# REDUCING CHILD DEATHS ON EUROPEAN ROADS

## PIN Flash Report 43

September 2022

European Transport Safety Council

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# REDUCING CHILD DEATHS ON EUROPEAN ROADS

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The PIN programme relies on panellists in the participating countries to provide data for their countries and to carry out quality assurance of the figures provided. This forms the basis for the PIN Flash reports and other PIN publications. In addition, all PIN panellists are involved in the review process of the reports to ensure the accuracy and reliability of the findings.

ETSC is grateful for the financial support for the PIN programme provided by the German Road Safety Council (DVR), Toyota Motor Europe, the Norwegian Public Roads Administration and CITA, the International Motor Vehicle Inspection Committee.

## About the PIN Programme

The ETSC Road Safety Performance Index (PIN) is a policy tool to help national governments and the European Union improve road safety. By comparing performance between countries, it serves to identify and promote best practice in Europe and bring about the kind of political leadership that is needed to create a road transport system that maximises safety.

Launched in June 2006, the index covers all relevant areas of road safety including road user behaviour, infrastructure and vehicles, as well as road safety policymaking more generally. The programme covers 32 countries: the 27 Member States of the European Union, together with Israel, Norway, the Republic of Serbia, Switzerland and the United Kingdom.

National research organisations and independent researchers participate in the programme and ensure that any assessment carried out within the programme is based on scientific evidence.

## About The European Transport Safety Council (ETSC)

ETSC is a Brussels-based, independent non-profit organisation dedicated to reducing the numbers of deaths and injuries in transport in Europe. Founded in 1993, ETSC provides an impartial source of expert advice on transport safety matters to the European Commission, the European Parliament, and European countries. It maintains its independence through funding from a variety of sources including membership subscriptions, the European Commission, the European Parliament, and public and private sector support.

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# REDUCING CHILD DEATHS ON EUROPEAN ROADS

European Transport Safety Council

**6000 CHILDREN**
HAVE BEEN KILLED ON EU ROADS OVER THE LAST TEN YEARS

**9 OUT OF 10**
CHILD MOTORCYCLE RIDERS KILLED ARE BOYS

**HALF**
OF CHILDREN AGED 0–13 KILLED ON EUROPEAN ROADS ARE PASSENGERS

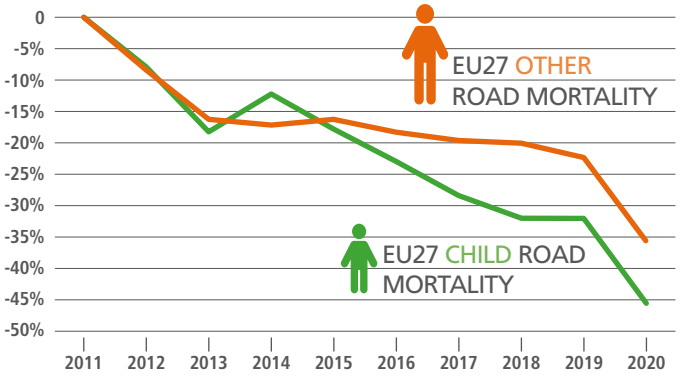
**ONE THIRD**
OF CHILDREN AGED 0–13 KILLED ON EUROPEAN ROADS ARE PEDESTRIANS

**11%**
OF CHILDREN AGED 0–13 KILLED ON EUROPEAN ROADS ARE CYCLISTS

**1 IN EVERY 15**
CHILD DEATHS IS THE RESULT OF A ROAD COLLISION

## REDUCTION

IN ROAD MORTALITY OF CHILDREN




## TECHNOLOGIES

THAT CAN IMPROVE ROAD SAFETY FOR CHILDREN


INTELLIGENT SPEED ASSISTANCE

AUTOMATED EMERGENCY BRAKING
(with pedestrian and cyclist detection)

CORRECTLY FITTED AND APPROPRIATE CHILD RESTRAINT SYSTEMS


## ETSC RECOMMENDS

PROPERLY-ENFORCED

**30 KM/H ZONES**

IN AREAS WITH LARGE NUMBERS OF PEDESTRIANS AND CYCLISTS AND NEAR CHILDCARE FACILITIES

# EXECUTIVE SUMMARY

## CHILD ROAD DEATHS AND SERIOUS INJURIES – WHAT THE DATA SHOW

The road safety of children has improved considerably over the past decade in almost all countries monitored by ETSC's Road Safety Performance Index (PIN) programme. And yet, 390 children were killed on the EU's roads in 2020 alone and more than 6000 have been killed over the last ten years. Child road deaths represented 2% of all road deaths in 2020.

Child road mortality (deaths per million child inhabitants) went down by 46% compared to 36% for all other age groups over the period 2010–20. A relatively steep reduction can be seen at the beginning of the decade during the economic recession that followed the financial crisis in 2008. Another steep reduction can be seen at the end of the decade when measures aimed at controlling the Covid-19 pandemic severely restricted people's movement, including children, who at times were not allowed to go to school.

Unfortunately, however, the available data do not give the full picture. It is difficult to get data on the modal split, the amount of walking and cycling undertaken by children and the trend over the last decade in relation to a more sedentary lifestyle, transport by individual motorised vehicle and less active mobility. This would help provide data on the numbers of deaths and injuries per km travelled or time spent. It is easy to achieve low numbers of child deaths when no one rides a bike or walks to school.

Children do not benefit from the same level of safety everywhere in Europe. The child road mortality rate in Romania is ten times higher than in Norway, Cyprus or Sweden. Where child road mortality is relatively low, road mortality for the rest of the population also tends to be relatively low and vice versa. Where child mortality is relatively low and mortality for the rest of the population is relatively high, it could be because children in those countries tend to be driven to school and activities rather than being allowed to travel there alone by bike or on foot.

In the EU, there were seven child road deaths per million child population on average over the last three years, compared to 53 road deaths per million for the rest of population.

On average in the EU, one in 15 child deaths after the first birthday results from a road collision. Child road deaths represent 6.5% of all child deaths, whereas all other road deaths are 0.4% of all other deaths. Hence, for children, road mortality is much higher than mortality for other causes, as compared with the ratio of road mortality and general mortality for other age groups. Five years ago, one in 13 child deaths occurred after a road collision in the EU. This shows that progress in reducing child road deaths is going faster than progress in reducing other child deaths.

Children aged 10–13 have higher road mortality than children aged 5–9. As part of normal child development, children aged 10–13 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.

In 2020 in the EU27, 94 child pedestrians were killed in a collision involving a car, accounting for 21% of all child road deaths. Child car occupants with no other vehicle involved accounted for 18% of child road deaths and child car occupants in a collision with another car for 17.5%. Child car occupants in collisions with lorries or heavy goods vehicles accounted for 10% of all child road deaths. Child cyclists represent 11% of all child road deaths, and child moped or motorcycle riders, 5%. The remaining deaths are following collisions where the main other participant in the collision has not been identified or is not part of the categories listed above.

On average over the last three years in the EU26, every year, 190 children up to 14 years old died as car passengers, 126 as pedestrians and 46 as cyclists. From the age of 14, 166 died as car passengers, 147 as PTW drivers, 70 as pedestrians and 50 as cyclists.

Over 6,000 children (0–14 years old) were seriously injured in the EU20 in 2020, based on current national definitions of serious road injuries. Child victims of serious road traffic injury account for around 5% of all victims of serious road traffic injury in the EU.

## HOW TO KEEP CHILDREN SAFE ON THE ROADS

*Countries with a good child safety record tend to also have good overall road safety characterised by a well-established and integrated approach.*

Improving road safety for children can be achieved through a combined set of measures addressing the safety of all road users: upgrading the road environment, designing vehicles that better protect both their occupants and those outside the vehicle, enforcing traffic laws, promoting the correct use of appropriate child restraint systems, improving road traffic education and awareness raising. A policy focus on child safety resulting in actual safety measures might well also lead to a general improvement in road safety for all road users.

Habits children develop in their youth may determine how they choose to travel later in their adult lives. Walking and cycling contribute to reduced carbon dioxide emissions and congestion. They also lead to the improved physical and mental health of children by tackling childhood obesity, and to increased socialisation. By walking or cycling to school, children can become more aware of their surroundings and develop road safety skills. They can also improve their ability to anticipate other road users' actions. Keeping children healthy, safe and mobile requires a balance between encouraging and allowing them to move about freely and keeping them safe in the road environment.

*Children walking and cycling safely to school requires safe infrastructure which protects children from collisions with motor vehicles, and from falls.*

Getting children out of cars and onto bikes will make them healthier, and live longer. And this effect more than compensates, in terms of disability-adjusted life years (DALYs), for the potential negative impact of an increase in the number of injuries and deaths that may result if everything else remains equal. The key to healthier lives that combine with safer roads is to encourage more walking and cycling at the same time as introducing new measures, such as 30 km/h limits, safe bicycle lanes and pedestrian footways, supported by police enforcement.

Safe walking and cycling routes in a wide area around schools, with low-speed road design for motorised traffic, are essential for keeping children safe. Involving children and schools in participatory planning to take their mobility needs into account should also be encouraged.

Reducing traffic speed around schools and enforcing that reduced speed by means of infrastructure design is a measure that can improve the road safety of children as they travel to and from school. Of the PIN countries able to provide data for this report, seven have compulsory lower speed limits around schools (BE, DK, FI, EL, LV, RO and RS).

Informing pupils of safe routes to school and developing a school mobility plan is a measure schools can adopt themselves to make travelling to school safer.

Every year, 49% of children killed on EU roads die as a motor vehicle passenger. A correctly used child restraint system is the most effective passive safety feature for a child travelling as a vehicle occupant.

Intelligent Speed Assistance (ISA) became mandatory on new vehicles on the EU market as of July 2022 and Automated Emergency Braking (AEB) that can detect pedestrians and cyclists will be mandatory as of July 2024. ISA and AEB detecting pedestrians and cyclists can mitigate or prevent traffic collisions involving children. Passive safety of cars will also be improved by extending the crash test zone to include the windscreen between the A-pillars for better child pedestrian and cyclist protection.

New heavy goods vehicles will also have to be fitted with advanced systems capable of detecting pedestrians and cyclists located in close proximity in July 2022 and comply with improved direct vision requirements as of 2026.

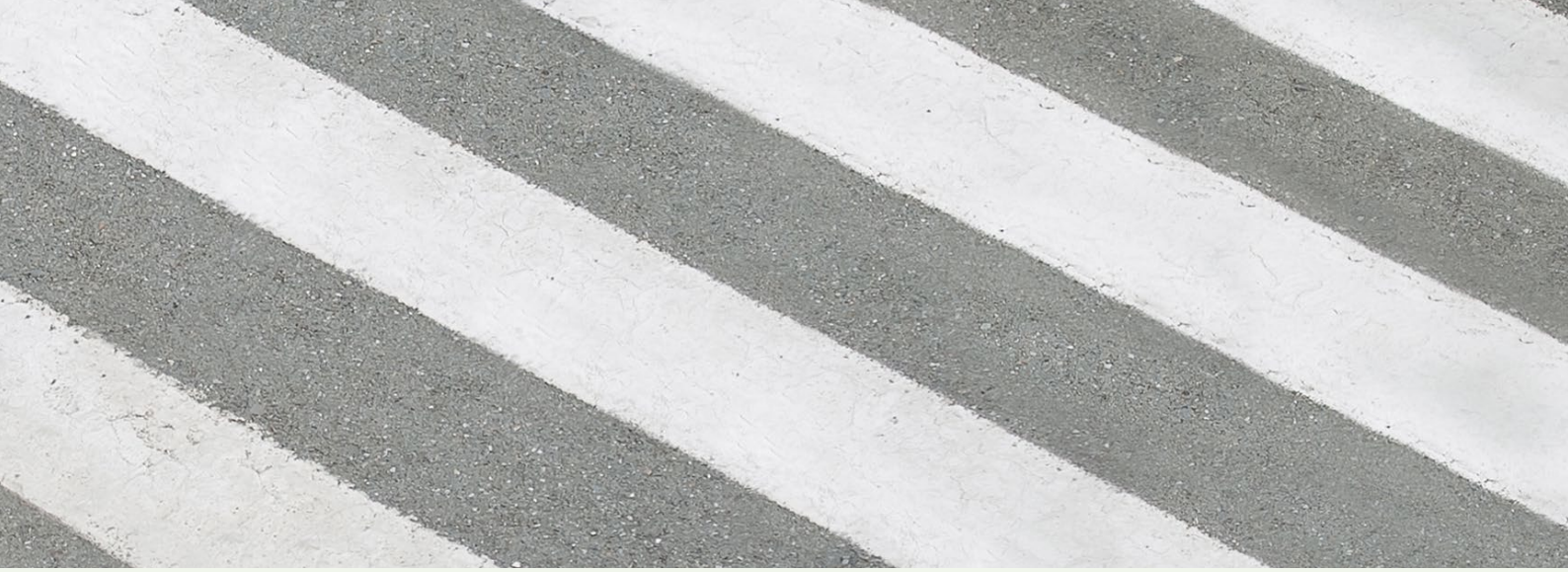
A bicycle helmet offers the best protection against head injury for impact speeds up to approximately 20km/h. The use of a bicycle helmet reduces the risk of severe head injury by more than 65%. 15 PIN countries reported having mandatory bicycle helmet wearing for children. In an equal number of PIN countries, wearing a bicycle helmet is not mandatory.

Since 2013 it has no longer been possible to ride a moped in the EU without a driving licence, thanks to amendments to EU Directive 2006/126/EEC on driving licences, which is currently in the process of being updated.

The Directive recommends that the minimum age for obtaining the driving licence for the AM (moped) category is 16, but in Estonia, France, Hungary, Italy, Latvia and Poland an AM category licence can be obtained at 14 years old. A further 10 PIN countries allow a licence at 15 years old (AT, CH, CZ, DK, ES, FI, LT, SE, SI, SK). On the other hand, in Cyprus, an AM licence can only be obtained at 17 years old and in Malta at 18 years old. Indeed, the AM category is the licence category with the largest variation in minimum age requirements. Raising, or not lowering, the minimum age for solo driving, will save lives, by virtue of the fact that it prevents young and inexperienced drivers from solo driving until they are older and less risk-seeking.

## MAIN RECOMMENDATIONS TO NATIONAL GOVERNMENTS

- Achieve high levels of overall road safety. Important road safety benefits for children will result from measures aimed at improving overall road safety. Implementing the Safe System approach, hence systematically improving the safety of vehicles, road infrastructure and the behaviour of road users, will reduce the risks to which children are exposed in traffic.
- Establish clear urban and rural road hierarchies, which better match road function to speed limit, layout and design based on the principles of the Safe System approach.
- Regularly review whether speed limits match the road function and design, and adapt road design if not when there is an opportunity to do so (e.g. when a road needs reconstruction).
- Encourage local authorities to adopt 30km/h zones in residential areas, on ways to schools and childcare facilities, around bus stops and in other areas used by many pedestrians and cyclists and promote traffic calming measures.
- Reduce motor vehicle traffic around schools and childcare facilities.
- Implement safe pedestrian and bicycle infrastructure separated from motorised traffic to make walking and cycling to school, and more generally, safer.
- Mandate alcohol interlocks in all school buses, other buses and taxis serving as school transport or for transporting children.
- Set enforcement plans with yearly targets for the numbers of checks and compliance with traffic laws that particularly improve child safety, including the requirement to fit children in the appropriate child restraint systems.
- Make rear-facing child seats mandatory for as long as is practicable, preferably until the child is 4 years old.
- Contribute to the EU Key Performance Indicator with the timely collection and delivery to the European Commission of data on the proportion of child occupants in cars correctly restrained. Complement this by showing separately the indicator on the proportion of child occupants killed without wearing a seatbelt or child restraint system.
- Monitor progress to assess the need for improved designs of child seats and vehicle compatibility.
- Run regular information campaigns and training activities on the correct installation of child restraint systems.
- Increase affordability of child restraints by including them in the category of essential products (permitting a lower rate of VAT) as allowed by EU Directive 77/388/EEC.
- Include compulsory road safety and mobility education in school syllabi.
- Promote the introduction of ‘safe routes to schools’ within local, regional and national transport plans.



## MAIN RECOMMENDATIONS TO THE EU

- Within the framework of the 5th EU Road Safety Action Programme mid-term review, and considering every child should have the right to grow up in a safe environment, adopt a separate target for reducing road deaths and serious injuries among children and develop accompanying measures and research.

- Make rear-facing child seats mandatory for as long as is practicable, preferably until the child is 4 years old.

- Encourage Member States to introduce lower VAT for child restraints by including them in the category of essential products as EU Directive 77/388/EEC allows.

- Revise standards for testing bicycle helmets to increase the safety standard currently in use to offer higher levels of protection.

- Within the framework of the upcoming revision of the Driving Licence Directive 2006/126, make theoretical and practical training as well as a practical test mandatory to obtain an AM driving licence.

- Adopt a European Commission Recommendation to apply safe speed limits in line with the Safe System approach for the different road types such as 30 km/h on urban roads in residential areas and other areas used by many pedestrians and cyclists, 70 km/h on undivided rural roads and a top speed of 120km/h or less on motorways.

- Create an EU fund to support priority measures such as for cities to introduce 30 km/h zones supported by infrastructure measures and traffic law enforcement and to invest in speed management on high risk roads which carry large flows of traffic.

- Include best practice guidelines on speed limit enforcement and sanctions to encourage Member States to achieve high standards on enforcement methods and practices and a greater convergence of road-safety-related traffic rules, building on the EC 2004 Recommendation on Traffic Law enforcement.

- Revise the Directive 2015/413 concerning cross-border exchange of information on road safety related traffic offences to strengthen the enforcement chain, with the priority on speeding.

# INTRODUCTION

*Every day in the European Union, more than eighteen children are seriously injured and one is killed in road traffic collisions. More than 6000 have died over the last decade.*

The impact of these deaths and life-changing injuries on families and communities is immeasurable. But they also carry an economic cost, which diverts resources that could have been used for education, improving health or other social goods.

Children are particularly vulnerable road users. They lack experience and are less visible to other road users due to their small stature. Children are also often unaware of the risks they take unintentionally, and more easily become innocent victims in collisions.

These numbers of deaths and injuries are not inevitable. Indeed child road mortality (the number of road deaths per million child population) has declined over the last decade, and at a faster rate than the road mortality of the rest of the population.

Improving road safety for children can be achieved through a combined set of measures to address the behaviour of all road users: upgrading the road environment, designing vehicles that better protect both their occupants and those outside the vehicle, enforcing traffic laws, promoting the correct use of appropriate child restraint systems, improving road traffic education and awareness raising. A policy focus on child safety resulting in actual safety measures might well also lead to a general improvement in road safety for all road users.

Part I of this report examines the latest data on child road deaths from across the EU and other countries that form part of ETSC's Road Safety Performance Index (PIN) programme. As well as showing the differences that still exist between countries, it gives examples of policies that have led to faster progress and areas for improvement.

Part II looks at the main measures for reducing the risks to children including mobility policies and improved infrastructure, child restraint systems, vehicle safety, helmet use, pre-hospital care and licensing of young drivers who, in some countries, are able to ride a moped or scooter at the age of 14.

Recommendations for national and EU policymakers are made throughout, and a shorter list of priority measures is given at the end of the executive summary.

## COVID-19 PANDEMIC

In this report we cover the period 2011–2021. In 2020 the COVID-19 pandemic hit the world. The initial response to the pandemic was to severely restrict people's travel and this resulted in unprecedented reductions in traffic volumes in most PIN countries during 2020. In many countries traffic volumes did not reach pre-pandemic levels in 2021 either, so data in both 2020 and 2021 should be considered with this in mind. Due to the many possible short and long-term effects of the pandemic, in our analyses of the trends and data we have not tried to correct for the influence of Covid.

## WHY CHILDREN AND WHY UP TO 14 YEARS OLD?

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 one is considered to be responsible for one's actions (legal responsibility). In some figures road safety data for adolescents aged 15–17 are presented for comparison reasons. The LEARN! Project also publishes a report extending the analysis to 0–17 years old with a focus on education. The report can be downloaded from the LEARN! website, www.trafficsafetyeducation.eu.

# PART I

# COUNTRY COMPARISON

01

## 1.1 CHILDREN ARE SAFER TODAY THAN TEN YEARS AGO

The road safety of children has improved considerably in almost all PIN countries over the past decade and it has improved faster with respect to other age groups. And yet, 390 children were killed on the EU's roads in 2020 alone and more than 6000 have been killed over the last ten years. Moreover, child road deaths represent 2% of all road deaths in 2020.

In Switzerland, child road deaths were reduced by an average of 16% annually from 10 in 2011 to two in 2021 (Fig.1). In Norway child deaths have been reduced by an estimated average of 15% annually from seven to three over the period 2011–2021 and in 2019 Norway did not record a single child road death. In Lithuania, child road deaths decreased by 14% annually from seven in 2013 to four children killed in 2021. In Belgium and Austria, child road deaths decreased by an average of 11% annually from 41 to 18 in the period 2011–2021 and from 13 in 2011 to two in 2020 respectively. In Slovenia child road deaths decreased from six in 2011 to three in 2021 with zero deaths in 2018. In Spain, child road deaths decreased from 43 in 2011 to 17 in 2020.

On the other hand, the number of child road deaths stagnated in Czechia with 12 children killed in 2011 and 13 in 2021. In Bulgaria, the number of child road deaths rose from 14 in 2016 to 25 in 2021. One of the reasons for this steep rise in Bulgaria is a coach collision in 2021, which led to the deaths of 8 children.

These results may be related to overall road safety developments and may have many different explanations.

The number of children killed on the roads in Estonia, Norway, Sweden, Slovenia and Slovakia do not exceed 10 in any given year over the period 2011–2021, therefore, the estimated average annual reduction in child road deaths is affected by relatively strong fluctuations.

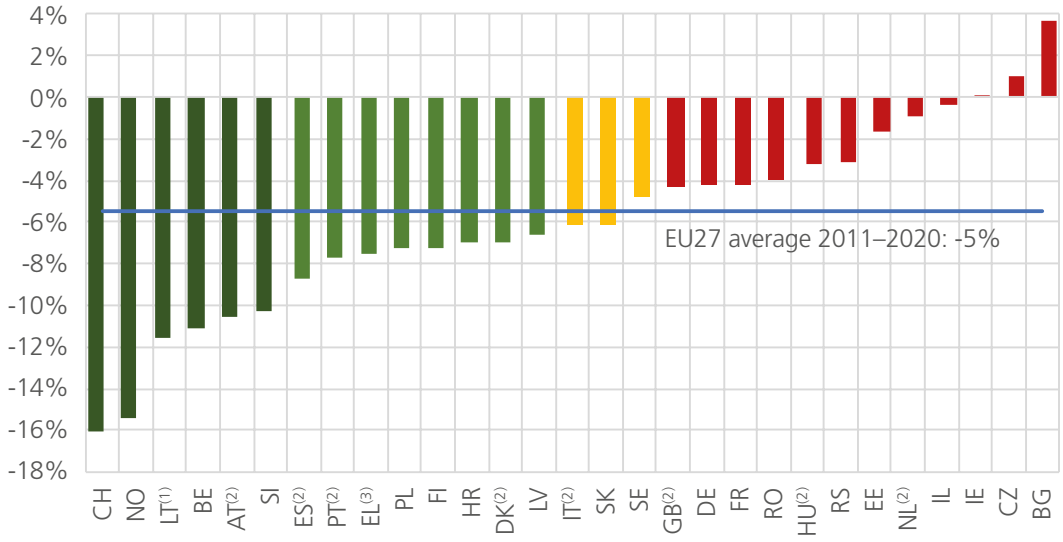



**Figure 1 Average annual change (%) in the number of child road deaths (0–14 years old) over the period 2011–2021**

(1)2013–2021
(2)2011–2020
(3)2011–2019

CY, LU and MT are excluded from the figure due to fluctuation in particularly small numbers of child deaths. Data for FR and PT are for mainland only. A different calculation method has been used for NO, SI and EE since they registered 0 child road deaths in at least one year.

## DENMARK
## ROAD SAFETY KPIS

In Denmark, road safety education is mandatory in primary schools, with specific national guidelines for the content. Pupils aged 13–16 are taught about the risk factors and possible consequences of their and others' behaviour in traffic. The Danish Road Safety Action Plan 2020–2030 has 8 KPIs in total with one on road safety education in primary schools particularly focused on children. This KPI measures the proportion of schools that, as a minimum, use walking tests, cycling tests and other specific educational materials, as well as the proportion of schools that have a road safety teacher. Of the other 7 KPIs in the plan, the KPIs on speed, helmet-wearing rates and municipal road safety action plans should also directly impact the road safety of children.

At a national level, several child road safety campaigns are run every year with varying subjects. Two campaigns, 'Children on the move'[1] (Børn på vej) and 'Respect the school patrol'[2] (Pas på skolepatruljen) run at the beginning of the school year to remind other road users that children are on the roads travelling to school and to show them consideration.

## 1.2 ROAD MORTALITY DECREASED FASTER FOR CHILDREN THAN FOR OTHER ROAD USERS

To take differences in changes in demographics into account, Fig. 2 presents the annual reduction in child road mortality compared with other road user mortality since 2011.

Child road deaths per million child inhabitants went down by 46% compared to 36% for all other age groups over the same period. A relatively steep reduction can be seen at the beginning of the decade during the economic recession that followed the financial crisis in 2008. Another steep reduction can be seen at the end of the decade when measures aimed at controlling the Covid-19 pandemic severely restricted the movement of people, including children, who at times were not allowed to go to school.

Unfortunately, however, the available data do not give the full picture. It is difficult to get data on the modal split, the amount of walking and cycling undertaken by children and the trend over the last decade in relation to a more sedentary lifestyle, transport by individual motorised vehicles and less active mobility. This would help provide data on the number of deaths and injuries per km travelled or time spent. It is easy to achieve low numbers of child deaths when no one rides a bike or walks to school.

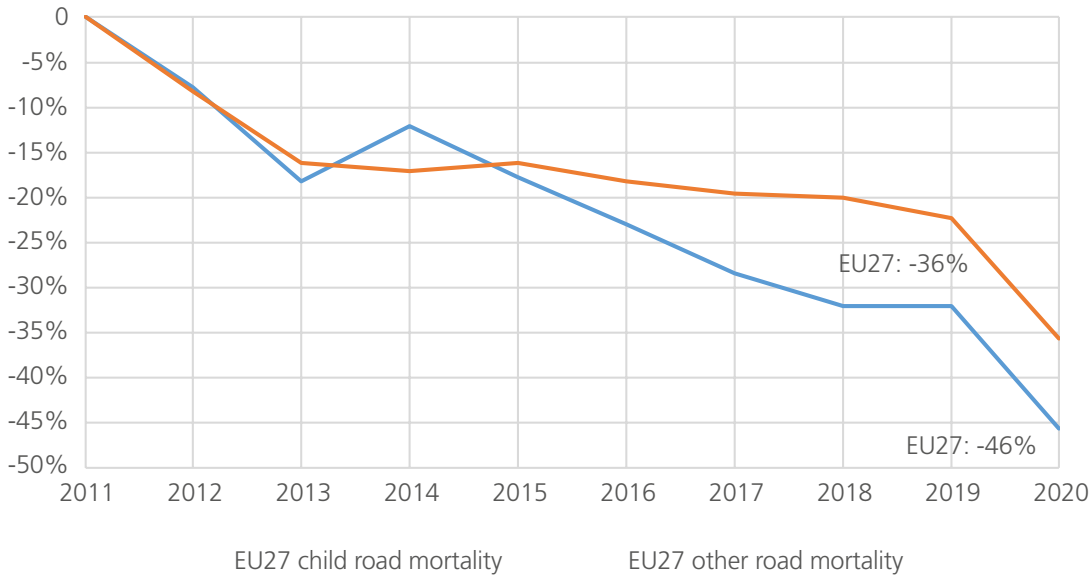



**Figure 2 Reduction in child road mortality compared with the reduction in the road mortality of the rest of the population in 27 EU countries over the period 2011–2020.**

[1] Danish Road Safety Council, 'Children on the move' campaign (Børn på vej) https://bit.ly/3zxlzxy
[2] Danish Road Safety Council, 'Respect the school patrol' campaign (Pas på skolepatruljen) https://bit.ly/3QiAyTW

## INDICATOR

The safety of children on the road is expressed in terms of road mortality, i.e. the number of children between 0 to 14 years old killed in road collisions divided by their population size. 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 over time. Child road deaths are also seen in the context of child deaths from all causes.

Data concerning child road deaths and serious injuries were retrieved by the European Commission from its CARE database upon ETSC's request and confirmed or complemented by the PIN Panellists. The full dataset is available in the Annexes. Population figures and child deaths from all causes were retrieved from the Eurostat database and confirmed or complemented by the PIN Panellists.

Children (0–14 years old) are mainly killed as car passengers, pedestrians or cyclists. Unfortunately, the estimation of time spent in traffic or the amount of travel by children is available for only few countries. Distance travelled resulting from different mobility choices and patterns are therefore not taken into consideration in this publication when comparing countries.

This report builds on previous rankings on child road deaths to be found in ETSC's 31st PIN Flash report (2018). The publication can be downloaded from etsc.eu/projects/pin.

## 1.3 CHILD ROAD MORTALITY DIFFERS BY A FACTOR OF TEN BETWEEN COUNTRIES

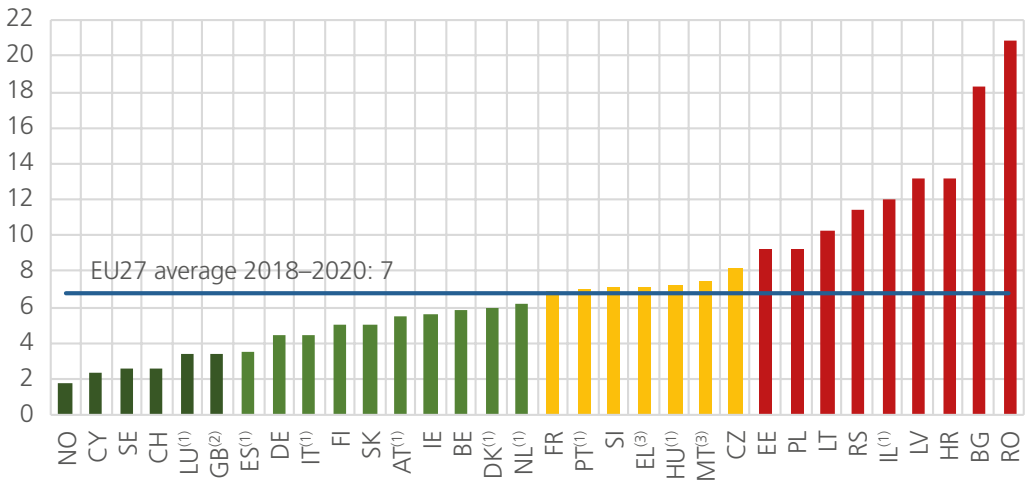
Children do not benefit from the same level of safety everywhere in Europe. The child road mortality rate in Romania is ten times higher than in Norway, Cyprus or Sweden (Fig.3).

*Where child road mortality is relatively low, road mortality for the rest of the population also tends to be relatively low and vice versa.*

Where this is not the case, it could be because children in those countries tend to be driven to school and other activities rather than being allowed to travel there alone by bike or on foot.

In the EU, there were seven child road deaths per million child population on average over the last three years, compared to 53 road deaths per million for the rest of the population (Fig 3).

**Figure 3 Child road deaths per million child population. Average number for 2019–2021 or the last three years available.**
(1)2018–2020
(2)2017–2019
(3)2018–2019



## CYPRUS
## WORKING TO ENCOURAGE MORE WALKING AND CYCLING AMONG CHILDREN

Cyprus has relatively low child road mortality but this could be attributed to the fact that few children walk or cycle to school or other activities and are instead driven by their parents or travel by bus.

The Government in Cyprus is working to encourage more children to walk and cycle by:

- Making road safety engineering changes (e.g. traffic calming, pedestrian crossings) around schools and in residential areas and creating 20 and 30km/h zones;
- Expanding the pavement and cycle path network, especially around schools;
- Carrying out road safety education in schools;
- Donating cycle helmets and child restraint systems;
- Setting a reduced rate of VAT on child restraint systems;
- Running public awareness campaigns.

## 1.4 EVERY FIFTEENTH CHILD DEATH RESULTS FROM A ROAD COLLISION

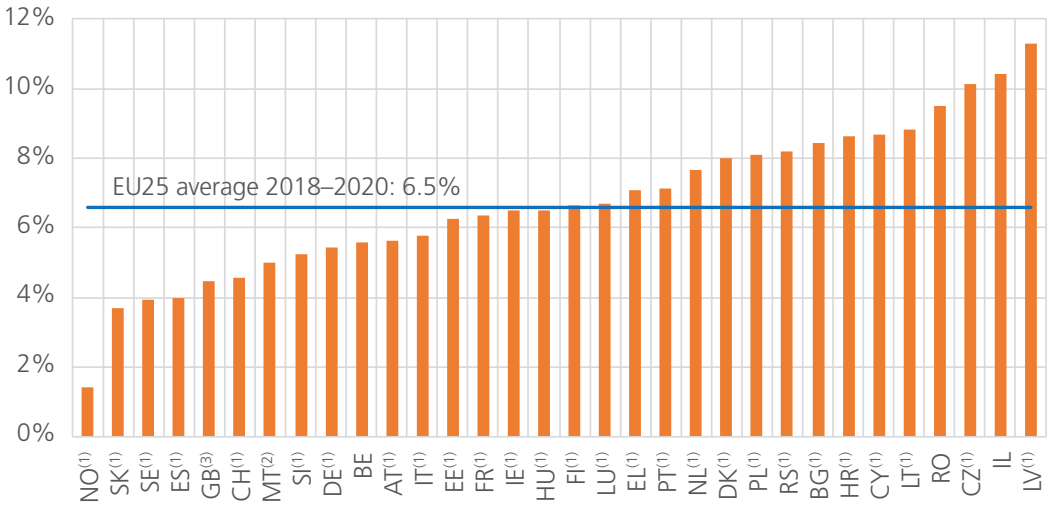
*On average in the EU, one in 15 child deaths after the first birthday results from a road collision.*

Child road deaths represent 6.5% of all child deaths, whereas all other road deaths are 0.4% of all other deaths (Fig.4). Five years ago, one in 13 child deaths occurred after a road collision in the EU. This shows that progress in reducing child road deaths is going faster than progress in reducing other child deaths.[3]

Child road deaths as a proportion of child deaths from all causes varies from less than 2% in Norway to over 11% in Latvia and about 10% in Israel, Czechia and Romania (Fig. 4).

However, we can observe that the proportion of road deaths compared to deaths from all causes in the rest of the population is much lower than the proportion in the age group 1–14 and it is about 0.4% at EU level. This reflects the fact that older people have a higher chance of dying from other causes. It also highlights the fact that targeted measures are needed in order to reduce child road deaths.

**Figure 4 Child road deaths as a proportion (%) of child deaths from all causes in the age group 1–14 years in 2019–2021.**
(1)2018–2020
(2)2018–2019
(3)2016–2018
EL and MT were excluded from the EU average due to a lack of data.
Infants up to one-year-old are excluded from Figure 4 because they are particularly vulnerable to death from medical causes.




[3] ETSC (2018), Reducing child deaths on European roads, PIN Flash 34, www.etsc.eu/pinflash34

## 1.5 ROAD MORTALITY INCREASES STEEPLY AFTER 13

Children aged 10–13 have somewhat higher road mortality than children aged 5–9. As part of normal child development, children aged 10–13 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 powered two wheelers and cars, their road mortality starts to increase steeply (Fig. 5).

On average, in the EU, children below one year represent around 3% of all road deaths under 18 years, the 1–4 year age group 12%, the 5–9 year age group 14%, the 10–13 age group 15% and the 14–17 age group 56%.

**Figure 5 Road deaths by age group per million population of each age group, average years 2018–2020 for the EU25**
(1)AT, EL, IT, MT and NL excluded from the EU average due to lack of data. For other age groups EL and MT excluded from the EU average due to lack of data.

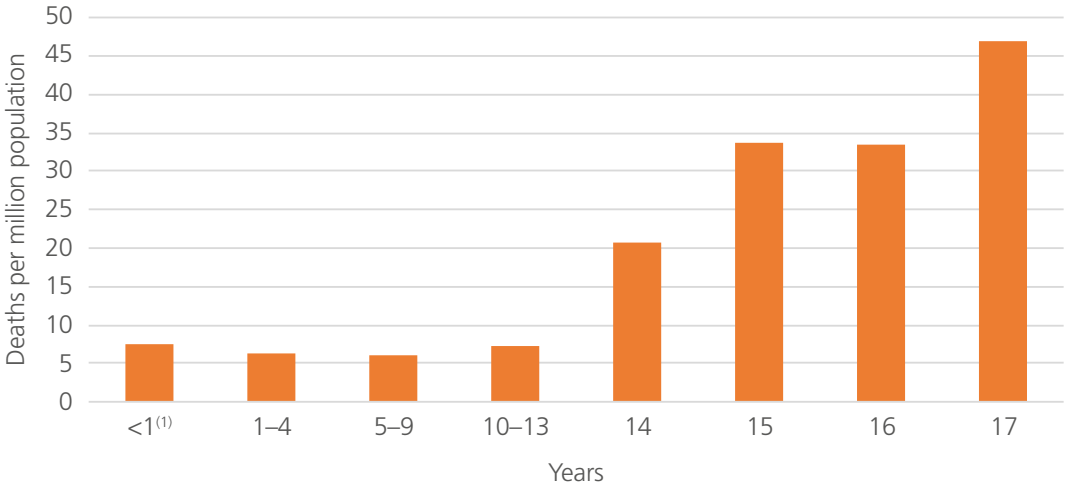
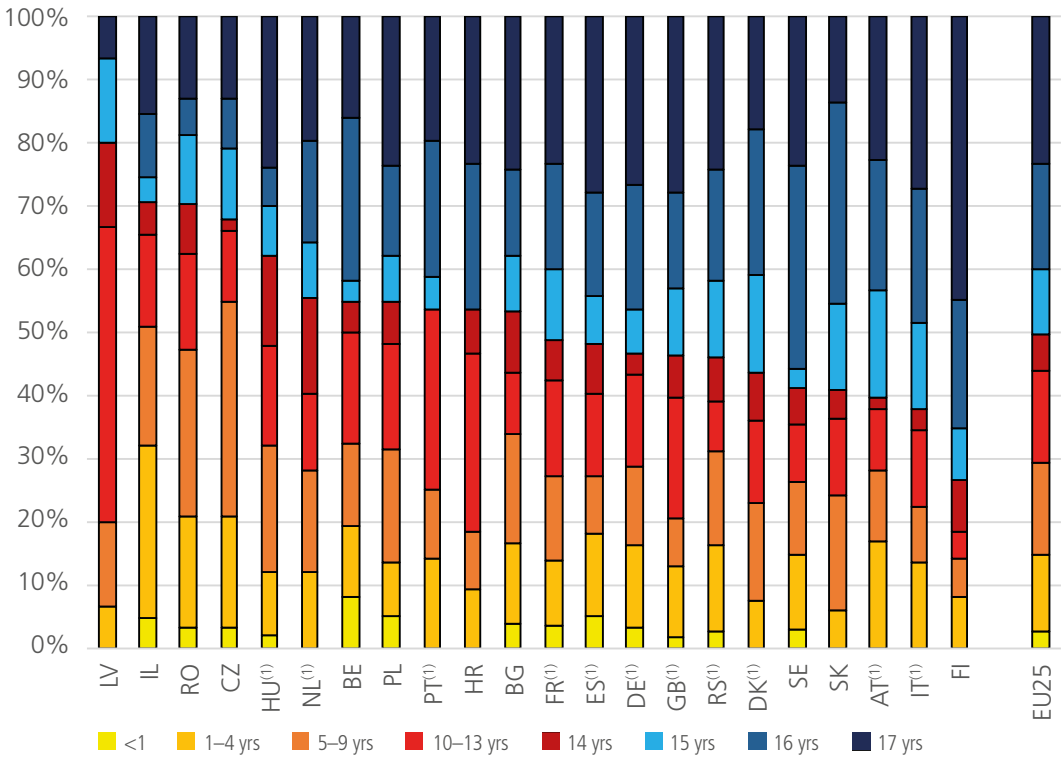


**Figure 6 Proportion (%) of road deaths by age group among all road deaths under 18 years old ranked by % of child road deaths in year group 0–14, average years 2019–2021 or the last three years available**

(1)2018–2020. EU25 average excluding EL and MT due to lack of data. Countries with less than 10 total child road deaths/year have been excluded from the graph (CY, EE, EL, IE, LT, LU, MT, SI, CH, NO). Road deaths of unknown age have been excluded from the calculations. Data for all countries are available in the Annexes.




## 1.6 CHILD PEDESTRIANS THE MOST VULNERABLE CHILD ROAD USER GROUP

In 2020 in the EU27, 94 child pedestrians were killed in a collision involving a car accounting for 21% of all child road deaths (Fig. 7). Child car occupants with no other vehicle involved accounted for 18% of child road deaths; child car occupants in a collision with another car accounted for 17.5%. Child car occupants in collision with lorries or heavy goods vehicles accounted for 10% of all child road deaths. Child cyclists represent 11% of all child road deaths, and child moped or motorcycle riders, 5%. The remaining deaths are involved in collisions where the main other participant has not been identified or is not part of the categories listed above.

**Figure 7 EU27 Child deaths (0–14) in 2020 for each transport mode taking into account the main other participant in the collision.**

Source: EU CARE data

| Fatality \ In a collision with... | Pedestrian | Cyclist | Moped | PTW | Car | Lorry & HGVs | Bus or coach | Other | No other vehicle | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Child Pedestrians | 1 | 1 | 0 | 0 | 94 | 19 | 5 | 6 | – | 126 |
| Child Cyclists | 0 | 0 | 0 | 1 | 29 | 10 | 1 | 4 | 5 | 50 |
| Child Moped Riders | 0 | 0 | 0 | 0 | 4 | 3 | 0 | 1 | 2 | 10 |
| Child PTW Occupants | 0 | 0 | 0 | 1 | 3 | 2 | 0 | 0 | 6 | 12 |
| Child Car Occupants | 0 | 0 | 0 | 0 | 77 | 47 | 2 | 5 | 78 | 209 |
| Child Lorry & HGVs occupants | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 3 | 9 |
| Child Bus or Coach Occupants | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 |
| Other | 0 | 0 | 0 | 1 | 8 | 3 | 0 | 1 | 7 | 20 |
| **Total** | **1** | **1** | **0** | **3** | **216** | **89** | **8** | **17** | **104** | **439** |

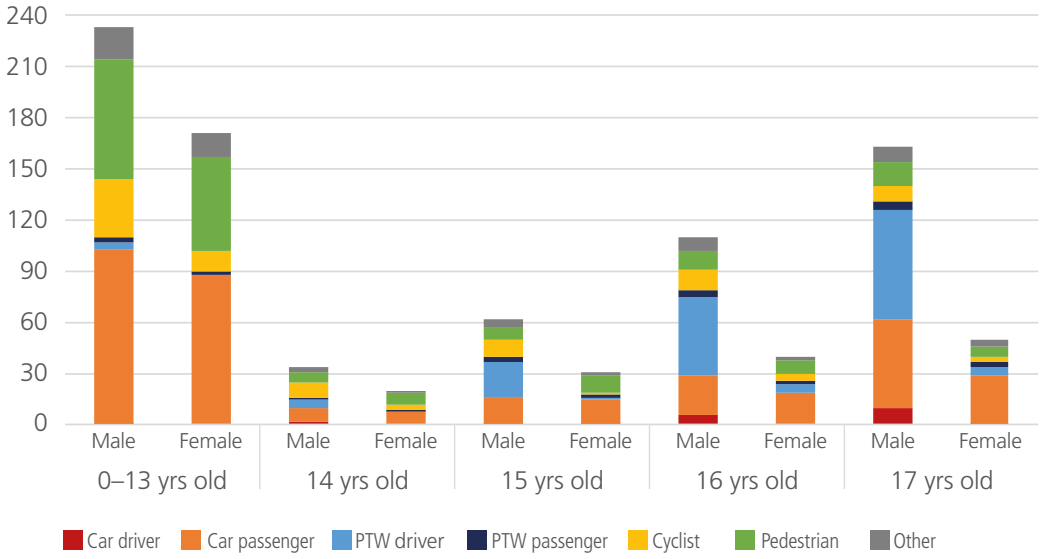
## 1.7 MODAL SHIFT AFTER 13 YEARS OF AGE

To illustrate the risk of death associated with changes in modal use with increasing age, Figure 8 shows the distributions of 0–13, 14, 15, 16 and 17-year-old road deaths by mode of transport and gender over the period 2018–2020 in 26 EU countries.

Up to the age of 14, the ways in which children travel are often dictated by the choice of parents. Up to this age, the distribution of road deaths by mode of transport remain similar for both girls and boys. From the age of 14, youngsters become more mobile and more independent road users. The number of powered-two-wheeler (PTW) user deaths starts to increase steeply at the age of 14, in particular for male road users. In Estonia, France, Hungary, Italy, Latvia and Poland an AM driving licence can be obtained from the age of 14.

On average over the last three years in the EU 26, per year, 190 children up to 14 years old die as car passengers, 126 as pedestrians and 46 as cyclists. From the age of 14, 166 die as car passengers, 147 as PTWs drivers, 70 as pedestrians and 50 as cyclists. 88% of the PTW riders aged 14–17 killed were boys.

**Figure 8 Distribution of road deaths by mode of transport and gender over the period 2018–2020 in EU26 countries**
**EL excluded from the EU average due to a lack of data.**



## INDICATOR

In Spring 2020, the European Commission, for the first time, published an estimate for the number of people seriously injured on Europe's roads: 120,000 in 2019.[4] This move required the adoption by all EU Member States of a common definition of what constitutes a serious road injury, i.e. an in-patient with an injury level of MAIS 3 or more. Only a few countries have MAIS 3+ data for earlier years or by road user age, therefore Member States should also continue collecting data based on their previous definitions so as to be able to monitor rates of progress at least until these rates of progress can be compared with those under the new definition.

The numbers of seriously injured road users, based on national definitions, were supplied by the PIN Panellists.

Fourteen countries (BE, CY, DE, EE, ES, FR, EL, IE, LV, LU, PT, UK, CH, IL) use similar definitions of severe injuries, spending at least one night in hospital as an in-patient or a close variant of this. In practice, however, in most European countries, there is, unfortunately, no standardised communication between police and hospitals and the categorisation as "serious" is often made by the police.

Within each country using police records, a wide range of injuries is categorised by the police as serious under the applicable definition. They range from lifelong disablement with severe damage to the brain or other vital parts of the body to injuries whose treatment takes only a few days and which have no longer-term consequences.

## 1.8 PROGRESS IN REDUCING SERIOUS CHILD ROAD INJURIES

Over 6,000 children (0–14 years old) were seriously injured in the EU20[5] in 2020, based on current national definitions of serious road injuries.[6]

*Serious child road traffic injuries account for around 5% of all serious road traffic injuries in the EU.*

It is not yet possible to compare the number of serious road injuries between PIN countries according to national definitions of serious injury as the definitions and levels of underreporting vary. The comparison therefore takes as a starting point the change in the numbers of serious child road injuries according to the national definitions since 2011.

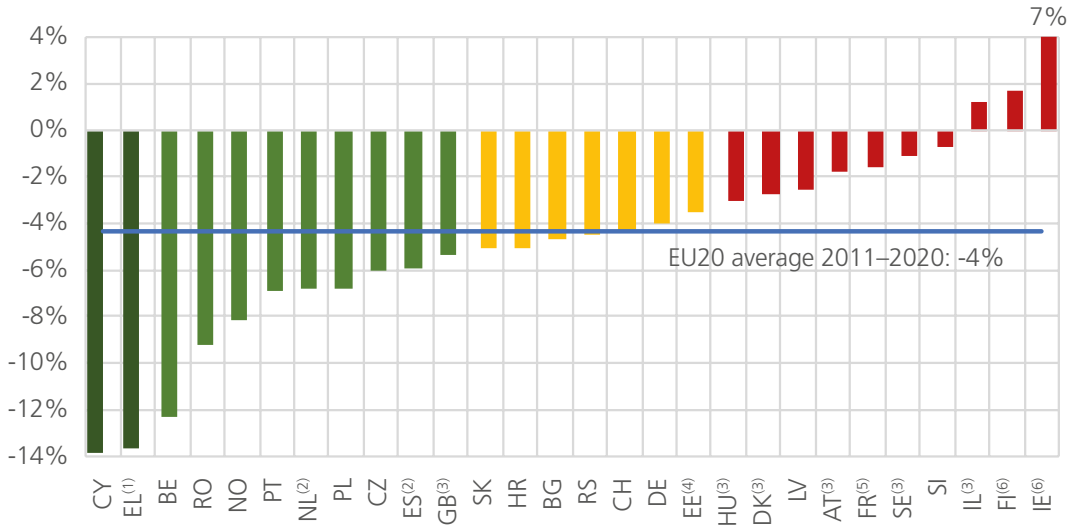
Cyprus and Greece achieved a 14% annual reduction in the number of recorded serious child road injuries since 2011, followed by Belgium with around a 12% annual reduction, Romania and Norway with around 9% annual reduction and Portugal, the Netherlands and Poland with around a 7% annual reduction (Fig. 9). In Finland, the number of seriously injured children increased by almost 2% annually and in Ireland by over 7%.

Collectively, the number of children seriously injured on roads in the EU20 decreased by 4% annually since 2011 compared to a 5% decrease in child road deaths.

[4] European Commission Press release (March 2016), http://goo.gl/w0lQkv
[5] EU27 minus FI, FR, IT, IE, LT, LU, MT.
[6] National definitions of serious road traffic injuries supplied by PIN Panellists are available in the Annexes.

**Figure 9 Average annual change (%) in the number of serious child traffic injuries (0–14 years old) according to the national definition over the period 2011–2021**

[1]2011–2019
[2]2015–2020
[3]2011–2020
[4]2012–2021
[5]2011–2016
[6]2014–2020.
FI, FR, IT, LU and MT have been excluded from the EU average due to a lack of data, and IE and LT were excluded due to inconsistent trend data.




# PART II

# HOW TO KEEP CHILDREN SAFE ON THE ROADS

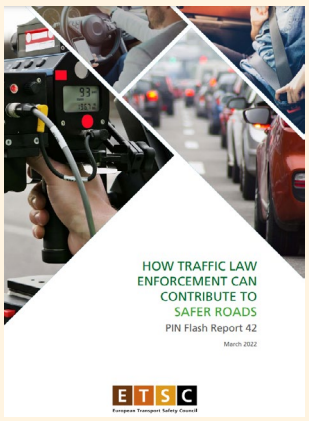
02

*Countries with a good child safety record tend to also have good overall road safety characterised by a well-established and integrated approach.*

Improving road safety for children can be achieved through a combined set of measures addressing the behaviour of all road users upgrading the road environment, designing vehicles that better protect both their occupants and those outside the vehicle, enforcing traffic laws, promoting the correct use of appropriate child restraint systems, improving road traffic education and awareness raising. A policy focus on child safety resulting in actual safety measures might well also lead to a general improvement in road safety for all road users.

**PIN Flash 42: How traffic enforcement can contribute to safer roads**

Enforcing road traffic laws, particularly around schools, child care facilities and areas with high numbers of vulnerable road users, is an important element in improving child road safety. This PIN report published in 2022 gives an overview of the current state of road traffic enforcement across the EU, with recommendations for action. It focuses on the level and means of enforcement concerning speeding, drink-driving, seatbelt use, distraction and cross-border enforcement.
www.etsc.eu/pinflash42




## RECOMMENDATIONS TO NATIONAL GOVERNMENTS

- Considering every child should have the right to grow up in a safe environment, adopt a separate target for reducing road deaths and serious injuries among children and develop accompanying measures.
- Set indicator targets for child road safety in national road safety strategies.
- Set enforcement plans with yearly targets for the number of checks and compliance with traffic laws, including carrying child car passengers in the appropriate child restraint systems.

## RECOMMENDATIONS TO THE EU INSTITUTIONS

- Within the framework of the 5th EU Road Safety Action Programme mid-term review, and considering every child should have the right to grow up in a safe environment, adopt a separate target for reducing road deaths and serious injuries among children and develop accompanying measures and research.

## GENERAL RECOMMENDATIONS TO THE EU INSTITUTIONS THAT WILL ALSO HAVE A POSITIVE EFFECT ON CHILD SAFETY

- Build upon the EU SAVE EC recommendations[7] to local, regional and national authorities to reduce speeds on motorways and in urban areas. Adopt a fully-fledged European Commission Recommendation to apply safe speed limits in line with the Safe System approach for different road types such as 30 km/h on urban roads in residential areas and other areas used by many pedestrians and cyclists, 70 km/h on undivided rural roads and a top speed of 120km/h or less on motorways.
- Create an EU fund to support priority measures such as for cities to introduce 30 km/h zones supported by infrastructure measures and traffic law enforcement (particularly in residential areas and where there are a high number of VRUs) and to invest in speed management on high-risk roads which carry large flows of traffic.

[7] European Commission (2022), 'Save Energy' Communication https://bit.ly/3Q7xAC3

## 2.1 MOBILITY AND CHILD ROAD SAFETY

Habits children develop in their youth may determine how they choose to travel later in their adult lives. Walking and cycling contribute to reduced carbon dioxide emissions and congestion. They also lead to improved physical and mental health of children by tackling childhood obesity, and to increased socialisation. By walking or cycling to school, children can become more aware of their surroundings and develop road safety skills. They can also improve their ability to anticipate other road users' actions. Keeping children healthy, safe and mobile requires a balance between encouraging and allowing them to move about freely and keeping them safe in the road environment.[8]

Getting children out of cars and onto bikes will make them healthier, and live longer. And this effect more than compensates, in terms of disability adjusted life years (DALYs), for the potential negative impact of an increase in the number of injuries and deaths that may result if everything else remains equal. The key to healthier lives that combine with safer roads is to encourage more walking and cycling at the same time as introducing new measures, such as 30 km/h limits supported by police enforcement and infrastructure redesign, convenient bicycle paths with clear lines of sight, footways separated from motor traffic and safe road crossing areas particularly on routes to schools.[9]

Safe walking and cycling routes in a wide area around schools, with low speed, low road volume, road design for motorised traffic, are essential for keeping children safe in traffic. Involving children and schools in participatory planning to take their mobility needs into account should also be encouraged. For example, in Norway, national policy and planning regulation aims to stimulate a development that ensures active urban childhoods. In order to ensure this, the Planning and Building Act ensures particular participation rights for children and young people in the planning process.[10]

### LEARN!

The LEARN! project (Leveraging Education to Advance Road safety Now!) by the European Transport Safety Council (ETSC), Fundación MAPFRE and the Flemish Foundation for Traffic Knowledge (VSV), aims to improve the quality of traffic safety and mobility education in Europe by providing information, tools and resources to education experts as well as policy recommendations to decision makers.


The **'LEARN! Key Principles Report'** sets out 17 recommendations that should be implemented in all countries in order to ensure that everyone – and especially children and youngsters – receives high quality traffic safety and mobility education.


The **'LEARN! Manual'** is handbook for developing and evaluating activities and programmes for traffic safety and mobility education. It sets out recommendations, criteria and guidance to develop and implement sound educational activities in an accessible way.

All the project's resources are freely available on the LEARN! website at: www.trafficsafetyeducation.eu

[8] OECD (2004), Keeping children safe in traffic, https://goo.gl/QzGPBY
[9] OECD/International Transport Forum (2013), Cycling, Health and Safety, https://bit.ly/3xF1OFU
[10] Gro Sandkjaer Hanssen (2019) The Social Sustainable City: How to Involve Children in Designing and Planning for Urban Childhoods? https://bit.ly/3vCe0Gr


### 2.1.1 TRAVELLING SAFELY TO SCHOOL

The road safety of children as they travel to and from school can be improved by reducing speed limits around schools and enforcing those limits effectively. Of the PIN countries able to provide data for this report, seven have compulsory lower speed limits around schools (BE, DK, FI, EL, LV, RO and RS). In Belgium, for instance, road administrators are obliged to set the speed limit in a school zone at 30 km/h. This speed limit can either be permanent or temporary (only active during certain hours at the beginning and end of a school day). Speeds around schools are reduced or managed in all other PIN countries too, but it is not compulsory. In England, for instance, it is up to the local authority, working with the police, to set the speed limits around schools in their area, but the national guidance to local authorities suggests that 20 mph limits are suitable around schools.

Informing pupils of safe routes to school and developing a school mobility plan is a measure schools can adopt themselves to make travelling to school safer. In Slovenia, for instance, it is compulsory for every primary school to have a school route or path plan. In Austria, the Road Safety Board (KFV) and AUVA (the Austrian Worker's Compensation Board) have worked closely with a large number of primary schools to design 'safe routes to school maps'.[11] In Denmark, guidelines and handbooks are available for schools and municipalities wishing to draw up mobility and safety plans around schools.[12] In Germany, the Federal Highway Research Institute (BAST) has developed 'Safe ways to schools' guidelines,[13] which include an effectiveness check.

Improving the conspicuity of children on roads through the use of luminous items of clothing or accessorises is also encouraged in many PIN countries. For instance, one of the targets in Estonia's National Safety Programme 2016–2025 is to achieve a reflector wearing rate among children of 95% by 2025. In Germany, the German Social Accident Insurance Institutions (DGUV) recently published a report showing how everyday clothing can be modified to improve visibility.[14]

[11] Austrian Worker's Compensation Board (AUVA) Safe routes to school maps https://bit.ly/3QpFir8 (in German)
[12] Danish Road Safety Council, Safe school traffic https://bit.ly/3BIU8Vf
[13] bast (2019), Safe school routes made easy https://bit.ly/3P1w6bf (in German)
[14] DGUV (2021), See and be seen: safety through visibility on the way to school (in German) https://bit.ly/376Hxym

### 2.1.2 SCHOOL STREETS

School streets are car-free areas outside schools. Roads are closed to vehicles or they have severely restricted access, normally just for a short period at the start and end of the school day. Some school streets are permanently car-free. In response to the COVID-19 pandemic and motivated by the need to create additional street space, school streets, which are relatively low-cost and can be trialled relatively quickly with basic materials, were expanded rapidly. 2020 saw exponential growth, with the total number increasing to over 1000 school streets around the world, with over half of these in the UK (the majority in London), but also large numbers in Belgium, France and Italy.[15]

A high volume of traffic at the school gates can lead to risky traffic situations as well as higher levels of pollutants precisely when a large number of children are present. Unfortunately, this often encourages parents to opt to transport their children by car. Moving cars away from the streets when most students are arriving or leaving school improves road safety, air quality and creates a better atmosphere at the school gates. A European wide campaign, the Clean Cities Campaign, promotes the introduction of school streets and has developed a toolkit for local administrations to help with their introduction.[16] Cities such as Paris have introduced school streets as part of a wider package of measures across the whole city, such as standard 30km/h speed limits, new cycling routes, and more priority for pedestrians.[17] In Brussels, the regional government promotes the school street model[18] and also provides subsidies to local authorities to introduce them.[19]

As the Climate Strike movement shows, young people are often at the heart of protests about emissions and are frequently involved in the development of school streets.[20] For example, pupils addressed Council meetings on school streets and the climate emergency in Haringey (London), or supported the roll-out of the scheme, such as speaking to people at the road closure barriers in Zwolle (Netherlands), or taking part in participatory workshops in Paris.

#### NORWAY
#### A CHILDREN'S TRANSPORT PLAN – GIVING CHILDREN A VOICE IN TRANSPORT PLANNING

In Norway, the government asked its young people what they felt the most important transport challenges were. Safe school roads, environmentally friendly transport and better opportunities to get around independently emerged as the priorities.

This input from children became the 'Children's Transport Plan' and it is addressed through:

- Working for Vision Zero;
- Government funding for safer school roads and local communities;
- Support for 'heart zones' around the country, so that school roads become safer and that there are fewer cars driving past at high speed;
- Working to reduce emissions from driving, by making it easier to travel by bike or on foot;
- Giving children and young people a voice, among other things through digital maps and registrations, planning processes and drawing competitions

#### HEART ZONES IN NORWAY ESTABLISH CAR-FREE ZONES AROUND SCHOOL AREAS

The Norwegian Council for Road Safety leads a programme called Heart Zones. A heart zone is a zone around a school where it is not permitted to drop off or pick up pupils by car. Places to drop-off and pick-up children are located outside the zone. The measure aims to make school areas safer. The programme is a collaboration between organisations who all want to promote children's safety, security and health on the way to school, including the highways authority, the police, cycling organisations and parents.

[15] Child Health Initiative FIA (2022), School Streets Putting Children and Planet First: A political economy analysis of the rise of school streets in Europe and around the world https://bit.ly/3y8hpOB
[16] Clean Cities Campaign https://bit.ly/3f1clUQ
[17] Child Health Initiative FIA (2022) School Streets Putting Children and Planet First: A political economy analysis of the rise of school streets in Europe and around the world. https://bit.ly/3y8hpOB
[18] Brussels Region DIY - Rue scolaire/DIY – Schoolstraat https://bit.ly/3s8N1A5
[19] Brussels Region funding scheme for road safety projects around schools https://bit.ly/3QZFUn3
[20] Child Health Initiative FIA (2022) School Streets Putting Children and Planet First: A political economy analysis of the rise of school streets in Europe and around the world https://bit.ly/3y8hpOB

## FINLAND
## SPEED LIMIT STRATEGY

Finland's new Traffic Safety Strategy[21] plans to update guidance on speed limits so that they will be lowered to 30 km/h in areas with plenty of cyclists and pedestrians and around schools and day-care centres. Although data are lacking, roads close to schools are also a priority for speed enforcement. There are special 'speed-enforcement' weeks at the beginning of the school year focusing on areas around schools. Last year, for example, Helsinki Police intensified their enforcement of pedestrian crossing rules and driving speeds near schools during the week before schools started. The police were visibly present along school routes during this week, warning drivers that school children would be on the roads again soon and to remain vigilant.

### FINLAND AIMS FOR NO CHILD OR YOUNG PERSON TO BE KILLED OR PERMANENTLY INJURED IN TRAFFIC

One of the strategic guidelines of Finland's National Traffic Safety Strategy 2022–2026[22] is to improve the traffic skills of different road users and different age groups comprehensively. The strategy also includes two indicators aimed at the road safety of children: the proportion of schools that have traffic education as part of their year plan; and the number of collisions involving a child or young person. Measures planned in the strategy (such as promoting traffic safety in different levels of education, taking traffic education into account when preparing future upper secondary curricula requirements, developing traffic education materials and lowering the speed limits, for example, up to 30 km/h in areas with plenty of cyclists and pedestrians and around schools and day-care centers), will also improve the road safety of children and young people.

In addition to the Traffic Safety Strategy, other national strategies in Finland will also contribute to improving road safety for children. The country's Programme for the Prevention of Home and Leisure Injuries (2021–2030)[23] includes a number of targets and objectives specifically related to reducing road deaths and injuries among children. A general objective is that no child or young person will die nor sustain permanent injuries in road traffic, and, in an effort to reduce speeding, the strategy will also monitor the annual numbers of traffic offences and infractions relating to driving speed among young people aged between 15 and 24. Lastly, Finland's National Mental Health Strategy and Programme for Suicide Prevention 2020–2030 will also contribute to improving road safety for children,[24] as in Finland, prioritising the mental health of children and young people is another element strongly linked to traffic safety.

## PARIS
## 30 KM/H SCHOOL STREETS

In Paris, the 'rues aux écoles' (school streets) scheme is part of a series of measures undertaken by the mayor to tackle air pollution, reduce the number of vehicle journeys (including banning cars from the city centre), and implement a '15-minute city'. The first 'rues aux écoles' were introduced in 2019, and there are now over 150 across the city. Barriers denoting the 'school streets' are also branded with the city's 'Paris Respire' ('Paris Breathes') campaign. Whereas in the UK most 'school street' schemes are temporary, timed, road closures, in Paris a large number are becoming permanent pedestrianised roads. In the autumn of 2021, 11 streets outside schools were permanently pedestrianised, adding 3400m2 of planting and 64 new trees. Four more permanent pedestrian routes are planned by March 2022. They are part of wider changes known as 'Embellir votre quartier' ('Embellish your district'), which aims to increase vegetation on streets. Paris also cites reducing noise pollution and reducing the heat island effect in summer, particularly due to climate change, as other important elements of its programme. While it has made significant changes to a number of streets, the campaign group 'La Rue Est A Nous' ('The Road is Ours'), published an Observatory of School Streets, which asked local people to rate the quality of the street, and found that just 27 (9%) of the 300 most polluted nursery and primary schools are equipped with a 'good' quality school street.[25]

[21] Ministry of Transport and Communications of Finland press release (2022) Transport Safety Strategy aims to improve the safety of all modes of transport https://bit.ly/3A0ePuT
[22] Ministry of Transport and Communications of Finland press release (2022) Transport Safety Strategy aims to improve the safety of all modes of transport https://bit.ly/3A0ePuT
[23] Finland's Programme for the Prevention of Home and Leisure Injuries (2021–2030) https://bit.ly/3Fb9MIF
[24] Finland's National Mental Health Strategy and Programme for Suicide Prevention 2020–2030 https://bit.ly/3dbwczy
[25] Child Health Initiative FIA (2022) School Streets Putting Children and Planet First: A political economy analysis of the rise of school streets in Europe and around the world. https://bit.ly/3y8hpOB

## DUBLIN
## SCHOOL MOBILITY PROGRAMME

Dublin City Council's school mobility programme has introduced a number of measures to improve the safety of children on their way to school. The programme includes initiatives such as 'School Zones' where drivers are encouraged to slow down and drop or pick up their kids outside of the zone, and walking and cycle 'buses' where children walk or cycle to school in groups accompanied by adults.

## CZECHIA
## GOAL TO REDUCE CHILD ROAD DEATHS BY 50%

Czechia has a goal to reduce child deaths and child serious injuries by 50% by 2030. In order to improve the road safety of children and young people, Czechia will be targeting speed and young drivers as well as general traffic education. On speed, for instance, they propose to extend automated enforcement at locations with high levels of vulnerable road users or at high-risk locations. For young drivers, Czechia is proposing to reform the training and the proficiency test for applicants for driver's licences with emphasis on safe behaviour in real traffic situations, training to help anticipate danger, and the development of traffic sense. They will also work with secondary schools to strengthen the awareness and responsibility of future drivers.

## NETHERLANDS
## STRATEGIC PLAN FOCUSES ON CHILDREN CYCLING INDEPENDENTLY FOR THE FIRST TIME

The Dutch Strategic Plan for Road Safety 2030[26] has a priority focusing on inexperienced road users including children and novice drivers. The plan recognises that children have an increased road risk, particularly around the time they start travelling to school independently (10–14 years). Often this increased risk comes from a lack of experience on the road, or not being familiar with the route or the area. The strategic plan seeks to address this by aspiring to ensure cyclists between 10 and 14 years old are well informed of the risks on the road to school. There is also the ambition to make wearing a helmet 'normal' for children, rather than the exception. Actions identified in the national road safety action plan 2022–2025[27] specifically aimed at children include improving road safety education in primary schools. Other actions such as gathering data on who is riding what and at what speed on cycle paths with a view to potentially improving the infrastructure, improving data collection and reviewing the rules of the road and how these impact the safety of vulnerable road users, will also benefit children.

## ITALY
## PRIORITISING CHILD RESTRAINT SYSTEM USAGE RATES AND SPEED MANAGEMENT AROUND SCHOOLS

Italy's National Road Safety Plan 2030[28] identifies children as road users at high risk and recommends some specific actions to protect them. These include encouraging targeted training and education both for children and their parents to increase the use of child restraint systems and the use of protective equipment among children as well as recommending speed management and enforcement interventions, particularly on routes to school.

[26] Dutch Strategic Plan for Road Safety 2030 https://bit.ly/3cXejo6
[27] Dutch National Road Safety Action Plan 2022–2025 https://bit.ly/3zZpzcF
[28] Piano Nazionale Sicurezza Stradale 2030 https://bit.ly/3kUByjF

## PIN Flash 38: How safe is walking and cycling in Europe?

This report examines the most recent available data on the current safety levels of cycling and walking across the PIN countries. The latest figures show that there were at least 51,300 pedestrians and 19,450 cyclists killed on EU roads between 2010 and 2018. The researchers found that, while deaths among motorised vehicle occupants fell by on average 3.1% a year over the period, deaths among cyclists averaged only a 0.4% annual reduction – only one eighth as fast.

The slow decline in cyclist deaths reflects not only an increase in levels of cycling in several EU countries, but also the failure by the EU, many governments, local authorities and motor vehicle manufacturers to invest more heavily in measures to protect vulnerable road users. 99% of pedestrian deaths, and 83% of cyclist deaths recorded are as a consequence of an impact with a motor vehicle. These groups are, by far, the least likely to harm other road users.

Deaths among pedestrians and cyclists, the most vulnerable road users, accounted for 29% of all recorded road deaths across the EU in 2018.

For more information see:
www.etsc.eu/pinflash38


## 2.2 PROTECTING CHILDREN TRAVELLING IN VEHICLES

Every year, 49% of children killed on EU roads die as a motor vehicle passenger (see Fig. 8).

*A correctly used child restraint system is the most effective passive safety feature for a child travelling as a vehicle occupant.*

According to the EU Directive 2014/37/EU, in the EU, children under 150cm in height must be secured by a child restraint system according to their height and volume or weight. Children older than three but shorter than 150cm must sit in the back.[29] Research shows that rearward-facing child seats provide the best protection and should be used for as long as possible.[30]

### REARWARD-FACING CHILD SEATS PROVIDE BETTER PROTECTION FOR CHILDREN UNDER THE AGE OF FOUR

More children under four years would survive collisions if they were seated in rearward-facing child seats.

Children's bodies are small, their head is large and heavy in relation to their body and their neck is weak and fragile. When a child is seated in a forward-facing seat and a car is involved in a frontal collision, the child's head and arms are thrown forward with a violent force. In such a collision scenario, a rearward-facing seat absorbs the violent forces better, keeping the child's sensitive head and neck fully aligned. If used on the front passenger seat, the frontal passenger airbags should be deactivated.

A 2008 study commissioned by European consumer voice in standardisation (ANEC) revealed that the UK and Swedish collision databases all have examples of unexpected poor protection of forward facing child seats. The problems concern neck, head, chest and abdominal injuries. Well-designed rearward-facing child seats would help to avoid such injuries. According to the study, children up to four years of age are better protected if they travel rearward facing in a suitable restraint. The Swedish data indicate that there are no dis-benefits associated with rearward-facing child restraints.

A meta-analysis study by Elvik, published in the 2009 Handbook of Road Safety Measures, looked at 19 studies, finding severe or fatal injuries would be reduced by up to 90% for 0 to 4-year-old children using a rearward-facing seat, compared to using a seat belt alone. If a front-facing seat was used there would be a 55% reduction, compared to using a seat belt alone.

The Swedish government recommends transporting children in rearward-facing child seats for as long as possible, ideally until they are around four years old.[31]

[29] Commission Implementing Directive 2014/37/EU relating to the compulsory use of safety belts and child restraint systems in vehicles https://bit.ly/3FfZ9Vd. Member states can opt alternatively for 135cm, which quite a few did.
[30] Høye, A. (2015) Child restraints. The Handbook of Road Safety Measures, Norwegian (online) version https://bit.ly/3KEzBlA
[31] https://bit.ly/3Rzsy1B

## LUXEMBOURG
### CHILDREN UNDER THREE MUST ALWAYS BE TRANSPORTED IN A CHILD RESTRAINT SYSTEM, INCLUDING IN TAXIS

In Luxembourg children under three years old must be transported in a child restraint system which meets European standards and is appropriate for their age and weight. If a vehicle does not have any means of fastening such a child restraint system, a child under three years cannot be transported in the vehicle. This includes taxis[32] some of whom provide child seats upon request. Drivers caught transporting children under three years not fastened in an appropriate child restraint system will be fined €145 and receive two points on their licence.

## AUSTRIA
### NEW STRATEGY FOCUSES ON CHILD RESTRAINT MISUSE AND CHILD MOBILITY

The new Austrian Road Safety Strategy 2021–2030 sets a goal of Vision Zero for child deaths. The strategy also aims to make safe walking and cycling a main priority, with a particular focus on children and young people, especially in the school environment. Potential solutions identified in the strategy include shared spaces and area-wide 30 km/h zones (excluding the main road network), and 'school streets'. The strategy also aims to have traffic safety and mobility education become a lifelong learning process starting in kindergarten. Participation in cycling training and cycling tests could also become standard in schools.[33]

## ESTONIA
### TARGETS CHILD RESTRAINT USE AND BIKE HELMET WEARING

The Estonian National Safety Programme 2016–2025 includes a number of actions related to child road safety. Lifelong traffic education, from preschool to high school, is part of the national curriculum. Bicycle courses and examinations are available free of charge for 10-year-olds and public campaigns on child safety take place frequently. While the programme does not include a specific quantitative goal to reduce deaths among children, a number of other targets address important aspects of child road safety. By 2025 Estonia aims to increase seatbelt wearing rates and correct child restraint system usage rates to 95%, have 80% of children below 16 wearing a bicycle helmet and at least 95% of child pedestrians wearing reflective clothing.

## GREECE
### SECOND-HAND CAR SEAT INITIATIVE

The Greek Road Safety Institute (RSI) "Panos Mylonas" runs an initiative, 'Share the Safety', that helps families in need receive a used child seat free of charge. The RSI collects the child seats and assesses them. Those meeting the technical requirements are given straight to families or to social services departments. 'Pit Stop for Road Safety' is another initiative the RSI runs during the summer months at motorway service stations where they provide advice and checks on whether a child seat is suitable and correctly fitted.

[32] EU Directive 2003/20/EC relating to the compulsory use of child restraint systems, allows Member States to make an exception for children travelling in taxis but Member States are also free to make child seats mandatory in taxis.
[33] Austrian Road Safety Strategy 2021–2030 https://bit.ly/3OP6ejZ

**Table 1. Child restraint system usage rates in the latest year available. Average usage rates for children aged 0–14. Variation between age groups are not taken into account.**
Source: PIN panellists
(1)In Austria, the proportion of CRS correctly protecting children travelling in cars is thought to be around 40% for children who buckle up themselves
(2)Restraint system rates are for children under 16.

| | Appropriate CRS and correctly used | Year |
|---|---|---|
| BE | 23% | 2017 |
| LT | 69% | 2021 |
| | **CRS usage rates** (might include incorrectly used and inappropriate CRS) | **Year** |
| AT(1) | 99% | 2021 |
| BE | 87% | 2017 |
| DE | 99% | 2020 |
| EE | 96% | 2021 |
| FI | 97% | 2021 |
| EL | 57% | 2009 |
| PL | 97% | 2020 |
| SI | 94% (0–7 yo)<br>90% (8–14 yo) | 2018 |
| GB(2) | 97% | 2017 |
| CH | 93% | 2012 |
| RS | 58% | 2020 |

## 2.2.1 TOO MANY CHILDREN ARE TRANSPORTED EITHER IN THE WRONG SEAT, OR IN THE RIGHT SEAT INCORRECTLY USED

The data in Table 1 show that child restraint usage rates vary greatly among PIN countries. In Austria and Germany, usage rates are reported as being close to 100%, but those may include inappropriate or incorrectly installed child seats. Finland, Estonia, Poland, Slovenia and Switzerland also report usage rates above 90%. However, apart from in Austria, there is no data from any of these countries on whether the CRS being used was in fact both appropriate and correctly installed. Belgium and Lithuania are the only two countries to report a CRS usage rate (23% and 69% respectively) where the CRS was both appropriate and correctly installed.

According to an ESRA survey, only 2% of those questioned felt that it was acceptable to transport children without securing them appropriately. On the other hand, at least 15% of those questioned said that they had transported children under 150cm tall without using an appropriate child restraint system at least once in the last 30 days and 13% said that they had transported children over 150cm tall without wearing their seatbelts, at least once in the last 30 days.[34]

[34] Nakamura, H., Alhajyaseen, W., Kako, Y. and Kakinuma, T. (2020): Seat belt and child restraint systems. ESRA2 Thematic report No.7. ESRA project (E-Survey of Road users' Attitudes). International Association of Traffic and Safety Sciences (IATSS), 2–6–20 Yaesu, Chuo-ku, https://bit.ly/3FmCalh

**Table 2. The number of children killed as vehicle occupants not fastened by an appropriate child restraint or seatbelt**
Source: PIN panellists

| | Total number of children killed in vehicles | Children killed and not fastened by CRS or seatbelts out of the total number of children killed in vehicles | Time period covered | Note |
|---|---|---|---|---|
| **AT** | 2 | 1 | 2019–2021 | |
| **FI** | 3 | 1 | 2018–2020 | |
| **FR** | 149 | 30 | 2019–2021 | Among killed where information is available (30% of killed without the information for the seatbelt, 47% of killed without the information for the CRS) |
| **EL** | 2 | 1 | 2019–2021 | 2 children (aged 0–14) were killed as car passengers in 2019 in total. 1 child was wearing a seatbelt while the other was not. |
| **HR** | 2 | 2 | 2019–2021 | |
| **HU** | 6 | 3 | 2018–2020 | All numbers in the table were occupants of passenger car |
| **IE** | 2 | 0 | 2019–2021 | |
| **LT** | 4 | 3 | | |
| **RO** | 63 | 56 | 2019–2021 | |
| **PT** | 11 | 2 | 2019–2020 | |
| **SI** | 1 | 0 | 2019–2021 | |
| **RS** | 6 | 0 | 2019–2021 | |

Children not attached with appropriate child restraints continue to die in vehicles. In Romania, 56 of the 63 children killed in vehicles between 2019 and 2021 were not fastened by either a CRS or a seatbelt. In Hungary, three out of six children that died in a motor vehicle between 2018 and 2020 were not fastened by a CRS or seatbelt. In France, between 2019 and 2021, 11 out of 44 children that died in a motor vehicle and for which the relevant information was available were not fastened by a CRS or seatbelts. In Slovenia and the Republic of Serbia, all of the children that died in a motor vehicle between 2019 and 2021 were correctly fastened in an appropriate CRS or wearing a seatbelt (Table 2.).

Some PIN countries have set targets to improve correct child restraint usage rates. In Croatia the target is 98% by 2030, in Estonia the target is 95% by 2025 and in Austria it is 99% by 2030.

Child restraint installation mistakes can drastically reduce the effectiveness of a child restraint system (CRS). Data on correct CRS usage are therefore crucial when analysing child safety in vehicles. Sadly, these data are not available in many PIN countries.

Research carried out in Belgium in 2017 found that 74% of drivers carrying children incorrectly restrained thought their child was correctly restrained. In addition, 63% of drivers thought the child was correctly restrained when the child or child restraint system was not fastened.[35] Similar research carried out in the Netherlands in 2018 by VeiligheidNL found that, of the 470 children between the ages of 0 and 8 that were assessed at a roadside check, 83% were not being correctly transported in the car – either they were not correctly restrained or they were not restrained at all despite being smaller than 135cm.[36] In addition, 7% of the car seats were not the correct size for the child (either too big or too small) and 49% were not correctly installed. 59% of the children were not correctly fastened in their child seat.[37]

[35] Schoeters, A. & Lequeux, Q. (2018) Are our children safely fastened? Vias institute (summary in English) https://bit.ly/3j4I0mZ
[36] Cornelissen, M. Kemler, E. & Hermans, M. (2018) Safe transport of children in the car: research with children from 0 to 8 years https://bit.ly/3xdAuie
[37] SWOV (2019) How often are children not properly secured in the car and how dangerous is that? https://bit.ly/37vrWbl

## IRELAND
## FREE CHILD CAR SEAT CHECKING SERVICE

The 'Check it Fits' Service is a free child car seat checking service run by a team of child car seat experts who have vast experience and training in fitting and checking most types of child car seats. It aims to educate parents, grandparents and guardians on how to use child seats correctly in their own car. The service is available nationwide and is set up in car parks. 'Check it Fits' events are held over approximately 50 weeks of the year, both virtually and face to face. In 2021, 1,246* car seats were checked via the Check it Fits Service at 103* events (100 Virtual and 3 Face to Face). From January to the end of August 2022, there were 2,925* car seats checked at over 93* events.

In addition, the RSA has also launched a voluntary Code of Practice for child car seat retailers and manufacturers with the aim of bringing all the information and education that customers receive on child car seats at the point of purchase in line with legal requirements and best practice. Retailers and manufacturers and continuously committing to this Code and promotion is ongoing to encourage parents to seek out retailers who are signed up to the Code when buying their child car seats.

Ireland also has a Road Safety Interactive Unit, known as the 'Shuttle'. The 'Shuttle' can be set up in schools, colleges, companies and at community events nationwide. It offers fully interactive road safety educational experiences using simulated virtual situations in our virtual reality pods. Visitors can experience first-hand the dangers of driving and texting, driver fatigue and the consequences of drink driving. Driving and hazard perception skills on our simulators (bicycle, motorbike) as well as safe cycling skills on our state-of-the-art simulator can also be experienced.

*(*these figures are provisional and subject to change)*

## ROMANIA
## COURSES FOR PARENTS AND PARENTS-TO-BE ON CHILD RESTRAINT SYSTEMS

The Children's Car Safety Foundation[38] in Romania is a non-profit organisation working to educate parents on the correct use of child restraint systems. They provide free courses for parents and parents-to-be on child restraint systems, including correct fitment. Their Children's Car Safety National Caravan travels around the country providing free testing and installation sessions for parents. Since 2019, they have established Child Car Safety Centres giving parents easy access to specialised advice on choosing, installing and maintaining car seats and seat accessories. The first centre was opened in Bucharest in 2019, the second in Constanta in 2020 and a third in Brasov in 2021. More centres are planned to open in the future.

[38] https://www.siguranta-auto-copii.ro/en/siguranta-auto-copii-2/

## 2.2.2 EU LEGISLATION ON CHILD RESTRAINTS

The use of restraint systems specially adapted to the size and weight of children became compulsory in the EU with EC Directive 2003/20.[39] All child car seats currently sold in the EU must comply with UN Regulation 44 (R44)[40] or UN Regulation 129 (R129)[41] (also known as "i-Size").

From the 1st of September 2024, only child restraint systems meeting the R129 standard will be allowed on the EU market.[42] The R129 standard is an improvement on the older R44 UN standard as:

- children up to 15 months are obliged to be in rearward facing seats. This position offers better protection for the developing head and neck of babies and toddlers;
- side impact protection is mandatory for all new child seats;
- it introduces new generation test dummies which more closely represent the actual size and weight of children;
- it introduces a simplified guide to choosing the right seat for the child, by using the height of the child as the only guideline;
- I-Size integral child seats can only be installed with an ISOFIX-system, as this has been proven to reduce the risk of incorrect installation.[43]
- it improves compatibility: every i-Size child seat can be used on an i-Size seating position in the car (no further checks needed).

In addition to the UN regulations providing type approval for child restraint systems, ISOFIX has been compulsory in all new vehicles in the European Union since 2014.[44]

To encourage the use of child restraints, EU Directive 77/388/EEC includes child seats in the category 'essential product' on which VAT can be charged at a lower rate.

However, only a few EU Member States have taken advantage of the possibility to reduce VAT for child restraints, thereby making them more affordable for all parents. The VAT on child seats is reduced to 5% in Cyprus, Poland, Portugal and in the UK. In Croatia and Greece it is reduced to 13%. (Table 3).

In order to economise, some parents might buy a used child car seat. Parents should be advised to gather information on the history of such child seats. Even after a light collision the structural integrity of child car seats might be affected without showing external signs of damage. In addition some components of the used child seat might be missing or they may not be designed to current safety standards.[45] Rental exchange programmes could be a good solution for low-income families provided the rental or exchange provider checks the seats for damage.

As well as child car seats and restraint systems needing to meet certain EU standards, child bike seats must also adhere to European standard EN14344.

**Table 3. VAT reduction for child seats**
Source: PIN panellists
Information not available for MT

| | Does your country have reduced VAT for child car seats? |
|---|---|
| YES | 5%: CY, PL, PT, UK<br>13%: EL, HR<br>13.5%: IE |
| NO | AT, BE, BG, CH, CZ, DE, DK, EE, ES, FI, FR, HU, IL, IT, LU, LV, LT, NL, NO, RO, RS, SE, SI, SK |

[39] Directive 2003/20/EC of 8 April 2003 amending Directive 91/671/EEC on the approximation of the laws of the Member States relating to compulsory use of safety belts in vehicles of less than 3.5 tonnes https://goo.gl/dKeHV2
[40] UN Regulation 44, Uniform provisions concerning the approval of restraining devices for child occupants of power-driven vehicles, https://goo.gl/jcPyKf
[41] UN Regulation 129, Uniform provisions concerning the approval of enhanced Child Restraint Systems used on board of motor vehicles (ECRS), https://goo.gl/E7sHrE
[42] European Commission (2022), Road safety thematic report – Seat belt and child restraint systems. European Road Safety Observatory https://bit.ly/3uPgAHr
[43] For non-integral seats (booster seats), installation with the seat belt is allowed as well.
[44] General Safety Regulation of the EU https://bit.ly/3J8Zh9j
[45] Rospa, Child car seats, Second hand child seats, https://goo.gl/1WMFjE

### 2.2.3 EURO NCAP CHILD OCCUPANT AND PEDESTRIAN PROTECTION

Euro NCAP encourages manufacturers to offer seating positions compatible with i-Size seats. Vehicles are rewarded for providing important features such as ISOFIX anchorages on various seating positions, "i-Size" labelling, a front seat airbag-disabling switch with clear user instructions, integrated child seats, etc. In 2021, 31 of 33 new models (94%) offered as standard two i-Size positions in the car. 11 out of 33 new models also offered an i-Size-ready front passenger seat, although in three of these vehicles only as an option.[46]

The protection for six and ten-year-old children sitting in the rear seat in a child restraint recommended by the manufacturer is also assessed by Euro NCAP. The test dummies are placed in a booster seat and booster cushion respectively to position the adult seat belt correctly, and test the protection offered by the combination of the child restraint system and the car's own restraint systems (rear seat belts fitted with pretensioners, load limiters, curtain airbags etc). Euro NCAP also verifies whether the car can easily accommodate the most common child restraint systems available on the market and checks that the information that vehicle manufacturers provide to car owners is accurate and clear.

Outside the vehicle, Euro NCAP pedestrian protection tests evaluate the most important vehicle frontend structures, such as the bonnet and windshield, the bonnet leading edge and the bumper. In these tests, the potential risk of injuries to child and adult pedestrian head, adult pedestrian pelvis, upper and lower leg are assessed. In 2016 Euro NCAP started testing and rewarding an Automated Emergency Braking System with pedestrian detection. However, in general, car manufacturer improvements in pedestrian protection have been slower than those for occupant protection.

### 2.2.4 EU VEHICLE SAFETY REGULATION

Intelligent Speed Assistance (ISA) became mandatory on new models of vehicles as of July 2022 and Automated Emergency Braking (AEB) detecting pedestrians and cyclists will be required on new models as of July 2024. ISA and AEB detecting pedestrians and cyclists can mitigate or prevent traffic collisions involving children. Passive safety of cars will also be improved by extending the crash test zone to include the windscreen between the A-pillars for better child pedestrian and cyclist protection.

Due to their small stature, children are less visible to drivers.

New models of heavy goods vehicles also have to be fitted with advanced systems capable of detecting pedestrians and cyclists located in close proximity as of July 2022 and comply with improved direct vision requirements as of 2026.

[46] Information received directly from Euro NCAP.


### Alcohol Interlocks in School Buses

Coaches and school buses in France are required to be fitted with alcohol interlocks. Coaches assigned to public transport for children have been equipped with alcohol interlocks since 2010 and all coaches since 2015.[47] Alcohol interlocks must also be fitted in all school coaches and school taxis in Finland. In Sweden, even though there is no legal requirement to use alcohol interlocks in school coaches, almost all school coaches are equipped with these devices.

For more information see: ETSC (2020), Alcohol Interlocks in Europe: An Overview of Current and Forthcoming Programmes https://bit.ly/3bO5xIs


[47] Alcohol Interlock policy of the French Government https://bit.ly/3Qr7U3f

## RECOMMENDATIONS TO NATIONAL GOVERNMENTS

- Develop a strategy to increase the correct usage of child restraint systems. Contribute to the EU Key Performance Indicator with the timely collection and delivery to the European Commission of data on the percentage of child occupants in cars correctly restrained. Complement it with the indicator on the proportion of child occupants killed, separating out into two categories: those not wearing a seatbelt and those not wearing a child restraint system.
- Run regular information campaigns educating parents about the importance of child restraints and training activities on the correct installation of child restraint systems. Support health and non-governmental organisations in including child restraint usage information in their programmes.
- Set enforcement targets and enforcement plans for use of child seats and use of seatbelts.
- Increase the affordability of child restraints by including them in the category of essential products (eligible for a lower VAT rate) as EU Directive 77/388/EEC allows.
- Make rear-facing child seats mandatory for as long as possible, preferably until four years of age, pending such action by the EU.
- Mandate alcohol interlocks in all coaches transporting children.
- Encourage taxi companies to provide their fleet with child safety restraints. Support rental schemes for child seats, providing safety checks are performed before the child seat is rented.

## RECOMMENDATIONS TO RETAILERS

- Train employees to correctly advise members of the public on the correct installation and use of child seats.

## RECOMMENDATIONS TO THE EU INSTITUTIONS

- Make rear-facing child seats mandatory for as long as possible, preferably, until the child is four years old.
- Support Member States in collecting data for the KPI 'percentage of child occupants in cars correctly restrained'. Adopt an additional indicator on the proportion of child occupants killed, separating out into two categories: those not wearing a seatbelt and those not wearing a child restraint system.
- Set the KPI outcome targets to match the outcome performance of the three best-performing countries and publish updated data regularly.
- Launch a special effort to increase the correct use of child safety restraints in all EU countries. Support health and non-governmental organisations to include child restraint usage information in their programmes.
- Encourage Member States to set enforcement targets and enforcement plans for child restraint systems.
- Encourage Member States to introduce lower VAT for child restraints by including them in the category of essential products as EU Directive 77/388/EEC allows.
- Facilitate and support the exchange of best practice in the use of child restraint systems and enforcement of their use across Member States.

Following the adoption of the revision of the General Safety Regulation (GSR) on new minimum vehicle safety standards, recognise the particular importance for child safety to:

- Deliver on the estimated number of deaths and serious injuries prevented by adopting strong and timely secondary regulations implementing the GSR; including improved direct vision for heavy goods vehicles.
- Require a high level of performance of Intelligent Speed Assistance systems to be fitted in all new vehicles.
- Develop crash test dummies representative of more aspects of variability such as age, gender, size and stature for those road users outside of the vehicle.

## 2.3 ROAD INFRASTRUCTURE AND SPEED MANAGEMENT

31% of children aged 0–13 killed on European roads are pedestrians and 11% are cyclists.

*Most serious collisions involving child pedestrians and cyclists are collisions with motorised vehicles.*

Road infrastructure should take into account the needs of the communities it serves. The road environment must be designed in a way that recognises and takes account of the capabilities and limitations of children.

In its 'Streets for Life' campaign,[48] the UN calls for a 30km/h speed limit where people walk, live and play, adding that the measure is vital for child rights, by ensuring they have a safe environment to move around and play in. Reducing speed limits to 30 km/h in residential areas and around schools, childcare facilities and playgrounds is also a leading recommendation of both the OECD and UNICEF. The new 'EU SAVE' recommendations from the European Commission[49] to local, regional and national authorities also call for the reduction of speeds, including in urban areas, as part of its initiative on tackling dependence on Russian oil, saving energy and emissions.[50] These savings were outlined by the International Energy Agency in a joint announcement with the European Commission in April.[51]

A combination of traffic calming measures, such as roundabouts, road narrowing, chicanes and road humps is helpful in 30km/h zones to make it easier for vehicle drivers to adhere to the legal speed limit. A study in the Netherlands recently evaluated the effect of road signs displaying children's book illustrations on nudging drivers to slow down. The study found that on the roads where the children's book illustrations were placed, mean speed was marginally lower.[52]

Some PIN countries also choose to place restrictions on the age at which children are allowed to cycle alone on roads or, up to a certain age, permit them to ride a bicycle on the pavement. In Slovakia, for instance, children under the age of ten may only ride a bicycle on a road if they are accompanied by someone over the age of 15. In addition, cyclists under the age of ten, any cyclists accompanying them and cyclists transporting children under ten may ride on the right side of the pavement, provided that this does not endanger or impede pedestrians. Likewise, in Switzerland, children under the age of six are not allowed to cycle on roads unless accompanied by someone over the age of 16. Children up to the age of 12 are also allowed to cycle on the pavement if there is no cycle path available.

[48] UN 'Streets for Life' campaign https://bit.ly/3bDRqWt
[49] European Commission (2022) Communication 'SAVE Energy' https://bit.ly/3NAZDrz
[50] ETSC (May 2022) ETSC statement on 'EU Save Energy' speed recommendations https://bit.ly/3bwJx4M
[51] ETSC (2022) Press release: European Commission and IEA call for lower speeds on highways https://bit.ly/3BHn14g
[52] Vlakveld, W.; Goldenbeld, Ch.; Groot, J. de (2022) Road signs depicting children's book illustrations temporarily reduce speed on urban roads https://bit.ly/3R5BMDg

## RECOMMENDATIONS TO NATIONAL GOVERNMENTS

- Design road environments in ways that recognise children's capabilities and limitations
- Encourage local authorities to adopt zones with a speed limit of 30 km/h in residential areas, on routes to schools and child care facilitites and around bus stops and other areas used by many pedestrians and cyclists and to promote traffic calming measures.
- Reduce motor vehicle traffic around schools and childcare facilities.
- Develop safe routes to schools, including 'school streets' for the last section of the journey.
- Implement safe pedestrian and bicycle infrastructure separated from motorised traffic to make walking and cycling to school safer.
- Promote walking and cycling and develop children's autonomous mobility within the context of health, but with the emphasis on safe use of the roads.
- Design vehicle parking areas to exclude the possibility of walking out from behind cars into the path of moving traffic, especially around childcare facilities. Provide roads with higher speeds (up to 50km/h) with safe opportunities to cross the streets, allowing pedestrians and van drivers to mutually see each other (without parked cars or other obstacles in the way).
- Ban children under the age of 16 from using e-scooters.
- Provide road safety education which is part of the continuum of lifelong learning.[53]

## RECOMMENDATIONS TO THE EU INSTITUTIONS

- Create an EU fund to support priority measures such as for cities to introduce 30 km/h zones, supported by traffic calming measures.
- Deliver an EU safe active mobility strategy which sets road safety measures and targets, also for children, to increase the amount of distance safely travelled by walking and cycling.
- Build upon the European Commission's 'EU SAVE' recommendations[54] to local, regional and national authorities to reduce speeds on motorways, on rural roads and in urban areas and adopt a fully-fledged European Commission Recommendation to apply safe speed limits in line with the Safe System approach for the different road types such as 30 km/h on urban roads in residential areas and other areas used by many pedestrians and cyclists, 70 km/h on undivided rural roads and a top speed of 120km/h or less on motorways.

[53] LEARN! project (Leveraging Education to Advance Road safety Now!) https://bit.ly/3dafEbp
[54] European Commission (2022) Communication 'SAVE Energy' https://bit.ly/3NAZDrz

## 2.4 BICYCLE HELMETS

A bicycle helmet offers the best protection against head injury for impact speeds up to approximately 20km/h. The use of a bicycle helmet reduces the risk of severe head injury by more than 65%.[55] According to the Dutch Institute for Road Safety Research (SWOV) if all children under the age of 12 wore a bicycle helmet in the Netherlands, five child road deaths and 200 serious child road injuries could be saved each year.[56]

15 PIN countries reported having mandatory bicycle helmet wearing for children. In 16 PIN countries, wearing a bicycle helmet is not mandatory. (Map 1).

All cycling helmets sold in the EU must meet the EN1078 standard (adults) and EN1080 standard (children). In accordance with the EU standard, the effectiveness of a bicycle helmet is tested by having the helmet impact on a flat surface ('flat anvil') at a speed of approximately 20 km/h and on a 'curb' surface ('curb anvil') at a speed of approximately 17 km/h.[57] But some researchers say that these testing methods are not enough and are making calls for more oblique (at an angle) impact tests to also be included, in order to better replicate real-world conditions.[58]


**Map 1. Bicycle helmet use regulations**
Source: PIN panellists

### RECOMMENDATIONS TO NATIONAL GOVERNMENTS

- Encourage helmet-wearing among cyclists, without discouraging cycling.

### RECOMMENDATIONS TO THE EU INSTITUTIONS

- Revise standards for testing bicycle helmets to increase the safety standard currently in use to offer higher levels of protection.

[55] SWOV (2019), Fact sheet - Bicycle helmets, https://bit.ly/3pVFovl
[56] Weijermars, W.A.M.; Boele-Vos, M.J.; Stipdonk, H.L. Commandeur, J.J.F. (2019) The potential of bicycle helmets to reduce road deaths and serious injuries (in Dutch) https://bit.ly/374hiIW
[57] SWOV, Which requirements should a (good) bicycle helmet meet? https://bit.ly/3OUt2yQ
[58] Abayazid, F., Ding, K., Zimmerman, K. et al. A New Assessment of Bicycle Helmets: The Brain Injury Mitigation Effects of New Technologies in Oblique Impacts. Ann Biomed Eng 49, 2716–2733 (2021). https://bit.ly/3LF4WWy

## 2.5 PRE-HOSPITAL CARE

At the scene of a collision, prompt, high-quality pre-hospital care can save many lives after a road traffic collision has occurred. Pre-hospital care is most effective if equipment, training, infrastructure and operations are standardised. Medical emergency vehicles need to be equipped with supplies and medical devices for children as well as for adults.[59]

In addition, staff need to be trained on how to evaluate and manage child injury. Normal treatments for adults may not necessarily be normal for a child and vice versa.[60] Pre-hospital clinicians should understand the patterns of injury specifically seen in children. These patterns vary according to age and, by understanding what they are, morbidity and mortality can be reduced. The early initial treatment in the pre-hospital setting and subsequent informed advanced warning to the hospital will lead to better preparation and the deployment of appropriate resources to deal with the injuries, so improving clinical outcomes.

### RECOMMENDATIONS TO NATIONAL GOVERNMENTS

- Train medical pre-hospital care staff to evaluate and manage child injury.

[59] WHO, Youth and road safety, https://www.euro.who.int/__data/assets/pdf_file/0003/98454/E90142.pdf
[60] Ibid

## 2.6 EU LEGISLATION FOR OBTAINING A DRIVING LICENCE FOR MOPED DRIVING

Since 2013 it has no longer been possible to drive a moped in the EU without a driving licence, thanks to amendments to EU Directive 2006/126/EEC on Driving licences.

The amendments to the directive introduced a new AM category.[61] A theoretical test was made mandatory for AM riders following the implementation of the Directive, while practical training remained optional.[62] Most Member States have stricter licencing requirements for mopeds: 20 EU countries require mandatory practical training and 21 require a practical test.

The directive recommends that the minimum age for obtaining an AM category driving licence should be 16, but in Estonia, France, Hungary, Italy, Latvia and Poland, an AM category licence can be obtained at 14 years old. A further 11 PIN countries allow a licence at 15 years old (AT, CH, CZ, DE, DK, ES, FI, LT, SE, SI, SK). On the other hand, in Cyprus, an AM licence can only be obtained at 17 years old and, in Malta, at 18 years old. Indeed, the AM category is the licence category with the largest variation in minimum age requirements (Table 4).

The risks associated with young drivers and riders stem from inexperience, immaturity and lifestyle linked to their age and gender.[63] Young people undergo significant biological and social changes between the ages of 15 and 25. Cognitive development during puberty can lead to greater emotional instability and more assertive behaviour. Consequently, as road users, young people tend to display risky behaviours and have a diminished appreciation of the hazards that they face.[64] Raising, or not lowering, the minimum age for solo driving, will save lives, by virtue of the fact that it prevents young and inexperienced drivers from solo driving until they are older.[65]

High quality training is crucial for safe motorcycling. Some core skills, such as personal attitudes, risk awareness, self-awareness, dealing with risks such as distraction, peer pressure and impaired driving, are difficult to test. Nonetheless, several studies have highlighted the importance of training for these skills.[66]

The training for graduated access to a higher category may not need to cover all elements of the practical test as the candidate already has experience. It could, for instance, instead focus on the high-level skills mentioned above.

[61] AM category includes: Moped – two-wheel vehicles or three-wheel vehicles with a maximum design speed over 25km/h and not more than 45km/h; Light quadricycle with an unladen mass of not more than 350kg, not including the mass of the batteries in case of electric vehicles, whose maximum design speed is over 25km/h and not more than 45km/h.
[62] EU Directive 2006/126/EC on Driving Licences https://bit.ly/3a4GgGE
[63] European Commission (2018) Novice Drivers https://bit.ly/3qT3Xt8
[64] Twisk, D., Stelling, A., (2014), Young people's risky behaviour requires integral approach, SWOV, p4. https://bit.ly/3dwwm5q
[65] OECD (2015), Improving Safety for Motorcycle, Scooter and Moped Riders, https://goo.gl/kAwsjq
[66] OECD (2006), Young Drivers – The Road to Safety, OECD, pp.75–76. https://goo.gl/dHJJRj

**Table 4. Minimum driver age for different PTW categories (updated March 2022).**
Source: PIN panellists

Note: Category AM – 2- and 3-wheel vehicles with a maximum design speed of not more than 45 km/h, as well as light quadricycles

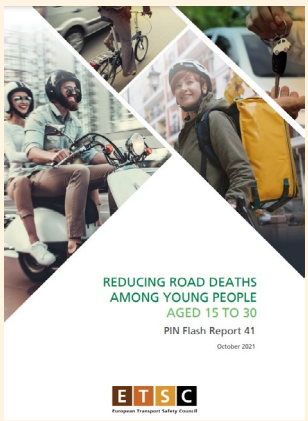
Category A1 - light motorcycles with a cylinder capacity not more than 125 cubic centimetres and a power rating less than 11 kW

Category A2 – motorcycles with a power rating under 35 kW

Category A – heavy motorcycles without power restrictions

[1]Age limits: small moped 30km/h: 15 years, big moped 45km/h 18 years
[2]Written parental consent is required before the age of 18
[3]Min. 20 years, if in possession of A1 for 2 years. If not then min. 24 years.
[4]18 years for heavy PTW (over 150kg)
[5]In France, there is no direct access to driving licence A, in accordance with the principle of progressive access to powered two wheelers.
[6]There is no AM category in Israel. At least 1 year of A1 licence is a prerequisite for licence A.
[7]From the age of 15 until 16, young moped drivers are allowed to drive only in the German territory.
[8]Only those who need to drive such motorbikes as part of their profession (e.g. motorbike mechanics, police officers or traffic experts) can obtain the corresponding category directly.

| | Minimum driver age for different PTW categories | | | | |
|---|---|---|---|---|---|
| | **AM** (EU recommended minimum age 16) | **A1** (EU recommended minimum age 16) | **A2** (EU recommended minimum age 18) | **A** (EU recommended minimum age 20 with two years of experience under A2 and 24 years without previous experience under A2) | |
| | | | | 2 years experience under A2 | No experience under A2 |
| **AT** | 15 | 16 | 18 | 20 | 24 |
| **BE** | 16 | 18 | 20 | 22 | 24 |
| **BG** | 16 | 16 | 18 | 20 | 24 |
| **CY** | 17 | 18 | 20/24[3] | 22 | 24 |
| **CZ** | 15 | 16 | 18 | 21 | 24 |
| **DE** | 15[7] | 16 | 18 | 20 | 24 |
| **DK** | 15/18[1] | 18 | 20 | 22 | 24 |
| **EE** | 14 | 16 | 18 | 20 | 24 |
| **ES** | 15 | 16 | 18 | 20 | 20 |
| **FI** | 15 | 16 | 18 | 20 | 24 |
| **FR[5]** | 14 | 16 | 18 | 20 | not allowed |
| **EL** | 16 | 18 | 20 | 22 | 24 |
| **HR** | 16 | 16 | 18 | 20 | 24 |
| **HU** | 14 | 16 | 18 | 21 | 24 |
| **IE** | 16 | 16 | 18 | 20 | 24 |
| **IT** | 14 | 16 | 18 | 20 | 24 |
| **LU** | 16 | 16 | 18 | 20 | 20 |
| **LV** | 14 | 16 | 18 | 20 | 24 |
| **LT** | 15 | 16 | 18 | 20 | 24 |
| **MT** | 18 | 18 | 20 | 22 | 24 |
| **NL** | 16 | 18 | 20 | 22 | 24 |
| **PL** | 14 | 16[2] | 18 | 20 | 24 |
| **PT** | 16 | 16 | 18 | 20 | 24 |
| **RO** | 16 | 16 | 18 | 20 | 24 |
| **SE** | 15 | 16 | 18 | 20 | 24 |
| **SI** | 15 | 16 | 18 | 20 | 24 |
| **SK** | 15 | 16 | 18 | 20 | 24 |
| **UK** | 16 | 17 | 19 | 21 | 24 |
| **CH** | 15 | 16 | 18 | 20 | -[8] |
| **IL[6]** | n/a | 18 | 16 | 21 | 21 |
| **NO** | 16/18[4] | 16 | 18 | 20 | 24 |
| **RS** | 16 | 16 | 18 | 20 | 24 |




### PIN Flash 41 Reducing road deaths among young people

This report looks at the progress made in Europe in reducing road deaths among young people aged 15–30. High quality training is crucial for safe driving and motorcycling. Collision risk is highest immediately after gaining the driving licence, when young people are driving and riding independently for the first time. Some core skills such as personal attitudes, risk awareness, self-awareness, dealing with risks such as distraction, peer pressure and impaired driving are difficult to test, especially in a theoretical exam only.

For more information see:
www.etsc.eu/pinflash41

## RECOMMENDATIONS TO NATIONAL GOVERNMENTS

- Do not lower the minimum age for any vehicle categories, including moped riding and solo car driving, to avoid an increase in young rider and vehicle driver deaths.
- To obtain an AM category licence, make theoretical and practical training as well as a practical test mandatory.

## RECOMMENDATIONS TO THE EU INSTITUTIONS

- Within the framework of the upcoming revision of the Driving Licence Directive 2006/126 make theoretical and practical training, as well as a practical test, mandatory to obtain an AM driving licence.
- Establish minimum standards for theoretical and practical training for AM riders and other categories of licences more generally.
- Do not lower the minimum age for any vehicle categories.[67]

[67] ETSC Position on Revision of the Driving Licence Directive 2006/126/EC, https://bit.ly/3CPB0pt

# ANNEXES

## ISO CODES

| Country | ISO Code |
|---|---|
| Austria | AT |
| Belgium | BE |
| Bulgaria | BG |
| Switzerland | CH |
| Cyprus | CY |
| Czechia | CZ |
| Germany | DE |
| Denmark | DK |
| Estonia | EE |
| Greece | EL |
| Spain | ES |
| Finland | FI |
| France | FR |
| Great Britain | GB |
| Croatia | HR |
| Hungary | HU |
| Ireland | IE |
| Israel | IL |
| Italy | IT |
| Lithuania | LT |
| Luxembourg | LU |
| Latvia | LV |
| Malta | MT |
| The Netherlands | NL |
| Norway | NO |
| Poland | PL |
| Portugal | PT |
| Romania | RO |
| Serbia | RS |
| Sweden | SE |
| Slovenia | SI |
| Slovakia | SK |
| The United Kingdom | UK |

## TOTAL POPULATION

| | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|
| AT | 8,822,267 | 8,858,775 | 8,901,064 | 8,932,664 |
| BE | 11,376,070 | 11,431,406 | 11,522,440 | 11,566,041 |
| BG | 7,050,034 | 7,000,039 | 6,951,482 | 6,916,548 |
| CY | 864,236 | 875,899 | 888,005 | 896,005 |
| CZ | 10,610,055 | 10,649,800 | 10,693,939 | 10,701,777 |
| DE | 82,792,351 | 83,019,213 | 83,166,711 | 83,155,031 |
| DK | 5,781,190 | 5,806,081 | 5,822,763 | 5,840,045 |
| EE | 1,319,133 | 1,324,820 | 1,328,976 | 1,330,068 |
| ES | 46,658,447 | 46,937,060 | 47,332,614 | 47,394,223 |
| FI | 5,513,130 | 5,517,919 | 5,525,292 | 5,533,793 |
| FR[(1)] | 64,725,052 | 64,821,954 | 65,123,843 | 65,447,454 |
| EL | 10,741,165 | 10,724,599 | 10,718,565 | 10,682,547 |
| HR | 4,105,493 | 4,076,246 | 4,058,165 | 4,036,355 |
| HU | 9,778,371 | 9,772,756 | 9,769,526 | 9,730,772 |
| IE | 4,830,392 | 4,904,240 | 4,964,440 | 5,006,907 |
| IT | 60,483,973 | 60,359,546 | 59,641,488 | 59,257,566 |
| LU | 602,005 | 613,894 | 626,108 | 634,730 |
| LV | 1,934,379 | 1,919,968 | 1,907,675 | 1,893,223 |
| LT | 2,808,901 | 2,794,184 | 2,794,090 | 2,795,680 |
| MT | 475,701 | 493,559 | 514,564 | 516,100 |
| NL | 17,181,084 | 17,282,163 | 17,407,585 | 17,475,415 |
| PL | 37,976,687 | 37,972,812 | 37,958,138 | 37,840,001 |
| PT[(1)] | 9,779,826 | 9,798,859 | 9,802,128 | 9,857,593 |
| RO | 19,530,631 | 19,414,458 | 19,328,838 | 19,186,201 |
| SE | 10,120,242 | 10,230,185 | 10,327,589 | 10,379,295 |
| SI | 2,066,880 | 2,080,908 | 2,095,861 | 2,108,977 |
| SK | 5,443,120 | 5,450,421 | 5,457,873 | 5,459,781 |
| GB | 58,960,693 | 59,307,685 | n/a | n/a |
| RS | 7,001,444 | 6,963,764 | 6,926,705 | 6,871,547 |
| IL | 8,967,594 | 9,140,473 | 9,293,900 | 9,449,000 |
| NO | 5,295,619 | 5,328,212 | 5,367,580 | 5,391,369 |
| CH | 8,484,130 | 8,544,527 | 8,606,033 | 8,667,088 |
| EU27 | **443,370,815** | **444,131,764** | **444,629,762** | **447,007,596** |

Source: Eurostat, except in the case of Israel, data provided by the panellist.
[(1)] FR, PT - Mainland

## CHILD POPULATION (0–17 YEARS OLD)

| | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|
| AT | 1,533,569 | 1,535,958 | 1,542,621 | 1,543,886 |
| BE | 2,301,495 | 2,305,387 | 2,312,040 | 2,322,671 |
| BG | 1,192,746 | 1,189,745 | 1,189,680 | 1,190,546 |
| CY | 168,574 | 169,238 | 170,553 | 171,476 |
| CZ | 1,948,890 | 1,975,121 | 1,999,465 | 2,018,609 |
| DE | 13,538,146 | 13,597,428 | 13,677,902 | 13,743,944 |
| DK | 1,165,500 | 1,160,384 | 1,156,138 | 1,152,995 |
| EE | 252,117 | 254,445 | 257,044 | 258,227 |
| ES | 8,351,971 | 8,336,394 | 8,325,756 | 8,242,127 |
| FI | 1,066,261 | 1,058,091 | 1,049,057 | 1,041,526 |
| FR[(1)] | 14,073,492 | 13,987,849 | 13,899,822 | 13,836,966 |
| EL | 1,872,031 | 1,861,740 | 1,854,378 | 1,836,948 |
| HR | 716,825 | 705,498 | 697,325 | 691,849 |
| HU | 1,715,113 | 1,711,452 | 1,709,048 | 1,706,685 |
| IE | 1,195,856 | 1,201,002 | 1,201,635 | 1,194,790 |
| IT | 9,806,357 | 9,679,134 | 9,433,159 | 9,351,113 |
| LU | 116,805 | 117,879 | 119,539 | 120,994 |
| LV | 358,762 | 358,813 | 359,457 | 358,534 |
| LT | 503,015 | 499,575 | 498,821 | 498,318 |
| MT | 79,163 | 80,196 | 81,948 | 82,130 |
| NL | 3,386,096 | 3,357,755 | 3,337,245 | 3,311,222 |
| PL | 6,874,006 | 6,894,860 | 6,913,237 | 6,922,454 |
| PT[(1)] | 1,639,081 | 1,628,481 | 1,615,180 | 1,608,788 |
| RO | 3,680,850 | 3,656,789 | 3,644,619 | 3,651,331 |
| SE | 2,121,598 | 2,155,379 | 2,180,508 | 2,189,403 |
| SI | 366,526 | 368,733 | 410,412 | 374,210 |
| SK | 1,006,982 | 1,011,959 | 1,019,976 | 1,028,173 |
| UK | 14,016,366 | 14,091,611 | n/a | n/a |
| GB[(2)] | 12,852,173 | 12,940,416 | 13,008,705 | n/a |
| CH | 1,530,231 | 1,542,361 | 1,555,569 | 1,555,569 |
| IL | 2,934,000 | 2,985,400 | 3,029,900 | n/a |
| NO | 1,129,007 | 1,122,508 | 1,118,608 | 1,111,690 |
| RS | 1,217,101 | 1,212,779 | 1,204,272 | 1,193,612 |
| **EU27** | **81,031,827** | **80,859,285** | **80,656,565** | **80,449,915** |

Source: Eurostat except in the case of Israel, data provided by the panellist.
[(1)]FR,PT - Mainland
[(2)]GB - 2017–2019

## CHILD DEATHS FROM ALL CAUSES (0–17 YEARS OLD)

| | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|
| AT | 180 | 206 | 179 | n/a |
| BE | 248 | 231 | 229 | 250 |
| BG | 297 | 258 | 224 | n/a |
| CY | 17 | 29 | 12 | n/a |
| CZ | 223 | 237 | 206 | n/a |
| DE | 1,555 | 1,454 | 1,296 | n/a |
| DK | 104 | 108 | 103 | n/a |
| EE | 43 | 36 | 34 | n/a |
| ES | 788 | 755 | 683 | n/a |
| FI | 110 | 116 | 116 | n/a |
| FR[(1)] | 1,518 | 1,534 | 1,512 | n/a |
| EL | 211 | 208 | 171 | n/a |
| HR | 100 | 83 | 93 | n/a |
| HU | 196 | 238 | 195 | n/a |
| IE | 105 | 110 | 95 | n/a |
| IT | 977 | 859 | 794 | n/a |
| LU | 8 | 9 | 9 | n/a |
| LV | 62 | 59 | 63 | n/a |
| LT | 89 | 77 | 79 | n/a |
| MT | 6 | 15 | 8 | n/a |
| NL | 348 | 315 | 314 | n/a |
| PL | 977 | 900 | 828 | n/a |
| PT[(1)] | 207 | 200 | 182 | n/a |
| RO | 876 | 814 | 747 | n/a |
| SE | 227 | 187 | 210 | n/a |
| SI | 41 | 36 | 25 | n/a |
| SK | 184 | 178 | 184 | n/a |
| UK | 1,495 | n/a | n/a | n/a |
| GB[(2)] | 1,394 | 1,365 | 1,421 | n/a |
| CH | 185 | 155 | 180 | n/a |
| IL | 333 | 343 | 299 | 340 |
| NO | 85 | 112 | 121 | 117 |
| RS | 212 | 185 | 184 | n/a |
| **EU27** | **9,697** | **9,252** | **8,591** | **n/a** |

Source: Eurostat except in the case of Israel, data provided by the panellist.
[(1)]FR,PT - Mainland
[(2)]GB - 2016–2018

Table 1 (Fig. 1 and 3, 4 and 6) Total number of child (0–14 years old) road deaths over the period 2011–2021

## CHILD ROAD DEATHS (0–14 YEARS OLD)

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AT | 13 | 8 | 10 | 8 | 11 | 7 | 8 | 3 | 16 | 2 | n/a |
| BE | 41 | 23 | 21 | 17 | 21 | 16 | 14 | 14 | 11 | 5 | 18 |
| BG | 10 | 16 | 14 | 16 | 21 | 14 | 17 | 22 | 21 | 9 | 25 |
| CY | 1 | 0 | 1 | 0 | 1 | 1 | 3 | 3 | 1 | 0 | 0 |
| CZ | 12 | 15 | 11 | 14 | 18 | 14 | 12 | 22 | 18 | 11 | 13 |
| DE | 86 | 73 | 58 | 71 | 84 | 66 | 61 | 79 | 55 | 48 | 49 |
| DK | 9 | 7 | 13 | 6 | 6 | 6 | 3 | 6 | 5 | 6 | n/a |
| EE | 4 | 0 | 3 | 1 | 4 | 5 | 2 | 2 | 2 | 2 | 2 |
| ES | 43 | 53 | 46 | 37 | 25 | 28 | 35 | 25 | 32 | 17 | n/a |
| FI | 8 | 7 | 6 | 10 | 14 | 10 | 8 | 5 | 5 | 3 | 5 |
| FR(1) | 128 | 115 | 97 | 112 | 101 | 108 | 104 | 86 | 66 | 74 | 99 |
| EL | 22 | 21 | 17 | 10 | 6 | 19 | 12 | 10 | 12 | 11* | n/a |
| HR | 14 | 8 | 10 | 8 | 14 | 5 | 9 | 3 | 10 | 3 | 10 |
| HU | 12 | 21 | 7 | 11 | 11 | 10 | 9 | 6 | 15 | 10 | n/a |
| IE | 7 | 2 | 6 | 13 | 3 | 8 | 4 | 3 | 4 | 8 | 5 |
| IT | 61 | 52 | 55 | 62 | 39 | 49 | 43 | 34 | 35 | 37 | n/a |
| LU | 1 | 1 | 2 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | n/a |
| LV | 5 | 6 | 7 | 7 | 11 | 2 | 6 | 5 | 4 | 6 | 2 |
| LT | n/a | n/a | 7 | 15 | 5 | 4 | 5 | 5 | 7 | 2 | 4 |
| MT | n/a | n/a | n/a | n/a | n/a | 0 | 1 | 0 | 1 | 1* | n/a |
| NL | 18 | 24 | 8 | 19 | 20 | 12 | 15 | 22 | 12 | 17 | n/a |
| PL | 102 | 90 | 91 | 80 | 70 | 72 | 56 | 56 | 68 | 44 | 50 |
| PT(1) | 19 | 13 | 11 | 8 | 13 | 7 | 3 | 6 | 13 | 9 | n/a |
| RO | 83 | 90 | 76 | 91 | 76 | 74 | 67 | 58 | 68 | 48 | 74 |
| SE | 9 | 7 | 4 | 7 | 7 | 6 | 8 | 7 | 4 | 7 | 3 |
| SI | 6 | 3 | 3 | 2 | 3 | 3 | 3 | 0 | 1 | 3 | 3 |
| SK | 7 | 9 | 5 | 7 | 8 | 7 | 7 | 6 | 2 | 7 | 4 |
| UK | 52 | 56 | 41 | 50 | 52 | 64 | 45 | 41 | n/a | n/a | n/a |
| GB | 50 | 53 | 40 | 46 | 47 | 60 | 42 | 38 | 32 | 34 | n/a |
| CH | 10 | 31 | 12 | 9 | 7 | 12 | 6 | 11 | 4 | 4 | 2 |
| IL | 29 | 31 | 26 | 32 | 29 | 29 | 29 | 32 | 34 | 25 | 27 |
| NO | 7 | 4 | 4 | 4 | 2 | 2 | 4 | 1 | 0 | 2 | 3 |
| RS | 20 | 16 | 11 | 10 | 14 | 12 | 17 | 12 | 10 | 13 | 11 |
| **EU27** | **721** | **664** | **589** | **633** | **592** | **555** | **515** | **489** | **488** | **390** | **366** |

Source: National statistics provided by PIN Panellists in each country
*Estimated
(1)FR, PT - Mainland

**Fig. 1 Average annual change (%) in the number of child road deaths (0–14 years old) over the period 2011–2021**

| | |
|---|---|
| CH | -16% |
| NO | -15% |
| LT[1] | -12% |
| BE | -11% |
| AT[2] | -11% |
| SI | -10% |
| ES[2] | -9% |
| PT[2] | -8% |
| EL[3] | -8% |
| PL | -7% |
| FI | -7% |
| HR | -7% |
| DK[2] | -7% |
| LV | -7% |
| IT[2] | -6% |
| SK | -6% |
| SE | -5% |
| GB[2] | -4% |
| DE | -4% |
| FR | -4% |
| RO | -4% |
| HU[2] | -3% |
| RS | -3% |
| EE | -2% |
| NL[2] | -1% |
| IL | 0% |
| IE | 0% |
| CZ | 1% |
| BG[4] | 4% |
| **EU27** | **-5%** |

[1]2013–2021
[2]2011–2020
[3]2011–2019
[4]2016–2021
EU average has been calculated for the period 2011–2020
CY, LU and MT are exliced from the figure due to fluctuation in particularly small numbers of child deaths
A different calculation method has been used for NO, SI and EE since they registered 0 child road deaths in at least one year

**Fig. 3 Child road deaths per million child population. Average number for 2019–2021 or the last three years available.**

| | |
|---|---|
| NO | 2 |
| CY | 2 |
| SE | 3 |
| CH | 3 |
| LU[1] | 3 |
| GB[2] | 3 |
| ES[1] | 4 |
| DE | 4 |
| IT[1] | 4 |
| FI | 5 |
| SK | 5 |
| AT[1] | 5 |
| IE | 6 |
| BE | 6 |
| DK[1] | 6 |
| NL[1] | 6 |
| FR[1] | 7 |
| PT[1] | 7 |
| SI | 7 |
| EL[3] | 7 |
| HU[1] | 7 |
| MT[3] | 7 |
| CZ | 8 |
| EE[1] | 9 |
| PL | 9 |
| LT | 10 |
| RS | 11 |
| IL[1] | 12 |
| LV | 13 |
| HR | 13 |
| BG | 18 |
| RO | 21 |
| **EU27** | **7** |

[1]2018–2020
[2]2017–2019
[3]2018–2019

**Fig. 4 Child road deaths as a proportion (%) of child deaths from all causes in the age group 1–14 years in 2019–2021.**

| | |
|---|---|
| NO[1] | 1% |
| SK[1] | 4% |
| SE[1] | 4% |
| ES[1] | 4% |
| GB[3] | 4% |
| CH[1] | 5% |
| MT[2] | 5% |
| SI[1] | 5% |
| DE[1] | 5% |
| BE | 6% |
| AT[1] | 6% |
| IT[1] | 6% |
| EE[1] | 6% |
| FR[1] | 6% |
| IE[1] | 6% |
| HU[1] | 7% |
| FI[1] | 7% |
| LU[1] | 7% |
| EL[2] | 7% |
| PT[1] | 7% |
| NL[1] | 8% |
| DK[1] | 8% |
| PL[1] | 8% |
| RS[1] | 8% |
| BG[1] | 8% |
| HR[1] | 9% |
| CY[1] | 9% |
| LT[1] | 9% |
| RO | 10% |
| CZ[1] | 10% |
| IL | 10% |
| LV[1] | 11% |
| **EU25** | **7%** |

[1]2018–2020
[2]2018–2019
[3]2016–2018
EL and MT excluded from the EU average due to lack of data
EU25 average has been calculated for the period 2018–2020

**Fig. 6 Proportion (%) of road deaths by age group among all road deaths under 18 years old ranked by % of child road deaths in year group 0–14, average years 2019–2021 or the last three years available**

| | <1 | 1–4 years | 5–9 years | 10–13 years | 14 years | 15 years | 16 years | 17 years |
|---|---|---|---|---|---|---|---|---|
| LV | 0% | 7% | 13% | 47% | 13% | 13% | 0% | 7% |
| IL | 5% | 27% | 19% | 15% | 5% | 4% | 10% | 16% |
| RO | 3% | 18% | 27% | 15% | 8% | 11% | 6% | 13% |
| CZ | 3% | 18% | 34% | 11% | 2% | 11% | 8% | 13% |
| HU(1) | 2% | 10% | 20% | 16% | 14% | 8% | 6% | 24% |
| AT(1) | 0% | 17% | 11% | 9% | 2% | 17% | 21% | 23% |
| NL(1) | 0% | 12% | 16% | 12% | 15% | 9% | 16% | 20% |
| BE | 8% | 11% | 13% | 18% | 5% | 3% | 26% | 16% |
| PL | 5% | 8% | 18% | 17% | 6% | 7% | 14% | 24% |
| PT(1) | 0% | 14% | 11% | 29% | 0% | 5% | 21% | 20% |
| HR | 0% | 9% | 9% | 28% | 7% | 0% | 23% | 23% |
| BG | 4% | 13% | 17% | 10% | 10% | 9% | 14% | 24% |
| FR(1) | 3% | 10% | 13% | 15% | 6% | 11% | 17% | 23% |
| ES(1) | 5% | 13% | 9% | 13% | 8% | 8% | 16% | 28% |
| DE(1) | 3% | 13% | 13% | 14% | 4% | 7% | 20% | 27% |
| RS(1) | 3% | 14% | 15% | 8% | 7% | 12% | 18% | 24% |
| DK(1) | 0% | 8% | 15% | 13% | 8% | 15% | 23% | 18% |
| SE | 3% | 12% | 12% | 9% | 6% | 3% | 32% | 24% |
| SK | 0% | 6% | 18% | 12% | 5% | 14% | 32% | 14% |
| IT(1) | 0% | 14% | 9% | 12% | 3% | 14% | 21% | 27% |
| GB(1) | 1% | 7% | 6% | 13% | 8% | 13% | 18% | 34% |
| FI | 0% | 8% | 6% | 4% | 8% | 8% | 20% | 45% |
| **EU25** | **3%** | **12%** | **15%** | **15%** | **6%** | **10%** | **17%** | **23%** |

(1)2018–2020
Ranked by highest percentage of child road deaths in 0–14
Countries with less than 10 child road deaths have been excluded (EE, EL, IE, LT, LU, MT, SI, CH, NO)
Road deaths of unknown age have been excluded from the calculations

**Table 2 (Fig. 8) Distribution of road deaths by mode of transport and gender over the period 2018–2020 in EU26 countries**

| | | Car Driver | Car passenger | PTW Driver | PTW Passenger | Cyclist | Pedestrian | Other |
|---|---|---|---|---|---|---|---|---|
| 0–13 years old | Male | 0 | 102 | 4 | 3 | 33 | 71 | 19 |
| | Female | 0 | 87 | 0 | 2 | 13 | 55 | 14 |
| 14 years old | Male | 2 | 8 | 5 | 1 | 8 | 6 | 3 |
| | Female | 0 | 7 | 0 | 1 | 3 | 7 | 1 |
| 15 years old | Male | 1 | 15 | 20 | 4 | 10 | 7 | 5 |
| | Female | 0 | 14 | 1 | 2 | 2 | 10 | 2 |
| 16 years old | Male | 5 | 24 | 46 | 4 | 12 | 11 | 8 |
| | Female | 0 | 19 | 5 | 2 | 4 | 8 | 2 |
| 17 years old | Male | 10 | 52 | 64 | 5 | 9 | 14 | 9 |
| | Female | 1 | 27 | 5 | 3 | 3 | 6 | 4 |

EL excluded for lack of data, EU average calculated for years 2018–2020

**Table 3 (Fig. 9) Total number of child (0–14 years old) serious road traffic injuries (according to national definition) over the period 2011–20121**

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AT | 284 | 305 | 303 | 304 | 262 | 284 | 289 | 277 | 263 | 242 | n/a |
| BE | 301 | 268 | 256 | 223 | 218 | 228 | 168 | 163 | 138 | 125 | 137 |
| BG | 157 | 158 | 166 | 105 | 125 | 168 | 105 | 141 | 119 | 98 | 91 |
| CY | 15 | 31 | 15 | 18 | 12 | 16 | 15 | 12 | 8 | 3 | 6 |
| CZ | 147 | 164 | 154 | 142 | 120 | 138 | 115 | 141 | 108 | 97 | 72 |
| DE | 4,990 | 4,564 | 4,406 | 4,472 | 4,253 | 4,195 | 4,268 | 4,161 | 3,865 | 3,080 | 3,075 |
| DK | 113 | 104 | 67 | 68 | 78 | 70 | 73 | 69 | 86 | 77 | n/a |
| EE | 0 | 64 | 56 | 42 | 49 | 55 | 56 | 48 | 71 | 21 | 53 |
| ES | 457 | 373 | 410 | 351 | 355 | 385 | 364* | 331 | 290 | 201 | n/a |
| FI | 0 | 0 | 0 | 20 | 19 | 25 | 23 | 19 | 21 | 24 | na |
| FR[1] | 2,014 | 1,930 | 1,785 | 1,883 | 1,834 | 1,832 | n/a | n/a | n/a | n/a | n/a |
| EL | 64 | 42 | 53 | 24 | 37 | 15 | 28 | 19 | 20 | 22* | n/a |
| HR | 201 | 164 | 157 | 158 | 145 | 137 | 129 | 125 | 113 | 107 | 124 |
| HU | 202 | 242 | 216 | 176 | 208 | 194 | 176 | 203 | 187 | 146 | n/a |
| IE | 33 | 33 | 35 | 64 | 66 | 68 | 80 | 73 | 113 | 83 | n/a |
| IT[2] | 0 | 0 | 0 | 0 | 0 | n/a | n/a | 625 | 599 | 517 | n/a |
| LU | 14 | 19 | 14 | 10 | 12 | 3 | n/a | n/a | n/a | n/a | n/a |
| LV | 42 | 45 | 37 | 35 | 30 | 34 | 35 | 43 | 35 | 29 | 36 |
| LT | n/a | n/a | n/a | n/a | 11 | 5 | 25 | 9 | 27 | 29 | 26 |
| MT | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| NL | 256 | 217 | 435 | 610 | 830 | 839 | 731 | 733 | 692 | 570 | n/a |
| PL | 904 | 814 | 782 | 705 | 653 | 700 | 597 | 630 | 557 | 422 | 428 |
| PT[1] | 134 | 111 | 90 | 97 | 108 | 97 | 67 | 71 | 79 | 61 | n/a |
| RO | 801 | 771 | 788 | 684 | 705 | 715 | 562 | 573 | 687 | 407 | 194 |
| SE | 371 | 374 | 426 | 418 | 384 | 405 | 407 | 361 | 334 | 366 | n/a |
| SI | 43 | 39 | 27 | 30 | 29 | 38 | 31 | 40 | 29 | 39 | 31 |
| SK | 84 | 61 | 52 | 72 | 62 | 76 | 66 | 85 | 43 | 33 | 45 |
| GB | 3,090 | 2,798 | 2,511 | 2,612 | 2,437 | 2,304 | 2,256 | 2,236 | 2,185 | 1,529 | n/a |
| CH | 257 | 279 | 226 | 189 | 182 | 193 | 185 | 172 | 169 | 166 | 182 |
| IL | 152 | 178 | 210 | 183 | 186 | 175 | 181* | 195 | 218 | 172 | n/a |
| NO | 36 | 35 | 38 | 24 | 41 | 36 | 23 | 22 | 13 | 17 | 22 |
| RS | 255 | 233 | 241 | 214 | 205 | 216 | 205 | 173 | 184 | 152 | 169 |
| **EU20** | **9,482** | **8,850** | **8,844** | **8,662** | **8,601** | **8,713** | **7,852** | **8,141** | **7,681** | **6,091** | **4,247** |

Source: National statistics provided by PIN Panellists in each country
*Estimated
[1]FR, PT - Mainland
[2]IT – Source: Ministry of Health Istat – Survey on Road Accidents resulting in death or injury. (a) Cases coded as road accidents injuries after a hospital dicharge using the ICD-9-CM code referred to the injury (primary and secondary diagnoses and the information on the manner of accidents (external causes ICD-9-CM E ). Only the first admission of each subject is considered; individuals who died within 30 days of admission are excluded from selection.

**Fig. 9 Average annual change (%) in the number of serious child traffic injuries (0–14 years old) according to the national definition over the period 2011–2021**

| | |
|---|---|
| CY | -14% |
| EL[1] | -14% |
| RO | -9% |
| BE | -8% |
| NO | -8% |
| PT | -7% |
| NL[2] | -7% |
| PL | -7% |
| CZ | -6% |
| ES[2] | -6% |
| GB[3] | -5% |
| SK | -5% |
| HR | -5% |
| BG | -5% |
| RS | -4% |
| CH | -4% |
| DE | -4% |
| EE[4] | -4% |
| HU[3] | -3% |
| DK[3] | -3% |
| LV | -3% |
| AT[3] | -2% |
| FR[5] | -2% |
| SE[3] | -1% |
| SI | -1% |
| IL[3] | 1% |
| FI[6] | 2% |
| IE[6] | 7% |
| **EU20** | **-4%** |

[1]2011–2019
[2]2015–2020
[3]2011–2020
[4]2012–2021
[5]2011–2016
[6]2014–2020
FI, FR, IT, IE, LT, LU and MT excluded from the calculation of the EU average. EU average calculated for the period 2011–2020
EU average calculated for the period 2011–2020

**Table 4 National definition of a seriously injured person in a road collision corresponding to the data in Table 3**

| | |
|---|---|
| **AT** | Whether an injury is severe or slight is determined by §84 of the Austrian criminal code. A severe injury is one that causes a health problem or occupational disability longer than 24 days, or one that "causes personal difficulty". Police records. As of 1.1.2012, only 2 instead of 3 degrees of severities, slight, degree unknown, severe. Therefore and because of lower under-reporting due to the new police recording system, the figure increased substantially |
| **BE** | Hospitalised more than 24 hours. But in practice no communication between police and hospitals so in most cases allocation is made by the police without feedback from the hospitals. (Police records) |
| **BG** | The level of "body damage" is defined in the Penalty code. There are 3 – light, medium and high levels of body damage. Prior to introducing MAIS in the Police records the first level is "light injured", the second and third is "heavy injured". The medium and high level corresponded to MAIS 3+ levels, as it is defined in the CADaS Glossary. |
| **CY** | Hospitalised for at least 24 hours. Police records. Since 2017, serious injuries based on MAIS3+ is also estimated by the Ministry of Health (please also see note on table 5). |
| **CZ** | Negotiations between the Ministry of Interior and the Ministry of Health under way, implementation of MAIS3+ in 2022 (?), no current progress. |
| **DE** | Hospitalised for at least 24 hours. Police records. |
| **DK** | All injuries except "slight". Police records. |
| **EE** | Hospitalised for at least 24 hours. Hospital data is used to find out how long the person (involved in an accident according to the police data) was hospitalised. |
| **ES** | Hospitalised for at least 24 hours. Police records. |
| **FI** | Serious injury in official statistics is defined as MAIS3+ (AAAM, Association for the Advancement of Automotive Medicine). The number of seriously injured MAIS3+ is formed by combining the official road accident participant statistics maintained by Statistics Finland and the Hospital Discharge Register (HILMO), using personal identity numbers as the link. ICD-10 codes from hospital data are converted to MAIS. |
| **FR** | Until 2004: hospitalised for at least 6 days. From 2005: hospitalised for at least 24 hours. Police records. People injured are asked to go to the police to fill in information about the collision, in particular if they spent at least 24 hours as in-patient. |
| **EL** | Injury and injury severity are estimated by police officers. It is presumed that all persons who spent at least one night at the hospital are recorded as seriously injured persons. Police records. |
| **HR** | "ICD-International Classification of Deseases – used by medical staff exclusively, after admission to the hospital" |
| **HU** | Serious injuries include injuries, fractures, bruises, internal injuries, severe cuts and destruction, general shock requiring medical treatment, or any injury requiring hospital care, which usually heals beyond 8 days. |
| **IE** | Hospitalised for at least 24 hours as an in-patient, or any of the following injuries whether or not detained in hospital: fractures, concussion, internal injuries, crushing, severe cuts and lacerations, several general shock requiring medical treatment. |
| **IT** | Separate statistics on seriously and slightly injuries are n/a in the Road accidents dataset. Despite that, Italy calculated the number of serious injured according to EU reccomendations (MAIS 3+) and using data based on hospitals discharge records. |
| **LU** | Hospitalised for at least 24 hours as in-patient. Police records. |
| **LV** | From 2004: hospitalised more than 24 hours as in-patient. Police records. |
| **LT** | Seriously injured person loses more than 30 % of his/her working capacity or/and his or her body is being incurably mutilated. |
| **MT** | An injury accident is classified as 'Serious' injury (referred to in Malta accident statistics as 'Grievous' injury) if the person does not recover his/her previous health condition with 30 days. Police records. |
| **NL** | Definition: "A serious road injury is a road crash casualty who has been admitted to hospital with a minimum MAIS (Maximum Abbreviated Injury Score5) injury severity of at least 2 on a scale of 6, and who has not died within 30 days from the consequences of the crash."<br>Method: MAIS=2 or higher. Linked Police-Hospital records + remainder file + estimate of unobserved C/RC.<br>MAIS3+ is a subset of MAIS2+;<br>The MAIS2+ series is just appended with the new 2018 and 2019 figures in the new methodology, as EVG numbers have been 'officially' set and are only replaced on special occasions.<br>The new method has an improved matching window for data/time of crash and data/time of hospitalisation, and is now expressed in AIS2005/08 (instead of AIS1990).<br>The total estimate is hardly different, the number of MAIS3+ is lower in the new method.<br>See https://swov.nl/en/fact-sheet/serious-road-injuries-netherlands |

| | |
|---|---|
| **PL** | "Seriously injured – a person who has suffered injuries, in the form of:<br>a) blindness, loss of hearing, loss of speech, ability to procreate, other severe disability, severe incurable disease or long-term life-threatening illness, permanent mental illness, complete substantial permanent inability to work in the occupation or permanent, significant body disfigurement,<br>b) other injuries causing disturbance of the functioning of a bodily organ or health disorder lasting longer than 7 days. Police records." |
| **PT** | Hospitalised for at least 24 hours. Police records. |
| **RO** | From 2021 we use MAIS3+ with conversion approved by DG-MOVE because Ro Hospitals used ICD 10 Australian version. |
| **SE** | The definition of seriously injured was updated in 2007. A serious injury is now defined as a health loss following a traffic injury reflecting that a person does not recover the previous health condition within a reasonable amount of time. This series is used in the national annual follow up and there is a goal for 2030 (-25 % since 2020). Hospital records. |
| **SI** | Any injured persons who were involved in a road traffic accident and sustained injuries due to which their lives were in danger or due to which their health was temporarily or permanently damaged or due to which they were temporarily unable to perform any work or their ability to work was permanently reduced (Penal Code of the Republic of Slovenia). Police records. |
| **SK** | "Serious bodily harm or serious disease, which is<br>a) mutilation,<br>b) loss or substantial impairment of work capacity,<br>c) paralysis of a limb,<br>d) loss or substantial impairment of the function of a sensory organ,<br>e) damage to an important organ,<br>f) disfigurement,<br>g) inducing abortion or death of a foetus,<br>h) agonising suffering, or<br>i) health impairment of longer duration.<br>Health impairment of longer duration is an impairment, which objectively requires treatment and possibly involves work incapacity of not less than forty-two calendar days, during which it seriously affects the habitual way of life of the injured party." |
| **UK** | Hospitalised for at least 24 hours or any of the following injuries whether or not they are detained in hospital: fractures, concussion, internal injuries, crushing, burns (excluding friction burns), severe cuts and lacerations, severe general shock. Since 2016, changes in severity reporting systems for a large number of police forces mean that serious injury figures as reported to the police are not comparable with earlier years. These systems use a list of injuries which are automatically mapped to severity, rather than relying on the judgment of the police officer. |
| **CH** | Up to 2014: Hospitalised for at least 24 hours or if the injury prevented the person from doing its daily activity for 24 hours. Since 2015: Hospitalised for at least 24 hours. Police records. Further comments: In Switzerland, injury severity is still assessed by means of a simple definition by the police force present at the scene. Nothing is known of the type and long-term outcome of injuries. In order to improve the assessment of injury severity a first step was taken: since January 2015 the definition of injury severity was further specified and the police corps were trained. Also a new category "life-threatening injury" was introduced. For a further standardization the severity scale was linked to the NACA-Codes, used by all emergency services in Switzerland |
| **IL** | "1965–2012: A person injured in a road crash and hospitalized for a period of 24 hours or more, not for observation only.<br>2013 onwards: Police data is linked with the hospital data and any casualty found in both sources had their severity of injury defined by MAIS. If the casualty was not found in the hospital data, their severity of injury was defined by the police. Seriously injured is defined by MAIS 3+ or hospitalized for a period of 24 hours or more, not for observation only." |
| **NO** | Very serious injury: Any injury that is life-threatening or results in permanent impairment. Serious injury: Any injury from a list of specific injuries; these would normally require admission to hospital as an in-patient. Police records. |
| **RS** | Using of the ICD-International Classification of Diseases. Categorization of an injury as a "serious injury" is made on the basis of expert assessment given by doctors during admission to hospital, during hospitalization or after the hospitalization. The Republic of Serbia has not yet adopted a definition for serious injury. Police records. |

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