EE	39
LT*	57
<b>PIN</b>	<b>16</b>
<b>EU-27</b>	<b>16</b>

**Table 10. Road mortality among children.**  
Average values for years 2005, 2006, 2007  
(Chapter 3 - Fig. 18)

Source: National statistics supplied by PIN Panelists in each country  
Children aged 0 to 14 (included) are considered except for Germany  
(0 to 15) and Malta (1 to 10).

\* LT (2006-2007)

## Annex - Chapter 4

Capital city	Road deaths in capital cities per 100,000 resident capitals' population / Year											Average yearly % change in road mortality in capital cities over the period 1997-2007
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Dublin	10.9	8.2	5.5	5.3	2.8	3.4	2.6	5.2	3.8	3.8	2.2	-12.2%
Lisbon	16.5	15.1	15.0	13.2	10.4	10.0	10.1	6.5	7.9	4.9	4.3	-10.1%
Oslo	1.6	2.6	3.2	1.2	2.9	2.1	2.1	1.1	0.6	0.7	1.8	-9.4%
Sofia	12.8	12.0	9.0	6.9	9.2	8.3	7.5	6.5	6.8	7.5	6.3	-7.2%
Jerusalem	4.5	4.1	4.6	4.6	2.1	3.1	2.7	4.1	1.9	2.3	3.6	-7.0%
Bratislava	20.2	21.1	14.3	17.4	14.9	16.6	9.4	17.4	10.6	12.7	6.6	-6.8%
Madrid	4.9	4.9	3.3	3.7	4.0	4.0	3.4	2.8	2.0	2.0	2.7	-6.0%
Bucharest	7.9	8.1	6.9	5.0	5.9	4.9	4.7	5.2	6.8	5.9	6.3	-5.0%
Warsaw	10.6	11.9	11.9	8.3	7.8	7.9	7.3	8.4	7.5	6.4	6.5	-5.0%
Paris	4.5	4.2	4.4	3.1	5.3	3.5	2.5	2.3	2.5	3.0	1.7	-4.9%
Copenhagen	3.3	3.3	4.5	5.8	2.5	3.4	2.4	2.0	2.0	3.2	3.4	-4.7%
Tallinn	6.8	8.3	5.7	6.0	6.5	6.8	3.3	5.0	4.3	5.6	6.3	-4.6%
Berlin	2.5	2.5	3.0	2.9	1.9	2.4	2.3	2.1	2.0	2.2	1.6	-4.0%
Prague	8.3	5.9	6.6	7.5	6.6	7.7	6.2	5.5	5.9	5.2	3.0	-4.0%
Ljubljana	9.0	6.0	9.9	8.0	5.0	5.8	6.2	4.3	6.6	7.0	13.0	-3.9%
Stockholm	2.4	2.3	2.3	2.7	2.1	2.4	1.6	1.6	1.2	0.9	2.0	-3.4%
Riga	13.0	13.5	12.1	13.0	11.0	10.3	11.2	12.4	9.0	9.6	9.7	-3.4%
Athens	8.5	8.4	8.6	7.8	8.4	6.6	5.9	6.9	7.4	7.7	6.6	-3.2%
Budapest	7.6	7.5	6.5	6.9	6.3	6.2	5.7	5.5	5.9	5.9	5.9	-3.2%
Vienna	3.6	2.5	3.9	2.2	2.6	2.9	2.8	2.7	2.1	2.0	2.1	-2.5%
Brussels	4.2	4.0	5.2	4.6	3.8	3.8	3.0	3.7	2.8	2.6	3.0	-2.3%
Amsterdam	3.2	2.8	4.3	5.1	4.1	3.1	1.9	1.9	2.6	2.7	3.4	-1.3%
London	3.8	3.2	3.7	4.0	4.2	3.9	3.7	2.9	2.9	3.1	3.0	-0.9%
Rome	7.2	12.9	5.1	11.5	11.9	14.3	6.5	10.2	9.3	9.1	6.0	-0.8%
Helsinki	1.7	2.7	2.7	2.9	2.1	3.2	2.9	1.6	1.6	2.3	1.9	0.8%
Valletta <sup>(1)</sup>	n/a	n/a	n/a	0	0	0	0	0	0	0	0	n/a
EU average <sup>(2)</sup>	6	6	6	6	6	5	4	5	4	4	4	-4.1%
PIN average <sup>(3)</sup>	7	7	6	6	6	6	5	5	5	5	4	-3.7%

**Table 11. Road deaths in capital cities per 100,000 resident capitals' population and their average yearly percentage change over the period 1997-2007**  
(Chapter 4 - Fig. 23)

Source: National statistics provided by the PIN panelists in each country, completed with Eurostat for population figures

<sup>(1)</sup> No one has been killed in a road collision in Valletta between 2000 and 2007

<sup>(2)</sup> EU (27) excluding Nicosia (CY) and Luxembourg (LU)

<sup>(3)</sup> PIN (30) excluding Bern (CH), Nicosia (CY) and Luxembourg (LU)

Nicosia, Vilnius, Bern and Luxembourg are excluded from Fig. 23. Nicosia and Vilnius because the number of deaths is available only since 2000 and 2001 respectively. Bern because annual numbers of deaths in those countries are below 10 and thus subject to substantial random fluctuation, representing an obstacle which could not be overcome by the method applied. Luxembourg because population number for the capital city is available since 2005 only.

See PIN Flash 11 Methodological Note on [www.etsc.eu/PIN-publications.php](http://www.etsc.eu/PIN-publications.php)

Country	Capital city	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
AT	Vienna	38	56	39	60	34	41	45	45	43	34	33	35
BE	Brussels	31	40	38	50	44	37	37	30	37	28	26	31
BG	Sofia	n/a	143	135	102	79	101	92	85	74	78	87	73
CY	Nicosia	n/a	n/a	n/a	11	18	10	18	18	15	12	12	16
CZ	Prague	95	100	70	78	89	76	89	72	64	70	62	36
DK	Copenhagen	32	19	19	26	34	15	20	14	12	12	19	20
EE	Tallinn	31	28	34	23	24	26	27	13	20	17	22	25
FI	Helsinki	10	9	15	15	16	12	18	16	9	9	13	11
FR	Paris	264	242	245	254	231	287	247	186	168	164	162	127
DE	Berlin	120	87	85	103	98	65	82	77	70	67	74	56
EL	Athens	333	278	278	284	260	281	220	199	232	251	263	226
HU	Budapest	142	143	139	118	124	111	108	98	93	100	101	100
IE	Dublin	39	53	40	27	26	14	17	13	26	19	19	11*
IL	Jerusalem	39	28	26	30	30	14	21	19	29	14	17	27
IT <sup>(1)</sup>	Rome	236	190	338	132	296	305	363	165	260	237	231	163*
LV	Riga	111	104	106	94	100	83	77	83	91	66	70	70
LT	Vilnius	n/a	n/a	n/a	n/a	n/a	54	53	59	53	53	45	67
LU	Luxembourg	n/a	n/a	n/a	n/a	6	4	9	1	6	2	2	4
MT	Valletta	0	0	0	0	0	0	0	0	0	0	0	0
NL	Amsterdam	24	23	20	31	37	30	23	14	14	19	20	25
NO	Oslo	21	8	13	16	6	15	11	11	6	3	4	10
PL	Warsaw	158	173	192	193	134	125	134	124	142	127	109	110
PT	Lisbon	91	91	81	78	75	58	55	55	34	41	25	22
RO	Bucharest	179	161	164	139	100	118	94	90	101	131	113	122
SK	Bratislava	90	91	95	64	78	64	71	40	74	45	54	28
SI	Ljubljana	37	24	16	26	21	13	15	16	11	17	18	33
ES	Madrid	91	142	141	94	106	117	121	104	88	63	63	85
SE	Stockholm	11	17	17	17	20	16	18	12	12	9	7	16
CH	Bern	4	1	8	3	3	5	5	4	3	5	2	3
UK	London	251	276	226	264	286	300	281	272	216	214	231	222
<b>EU</b>		<b>2,414</b>	<b>2,490</b>	<b>2,533</b>	<b>2,283</b>	<b>2,336</b>	<b>2,363</b>	<b>2,334</b>	<b>1,901</b>	<b>1,965</b>	<b>1,885</b>	<b>1,881</b>	<b>1,560</b>
<b>PIN</b>		<b>2,478</b>	<b>2,527</b>	<b>2,580</b>	<b>2,332</b>	<b>2,375</b>	<b>2,397</b>	<b>2,371</b>	<b>1,935</b>	<b>2,003</b>	<b>1,907</b>	<b>1,904</b>	<b>1,600</b>

**Table 12. Number of road deaths in the administrative area of the capital city**

Source: National statistics provided by the PIN panelists in each country

\* provisional 2007 figures

<sup>(1)</sup> Italy: A correction factor of 1.04 has been applied to number of deaths before 2000. Since 2001 the 30 days road deaths definition is applied. Figures from 1996-1999 should be taken with cautious because of underreporting.

Capital city	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Vienna	1,539,002	1,542,191	1,540,875	1,542,252	1,548,537	1,553,956	1,562,737	1,583,814	1,598,626	1,626,440	1,651,437	1,664,146
Brussels	948,122	950,597	953,175	954,460	959,318	964,405	978,384	992,041	999,899	1,006,749	1,018,804	1,031,215
Sofia		1,114,168	1,122,302	1,133,183	1,142,152	1,099,507	1,113,742	1,127,556	1,138,950	1,148,429	1,153,754	1,156,885
Nicosia	193,000	195,700	198,200	200,200	202,300	204,100	206,200	208,900	213,500	219,200	224,500	228,400
Prague	1,204,953	1,200,455	1,193,270	1,186,855	1,181,126	1,160,118	1,161,938	1,165,581	1,170,571	1,181,610	1,188,126	1,212,097
Copenhagen	565,540	572,888	577,476	581,309	586,026	590,224	591,853	592,720	593,385	594,248	593,013	595,933
Tallinn	421,249	413,851	408,238	404,091	400,781	399,685	398,434	397,150	396,375	396,010	396,193	396,852
Helsinki	532,053	539,363	546,317	551,123	555,474	559,718	559,716	559,330	559,046	560,905	564,521	568,531
Paris	6,134,274	6,134,394	6,141,921	6,161,923	6,202,341	6,245,837	6,286,068	6,326,333	6,362,310	6,408,218	6,477,982	6,477,982
Berlin	3 458 763	3 425 759	3 398 822	3 386 667	3 382 169	3 388 434	3 392 425	3 388 477	3 387 828	3 395 189	3,404,037	3,416,000
Athens	3,258,760	3,280,836	3,301,478	3,319,473	3,333,587	3,342,617	3,348,409	3,354,072	3,372,570	3,401,546	3,423,934	3,447,843
Budapest	1,896,403	1,873,809	1,846,650	1,821,394	1,791,098	1,759,209	1,739,569	1,719,342	1,705,309	1,697,343	1,698,106	1,696,128
Dublin	481,854	484,175	486,496	488,818	491,139	493,460	495,781	498,389	500,996	504,195	506,211	507,000
Jerusalem	602,100	622,100	633,700	646,300	657,500	670,000	680,400	693,200	706,400	719,900	733,300	746,300
Rome	2,653,253	2,630,040	2,610,178	2,587,635	2,570,489	2,559,005	2,545,860	2,540,829	2,542,003	2,553,873	2,547,677	2,705,603
Riga	810,172	797,947	786,612	776,008	766,381	756,627	747,157	739,232	735,241	731,762	727,578	722,485
Vilnius	578,327	571,164	565,881	562,353	558,816	554,104	553,201	553,057	552,603	552,844	553,391	554,300
Luxembourg											76,600	86,986
Valletta <sup>(1)</sup>										6,300		9,300
Amsterdam	718,119	715,148	718,151	727,053	731,288	734,594	735,526	736,562	739,104	742,783	743,079	742,884
Oslo	488,659	494,793	499,693	502,867	507,467	508,726	512,589	517,401	521,886	529,846	538,411	548,617
Warsaw <sup>(2)</sup>	1,628,505	1,624,843	1,618,468	1,615,369	1,610,471	1,609,780	1,688,194	1,689,559	1,692,854	1,697,596	1,702,139	1,704,717
Lisbon <sup>(3)</sup>	572,370	554,050	535,740	517,650	568,444	558,965	549,766	540,022	529,485	519,795	509,751	499,700
Bucharest	2,037,278	2,027,512	2,016,131	2,011,305	2,009,200	1,996,814	1,934,449	1,929,615	1,927,559	1,924,959	1,931,236	1,931,838
Bratislava <sup>(4)</sup>	450,000	450,000	449,547	448,292	447,345	428,094	427,049	425,533	425,155	425,459	425,533	426,091
Ljubljana	268,100	266,500	265,000	263,400	261,700	260,100	258,900	258,000	257,100	256,100	255,400	254,300
Madrid <sup>(5)</sup>	2,866,850	2,874,178	2,881,506	2,879,052	2,882,860	2,957,058	3,016,788	3,092,759	3,099,834	3,155,359	3,128,600	3,132,463
Stockholm	711,119	718,462	727,339	736,113	743,703	750,348	754,948	758,148	761,721	765,044	771,038	782,885
Bern	130,128	128,429	126,886	126,467	126,752	126,661	127,330	127,519	127,352	127,421	127,882	128,345
London	7,172,000	7,172,000	7,172,000	7,172,000	7,172,000	7,172,000	7,280,000	7,388,000	7,400,000	7,450,000	7,500,000	7,521,000
EU	36,606,323	33,654,593	36,451,724	36,394,518	36,420,811	36,425,100	36,603,409	36,790,810	36,842,109	37,043,609	37,152,404	38,591,011
PIN	35,445,092	32,562,903	35,415,532	35,410,050	35,418,108	35,461,106	35,675,170	35,899,469	35,984,043	36,214,065	36,365,084	36,681,636

**Table 13. Resident population in the capital city (1996-2007) by 1st of January of each year**

<sup>(1)</sup> Census of Household and Population 2005 (Malta)

<sup>(2)</sup> Central Statistical Office. Data for 1990 – 1999 were compiled on the basis of Population Census 1988. Since 2000 the data regarding the population and its structure as well as all demographic indices are compiled on the basis of the Population and Housing Census 2002

<sup>(3)</sup> Resident population at the end of the year (source: Anuário Estatístico da Região de Lisboa e Vale do Tejo)

<sup>(4)</sup> Populations of the end of the year - (source: Statistical Office of the Slovak Republik; Presidium of Police Force)

<sup>(5)</sup> For 1996 population data by 1st of May.

Numbers in Italic estimated (extrapolated, or interpolated)

## PIN Events September 2008 to June 2009

Date	Event	Venue	Host
25 June 2009	2 <sup>nd</sup> PIN Talk Spain	Madrid	Ministry of Interior (DGT)
22 June 2009	3 <sup>rd</sup> PIN Conference	Brussels	
6 May 2009	2 <sup>nd</sup> PIN Talk Germany <i>"Road Safety of Children"</i>	Berlin	German Road Safety Council (DVR)
14 April 2009	PIN Flash Launch <i>"Boost the market for safer cars across the EU"</i>	Brussels	MEP Dirk Sterckx – PIN Ambassador
9 April 2009	2 <sup>nd</sup> PIN Talk Italy <i>"Road Safety in Italy and in Europe"</i>	Rome	Ministry of Infrastructure and Transport
19 March 2009	PIN Talk Czech Republic <i>"Regional and Local Action as a Motor for Road Safety Improvements in the Czech Republic"</i> <i>Part of the official programme of the Czech Presidency</i>	Prague	National Parliament, Ministry of Transport; Czech Transport Research Center (CDV)
9 February 2009	PIN Flash Launch <i>"Reducing Child Deaths on European Roads"</i>	Brussels	Swedish Permanent Representation Office to the EU
5 December 2008	PIN Talk Slovenia <i>"Road Safety at local level"</i>	Ljubljana	Ministry of Transport
3 December 2008	PIN Talk Belgium <i>"Réduire les accidents deux-roues motorisés en Belgique"</i>	Brussels	National Parliament, Belgium Institute for Road Safety (IBSR/BIVV)
17 October 2008	PIN Talk France <i>"Poursuivre les progrès accomplis en sécurité routière en France"</i>	Paris	Ministère du Développement Durable; Prévention Routière
8 October 2008	PIN Flash Launch <i>"En route to safer mobility in EU capitals"</i>	Brussels	POLIS - European Cities and Regions networking for innovative transport solutions
3 September 2008	PIN Talk Denmark <i>"Managing speed"</i>	Copenhagen	Danish Road Safety Council

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