International Transport Forum

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In 2019, 102 persons lost their lives in traffic crashes in Slovenia, a 12.1 % increase compared to 2018, when Slovenia reached its lowest road mortality level with 91 road deaths. With a mortality rate of 4.9 road deaths per 100 000 population, Slovenia performs better than the EU average. The National Road Safety Programme 2013-22 has set a target to halve the number of road deaths by 2022 compared to a baseline of 2011. Currently, the main measures to improve road safety focus on vulnerable road users.

Impact of Covid-19

In response to the Covid-19 pandemic, Slovenia introduced lockdown measures on 15 March 2020, which affected the movement of people and goods on the road and in turn, the exposure to road crashes.

Traffic volume decreased by 52%, while the number of road deaths decreased by 42%, in April 2020, compared with the average for 2017-19. Traffic data are based on traffic counters on state roads. By the end of November 2020, the number of fatalities decreased by 4%, while the traffic decreased by 15%.

Table 1. Road fatalities by month

	Average 2017-2019	2020	% change
January	6	3	-50
February	5	5	0
March	10	8	-20
April	12	7	-41.7
May	11	8	-27.3
June	7	14	100.0
July	11	4	-63.6
August	6	15	150.0
September	9	9	0.0
October	8	5	-37.5
November	6	3	-50.0
December	7	0	-100.0

Table 2. Road motor vehicle traffic by month

	% change between average 2017-19 and 2020
January	+5.1
February	+6.6
March	-32.7
April	-52.1
May	-20.4
June	-7.5
July	-2.6
August	-7.6
September	-3.8
October	-18.5
November	-35.8
December	-

Note: Data are from traffic counters on state roads.

Trends

Slovenia registered an overall **increase in the number of road deaths in 2019**. According to latest data, 102 persons lost their lives in traffic crashes in Slovenia in 2019. This represents a 12.1% increase on 2018. In 2018, 91 road deaths were reported, a 12.5% decline on the 104 lives lost in 2017. This was the lowest level of mortality on record.

The **longer-term trend for road deaths** in Slovenia has shown significant road safety improvements. Between 2000 and 2019, the number of annual road fatalities fell by 68%.

Country Profile

Population in 2019: 2.1 million

GDP per capita in 2019: 25 826 USD

Cost of road crashes: 2.6% of GDP (2019)

Road network: 20 078 kilometres (urban roads 31%; rural roads 65%; motorways 4%)

Registered motor vehicles in 2019: 1.4 million (cars 80%; goods vehicles 8%; motorised two-wheelers 9%)

Volume of traffic: +86% between 2000 and 2018

Speed limits: 50 km/h on urban roads; 90 km/h on rural roads; 110 km/h on expressways; 130 km/h on motorways

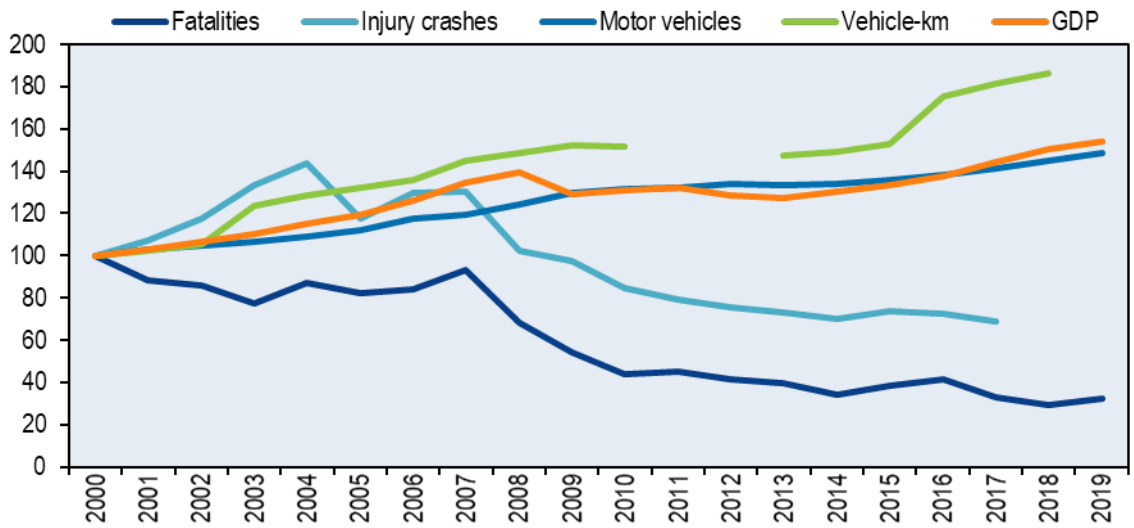
Limits on Blood Alcohol Content: 0.5 g/l for general drivers; 0.0 g/l for professional drivers and novice drivers

The number of **traffic deaths per 100 000 inhabitants** in Slovenia has decreased by 69% between 2000 and 2019. In 2019, 4.9 traffic deaths per 100 000 inhabitants were recorded, compared to 15.8 in 2000. By way of comparison, the average in the European Union is 5.1 deaths per 100 000 inhabitants in 2019.

Measured as **traffic deaths per billion vehicle-kilometres** (vkm) driven, the fatality risk of Slovenia showed similar strong improvements in the longer-term. In 2018, this metric stood at 4.2, 84% lower than in 2000.

Slovenia recorded 0.7 **road fatalities per 10 000 registered vehicles** in 2019. This represents a decrease of 78% compared to the year 2000, when the rate of deaths to registered vehicles stood at 3.2.

Figure 1. Road safety, vehicle stock, traffic and GDP trends
Index 2000 = 100



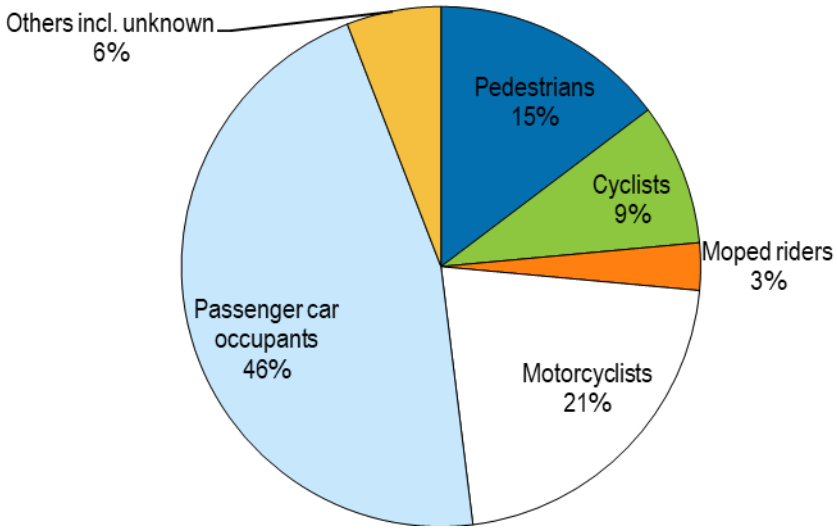
Note: Registered vehicles do not include mopeds.

The picture for **fatalities by road user groups** shows that passenger car occupants continue to be the group the most affected by road crashes. In 2019, passenger car occupants accounted for the largest share of road deaths with 46% of the total. They were followed by motorcyclists (22%), pedestrians (15%) and cyclists (9%).

In 2019, all road user groups registered a moderate increase compared to 2018, when the lowest number of road deaths was recorded.

The long-term trend shows that traffic in Slovenia has become safer for all road user groups, with the exception of motorcyclists. Moped riders, pedestrians and passenger car occupants saw fatality reductions of 70% or greater since 2000. Between 2000 and 2019, the number of motorcyclists killed in traffic rose from 19 to 22. During the same period, the number of registered motorcycles increased fivefold, from 11 130 to 56 000.

Figure 2. Road fatalities by road user group in percentage of total, 2019



Between 2000 and 2019, the number of **road deaths decreased for all age groups**. The largest reduction was recorded among young people under the age of 18 for whom road fatalities have almost been eliminated. In 2019, there were one child under 14 and two young people between 15 and 17 killed in traffic against 8 and 18 respectively in 2000. Road safety for young adults also improved significantly with a reduction in the number of road deaths of 78% (from 23 to five) for the 18-20 year olds and of 89% (from 28 to three) for the 21-24 year olds.

People over the age of 75 benefitted the least from road safety improvements over this period, with the number of road fatalities only falling by 36% (compared to an overall decrease of 69%). It is important to point out that the absolute number of elderly people has increased. In 2010, the share of people aged over 65 year in the total population was 16%, and it reached 21% in 2020.

Despite recent improvements, young people remain the age group most at risk in traffic, with a much higher than average mortality rate. In 2019, young adults aged 18-20 had a road mortality rate of 8.7 per 100 000 persons compared to a national average of 5.3. This is, however, an improvement from the 2018 rate of 12.4 per 100 000 persons.

Figure 3. Road fatality rates by age group, 2010-2019
Deaths per 100 000 population in a given age group

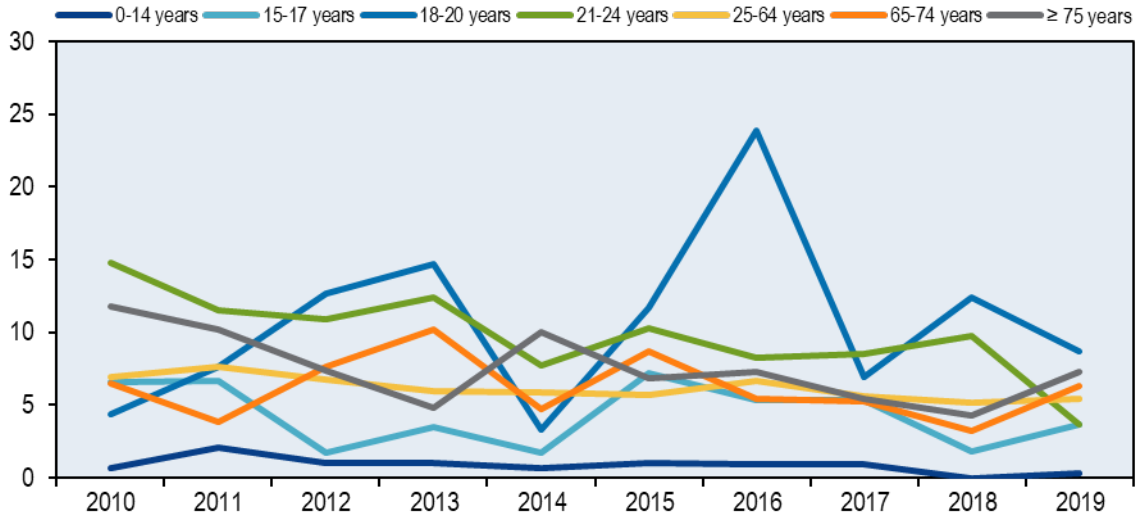
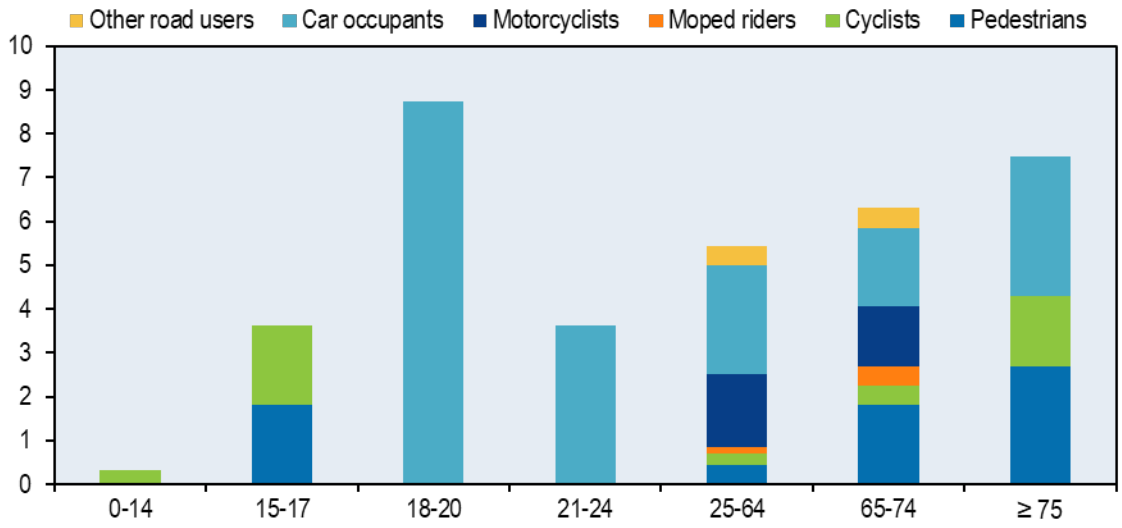


Figure 4. Road fatality rate by age and road user group, 2019
Fatalities per 100 000 population



Analysis of **fatalities by road type** shows that the rural network claims the most victims. In 2019, 60% of deaths occurred rural roads, 26% on urban roads and 14% on motorways. This repartition has remained relatively stable in recent years.

In 2019, in comparison to 2018, rural roads saw 11 additional deaths. Urban roads suffered one more road death whereas Slovenian motorways saw one fewer death than in the year prior.

Since 2000, fatalities on rural roads decreased by 67%, on urban areas by 73% and by 50% on motorways.

Figure 5. Road fatalities by road type

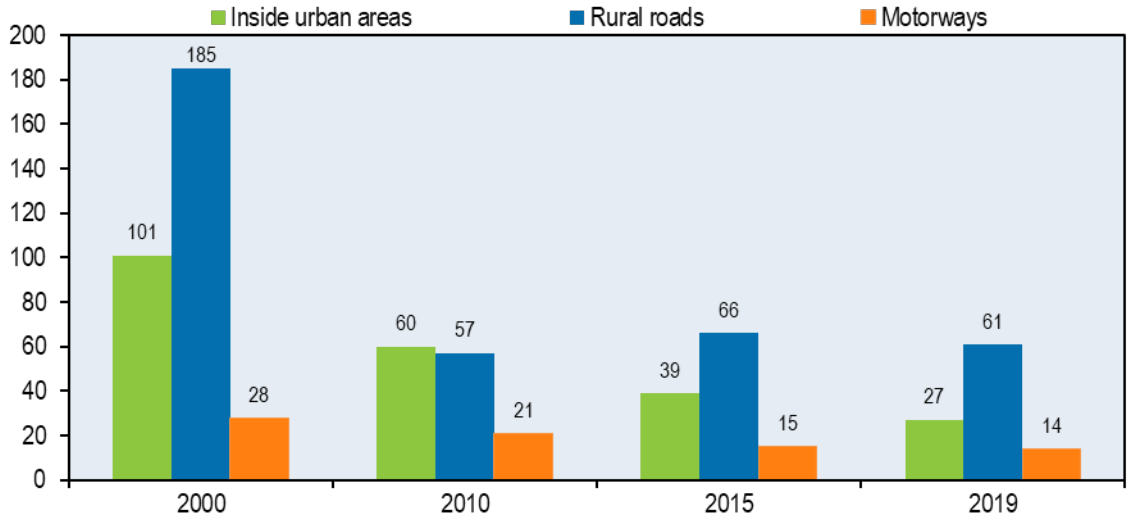
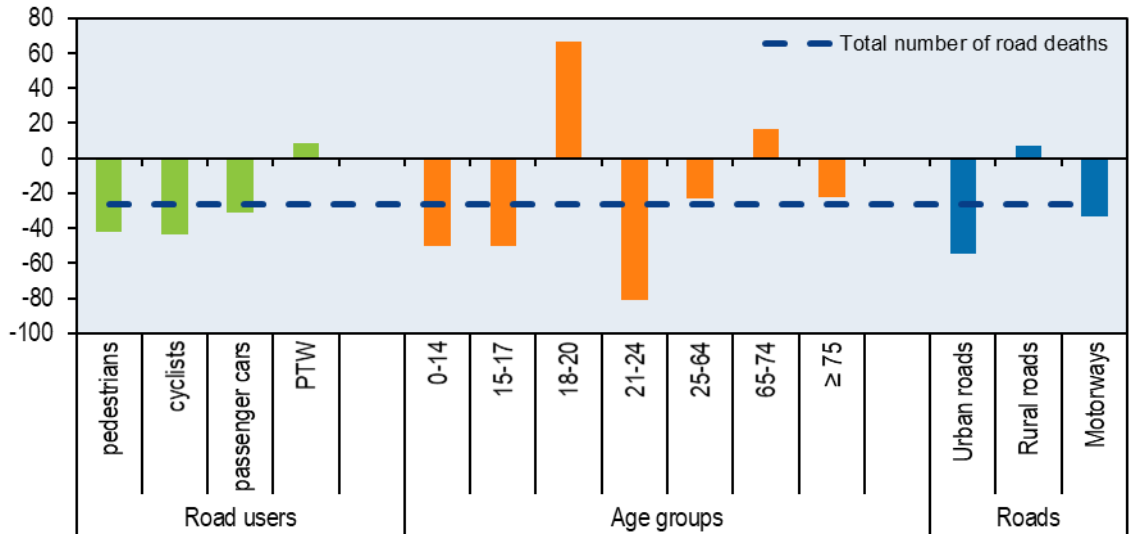


Figure 6. Evolution of road deaths by user category, age group and road type, 2010-2019



Fatality data are essential to understand road safety issues, yet remain insufficient. Information on **serious injuries from crashes** is also critically important. Yet injury data are much more difficult to obtain, validate and - where available - compare. In 2019, 814 persons were recorded to have been seriously injured in a road crash.

Economic costs of road crashes

Traffic crashes represent a significant cost for society, estimated in 2019 at around EUR 1.24 billion, or 2.6% of GDP. The figure is based on the number of reported crashes and an estimate of non-reported crashes, using the Harmonised European Approaches for

Transport Costing and Project Assessment (HEATCO) methodology, adapted to the specific conditions in Slovenia.

Table 3. Costs of road crashes, 2019

	Unit cost [EUR]	Total [EUR]
Fatalities	2 064 911	218.53 million
Severe injuries	239 857	257.87 million
Slight injuries	23 653	454.57 million
Property damage costs		310.79 million
Total[1]		**1.24 billion**
Total as % of GDP		**2.6%**

1. Includes estimates for non-reported crashes.

Behaviour

The behaviour of road users is an important determinant of a country's road safety performance. **Speeding**, in particular, is one of the main causes of road crashes. In 2019, 49 road fatalities (48% of total road fatalities) were caused by excessive speed. Speed is the key risk factor for the most vulnerable groups of participants (pedestrians, cyclists, the elderly and children), and it is a crucial factor in the severity of the consequences for drivers and passengers in vehicles.

Speeding is an important issue particularly in urban areas, where the average speed is well above the 50 km/h speed limit.

The table below summarises the main speed limits in Slovenia.

Table 4. Passenger car speed limits by road type, 2020

	General speed limit	Comments
Urban roads	50 km/h	Average day time speed: 55 km/h V85[1]: 67 km/h
Rural roads	90 km/h	Average time speed: 65 km/h V85[1]:80 km/h
Expressway	110 km/h	
Motorways	130 km/h	Average day time speed: 110 km/h V85[1]: 131 km/h

1. V85 is the 85th percentile speed, i.e. the speed that is not exceeded by 85% of the vehicles.

Driving under the influence of alcohol is another major cause of road crashes in Slovenia and is responsible for about one-third of fatal injury crashes. Recent data show that the problem is growing as the number of alcohol-related crashes increased by 4% in 2019 compared to 2018, with an increase of 50% in the number of alcohol-related road fatalities. Since 2000, the number of fatalities caused by drink driving decreased by 71%, but the share of fatalities remains the same at around one third (with minor fluctuations).

The maximum permissible blood alcohol content (BAC) is 0.5 g/l for most drivers and 0.0 g/l for professional drivers and drivers who have had their licence for less than three years. A crash is defined as an alcohol-related crash when one of the active participants has a BAC above the limit.

Data on the role of **drug use** by road users in road crashes is probably underreported. In 2019, official data attributed around 0.4% of traffic crashes to drivers under the influence of drugs. However, the police very rarely check if the driver is under the influence of drugs.

A crash is defined as drug-related when one of the participants tests positive for drugs (via a blood test). A police officer has the right to administer an on-the-spot drug test in case of suspicion. If the driver refuses this test, the police may demand a more comprehensive medical examination.

In 2016, the Slovenian Traffic Safety Agency started to address the problem of driving under the influence of drugs and conducted an online questionnaire about the use of drugs while driving. More than 3 000 respondents completed the questionnaire. The responses showed that 8% of drivers occasionally drive under the influence of drugs (most commonly cannabis, followed by cocaine and amphetamines).

An increasing problem for traffic safety in Slovenia is **distraction**, for instance by using mobile phones while driving. The use of hand-held mobile phones while driving is not permitted in Slovenia. The use of hands-free devices is tolerated. According to the findings from recent research, 75% of drivers use a mobile phone while driving. Among those, 30% use it for social networking, 30% for writing notes, 5% are on the internet, 3% on mobile applications, and 9% use it for listening to music and for navigation.

A neuro-scientific experiment was carried out to determine how the use of mobile phones while driving influences the functioning of the brain. It showed that during a telephone conversation the areas of the brain responsible for vision are less active. Texting while driving revealed an overload of the frontal cortex (influencing the effective focusing of the eyes), of the motor cortex (responsible for executive functions) and of the parietal cortex (which ensures co-ordination and orientation in the space).

The share of **sleepiness and fatigue** as a causal factor in crashes is especially challenging to detect. There is no data available on the influence of fatigue on crashes.

Seat belt wearing has been compulsory in Slovenia since 1977 in front seats and from 1988 for rear seats. Dedicated child restraints are compulsory for children under 150 cm. The seat belt wearing rate in 2018 was 94.8% for drivers and 95.6% for front seat occupants.

Table 5. Seat belt wearing rates
Percentages

	2010	2016	2018
Front seats			
Driver	92	90	94.8
Passenger	93	92	95.6
Rear seats			
General	69	69	78.1
Children 0-7 (use of child restraint)	..	93	94.3
Children 8-14	..	88	90.1

For motorcyclists, **helmet wearing** is the most effective passive safety habit. There is no data available on the helmet wearing rate for motorcycle and moped riders.

Bicycle helmets are compulsory for children up to 18 years of age. According to an observation of cyclists carried out in 2017, 15.6% of cyclists were wearing a helmet, but there were big differences among age groups. For children the wearing rate was 66%, for adults 15.6% and for young people 6.3%.

Road safety management and strategies

There are several **factors of influence on Slovenia's road safety performance** as captured by the above indicators. Fatalities peaked in 1979, when 735 people died on the road. Since, the number of road deaths has steadily decreased with a period of relative stagnation between 2002 and 2007. Fatalities declined noticeably from 2007 to 2010, most likely due to a new motorway toll system, regular media campaigns promoting road safety and the Road Safety Act that came into force in 2008. From 2010 to 2014, the number of road fatalities decreased by 22%, from 138 to 108. A negative trend emerged in 2015 and 2016, with an average 10% year-on-year increase in the number of road deaths. However, consecutive strong decreases in 2017 and 2018 have led to the lowest levels in the number of road deaths since systematic record keeping in Slovenia began.

Responsibility for the co-ordination of road safety in Slovenia lies with the Slovenian Traffic Safety Agency, created in 2010 as an independent agency financially linked to the Ministry of Infrastructure. The agency is the main national traffic safety organisation, bringing together expertise in the road safety field. The agency's mission covers research and analysis, preventative and educational programmes, support for development of programmes for national road safety, drivers, vehicles and driver rehabilitation. Since 2016, the agency has also been in charge of undertaking independent investigations of fatal crashes in co-operation with the police and road safety auditors. One of the focuses of these investigations is the condition of road infrastructure.

The government adopted **the Slovenian National Road Safety Programme 2013-22 in March 2013**. The programme is based on Vision Zero, aiming for no fatalities or seriously injured persons on Slovenian roads. The priorities addressed in the national road

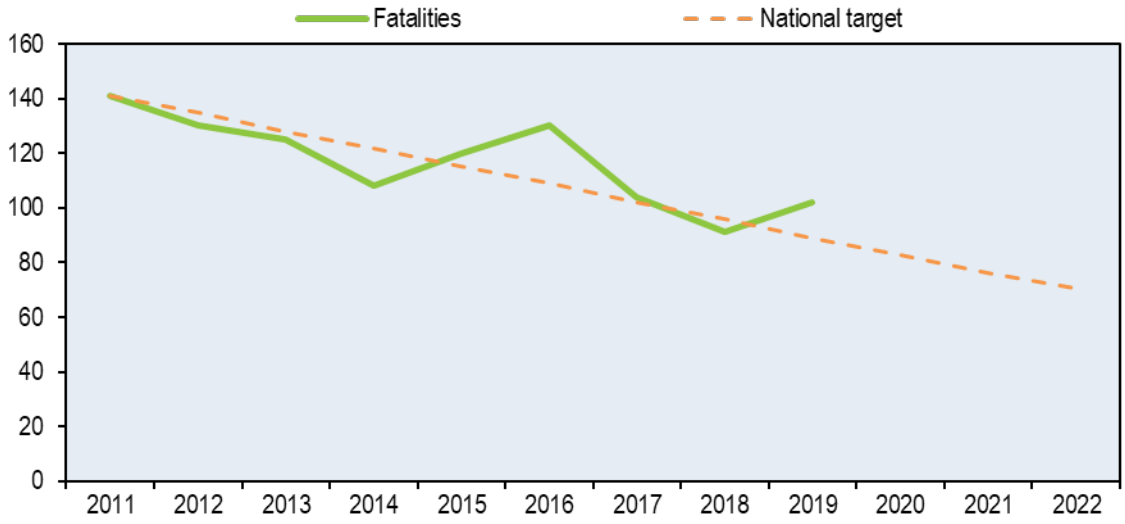
safety programme are: driver education and training; preventative action and media campaigns for vulnerable road users such as pedestrians, children, the elderly and cyclists; measures against the main killers on the roads (speed and alcohol).

Biennial action plans are described in the framework of the 2013-22 strategy.

The main **target** is to halve by 2022 (compared to 2011) the number of fatalities and those seriously injured and to reach a fatality rate below 3.5 fatalities per 100 000 inhabitants and fewer than 230 seriously injured per million inhabitants. Based on latest data, Slovenia is currently on track to reach its targets.

A board of directors regularly monitors the implementation of the National Road Safety Programme. It provides strategic guidelines towards the achievement of national road safety targets. In March 2020, it assessed the implementation of the national road safety programme for the year 2019. The main conclusions were to encourage road users to act more responsibly and to respect regulations and to raise awareness of the importance of road safety with particular emphasis on the quality of the infrastructure and the market penetration of safer vehicles.

Figure 7. Trends in road fatalities towards national target



Measures

Several measures to improve road safety management have been put into place recently.

In the field of legislation, various proposals for amendments to the legislation have been prepared (changes in the fields of speeding, drink driving, mobile phone use, e-scooter drivers etc.). New legislation is currently being prepared under the responsibility of the Ministry of Infrastructure.

Road safety management: The action plan for 2019 and 2020 was prepared by the interdepartmental working group and is being implemented. In-depth investigation of fatal

crashes started in 2016. The results of the investigations will help to identify and implement the measures most likely to bring positive results. In 2019, 18 fatal traffic crashes were investigated. In 2013, the government established a board of directors to monitor, lead and supervise the implementation of the National Road Safety Programme and report to the National assembly. The board of directors met once in 2019 to monitor the implementation of the National Road Safety Programme.

Road users: Road safety campaigns are regularly conducted focusing on the main road safety topics (speeding, drink driving, seat belt use, etc.). In 2019, two new campaigns were launched: *Safety in summer months* and *Proper driving on the motorways*.

Infrastructure safety: Slovenia is working in co-operation with Italy and Austria towards safe motorcycling through the Alps. The road network is regularly audited, with identification and treatment of high-risk sections. The rules related to road traffic signs and traffic equipment were updated in 2016 to harmonise with European Standards.

Definition, methodology, data collection

- Road fatality: any person killed immediately or dying within 30 days as a result of a road crash.
- Seriously injured person: any person who sustains injuries from a road traffic crash entailing temporary or permanent health damage or temporary or permanent reduced ability to work.
- Slightly injured person: any person injured excluding persons seriously injured.

In Slovenia, the police, who are the main source of information for road fatalities and injuries, collect crash data. The police confirm information on the severity of injuries with hospitals. However, there is not as yet any procedure in place for linking data.

With support from the Institute of Public Health, the Traffic Safety Agency has started work on estimating the number of persons injured with a Maximum Abbreviated Injury Scale of 3 or more (MAIS3+). This estimation will use the conversion tables provided by the European Commission to convert injury information based on the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10) into MAIS3+ data. Further work is still needed before Slovenia can publish official MAIS3+ data.

Resources

Recent research

A neuro-scientific experiment was carried out to determine how the **use of mobile phones while driving** influences the functioning of the brain. Brain functions were monitored through electroencephalography during driving in real traffic situations with various disturbances; SMS messages, social networks messages and calls. It showed that during

a telephone conversation the areas of the brain responsible for vision are less active. Texting while driving revealed an overload of the frontal cortex (influencing the effective focusing of the eyes), of the motor cortex (responsible for executive functions) and of the parietal cortex (which ensures coordination and orientation in the space).

The Traffic Safety Agency conducted an **observational study on cyclists in traffic**. It developed a methodology to observe the basic behaviour of cyclists in real traffic. The study showed that about 15% of cyclists were using a helmet (adults 16%, children 68% and young people only 6 %). Almost 75% of cyclists did not correctly comply with traffic regulations, about 25 % commit serious violations. The most common violations included wrong-side cycling, cycling through red lights, cycling on pavements, use of mobile phone, listening to music, drunk cycling, etc.

Websites

Slovenian Traffic Safety Agency: *https://www.avp-rs.si/*

Slovenian Infrastructure Agency: *http://www.di.gov.si/en/*

Slovenian Traffic Statistics: *https://www.policija.si/eng/index.php/statistics*

Road safety and traffic data

							2019 % change over			
	1990	2000	2010	2017	2018	2019	*2018*	*2010*	*2000*	*1990*
Reported safety data										
Fatalities	517	314	138	104	91	102	12.1%	-26.1%	-67.5%	-80.3%
Injury crashes		8 951	7 596	6 185	6 014	6 025	0.2%	-20.7%	-32.7%	..
Deaths per 100,000 population	25.9	15.8	6.7	5.0	4.4	4.9	11.3%	-27.3%	-69.0%	-81.1%
Deaths per 10,000 registered vehicles	6.9	3.2	1.1	0.8	0.6	0.7	9.3%	-34.3%	-78.1%	-89.8%
Deaths per billion vehicle kilometres	65.1	26.7	7.7	4.9	4.2	..	..	..	..	..
Fatalities by road user										
Pedestrians	..	60	26	10	13	15	15.4%	-42.3%	-75.0%	..
Cyclists	..	26	16	11	8	9	12.5%	-43.8%	-65.4%	..
Moped riders	..	21	6	4	2	3	50.0%	-50.0%	-85.7%	..
Motorcyclists	..	19	17	25	16	22	37.5%	29.4%	15.8%	..
Passenger car occupants	..	179	68	48	44	47	6.8%	-30.9%	-73.7%	..
Other road users	..	9	5	6	8	6	-25.0%	20.0%	-33.3%	..
Fatalities by age group										
0-14 years	..	8	2	3	0	1	..	-50.0%	-87.5%	..
15-17 years	..	18	4	3	1	2	100.0%	-50.0%	-88.9%	..
18-20 years	..	23	3	4	7	5	-28.6%	66.7%	-78.3%	..
21-24 years	..	28	16	7	8	3	-62.5%	-81.3%	-89.3%	..
25-64 years	..	181	82	66	60	63	5.0%	-23.2%	-65.2%	..
65-74 years	..	34	13	11	7	14	100.0%	7.7%	-58.8%	..
≥ 75 years	..	22	18	10	8	14	75.0%	-22.2%	-36.4%	..
Fatalities by road type										
Urban roads	..	101	60	41	25	27	8.0%	-55.0%	-73.3%	..
Rural roads	..	185	57	44	50	61	22.0%	7.0%	-67.0%	..
Motorw ays	..	28	21	19	15	14	-6.7%	-33.3%	-50.0%	..
Traffic data										
Registered vehicles (thousands)	749	979	1 290	1 382	1 416	1 452	2.5%	12.6%	48.4%	93.9%
Vehicle kilometres (millions)	7 945	11 759	17 826	21 346	21 886	..	..	..	..	..
Registered vehicles per 1,000 population	375.2	492.5	630.4	669.0	685.3	698.0	1.8%	10.7%	41.7%	86.0%

Note: Registered vehicles do not include mopeds.