



DENMARK

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Denmark recorded 163 road fatalities in 2020, an 18.1% decrease compared to 2019. The Covid-19 restrictions resulted in a significant reduction in traffic. This was part of why 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, according to the National Hospital Discharge Register.

Road safety management and strategy

Since records began in the 1930s, the 163 deaths recorded in 2020 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, tough 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.

Denmark: Quick facts

Population: 5.8 million

GDP per capita: USD 22 773

Road network: 74 807 km

- motorways: 2%

Registered motor vehicles: 3.3 million (without mopeds)

- cars: 79%
- goods vehicles: 13%
- motorcycles: 5%

Volume of traffic: +7% (2000-20)

Speed limits:

- urban roads: 50 km/h (sections with 30, 40 or 60 km/h)
- rural roads: 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)

Limits on Blood Alcohol Content: 0.5 g/l

Road fatalities: 163

- pedestrians: 14%
- cyclists: 17%
- car occupants: 49%
- motorcyclists: 11%
- other: 9%

Road fatalities per 100 000 population: 2.8

Road fatalities per 10 000 vehicles: 0.5

Cost of road crashes: 1.1% of GDP (2016)

All data 2020 unless otherwise stated.

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 cooperate 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, so it relies on the relevant stakeholders to take up the commission's recommendations. Traffic safety work in Denmark is primarily locally based.

In May 2013, a Road Safety Action Plan was launched with the following slogan "Every accident is one too many – a shared responsibility". The Action Plan includes ten focus areas (speeding, alcohol and drugs, distraction, failure to wear seat belts and helmets, pedestrians, cyclists and moped riders, young drivers under 24, crashes with oncoming traffic, single-vehicle crashes and crashes at rural junctions).

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 have 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 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 2015-19. Five focus areas were 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 the multiple personal injuries among vulnerable road users and crashes involving motor vehicles resulting in 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 cooperation.

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

Latest road safety measures

Many established measures with well-known safety effects are still being deployed (speed limits, speed humps, roundabouts, rumble strips, 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 very impressive speed reductions at the 11 sites.

Costs 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 2020, the cost of traffic crashes was around EUR 3.5 billion (1.1% of GDP). The estimate is lower than in previous years, mainly due to the decrease in traffic crashes.

Safety performance indicators

Speed

Inappropriate speed is one of the leading causes of road crashes. In Denmark, speeding was thought to contribute to 30% of fatal crashes in 2020.

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.

Drink-driving

Over the past five years, alcohol-related injury crashes have generally 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 2020, 11% 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.

Use of mobile phones while driving

Distraction is an important factor to analyse when explaining crash circumstances. In 2020, inattention was thought to have been a contributing factor in 38% 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 rear seats since the late 1980s. Rear seat belts are not mandatory in cars made before 1990 and very old vehicles need not have front seat belts. Such vehicles account for a very low share of the Danish car fleet. In 2020, the seat belt wearing rate was 97% for car drivers and 89% 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. Normal seat belt use is permitted when they reach the height of 140 cm.

Helmets are required to be worn by all motorcycle and moped riders. The compliance rate by motorcyclists was 100% in 2020. Since 2010, this rate has been between 98 and 100%. For riders of mopeds, the compliance rate was estimated at 95% in 2020.

There is no mandatory helmet-use law for cyclists. However, there is a mandatory helmet use for e-scooters and speed-pedelecs. The wearing rate for cyclists in the cities was around 47% and for children cycling to school in the morning around 82% in 2020.

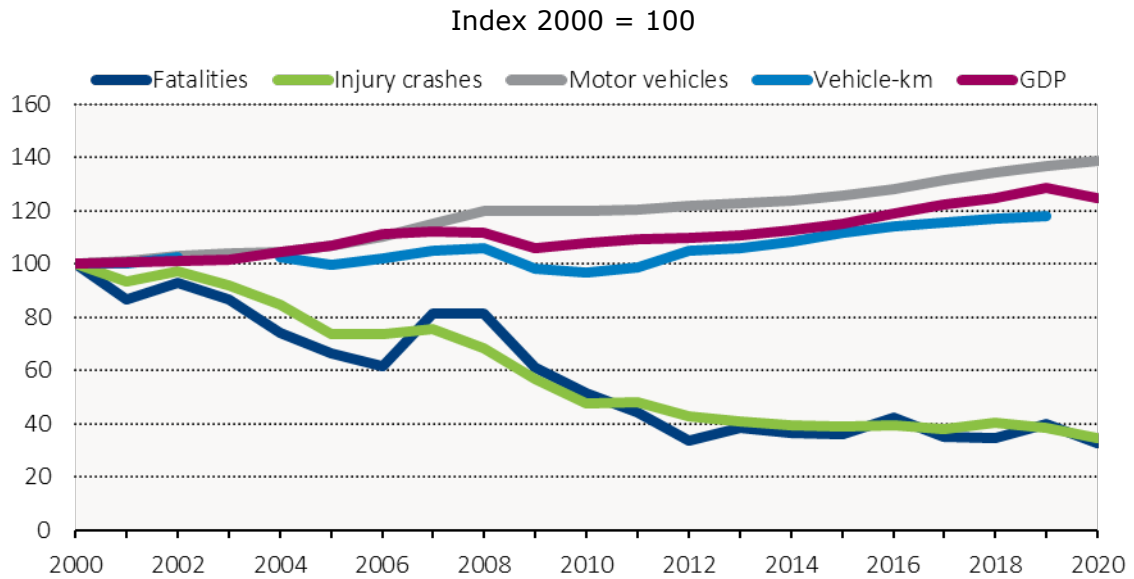
Road safety data for Denmark at a glance

Table 1. Long-term road safety trends for Denmark

	1990	2000	2010	2018	2019	2020	2020 % change over			
							2019	2010	2000	1990
Reported safety data										
Fatalities	634	498	255	171	199	163	-18.1	-36.1	-67.3	-74.3
Injury crashes	9 155	7 346	3 498	2 964	2 808	2 527	-10.0	-27.8	-65.6	-72.4
Injured persons hospitalised	5 347	4 366	2 071	1 436	1 277	1 203	-5.8	-41.9	-72.4	-77.5
Deaths per 100 000 population	12.3	9.3	4.6	3.0	3.4	2.8	-18.3	-39.2	-70.0	-77.3
Deaths per 10 000 registered vehicles	3.1	2.1	0.9	0.5	0.6	0.5	-19.3	-44.6	-76.4	-84.1
Deaths per billion vehicle kilometres	17.3	10.7	5.6	3.1	3.6	..	..	..	..	..
Fatalities by road user										
Pedestrians	118	99	44	30	30	23	-23.3	-47.7	-76.8	-80.5
Cyclists	110	58	26	28	31	28	-9.7	7.7	-51.7	-74.5
Moped riders	44	47	11	10	13	7	-46.2	-36.4	-85.1	-84.1
Motorcyclists	39	24	22	21	27	11	-59.3	-50.0	-54.2	-71.8
Passenger car occupants	284	239	137	65	87	80	-8.0	-41.6	-66.5	-71.8
Other road users	39	31	15	17	11	14	27.3	-6.7	-54.8	-64.1
Fatalities by age group										
0-14 years	48	25	9	6	5	6	20.0	-33.3	-76.0	-87.5
15-17 years	35	30	8	6	6	10	66.7	25.0	-66.7	-71.4
18-20 years	46	30	24	10	10	6	-40.0	-75.0	-80.0	-87.0
21-24 years	58	55	18	7	13	12	-7.7	-33.3	-78.2	-79.3
25-64 years	256	224	129	91	102	72	-29.4	-44.2	-67.9	-71.9
65-74 years	..	48	24	21	19	20	5.3	-16.7	-58.3	..
≥ 75 years	..	86	43	29	44	37	-15.9	-14.0	-57.0	..
Fatalities by road type										
Urban roads	249	181	77	49	64	52	-18.8	-32.5	-71.3	-79.1
Rural roads	368	289	151	101	119	96	-19.3	-36.4	-66.8	-73.9
Motorways	17	28	27	21	16	15	-6.3	-44.4	-46.4	-11.8
Traffic data										
Vehicle kilometres (millions)	36 600	46 753	45 153	54 598	55 066	..	..	..	..	..
Registered vehicles (thousands)	2 068	2 409	2 892	3 231	3 290	3 338	1.5	15.4	38.6	61.4
Registered vehicles per 1 000 population	402.7	452.0	522.5	558.9	566.6	573.3	1.2	9.7	26.8	42.4

Note: registered vehicles do not include mopeds.

Figure 1. Evolution of road fatalities, injury crashes, motorisation, traffic and GDP in Denmark, 2000-20



Note: registered vehicles do not include mopeds.

Figure 2. Road fatalities per 100 000 inhabitants in Denmark in comparison with IRTAD countries, 2020

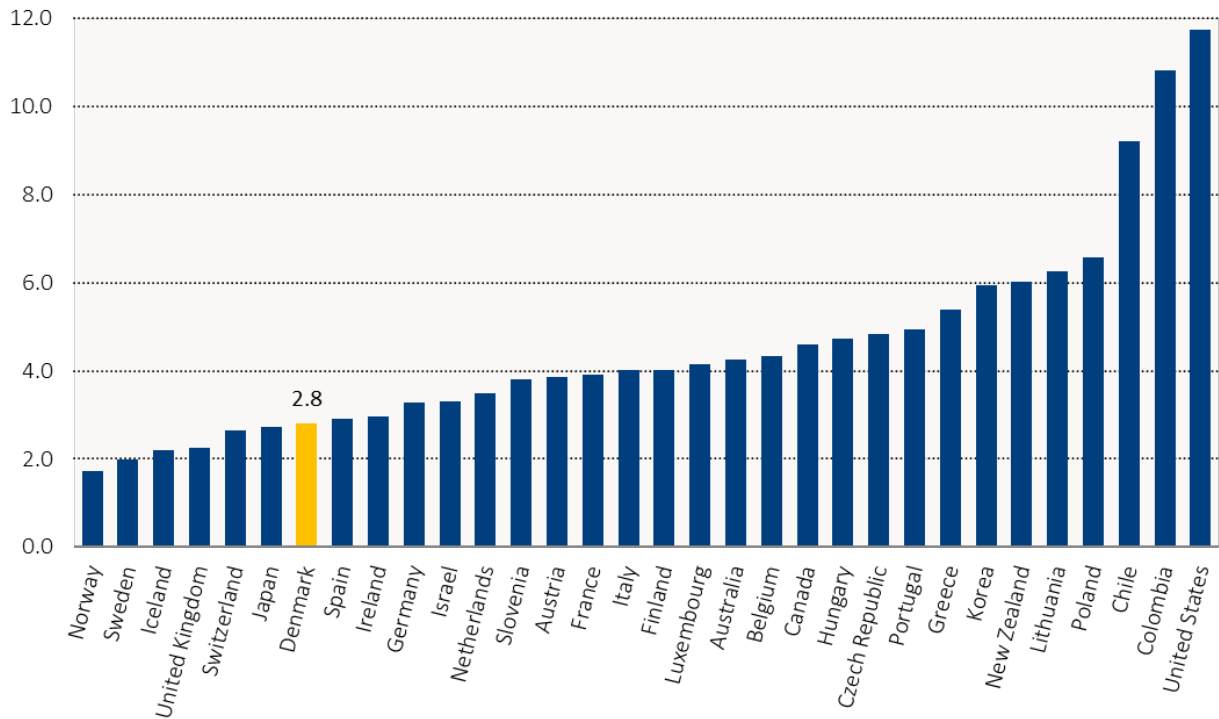
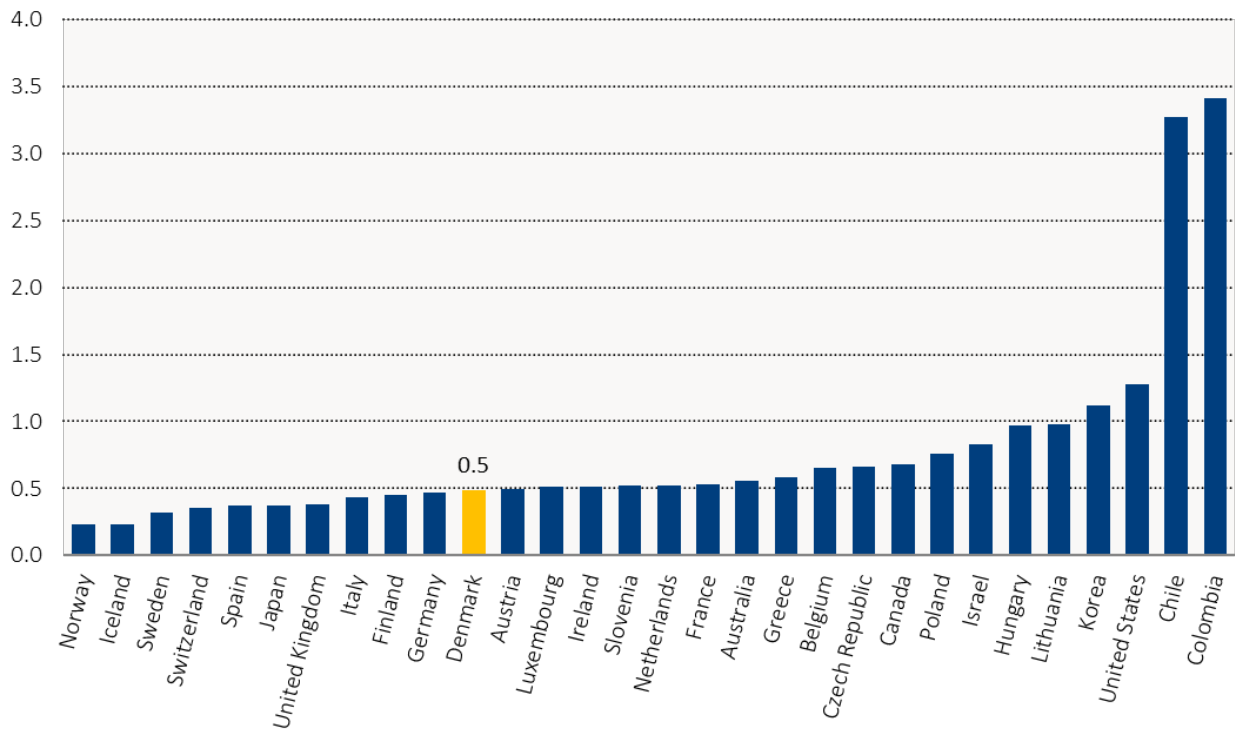


Figure 3. Road fatalities per 10 000 vehicles in Denmark in comparison with IRTAD countries, 2020



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

Figure 4. Road fatalities per billion vehicle-kilometres in Denmark in comparison with IRTAD countries, 2019

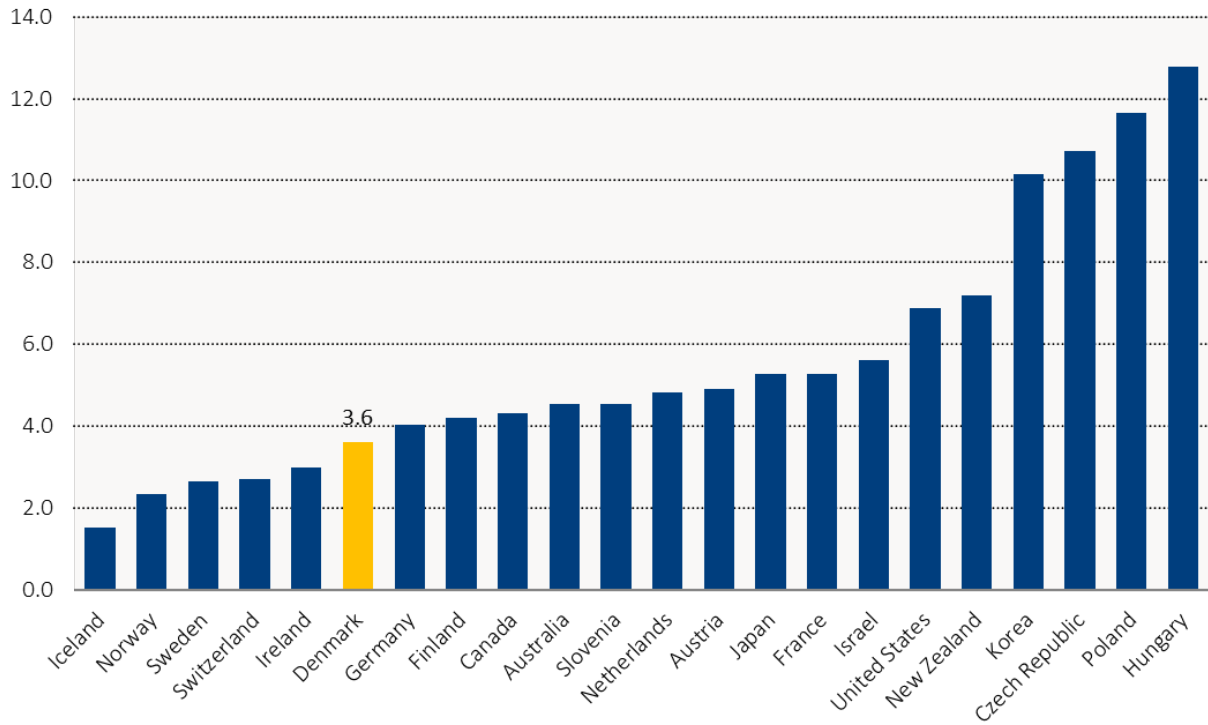


Figure 5. Evolution of road fatalities in Denmark by user category, age group and road type, 2010-20

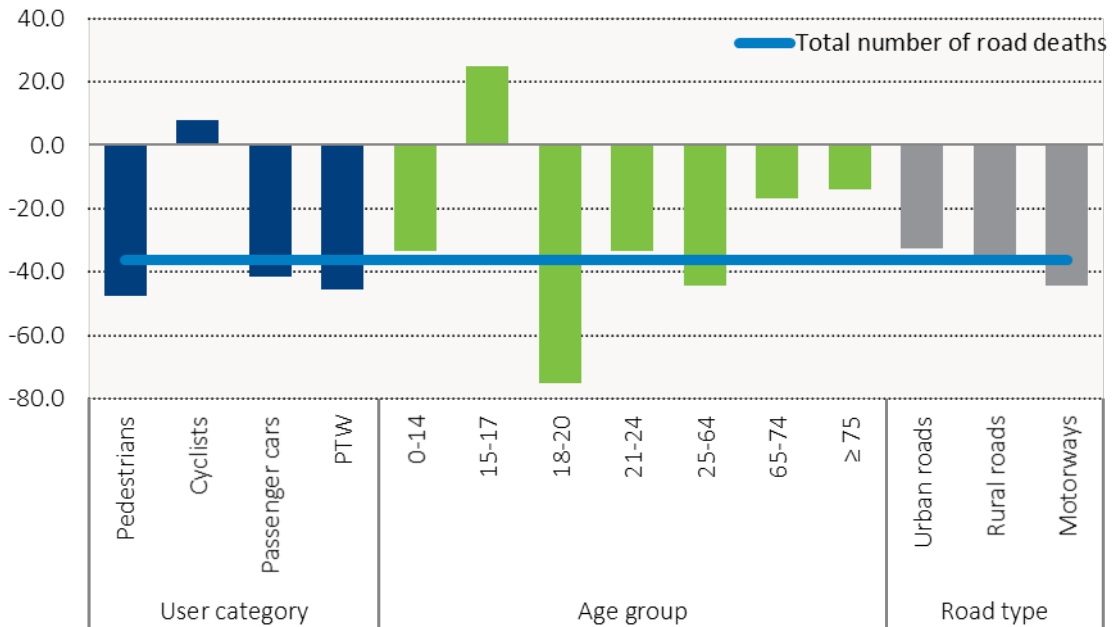


Figure 6. Road fatalities in Denmark by user category, 2020

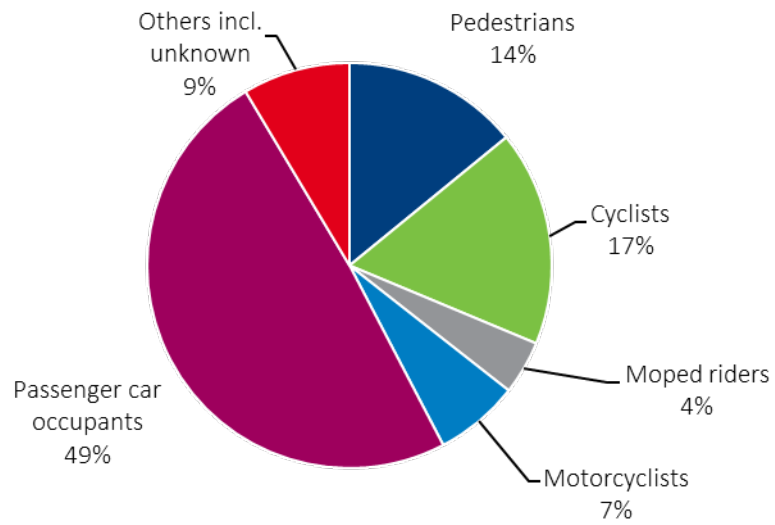


Figure 7. Road fatalities in Denmark by road type, 2020

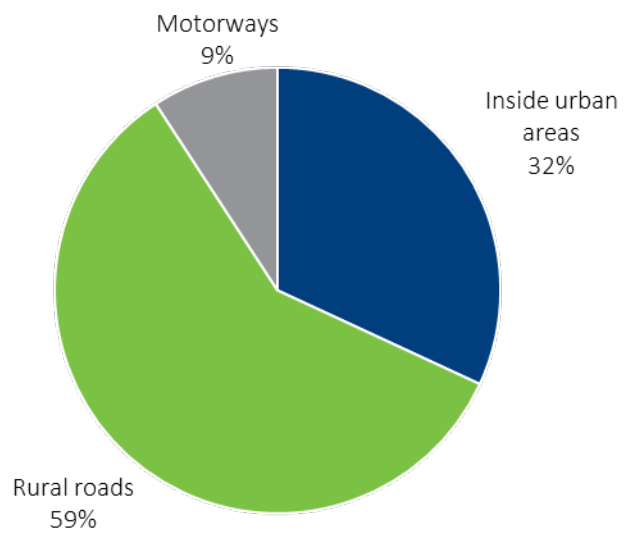
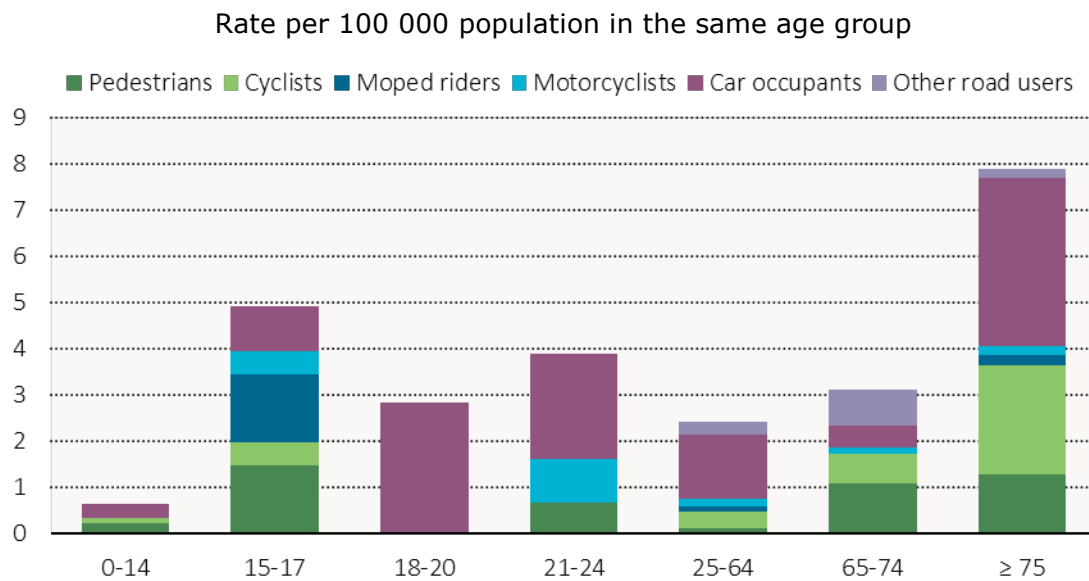


Figure 8. Road fatality rate in Denmark by user category and age group, 2020**Table 2. Cost of road crashes in Denmark, 2020**

	Total (EUR)
Fatalities	744 million
Seriously injured persons	1 226 million
Slight injuries	95 million
Property damage costs	1 388 million
Total	3.5 billion
Total as % of GDP	1.1

Table 3. Seat belt and helmet wearing rates

Percentages

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

Research and resources

Publications

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- Evaluation of Automatic Speed Control – Evaluering af Pilotprojekt med anvendelse af fastmonteret ATK (stærekasser): https://www.vejdirektoratet.dk/sites/default/files/2021-12/Evaluering%20af%20st%C3%A6rekasser_0.pdf.
- Design of Urban Roundabouts and Safety for Cyclists – Udformning af rundkørsler i byer og sikkerhed for cyklister: <https://vejregler.dk/h/7e0fba84-06dd-483b-898a-c7b3e3affaa1/eeecd9ed473241669ce64ab5f094a7b4?showExact=true>.
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- Traffic Safety and Lighted Advertising - Trafiksikkerhed og lysreklamer: https://www.vejdirektoratet.dk/api/drupal/sites/default/files/publications/trafiksikkerhed_og_lysreklamer.pdf.

Websites

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

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

Danish Road Safety Council: <https://www.sikkertrafik.dk/>.

Definition, methodology, data collection

Key definitions:

- Road fatality: a person who died immediately or within 30 days of a crash.
- Seriously injured persons: those included in the police report under bodily injury and any injury other than "minor injuries only".
- Slightly injured persons: persons 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 accidents 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 accident compared to police records. For example, there is little indication of the crash location and no information on vehicle occupancy.