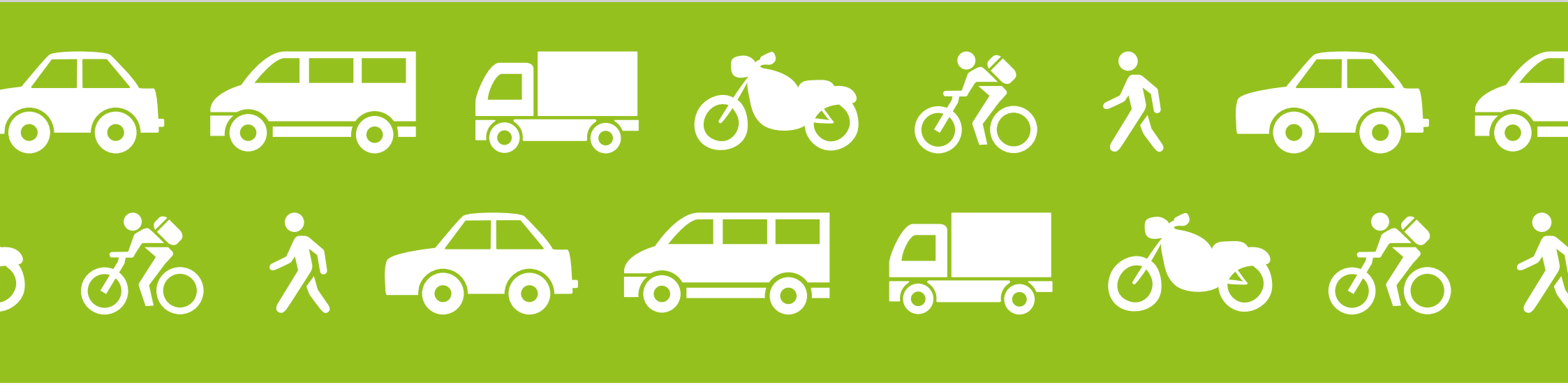
BELGIAN KEY INDICATORS

ROAD SAFETY 2015



BRSI

FOREWORD

Every day, on average, two people lose their lives in accidents on Belgian roads. To this figure may be added 10 people severely injured and more than 100 slightly injured. Every day, nearly 1,000 accidents with material damage also happen.

Even though determining the causes of a particular accident is not always easy, it appears that a multitude of factors have an impact on road safety and consequently, the total number of road traffic accidents. These factors include mobility habits, driving ability, behaviour of road users, and even the state of vehicles and infrastructures.

Given the multitude of factors which influence road safety, it is not always easy to gain a full insight into the situation. This brochure seeks to take a step in that direction by compiling a range of information, not only on road traffic accidents, but also a series of connected factors affecting the accident risk. Most figures have already been published elsewhere, in various reports from the BRSI and other organisations. The added value of this brochure is that it groups them in a single document to be used as a convenient vade mecum by people interested in road safety.

The brochure's style is voluntarily brief. We have selected a few major themes in the field of road safety. For each theme, only a few key indicators and minimum comments are included. At the end of the brochure, interested readers will find the sources used and references to further reading on certain themes.

The themes are covered in the following order:

Theme 1: Accidents and victims

Theme 2: Mobility and risk exposure

Theme 3: Driving ability

Theme 4: Road user's behaviour

Theme 5: Infrastructure

Theme 6: Enforcement

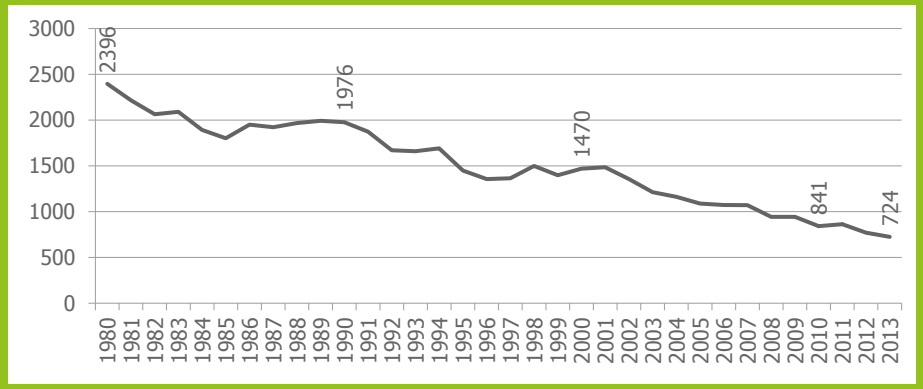
The BRSI hopes you enjoy reading this brochure!

CONTENTS

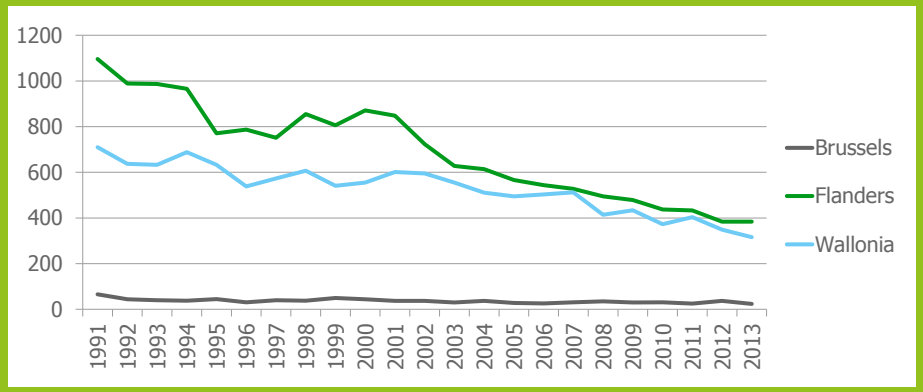
1 Road fatalities

In Belgium, a “road fatality” refers to anyone who is killed at the scene of an accident or who succumbs to its injuries within 30 days of the accident. Those killed at the scene are recorded by the police, which is responsible for completing a road traffic accident analysis form and a report for any accident leading to bodily injury. Anyone who dies in the next 30 days is recorded by the courts. All of the information is centralised by the federal public service Statistics Belgium, which calculates the total number of road traffic accident fatalities (or “deaths within 30 days”). The definition of “death within 30 days” is now a European standard, used to compare accident rates in different countries. Despite the constant increase in traffic on Belgian roads, the number of fatalities has been declining since the ‘70s.

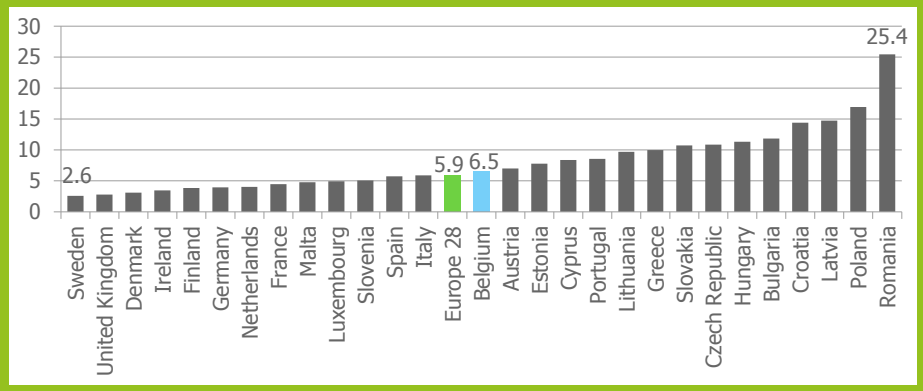
1.1 Change in the number of deaths within 30 days



1.2 Change in the number of deaths within 30 days by region



1.3 Deaths within 30 days by billion traveller-kilometres in europe in 2012

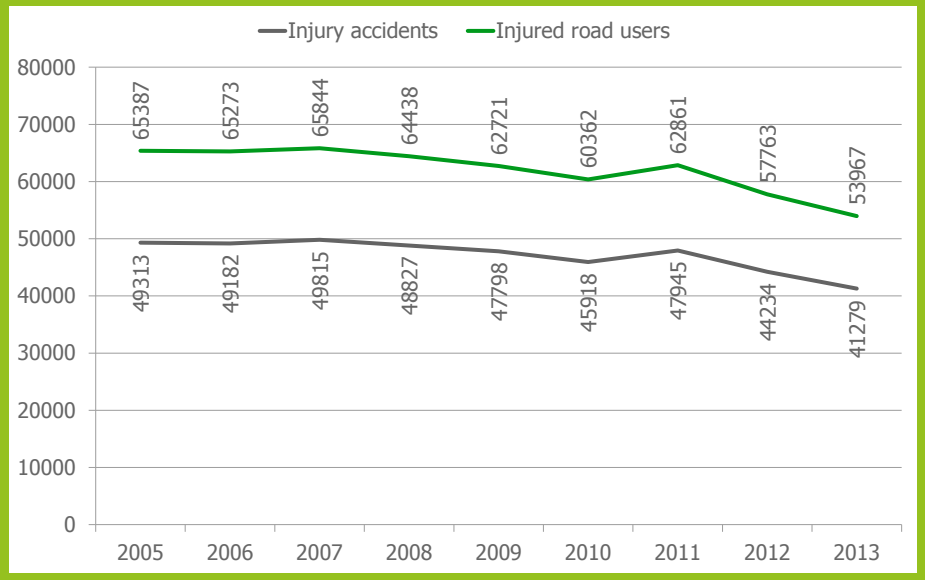


2 Road injuries

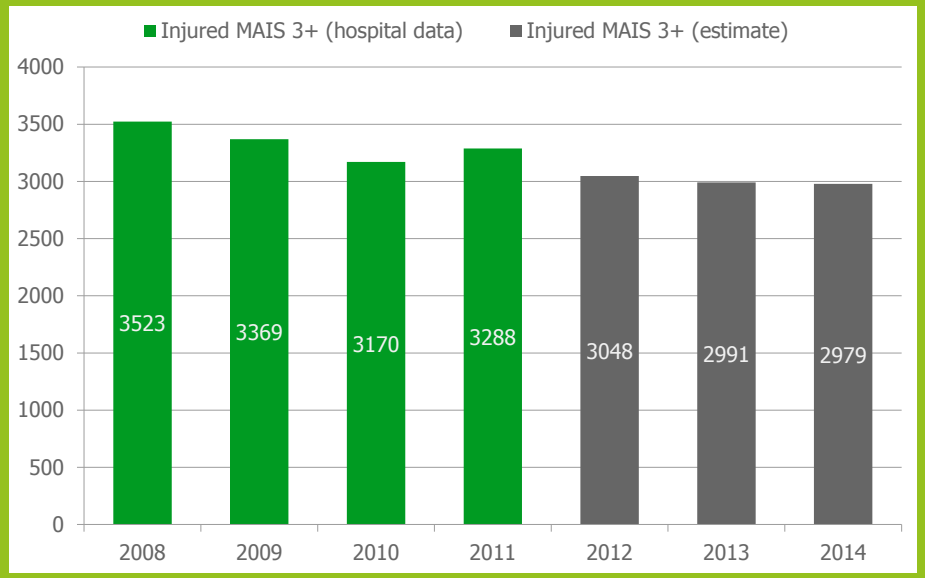
An effective road safety policy must also ensure that the number of people injured on the road decreases. However, we do not know exactly this number. In fact, injuries are under-reported, mainly because the police are not always called to the scene of injury accidents as they should normally be. Official statistics significantly underestimate the number of vulnerable road users injured (pedestrians, cyclists, moped and motorcycle drivers) compared with the number of people injured among car drivers and passengers.

The BRSI no longer uses the old concept of seriously injured person, defined as a road traffic accident victim staying in hospital for at least 24 hours, as it is unreliable. It is indeed difficult for the police, who are not medically trained, to estimate at the scene of an accident the seriousness of injuries and how long victims are likely to be in hospital. The BRSI now identifies people severely injured based on the AIS medical scale. Any victim whose most serious injury is associated with a score of 3 or more (MAIS3+) is considered severely injured. These are often injuries with long-term effects, of which many victims never fully recover.

2.1 Change in the number of injury accidents and in the number of injured road users



2.2 Change in the number of mais3+ injured

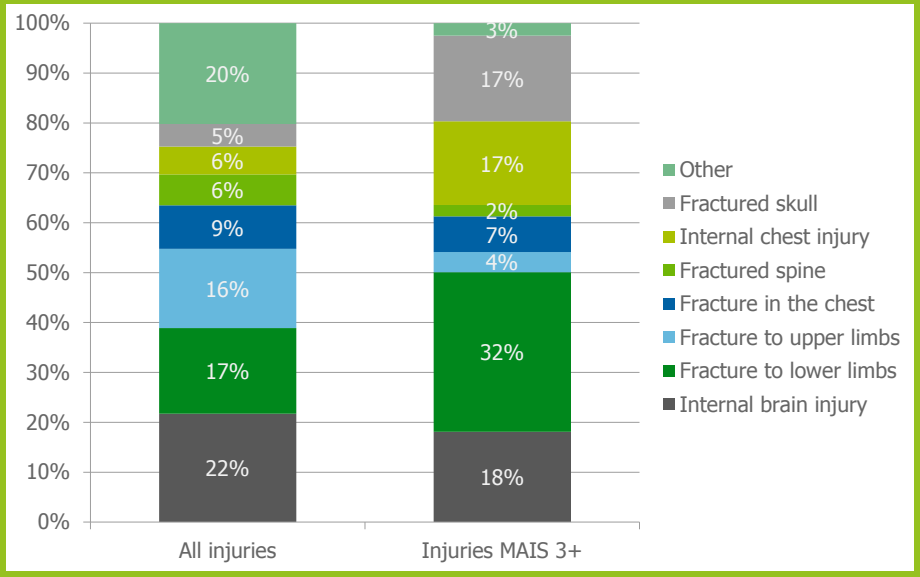


3 Types of injury

Of all injuries recorded among hospitalised road victims, more than 50% are fractures to the upper or lower limbs, or internal brain injuries. The 7 most common types of injury are also in the top 10 types of injury in each category of road user and each age group. Fractures to the skull are the injuries which proportionally most often have serious consequences: 86% of skull fractures are of MAIS3+ seriousness.

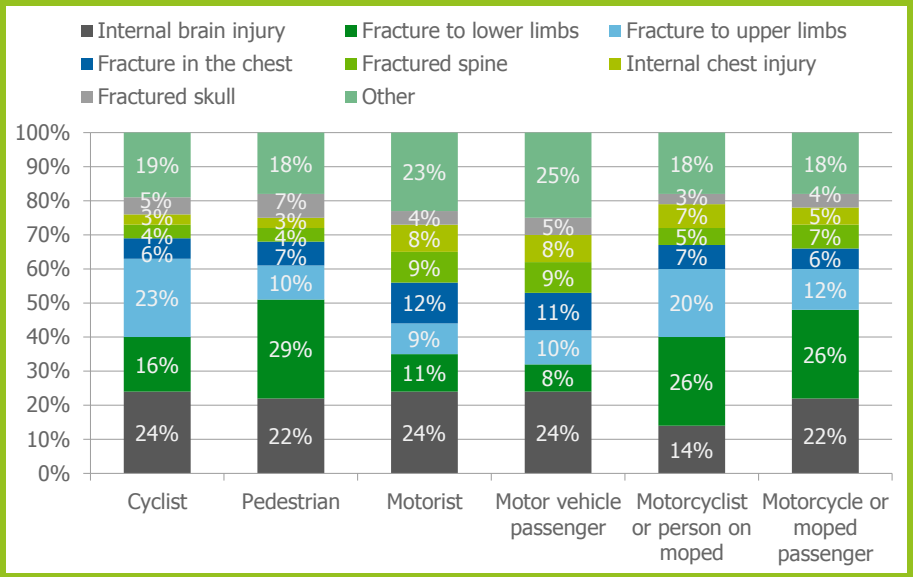
3.1

Types of injury amongst hospitalised road victims (2004-2011)



3.2

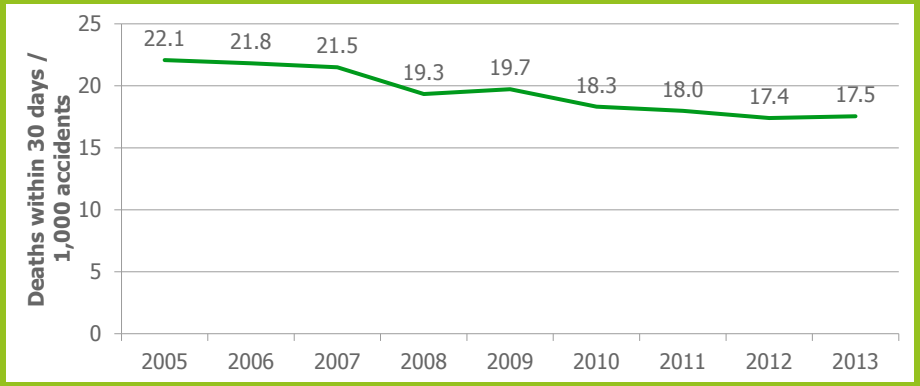
Types of injury amongst hospitalised road victims, by type of user (2004-2011)



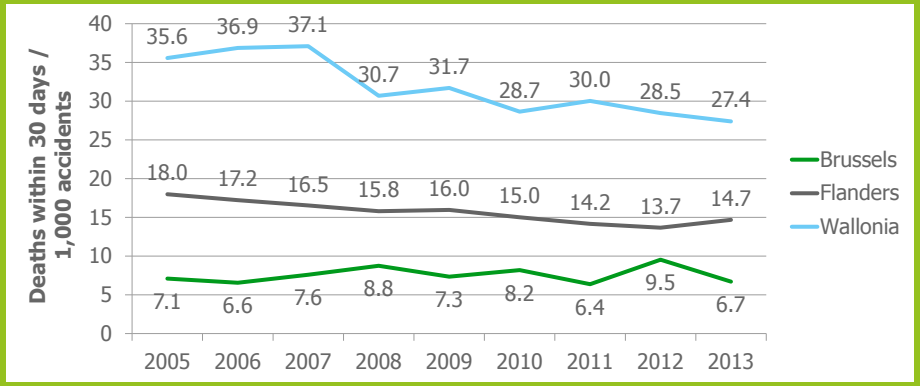
4 Severity of accidents

Accident severity is defined as the number of deaths within 30 days for every 1,000 recorded injury accidents. Like the number of fatalities, this indicator has also tended to decline since the '70s. There are significant geographical disparities: accidents are about twice as severe in Wallonia as in Flanders. The severity is even lower in the Brussels region. Accidents only involving a single road user are more severe than other types of accident, probably because speed plays a major role in this type of accident. Vehicle type is also important: the larger a vehicle, the more damage it will cause to the other party in a collision.

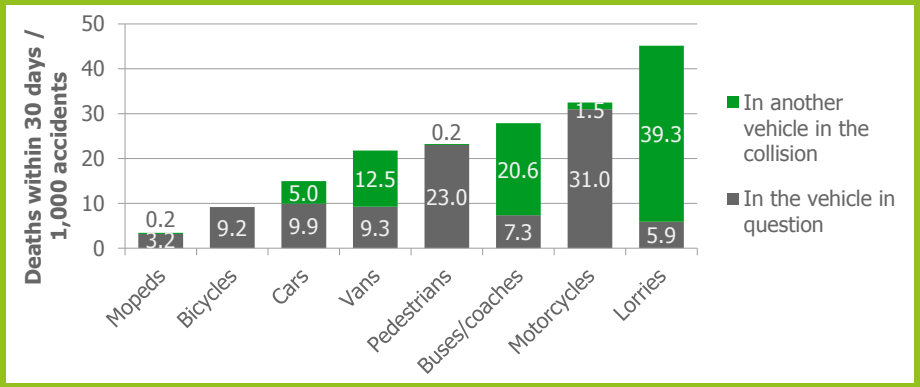
4.1 Change in accident severity in belgium



4.2 Change in accident severity by region



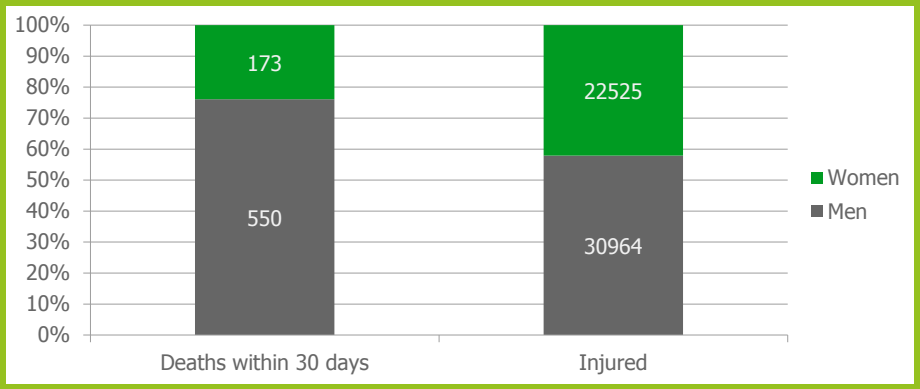
4.3 Accident severity by type of user involved (2013)



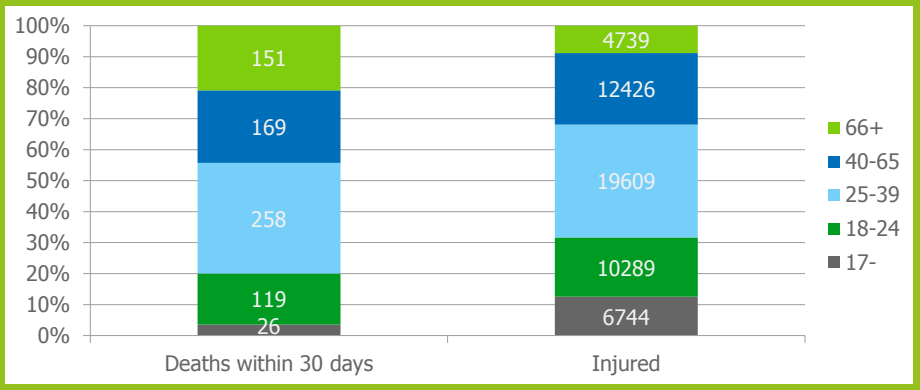
5 Age and gender of victims

Men and women, as well as young and elderly people, do not behave the same way in traffic. Some people spend more time on the roads as others and some adopt more dangerous behaviours. These two factors, exposure to risk and the risk of an accident as such, explain the disparities observed amongst different age groups and genders in accident statistics. Most road casualties are men. Young people aged between 15 and 30 are much more at risk of being injured or killed than other age groups, which explains the high number of victims in this age range. However, the difference in risk between young people and other age groups has decreased in the last ten years.

5.1 Change in the number of vehicle kilometres in belgium



5.2 Distribution of vehicle kilometres across different types of vehicle (2012)



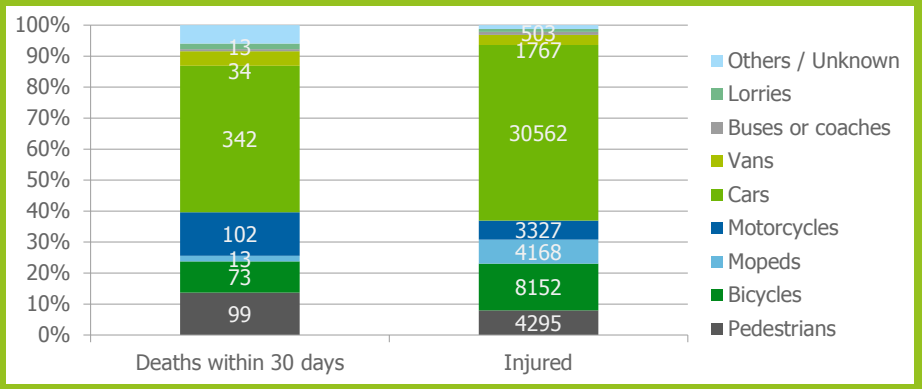
5.3 International comparison between numbers of car passenger kilometres by inhabitant (2012)

6 Mode of transport of victims

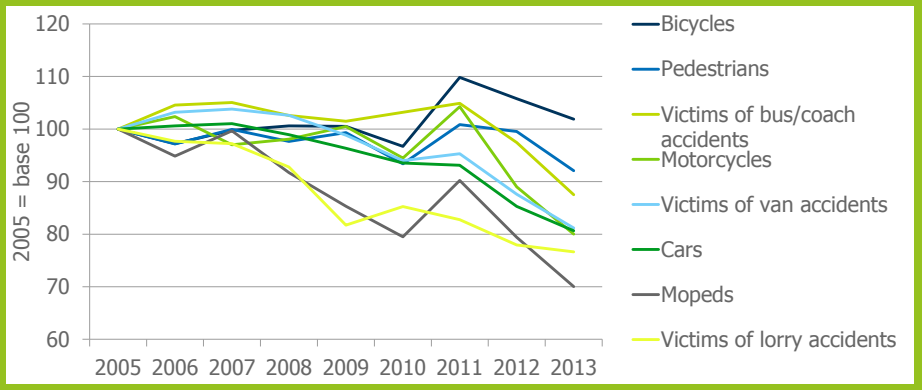
The mode of transport influences the likelihood of being the victim of a road accident. Car drivers are the most frequent casualties in absolute number but this is because cars predominate on our roads. In graph 6.2, values are arbitrarily standardised at 100 for 2005. The values for other years therefore represent the percentage of change from 2005. Given that in bus/coach, van or HGV accidents, it is more frequently the other party which is injured or killed, it is the change in total numbers of casualties recorded in these accidents which is represented in the graph.

Analysis in terms of relative risk gives another information. The risk of being killed or seriously injured of a user category is calculated by dividing the number of users killed or severely injured (MAIS3+) in the category considered by its share of kilometres covered on our roads. The result is then standardised to compare it with the average car driver's risk, set arbitrarily at 1. For example, this means that the risk of a pedestrian aged 6 to 14 being the victim of a road accident is 10.5 times greater than the risk of the average car driver travelling the same distance.

6.1 Distribution of casualties by mode of transport (2013)



6.2 Change in number of casualties by mode of transport



6.3 Relative risk of being killed or severely injured (mais3+) by mode of transport and age

Age	Road user type						All users
	Pedestrian	Cyclist	Moped - Motorcycle	Car driver	Car passenger	Passenger bus & tram	
6-14	10.5	18.9			0.3	0.03	1.6
15-17	7.7	10.5			1.4	-	4.1
18-24	4.9	8	72.6	4.3	2.5	-	4.6
25-44	4.7	12.5	55.8	0.8	0.9	0.3	1.7
45-64	6.2	21.6	41.5	0.7	0.5	1.3	2.1
64-74	12	92.6		1.1	1.3	1	4.4
75+	27.5	122.9		3.4	3.1	7.1	10.9
All age groups	8.1	23	57	1	1	0.6	2.5

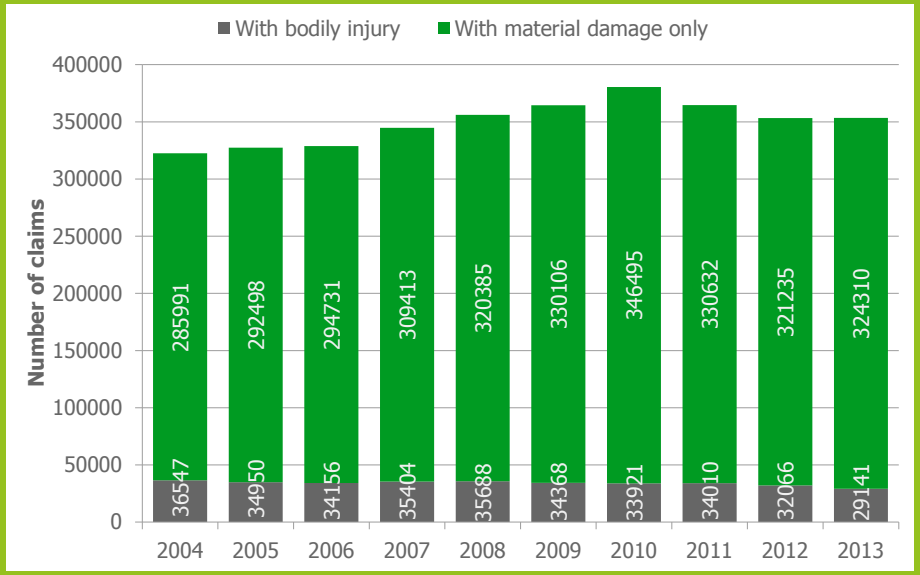
7 Material accidents

Fortunately, most accidents which occur on Belgian roads do not cause bodily injury. The number of accidents resulting only in material damage cannot be estimated based on the police reports, as it is not always called to the scene of material accidents. Insurance data does enable this. By comparing the number of people with civil liability insurance for “tourism and business”, known to be at fault or partially at fault in a claim with the total number of vehicles insured this way, we can define claim frequency. So, claim frequency is the percentage of vehicles (insured) which caused an accident during the year. By multiplying this frequency by the total number of cars in circulation, we obtain an estimate of the total number of accidents caused by vehicles covered by “tourism and business” civil liability insurance. Material accidents account for just over 90% of reported claims.

To determine the total number of material accidents, one would have to add accidents concerning vehicles insured in other ways (for example, motorcycles and utility vehicles), vehicles insured abroad, and uninsured vehicles (for example, bicycles), but this data is not easily available, if at all. Accidents involving a single vehicle which does not have fully comprehensive insurance or in which the people concerned reach an amicable agreement without going through their insurance company are not covered in insurance statistics either.

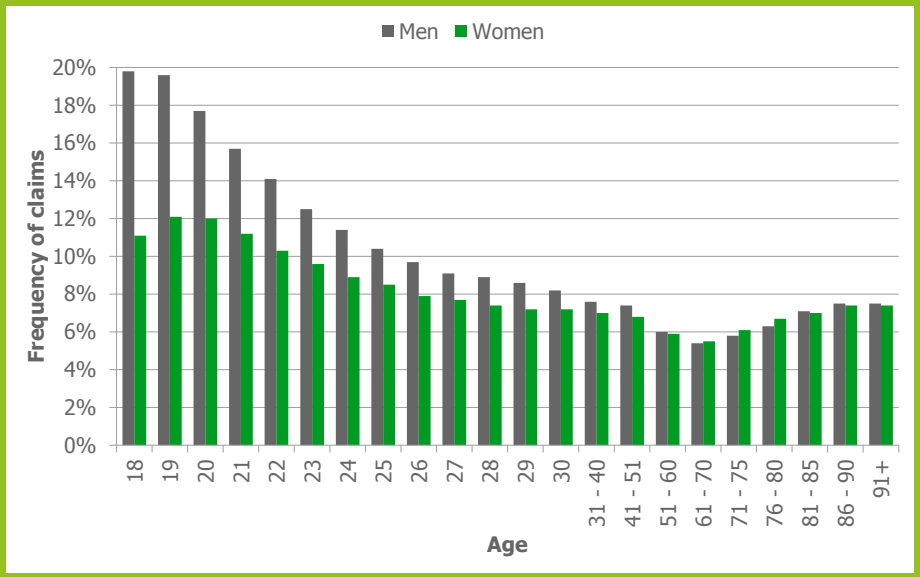
7.1

Change in the number of claims concerning vehicles covered by civil liability insurance for tourism and business



7.2

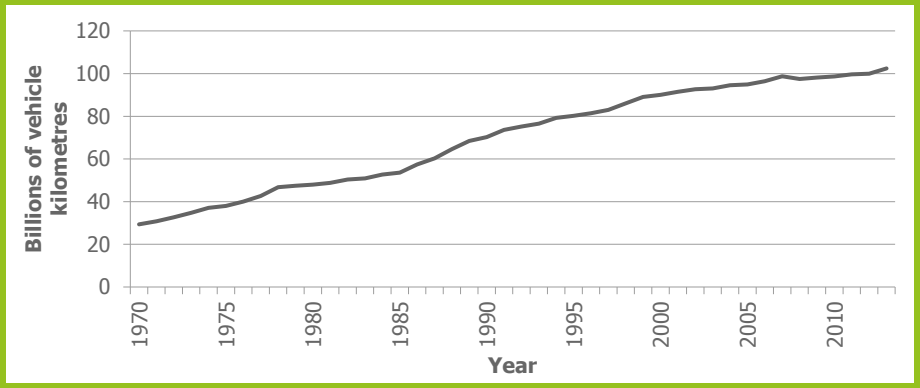
Frequency of claims concerning vehicles covered by civil liability insurance by age and gender (2013)



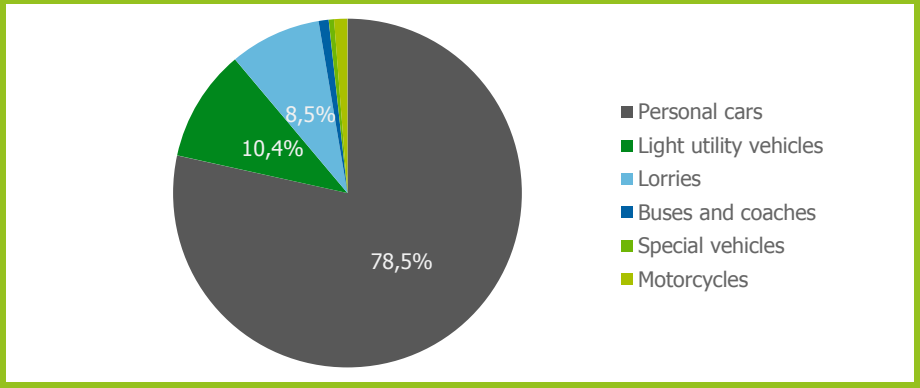
8 Volume of motor vehicle traffic

The traffic volume directly influences the number of accidents which happen in a country. It is therefore important to consider this factor when estimating accident risk. The number of vehicle kilometres is the total distance covered by motor vehicles. This indicator is frequently used to relativize road traffic accident statistics and compare the risks between several different geographical entities. Passenger kilometres are a similar indicator, obtained by multiplying vehicle kilometres by the number of vehicle occupants. It is a measurement of exposure to the risk of becoming a road accident victim.

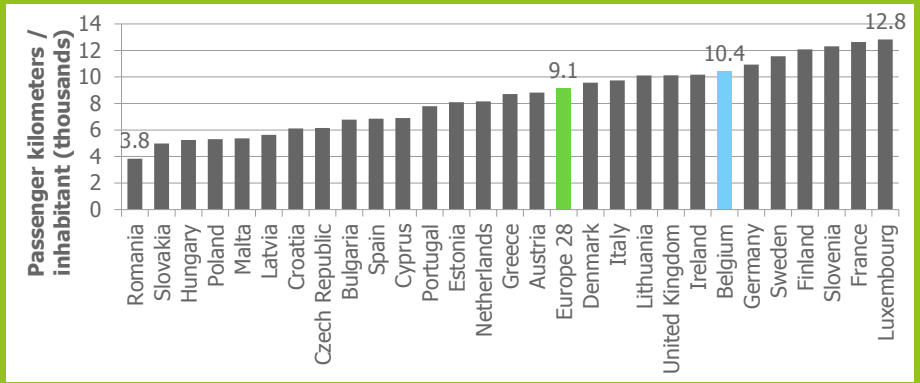
8.1 Change in the number of vehicle kilometres in belgium



8.2 Distribution of vehicle kilometres across different types of vehicle (2012)



8.3 International comparison between numbers of car passenger kilometres per inhabitant (2012)

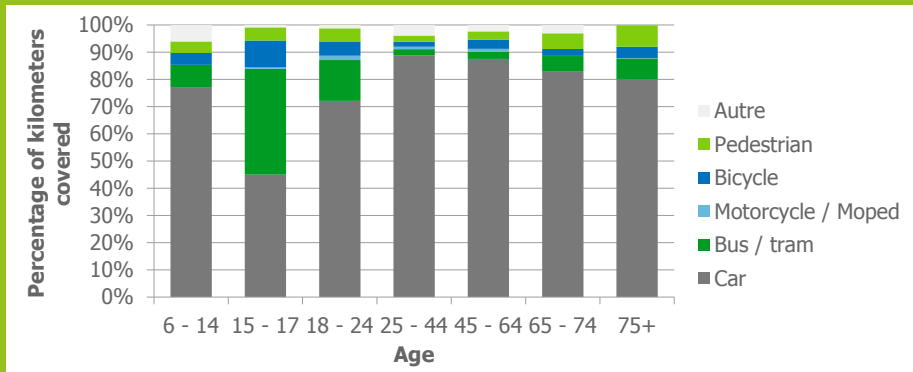


9 Volume of non-motor vehicle traffic

The volume of non-motor vehicle traffic (cyclists, pedestrians) is not exactly known. Non-motor vehicles are neither registered nor insured, which makes it very difficult to regularly track their volume in traffic. Estimates of the volume of pedestrian traffic are made on a one-off basis, based on observations and mobility surveys, such as, for example, the Beldam survey, whose results are shown on this page. They show that the share of pedestrians and cyclists is modest, as these means of transport are mainly used for short journeys. It should be noted that Beldam is a survey focussing on Belgian households. Travel in Belgium by people not living in the country is therefore not taken into account.

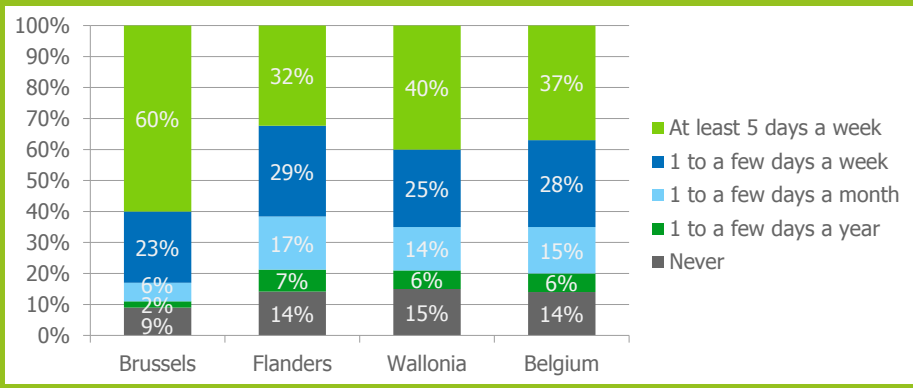
9.1

Share represented by the different means of transport (railway not included) by age



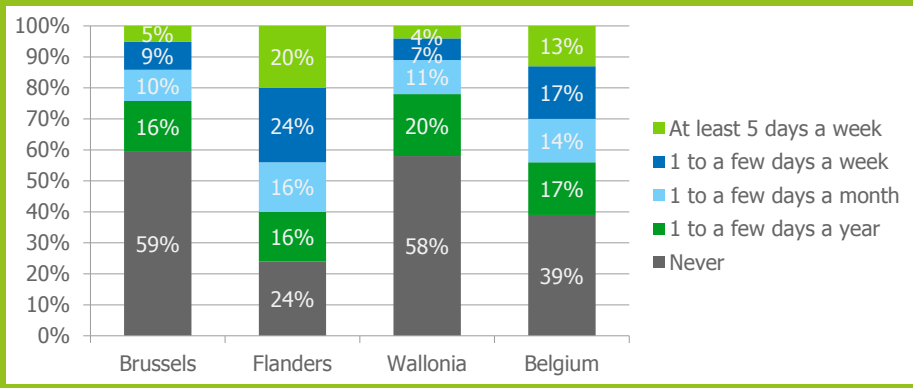
9.2

Declared walking practice



9.3

Declared bicycle use

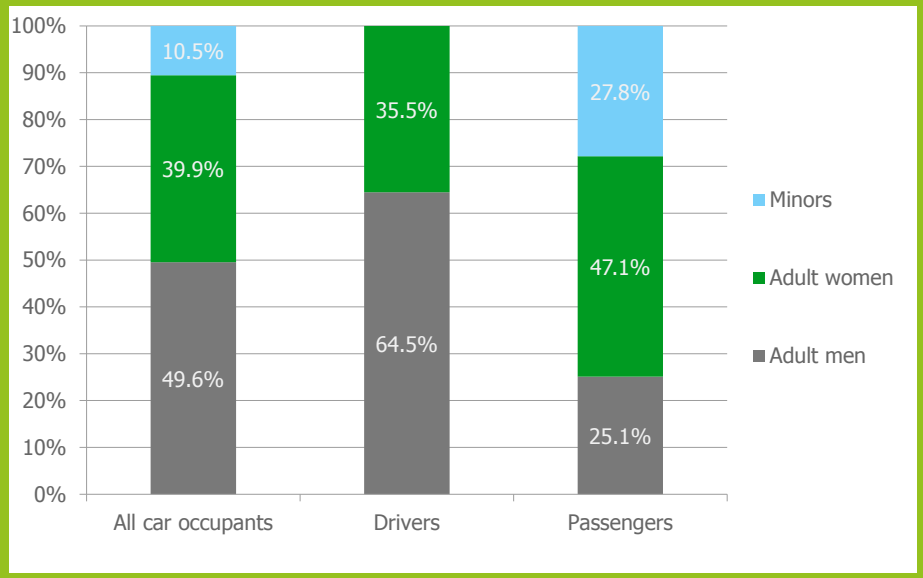


10 Age and gender of car drivers

The age and gender of car drivers travelling on Belgian roads do not match with the population in general. In particular, we observe under-representation of women amongst car occupants, especially amongst drivers. The proportion of different age groups in traffic varies considerably depending the time of the week, the share of young drivers being higher at night (10 p.m. To 6 a.m.) Than during the day. These variations must be considered when interpreting variations in terms of the number of accidents by gender and age.

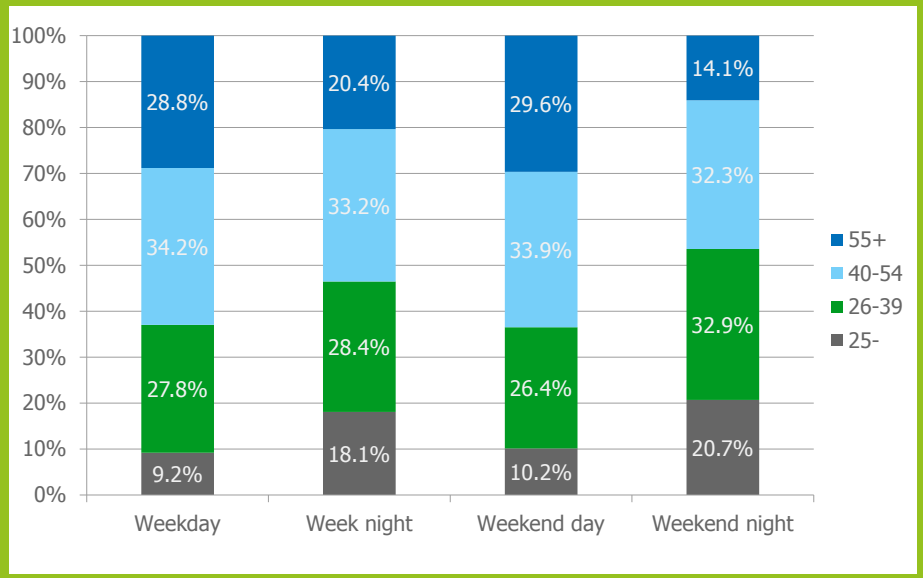
10.1

Proportion of men, women and minors amongst car occupants (2012)



10.2

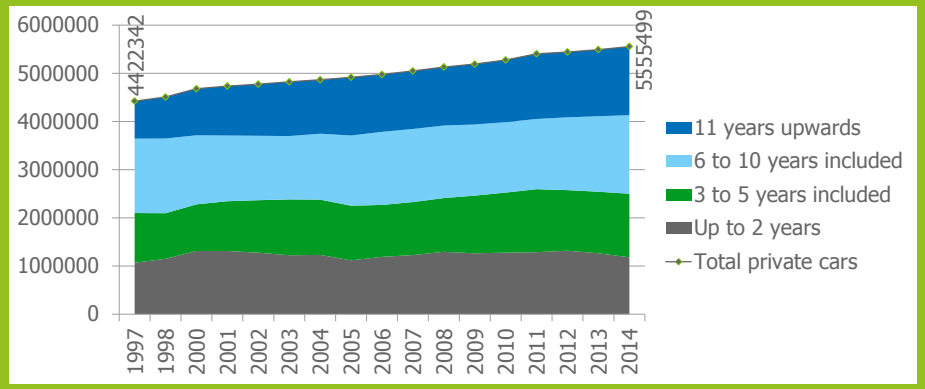
DISTRIBUTION OF CAR DRIVERS BY AGE GROUP AND TIME OF THE WEEK (2012)



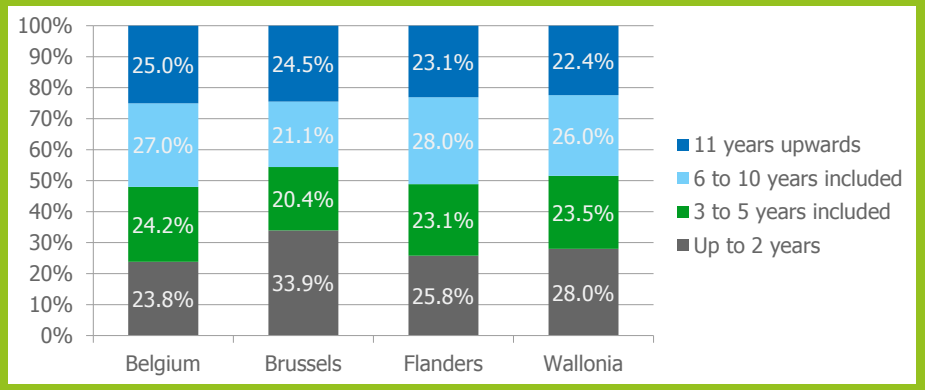
11 Vehicle fleet

The number and safety level of vehicles travelling on the roads of course influence road safety. Younger cars most often contain active or passive safety technologies likely to prevent accidents or reduce their severity, such as, for example, seatbelt reminders, side airbags and electronic stability control. The number of personal cars is increasing in Belgium (statistics up to 2004: as at 1st January ; after 2004: as at 1st August). Even though the share of young vehicles has slightly decreased since 2012, Belgium is one of the European countries with the youngest vehicles.

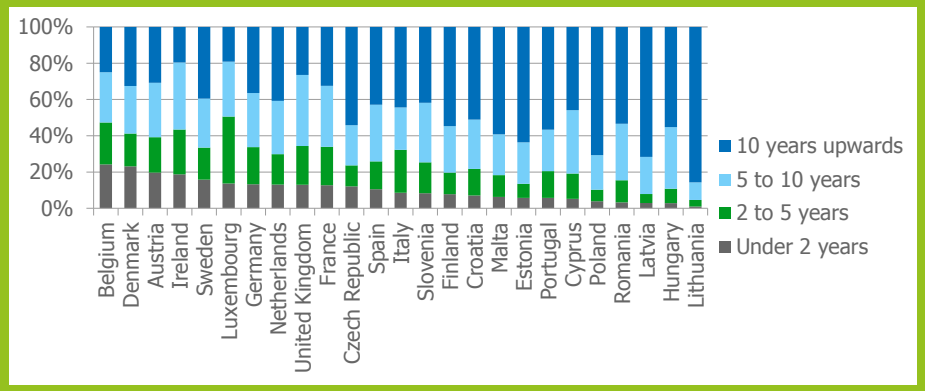
11.1 Change in the number and distribution of personal cars by age



11.2 Distribution by age of personal cars by region (2011)



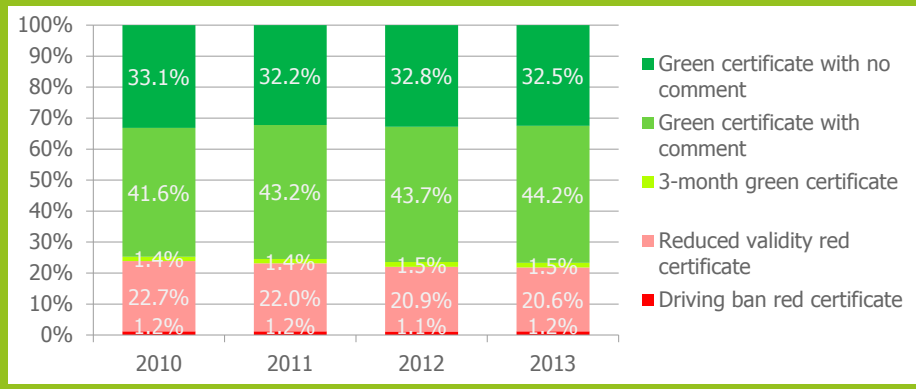
11.3 International comparison of the distribution of private cars by age (2012)



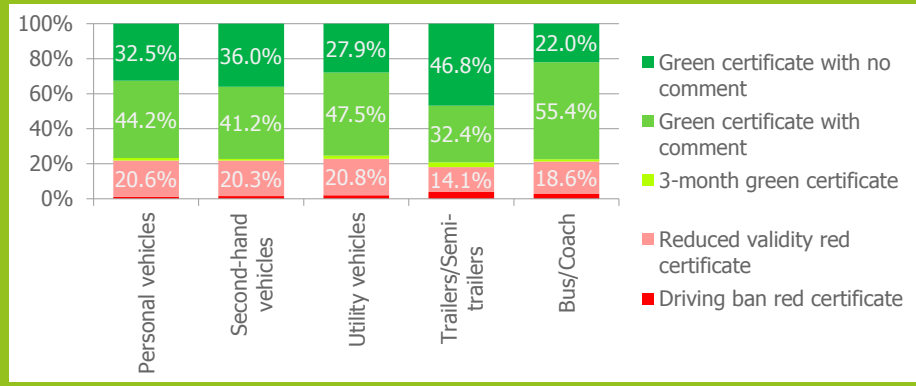
12 Vehicle inspection

The quality and safety of personal cars, utility vehicles and buses operating on public roads are checked regularly during a vehicle inspection. Every year, more than 4,500,000 vehicles undergo these assessments through companies which are members of the GOCA (the federation of companies approved to assess vehicles and driving licences). A vehicle will receive a green inspection certificate when it does not have any technical defect which could endanger the driver or other road users. Otherwise, a red inspection certificate will be issued, which still gives owners the chance to have their vehicles reassessed once defects have been repaired.

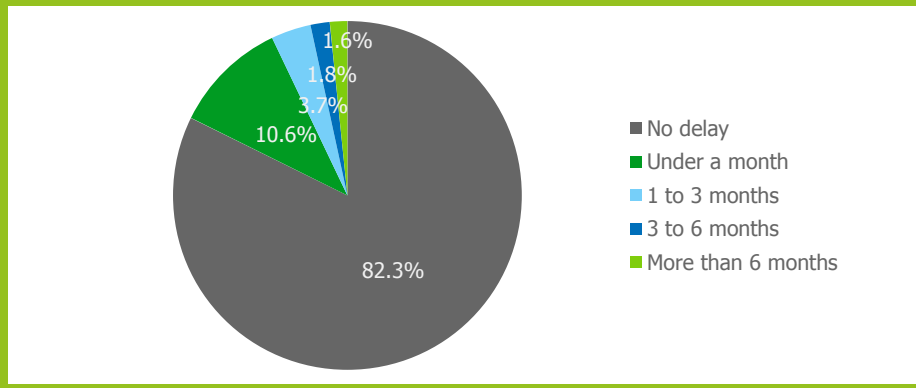
12.1 Change in vehicle inspection results for the personal vehicle category



12.2 Vehicle inspection results by type of vehicle (2013)



12.3 Percentage of vehicles presented late at the vehicle inspection (2013)

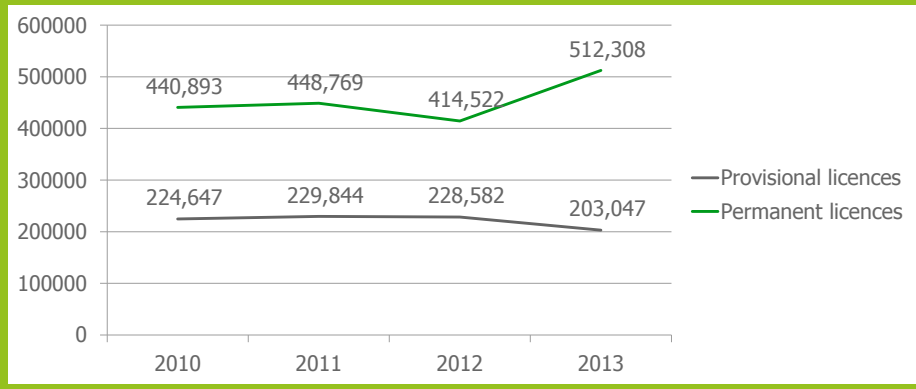


13 Possession of driving licence

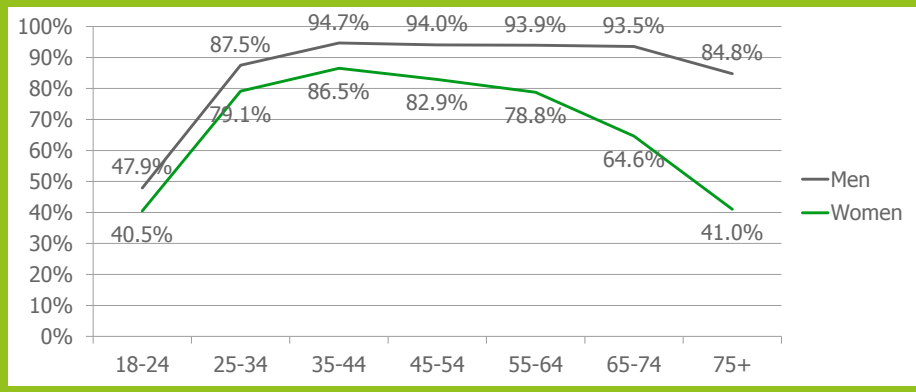
A high percentage of Belgians over 16 hold a driving licence. Since 2012, the a central databank ("Banque Carrefour") has collected information on issue of licences. The indicator "number of licences issued" covers all licence categories and both first issues, changes of category and duplicates.

As at 15th January 2015, the Banque Carrefour records 7,659,797 active B licences. However, this is a slight overestimation of the real situation because licences are not always deleted from the database when their holders die. Therefore, to determine the rate of licence possession amongst the elderly, we produce an estimate based on the Beldam survey. It indicates that the difference in rates of licence possession amongst men and women is high amongst the elderly but smaller amongst the young.

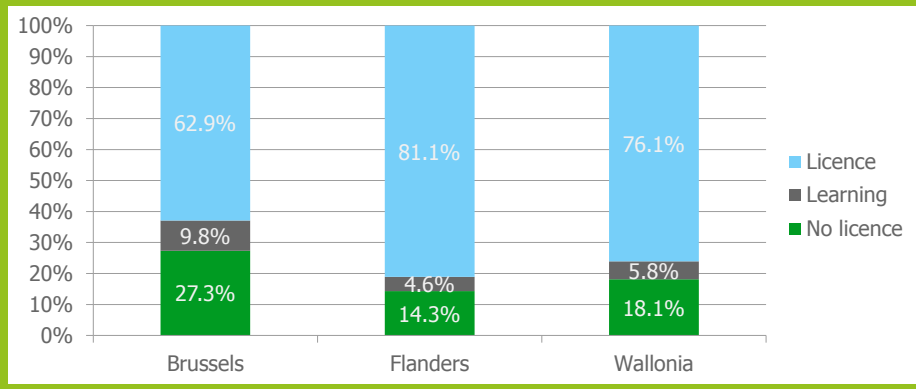
13.1 Change in the number of driving licences issued



13.2 Rate of driving licence possession by age and gender (2012)



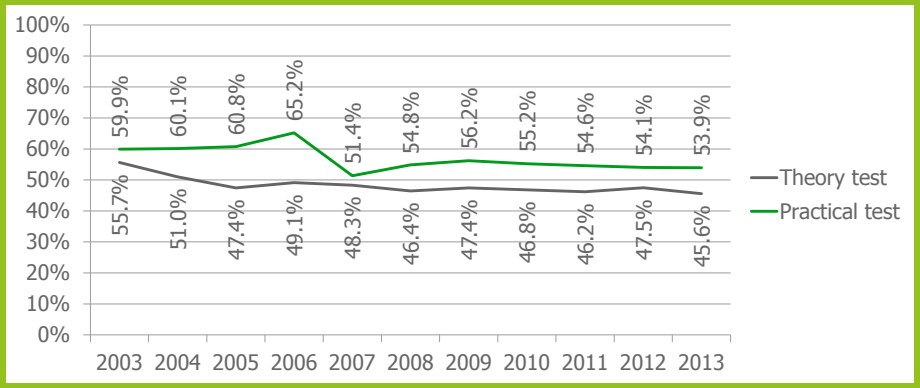
13.3 Rate of driving licence possession amongst people aged 18 or over by region (2012)



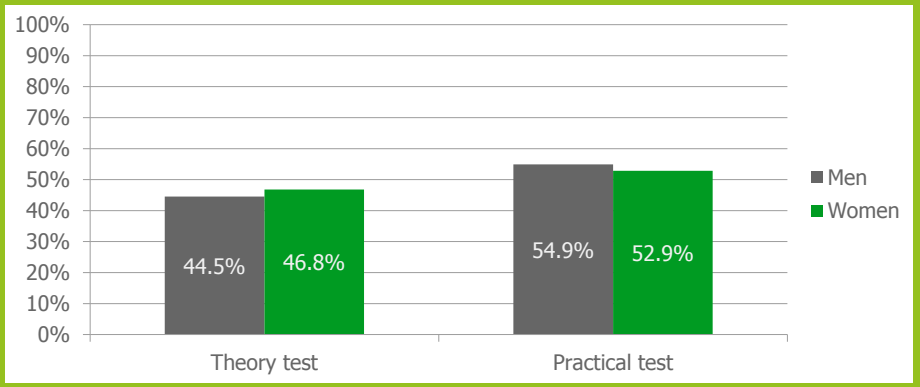
14 Driving tests

To assess their ability to drive, future drivers of motor vehicles take a driving test. Licence B, attempted by the vast majority of candidates, concerns cars (with maximum authorised mass not exceeding 3,500 kg and number of seats fewer than 8 plus the driver's seat). The driving test formula has changed several times in the last few years. The current theoretical Licence B exam contains 50 questions, of which the candidate must answer 41 correctly to pass. Until 2006, the practical test included an exercise on private ground, passing which would grant access to the next part on public roads. The statistics shown on this page for passing the practical test only include the "public road" part of the test.

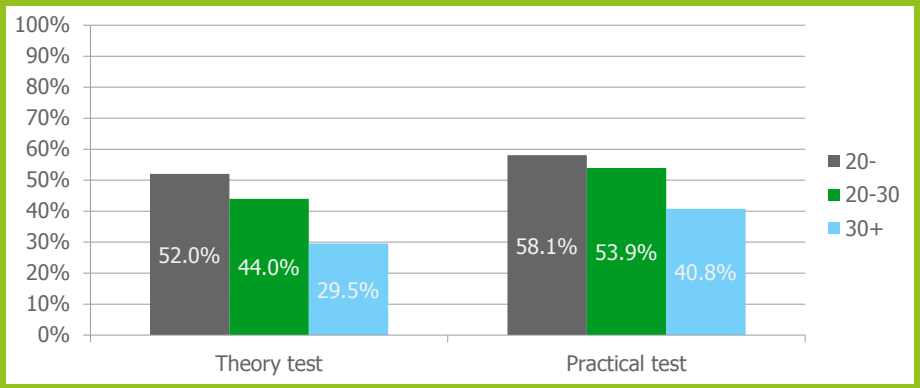
14.1 Change in licence B pass rates



14.2 Licence B pass rates by gender (2013)



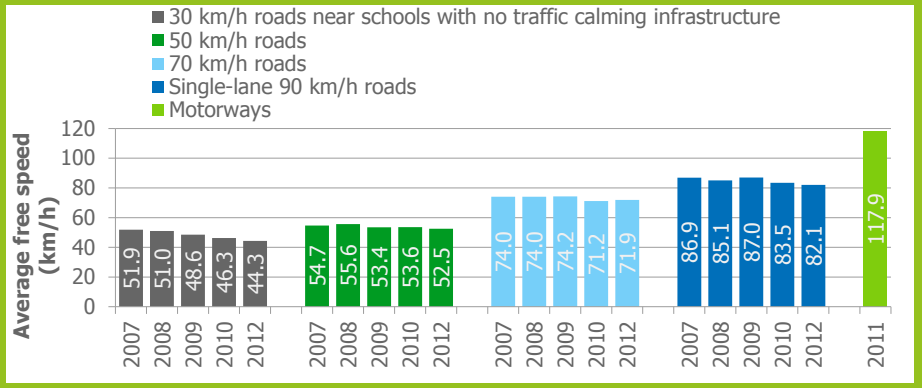
14.3 Licence B pass rates by age (2013)



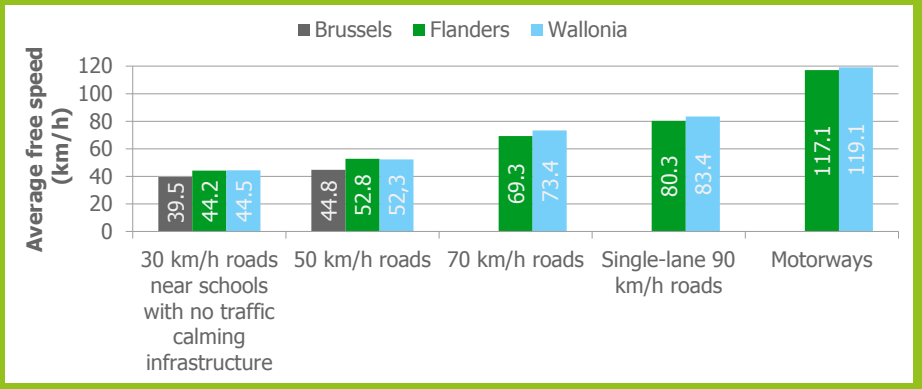
15 Speeds

Speed influences both the risk of an accident and the accident severity. It is therefore important to monitor driven speeds to assess the level of safety on the roads. Free speed is the speed chosen by drivers when they are not impeded by constraints in terms of traffic volume or infrastructure. It is measured on straight roads, where there is no traffic congestion, where there are no speed bumps, crossroads or bends nearby. It is a good indicator of the risk taken by drivers at the wheel. An average free speed close to or greater than the speed limit indicates that several people are exceeding it and therefore might lead to hazardous situations on the roads.

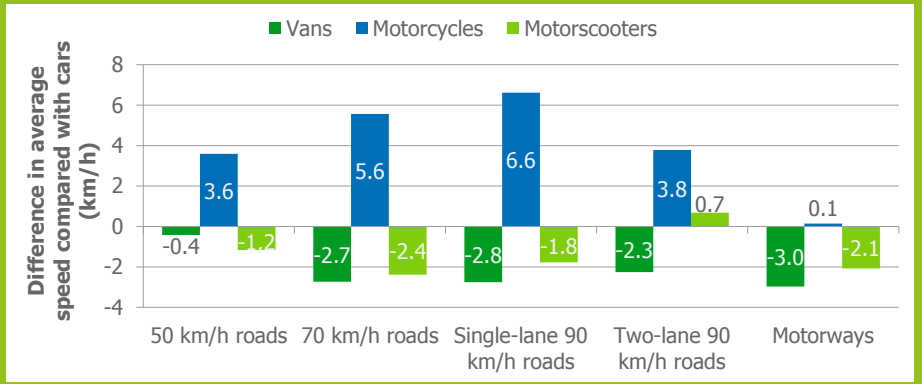
15.1 Change in average free speed of cars



15.2 Average free speed of cars by region (2012)



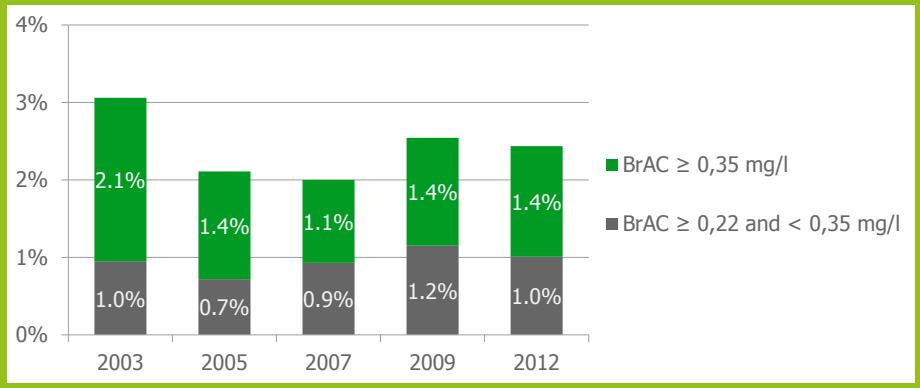
15.3 Difference in average free speed comparing to cars by type of vehicle



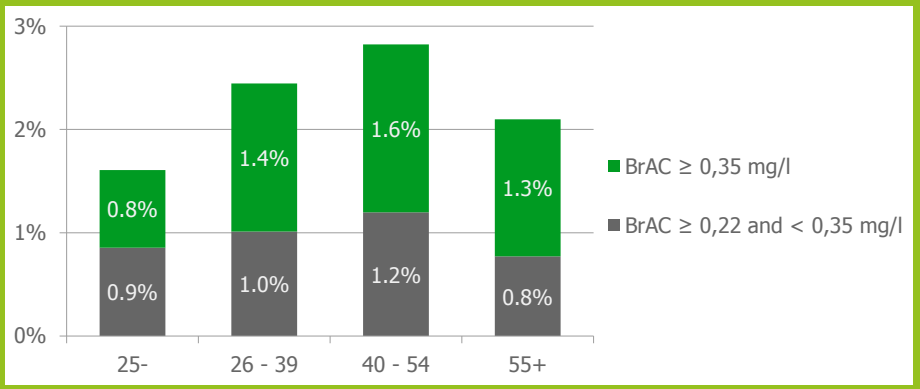
16 Driving under the influence of alcohol

Alcohol considerably alters the ability to drive and therefore increases the risk of an accident. In Belgium, a person is considered to be driving under the influence of alcohol when the alcohol concentration in their breath is greater than or equal to 0.22 mg/l (equivalent to 0.5 g/l of blood). In conjunction with the police, the BRSI regularly measures the evolution of drink driving behaviour. The prevalence of driving under the influence of alcohol is the percentage of alcohol offenders among drivers controlled at random by the police. This prevalence varies significantly according to the time of the week, the age and the gender of the driver.

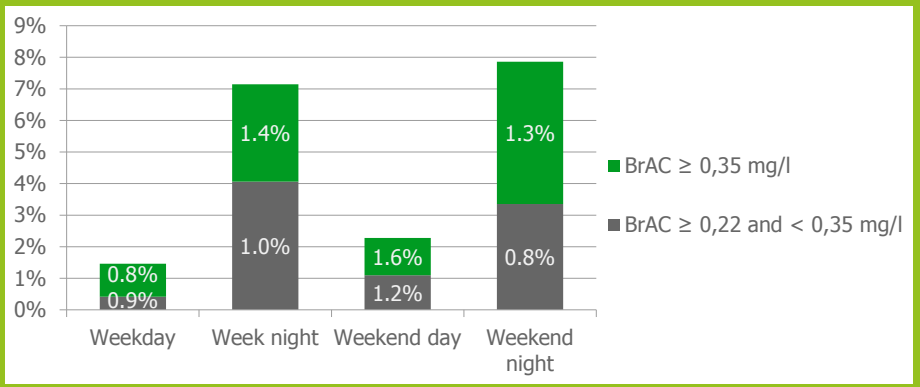
16.1 Change in prevalence of driving under the influence of alcohol



16.2 Prevalence of driving under the influence of alcohol by age



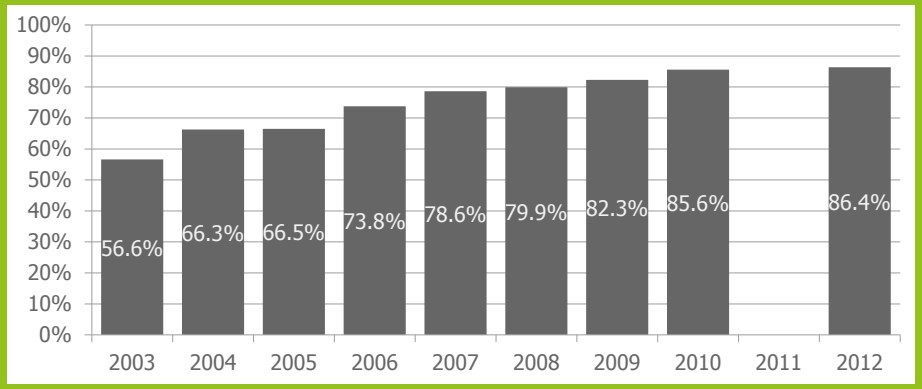
16.3 Prevalence of driving under the influence of alcohol according to the time of the week (2012)



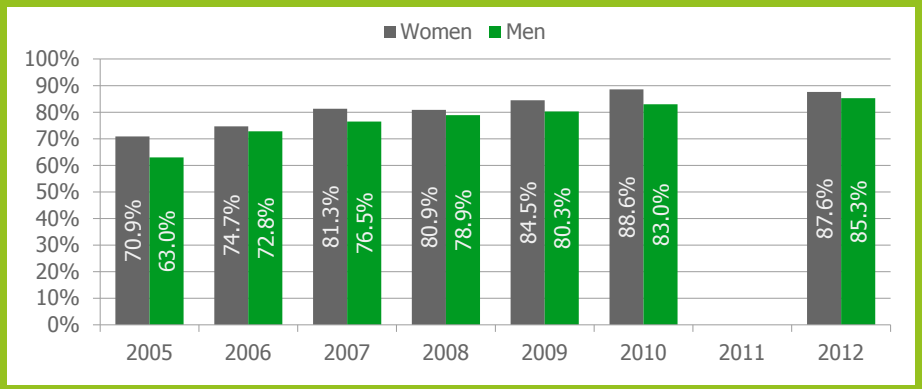
17 Seatbelt wearing rate

The seatbelt is one of the key passive safety devices seeking to reduce the consequences of an accident. It has been compulsory to use it in Belgium since 1975 for the driver and front passenger and since 1991 for back seat passengers. Belgian behaviour statistics only currently focus on seatbelt wearing rates in the front of vehicles, but surveys have shown that this rate is much lower at the back of vehicles than it is observed in the front.

17.1 Seatbelt wearing rate amongst car drivers and front seat passengers



17.2 Seatbelt wearing rate amongst car drivers and front seat passengers by gender



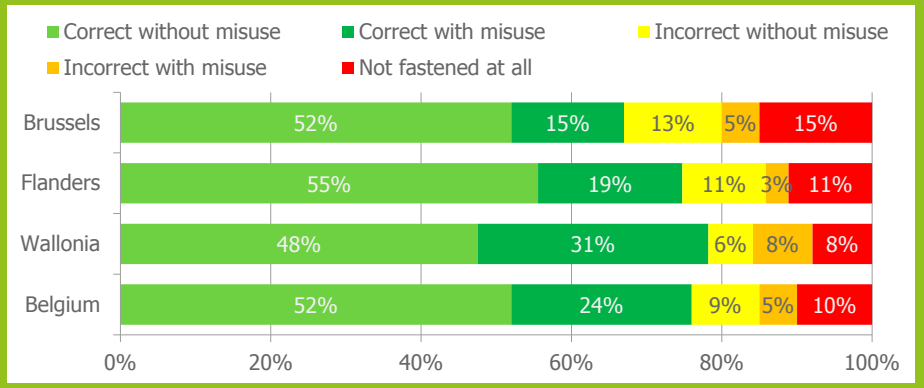
17.3 International comparison: seatbelt wearing rate in the front of cars

18 Child restraint systems

Child vehicle passengers who measure less than 135 cm must travel in suitable restraint devices. As he/she grows, the child will successively travel in a baby seat back to the road, a seat facing the road and a booster seat. As well as selecting the appropriate device, it is also important to use the device correctly. Examples of misuse include seats incorrectly fitted to the vehicle or in the wrong position, an airbag which has not been deactivated in front of a seat with its back to the road, or straps which are not tight enough or not placed at the right place.

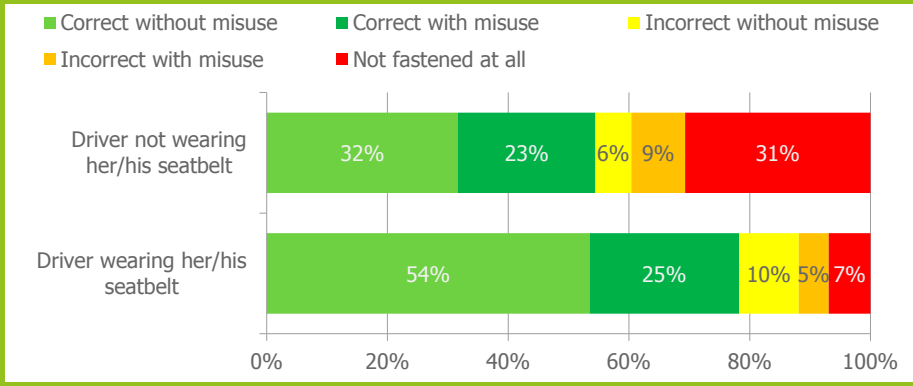
18.1

Rate of use of child restraint systems by region (2011)



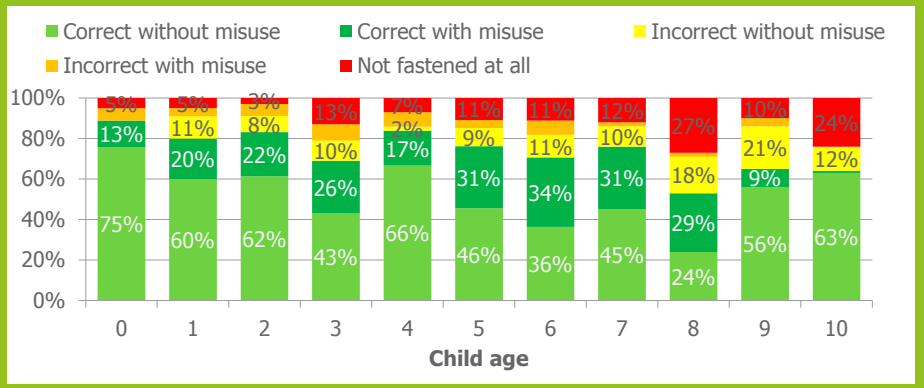
18.2

Rate of use of child restraint systems according to whether the driver is wearing their seatbelt (2011)



18.3

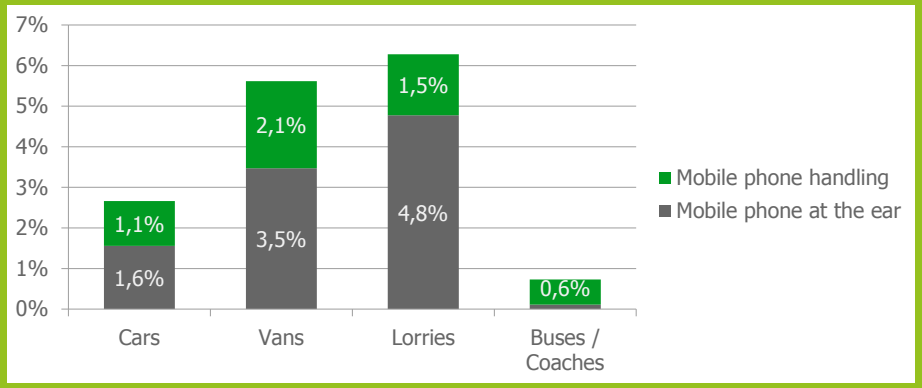
Rate of use of child restraint systems by age of the child (2011)



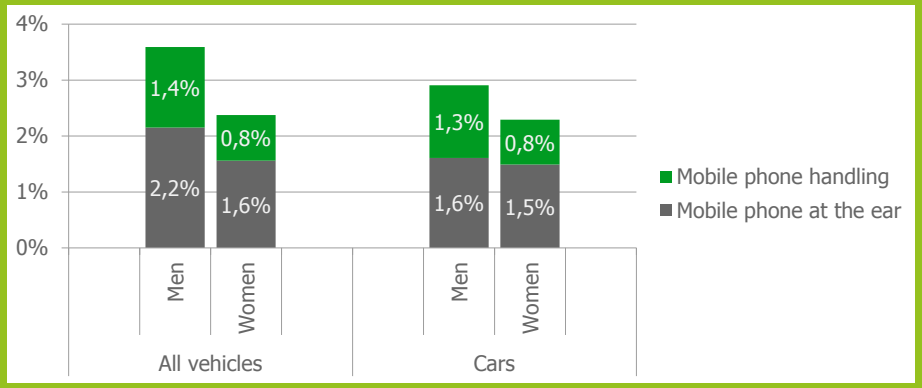
19 Use of mobile phone while driving

Using a telephone at the wheel – with or without hands-free kit – is a key cause of distraction. Talking on the telephone causes cognitive, auditory and, without hands-free kit, physical distraction. Handling one's telephone to write a SMS or consult an application also generates visual distraction. Using one's telephone at the wheel without hands-free kit is banned in Belgium. The rate of use of mobile phones has been determined by observing drivers from the side of the road. It represents the percentage of drivers engaged in this distracting behaviour, at a given time in Belgium. This rate must not be confused with the percentage of people who do sometimes make a call while at the wheel, which is much higher.

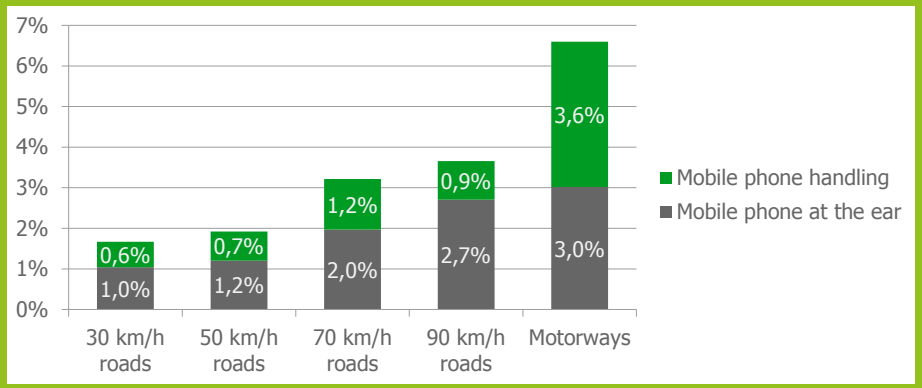
19.1 Rate of use of hand held mobile phone by type of vehicle



19.2 Rate of use of hand held mobile phone by gender



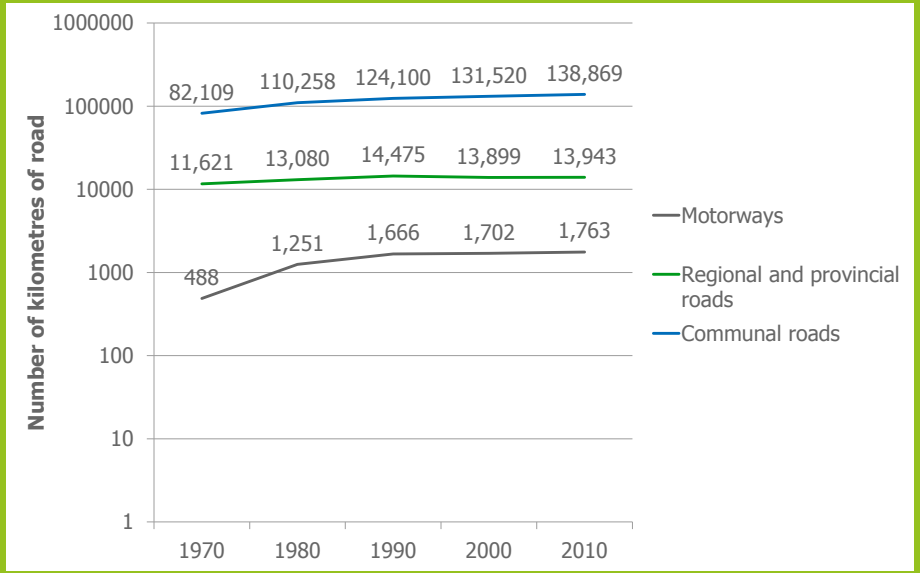
19.3 Rate of use of hand held mobile phone by type of road



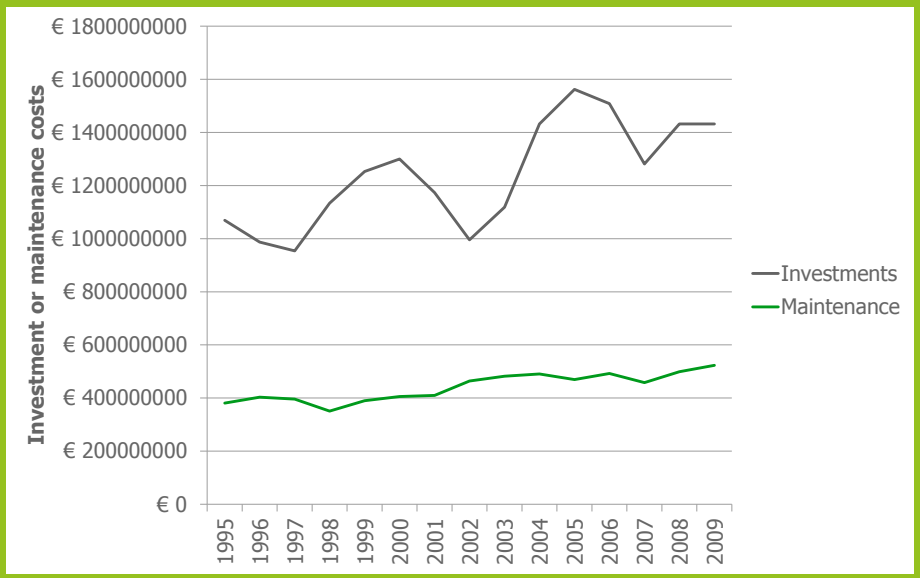
20 Road infrastructure

The state of the road network and safety infrastructures is an important aspect of road safety. However, it is very difficult to obtain centralized information on the state of the road network because the vast majority of the network is made up of communal roads, managed locally. In Belgium, the road network has seen few new developments since the '90s compared with previous periods. However, investment and maintenance costs are high. In terms of length, communal roads account for the very large majority of roads in the country. Motorways only account for just over 1% of road length but for a much greater volume of traffic. To show all types of road, in figure 20.1, we are using a logarithmic y-scale in which each graduation represents a difference of a factor of 10.

20.1
Change in length of the road network by type of road



20.2
Change in expenditure on investment and maintenance of the road network

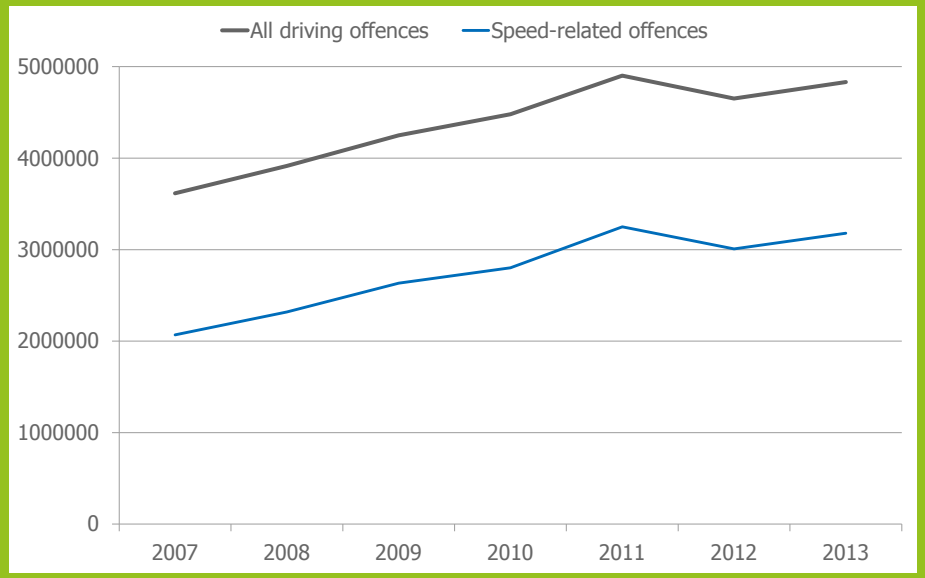


21 Offences recorded by the police

Criminal policy seeks to dissuade road users from breaching the traffic laws. The number of recorded offences not only depends on the number of actual offences, but also on the resources allocated by the police and the technical feasibility of detecting an offence. The statistics shown on this page concern offences recorded by the federal police and local police zones which have led to immediate perception or a report. Therefore, other types of offence, such as for example, municipal administrative sanctions, are not included. Most recorded offences are due to excessive speed.

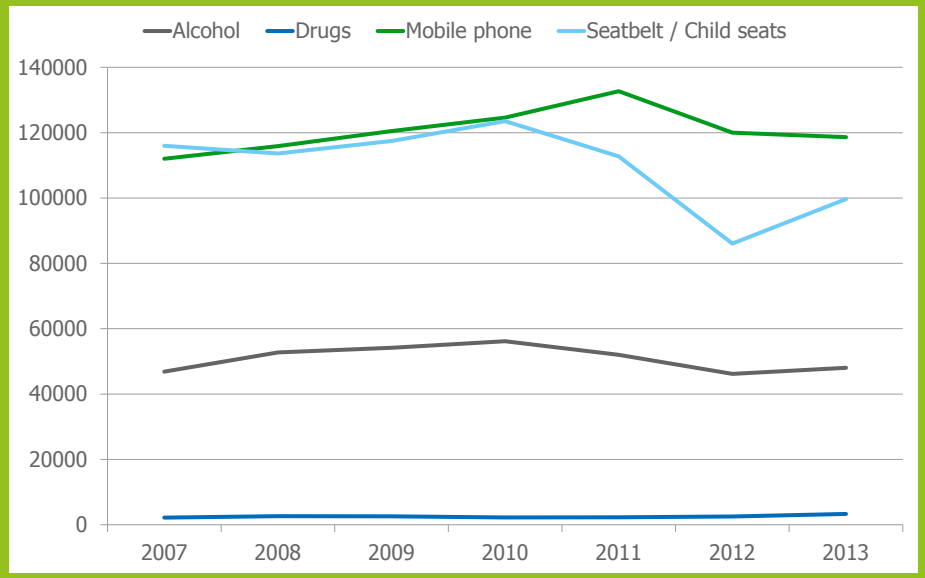
21.1

Change in the total number of offences recorded by the police and the number of speed-related offences



21.2

Change in the number of offences recorded by type of offence (excluding speed)

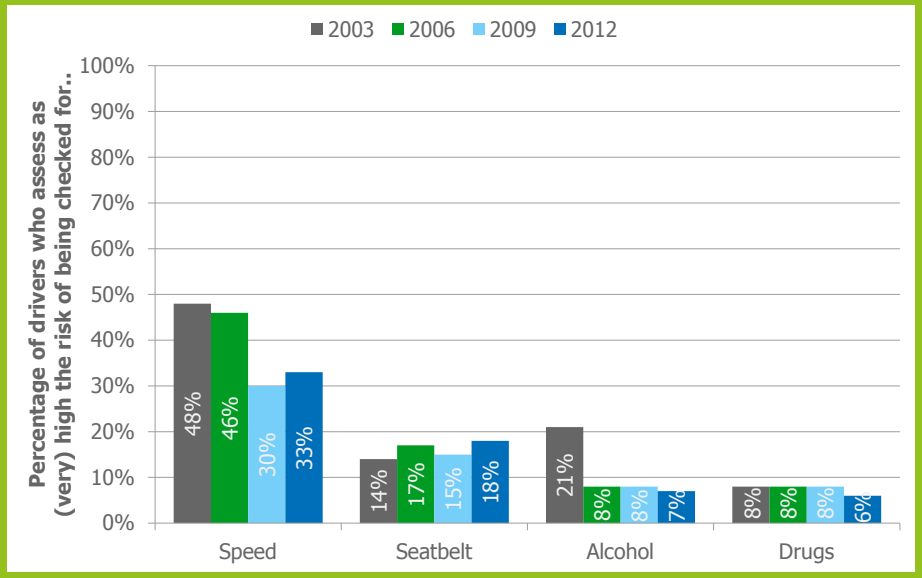


22 Perceived risk of being checked

The perceived risk of being checked is the likelihoods from the drivers' perspective that their road behaviour will be checked. This subjective feeling not only depends on the actual number of checks, but also on the communication of these checks, their visibility and the way they are conducted. A high perceived risk is important to dissuade the drivers to commit road traffic offences.

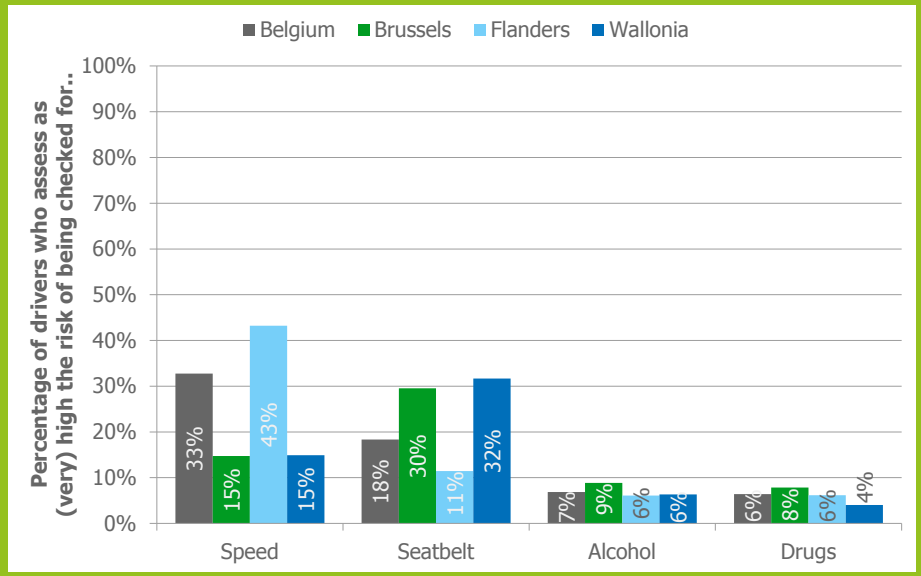
22.1

Change in the perceived risk of being checked by type of offence



22.2

Perceived risk of being checked by region of residence (2012)



SOURCES

1. Road fatalities

1.1, 1.2: Federal public service Statistics Belgium

1.3: CARE database (DG Mobility and Transport), International Transport Forum, national sources and Eurostat via European Union

For more information:

- Focant, N. (2013). Statistical analysis of the road traffic accidents resulting in death or injury that were registered in Belgium in 2012 - Summary. Brussels, Belgium: Belgian Road Safety Institute – Knowledge Centre Road Safety

2. Road injuries

2.1: Federal public service Statistics Belgium

2.2: Federal public service Health, Food chain safety and Environment, BRSI and Free University Brussels (VUB)

For more information:

- Nuyttens, N. & Van Belleghem G. (2014) How severe are the injuries of victims of road traffic accidents. Analysis of the MAIS severity scale for injuries suffered by victims of road traffic accidents hospitalized in Belgian hospitals between 2004 and 2011 – Summary. Brussels, Belgium: Belgian Road Safety Institute – Knowledge Centre Road Safety & Free University Brussels – Interuniversity Centre for Health Economics Research

3. Types of injury

3.1, 3,2: Federal public service Health, Food chain safety and Environment, BRSI and Free University Brussels (VUB)

For more information:

- Nuyttens, N. & Van Belleghem G. (2014) How severe are the injuries of victims of road traffic accidents. Analysis of the MAIS severity scale for injuries suffered by victims of road traffic accidents hospitalized in Belgian hospitals between 2004 and 2011 – Summary. Brussels, Belgium: Belgian Road Safety Institute – Knowledge Centre Road Safety & Free University Brussels – Interuniversity Centre for Health Economics Research

SOURCES

4. Severity of accidents

4.1, 4.2, 4.3: Federal public service Statistics Belgium

5. Age and gender of victims

5.1, 5,2, 5.3: Federal public service Statistics Belgium

6. Mode of transport of victims

6.1, 6.2: Federal public service Statistics Belgium

6.3: BELDAM, Federal public service Statistics Belgium, BRSI

For more information:

- Martensen, H. (2014) @Risk. Analysis of the risk of serious or fatal injuries in traffic according to age and mode of transport - Summary. Brussels, Belgium: Belgian Road Safety Institute – Knowledge Centre Road Safety

7. Material accidents

7.1, 7.2: Assuralia

8. Volume of motor vehicle traffic

8.1, 8.2: Federal public service Mobility and Transport

8.3: International Transport Forum, Eurostat via European Union

9. Volume of non-motor vehicle traffic

9.1, 9.2, 9.3: BELDAM

10. Age and gender of car drivers

10.1, 10.2: BRSI

11. Vehicle fleet

11.1, 11.2: Federal public service Statistics Belgium

11.3: Eurostat

SOURCES

12. Vehicle inspection

12.1, 12.2, 12.3: GOCA

13. Possession of driving licence

13.1: Federal public service Mobility and Transport

13.2, 13.3: BELDAM

14. Driving tests

14.1, 14.2, 14.3: GOCA

15. Speeds

15.1, 15.2, 15.3: BRSI

For more information:

- Riguelle, F., & Roynard, M. (2014). Do vans drive too fast? Results of the first speed survey of vans in Belgium - Summary. Brussels, Belgium : Belgian Road Safety Institute – Knowledge Centre Road Safety
- Temmerman, P., & Roynard, M. (2015). Motorcycle speed survey 2014. Results of the first motorcycle speed survey in Belgium. Brussels, Belgium: Belgian Road Safety Institute – Knowledge Centre Road Safety

16. Driving under the influence of alcohol

16.1, 16.2, 16.3: BRSI

17. Seatbelt wearing rate

17.1, 17.2: BRSI

17.3: IRTAD database, OCDE

18. 18. Child restraint systems

18.1, 18.2, 18.3: BRSI

19. Use of mobile phone while driving

19.1, 19.2, 19.3: BRSI

SOURCES

20. Road infrastructure

20.1: Federal public service Mobility and Transport

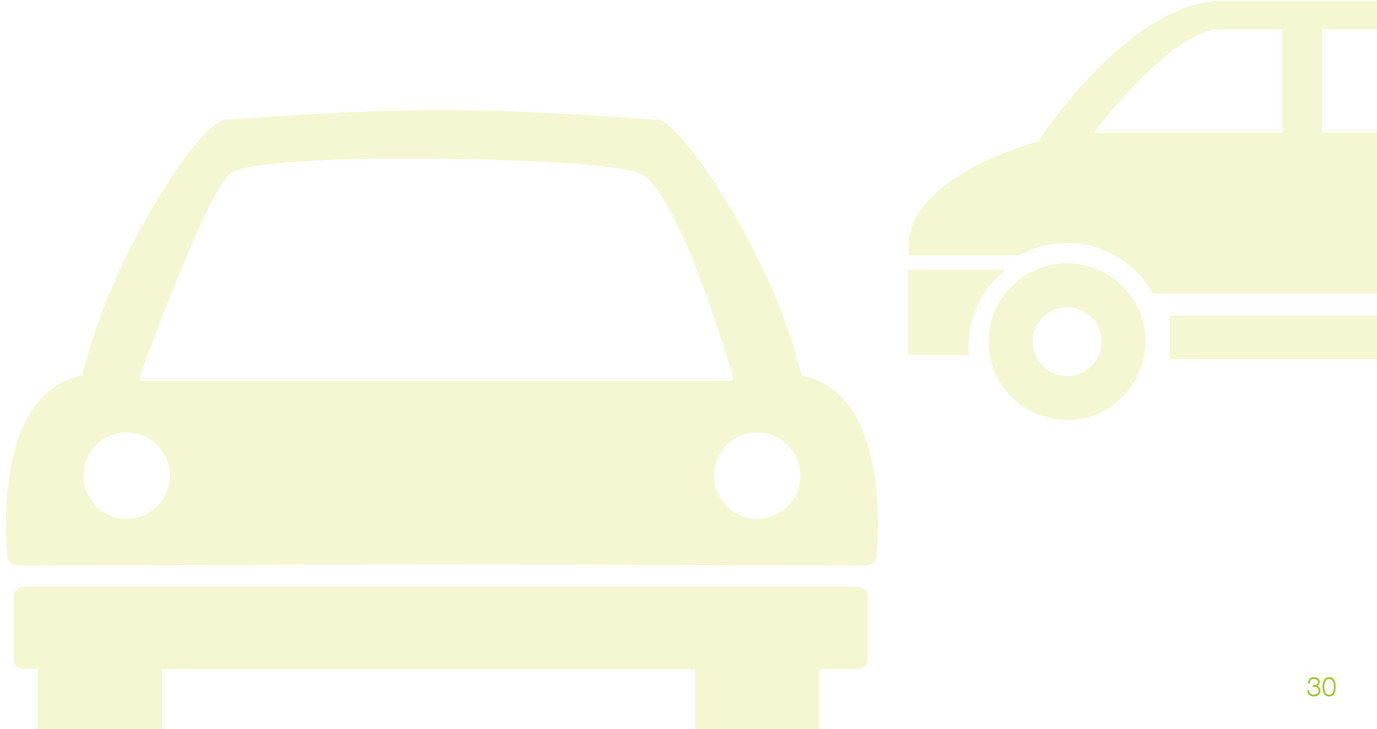
20.2: International Transport Forum, OCDE

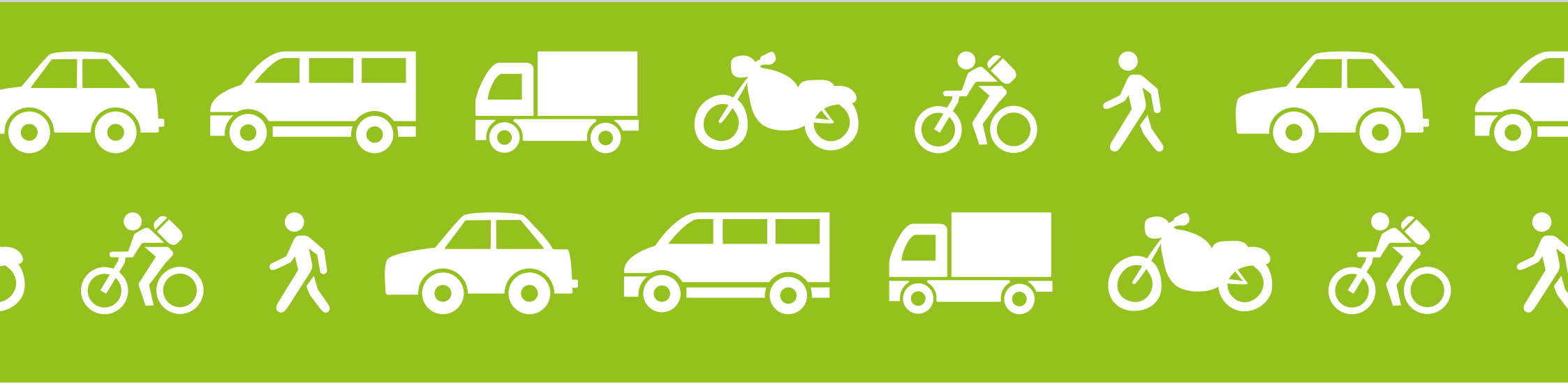
21. Offences recorded by the police

21.1, 21.2: Federal police/CGO/CGOP/B Traffic

22. Perceived risk of being checked

22.1, 22.2: BRSI





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