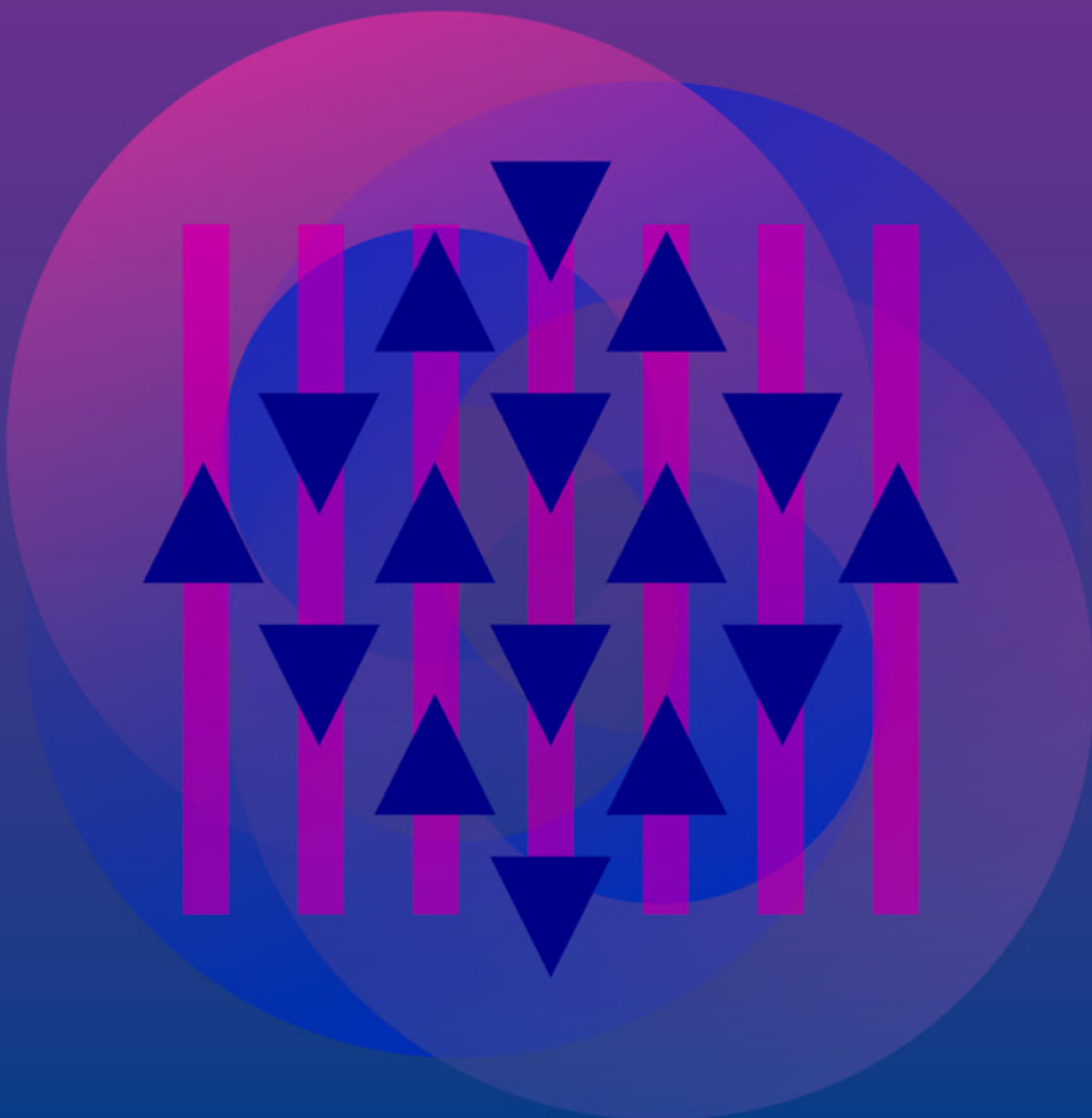


Road Safety Country Profile

Denmark 2023



Overview

In 2022, Denmark reported 154 road deaths, a reduction of 15.2% compared to the average 2017-19. Even if the Covid-19 restrictions resulted in a significant decrease in traffic and the road fatalities were at an all-time low, the ambitious target of no more than 120 deaths by 2020 has not been reached. In March 2021, the Danish Road Safety Commission published the 2021-2030 Action Plan. It sets the objective of no more than 90 road fatalities, no more than 900 seriously injured in police-reported crashes and no more than 10 000 slightly injured by 2030, according to the National Hospital Discharge Register.

Quick facts: Denmark (all data from 2022, unless otherwise stated)

Population	5.9 million				
GDP per capita	USD 67 321				
Road network	74 911 km				
Total number of motor vehicles	3.5 million				
	Cars	Motorcycles	Goods vehicles	Buses	
	80%	5%	12%	0.3%	
Volume of traffic	+14.5% (2000-21)				
Speed limits	Urban roads	Rural roads		Motorways	
	50 km/h (sections with 30, 40 or 60 km/h)	80 km/h (sections with 60, 70 or 90)		130 km/h (110 for a large part of the motorway network)	
Limits on blood alcohol content	0.5 grams/litre (g/l)				
Road fatalities	154				
	Pedestrians	Cyclists	Car occupants	Motorised two-wheelers	Other and unknown
	18%	15%	44%	16%	6%
Road fatalities per 100 000 population	2.6				
Road fatalities per 10 000 vehicles	0.4				
Cost of road crashes	1.1% of GDP				

Short-term trends

Mobility and road safety in Denmark were significantly impacted by the Covid-19 pandemic that hit the world in 2020. Figure 1 illustrates the number of road deaths in 2020, 2021 and 2022 compared to the linear trend before the pandemic. It shows that road death figures for 2020 and 2021 were very much below the trend.

Due to the impact of the Covid-19 pandemic on mobility and road crashes, the data for 2020 and 2021 represent a poor reference point for benchmarking. Therefore, for short-term trends, this report compares data for 2022 and 2021 with the average for 2017-19.

In 2022, Denmark recorded 154 road deaths, an 18.5% increase compared to 2021. However, road deaths decreased by 15.2% when compared to the average 2017-19 (Table 1).

Table 1. Road fatalities in Denmark, 2017-2022

	2017	2018	2019	Average 2017-19	2020	2021	2022	2022 compared with average 2017-19
January	13	16	12	14	18	5	8	-41.5%
February	17	10	7	11	9	7	12	5.9%
March	17	12	13	14	10	7	8	-42.9%
April	8	15	11	11	14	8	13	14.7%
May	13	15	19	16	5	7	11	-29.8%
June	23	13	18	18	12	12	12	-33.3%
July	12	16	20	16	16	9	16	0.0%
August	16	13	26	18	12	19	21	14.5%
September	17	11	14	14	21	7	17	21.4%
October	12	13	25	17	15	16	10	-40.0%
November	16	19	21	19	13	20	17	-8.9%
December	11	18	13	14	18	13	9	-35.7%
Total	175	171	199	181.7	163	130	154	-15.2%

When compared to the average 2017-19, in 2022, the number of road deaths decreased among cyclists (from 28 to 23), occupants of passenger cars (-18.7%) and powered two-wheeler users (from 31 to 25), while there was one more fatality among pedestrians. Road deaths decreased by 35.1% among young people aged 21-24 (Figure 2).

In 2022, Denmark had a mortality rate of 2.6 road deaths per 100 000 population. The fatality risk was 0.4 road deaths per 10 000 registered vehicles (Figures 3, 4 and 5).

Figure 6 illustrates the breakdown of the fatalities by user category, and Figure 7 shows the breakdown by type of road.

Elderly people aged 75 and up are the most at risk in road traffic, with a mortality rate of 6.7 deaths per 100 000 population (Figure 8).

Figure 1. Road fatalities in Denmark in 2020, 2021 and 2022 compared to the linear trend since 2012



Figure 2. Evolution of road fatalities in Denmark by user category, age group and road type, 2022 compared to the average 2017-19

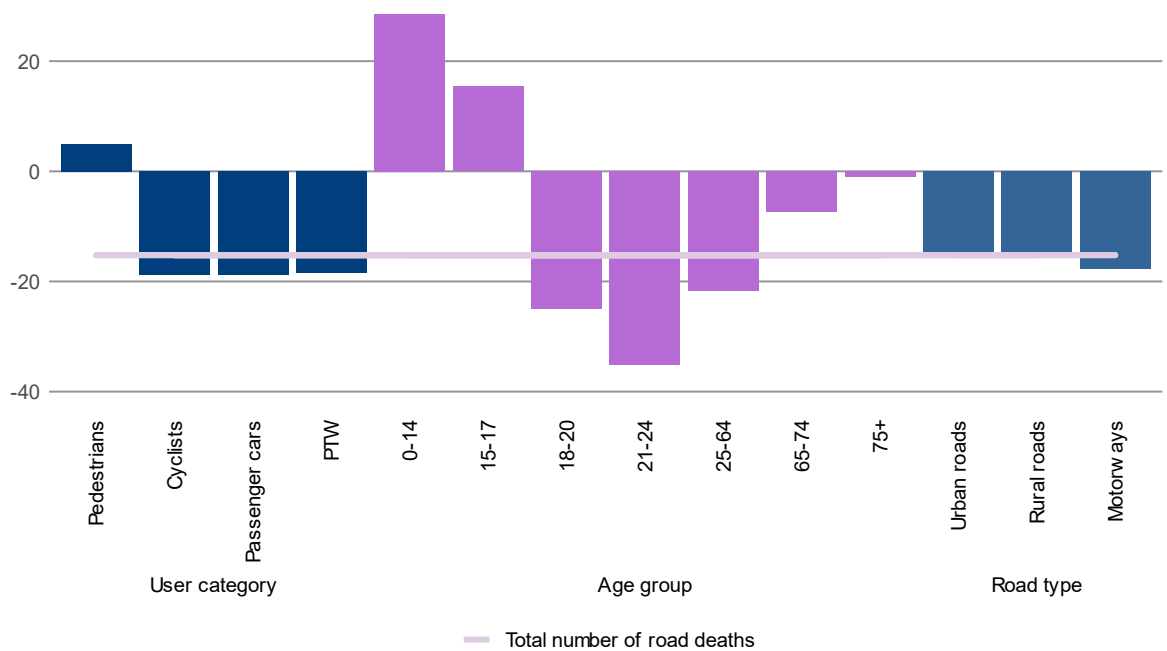


Figure 3. Road fatalities per 100 000 inhabitants in Denmark compared to other IRTAD countries, 2022

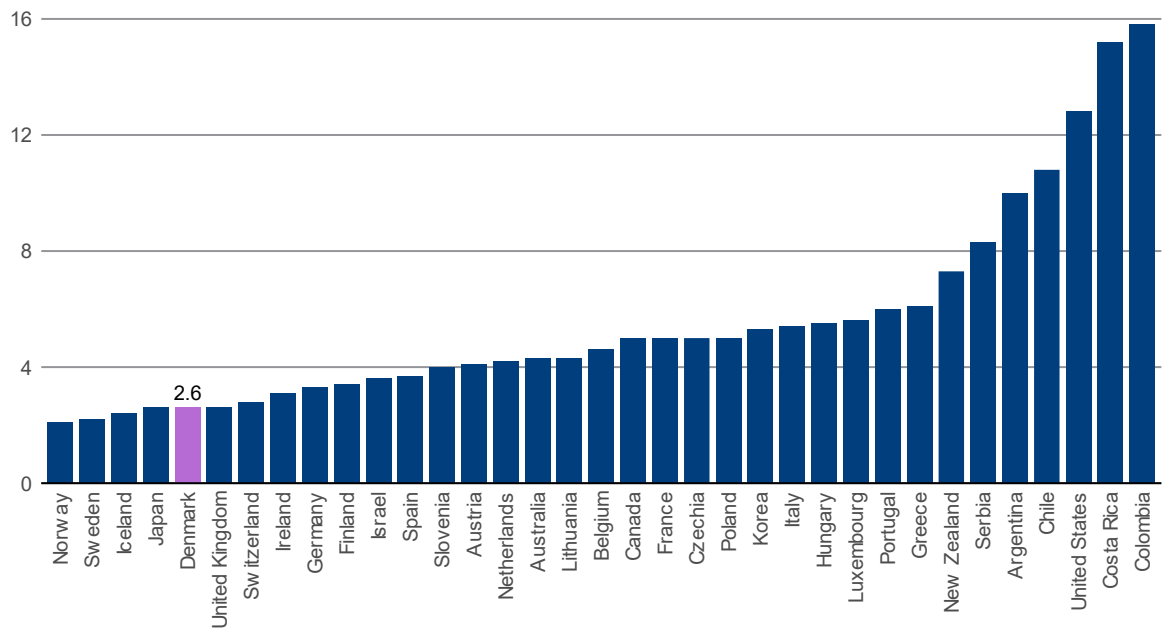
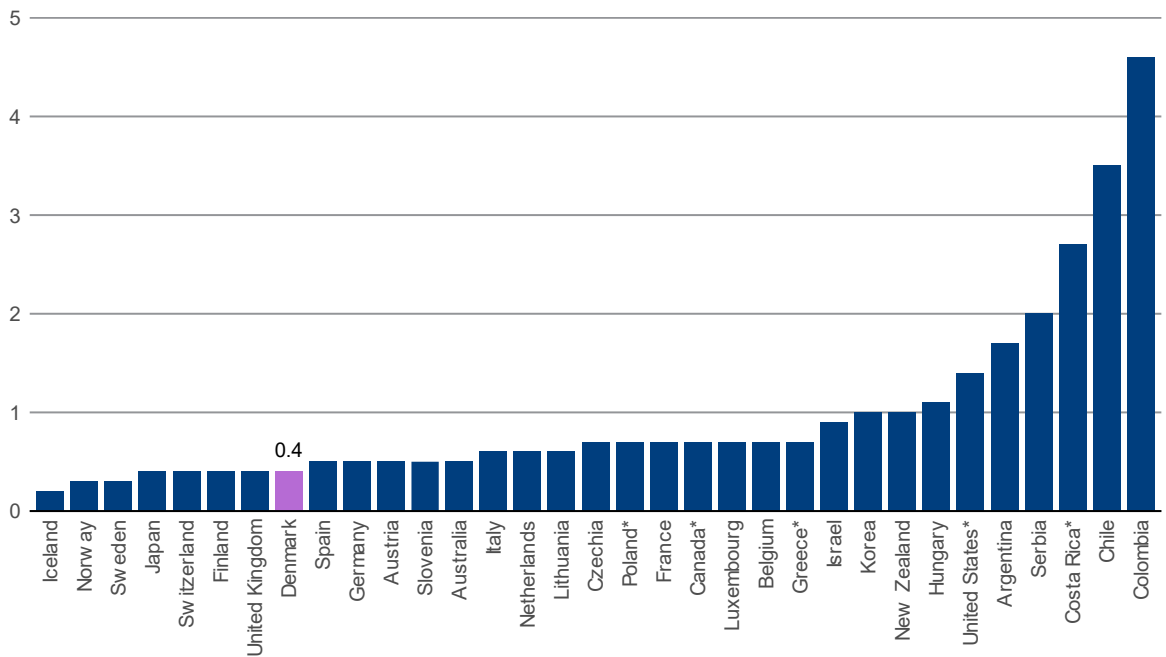


Figure 4. Road fatalities per 10 000 registered vehicles in Denmark compared to other IRTAD countries, 2022



Note: in Belgium, Denmark, Germany and Hungary, registered vehicles do not include mopeds. * 2021 data.

Figure 5. Road fatalities per billion vehicle-kilometres in Denmark compared to other IRTAD countries, 2021

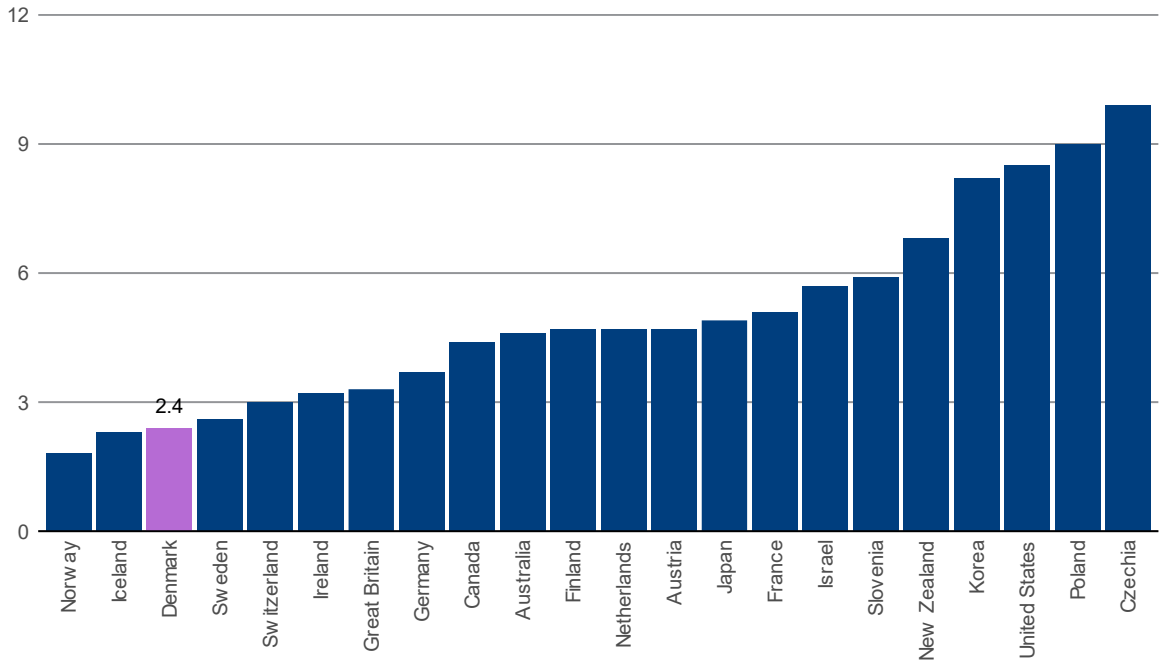


Figure 6. Road fatalities in Denmark by user category, 2022

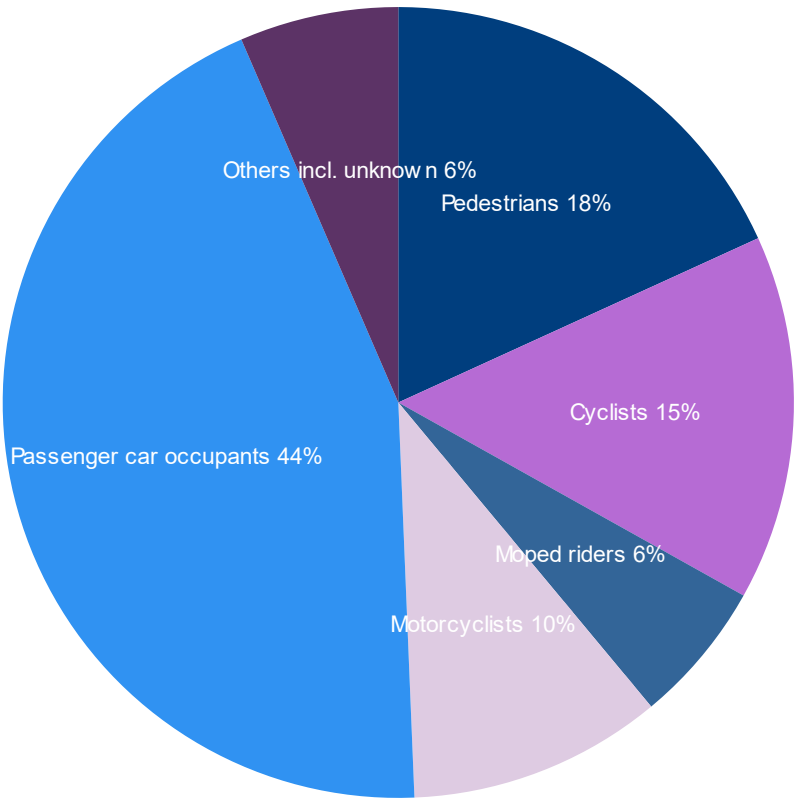


Figure 7. Road fatalities in Denmark by road type, 2022

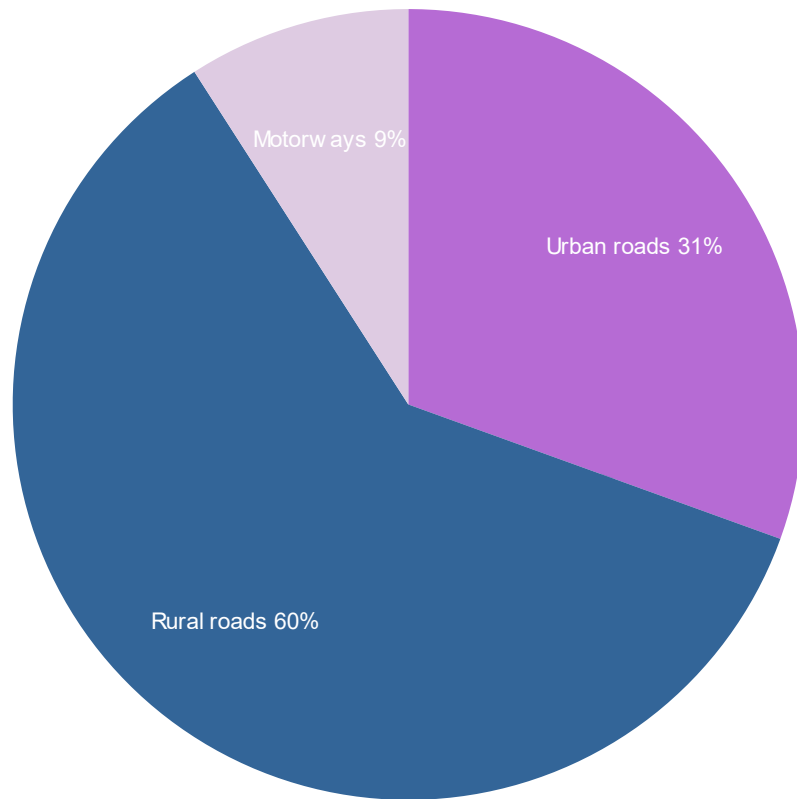
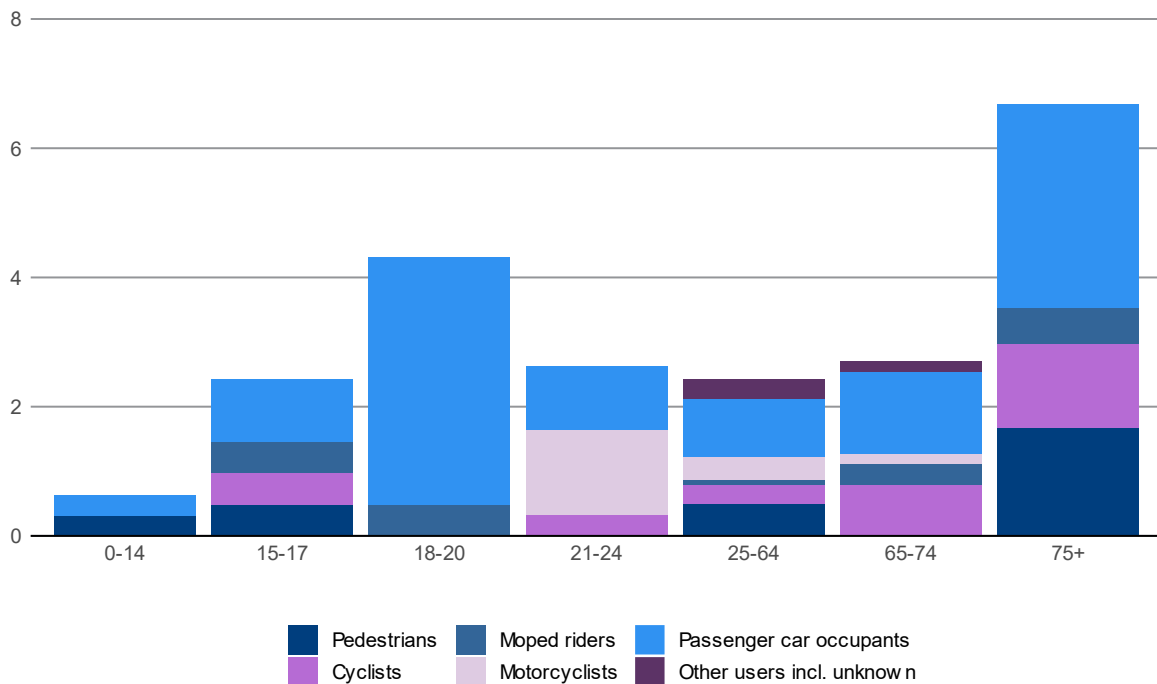


Figure 8. Road fatality rate in Denmark by user category and age group, 2022

Rate per 100 000 population in the same age group



Road safety data 2012-22

Between 2012 and 2022, road deaths decreased by 7.8%. During the same period, the number of registered vehicles increased by 18.5% (Table 2 and Figure 9).

The number of road deaths decreased for car occupants (-16%), pedestrians (from 31 to 28) and moped riders (from 14 to 9). It increased for motorcyclists (from 10 to 16) and cyclists (from 22 to 23) (Figure 10).

The number of road deaths decreased for all age categories except for people aged more than 75 (from 26 to 36). The young people experienced the most significant reduction (Figure 10).

Road deaths decreased on urban and rural roads, with the strongest decrease on urban roads (-19%). Road deaths were only reduced by 6.1% on rural roads (Figure 10). Fatalities in motorways increased by four units.

Table 2. Crash, casualty and traffic data in Denmark, 2012-22

	2012	2020	2021	2022	Evolution 2012-22
Reported safety data					
Fatalities	167	163	130	154	-7.8%
Injury crashes	3 124	2 527	2 402	2 563	-18.0%
Hospitalised people	1 809	1 203	1 163	1 227	-32.2%
Deaths per 100 000 population	3.0	2.8	2.2	2.6	-12.4%
Deaths per 10 000 registered vehicles	0.6	0.5	0.4	0.4	-22.2%
Deaths per billion vehicle-kilometres	3.4	3.2	2.4
Fatalities by road user					
Pedestrians	31	23	19	28	-9.7%
Cyclists	22	27	25	23	4.5%
Moped riders	14	8	5	9	-35.7%
Motorcyclists	10	11	12	16	60.0%
Passenger car occupants	81	80	54	68	-16.0%
Other road users	9	14	15	10	11.1%
Fatalities by age group					
0-14 years	7	6	3	6	-14.3%
15-17 years	6	10	2	5	-16.7%
18-20 years	20	6	11	9	-55.0%
21-24 years	11	12	12	8	-27.3%
25-64 years	79	72	61	73	-7.6%
65-74 years	18	20	9	17	-5.6%
≥ 75 years	26	37	32	36	38.5%
Fatalities by road type					
Urban roads	58	52	45	47	-19.0%
Rural roads	99	96	72	93	-6.1%
Motorways	10	15	13	14	40.0%
Traffic data					
Vehicle kilometres (million)	49 097	51 527	53 538
Registered vehicles (thousands)	2 929	3 338	3 408	3 471	18.5%
Registered vehicles per 1 000 population	524.9	573.3	583.6	591.0	12.6%

Figure 9. Evolution of road fatalities, motorisation, traffic and GDP in Denmark, 2012-22

Index 2012 = 100

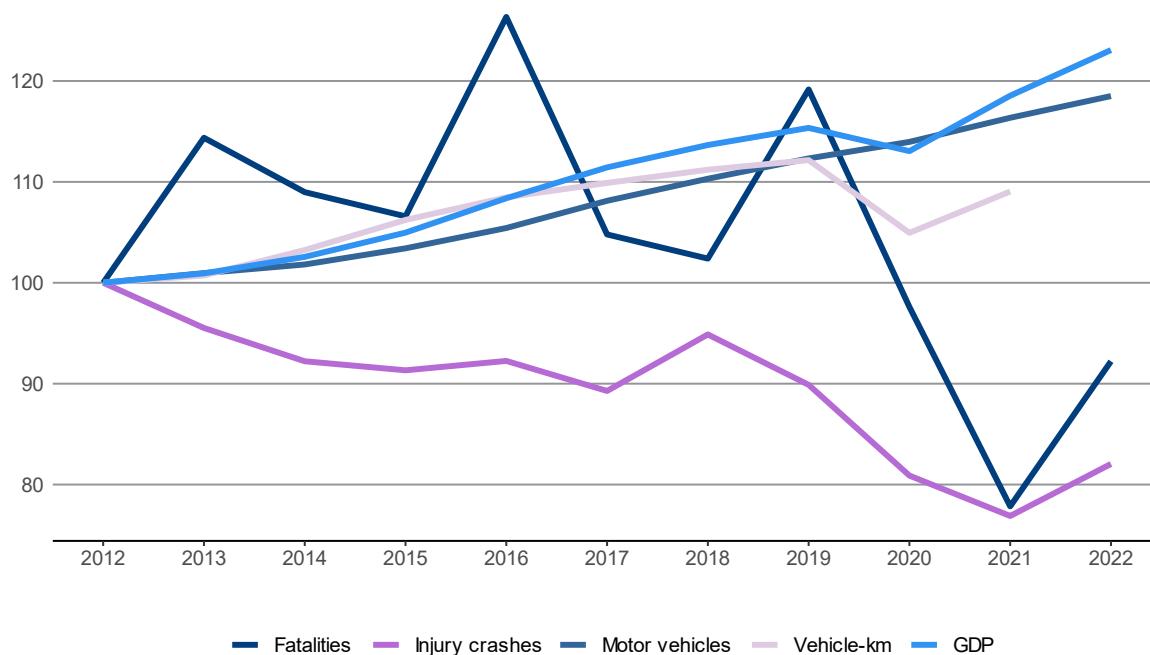
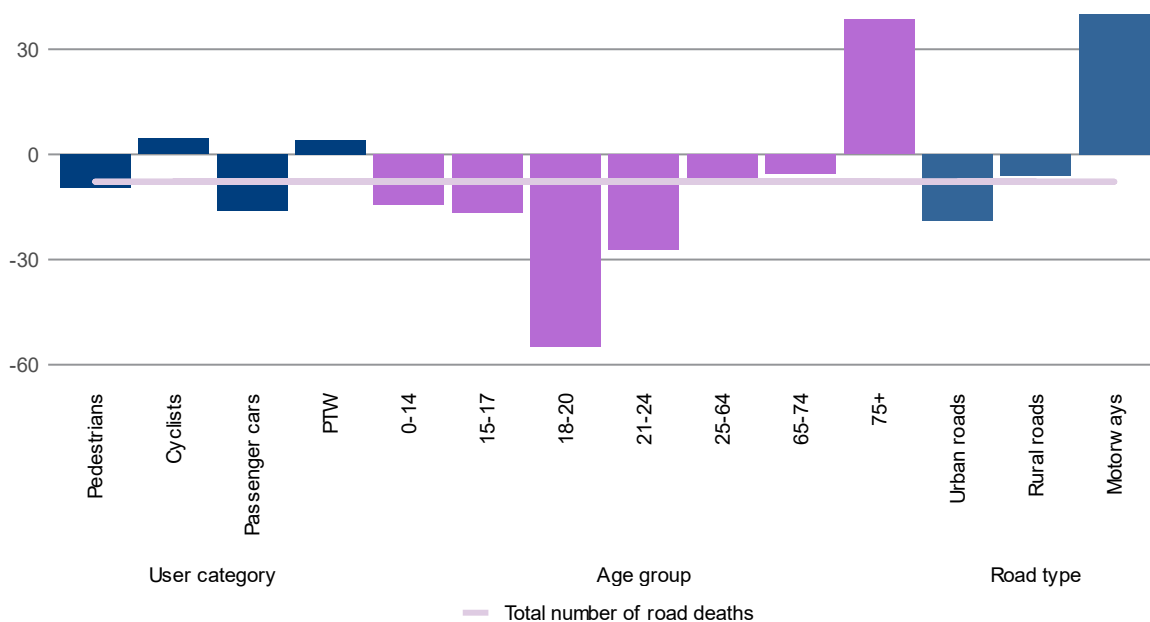


Figure 10. Evolution of road fatalities in Denmark by user category, age group and road type, 2012-2022



Safety performance indicators

Speed

Inappropriate speed is one of the leading causes of road crashes. In Denmark, speeding was thought to contribute to 27% of fatal crashes in 2022.

Lowering speed limits in urban areas and enforcing stricter laws against speeding have significantly contributed to increasing road safety. According to the Danish Road Directorate, rising fuel prices have also played a significant role in encouraging drivers to drive at a slower speed.

The Road Directorate regularly publishes a speed barometer, where the speed development on different road types is monitored. Over time, there has been a general decline in the mean speed.

Table 3 summarises the main speed limits for passenger cars in Denmark.

Table 3. Passenger car speed limits by road type in Denmark, 2023

	General speed limit	Comments
Urban roads	50 km/h	Sections with 30, 40 or 60 km/h
Rural roads	70, 80 km/h	90 km/h for specific sections
Motorways	130 km/h	About half of the motorway network has a signed speed limit of 110 km/h, especially around cities

Drink driving

Over the past five years, alcohol-related injury crashes have, in general, decreased faster than road crashes. To a certain extent, this can be explained by ongoing awareness campaigns and low social tolerance for drink driving. In 2022, 10% of personal injury crashes involved alcohol.

The maximum authorised blood alcohol content (BAC) is 0.5 g/l for drivers of any motorised vehicle requiring a driving licence (including professional drivers). There is no maximum authorised BAC for cyclists or pedestrians.

Drugs and driving

Since 1 June 2007, the Traffic Act has included a zero-tolerance level for driving under the influence of drugs. Anyone whose blood contains consciousness-altering substances during or after driving is prohibited from operating a motorised vehicle. These substances are classified as dangerous for traffic safety by the Danish Ministry of Transport and cannot be consumed legally without a prescription. In 2022, 4% of personal injury crashes involved the influence of drugs.

Use of mobile phones while driving

Distraction is an important factor to analyse when explaining crash circumstances. In 2022, inattention was thought to have been a contributing factor in 29% of fatal crashes.

In-depth crash investigations have shown that distraction is often an issue inside and outside the vehicle.

Driving while using a hand-held mobile phone is not allowed. The use of hands-free devices is legal.

Seat belt and helmet use

Seat belt use has been compulsory in front seats since the early 1970s and in rear seats since the late 1980s. Rear seat belts were not mandatory in cars made before 1990, and ancient vehicles did not need front seat belts. Such vehicles account for a very low share of the Danish car fleet. In 2022, the seat belt wearing rate was 98% for car drivers and 93% for rear-seat passengers.

Child restraints are also compulsory. Small children, typically up to 3-4 years old, have to use a child safety seat. Children over this age can use a booster cushion in connection with a safety belt. Regular seat belt use is permitted when they reach a height of 140 cm.

Helmets are required to be worn by all motorcycle and moped riders. The compliance rate by motorcyclists was 100% in 2022. For riders of mopeds, the compliance rate was estimated at 97% in 2022.

There is no mandatory helmet-use law for cyclists. However, helmets are compulsory for e-scooters and speed pedestrians. The wearing rate for cyclists in the cities was around 50%, and for children cycling to school in the morning, around 79% in 2022.

Table 4. Seat belt and helmet wearing rates in Denmark

Percentages

	2000	2016	2022
Front seats			
General (driver and passenger)	92	96	..
Urban roads (driver)	90	96	97
Rural roads (driver)	95	96	97
Motorways (driver)	95	98	99
Rear seats			
General	76	91	93
Helmet			
Riders of mopeds	96	90	97
Riders of motorcycles	99	98	100

Cost of road crashes

The socio-economic costs of road crashes are calculated using so-called transport economic unit prices. These are regularly calculated and updated for The Ministry of Transport by the Transport Division in the Management Department of the Technical University of Denmark.

Unit prices for the socio-economic costs of road crashes include not only directly measurable expenses – such as hospital and healthcare charges, the cost of police and emergency services, lost earnings and the cost of material damage – but also the so-called welfare loss, representing a valuation for lost lives and capacity. The welfare loss can be taken to express what road users think it is "worth" to prevent road crashes over and above directly measurable costs.

Traffic crashes are estimated based on unit costs for deaths, severely injured persons and slightly injured persons.

In 2022, the cost of traffic crashes was around EUR 4.1 billion (1.1% of GDP). The estimate is in line with previous years since the number of injuries is approximately the same.

Table 5. Cost of road crashes in Denmark, 2022

	Total cost (EUR)
Fatalities	820 million
Seriously injured	1 431 million
Slight injuries	112 million
Property damage costs	1 715 million
Total	4.1 billion
Total as % of GDP	1.1 %

Road safety management and strategy

Evolution of road safety

Since records began in the 1930s, the 130 deaths recorded in 2021 marked the fewest road deaths in a calendar year in Denmark, even if it was a particular year. Between 1990 and 2012, fatalities decreased by more than 70%. In particular, between 2008 and 2012, the reduction in fatalities accelerated, with a nearly 60% reduction. Effective safety measures, harsh winter conditions in 2010 and 2011, and the economic downturn contribute to explaining the sharp decrease in the number of fatalities in the period 2008 to 2012. Between 2013 and 2017, the number of road deaths stagnated at around 180 annual road deaths, except for 2016, when it increased to 211. A reduction in speed can also explain the overall downward trend. Although mean speeds have decreased only slightly, top speeds have significantly reduced. This may be related to economic considerations due to fuel becoming more expensive. The penetration into the fleet of new vehicles with advanced safety equipment has also had a positive impact.

Governance of road safety

There is no single lead agency concerning traffic safety in Denmark. The responsibility for road safety organisation is spread across the ministries of transport, justice, interior and health, associated agencies and municipalities. Overall, this organisation works well because stakeholders share the same goal and co-operate closely. The Danish Road Safety Commission is an advisory body composed of politicians, NGOs and technical advisors from the national, regional and municipal levels. It sets targets and areas of interaction. It does not manage a budget; thus, it relies on the relevant stakeholders to take up the commission's recommendations. Traffic safety work in Denmark is primarily locally based.

Road safety strategy

The Danish Road Safety Commission has set ambitious targets for 2020 of no more than 120 deaths, 1 000 serious injuries and 1 000 minor injuries by 2020. These targets had not been achieved.

In March 2021, the Danish Road Safety Commission published the new Action Plan 2021-2030. Like the previous plan, it is based on the assumption that crashes can be prevented and that the severity of injuries can be reduced through legislation and control, teaching and campaigns, road engineering and safety technology in the vehicles. The Action Plan sets the objectives of no more than 90 road fatalities and no more than 900 seriously injured by 2030. This corresponds to the EU targets. As a new supplementary objective for 2030, it was decided that no more than 10 000 should be slightly injured, according to the National Hospital Discharge Register.

To identify possible focus areas, a closer look was taken at the number of police-reported fatalities and seriously injured in 2015-2019. Five focus areas have been designated: single vehicle crashes, head-on collisions, crashes in intersections, vulnerable road users and young car drivers. With these five focus areas, the Danish Road Safety Commission wishes to prioritise efforts against multiple personal injuries among vulnerable road users and against crashes involving motor vehicles that result in the most fatalities.

The action plan contains over 50 specific measures, which the actors, both at the national and the municipal level and in public and private contexts, can initiate to obtain the objective. The measures are divided into six main categories: teaching and communication, road design and traffic management, legislation, sanction and control, vehicles and safety equipment, data about crashes, and research and co-operation.

The Danish Road Safety Commission will follow up on the objective throughout the planning period. Furthermore, the commission will monitor the development of road safety on the Danish roads. The Danish Road Safety Commission has chosen to use a range of KPIs, which may shed light on the development within some well-established areas.

Latest road safety measures

Many traditional, well-known measures with well-known safety effects are still being deployed (speed limits, speed humps, roundabouts, rumble trips, etc.).

Since 2018, 20 out of 100 mobile in-car speed cameras have been placed permanently at 11 specific sites across the country. A recent evaluation showed a very impressive speed reduction at the 11 sites.

Since 1 January 2022, helmet use has been mandatory for e-scooter riders.

Research and resources

Publications

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- Road engineering measures for cyclists: https://www.vejdirektoratet.dk/sites/default/files/2023-03/RoadTechnicalSolutions_web.pdf
- Safety for Cyclists in Signalised Intersections with Truncated and Full-length Bicycle Paths and in Urban Roundabouts: https://www.vejdirektoratet.dk/sites/default/files/2023-03/Cykelstier_engelsk_w.pdf
- Guidelines for sight distance: <https://www.vejdirektoratet.dk/sites/default/files/2023-10/Kogebog%20om%20oversigtsforhold%202023.pdf>
- Effects of Road Engineering measures: https://www.vejdirektoratet.dk/sites/default/files/2023-11/H%C3%A5ndbog%20trafiksikkerhed_2023web.pdf
- Road Access and Road Safety: <https://www.vejdirektoratet.dk/sites/default/files/2022-04/Vejadgange%20og%20trafiksikkerhed%20-%20baggrundsrapport.pdf>
- Guide for Traffic Accident Reporting: https://www.vejdirektoratet.dk/api/drupal/sites/default/files/2019-03/indberetning_af_faerdselsuheld_web.pdf

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Technical University of Denmark: <https://www.man.dtu.dk/english/>

The Danish Road Safety Commission National Action Plan 2021-30: https://faerdselssikkerhedskommissionen.dk/media/1095/fsk_resume_handlingsplaneng_2021-2030_final.pdf

Definition, methodology, data collection

Term	Definition
Road death	A person who died immediately or within 30 days of a crash.
Person seriously injured	A person included in the police report under bodily injury and any injury other than "minor injuries only".
Person slightly injured	A person suffering from minor injuries only.

Traffic crash data are collected by the police using a common national system. Data are transferred to the Road Directorate every week. These data contain preliminary and final information. Final information about a crash should be sent within six weeks following the incident. This, however, is not always the case. In particular, information about alcohol levels awaiting laboratory analysis may delay this process.

There are more than 90 different parameters for crash data in the Danish system. Some may be subjective. For example, "speed driven before the crash" is filled in by the police officer based on witness statements. More accurate speed information is obtained when investigating fatal crashes or others chosen for in-depth study.

Serious injury data are based solely on police reports, and the severity of injuries is based on the judgement of the police officer. A hospital may be contacted to obtain additional information, but there is no systematic linkage with hospital data. Currently, a linking procedure is not possible as the Danish hospital registration system does not include the Abbreviated Injury Scale (AIS) score of patients; only diagnosis codes are included. Denmark is working on converting diagnosis codes into AIS and Maximum Abbreviated Injury Scale (MAIS) scores.

Details of traffic-related casualties are recorded in the national patient register. Information from the national patient register reveals that the actual number of injury crashes is much higher than those recorded by the police. Injuries to vulnerable road users are particularly under-reported in police records.

The weakness of the national patient register is that there is little information on the crash compared to police records. For example, there is little indication of the crash location and no information on vehicle occupancy.

About the IRTAD Database

The IRTAD Database includes road safety data, aggregated by country and year from 1970 onwards. It provides an empirical basis for international comparisons and more effective road safety policies.

The IRTAD Group validates data for quality before inclusion in the database. At present, the database includes validated data from 35 countries: Argentina, Australia, Austria, Belgium, Canada, Chile, Colombia, Costa Rica, Czechia, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Lithuania, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Portugal, Serbia, Slovenia, Spain, Sweden, Switzerland, the United Kingdom and the United States.

The data is provided in a common format based on definitions developed and agreed by the IRTAD Group. Selected data is available for free; full online access requires IRTAD membership.

Access the IRTAD Database via the OECD statistics portal:

https://stats.oecd.org/Index.aspx?DataSetCode=IRTAD_CASUAL_BY_AGE

About the International Transport Forum

The International Transport Forum (ITF) is an intergovernmental organisation with 66 member countries that organises global dialogue for better transport. It acts as a think tank for transport policy and hosts the Annual Summit of transport ministers. The ITF is the only global body that covers all transport modes. The ITF is administratively integrated with the OECD, yet politically autonomous.

www.itf-oecd.org

About the IRTAD Group

The International Traffic Safety Data and Analysis (IRTAD) Group is the ITF's permanent working group for road safety. It brings together road safety experts from national road administrations, road safety research institutes, international organisations, automobile associations, insurance companies, car manufacturers, etc. With 80 members and observers from more than 40 countries, the IRTAD Group is a central force in promoting international co-operation on road-crash data and its analysis.

www.itf-oecd.org/irtad

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Data in this country profile have been provided by countries to the database of the International Traffic Safety Data and Analysis (IRTAD) Group. Where data has not been independently validated by IRTAD, this is indicated.

Read more country profiles online:

<https://www.itf-oecd.org/road-safety-annual-report-2023>

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