REDUCING OLDER PEOPLE'S DEATHS ON EUROPEAN ROADS

PIN Flash Report 45

November 2023

ETSC
European Transport Safety Council

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The Road Safety Performance Index (PIN) Programme receives financial support from the German Road Safety Council (DVR), Toyota Motor Europe, the Swedish Transport Administration, the Norwegian Public Roads Administration, the MAPFRE Foundation and CITA, the International Motor Vehicle Inspection Committee.

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Acknowledgements

The authors are grateful to members of the PIN Panel and Steering Group, for their assistance providing data, background information and expertise. Without their contribution, this report would not have been possible. Special thanks go to the co-chairs of the PIN programme, Henk Stipdonk and Heather Ward and the PIN Programme advisor Richard Allsop. Many thanks also to Peter Whitten and Patrick Metens for gathering data from the CARE database. Ragnhild Davidse of SWOV, the Netherlands, was also consulted extensively and ETSC is very grateful for her input.

The PIN programme relies on panellists in the participating countries to provide data 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 Swedish Transport Administration, the Norwegian Public Roads Administration, the MAPFRE Foundation 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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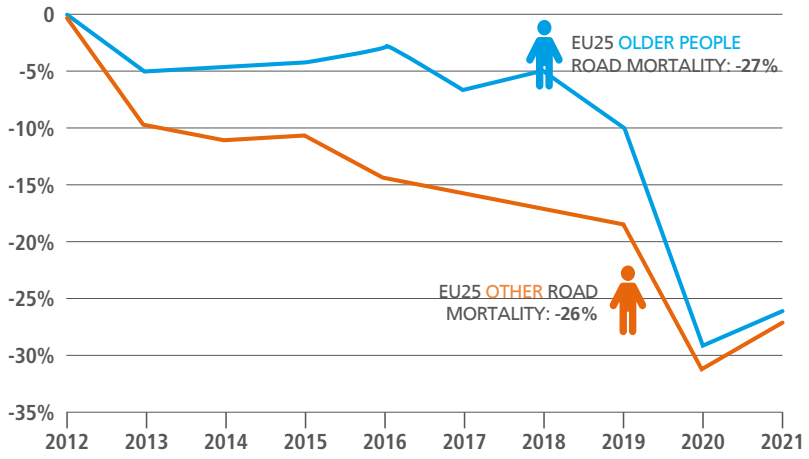
European Transport Safety Council

OVER **5,400**
OLDER PEOPLE (65+)
KILLED IN 2021
IN THE EU

REDUCTION IN ROAD MORTALITY SINCE 2012



55%
OF OLDER PEOPLE ROAD DEATHS ARE VULNERABLE ROAD USERS

ONE THIRD
OF OLDER PEOPLE ROAD DEATHS ARE PEDESTRIANS

16%
OF OLDER PEOPLE ROAD DEATHS ARE CYCLISTS

1 OUT OF 2 OLDER WOMEN KILLED ARE PEDESTRIANS

MAIN VEHICLE INVOLVED WHEN AN OLDER PERSON DIES ON THE ROAD

- 46% Car
- 21% Goods vehicle
- 9% Unknown
- 24% No other vehicle

ETSC RECOMMENDS

- Improve quality, access to and ease of use of public transport
- Adopt 30km/h zones
- Improve infrastructure safety design for pedestrians and cyclists
- Construct highly visible, recognisable and uniform pedestrian crossings

EXECUTIVE SUMMARY

Understanding the vulnerabilities of older road users

Older individuals (aged 65 and above) are at a heightened risk of trauma in road incidents compared to younger age groups. This vulnerability primarily arises from the increased fatality risk associated with physical impacts as people age. Collisions that might have milder consequences for younger individuals can have severe and sometimes fatal outcomes for older people.

Furthermore, older road users frequently contend with age-related limitations. These limitations can encompass reduced visual acuity, slower reaction times, and medical conditions such as dementia, Parkinson's disease, stroke, cardiovascular diseases, and diabetes. These factors compound the challenges older individuals face while navigating the complexities of traffic.

Balancing active travel and safety

Despite these challenges, discouraging older individuals from walking or cycling should not be the solution. Active travel, such as walking and cycling, offers numerous health benefits that often outweigh the potential risks of road injuries and exposure to air pollution. Research indicates that these health advantages are particularly pronounced in older age groups.

Active travel helps older individuals maintain physical fitness, reduce the risk of chronic diseases, and enhance their overall well-being. Therefore, the goal should be to make walking and cycling safer, rather than dissuading older individuals from engaging in these activities.

Recent trends in older people's road safety

Over the past decade, there has been an average annual reduction of 3% in older people's road mortality in the EU25. This reduction is largely attributable to overall improvements in road safety.

Countries that have made the most significant strides in road safety since 2012, such as Lithuania, Poland, and Estonia, are also among the best performers in terms of enhancing the safety of older people. This suggests that progress in reducing the total number of road deaths positively impacts the safety of older road users.

Variations in road safety across countries

The road mortality of older people can differ by a factor of nearly four between the best and worst-performing countries.

The safest country for older people in terms of road safety is Norway, with a road mortality of 27 older road deaths per million inhabitants. It is followed closely by Luxembourg and the United Kingdom, with 32 and 34 older road deaths per million inhabitants respectively. In stark contrast, the countries with the highest road mortality among older people include Romania, Serbia, and Bulgaria, with 136, 105, and 88 older road deaths per million inhabitants, respectively.

Factors influencing older people's road mortality

Several factors contribute to the mortality of older people on the road. One significant factor is the choice of transport mode. For instance, the prevalence of cyclists, including electric bicycle users, among older people can influence their road mortality rates.

Additionally, older people's road mortality varies among different age groups. The EU average road mortality for the age group 65-74 years old is 50 per million inhabitants, based on average data from 2019 to 2021. This rate is higher at 72 per million for the age group 75-84 and higher still at 118 per million for those aged 85 and above. These statistics mirror the fact that the fatality risk from the same physical impact increases with age.

Profile of road deaths among older people

On average across the EU26, half of older people killed in road collisions fall into two categories: pedestrians (33%) and cyclists (16%).

39% comprises car drivers or passengers, with a small portion involving other modes of transport.

Notably, the proportions can vary significantly among different countries. In the Netherlands, for example, where older people continue to use bicycles as a primary mode of travel, the proportion of older people killed while cycling is much higher at 45% compared to the EU average of 16%.

Critical collision scenarios for older people

Understanding the most prevalent collision scenarios for older people is vital for crafting effective road safety measures. In 2021 in the EU27, 2,496 older people lost their lives in collisions involving cars, accounting for 46% of all older people's road deaths (compared to 35% for the rest of the population).

Furthermore, nearly 60% of all older people killed in collisions with cars were pedestrians or cyclists, highlighting their vulnerability when using these modes. Additionally, 1,286 older road users lost their lives in incidents with no other vehicles involved, comprising 24% of all older people's road deaths (compared to 36% for the rest of the population). Moreover, 1,133 older people were killed in collisions involving light goods vehicles or heavy goods vehicles, making up 21% of all older people's road deaths (compared to 22% for the rest of the population).

It's important to note that single vehicle collisions, such as single bicycle collisions, tend to be more underreported than collisions involving two or more vehicles. This underreporting can pose challenges in accurately assessing the scope of road safety issues for older individuals.

Demographic shifts and their implications

Currently, older people constitute approximately 21% of the European population. However, due to declining birth rates, prolonged life expectancies, and the maturation of the baby-boom generation, it is projected that by 2040, 28% of the population will be aged 65 or older, rising further to 30% by 2070.

As the older population continues to grow, it becomes imperative for road safety policies to focus increasingly on addressing the unique safety requirements of this demographic of road users.

Pedestrian falls: overlooked road safety concerns

An often-overlooked aspect of road safety for older individuals is pedestrian falls within the road system. Cases where pedestrians fall on a footpath or carriageway, even if attributable to substandard footpath quality, are not classified as road casualties, even when they lead to deaths. Consequently, incidents involving pedestrian falls without any involvement of vehicles are not reflected in police road safety statistics but are, instead, captured within the health sector's statistical records.

Maintaining records of pedestrian falls within the road system proves valuable for several reasons. Firstly, it aids in the promotion of active mobility by drawing attention to potential safety hazards, thereby fostering safer walking environments. Secondly, it facilitates the monitoring of shifts in transportation preferences, providing insights into mobility patterns. Lastly, it underscores the importance of factors such as footpath condition and upkeep, which can enhance road safety for pedestrians.

Older drivers: coping with age-related limitations

Older drivers, despite age-related limitations, often find ways to compensate for these challenges. Ageing is accompanied by several factors, including the narrowing of the visual field, poorer contrast sensitivity, increased time required to change focus, slower eye movement, problems with depth perception, and slower decision-making.

To compensate for these functional limitations, many older drivers choose to avoid driving at night, in bad weather, in congested areas, and during peak traffic periods. This cautious approach helps them minimise exposure to complex traffic situations and reduce the likelihood of a crash. Older drivers also tend to have a great deal of driving experience, which assists them in anticipating and responding to potential problematic situations.

Age-based fitness to drive checks: effectiveness and implications

A matter of ongoing debate is the effectiveness of mandatory age-based medical checks for older drivers. These checks have not consistently shown a significant impact on preventing severe collisions among older drivers. In some cases, they may even have a negative safety impact, as older drivers may shift to more vulnerable travel modes when they cease driving.

Studies have also concluded that specific medical conditions, substance abuse, mental disorders, epilepsy, and diabetes are more critical factors than age alone. Moreover, there is evidence that medical screening of all older drivers, including strict age-based renewal procedures and demanding medical examinations, reduces the level of car driving licences among older people. This, in turn, poses a risk factor for some kinds of decline in health and premature entry into nursing homes.

Risks for older cyclists

Older individuals who cycle face unique risks on the road. A bicycle offers no protection in the event of a collision, and the vulnerability and decreased ability to balance, especially at lower bicycle speeds, can lead to a higher risk of serious injury and death.

According to EU CARE data, the mortality of older cyclists is three times higher than that of cyclists aged 25-64 and up to six times higher than that of cyclists under the age of 25. Moreover, in countries where cycling is a common mode of transport, the share of older people among cyclist deaths is generally higher than the EU average.

An interesting trend in recent years is the increased use of electrically assisted bicycles (e-bikes) by older cyclists in countries where cycling is prevalent. In the Netherlands, for instance, around half of all distance cycled by people aged 65 and over was on e-bikes in 2019. This proportion was higher at 63% for those aged 75 and over. Studies also reveal that older e-bike users tend to travel 1.6 times further than they would on a regular bike and at a 20% faster pace.

However, this trend of increased e-bike usage could explain the disproportionate number of older people killed while riding e-bikes. In the Netherlands, between 2018 and 2019, 38% of all cyclists over the age of 80 killed were riding e-bikes, compared to 14% for cyclists under the age of 60. Similarly, in Czechia, a 2022 study on e-bike deaths found that older people accounted for 54% of all e-bike deaths, compared to 37% of regular bike deaths. In France, between 2019 and 2022, people aged 65 and over represented 64% of the cyclists killed on e-bikes, whereas they represented 42% of regular bike deaths.

Walking

Walking remains a vital means of transport for older individuals in Europe. Data from various countries underscores the importance of walking as a primary mode of travel among older age groups.

However, poor infrastructure, including the inadequate condition of footpaths, can make older pedestrians more cautious and deter them from walking outdoors for fear of falling. Ensuring well-maintained and safe footpaths is essential for promoting walking as a safe mode of transport for older individuals.

Public transport

Public transport is generally considered a relatively safe mode of transport. Still, it is essential to consider non-collision injuries on public transport, which pose a risk to the health of older people. A study conducted in the UK found that, although national injury rates are low for bus and coach passengers, they represent 8.4% of all road casualties for individuals aged 60 and over.

Injuries related to alighting and boarding buses were particularly significant for older passengers aged 80 and over. Passengers between 60 and 79 years old were more likely to sustain injuries while seated. The data also suggest that passengers of all ages are at risk of injury while standing on buses. Confirming that passengers have safely exited vehicles and those on board are correctly seated when the bus moves away from the stop is crucial for injury prevention.

Designing safe road infrastructure

The design of road infrastructure plays a pivotal role in ensuring the safety of older road users. Roads must be designed to accommodate the capabilities and limitations of older people, which, in turn, enhances safety for all road users.

Traffic calming measures, which aim to reduce motorised vehicle speeds in residential and urban zones, can facilitate the shared use of road space among pedestrians, cyclists, and motorised vehicles. Lower speeds provide drivers with more time to react to unexpected situations and avoid collisions, making it safer for vulnerable road users such as older individuals.

The Safe System approach suggests that roads with motor vehicle speeds exceeding 30 km/h should provide separate infrastructure for bicycles and safe road crossing opportunities for pedestrians. These measures are particularly critical for the safety of older road users.

Additionally, well-designed, signal-controlled pedestrian crossings can improve safety on higher-speed and high-traffic-volume roads. Ensuring that pedestrians can walk on safe footpaths and have unobstructed views when crossing roads is also vital for their safety.

With an ageing population, Europe must rise to the challenge of making the roads safer for older people

Road safety for older individuals presents a complex set of challenges and opportunities. While they face unique vulnerabilities, it is essential to balance safety measures with the numerous benefits of active travel, independence, and mobility. A comprehensive approach that addresses behaviour, vehicle safety, and infrastructure enhancement is necessary to ensure that older individuals can continue to enjoy safe and fulfilling lives on the road. As Europe's population ages, road safety policies must evolve to meet the specific needs of this growing demographic, promoting not only safety but also well-being and independence.

MAIN RECOMMENDATIONS TO NATIONAL GOVERNMENTS

- Consider how to improve registration of deaths and serious injuries of pedestrians and cyclists and tackle underreporting. Analyse single bicycle collisions, including how they are recorded, as a matter of priority.
- Develop and implement evidence-based screening tools and protocols based on international best practice to help medical professionals consistently identify medical conditions which may affect fitness to drive at all ages. Review the process for declaring medical conditions at licence application, renewal and for emergent conditions between licence renewals.
- Within national medical fitness to drive guidelines and regulations, stress the role of General Practitioners (GPs) as the primary point of call for identifying those who may be at-risk in terms of their fitness to drive, initiating an assessment of a person's fitness to drive and influencing how long and under what circumstances a person continues driving. This influence can range from direct advice to the patient to discussions started by family members about a person's challenges with driving.
- Develop (if not yet done) and mandate for medical professionals evidence-based training programmes which have been shown to be effective and are accepted in particular by family doctors (GPs) in assessing a person's fitness to drive.[1]
- Provide alternative public transport options to the private car.
- Support and fund projects enabling life-long mobility.
- Plan for land-use with older people's mobility needs in mind and involve them in the process.
- Encourage cities to undertake road safety audits of urban infrastructure including needs of older road users.
- Construct highly visible, recognisable and uniform pedestrian crossings (e.g. raised crossings) to ensure that vehicle users can anticipate each others' expected behaviour.[2]

[1] ETSC (2021), Are medical fitness to drive procedures fit for purpose?, www.etsc.eu/pinflash40
[2] European commission (2018), Roads, https://bit.ly/2Nkjpuc

MAIN RECOMMENDATIONS TO THE EU INSTITUTIONS

- Support Member States in developing and promoting materials to support successful drivers' self-regulation and transition to reduced driving and driving cessation. These materials should be made freely available in all Member States, to assist individuals in undertaking assessment of their own fitness to drive.
- In order to increase consistency in assessing drivers' medical fitness to drive across the EU, develop an effective and transparent screening protocol based on international good practices to help medical professionals detect potential medical conditions.
- Develop and promote evidence-based guidelines for GPs and other medical professionals involved in assessing the functional capabilities of someone suspected of being an unfit driver.
- Encourage Member States to make wider use of conditional licences (Codes 61 to 69[3] of Directive 2006/126/EC68) where possible and report to the EC the scale of their use, so as to aid monitoring and improvement.
- Support and fund projects enabling life-long mobility.
- Involve older people in developing mobility policy.
- Within the context of the Urban Mobility Action Plan, draft guidelines for promoting best practice in traffic calming measures, based upon physical measures and techniques of space-sharing in line with Connected Intelligent Transport Systems developments, to support area-wide urban safety management, in particular when 30km/h zones are introduced.[4]
- Deliver an EU safe active mobility strategy which sets road safety measures and targets to increase the amount of distance safely travelled by walking and cycling, including by older people.
- Stimulate development of safer vehicles for older people.
- Encourage older people-friendly design and evaluate the impact of new technologies on older drivers.

MAIN RECOMMENDATIONS TO CAR MANUFACTURERS AND EU INSTITUTIONS

- Develop crash test dummies representative of more aspects of variability such as age, gender, size and stature for those users outside of the vehicle.

[3] Conditional codes included on a driving licence giving entitlement to drive only under certain circumstances.
[4] European Commission (2018), Roads, https://bit.ly/2Nkjpuc

INTRODUCTION

Older individuals face a heightened susceptibility to trauma compared to other age groups, primarily due to an increased fatality risk resulting from physical impacts as they age. When a collision occurs, it can have more severe consequences for older individuals. Furthermore, older road users often contend with age-related limitations, making it imperative to proactively prevent injuries among this demographic. Achieving this goal necessitates addressing multiple facets, including modifying behaviour, enhancing vehicle safety, and improving infrastructure.

In particular, older individuals are at elevated risk when walking or cycling. Their frailty and vulnerability become more pronounced in the absence of a protective car chassis in the event of a road collision. Nonetheless, discouraging older individuals from walking or cycling should not be the solution. The health advantages associated with active travel, such as walking and cycling, outweigh the potential risks of road injuries and exposure to air pollution. Research has indicated that these health benefits are most pronounced in older age groups.

Part I of this report delves into the most recent data regarding road deaths among older people across the European Union and other countries participating in the ETSC's Road Safety Performance Index (PIN) program. It not only highlights disparities among countries but also assesses the road safety of older individuals compared to the general population, while also examining specific road user groups and gender disparities.

Part II of this report explores key measures aimed at reducing risks for older road users, encompassing strategies that address behaviour, infrastructure, and vehicle safety. Alongside considerations for older car drivers, such as fitness to drive and training, this section also scrutinises ways to enhance the safety of older cyclists and pedestrians. Measures like reducing speed limits, implementing 30km/h zones, establishing secure pedestrian crossings, and maintaining high-quality footpaths all play pivotal roles in enhancing road safety for older individuals.

Who are the older people?

In this report an older person is a person aged 65 or older. In many countries, 65 is the age at which one can begin to receive state pension benefits. Nevertheless, this definition is somewhat arbitrary.

Older people are more vulnerable to trauma than other age groups as the fatality risk from the same physical impact increases with age. Ageing is accompanied by the narrowing of the visual field, poorer contrast sensitivity, increased time required to change focus, slower eye movement, problems with depth perception and slower decision-making. However, by using rigid age boundaries we do not take into account the fact that ageing is a process that does not start at the same calendar age for each and every individual, nor does it progress at the same pace. There can be large differences in driving skills between people of the same age, as well as in their physical and mental abilities. It is very possible that some 80-year-olds are in better shape than certain 40-year-olds.[5]

This report looks at older people in general. As for other age groups, their level of safety is to a large extent determined by the transport mode they use.

According to 2021 data provided by 26[6] countries for this report, 33% of older people killed were pedestrians, 29% were car driver, 16% cyclists, 10% car passengers and 6% motorcyclists or moped riders. Other modes accounted for 7%.

[5] SWOV (2015) The elderly in traffic https://tinyurl.com/552caufh
[6] EU27 minus EL due to lack of updated data.

PART I

COUNTRY COMPARISON

COVID-19 PANDEMIC

In this report we cover the period 2012-2022. In 2020 the COVID-19 pandemic hit the world. The initial response to the pandemic was to severely restrict people's travel, particularly older people as they stayed at home to avoid the virus. 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-19.

01

THE INDICATOR

The road safety of older people is expressed here in terms of mortality, the number of road deaths among people aged 65 years and older divided by their population size (per million inhabitants). For comparison between countries, road deaths divided by population gives a good estimate of the overall impact of shortfalls in road safety on the age group, while taking account of changes in the older population.

Unfortunately, an estimation of time spent in traffic or the distance travelled by the older population is available only for very few countries. Distance travelled resulting from different mobility needs and patterns is therefore not taken into consideration when comparing countries. Road deaths among older individuals are also considered within the broader context of overall mortality rates among this group (Fig.4).

Data concerning older people's 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 using national data sources. The full dataset is available in the Annexes. Population figures were retrieved from the Eurostat database.

1.1 IMPROVING OLDER PEOPLE'S SAFETY

Over the last decade, there has been an average annual reduction of 3% in older people's road mortality[7] in the EU25.[8] Luxembourg and Lithuania had the largest average annual reductions of 15% and 8% respectively. Poland ranks third with an average annual reduction of 6%. In one country, Bulgaria, the average annual change remained constant and in one country, Romania, there has been an average annual increase of 0.3%. Among other things, this may be attributed to the ageing population of these countries, especially in Bulgaria.

The improvements in the safety of older people are to a large extent a function of the overall improvements in road safety. Countries that have made the biggest improvements in road safety since 2012, namely Lithuania, Poland and Estonia[9] are among the best performers also in improving the safety of older people.

This suggests that the reduction in the total number of road deaths is boosting progress in reducing older people's road deaths.

[7] Road mortality is expressed as the number of road deaths among older people per 1,000,000 older people population.
[8] EU25: EU27 minus MT and SK due to lack of updated data.
[9] ETSC (2023), Ranking EU progress in Road Safety, 17th PIN Annual Report, www.etsc.eu/pin17

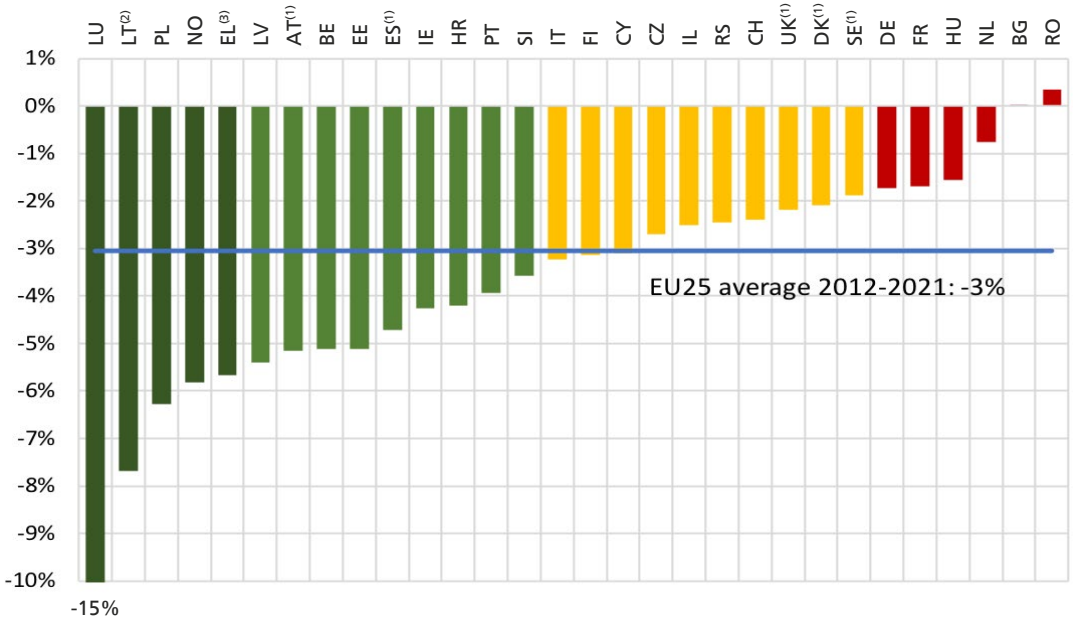


Figure 1. Average annual change in the road mortality of older people over the period 2012-2022. (1)2012-2021, (2)2013-2022, (3)2012-2020. EU25: EU27 minus MT and SK due to lack of updated data. The annual number of older people road deaths in LU are particularly small and, therefore, subject to substantial annual fluctuations. Annual numbers of deaths in CY and EE are relatively small and, therefore, may be subject to relatively strong annual fluctuations.

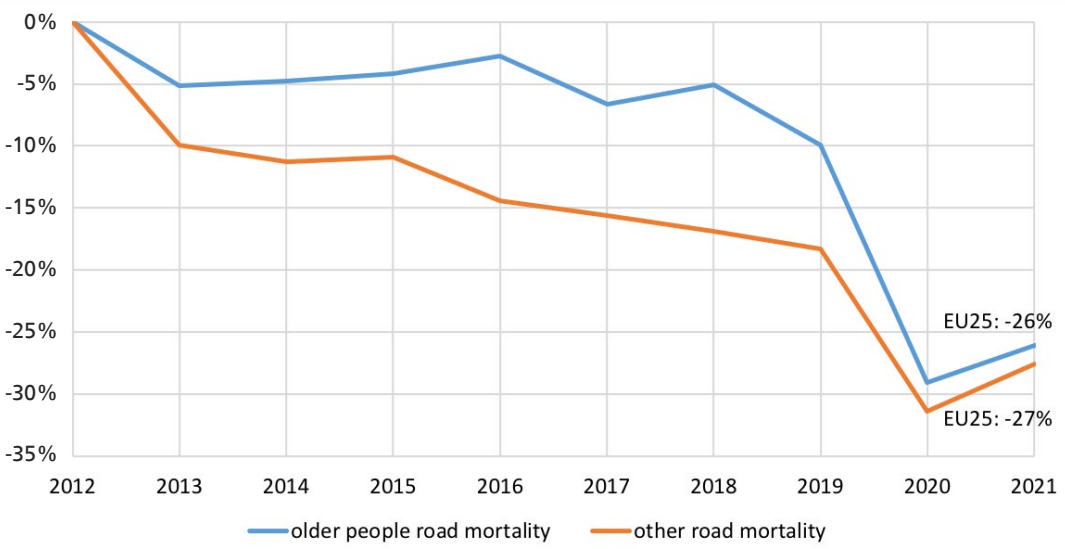
Older people road deaths and the EU reduction target

It has been estimated that to reach the EU target of halving the number of road deaths between 2019 and 2030, a year-to-year reduction of at least 6.1% is needed. Between 2019 and 2021 road deaths among older people decreased by 18% while for the rest of the population they decreased by 11%. The decrease needed over the three years in order to reach the target is 17.2%. However, 2021 was still impacted by COVID-19 travel restrictions and road deaths might increase in the following years of the decade.

1.2 SAFETY OF OLDER PEOPLE COMPARED TO THE REST OF THE POPULATION

To take differences in changes in demographics into account, Figure 2 presents the annual reduction in older people road mortality compared with other road user mortality since 2012. Older people road mortality decreased by 26% compared to 27% for all other age groups over the same period. The mortality of older people stagnated between 2012 and 2018, then started to decrease in 2019. Older people mortality dropped by 16% in just one year between 2019 and 2020 following measures aimed at controlling the COVID-19 pandemic which severely restricted the movement of people, especially older people, who were limiting their trips to avoid the virus.

Figure 2. Relative development in the number of older people road deaths and other road deaths in the EU25 over the period 2012-2021. EU25: EU27 minus MT and SK due to lack of updated data.



1.3 NORWAY – THE SAFEST COUNTRY FOR OLDER PEOPLE

Levels of road safety for older road users vary greatly between countries. The road mortality of older people varies by a factor of almost four between the best and the worst performing countries (Fig.3).

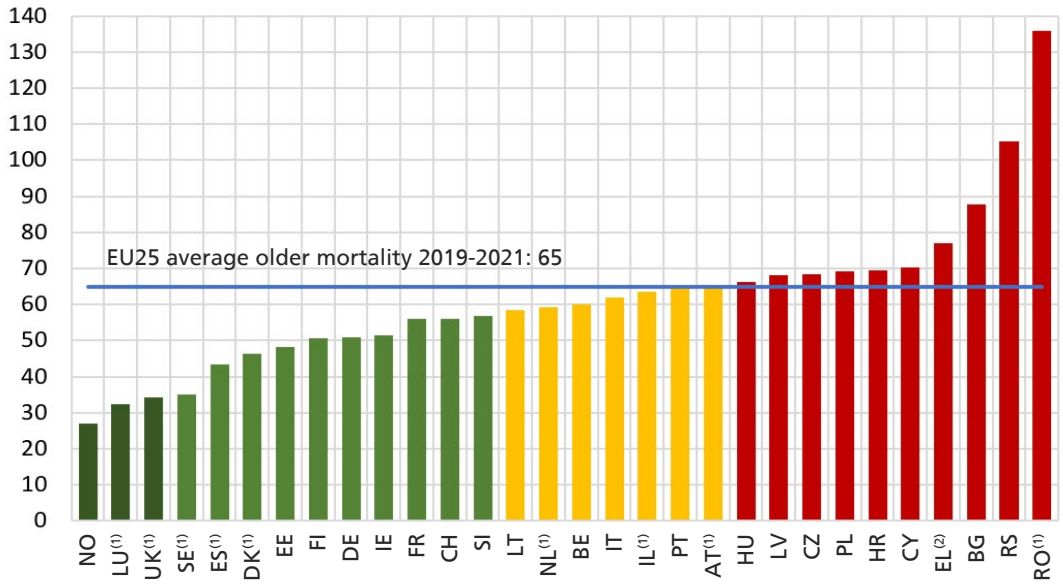
The safest country for older people is Norway with 27 older road deaths per million inhabitants. It is followed by Luxembourg and the UK (32/million and 34/million respectively). The countries with the highest road mortality among older people are Romania, Serbia and Bulgaria (136/million, 105/million and 88/million respectively).

The mortality of older people can be influenced by a number of factors including the use of different transport modes (e.g. more cyclists, including electric bicycles, also among older people).

Older people road mortality also varies among age groups. The EU average road mortality for the age group 65-74 years old is 50/million (average years 2019-2021). Road mortality for the age group 75-84 is 72/million and for the age group 85+ is 118/million. This reflects the fact that the fatality risk from the same physical impact increases with age.[10]

[10] SWOV (2015) The elderly in traffic https://tinyurl.com/552caufh

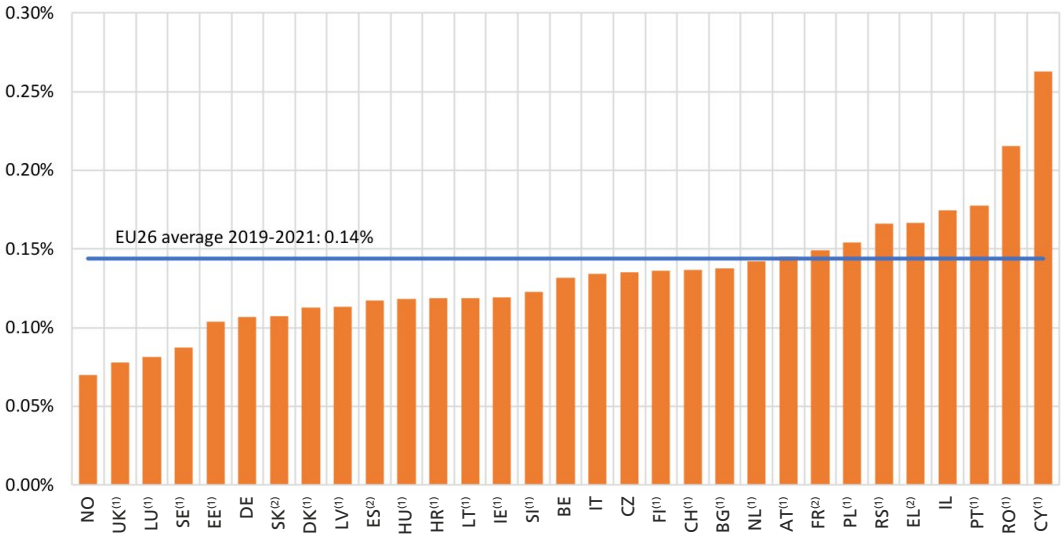
Figure 3. Road mortality of older people. Average number for 2020-2022 or latest three years available.
(1)2019-2021, (2)2018-2020.
EU25: EU27 minus MT and SK due to lack of updated data.



1.4 OLDER PEOPLE ROAD DEATHS AS A PROPORTION OF DEATHS FROM ALL CAUSES

Older people road deaths represent 0.14% of all older people deaths, whereas for the rest of the population road deaths represent 2% of all deaths (Figure 4). The proportion of road deaths compared to deaths from all causes is much lower in the 65+ age group. This reflects the fact that older people have a higher chance of dying from other causes. Older people road deaths as a proportion of older people deaths from all causes varies from less than 0.1% in Norway to more than 0.2% in Cyprus.

Figure 4. Older people road deaths as a proportion (%) of older people deaths from all causes in 2020-2022 or latest three years available.
(1)2019-2021, (2)2018-2020.
EU26: EU27 minus MT due to lack of data.



1.5 OLDER ROAD USER DEATHS BY ROAD USER GROUP

On average across the EU26[11], 49% of older people killed in road collisions are either a pedestrian (33%) or a cyclist (16%). 39% of older people killed are a car driver or passenger. The remaining 13% are a PTW user (6%) or using another form of transport (7%). The proportions vary across PIN countries. In the Netherlands, for example where older people continue to use their bicycle to travel, the proportion of older people killed as a cyclist is much higher (45%) than the EU average (16%).

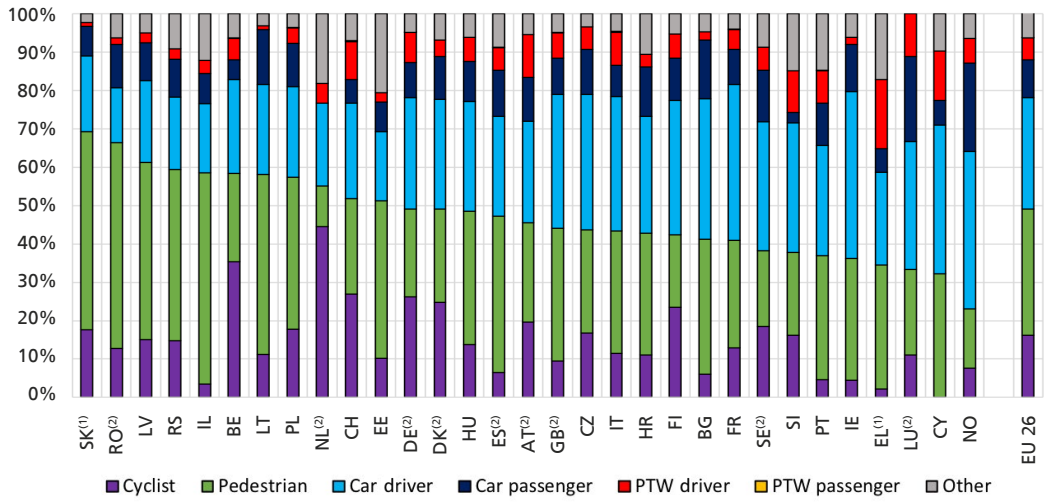


Figure 5. Proportion of road deaths by road user group, among older people (aged 65+) in the period 2020-2022 (or last three years available). Countries ranked by proportion of cyclist and pedestrian deaths. (1)2019-2020, (2)2019-2021

To illustrate the risk of death associated with changes in modal use with increasing age, Figure 6 shows the distribution of 65-74, 75-84 and 85+-year-old road deaths by mode of transport and gender over the period 2019-2021 in 26 EU countries.[12] The differences between men and women are striking. Figure 6 shows that older men are killed mainly as car drivers while women are killed more as car passengers. Older women are killed mainly as pedestrians. With increasing age, older people tend to be killed more as pedestrians, regardless of their gender.

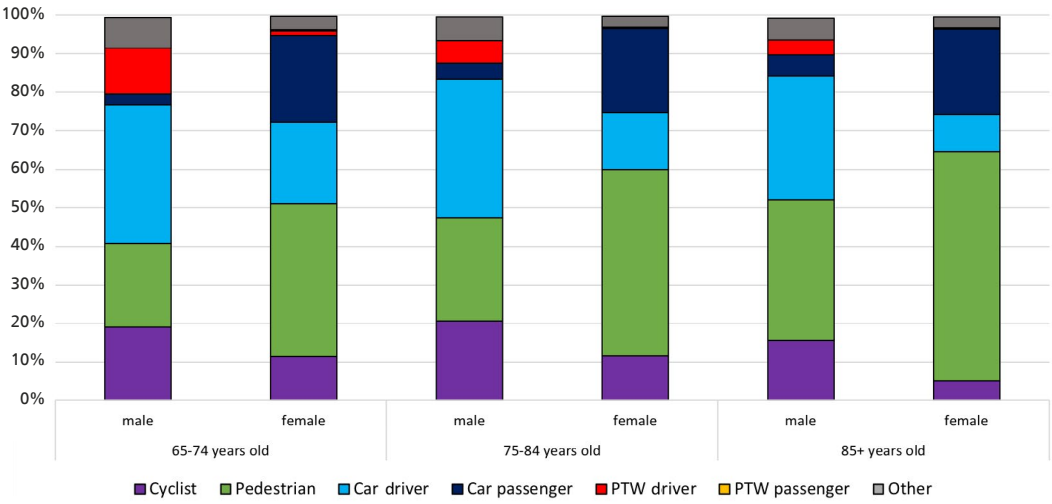


Figure 6. Proportion of older people road deaths by road user group. Average number for the period 2019-2021

[11] EU26: EU27 minus MT due to lack of updated data.
[12] EU26: EU27 minus MT due to lack of updated data.

1.6 OLDER PEOPLE DEATHS TAKING INTO ACCOUNT THE MAIN OTHER PARTICIPANT IN THE COLLISION

The three most important collision scenarios for older people are collisions where the main opponent is a car, a light goods vehicle or heavy goods vehicle, or where no other vehicle is involved (Fig. 7). In 2021 in the EU27, 2,496 older people were killed in a collision involving a car, accounting for 46% of all older people road deaths (the proportion for the rest of the population is 35%). Nearly 60% of all older people killed in a collision with a car were pedestrians or cyclists (the proportion is 33% for the rest of the population). 1,286 older road users died where there was no other vehicle involved, accounting for 24% of all older people road deaths (the proportion is 36% for the rest of the population), and 1,133 older people were killed in a collision involving a light goods vehicle or a heavy goods vehicle, accounting for 21% of all older people road deaths (22% for the rest of the population). Single vehicle collisions have a tendency to be more underreported than two vehicle collisions. Single bicycle collisions are particularly prone to be underreported in police records.[13]

Fatalities — In a collision with...	Pedestrian	Cyclist	Moped	PTW	Car	LGVs + HGVs	Bus or Coach	Other	No other vehicle	Total
Older Pedestrians	2	25	14	66	1070	380	44	77	0	1678
Older Cyclists	3	33	6	15	398	172	15	27	239	908
Older Moped Riders	0	0	1	1	45	19	1	3	25	95
Older PTW occupants	0	1	1	6	102	35	1	9	83	238
Older Car Occupants	3	1	0	9	795	463	37	74	778	2160
Older LGVs (<3.5T) + HGVs occupants	1	1	0	0	31	43	1	9	63	149
Older Bus or coach occupants	2	0	0	0	3	1	2	0	8	16
Other	0	2	1	2	52	20	1	4	90	172
Total	**11**	**63**	**23**	**99**	**2496**	**1133**	**102**	**203**	**1286**	**5416**

Figure 7. EU27 older people road deaths in 2021 taking into account the main other participant in the collision. Methodological note: the data cover deaths in single-vehicle collisions and collisions involving one or more road users. For the majority of fatal collisions, only one other vehicle is involved in the collision. For multi-vehicle collisions, the 'main vehicle' is the heaviest of the vehicles involved as this tends to be responsible for the most serious consequences. As a result, the figures in each column likely underestimate the number of cases a particular vehicle was involved in a collision. Source: EU CARE database. 2022 data are not yet available.

[13] Schepers, P., Stipdonk, H., Methorst, R. & Olivier, J. (2017). Bicycle fatalities: Trends in crashes with and without motor vehicles in The Netherlands. Transportation Research Part F: Traffic Psychology and Behaviour, vol. 46, p. 491-499. http://bit.ly/2MUH998

1.7 DEMOGRAPHIC CHANGES AND THE IMPACT ON ROAD DEATHS

The demographic landscape of Europe is undergoing significant transformations, marked by a rapid expansion in the proportion of older individuals. While the economic ramifications of this demographic shift are readily apparent, its impact on traffic safety presents a more complex picture. Presently, older individuals constitute approximately 21% of the European population. However, due to declining birth rates, prolonged life expectancies, and the maturation of the baby-boom generation, it is projected that by 2040, 28% of the population will be aged 65 or older, rising further to 30% by 2070. As the older population continues to grow, it becomes imperative for road safety policies to increasingly focus on addressing the unique safety requirements of this demographic of road users.

1.8 SERIOUS INJURIES

The exact number of people seriously injured in road collisions is not yet known in all EU countries. Sample studies have shown that the actual number based on the national serious injury definition is often considerably higher than the number officially recorded by the police. In general, the lower the injury severity, the higher the underreporting in collision statistics collected by the police tends to be. The level of underreporting tends also to be higher for pedestrians, cyclists and motorcyclists than for vehicle occupants. This is especially the case when no motor vehicle is involved in a collision.[14]

According to data available in the CARE database, at least 10,815 people in the age group 65-74, 7,686 people in the age group 75-84 and 2,109 people in the age group 85+ were reported seriously injured in 2021 in the EU27.[15]

[14] ETSC (2023) 17th Road Safety Performance Index Report www.etsc.eu/pin17

[15] Source: EU CARE database. Please note that for some years, countries that are not included in the figure are France, the Netherlands, Ireland, Italy and Estonia due to problems of comparability, missing data or a break in the time series.

Road safety data and pedestrian falls

In the European Union, the definition of a road collision injury encompasses incidents occurring on public roads that entail at least one moving vehicle and result in at least one casualty, which refers to a person who is either injured or killed. Notably, cases where pedestrians fall on a footpath or carriageway, even if attributable to the substandard quality of the footpath, are not classified as road casualties, even when they lead to fatalities. Consequently, incidents involving pedestrian falls without any involvement of vehicles are not reflected in police road safety statistics but are, instead, captured within the health sector's statistical records. Regrettably, the extent and significance of injuries stemming from pedestrian falls within the road system have been overlooked.

Maintaining records of pedestrian falls within the road system proves valuable for several reasons. Firstly, it aids in the promotion of active mobility by drawing attention to potential safety hazards. Secondly, it facilitates the monitoring of shifts in transportation preferences, also known as modal shifts, by providing insights into mobility patterns. Lastly, it underscores the importance of factors such as the condition and upkeep of footpaths in maintaining road safety.

RECOMMENDATIONS TO NATIONAL GOVERNMENTS ON IMPROVING DATA COLLECTION

- Keep records of pedestrian falls in the road system that result in deaths and serious injuries.
- Consider how to improve registration of deaths and serious injuries of pedestrians and cyclists and tackle underreporting. Analyse single bicycle collisions, including how they are recorded, as a matter of priority.
- Improve data collection of serious injuries.

RECOMMENDATIONS TO THE EU INSTITUTIONS ON IMPROVING DATA COLLECTION

- Encourage Member States to keep records of pedestrians falls in traffic that result in deaths and serious injuries. Consider extending the definition of what constitutes a road collision to include pedestrian falls.

PART II

COUNTERMEASURES

02

Older individuals are inherently more susceptible to trauma compared to other age groups, primarily due to the escalated fatality risk associated with the same physical impact as one ages. Consequently, when a collision occurs, it inflicts a more severe toll on older individuals. Moreover, older drivers grapple with age-related limitations, underscoring the critical importance of proactively preventing traffic-related injuries among this demographic. Achieving this goal necessitates comprehensive measures targeting behavior, vehicle safety, and infrastructure enhancements.

Furthermore, it is imperative that road safety becomes an integral component of the over-arching vision for mobility. This vision should place a strong emphasis on safeguarding vulnerable road users, with a particular focus on meeting the unique needs of the most susceptible groups, including older individuals, children, and individuals with reduced mobility. Such an approach is indispensable for achieving the highest safety standards on our roads.

2.1 BEHAVIOUR

Older drivers have to deal with age-related limitations, but they are generally able to compensate for them. Ageing is accompanied by the narrowing of the visual field, poorer contrast sensitivity, increased time required to change focus, slower eye movement, problems with depth perception and slower decision making.[16]

These impairments make older people more sensitive to complex traffic situations where a number of different tasks must be performed at the same time. Taking a turn across traffic at a complex intersection is an example. Furthermore, several medical disorders related to accident proneness, such as eye disorders, dementia, Parkinson's disease, stroke, cardio-vascular diseases and diabetes, are more common among older adults.

To compensate for these functional limitations, many older drivers try to avoid driving at night, in bad weather, in congested areas and during peak periods.[17] Older people have more freedom in choosing when to travel and more often choose to drive during daytime and dry weather. They have, on average, a great deal of driving experience, assisting them to anticipate possible problematic situations.

Also, older drivers, on average, drink and drive less often than younger adults and generally obey the traffic rules more frequently.[18] Older drivers are not so much a risk to others, but they are at risk themselves due to their frailty and vulnerability to personal injury in the event of a road collision. Some researchers argue that the characteristically low distance travelled by older drivers partly explains their high fatality rate. They argue that, all other things being equal, drivers with a high annual distance travelled generally have a lower collision rate than drivers with a low annual distance travelled. Older drivers also tend to drive on lower speed roads (usually rural roads rather than motorways which are designed to higher safety standards), and it is possible that this could lead to an overestimation of their collision risk.[19]

2.1.1 Fitness to drive

Fitness to drive can be affected by many things, not just old age. Mandatory age-based medical checks for older drivers of Group 1 vehicles[20] have not been shown to be effective in preventing severe collisions.[21] They may even have a negative safety impact, as older drivers shift to vulnerable travel modes as they cease driving.[22] Other studies have concluded that specific medical conditions, substance abuse, mental disorders, epilepsy and diabetes are more important factors than age. In addition, there is evidence that medical screening of all older drivers (i.e. strict age-based renewal procedures and demanding medical examinations) reduces

[16] ETSC (2021) Are medical fitness to drive procedures fit for purpose? https://tinyurl.com/nx4s3s8w
[17] ETSC (2008), 2nd PIN Annual Report, Chapter 4, Reducing older people's deaths on the roads, pages 41-53, https://bit.ly/3omEynX.
[18] European Commission (2018), Older drivers, https://bit.ly/46Mt1W4
[19] SWOV (2015) The elderly in traffic https://tinyurl.com/552caufh
[20] Group 1: drivers of vehicles of categories A, A1, A2, AM, B, B1 and BE. EU Directive 2006/126/EC on Driving Licences.
[21] OECD (2001), Ageing and Transport, Mobility needs and safety issues, https://bit.ly/3ciqfOV and Siren and Haustein (2015) https://bit.ly/3jC8ply
[22] Martensen, H. (2017), Age-based screening of elderly drivers, European Road Safety Decision Support System, developed by the H2020 project SafetyCube. Retrieved from www.roadsafety-dss.eu on 29/10/20.

the level of car driving licences among older people, itself a risk factor for decline in health and premature entry into a nursing home.[23]

Many PIN countries currently require more frequent and thorough medical checks as drivers age. The most common age for age-based medical fitness to drive checks to start is 70 (Cyprus, Finland, Israel, Slovenia and the United Kingdom). This is usually a certificate issued by a physician, based on an examination performed by a general practitioner (GP). In the UK the authorities rely on drivers' self-reports, including for eyesight tests. (Table 1)

Table 1. Medical fitness to drive (MFTD) testing for Group 1 drivers
Source: PIN Panellists
* Except for drivers with medical conditions already known to the authorities who were issued a driving licence with shorter validity. Those drivers will have to undergo MFTD checks each time their driving licence needs to be renewed.

Age at which mandatory medical checks start for a car driver to continue driving					Countries requiring regular checks, not age based	Countries with no regular checks for the general driving population*
60	65	70	75	80	BE (3)	AT
LU	CZ	CY	CH	NO	BG (4)	DE
PT (1)	RS	FI (2)	NL		EE	DK
	SK	IL	IE		EL	FR (7)
		SI			ES (5)	HR
		UK			HU	SE
					IT (6)	PL
					LT	
					LV	
					RO	

(1)PT – for car drivers. (2)FI – it is common practice to renew the driving licence just before the 70th birthday when medical checks are not yet needed. (3)BE - There is a declaration of honour at the administrative renewal of the driving licence. This declaration confirms (self-declared) medical fitness. (4)BG – Up to Cat. B driving licences need to be renewed every ten years and with each renewal a medical check is needed. (5)ES – from the age of 65 medical checks are required every 5 years. (6)IT – from the age of 50 medical checks are required every 5 years, from the age of 70, every 3 years and from the age of 80, every 2 years. (7)FR – A Decree[24] establishes the list of medical conditions that are incompatible or compatible with or without accommodations or restrictions for obtaining, renewing or maintaining a driving licence or that may result in a driving licence being issued with limited validity.

SWITZERLAND
STUDY ON AGE-BASED FITNESS TO DRIVE CHECKS IN SWITZERLAND

Switzerland has implemented age-based medical fitness to drive assessments for older drivers since the 1970s. In 2022, the Swiss Council for Accident Prevention (BFU) released findings from a study evaluating the effects of these age-based assessments. The study encompassed surveys and a comparative analysis of crash rates among older drivers in Switzerland as well as Germany and Austria — two countries that do not employ age-based medical fitness to drive testing.

The study could not establish any discernible positive impact of the Swiss system on reducing serious crashes instigated by older drivers. The study's authors reached the conclusion that age-based medical fitness to drive assessments do not prove to be an effective mechanism for substantially diminishing the occurrence of severe collisions attributable to older drivers. However, it is noteworthy that the study also revealed no adverse effects, such as an increased incidence of serious crashes among older cyclists and pedestrians, nor did it detect frequent voluntary licence surrenders due to apprehension about the testing process.[25]

[23] O'Neill D. (2012), More mad and more wise, in Accident; Analysis and Prevention https://bit.ly/36YqrzB
[24] https://tinyurl.com/44ptwmv2
[25] K. Huwiler, A. Uhr, P. Hertach (2022) Age-based medical fitness to drive checks (in German: Altersbasierte verkehrsmedizinische Kontrolluntersuchungen), https://tinyurl.com/27bxy22k and Hertach P, Huwiler K, Aigner-Breuss E et al. Age-based medical screening of drivers in Switzerland: an ecological study comparing accident rates with Austria and Germany. Swiss Medical Weekly 2022; 152(4546). https://tinyurl.com/mr22v8zc

SWEDEN
2018 STUDY CONFIRMS MEDICAL SCREENING FOR DRIVERS SHOULD NOT BE AGE-BASED, BUT SHOULD TARGET SPECIFIC DISEASES

Sweden does not have compulsory medical screening for drivers above a certain age. In 2018, the Swedish Transport Agency undertook a study to find out whether Sweden should introduce medical screening for older drivers.[26] The research looked at whether car drivers who are 65 or older, and diagnosed with one of the medical conditions affecting driving,[27] are more often involved in a road collision than drivers of the same age who are not diagnosed. A sample of 13,700 drivers aged 65 and over who had been involved in a road collision was matched with a control group of people who had not been involved in a collision. Drivers diagnosed with age-typical medical conditions, such as cardiovascular diseases and visual impairment, had a slightly increased probability of collisions. Drivers diagnosed with dementia (a condition also strongly related to age), had a lower probability of collision compared to drivers not diagnosed with dementia, but this may be explained by people with dementia driving less after they have been diagnosed. Drivers suffering from substance abuse, mental disorders (other than dementia), epilepsy and diabetes had increased probability of getting involved in a collision. These medical conditions can occur at any age.

The study concluded that Sweden does not need to introduce mandatory medical screening for older drivers. Further investigations were recommended for drivers of all ages suffering from substance abuse, mental disorders, epilepsy and diabetes.

NETHERLANDS
TO REVIEW AGE-BASED MEDICAL FITNESS TO DRIVE CHECKS

Older drivers in the Netherlands have to undergo medical fitness to drive checks from the age of 75. In the 2018 Road Safety Strategic Plan 2030 the Dutch government agreed to examine the possibility of introducing a system of fitness to drive checks that is no longer based on age but rather on medical conditions. The Dutch Institute for Road Safety Research (SWOV) undertook an initial evaluation of the system in 2019[28] (including looking at systems in other countries) and proposed four elements they believed could most improve the risk-based character of the current system as well as its efficiency. These elements include:

- Abolishing age-related medical assessment;
- Introducing periodic screening by means of a health declaration that the driving licence holder has to complete at each licence renewal;
- Replacing the moral obligation for licence holders to report on alterations in their medical condition with a legal obligation; and
- Medical assessment of Group 1 licence holders by their General Practitioner (GP) instead of an independent medical examiner.

A final decision is still to be taken by the Dutch government.[29] Meanwhile, SWOV has been commissioned to investigate both which screening instruments would be suitable for a quick and easily accessible age-based screening of vision, cognition and motor skills, and which medical conditions are relevant and could be feasibly reported by licence holders were a legal obligation to be established.

[26] Swedish Transport Agency (2018) Relationships between diseases and the involvement of older drivers in traffic accidents (in Swedish, English summary available), https://tinyurl.com/3vnk9bse

[27] The Swedish Transport Agency's Regulations on Traffic Medicine lists 13 medical condition categories affecting driving.

[28] Davidse, R.J., Doumen, M.J.A., Wijnen, W., (2020) Alternatives to the current system of assessing medical fitness to drive; scope for a reform https://tinyurl.com/2uhdc5bx

[29] Royal Haskoning DHV (2022) Options for improving the medical fitness to drive system (in Dutch: Beoordeling voorstel voor optimalisatie stelsel medische rijgeschiktheid) https://tinyurl.com/mr4dy629

RECOMMENDATIONS TO NATIONAL GOVERNMENTS

- Consider the road safety, health and well-being impact of stopping older drivers from driving and keep records of pedestrian falls in the road system that result in deaths and serious injuries.
- Develop and implement evidence-based screening tools and protocols based on international best practice to help medical professionals consistently identify medical conditions which may affect fitness to drive at all ages. Review the process for declaring medical conditions at licence application, renewal and for emergent conditions between licence renewals.
- Within national medical fitness to drive guidelines and regulations, stress the role of General Practitioners (GPs) as the primary point of call for identifying those who may be at-risk in terms of their fitness to drive, initiating an assessment of a person's fitness to drive and influencing how long and under what circumstances a person continues driving. This influence can range from direct advice to the patient to discussions started by family members about a person's challenges with driving.
- Develop and mandate evidence-based training programmes for medical professionals which have been shown to be effective and are accepted in particular by family doctors (GPs) in assessing a person's fitness to drive.[30]

RECOMMENDATIONS TO THE EU INSTITUTIONS

Within the context of the revision of the Driving Licence Directive:

- Support Member States in developing and promoting materials to support successful drivers' self-regulation and transition to reduced driving and driving cessation. These materials should be made freely available in all Member States, to assist individuals in undertaking assessment of their own fitness to drive.
- In order to increase consistency in assessing drivers' medical fitness to drive across the EU, develop an effective and transparent screening protocol based on international good practices to help medical professionals detect potential medical conditions.
- Develop and promote evidence-based guidelines for GPs and other medical professionals involved in assessing the functional capabilities of someone suspected of being an unfit driver.
- Support Member States in developing and evaluating educational programmes for GPs that are both effective and accepted by medical practitioners.
- Increase the attention to the inclusion of traffic medicine universally in the training of medical and healthcare professionals, as noted in previous reports for the European Commission.
- Research the most effective mechanisms to assess and manage liaison between healthcare and driver licensing systems to maximise safe mobility for those affected by conditions relevant to medical fitness to drive, having regard to the importance of doctor-patient relationships.
- Encourage Member States to make wider use of conditional licences (Codes 61 to 69[31] of Directive 2006/126/EC68[32]) where possible and report to the EC the scale of their use, so as to aid monitoring and improvement.

[30] ETSC (2021), Are medical fitness to drive procedures fit for purpose?, www.etsc.eu/pinflash40
[31] Conditional codes included on a driving licence giving entitlement to drive only under certain circumstances.
[32] EU Directive 2006/126/EC on Driving Licences https://bit.ly/3a4GgGE

2.1.2 Active mobility and alternative modes of transport to the car

Older people are particularly at risk of injury when walking or cycling in the road environment (see Figures 5 and 6). Their frailty and vulnerability to personal injury in the event of a road collision are heightened when they are unprotected by the chassis of a car. And yet, as people age, the number and length of trips as a car driver reduces, while the share of walking and riding as a passenger increases.[33]

The health benefits of active travel (walking and cycling) outweigh the detrimental effects of road injury and air pollution exposure. Research has also found that the net health benefits are largest at older ages. This is mostly due to the higher prevalence of chronic diseases among older people, which physical activity contributes to preventing.[34] To encourage active travel amongst older people, it is therefore of the utmost importance to make walking and cycling safer.

2.1.2.1 Cycling

Older people are overrepresented in cycling road death statistics. A bicycle offers no protection in the event of a collision. As with older car drivers, the vulnerability decreased ability to balance (also due to lower bicycle speed) and frailty of older cyclists mean that they have a higher risk of serious injury and death in the event of a collision. According to EU CARE data,[35] the mortality of older cyclists is three times higher than for 25-64 year old cyclists and up to six times higher than for cyclists under the age of 25. In countries where cycling is common, the share of older people among cyclist deaths is generally higher than the EU average.

Research in the Netherlands looking at the risk of road deaths according to age, road user group and distance travelled between 2013 and 2017, shows that bicycle risk amongst those aged 60-69 is 16 deaths per billion km, while it is 50 death/billion km for those aged 70-79 and 244 death/billion km for those aged 80 and over.[36]

In countries where cycling is common, there has also been a recent increase in the use of electrically assisted bicycles by older cyclists. In the Netherlands, in 2019, around half (52%) of all distance cycled by people aged 65 and over was by e-bike (electrically assisted pedal cycle with a maximum assistance speed of 25 km/h). For people aged 75 and over the proportion was 63%. The respective proportions in 2013 were 39% and 47%.[37] Studies also show that older e-bike users tend to travel 1.6 times further than they would on a normal bike and 20% faster.[38]

These trends of increased cycling could explain why the number of older people killed whilst riding an e-bike is disproportionate to other age groups. In the Netherlands between 2018 and 2019, 38% of all cyclists over the age of 80 killed were riding an e-bike. For cyclists under the age of 60 the proportion was 14%.[39] In Czechia, a study carried out in 2022 on e-bike deaths found that, in the previous 5 years, older people accounted for 54% of all e-bike deaths compared to 37% of regular bike deaths.[40] In France, between 2019 and 2022, people aged 65 and over represented 64% of the cyclists killed on an e-bike whereas they represent 42% of regular bike deaths.

However, most research does not show that collisions involving e-bikes are any more serious than ordinary bicycles although some studies do show that older women are more likely to be seriously injured due to a collision on an e-bike than on a regular one.[41] Research carried out in Germany, for instance, on the risk of e-bike riders or bicycle riders being seriously injured or

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[33] European Commission (2021) Road safety thematic report - Seniors. https://tinyurl.com/2sjdsbpz
[34] Santacreu, A. (2018), "Cycling Safety", International Transport Forum, Paris https://tinyurl.com/mtbxm3vk
[35] European Commission (2021) Facts and Figures Cyclists. https://tinyurl.com/ym4vsth4
[36] Schepers, J.P.; Weijermars, W.A.M.; Boele, M.J.; Dijkstra, A.; Bos, N.M. (2020) *Older cyclists; Crashes involving older cyclists and contributory factors* https://tinyurl.com/5xzbxsw6
[37] Boele, M. & De Haas, M. (2022). The pedelec and road safety (In Dutch: De elektrische fiets en verkeersveiligheid). Geron, 24(2). https://tinyurl.com/4j5ewn5h
[38] Ibid.
[39] SWOV (2020) Older cyclists; Crashes involving older cyclists and contributory factors https://tinyurl.com/5xzbxsw6
[40] KADULA, Lukáš, BUCSUHÁZY, Kateřina, ZŮVALA, Robert, ŠRAGOVÁ, Eva, (2022), Fatal consequences of accidents on e-bikes in the Czech Republic. Silniční obzor (in Czech). 83(7-8), 35-40. ISSN 0322-7154, https://bit.ly/3OGD3RU
[41] Ibid.

killed in a collision, found that, while the risk was highest among those over the age of 75, there was little difference in the risk between an ordinary bicycle or a e-bike.[42]

As with age-based fitness to drive checks, action to decrease the risk of cycling among older people must be balanced with not only the health benefits that cycling offers but also the independence that it offers older people.[43]

Wearing a helmet can, in the case of a collision or fall, reduce the chance of serious brain injury by 70%.[44] If all cyclists over the age of 70 wore a bicycle helmet, there would be around 45 to 50 fewer road deaths in the Netherlands per year.[45] Adding a rear-view mirror to a bicycle can also improve cycling safety for older cyclists who may find it more difficult to look behind them whilst at the same time balancing on a bicycle.[46]

NETHERLANDS
THE CYCLEON (DOORTRAPPEN) INITIATIVE ENCOURAGES SAFE CYCLING AMONG OLDER PEOPLE

CycleOn is an initiative of the Dutch Ministry of Infrastructure and Water Management which seeks to encourage older people to continue cycling while at the same time helping them to improve their safety. Implementation of the project is decentralised to the local level however the government provides materials, resources, information and training. For instance, through the initiatives, a network of cycle routes has been mapped which are safe and accessible for older cyclists. These routes tend to be around 25km long, with wide cycle lanes, lots of greenery and no dangerous intersections. A network of around 100 of these routes now exists.[47]

2.1.2.2 Pedestrian falls

Walking serves as a vital means of transport for older individuals in Europe. Data from the Netherlands in 2017 for instance show that only children up to the age of 12 make a higher proportion of their trips by foot (26%) than those between 65 and 75 years old (21%) and those over 75 years old (25%). Data from the same year also show that there were 15,000 visits to the emergency department following a pedestrian fall and that nearly half of those were by people over the age of 60.[48] The same situation is also found in Czechia where older people walk more frequently than the average population (walking accounts for 53% of their trips compared to 47% for the rest of the population) and only children aged 5-17 walk more often than older people.[49] Poor infrastructure, including the poor condition of footpaths can make older pedestrians more cautious and avoid walking outdoors for fear of falling.[50]

Sweden applies the EU definition of a road casualty and therefore pedestrian falls are not considered as road casualties (see box on p.20). To increase and update knowledge about pedestrian fall in Sweden, a study was conducted in 2022. It revealed that 94% of all pedestrians seriously injured in the road system in Sweden over the period 2014-2019 were a result of a pedestrian fall.[51] Predominantly women and older individuals were injured in falls. 53% of the falls registered were due to slipping on snow and ice. 17% of the falls were due to uneven road surfaces, including potholes.

A study into pedestrian slip-and-falls in Finland estimates that approximately 125,000 pedestrian falls resulting in injury occur every year in Finland, with over half of these (60%) being winter slip-and-falls. More women experience a slip-and-fall than men and older women are particularly likely to be seriously injured.[52]

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42 GDV (2022) Unfallrisiko von Pedelec-Fahrer:innen (Collision risk of pedelec riders) https://tinyurl.com/mtv7um86
43 Ibid.
44 Høye A. (2018) Bicycle helmets – To wear or not to wear? A meta-analyses of the effects of bicycle helmets on injuries https://tinyurl.com/3duy4y66
45 Boele, M. & De Haas, M. (2022). The pedelec and road safety (In Dutch: De elektrische fiets en verkeersveiligheid). Geron, 24(2). https://tinyurl.com/4j5ewn5h
46 Ibid.
47 ECF (2023) Cycling for healthier and more inclusive communities https://tinyurl.com/mrytezsj (or in Dutch https://tinyurl.com/5b5r2e4n)
48 https://ruimtevoorlopen.nl/agenda-lopen/
49 KOUŘIL, Petr, Michal ŠIMEČEK a Zdeněk DYTRT (2022), Czech Republic on the move: Methodology and basic results of a nationwide survey of traffic behavior (in Czech), Ke stažení I Česko v pohybu (ceskovpohybu.cz)
50 Living Streets (2023) Pedestrian slips, trips and falls: an evaluation of their causes, impact, scale and cost https://tinyurl.com/ykth8m58
51 Eriksson J., Henriksson, P., Rizzi, M. (2022) Vulnerable road users involvement in accidents and their injury outcome. A comparative study between pedestrians, cyclists, mopedists and motorcyclists. VTI report 1133. In Swedish, summary in English.
52 NORDIC (2022) Pedestrian slip-and-fall accidents and their prevention https://tinyurl.com/yxfkht82

A study on pedestrian falls conducted in the Netherlands estimated that, between 2014 and 2018, 131 pedestrians were killed each year, of which 80 (61%) were following a fall with no vehicle involved. Over the same period, each year, pedestrian falls accounted for an estimated 83% of all serious pedestrian injuries in traffic based on the MAIS2+ definition. The study also noted that while overall the number of pedestrians killed in the Netherlands has decreased since 1998, this is mainly due to a reduction in the number of pedestrians killed in collision with another vehicle. The numbers of pedestrians killed due to falls, with no vehicle involved, has remained relatively stable.[53]

SWEDEN
TARGET TO REDUCE FALLS IN THE ROAD SYSTEM BY 25% AND MEASURES TAKEN BY MUNICIPALITIES

Sweden has a target to reduce the number of falls in the road system by 25% by 2030. People over the age of 55 are overrepresented in falls. Municipalities across Sweden are working to tackle the issue of pedestrian falls. The City of Malmö, for instance, has undertaken paving work to create even surfaces in places where there are many vulnerable road users and is looking to ensure loose gravel doesn't contribute to slips. The City of Gothenburg is focusing on removing obstacles by reviewing and fixing stairs, ramps, passageways and flat stretches of walkways. Uppsala Municipality is focusing on measures addressing kerbstones on footpaths and bicycle paths in order to increase road safety, accessibility and capacity.[54]

IRELAND
OLDER PEDESTRIAN CAMPAIGN AND EDUCATION PROGRAMME

Census data in Ireland (2016) reported that 13% of Ireland's population was aged 65 and above, however 31%[55] of pedestrian deaths in Ireland (2016-2020) were aged 65 and older. In September 2021 the Older Pedestrians campaign[56] went live. This campaign aims to make motorists aware of older pedestrians, to help reduce the number of deaths and serious injuries among this age group.

The Road Safety Authority (RSA) in Ireland also has a road safety education awareness programme for older adults called Mobility Matters[57]. The programme covers buying a car, keeping your car in good condition, driving safely, bus safety, pedestrian safety, cycle safety, safety belts, child restraints and medical conditions. The RSA also runs a free 'train the trainer' session for trainers involved in groups for older people such as Age Friendly Ireland and Active Retirement Ireland.

FINLAND
FALL PREVENTION AND MAKING IT SAFE FOR OLDER PEOPLE TO WALK.

In Finland the Programme for the Prevention of Home and Leisure Injuries 2021–2030[58] includes a general objective to reduce older people's road traffic collisions by car, bicycle and on foot by 2030 and a specific target to make it safe for older people to walk. Another complementary objective is to reduce deaths and hospital stays due to falls among those aged 65 and over. There are a number of initiatives running in Finland to prevent falls including the KaatumisSeula Tools to Prevent Falls[59] which includes an exercise guide to prevent falls both inside and outside the home and a fall risk assessment check list. Winter conditions in Finland present a particular challenge to older pedestrians. The Accident

[53] Methorst, R. (2021) Exploring the Pedestrians Realm: An overview of insights needed for developing a generative system approach to walkability https://tinyurl.com/3e3y6wr6
[54] Trafikverket (2023) Road Safety Action Plan 2022–2025 https://tinyurl.com/2p8z7f6m
[55] Figure is provisional and subject to change.
[56] https://www.rsa.ie/road-safety/campaigns/older-pedestrians
[57] https://www.rsa.ie/docs/default-source/about/mobility-matters.pdf?Status=Master&sfvrsn=6b8bb894_3
[58] https://tinyurl.com/d489cz8t
[59] https://tinyurl.com/46rdhzrh

Prevention Network runs a 'Stay on your feet campaign'[60] which draws attention to the risk of falling while walking in slippery conditions and promotes the wearing of winter shoes with anti-slip guards. In addition, every year a number of municipalities give anti-slip shoe covers for free to older people. For Nurmijärvi municipality[61] the free distribution of these anti-slip covers is part of its commitment to promote the active mobility of older people and to provide opportunities for exercise even during the most challenging weather conditions.

2.1.2.3 Other modes of transport

Public transport is considered a crucial element of social inclusion and can play an important role in the continued mobility of older people who have either decided or been told that they can no longer drive a car.

26 PIN countries report that public transport is either discounted or free for older road users (see Table 2).

Public transport is considered a relatively safe mode of transport although consideration should be given to non-collision injuries on public transport which represent a risk to the health of older people.[62] One study carried out in the UK,[63] found that although UK national injury rates are low for bus and coach passengers, they still represent 8.4% of all road casualties of those aged 60 and over. Alighting and boarding buses were both significantly more likely to cause injuries for older passengers aged 80 and over. Passengers between 60 and 79 years old were significantly more likely to sustain injuries whilst seated whereas the data suggest that all ages are at risk of injury whilst standing on buses. Making sure that passengers have properly exited from vehicles or are correctly seated at the time the bus moves away from the stop was one of the main considerations for injury prevention from the study.

Table 2. Is public transport discounted or free for older people in your country?
Source: PIN Panellists

	YES, at national level	YES, at local level	NO
Is public transport discounted or free for older people?	AT, CY, CZ, DK, FR, EL, HU, IE, LU, LT, NL, PL, SI, UK, CH, IL, NO	BE, BG, EE, ES, FI, IT, LV, PT, SE, SK, RS	DE, HR, MT, RO

[60] https://tinyurl.com/2bfkj3k5
[61] https://www.nurmijarvi.fi/kunta-jakaa-kenkien-liukuesteita-ikaihmisille/
[62] Accident patterns in the ageing population: non-collision injuries on public transport and injuries of single pedestrians Desmond O'Neill, Trinity College Dublin CONSOL.
[63] Barnes et al., (2016) Injuries to older users of buses in the UK https://tinyurl.com/3d6znbfz

UK
TRANSPORT FOR LONDON REDUCING INJURIES INSIDE AND OUTSIDE BUSES

Transport for London has developed the Bus Safety Standard[64] which is now a part of bus operator route contracts. The Bus Safety Standard includes a number of features that will improve the road safety of all road users but older people in particular:

- Mandating the fitting of speed limiting technology (ISA) to all buses
- Trialling technologies such as Autonomous Emergency Braking (AEB), which detects other road users in a vehicle's path and brakes automatically
- Improving direct and indirect vision for drivers
- Redesigning the front of buses to help reduce the impact of a collision
- Use of audible warnings to alert pedestrians and other road users to the presence of buses
- New designs in bus interiors to reduce customer injuries.

NORWAY
AGE-FRIENDLY TRANSPORT

Ruter age-friendly transport (RAT), also called the "Pink bus", is a door-to-door public transport service offered by Oslo city council, that offers flexible travel times. RAT is available to anyone aged 67 years and over, but is especially aimed at those who find using ordinary public transport difficult. A study into the health effects of the service found that it contributes to a better quality of life in a number of ways – users are more independent, they enjoy more active and social lives, they have better health, and they feel safer compared to using ordinary public transport.[65]

RECOMMENDATIONS TO CITIES AND TOWNS

- Improve the quality, access to and ease of use of public transport.

RECOMMENDATIONS TO NATIONAL GOVERNMENTS

- Provide alternative public transport options to the private car.
- Support and fund projects enabling life-long mobility.
- Provide educational campaigns to promote mobility and safety for older people.

[64] https://tfl.gov.uk/corporate/safety-and-security/road-safety/bus-safety
[65] TOI (2020) The health effects of a new mobility solution for older people in Oslo https://tinyurl.com/mr4cesvu

2.2 INFRASTRUCTURE

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 older people. Road infrastructure that is safe for older people is also safe for all other road users. In their guide[66] on how to 'senior-proof' road infrastructure and improve road safety in urban areas, CROW[67] in the Netherlands suggest a number of measures including improving lighting, clearer road markings and signage and ensuring hazard-free and even roads, footpaths and cycle lanes.

2.2.1 30km/h zones and traffic calming

Traffic calming involves efforts to reduce motorised vehicle speed in residential and core urban zones, to facilitate the sharing of road space among pedestrians, cyclists and motorised vehicles.[68] At low speeds, drivers have more time to react to the unexpected and avoid collisions.

Speed governs the relationship between road users, and determines road user safety, especially for the most vulnerable road users – children, older people, pedestrians and cyclists.

The probability of a pedestrian being killed in a collision with a passenger car going at 50 km/h is more than five times higher than at 30 km/h.[69] At speeds below 30 km/h, pedestrians and cyclists can mix with motor vehicles in relative safety. That having been said, even at low speeds, mixing with heavy traffic, especially HGVs, is hazardous.

In-depth accident investigations undertaken in Czechia also show that older pedestrians are more likely to be killed or seriously injured even at lower traffic speeds. In a collision with a vehicle travelling up to 30km/h, a pedestrian over the age of 65 has a 7.7% chance of being killed compared to a 1.8% chance for someone under the age of 65. In a collision with a vehicle travelling between 31 and 50km/h a pedestrian over the age of 65 has a 24% chance of being killed compared with a 2.3% chance for those under the age of 65.[70]

A combination of traffic calming measures in 30 km/h zones is essential to discourage drivers from exceeding the speed limit. Different traffic calming measures are more suited to different functions of roads depending on the road hierarchy. Traffic calming should also discourage motorised traffic, except for traffic that needs access to that specific area.[71] Enforcement on roads limited to 30 km/h has a contribution to make where engineering measures by themselves are insufficient to bring drivers to safe speeds.

As is the case for pedestrians, the fatality risk for cyclists is five times higher in collision with cars driving at a speed of 50 km/h than at a speed of 30km/h. As speeds increase, the fatality risk for cyclists does, however, increase less rapidly than for pedestrians.[72]

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66 CROW (2011) Road design suitable for seniors (in Dutch Seniorenproof wegontwerp) available on request https://tinyurl.com/3dhhnmdn
67 CROW is the technology platform for transport, infrastructure and public space.
68 OECD (2013), Cycling, Health and Safety, http://goo.gl/qPHEf4
69 Kröyer et al., 2014, Accident Analysis Prevention, Relative fatality risk curve to describe the effect of change in the impact speed on fatality risk of pedestrians struck by a motor vehicle. https://tinyurl.com/48ju37a4
70 Bucsuházy et al. (2023) Seniors in road traffic - Czech In-Depth Accident Study (CzIDAS), Transport Research Centre (CDV). Brno. Czechia https://tinyurl.com/2296kkh6
71 ETSC (2015), 30 km/h limits gaining rapid acceptance across Europe, https://bit.ly/2D3lhll
72 Schepers, J.P.; Weijermars, W.A.M.; Boele, M.J.; Dijkstra, A.; Bos, N.M. (2020) Older cyclists; Crashes involving older cyclists and contributory factors https://tinyurl.com/5xzbxsw6

SPAIN
DEFAULT 30KM/H ON URBAN ROADS

Road safety for people over the age of 65 is a priority that cuts across all areas of Spain's Road Safety Strategy 2030.[73] Forecasts for the ageing population in Spain mean that this population group is going to increase in the near future.

Following a demand from Spanish municipalities, many of which had already decided to become "Cities 30", in May 2021, Spain became the first country in the world to set a default speed limit of 30 km/h on urban roads with only one lane in each direction of traffic (80% of streets). The new law reduced the generic speed limit from 50 to 30 km/h on urban roads with a single lane in each direction of travel and to 20 km/h on streets without a kerb. The main aim of the new law is to reduce collisions, especially among vulnerable road users (pedestrians, people with reduced mobility, and those riding bicycles, motorcycles and mopeds).[74]

Spanish road safety data show that, between 11 May 2021 and 31 December 2022, the number of people over the age of 65 killed on urban roads decreased by 16% compared to the period between 11 May 2018 and 31 December 2019.

2.2.2 Separated cycle paths and good quality footpaths

According to the Safe System approach, bicycles should not mix with motor vehicle traffic, where motor vehicle speeds exceed 30 km/h.[75] Roads for motor vehicles with speeds above 30 km/h require separate infrastructure for bicycles, and pedestrians should be provided with safe road crossing opportunities. Separation of bicycles from motor vehicles on the roads with the highest speeds and those with the highest volumes should be a priority for national governments.

For pedestrians, two important safety features in traffic are that they can walk on safe footpaths, not on the carriageway, and that when crossing, they can see traffic without any obstacles obstructing their view, while at the same time also being clearly visible to traffic. Road lighting, refuges and raised pedestrian crossings can all improve the safety of pedestrian crossings. Using thermo-plastic materials for road markings can also be helpful for older road users as they offer good contrast and do not become slippery when wet.[76]

[73] Road Safety Strategy 2030 (Summary in English) https://bit.ly/3ShywYs (or full text in Spanish) https://tinyurl.com/4r2ur8yw
[74] Royal Decree 970/2020 (in spanish): https://www.boe.es/eli/es/rd/2020/11/10/970
[75] European Commission (2022) Road Safety Thematic Report – Safe System Approach https://tinyurl.com/2f7t26ch
[76] CROW (2011) Road design suitable for seniors (in Dutch Seniorenproof wegontwerp) available on request https://tinyurl.com/3dhhnmdn

2.2.3 Safety at pedestrian crossings

Pedestrian crossings are commonly regarded as safe spots for road crossing, however, the safety of these crossings remains a concern. A study carried out in Spain, for example, showed that of the 82 fatal older pedestrian collisions investigated, 42 occurred on a pedestrian crossing.[77] Pedestrian crossings need to be carefully designed and appropriately sited if they are to improve safety.[78]

Well-designed, signal–controlled pedestrian crossings can improve safety on higher speed and high traffic volume roads.

Lights at pedestrian crossings are set on the assumption of a walking speed of 1.2 m/s. However, research carried out in the UK found that the mean walking speed of older men was 0.9 m/s and of older women, 0.8 m/s, meaning they have insufficient time to cross.[79] This situation could lead not only to injury, but could also mean that older people do not even try to cross roads and remain isolated at home. A number of other PIN countries also report having a standard assumed walking speed of 1.2m/s but with the flexibility to adjust it down lower, as and when necessary. The German Guidelines for Traffic Signals, RiLSA, for instance, suggest 1.2m/s be used as standard but that 1.0m/s can be used where crossings are put in place primarily to protect people with limited mobility.[80] The same approach is adopted in Slovenia. In France, on the other hand, the standard walking speed used for all lights at pedestrian crossing is 1.0 m/s. In Italy and in the Netherlands, the assumed walking speed is at the discretion of the road authorities. However, in Italy, ACI (the Automobile Club of Italy) recommends in its guidelines using a speed of 0.75 m/s.[81] In Czechia the assumed walking speed is 1.4m/s but in areas near to care homes it falls to 1.0 m/s. Austrian guidelines also recommend 1m/s for lights at pedestrian crossings in areas with people with reduced mobility and sensory impairments. Assumed walking speeds are also adjusted in areas near care homes in Cyprus. In Portugal, the standard walking speed used for lights at pedestrian crossing is 0.4m/s.

NETHERLANDS
SAFE MOBILITY FOR OLDER PEOPLE PLAN

In the Netherlands there is a 'Safe mobility for older people plan'[82] which seeks to ensure that older people can remain safely mobile for as long as possible. The Plan recognises that between 1999 and 2017 the distance travelled by people over the age of 75 rose by 90% due to a growing group of older people who cycle more often and over longer distances. But while the numbers of older car drivers and pedestrians killed has remained relatively stable, the number of older cyclists killed has risen.

Around €500 million has been made available in the Netherlands to improve road safety by 2030. Many of the initiatives on which this funding will be spent will also improve the road safety of older vulnerable road users. These include improvements to cycling infrastructure such as widening cycle paths, adding more cycle path markings, building safe cycle crossings on roads with higher speeds and removing high kerbs. For pedestrian infrastructure, a priority of the plan is to create safe and user-friendly pedestrian infrastructure, involving good visibility of pedestrians planning to cross the street. A new tool has also been developed which includes details of the measures that can be taken by infrastructure managers to ensure pedestrian infrastructure remains safe and user-friendly.

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[77] Laria Del Vas, J. Monclús González, J. and Ortega Pérez, J. (2014). Atropellos y personas mayores: lesiones, factores y propuestas de acción. https://tinyurl.com/478s2h9n
[78] European Commission (2018), Pedestrians and cyclists https://tinyurl.com/27a5r2ab
[79] Asher, L., Aresu, M., Falaschetti E., Mindell, J. (2012) Most older pedestrians are unable to cross the road in time: a cross-sectional study https://bit.ly/3Qx7oDm
[80] FGSV (2015) Guidelines for Traffic Signals https://tinyurl.com/aw3xcsmf
[81] ACI Guidelines for the design of pedestrian crossing (In Italian) https://tinyurl.com/yxyfkmr6
[82] https://open.overheid.nl/documenten/ronl-8705e4a8-20eb-4dd8-a20d-1c094a95811e/pdf

RECOMMENDATIONS TO CITIES AND TOWNS

- Adopt and promote a policy of modal priority for road users, the hierarchy being based on safety, vulnerability and sustainability. Walking should be at the top of the hierarchy, followed by cycling and use of public transport.[83]
- Involve older people in developing mobility policy.
- Adopt 30km/h zones supported by traffic calming measures in residential areas, and areas used by many pedestrians and cyclists.
- Improve infrastructure safety design for vulnerable road users (VRUs), especially at junctions and pedestrian crossings.
- Restrict heavy goods vehicle (HGV) circulation in urban areas at certain peak times when there are high numbers of pedestrians and cyclists and develop recommended routes for HGVs.
- Consider introducing access restrictions for all goods vehicles which are considered to present a high risk to pedestrians and cyclists.
- Introduce logistics plans for urban areas that allow loading and unloading only at times when there are few vulnerable road users on the road.
- Provide sufficient parking spaces for delivery by goods vehicles.

RECOMMENDATIONS TO NATIONAL GOVERNMENTS

- Develop safer infrastructure in general, especially for pedestrians and cyclists.
- Plan for land-use with older people's mobility needs in mind and involve them in the process.
- Encourage cities to undertake road safety audits of urban infrastructure including needs of older road users.
- Encourage cities to apply safe infrastructure design guidelines, such as guidelines for traffic calming measures, intersections, pedestrian crossings or cycling infrastructure design. Renew the guidelines regularly based on the latest research and innovation.
- Design and implement walking and cycling safety strategies which include targets and infrastructure measures to improve the safety of cyclists and promote cycling. Nominate ambassadors and set up centres of excellence for knowledge sharing at national level.
- Enable supports for cities in restricting HGV circulation in urban areas at certain peak times when there are high numbers of pedestrians and cyclists and develop recommended routes for HGVs.
- Establish clear urban and rural hierarchies which better match road function to speed limit, layout and design based on the principles of the safe system approach.
- Construct highly visible, recognisable and uniform pedestrian crossings (e.g. raised crossings) to ensure that vehicle users can anticipate each others' expected behaviour.[84]
- Give priority in road maintenance to the quality of surfaces on footpaths, cycle paths and the parts of carriageways most used by crossing pedestrians and cyclists.

RECOMMENDATIONS TO THE EU INSTITUTIONS

- Support and fund projects enabling life-long mobility.
- Involve older people in developing mobility policy.
- Within the context of the Urban Mobility Action Plan, draft guidelines for promoting best practice in traffic calming measures, based upon physical measures and techniques of space-sharing in line with Connected Intelligent Transport Systems developments, to support area-wide urban safety management, in particular when 30km/h zones are introduced.[85]
- Deliver an EU safe active mobility strategy which sets road safety measures and targets to increase the amount of distance safely travelled by walking and cycling, including by older people.

[83] ETSC (2016), Position paper, A Proposal for a strategy to reduce the number of people seriously injured on EU roads, https://goo.gl/DWbTFv
[84] European Commission (2021), Road Safety Thematic Report - Pedestrians, https://bit.ly/3Mfq7kG
[85] Ibid.

2.3 VEHICLES

2.3.1 EU vehicle safety regulation

As legislated by the EU, new technologies fitted to new cars will improve the safety of all road users, including older people, inside and outside the vehicle.

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 older people. The passive safety of cars will also be improved by extending the crash test zone to include the windscreen between the A-pillars for better pedestrian and cyclist protection.

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

Earlier research[86] into which ADAS (advanced driver assistance systems) have the greatest potential to reduce collision involvement by older drivers found that the systems that best supported the needs of older drivers included: collision warning systems aimed at intersections; reversing aids; in-vehicle signing systems; and a system that gives information on the characteristics of complex intersections the driver is about to cross. More recent research[87] rating the benefits of various system types to older drivers found that in-vehicle systems that alert drivers to potential hazards (e.g., a forward collision warning system) resulted in the highest safety rating while systems that facilitated a driver's ability to control the vehicle (e.g., an anti-lock braking system) had the lowest safety rating.

A study which looked into the effects of ADAS on workload and driving behaviour of both young (30-50 years) and older (70-88 years) drivers using a simulated support system found that all three messages given by the system increased aspects of safety performance for all age groups. Messages informing drivers about the right-of-way regulation, obstructed view of an intersection, and safe gaps to join or cross traffic streams all led to safer driving performance. A message regarding an unexpected one-way street led to fewer route errors. However, none of the support messages reduced workload, and some even increased it. As this is probably the result of the new task that was added to the driving task, it is expected to wear off over time. Whereas 70% of the young drivers involved in the study considered the timing of messages correct or a bit early, 60% of the older drivers considered the timing to be too late.[88] Similarly, a literature review[89] carried out in 2020 found that older drivers often reported difficulties with in-car technology, finding it distracting or difficult to use. A survey carried in the UK in 2021[90] also found that younger drivers (60-69) were more likely than older drivers (70+) to rate their ability to cope with in-vehicle technology as good or very good. Developing support systems that can be customised to meet the needs of older drivers is important, as their in-vehicle support needs are slightly different owing to differences in cognition between younger and older drivers. On the whole, older drivers seem to appreciate the safety benefits of vehicle technologies, but it is still unclear exactly which ones are linked to safer driving, and how the effects of the presence of technologies differ under different driving conditions, and for different subgroups of older drivers.[91]

[86] Davidse R., (2006) Older drivers and ADAS: Which Systems Improve Road Safety? https://tinyurl.com/4t9pn96r
[87] Marshall D., Chrysler S., Smith K., (2014) Older Drivers' Acceptance of In-Vehicle Systems and the Effect it has on Safety, https://tinyurl.com/5fctmwa9
[88] Davidse R., Hagenzieker M., van Wolffelaar P., and Brouwer W., (2009) Effects of In-Car Support on Mental Workload and Driving Performance of Older Drivers https://tinyurl.com/3mvbesv6
[89] Gandolfi J., (2020) Supporting older driver mobility and effective self-regulation https://tinyurl.com/yht5jbyr
[90] Hawley C., (2021) The views of older drivers on road safety interventions https://tinyurl.com/p22u26ar
[91] Gish, J., Vrkljan, B., Grenier, A. & van Miltenburg, B. (2017). Driving with Advanced Vehicle Technology: A qualitative investigation of older drivers' perceptions and motivations for use. https://tinyurl.com/3vr7nru2

2.3.2 Seatbelts

The seatbelt remains the single most effective safety feature in vehicles. Other important safety features such as airbags work as designed only if occupants are properly restrained by their seatbelts. According to the World Health Organisation's (WHO) global status report on road safety conducted in 2018, not using a seatbelt and not using a child restraint system (CRS) where fitted are two of the top five behavioural reasons that increase the risk of traffic-related injury or death.[92] The use of a seatbelt reduces the risk of death by 48% for drivers and 37% for passengers (aged above 5 years) in the front seats of a car, in comparison to not wearing a seatbelt. Using a seatbelt for passengers in the rear seats reduces the risk by 44% in comparison to passengers not wearing their seatbelt.[93]

Recent improvements to restraint systems have greatly reduced the risk and incidence of serious thorax injury for younger occupants. However, research carried out under the EU-funded SENIORS project found that older occupants continue to sustain serious injuries to the thorax in moderate-severity vehicle collisions due to their lower biomechanical tolerance. The project evaluated two new restraint system concepts in detail (Split Buckle[94] and Criss-Cross[95]) with the aim of reducing the risk of serious or life-threatening chest injuries. The project found that these new restraint systems can greatly reduce the risk of serious thorax injury to older car occupants in frontal impacts. While there were also benefits for occupants of other ages, it was estimated that the new restraints would potentially save between 800 to 1,200 lives and avert 6,500 to 10,500 serious injuries over ten years if implemented in all new cars in Europe.[96]

[92] WHO (2018) Global status report on road safety http://bit.ly/3x5tSAo
[93] Glassbrenner, D, and Starnes, M (2009) Lives Saved Calculations for Seatbelts and Frontal Air Bags https://bit.ly/3qsYxFU
[94] A concept seatbelt that separates the buckle anchorage into two separate belt systems upon impact.
[95] A standard three-point lap and diagonal belt system plus a secondary (separate) diagonal belt across the in-board shoulder.
[96] Thomas, A., Hynd, D., Kent, J., Appleby, J., & Zander, O. (2018). Benefit analysis SENIORS project. Deliverable 4.3 of the EC H2020 project SENIORS https://tinyurl.com/mpywctex

2.3.3 Testing vehicles

Euro NCAP (The European New Car Assessment Programme) designs and carries out vehicle tests with the aim of generating a vehicle safety rating. The crash dummies used during these tests are important for determining the safety of vehicles for a wider range of occupants. Euro NCAP tests cars with crash dummies of different type and stature in frontal impact protection. In its 'Vision 2030 document',[97] Euro NCAP proposes to use THOR 5F small female and THOR 50M mid-size male crash dummies. They will be used as driver and front passenger, respectively, in a revised low severity full-width barrier test, applying criteria and injury limits that promote restraints that better protect older occupants.

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.

RECOMMENDATIONS TO NATIONAL GOVERNMENTS

- Provide support for older people to continue driving safely.

RECOMMENDATIONS TO THE EU INSTITUTIONS

- Stimulate development of safer vehicles for older people.
- Encourage older people-friendly design and evaluate the impact of new technologies on older drivers.

RECOMMENDATIONS TO CAR MANUFACTURERS AND EU INSTITUTIONS

- Update existing crash test dummies to allow a proper assessment of the risk of sustaining potentially fatal abdominal injuries for rear-seat passengers.
- Develop crash test dummies representative of more aspects of variability such as age, gender, size and stature for those users outside of the vehicle.

[97] Euro NCAP's Vision 2030 document https://tinyurl.com/yc6m7cnn

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	2022
AT	8,822,267	8,858,775	8,901,064	8,932,664	8,978,929
BE	11,398,589	11,455,519	11,522,440	11,554,767	11,617,623
BG	7,050,034	7,000,039	6,951,482	6,916,548	6,838,937
CY	864,236	875,899	888,005	896,007	904,705
CZ	10,610,055	10,649,800	10,693,939	10,701,777	10,516,707
DE	82,792,351	83,019,213	83,166,711	83,155,031	83,237,124
DK	5,781,190	5,806,081	5,822,763	5,840,045	5,873,420
EE	1,319,133	1,324,820	1,328,976	1,330,068	1,331,796
ES	46,658,447	46,937,060	47,332,614	47,398,695	47,432,893
FI	5,513,130	5,517,919	5,525,292	5,533,793	5,548,241
FR[(1)]	64,844,037	65,096,768	65,269,154	65,450,219	65,646,837
EL	10,741,165	10,724,599	10,718,565	10,678,632	10,459,782
HR	4,105,493	4,076,246	4,058,165	4,036,355	3,862,305
HU	9,778,371	9,772,756	9,769,526	9,730,772	9,689,010
IE	4,830,392	4,904,240	4,964,440	5,006,324	5,060,004
IT	60,483,973	59,816,673	59,641,488	59,236,213	59,030,133
LU	602,005	613,894	626,108	634,730	645,397
LV	1,934,379	1,919,968	1,907,675	1,893,223	1,875,757
LT	2,808,901	2,794,184	2,794,090	2,795,680	2,805,998
MT	475,701	493,559	514,564	516,100	520,971
NL	17,181,084	17,282,163	17,407,585	17,475,415	17,590,672
PL	37,976,687	37,972,812	37,958,138	37,840,001	37,654,247
PT	10,291,027	10,276,617	10,295,909	10,298,252	10,352,042
RO	19,533,481	19,414,458	19,328,838	19,201,662	19,042,455
SE	10,120,242	10,230,185	10,327,589	10,379,295	10,452,326
SI	2,066,880	2,080,908	2,095,861	2,108,977	2,107,180
SK	5,443,120	5,450,421	5,457,873	5,459,781	5,434,712
UK	66,435,550	66,796,807	67,081,234	67,026,292	n/a
CH	8,484,130	8,544,527	8,606,033	8,670,300	8,738,791
IL	8,967,594	9,140,473	9,289,800	9,453,000	9,586,937
NO	5,295,619	5,328,212	5,367,580	5,391,369	5,425,270
RS	7,001,444	6,963,764	6,926,705	6,871,547	6,797,105
EU 27	**444,026,370**	**444,365,576**	**445,268,854**	**445,001,026**	**444,510,203**

Source: Eurostat, except in the case of France, Portugal and Israel, data provided by the panellists.
[(1)]FR - Mainland

Total older population (65+)

	2018	2019	2020	2021	2022
AT	1,646,992	1,668,559	1,693,627	1,716,287	1,745,690
BE	2,130,655	2,165,459	2,204,642	2,229,378	2,269,482
BG	1,481,908	1,493,119	1,504,088	1,504,048	1,482,177
CY	137,220	141,112	144,888	147,304	149,492
CZ	2,040,183	2,086,617	2,131,630	2,158,322	2,169,109
DE	17,709,711	17,883,532	18,090,682	18,271,636	18,436,499
DK	1,116,063	1,136,063	1,155,991	1,176,272	1,195,216
EE	258,382	261,848	266,288	270,641	272,146
ES	8,959,494	9,105,575	9,267,316	9,370,921	9,526,631
FI	1,179,318	1,204,837	1,231,274	1,255,938	1,279,036
FR[(1)]	12,896,826	13,180,830	13,451,177	13,672,138	13,907,747
EL	2,340,162	2,363,273	2,386,200	2,407,856	2,373,153
HR	825,361	838,599	853,784	864,847	868,546
HU	1,851,965	1,889,959	1,942,234	1,976,666	1,990,342
IE	668,648	691,439	716,214	739,001	761,373
IT	13,644,363	13,693,215	13,859,090	13,941,531	14,051,404
LU	86,208	88,328	90,787	92,737	95,199
LV	388,856	388,979	391,413	393,698	391,623
LT	551,797	552,373	555,976	557,048	560,628
MT	89,517	92,180	95,050	97,418	100,080
NL	3,239,116	3,314,004	3,392,555	3,457,535	3,525,453
PL	6,497,360	6,706,044	6,916,746	7,085,122	7,208,230
PT	2,295,818	2,358,482	2,412,253	2,461,644	2,507,922
RO	3,549,232	3,596,357	3,661,763	3,704,996	3,706,321
SE	2,006,146	2,035,711	2,065,367	2,088,086	2,118,766
SI	401,262	413,054	424,004	435,715	444,743
SK	844,855	874,319	905,175	932,024	944,958
UK	12,165,557	12,374,961	12,508,638	12,537,031	n/a
CH	1,550,365	1,577,301	1,605,800	1,629,670	1,661,319
IL	1,037,000	1,074,800	1,110,900	1,145,400	n/a
NO	896,425	918,841	941,816	965,742	989,474
RS	1,394,576	1,422,084	1,451,818	1,460,603	1,447,834
EU 27	**88,837,418**	**90,223,867**	**91,810,214**	**93,008,809**	**94,081,966**

Source: Eurostat, except in the case of France, Portugal and Israel, data provided by the panellists.
[(1)]FR - Mainland

Total number of older people deaths from all causes

	2018	2019	2020	2021	2022
AT	71,323	71,095	78,802	78,501	n/a
BE	93,820	92,528	109,854	95,515	100,184
BG	85,780	85,888	99,148	118,296	n/a
CY	4,902	5,283	5,398	6,050	n/a
CZ	93,186	93,106	109,244	116,992	101,255
DE	815,292	803,953	847,980	877,849	879,347
DK	47,012	46,054	46,961	49,465	51,809
EE	12,675	12,471	12,748	15,227	n/a
ES	366,508	358,198	428,822	384,509*	n/a
FI	46,522	46,406	47,739	49,946	n/a
FR	499,538	504,552	558,352	520,814*	n/a
EL	104,228	108,776	114,501	124,575	n/a
HR	43,578	43,108	48,127	52,806	n/a
HU	101,620	101,875	112,604	122,221	112,264
IE	25,547	25,530	26,816	28,274	n/a
IT	563,204	566,373	666,095	626,696	637,109
LU	3,548	3,498	3,846	3,711	n/a
LV	22,102	21,459	22,594	26,705	n/a
LT	30,606	29,500	33,609	37,102	n/a
MT	3,094	3,158	3,480	n/a	n/a
NL	130,832	130,068	146,033	147,045	n/a
PL	313,754	312,422	372,852	408,268	n/a
PT	96,643	95,692	106,412	107,745	n/a
RO	201,633	198,660	231,730	260,754	n/a
SE	81,583	78,627	87,669	81,647	84,711
SI	17,100	17,300	20,733	19,725	22,426
SK	40,673	40,091	45,735	56,416	n/a
UK	519,425	509,130	583,665	556,994	n/a
CH	57,961	59,391	67,404	62,279	n/a
IL	36,432	37,807	40,550	42,102	43,339
NO	35,152	35,071	35,152	36,511	40,019
RS	82,285	82,209	95,146	112,035	n/a
EU 26	**3,916,303**	**3,895,671**	**4,387,884**	**4,416,854**	**1,989,111**

Source: Eurostat
*Estimated
EU26: EU27 excluding MT for lack of udpated data

Table 1 (Fig. 1, 3 and 4) Total number of older people road deaths over the period 2012-2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
AT	154	142	115	141	137	101	121	127	106	99	n/a
BE	193	171	189	194	162	151	169	167	118	145	139
BG	121	112	148	159	150	179	153	164	110	143	141
CY	9	8	11	16	14	17	10	20	16	8	7
CZ	157	155	131	178	160	150	167	154	134	148	160
DE	994	999	987	1,024	1,049	994	1,045	1,037	894	868	1,021
DK	44	53	58	49	72	51	50	63	57	41	n/a
EE	18	19	16	13	17	12	14	14	13	15	11
ES	507	482	477	505	513	465	496	492	362	349	n/a
FI	58	73	56	71	69	73	79	54	69	73	49
FR	745	688	772	831	886	869	842	849	643	770	882
EL	248	234	187	225	236	192	224	181	141	182*	n/a
HR	79	75	81	63	83	79	78	58	56	57	67
HU	121	135	155	144	159	180	184	155	111	133	148
IE	36	46	43	32	45	34	28	35	32	29	53
IT	1,068	1,011	1,056	1,088	1,045	1,109	1,061	994	756	870	960
LU	9	9	2	8	12	4	4	2	5	2	2
LV	34	40	42	33	35	29	31	21	29	30	21
LT	56*	52	49	66	43	49	40	45	45	29	24
MT	n/a	n/a	n/a	3	5	9	2	7	n/a	n/a	n/a
NL	187	164	173	176	198	190	215	216	189	196	n/a
PL	653	647	692	619	656	673	699	664	545	475	448
PT[(1)]	195	193	206	177	206	182	231	244	145	161	173
RO	457	422	420	450	509	535	563	539	467	483	n/a
SE	71	76	99	70	89	78	120	75	67	75	n/a
SI	26	27	26	29	24	21	15	28	16	27	31
SK	n/a	n/a	n/a	n/a	49	44	45	51	40	n/a	n/a
UK	422	409	474	444	456	477	487	552	365	367	n/a
CH	93	100	86	97	68	70	93	75	97	86	91
IL	65	56	68	100	85	95	78	67	70	75	75
NO	28	44	47	24	32	32	31	31	21	18	39
RS	187	170	126	176	146	165	160	167	138	175	146
EU 25	**6,240**	**6,033**	**6,191**	**6,360**	**6,569**	**6,417**	**6,639**	**6,398**	**5,126**	**5,408**	**4,334**

Source: CARE database and national statistics provided by PIN Panellists in each country
EU25: EU27 excluding MT and SK due to lack of updated data
*Estimated
[(1)]PT - 2012 to 2017: Mainland; 2018 onwards: Total Portugal (including the autonomous regions of Açores and Madeira)

Fig. 1 Average annual change in road mortality of older people over the period 2012-2022

LU	-14.7%	
LT	-7.7%	2013-2022
PL	-6.3%	
NO	-5.8%	
EL	-5.7%	2012-2020
LV	-5.4%	
AT	-5.2%	2012-2021
BE	-5.1%	
EE	-5.1%	
ES	-4.7%	2012-2021
IE	-4.3%	
HR	-4.2%	
PT	-3.9%	
SI	-3.6%	
IT	-3.2%	
FI	-3.1%	
CY	-3.1%	
CZ	-2.7%	
IL	-2.5%	2012-2021
RS	-2.5%	
CH	-2.4%	
UK	-2.2%	2012-2021
DK	-2.1%	2012-2021
SE	-1.9%	2012-2021
DE	-1.7%	
FR	-1.7%	
HU	-1.6%	
NL	-0.8%	2012-2021
BG	0.0%	
RO	0.3%	2012-2021
EU 25	**-3.0%**	**2012-2021**

Fig. 3 Road mortality of older people. Average 2020-2022

NO	27	
LU	32	
UK	34	2019-2021
SE	35	2019-2021
ES	43	
DK	46	2019-2021
EE	48	2019-2021
FI	51	
DE	51	
IE	51	
FR	56	
CH	56	
SI	57	
LT	59	
NL	59	
BE	60	
IT	62	
IL	64	2019-2021
PT	65	
AT	65	2019-2021
HU	66	2019-2021
LV	68	
CZ	68	
PL	69	
HR	70	
CY	70	
EL	77	
BG	88	2019-2021
RS	105	
RO	136	
EU 25	**62**	**2019-2021**

Fig. 4 Older people road deaths as a proportion (%) of older people deaths from all causes. Average 2020-2022

NO	0.07%	
UK	0.08%	2019-2021
LU	0.08%	2019-2021
SE	0.09%	2019-2021
EE	0.10%	2019-2021
DE	0.11%	
SK	0.11%	2018-2020
DK	0.11%	2019-202
LV	0.11%	2019-2021
ES	0.12%	2018-2020
HU	0.12%	2019-2021
HR	0.12%	2019-2021
LT	0.12%	2019-2021
IE	0.12%	2019-2021
SI	0.12%	2019-2021
IT	0.13%	
CZ	0.13%	
FI	0.14%	2019-2021
CH	0.14%	2019-2021
BG	0.14%	2019-2021
NL	0.14%	2019-2021
BE	0.14%	
AT	0.15%	2019-2021
FR	0.15%	2018-2020
PL	0.15%	2019-2021
RS	0.17%	2019-2021
EL	0.17%	2018-2020
IL	0.17%	
PT	0.21%	2018-2020
RO	0.22%	2019-2021
CY	0.26%	2019-2021
EU 26	**0.15%**	**2019-2021**

Table 2 (Fig. 2) Total road deaths over the period 2012-2022

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
AT	531	455	430	479	432	414	409	416	344	362	370
BE	827	764	745	762	670	609	604	644	499	516	521
BG	605	601	655	708	708	682	611	628	463	561	531
CY	51	44	45	57	46	53	49	52	48	45	37
CZ	742	654	688	734	611	577	658	617	517	531	527
DE	3,601	3,340	3,368	3,459	3,206	3,177	3,275	3,059	2,719	2,562	2,776
DK	167	191	182	178	211	175	171	199	163	130	154
EE	87	81	78	67	71	48	67	52	60	55	50
ES	1,903	1,680	1,688	1,689	1,810	1,830	1,806	1,755	1,370	1,533	1,759
FI	255	258	229	270	258	238	239	211	223	225	191
FR	3,653	3,268	3,384	3,461	3,477	3,448	3,248	3,244	2,541	2,944	3,260
EL	988	879	795	793	824	731	700	688	584	624	635
HR	393	368	308	348	307	331	317	297	237	292	275
HU	605	591	626	644	607	625	633	602	464	544	535
IE	163	188	192	162	182	154	135	140	146	136	155
IT	3,753	3,401	3,381	3,428	3,283	3,378	3,334	3,173	2,395	2,875	3,159
LU	34	45	35	36	32	25	36	22	26	24	36
LV	177	179	212	188	158	136	148	132	139	147	113
LT	302	258	267	242	192	192	173	186	175	147	120
MT	9	18	10	11	22	19	18	16	12	9	26
NL	650	570	570	620	629	613	678	661	610	582	737
PL	3,571	3,357	3,202	2,938	3,026	2,831	2,862	2,909	2,491	2,245	1,896
PT[(1)]	718	637	638	593	563	602	700	688	536	561	618
RO	2,042	1,861	1,818	1,893	1,913	1,951	1,867	1,864	1,646	1,779	1,634
SE	285	260	270	259	270	253	324	221	204	210	227
SI	130	125	108	120	130	104	91	102	80	114	85
SK	296	223	259	274	242	250	229	245	224	226	244
UK	1,802	1,770	1,854	1,804	1,860	1,856	1,839	1,808	1,516	1,608	1,750
CH	339	269	243	253	216	230	233	187	227	200	241
IL	303	311	319	355	376	364	316	355	305	364	351
NO	145	187	147	117	135	106	108	108	93	86	116
RS	688	650	536	599	607	579	548	534	492	521	553
EU 27	**26,538**	**24,296**	**24,183**	**24,413**	**23,880**	**23,446**	**23,382**	**22,823**	**18,916**	**19,979**	**20,671**

Source: CARE database and national statistics provided by PIN Panellists in each country
[(1)]PT - 2012 to 2017: Mainland; 2018 onwards: Total Portugal (including the autonomous regions of Açores and Madeira)

Fig. 5 Proportion of road deaths by road user group, among older people (aged 65+) in the period 2020-2022

	Cyclist	Pedestrian	Car driver	Car passenger	PTW driver	PTW passenger	Other	
SK	18%	52%	20%	8%	1%	0%	2%	2019-2020
RO	13%	54%	14%	11%	2%	0%	6%	2019-2021
LV	15%	46%	21%	10%	3%	0%	5%	
RS	15%	45%	19%	10%	3%	0%	9%	
IL	3%	55%	18%	8%	3%	0%	12%	
BE	35%	23%	24%	5%	5%	0%	6%	
LT	11%	47%	23%	14%	1%	0%	3%	
PL	18%	40%	24%	11%	4%	0%	4%	
NL	45%	11%	22%	0%	5%	0%	18%	2019-2021
CH	27%	25%	25%	6%	10%	0%	7%	
EE	10%	41%	18%	8%	3%	0%	21%	
DE	26%	23%	29%	9%	8%	0%	5%	2019-2021
DK	25%	24%	29%	11%	4%	0%	7%	2019-2021
HU	14%	35%	28%	10%	6%	0%	6%	
ES	7%	41%	26%	12%	6%	0%	9%	2019-2021
AT	20%	26%	27%	11%	11%	0%	5%	2019-2021
GB	10%	35%	35%	9%	6%	0%	5%	2019-2021
CZ	17%	27%	35%	12%	6%	0%	3%	
IT	11%	32%	35%	8%	9%	0%	5%	
HR	11%	32%	31%	13%	3%	0%	11%	
FI	24%	19%	35%	11%	6%	0%	5%	
BG	6%	35%	37%	15%	2%	0%	5%	
FR	13%	28%	41%	9%	5%	0%	4%	
SE	18%	20%	34%	13%	6%	0%	9%	2019-2021
SI	16%	22%	34%	3%	11%	0%	15%	
PT	5%	32%	29%	11%	8%	0%	15%	
IE	4%	32%	43%	12%	2%	0%	6%	
EL	2%	32%	24%	6%	18%	0%	17%	2019-2020
LU	11%	22%	33%	22%	11%	0%	0%	2019-2021
CY	0%	32%	39%	6%	13%	0%	10%	
NO	8%	15%	41%	23%	6%	0%	6%	
EU 27	**16%**	**33%**	**29%**	**10%**	**6%**	**0%**	**7%**	**2019-2021**

Figure 6 Proportion of older people road deaths by road user group average number for the period 2019-2021

		Cyclist	Pedestrian	Car driver	Car passenger	PTW driver	PTW passenger	Other
65-74 years old	male	19%	22%	36%	3%	12%	0%	8%
	female	11%	40%	21%	22%	1%	0%	3%
75-84 years old	male	21%	27%	36%	4%	6%	0%	6%
	female	12%	48%	15%	22%	0%	0%	3%
85+ years old	male	16%	36%	32%	6%	4%	0%	6%
	female	5%	59%	10%	22%	0%	0%	3%

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