

Dutch road safety in an international perspective

SWOV fact sheet, April 2021

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Summary

This fact sheet considers road safety in the Netherlands from an international perspective. The number of serious road injuries is hard to compare to numbers in other countries, so we almost exclusively focus on the number of road deaths. For the Netherlands, we use the actual number of road deaths provided by Statistics Netherlands; i.e. the numbers adjusted for underregistration. We made this choice because the number of casualties among cyclists in the Netherlands is relatively high and it is these crashes that are by no means always registered. Especially for the Netherlands, the registered numbers would thus paint too rosy a picture. In most other countries, the number of serious road injuries is not (properly) adjusted for underregistration; that is why, for other countries, we need to use the unadjusted, officially registered numbers.

In terms of the number of road deaths, the Netherlands is among the top ten: eighth of 38 EU and OECD countries when looking at traffic mortality (the number of road deaths set against the number of inhabitants) and tenth of 23 EU and OECD countries when looking at fatality risk (number of road deaths per distance travelled). In terms of developments in the number of road deaths between 2009 and 2018, the Netherlands is among the worst-performing countries. In the Netherlands, comparatively many women aged over 50 and men aged over 65 are killed in traffic. This is probably partly due to intensive bicycle use by these older road users. Measured against the number of inhabitants, the Netherlands has the highest number of road deaths among cyclists. When adjusted for the number of kilometres cycled, Dutch performance is average compared to that of similar countries.

In reaching a 46% reduction, the Netherlands almost achieved the first European target (a 50% reduction of the number of road deaths between 2001 and 2010). The second European target (a further 50% reduction of the number of road deaths between 2011 and 2020) was not achieved by the Netherlands.

1 How does the Dutch number of road deaths compare to the numbers elsewhere?

Compared to other European and some larger non-European countries, Dutch road safety performance is relatively strong. When looking at the number of road deaths adjusted for the number of inhabitants (mortality), the Netherlands ranks eighth among 38 assessed countries. When looking at the number of road deaths adjusted for the number of kilometres travelled

(fatality risk), the Netherlands ranks tenth among 23 assessed countries. It should be noted that the Dutch data are based on the (actual) number of road deaths published by Statistics Netherlands, which have been adjusted for underregistration. In most countries, numbers are not (properly) adjusted for underregistration (also see the question [To what extent are international data comparable and reliable?](#)).

Mortality

Figure 1 presents the number of road deaths per million inhabitants (mortality) in 2015-2018 for a large number of EU and OECD countries, ranging from lowest (at the top) to highest mortality. Norway scores best, the United States worst, and the Netherlands ranks eighth. Among the countries assessed, Switzerland, Sweden, the United Kingdom, Denmark and Japan also outperform the Netherlands.

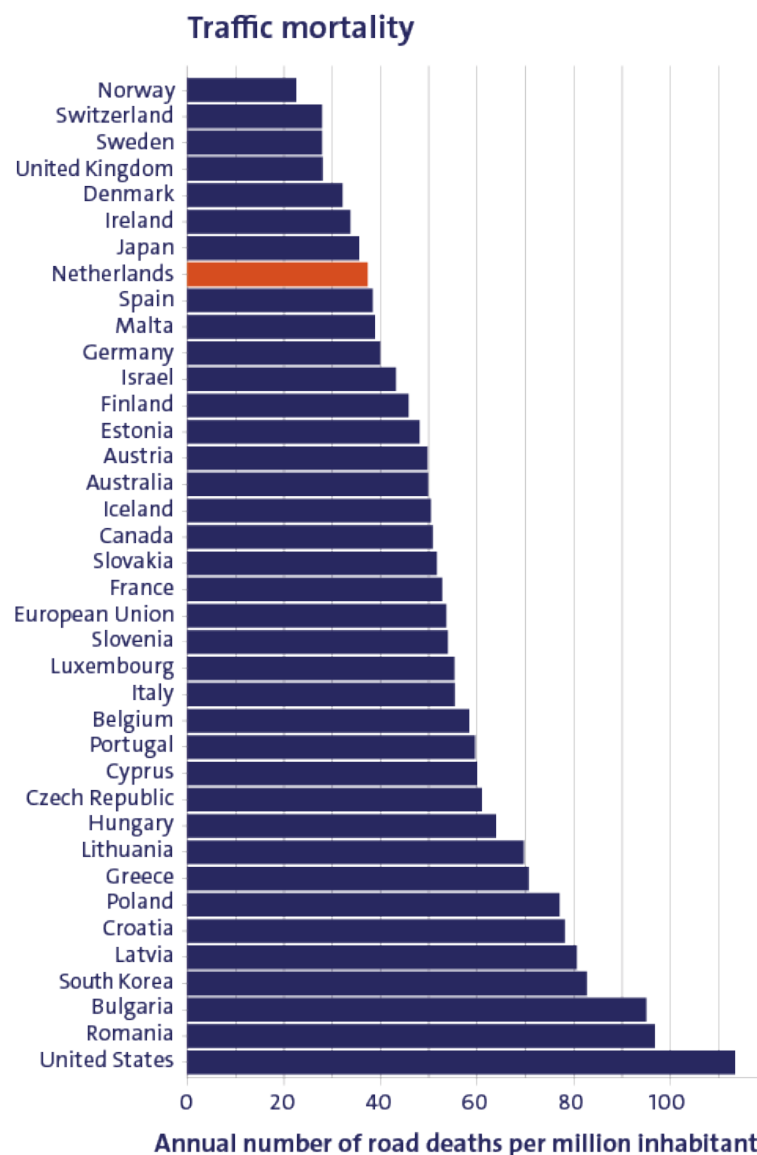


Figure 1. Number of road deaths per million inhabitants, averages of 2015-2018 (Norway 2014-2017). Sources: Statistics Netherlands, CARE and IRTAD (deaths), and Eurostat (population), consulted October 2020.

Fatality risk

A better method of comparing road safety in different countries, is not to compare the number of road deaths per million inhabitants, but to compare the number of road deaths per distance travelled (fatality risk). However, the number of countries that have usable and comparable information about the number of kilometres travelled is limited. When comparing fatality risk in those countries to that in the Netherlands, the Netherlands ranks tenth out of 23 countries. A lot of the countries that have better mortality scores than the Netherlands, also score better on fatality risk. Japan is no longer among them, but Germany, Iceland and Australia are.

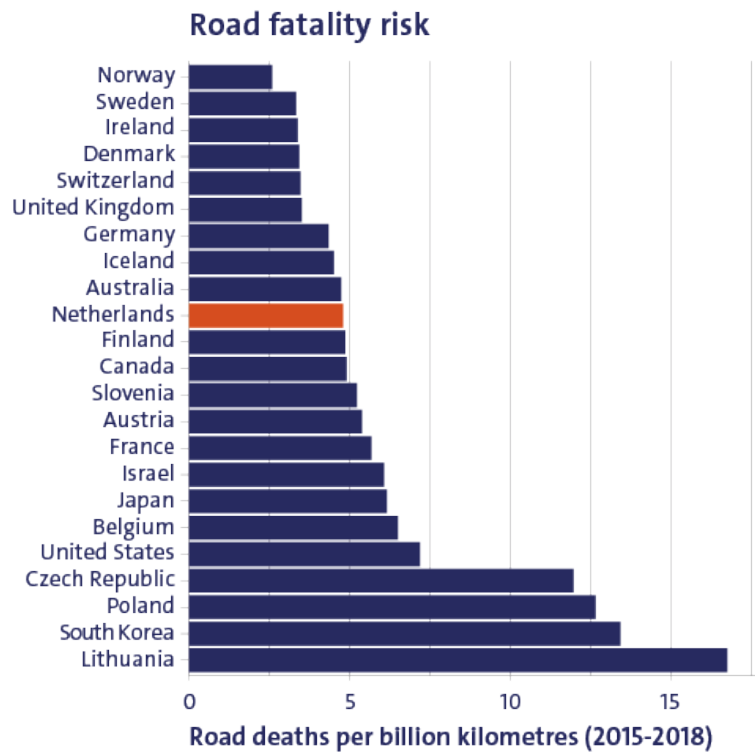


Figure 2. Number of road deaths per billion motor vehicle kilometres, averages of 2015-2018 or of available years during this period. Sources: Statistics Netherlands and CARE (deaths), IRTAD (deaths; vehicle kilometres), consulted October 2020.

2 How did the number of road deaths in the Netherlands develop compared to other countries?

The development of the Dutch number of road deaths in 2009-2018 is not very favourable. The decrease in the number of road deaths not being significant, the Netherlands is at the lower range of the ranking of assessed countries. The strongest long-term decreases in the number of road deaths are seen in Greece, Norway and Lithuania.

Development in number of road deaths

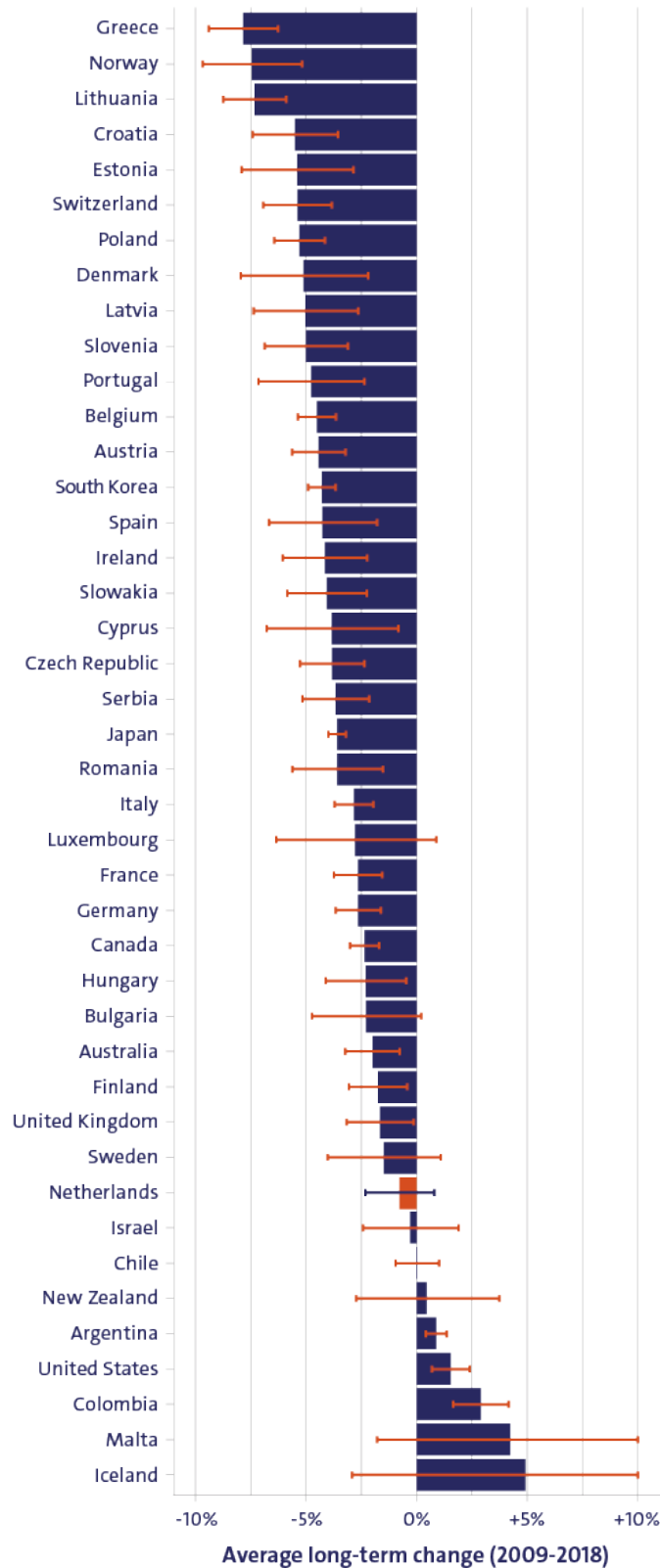


Figure 3. Long-term development (2009-2018) of the number of road deaths, ranked according to the magnitude of the change. The blue bar represents the 95% confidence interval, i.e. it is 95% certain that the true value is somewhere between the ends of the bar. Sources: Statistics Netherlands, CARE and IRTAD (deaths), consulted October 2020.

It is remarkable that, like the Netherlands, some of the countries that score well on mortality and fatality risk, do not score well on the development of the number of road deaths. Sweden and the United Kingdom are examples. Further analysis shows that there is indeed a statistical link between mortality and developments in the ten-year period 2009-2018 [1]: countries that scored well at the start, later showed less favourable developments and vice versa. However, this does not apply to all countries. Thus, Norway, Switzerland and Denmark score well on both mortality and on development in the ten-year period.

Link between mortality in the final year (2018) and development in the previous 10-year period

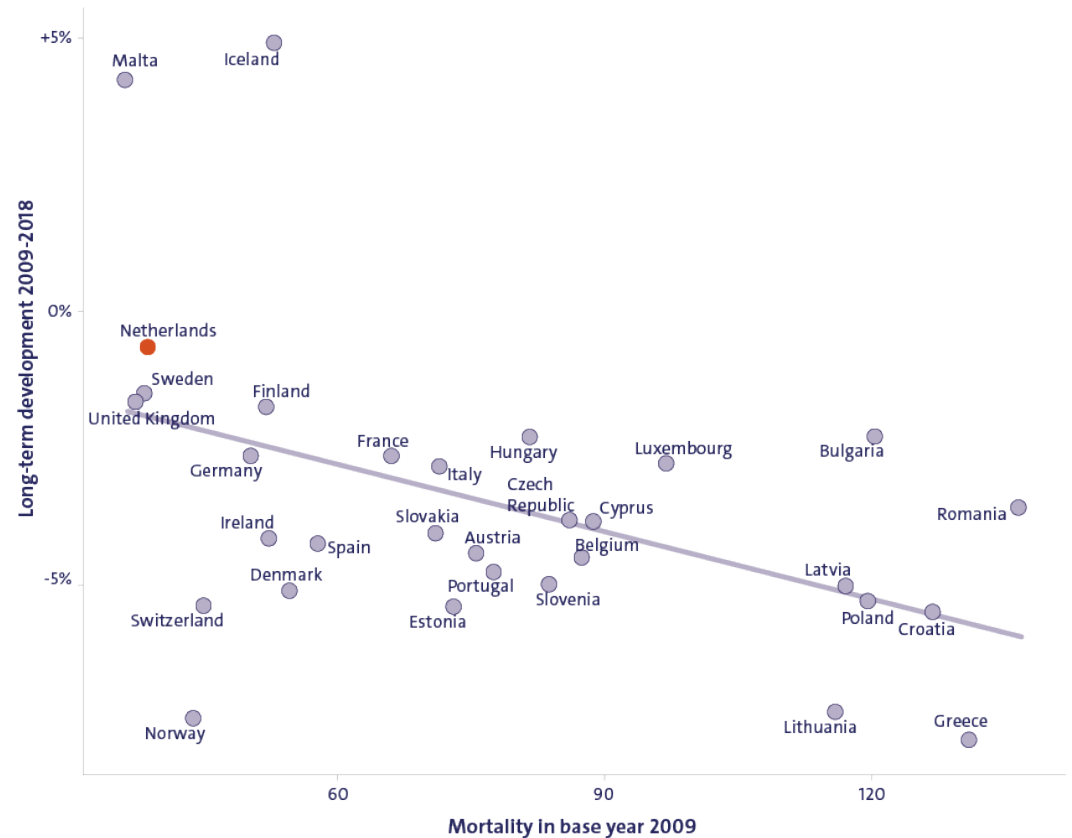
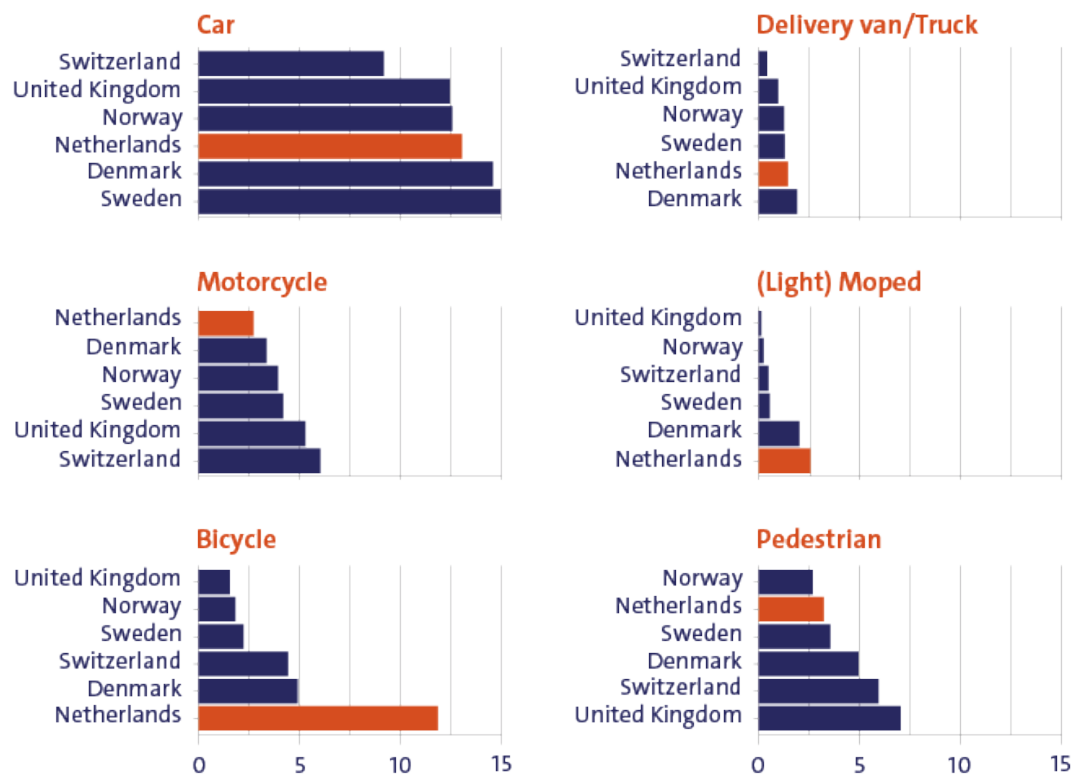


Figure 4. Link between the number of road deaths per billion inhabitants (mortality) in the base year (2009) and the long-term development (2009-2018) in the number of road deaths in different European countries. Sources: Statistics Netherlands and CARE (deaths), Eurostat (population), consulted October 2020.

3 How does the Dutch number of road deaths for the most important transport modes compare to these same numbers elsewhere?

When comparing the ranking of the Netherlands in number of road deaths for the most important transport modes to the five European countries with the lowest mortality rates (see the question [How does the Dutch number of road deaths compare to the numbers elsewhere?](#)), the Netherlands performs relatively well as far as motor cyclists and pedestrians are concerned, but are at the bottom of the list where (light) moped riders and cyclists are concerned.

Mortality by mode of transport



Annual number of road deaths per million inhabitants (2015-2018)

Figure 5. Number of road deaths for six modes of transport per million inhabitants, in the top five countries and the Netherlands. Averages over 2015-2018 (Norway: 2014-2017). Sources: Statistics Netherlands and CARE (deaths), Eurostat (population), consulted October 2020.

It is not yet clear why the mortality rate of (light) moped riders is higher in the Netherlands than in the other well-performing countries. There are several possible reasons, such as differences in the number of (light) mopeds, in the number of kilometres travelled, in type of usage (for example in or outside the urban area), in regulations (for example road position, helmets not being mandatory for light moped riders), or in road user groups (for example children, older road users).

As can be seen in *Figure 5*, mortality among cyclists is significantly higher in the Netherlands than in the other well-performing countries. Even when comparing mortality among cyclists to that in a larger number of countries, the Netherlands is right at the bottom of the list.

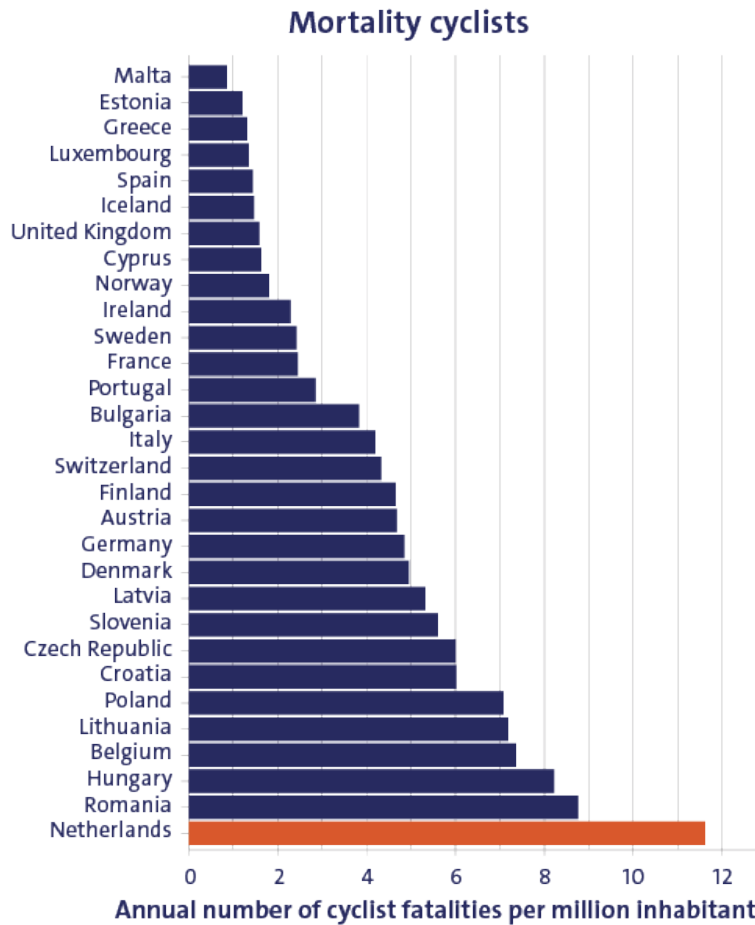


Figure 6. Number of road deaths among cyclists per million inhabitants, averages over 2015-2018 (Norway 2014-2017).
Sources: Statistics Netherlands and CARE (deaths), Eurostat (population), consulted October 2020.

In the Netherlands, cyclists heavily contribute to the lack of road safety: in 2019 almost one third of the number of road deaths were cyclists (see SWOV fact sheet [Road deaths in the Netherlands](#)). The low mortality ranking of the Netherlands may partly be explained by the fact that the Dutch cycle more than the inhabitants of most other European countries. When we adjust the numbers for the number of kilometres cycled, the Dutch ranking is somewhat better: sixth out of ten countries for which this information is available and comparable. On the basis of the available data, it is hard to determine unequivocally why countries such as Norway, Denmark, Germany, Sweden and Belgium still outperform the Netherlands. Possible explanations may be differences in the average age of cyclists and in helmet usage.

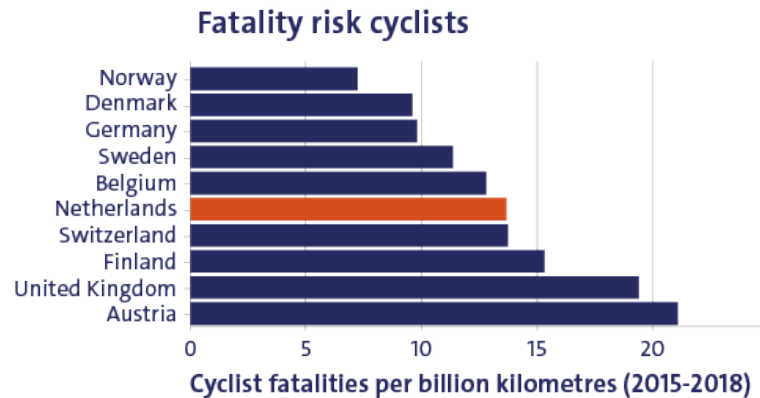
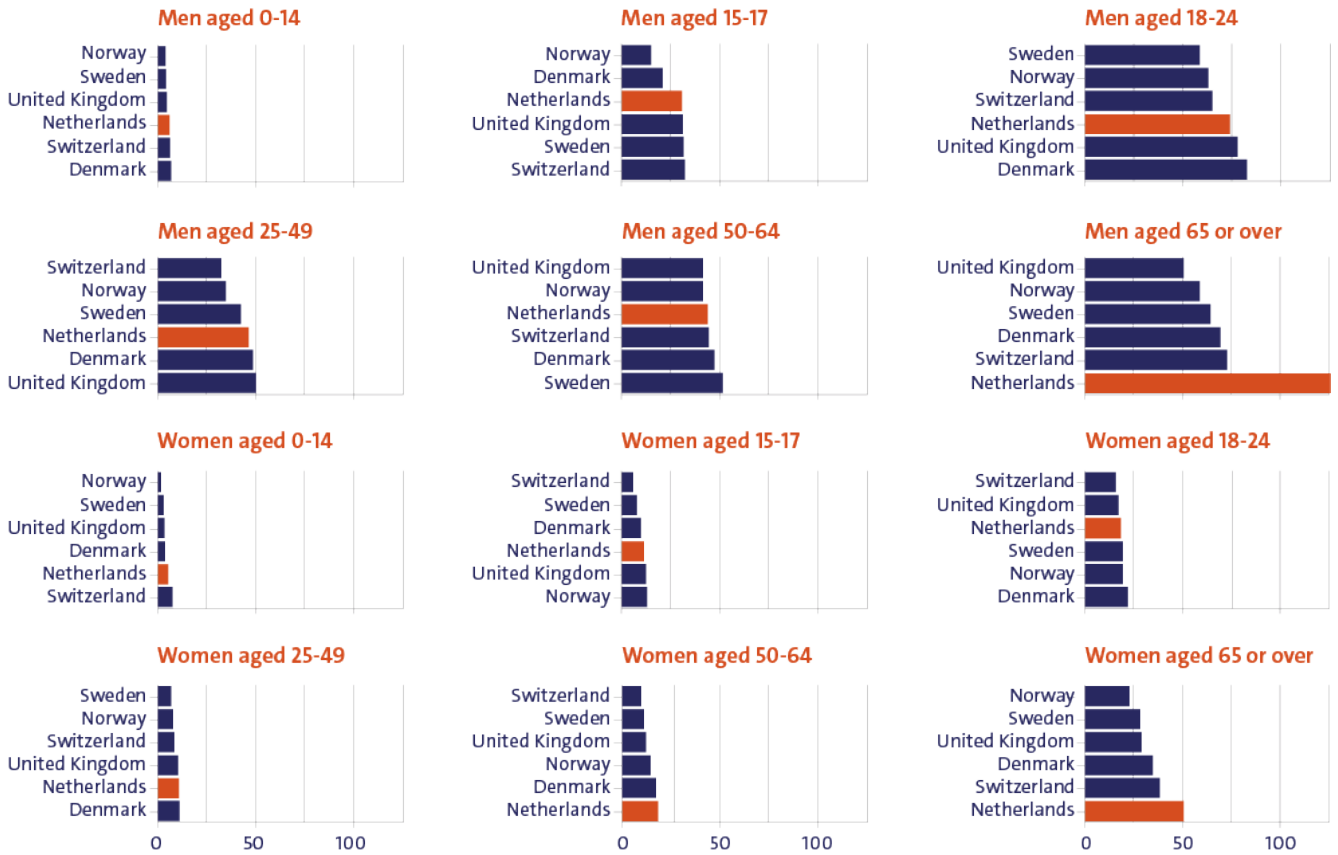


Figure 7. Number of cyclist fatalities per billion kilometres cycled (averages 2015-2018, Norway 2014-2017). Sources: Statistics Netherlands and CARE (deaths), ETSC (bicycle kilometres [2]). In addition, Norway, Germany and Switzerland supplied data about cyclist mobility.

4 How does the age and gender distribution in the Netherlands compare to that elsewhere?

When comparing the age and gender distribution of the road deaths in the Netherlands to this distribution in the five European countries with the lowest mortality rates (see the question [How does the Dutch number of road deaths compare to the numbers elsewhere?](#)), a more varied picture emerges. Of these countries, the Netherlands has the highest mortality rate for women aged over 50 and men aged over 65. The difference in mortality rate for the male over-65s is particularly remarkable. In the Netherlands, the relatively high mortality rate of older people is related to the popularity of cycling among this group and the associated high injury risk. In addition, compared to most other countries, the Dutch number of mobility scooter users is fairly large; the annual number of fatalities among mobility scooter riders amounts to 30-40. For the other road user groups, the Dutch scores are mid-range.

Mortality by age group and gender



Annual number of road deaths per million inhabitants (2015-2018)

Figure 8. Number of road deaths per million inhabitants by age group and gender, in the top five countries and in the Netherlands. Averages 2015-2018 (Norway: 2014-2017). Sources: Statistics Netherlands and CARE (deaths), Eurostat (population), consulted October 2020.

5 How does the Dutch number of road injuries compare to that elsewhere?

There is no sense in comparing EU countries in terms of road injuries. Whereas different countries correspond in their definition of a road death, they do not in their definition of a road injury (see the question [To what extent are international data comparable and reliable?](#)).

The European Union advises its member states to define a (serious) road injury as someone with a Maximum Abbreviated Injury Score (MAIS) of 3 or higher [3]. Nevertheless, there are still differences in the way in which different countries translate this definition into practice [4]. This becomes apparent when looking at the major differences between countries in the ratio of road deaths versus MAIS3+ injuries (see [Table 1](#)). Thus, at one end of the spectrum, the Netherlands and Switzerland, report 13 and 12 MAIS3+ injuries, respectively, against one road death, and at

the other end of the spectrum, Poland and Cyprus only report 0.6 and 1.8 road injuries, respectively, against one road death.

These ratio differences are partly due to differences in the reporting rate of serious road injuries (The European Commission indicates that only around 70% of serious road injuries are registered [5]) and in procedures for assessing injury severity. The ratio differences may also be partially explained by differences in traffic mix. Thus, the large number of serious road injuries against one road death in the Netherlands may partly be attributed to the large share of cyclists. Pérez and colleagues developed practical guidelines to help countries determine the number of MAIS3+ injuries. A summary of the guidelines can be found in the 2016 SafetyCube publication [6].

Table 1. Number of road deaths and number of MAIS3+ injuries and their ratios in some European countries in 2014, France (2009) and Spain (2013) excluded, as reported in a questionnaire (Source: [4]).

	Road deaths 2014	MAIS3+ injuries	Ratio MAIS3+ injuries / road deaths
Austria	430	1,410	3.3
Belgium	727	2,979	4.1
Cyprus	45	83	1.8
Finland	229	519	2.3
France (2009)	3,650	25,500	7.0
Germany	3,377	14,645	4.3
Ireland	193	343	1.8
Italy	3.81	14,943	4.4
Netherlands	570	7,500	13.2
Poland	3,357	1,859	0.6
Portugal	638	2,046	3.2
Slovenia	108	213	2.0
Spain (2013)	1,680	6,613	3.9
Sweden	270	1,192	4.4
Switzerland	243	2,899	11.9
United Kingdom	1,854	5,070	2.7

6 How do Dutch road users behave compared to road users elsewhere?

At present, there are no objective (observed) and comparable data about road user behaviour in different countries. There are, however, more subjective (self-reported) data available, originating from international surveys of road user behaviour such as ESRA (the *E-Survey of Road Users' Attitudes*) and the preceding SARTRE (*Social Attitudes to Road Traffic Risk in Europe*).

Observed behaviour

In many countries, road user behaviour such as speeding, drink-driving, and telephone use is not yet systematically measured. And if it *is* measured, countries use different research methods, which makes it hard to compare the results. As part of the European 'safe system' approach (see the [What does the EU road safety policy look like?](#)), the European Commission has indicated to strive for a better insight into the different aspects that affect a country's road safety level. To this effect, the Commission asks and financially supports member states to voluntarily use a common methodology to collect and supply data about a number of behaviours relevant to road safety (Key Performance Indicators – KPIs). As far as road user behaviour is concerned, data about speed, alcohol consumption, distraction and usage of protection devices are to be collected and supplied. The year 2020 marked the start of the [BASELINE](#) project that develops and monitors the data collection methodology and data analyses.

Self-reported behaviour

Over a number of years, several questionnaires were distributed to ask participants in different countries about their road user behaviour and about their opinion of road safety measures. Initially, this concerned four SARTRE surveys in 1991 to 2012 [7] [8] [9] [10].

From 2015 onwards, data have been collected for a similar project: the ESRA project, which now runs in almost fifty countries on five continents. Reports based on the 2018 data collection, present the results of 32 countries on themes such as speed, alcohol consumption, distraction, protection devices, and behaviour of specific road user groups such as pedestrians, cyclists and older road users. It would take us too far afield to present all the results here, but the publications are available on the project website: <https://www.esranet.eu/en>. The 2020 issue of the scientific journal [IATSS](#) is entirely dedicated to the results of the ESRA project.

7 How do road crash costs in the Netherlands compare to costs elsewhere?

In Europe, road crash costs range from 0.4% (Ireland) to 4.1% (Latvia) of the gross domestic product. With 2.2% (€ 17 billion in 2018) the Netherlands is one of the countries with relatively high costs (see SWOV fact sheet [Road crash costs](#)). Wijnen et al. [11] [12] observe that the differences in road crash costs between European countries partly depend on the calculation method used. Countries that use the so-called ‘willingness to pay’ method (the amount people are willing to pay for a certain crash risk reduction) report substantially higher cost estimates than countries that do not use this method [11]. In calculating crash costs, four European countries (the Netherlands, Norway, Sweden and Switzerland) also take unreported crashes into account, while 17 other European countries do not [11] [12]. See SWOV fact sheet [Road crash costs](#) for more information about these costs in the Netherlands and elsewhere.

8 Which international road crash databases are available?

There are five international databases with data on European or worldwide road safety and mobility [13]:

- [CARE-database](#), managed by the European Commission. It contains data of registered numbers of road casualties of the (as yet) 27 member states of the European Union and the 4 EFTA countries (Liechtenstein, Norway, Iceland, Switzerland). The data in this database have the highest degree of disaggregation.
- [IRTAD-database](#), managed by OESO. It has contained data from 32 OESO countries since 1970. The relevant national authorities supply the data, which are based on common definitions. The IRTAD database contains registered numbers of casualties, even though the reports may also supply the actual numbers adjusted for underregistration.
- [UNECE-database](#), managed by the European commission of the United Nations. It contains data of more than fifty countries (Europe, Canada, US) about road crashes, traffic exposure, number of vehicles, and more general data about geography, demography and economy.
- [World Road Statistics](#), managed by the International Road Federation (IRF). Since 1964, these statistics have concerned data of more than 200 countries about road networks, traffic intensities, numbers of vehicles, road crashes and infrastructural investments.
- [WHO-database](#), managed by the World Health Organisation. It contains data about the number of registered road deaths, population, road deaths per capita, road safety legislation (seatbelt use, vehicle requirements, BAC, speed limits) and traffic enforcement levels.

Comparing different crash databases, Yannis et al. [13] conclude that the CARE data are disaggregated to a maximum extent. The CARE database also includes information about crash

types and percentages of the underregistration of injuries, while these are missing in other databases.

Insofar as databases have information about serious road injuries, it is mostly based on the varying definitions countries use themselves and is therefore hard to compare. To gather information for the CARE database, attempts are made to obtain data that are in accord with the common MAIS3+ definition (see the question [To what extent are international data comparable and reliable?](#)).

9 To what extent are international data comparable and reliable?

International data about the number of road deaths are fairly reliable and comparable since, mostly, the same definition is used and road deaths are registered fairly appropriately. Information about the number of serious road injuries is, however, still hard to compare and less reliable since road injuries are registered quite differently, and since the common European definition [3], advised in 2013, is still not applied in the same way everywhere.

Definition of a road crash

The international definition of a road crash is: a crash on a public road in which at least one moving vehicle is involved [14]. A crash of a pedestrian stumbling over a parked bike is therefore not considered a road crash, nor is a collision of two cars in a private parking lot. There are minor differences between countries about in- or excluding crashes on private roads, suicide and death by natural causes just prior to a crash. In their road crash registration, the United States and Canada only register crashes in which a motor vehicle was involved: bicycle crashes are therefore not included.

Definition of a road death

The international definition of a road death is: a casualty who, in or after a crash on a public road in which at least one moving vehicle is involved, dies within thirty days from the consequences of that crash, with the exception of suicides [15]. Nowadays, almost all European countries use this definition. France (up to 2015), Spain (up to 2010) and Portugal (up to 2009) were the exceptions. Portugal and Spain only considered casualties who died at the scene of the crash to be road deaths, and France used a time frame of 7 instead of 30 days [16].

Definition of a serious road injury

In 2013, the European Commission chose a Europe-wide definition of a serious road injury: a road injury with a Maximum Abbreviated Injury Score (MAIS) of 3 or higher [3]. MAIS is an international medical measure to classify injury severity. This score may be derived from the various injuries coded for a patient

(see SWOV fact sheet [Serious road injuries in the Netherlands](#)). Many countries now use this definition, even though the practical application may differ ([4]; also see the question [How does the Dutch number of road injuries compare to that elsewhere?](#)). The Netherlands still use a MAIS score of 2 or higher as the criterion for serious road injuries. For the sake of uniformity within the EU, and to align the definition to what is customary in the medical world, it stands to reason that the Netherlands will eventually adopt the MAIS3+ criterion as well [17].

Data related to exposure

In order to compare road safety in different countries, data of the number of casualties need to be supplemented with data about population size, road length, vehicle fleet and number of kilometres travelled.

In Europe, statistics about numbers of inhabitants and vehicles, and length of the road network are fairly easy to compare. This is not the case for the more direct exposure measures, such as the number of kilometres travelled by road users or vehicles, since for these measures different research methods are used [18].

Data reliability

The registration of **road deaths** in most Western countries is believed to be in fairly good order and the data to be therefore reliable. In the European Union, 1 to 2% of road deaths are estimated to be left unregistered [19]. The combination with the by now common definition makes international comparisons fairly reliable. It does, however, remain to be seen whether all countries are equally aware of the degree of underregistration, and whether this degree is not underestimated. In the Netherlands, where underregistration is determined using a comprehensive and advanced method, the police fail to register about 15% of road deaths as such [16]. A second explanation of the high degree of underregistration in the Netherlands is that bicycle-only crashes are plentiful here. These are not always registered since police are not usually present at the scene of the crash.

The registration of **serious road injuries** is much less exhaustive. On the basis of a somewhat older study by Elvik and Mysen [20], the European Commission concluded that, in Europe, around 70% of serious road injuries are registered [5]. This would still be considerably more than the estimated Dutch 30% that are registered by police [17]. Considering the differences in use of the definition and the generally considerable degree of underregistration, international comparisons of serious road injuries are therefore not very reliable. Yannis et al. [13] do, however, conclude that data of OECD countries are generally more reliable than data of non-OECD countries.

10 How to explain international differences in road safety?

Differences between countries in their road safety levels and over-time developments, may by and large be traced back to (combinations of) four, partly related factors [21] [22] [23] [24] [25] [26]:

- Differences in prosperity level and culture.
- Differences in mobility and travel behaviour.
- Differences in road safety policies.
- And the related differences in underlying performance indicators for the safety of roads, vehicles, road users and assistance.

Differences in prosperity level and culture

Van den Berghe et al. [25] show that the more prosperous countries have higher road safety levels than less prosperous countries. They also found that countries with a more individualistic culture – people whose opinion is not formed by being members of a social group – have higher road safety levels. In addition, historical, geographic and climatic differences have a more structural effect on matters like spatial planning, development of the road network, mobility and traffic mix, and thus on road safety levels.

Differences in mobility and travel behaviour

Countries differ in e.g. car density, bicycle use, the share of freight traffic or agricultural traffic; this also affects road safety [27]. Thus, the Netherlands have a relatively large number of bicycles, which are not only used for recreational purposes, but also for daily rides (shopping, school, work). Since cycling is a vulnerable mode of transport, this affects the total number of casualties (also see the question [*How does the Dutch number of road deaths for the most important transport modes compare to these same numbers elsewhere?*](#))

Differences in road safety policy

Several researchers point to differences in policy, policy priorities and governance to explain road safety differences between countries. Bliss & Breen [22] distinguish seven relevant aspects: co-ordination, legislation, funding, promotion, monitoring/evaluating, research and knowledge dissemination. Chen et al. [24] distinguish five factors that contribute to the quality of national road safety policies: scope and ambitions of road safety targets, sensible problem analysis prior to policy making, economic evaluation of proposed policies, monitoring of road safety policies, and clearly laid down responsibilities in support of policy implementation. The road safety policies eventually result in a set of road safety measures consisting of legislation, infrastructural measures, vehicle measures, enforcement, education and public service advertising.

Differences in safety indicator scores

Together, the three previously mentioned factors determine national performance according to the relevant safety indicators (Key Performance Indicators – KPIs; also called safety performance indicators – SPIs) for vehicles, infrastructure, road user behaviour and assistance [21] [26]. In benchmark studies, road safety differences between countries (or regions) are mostly explained by differences in performance indicators [23]: if a country has a relatively large number of road casualties, this often relates to poor performance according to one or more indicators. Examples are: more speeding than in other countries, helmets worn less often, or a less safe infrastructure layout.

11 What is the road safety role of the European Union?

The individual EU member states are generally responsible for their own traffic and road safety legislation. This concerns speed limits, legal blood alcohol content, and the layout of roads, to give some examples. Only when measures clearly have a cross-border scope and EU involvement could have added value, does European legislation come into play. Vehicle safety, some road safety aspects of the Trans-European Transport Network (TEN-T), licence-to-drive requirements, and driving times and rest periods for commercial transport are, for example, governed by European legislation. European legislation always concerns minimum requirements. Individual member states or (the car) industry can apply stricter rules. An overview of European legislation can be found at https://ec.europa.eu/transport/road_safety/specialist/policy_en.

This sharing of responsibilities stems from the subsidiarity and proportionality principles the EU must comply with. The subsidiarity principle ensures that decisions are taken at the lowest possible level – i.e. in closest proximity to the citizens. A decision may therefore only be taken at the European level, if it cannot be taken at the national, provincial, or municipal level. The proportionality principle obliges the EU to choose the least intrusive means to intervene.

Apart from several types of binding legislation, the EU may also give non-binding recommendations and advice. A comprehensive description of several European laws can be found at https://ec.europa.eu/info/law/law-making-process/types-eu-law_nl#soorten-eu-wetgeving.

12 What does EU road safety policy look like?

For years, the European Union has had ambitious road safety strategies and targets to reduce the number of road deaths and serious injuries on European roads in co-operation with the member states. To achieve this, the EU uses the Safe System approach which integrates the different

elements of the traffic system, and which takes human vulnerability and fallibility into account (see SWOV fact sheet [Sustainable Road Safety](#)). An overview of relevant European policy documents can be found at: https://ec.europa.eu/transport/road_safety/home_nl

For 2021-2030, and for 2050, the European Commission has defined concrete safety targets once again (EC, 2018b [28]; [29]):

- A 50% reduction of the number of road deaths between 2021 and 2030.
- A 50% reduction of the number of serious road injuries (according to the jointly accepted new definition; see the question [To what extent are international data comparable and reliable?](#)) between 2021 and 2030
- Closest possible approximation of zero road deaths in 2050.

Previous European targets also aimed at a 50% reduction of the number of road deaths in ten years (2001-2010 [30] en 2011-2020 [31]). For the 2021-2030 period, a target for the reduction of serious road injuries has been defined for the first time. Individual member states are not obliged to adopt the European targets. They may freely define their own targets or choose not to define any targets at all.

The European targets are to be achieved by basing road safety policies on the Safe System approach, and by not only focusing on crashes and casualties but also on the major performance indicators. In the [Strategic Action Plan on Road Safety](#) (2021-2030, Appendix 1 of [28]), the European Commission sets out actions to realise the abovementioned targets for 2021-2030:

1. Enhanced road safety governance, by using Key Performance Indicators (KPIs) and by appointing a European road safety ambassador.
2. Stronger financial support for road safety initiatives.
3. Safe roads and roadsides by using risk-based methods for all primary roads even when they are not part of Trans-European networks (TEN-T).
4. Safe vehicles by making some safety features mandatory, such as Intelligent Speed Assistance and Autonomous Emergency Braking.
5. Safe road use and behaviour, such as using seatbelts and helmets, and systems like Intelligent Speed Assistance and alcohol interlocks.
6. Fast and effective emergency response, also focusing on eCall and the role of the health sector
7. Future-proofing road safety in view of e.g., smart mobility, cyber-security and automated vehicles in mixed traffic, also taking into account vulnerable road users.
8. Europe's global role and exporting road safety, particularly focusing on the neighbouring Western Balkan countries, the Eastern Partnership, and Turkey.

13 Did the Netherlands meet previous EU targets?

Both for 2001-2010 [30] and 2011-2020 [31], the EU aimed for a 50% reduction of the number of road deaths.

In 2001-2010, the Netherlands achieved a 46% reduction of the number of road deaths, slightly less than the 50% reduction aimed for [32]. In that same period, other European member states also achieved substantial reductions of the number of road deaths: Germany 48%, Ireland 49%, Italy 42%, United Kingdom 47%, Austria 42%, Portugal 44%, Spain 50%, Sweden 54%. For the entire EU, the reduction was 43%.

For 2011-2019, the European Commission reports a 23% reduction of the number of (registered) road deaths in the entire EU [33], whereas in the Netherlands the number of (registered) road deaths increased by 9%. Countries that did achieve a major decrease of the number of road deaths in that period were Greece (34%), Ireland (33%), Lithuania (38%), Luxembourg (31%), Portugal (33%) and Spain (31%).

Publications and sources

Below you will find the list of references that are used in this fact sheet; all sources can be consulted or retrieved. Via [Publications](#) you can find more literature on the subject of road safety.

- [1]. Goede, M. de, Hermens, F., Goldenbeld, C., Bos, N., et al. (2020). [De Nederlandse verkeersveiligheid in internationaal perspectief - Lessen voor beleid](#). R-2020-30. SWOV, Den Haag.
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SWOV (2021). *Dutch road safety in an international perspective*. SWOV fact sheet, April 2021. SWOV, The Hague.

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