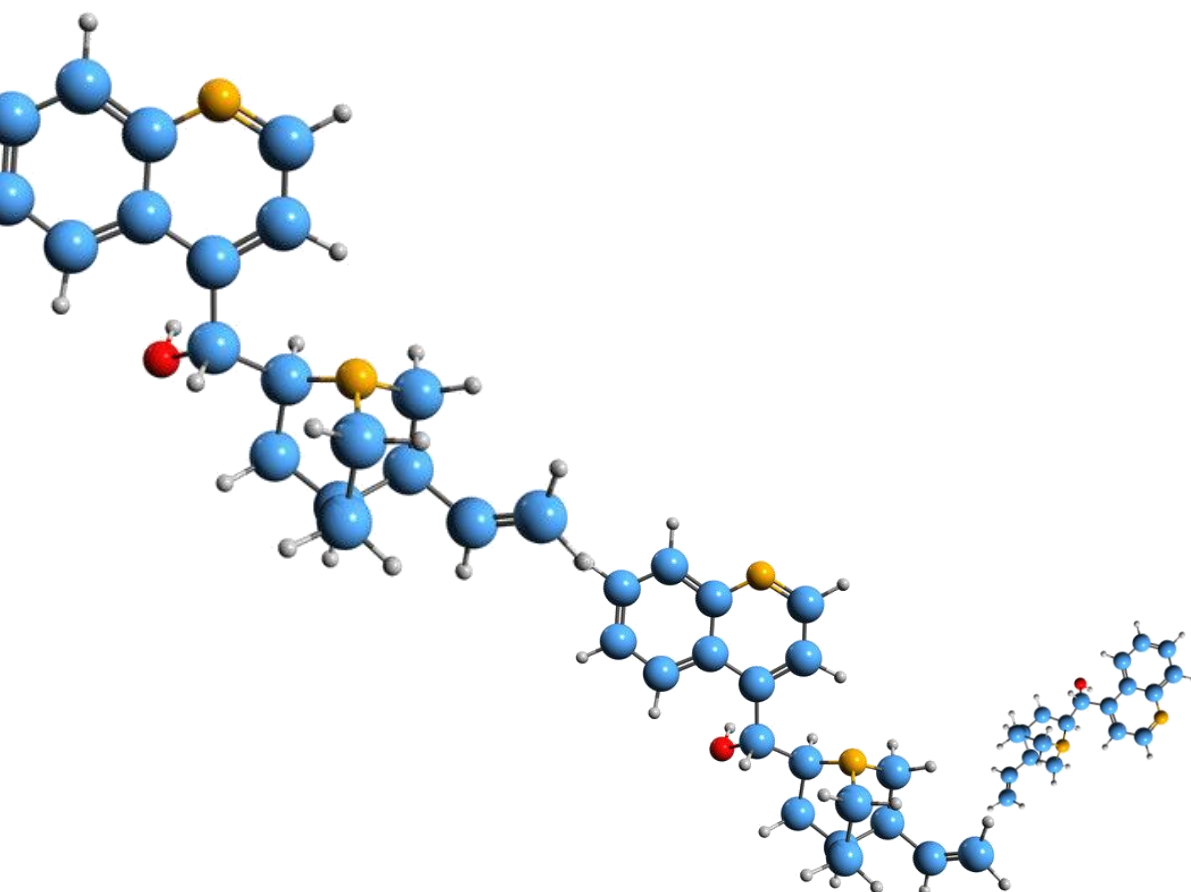


Development of recommendations to reduce the  
incidence of alcohol use on accident rate based on  
a study of the current situation, a comparative  
analysis of European policies and existing  
knowledge regarding the impact of various  
alternatives

April 2025



## Credits

**PROJECT DEVELOPED BY:** University Institute for Traffic and Road Safety Research. University of Valencia.

**FOR:** DGT (Directorate-General for Traffic)

**Dossier:** 3DGT6A000176

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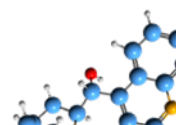
Published by: Directorate-General for Traffic

44, Josefa Valcárcel Street MADRID 28027

Author: National Road Safety Observatory

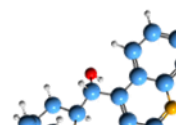
Catalogue of publications of the General State Administration: <https://cpage.mpr.gob.es>

O.P.I.N. (on line ed.): 128-26-034-2



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## 1. INTRODUCTION: PRESENTATION AND JUSTIFICATION OF THE ACTION

Motor vehicles are one of the inventions that have had the greatest influence on the development of modern society, to the extent that our current way of life would be unthinkable without them. However, along with its clear advantages, the widespread use of motor vehicles that we have achieved brought with it a series of serious issues that need to be addressed, especially by Administrations, and among which road traffic accidents are particularly noteworthy.

The data in this regard are very alarming. According to the University Institute of Traffic and Road Safety at the University of Valencia (INTRAS), since Karl Benz patented the first combustion engine vehicle in 1886, some 65 million people have been killed in road accidents and approximately 2,500 million have suffered injuries of varying severity.

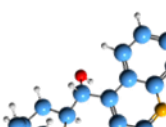
According to the same university, from 1950 to 2023 around 326,000 people were killed in Spain because of road accidents, not to mention those who suffered injuries and permanent disabilities. Based on current parameters, indices and knowledge, it can be concluded that approximately 100,000 people may have died in Spain as a result of drink driving in the last 75 years.

A social, economic and health issue on such a scale has given rise to hundreds of research projects and studies around the world (many of them conducted in Spain) to attempt to determine the causes behind road accidents in cities and on roads. Numerous researchers, public and private organisations and universities have concluded that among the multiple risk factors involved in accidents, it is worth highlighting three which are of considerably greater significance than the others: driver distractions, drink driving and excessive or inappropriate speed.

Drink driving in particular has given rise to an enormous number of studies over many years (it is one of the most researched topics in the field of road safety) leading the World Health Organization (WHO) to conclude in various documents that it can be stated without any doubt - with certain variations depending on the country - that alcohol is involved in 30-35% of road accidents. In addition to WHO itself, this percentage has also been recognised by other international organisations such as the European Transport Safety Council (ETSC) and the National Highway Traffic Safety Administration (NHTSA) in USA.

In this context, the situation with regard to road accidents associated with alcohol in Spain is also very worrying, as will be shown below with specific data. As such, in line with the recommendations made, among others, by the World Health Organization (target 9 of the Decade of Action 2021-2030), a specific study was conducted to understand and analyse the situation in Spain in greater depth and to put forward a series of recommendations aimed at addressing the serious risk posed by combining alcohol consumption with driving.

Finally, it is worth noting that when researchers have examined the **motivations behind driving after having consumed alcohol or other drugs**, they have found that the reasons for this dangerous and anti-social behaviour are wide-ranging and quite complex. Let us consider some examples. Many people mistakenly believe that they are able to drive safely after consuming alcohol. They greatly overestimate their abilities. They do not feel that alcohol impairs any of their skills and, moreover, do not consider the consequences of their behaviour to be sufficiently serious (Michie et al., 2011).

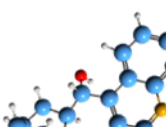


Other researchers point to the widespread availability of alcohol and the ease with which it can be obtained in our society, as well as its low price in certain areas. Interesting factors have also been identified that are directly linked to alcohol consumption and driving, such as certain personality traits, a desire for thrills, low acceptance of or resistance to rules, a belief in one's own invulnerability whilst driving, and a lack of self-control and impulsivity (Pire, 2021; Niranjana et al., 2022; Baran, Zieliński & Dziuda, 2021).

Other studies have highlighted (in many cases) the unplanned nature of driving under the influence of alcohol and have shown how peer pressure and social situations, along with social tolerance for alcohol, can change a person's original plan not to drink and drive (Vangov & Schoroeter, 2021; Zhang et al., 2012). The significance of other variables has also been highlighted, such as: having drunk on a few occasions without causing an accident (behaviour that does not result in an accident becomes ingrained) (Goldenbeld et al., 2020), lacking sufficient training or information about the risks of alcohol, or believing that it is highly unlikely to be stopped at a police check (Lijarcio et al., 2022; Montoro et al., 2000).

**The general outline of the study is as follows:**

1. As a preliminary step, a search was conducted for documentation, research and scientific literature directly relating to the various research objectives and the possible actions, measures and strategies to be implemented to address the issue of alcohol.
2. Collection and analysis of data from various bodies and institutions, to provide an objective picture of road accidents in Spain linked to alcohol consumption and to justify the need to review the current blood alcohol limits: casualty accidents, fatalities, injured persons, the combination of alcohol with other substances, penalties, etc.
3. A list and description of the most significant effects of alcohol on drivers' mental and physical capacities, with a view to explaining the associated risks and providing a basis for potential preventive information and training campaigns.
4. Short-term, direct measures to tackle the problem of road accidents caused by alcohol consumption: a reasoned and justified revision of blood alcohol limits currently in force in Spain; changes in penalties and deduction of penalty points; measures targeting repeat offenders; alcohol testing campaigns; and the problem of polydrug use, etc.
5. Guidance on creating an awareness campaign in traditional media (press, radio, TV, etc.) as well as in the more contemporary and modern media used by younger generations. The main aim would be to convey the seriousness of alcohol-related accidents, the effects alcohol has on drivers, and the changes that are to be introduced (blood alcohol limits, penalties, etc.).
6. Other short-, medium- and long-term measures to strengthen the overall intervention strategy, such as: increasing the number of questions on alcohol in theoretical tests for obtaining a driving licence, promoting training and awareness in driving schools regarding the risks of drink-driving, and reinforcing this topic in the training provided for the points-based driving licence scheme, etc., etc.



## 2. ANALYSIS OF DATA FROM VARIOUS SOURCES ON THE RELATIONSHIP BETWEEN ALCOHOL AND ACCIDENTS IN SPAIN Are there any reasons to undertake changes and actions? The best answer is in the data.

Various international databases providing relevant information on the link between alcohol consumption and road accidents in Spain have been analysed. The information obtained is extremely useful, but very general in nature; it was therefore deemed necessary to carry out an original and specific study aimed at gathering data (for the period 2018–2022/2023) from various national bodies, such as: the Directorate-General for Traffic, the National Institute of Toxicology and Forensic Sciences, and the Traffic Division of the Civil Guard. This epidemiological study has yielded a wide range of findings that are of great interest in providing a clear and objective picture of the problem of alcohol-related road accidents in Spain, how the situation has evolved, and the need to implement various measures. Below are some of the key findings and their sources, covering the last 5–6 years (2018–2022/23), subject to public availability.

### A. Data from DGT's ARENA database (last 5 years with available data: 2018–2022)

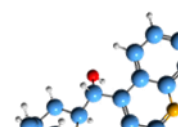
Of the total of **467,117** casualty accidents in Spain between 2018 and 2022, **18,727** cases in which alcohol was a factor were identified for specific analysis. Among the many findings obtained, it is worth highlighting the following:

1. - **Drink driving accidents:** in 2018 there were 3,561 casualty accidents, while in 2022 the number was 4,283, an increase of 20.3% (accidents in which at least one driver involved tested positive for alcohol).
2. - **Casualties of alcohol-related accidents:** in 2018, there were 5,583 victims, whereas in 2022, the number of casualties in alcohol-related accidents rose to 6,481, representing a 16.1% increase.
3. - **Fatalities:** deaths in accidents involving alcohol out of the total number of fatalities in traffic accidents rose from 12.5% in 2018 to 17.9% in 2022, an increase of 5.4 percentage points over four years. **In addition, it has been found that when alcohol is involved in accidents, they tend to be much more serious.**

**Table 1.** *Accidents involving alcohol*

| Year | Accidents | Casualties | Fatalities |
|------|-----------|------------|------------|
| 2018 | 3,561     | 5,583      | 225        |
| 2019 | 3,887     | 5,902      | 256        |
| 2020 | 3,051     | 4,561      | 210        |
| 2021 | 3,945     | 6,054      | 301        |
| 2022 | 4,283     | 6,481      | 312        |

(See additional information in ANNEX: Graphs 1, 2, 3)

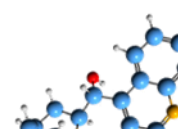


With regard to the table above, it is important to note that the absolute figures for alcohol-related fatalities underestimate the actual numbers, as it is not possible to carry out tests or post-mortems in all cases. If tests or post-mortems were available for all such cases, the figures would be considerably higher than those shown in the table above.

**Table 2.** Percentage distribution of positive cases according to substance group. Positive cases for alcohol as determined by breath testing. Positive cases for drugs based on the limit of quantification or analytical cut-off point of the 2021 EDAP study, confirmed by laboratory testing of oral fluid.

| SUBSTANCE TYPE                       |  | Total. n =2980 |                     |
|--------------------------------------|--|----------------|---------------------|
|                                      |  | n              | % [CI 95%]          |
| Alcohol > 0.05 mg/l                  |  | 135            | 4.51 [3.83-5.32]    |
| Drugs                                |  | 312            | 10.47 [9.41-11.61]  |
| Cannabis                             |  | 212            | 7.10 [6.23-8.08]    |
| Opioids                              |  | 11             | 0.35 [0.20-0.64]    |
| Cocaine                              |  | 170            | 5.70 [4.91-6.58]    |
| Amphetamine and analogues            |  | 13             | 0.42 [0.24-0.72]    |
| Benzodiazepines                      |  | 6              | 0.19 [0.08-0.41]    |
| Ketamine                             |  | 5              | 0.17 [0.06-0.37]    |
| No psychoactive substances           |  | 2549           | 85.53 [84.24-86.77] |
| Total alcohol/drug positives         |  | 431            | 14.47 [13.23-15.76] |
| Alcohol only                         |  | 119            | 4.00 [3.33-4.74]    |
| Alcohol + a drug                     |  | 15             | 0.52 [0.29-0.81]    |
| DRUGS (not alcohol)                  |  | 297            | 9.95 [8.93-11.08]   |
| • One substance without alcohol      |  | 214            | 7.19 [6.30-8.15]    |
| • Various substances without alcohol |  | 81             | 2.73 [2.18-3.35]    |

The table above shows the prevalence of alcohol and other substance-related issues among the population of drivers tested. According to the random checks carried out by DGT in collaboration with traffic police forces in 2021, 4.51% of the drivers tested had a blood alcohol content above 0.1 g/l (DGT, 2021).



## B. Data from the National Toxicology and Forensic Science Institute (2018-2023)

**Drivers killed in accidents.** The number of driver fatalities who tested positive for alcohol in relation to the total number of drivers killed rose significantly between 2018 and 2023. While in 2018 the rate was 26.5%, in 2023 the rate stood at 32.7% (approximately one in three driver fatalities tested positive for alcohol). With regard to the total number of deaths caused by alcohol or other substances (drugs of abuse or certain types of psychotropic substances), the percentages rose steadily over the period 2018–2023, from 43.4% in 2018 to 53.6% in 2023.

**Table 3.** Data on driver fatalities according to positives for alcohol and alcohol & other substances

| Year        | % of alcohol-positive driver fatalities | % fatalities - alcohol + other substances |
|-------------|-----------------------------------------|-------------------------------------------|
| <b>2018</b> | 26.5                                    | 43.4                                      |
| <b>2019</b> | 28.1                                    | 45.5                                      |
| <b>2020</b> | 31.2                                    | 48.7                                      |
| <b>2021</b> | 34.5                                    | 49.4                                      |
| <b>2022</b> | 35.5                                    | 52.8                                      |
| <b>2023</b> | 32.7                                    | 53.6                                      |

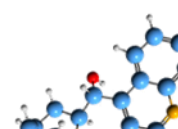
(See additional information in the ANNEX: Table 1 and Graph 4)

**Pedestrians killed in accidents.** It was considered important to highlight the seriousness of the problem of alcohol in road safety from another perspective (that of pedestrians). Around four in ten pedestrians killed in Spain test positive in toxicology tests. Of these, nearly half test positive for alcohol. Furthermore, the trend data clearly show an upward trend: the number of pedestrians killed whilst under the influence of alcohol is set to double between 2018 and 2023, rising from 23 (16%) in 2018 to 58 (29%) in 2023, according to available data.

**Table 4.** Data on pedestrian fatalities according to alcohol positives

| Year        | Analysed | Positive | Alcohol positives (% analysed) |
|-------------|----------|----------|--------------------------------|
| <b>2018</b> | 143      | 55       | 23 - 16.1%                     |
| <b>2019</b> | 130      | 49       | 32 - 24.6%                     |
| <b>2020</b> | 136      | 56       | 30 - 22.1%                     |
| <b>2021</b> | 180      | 68       | 42 - 23.3%                     |
| <b>2022</b> | 221      | 94       | 46 - 20.8%                     |
| <b>2023</b> | 200      | 117      | 58 - 29.0%                     |

(See additional information in the ANNEX: Graph 5)





### C. Trend in sanctions imposed for driving under the influence of alcohol or drugs.

Of the various data showing the trend in alcohol and drug-related sanctions, this section considers only those related to fines resulting in the deduction of points due to the serious nature of the offence. As can be seen in the table below, sanctions for alcohol in particular also increased sharply in 2022 compared to the four previous years, which is also a clear indication of the problem posed by drink driving and the need for urgent action. In addition, as can be seen in Graph 6 in the ANNEX, the number of points deducted for positive alcohol tests increased in 2022 (totalling 564,692), along with the number of drivers with more than one alcohol-related sanction (4,001 in total), which is almost the double of the figure for previous years.

**Table 5.** *Sanctions with deduction of points*

| SANCTIONS IMPOSED DURING THE 2018-2022 PERIOD (WITH CONSOLIDATED DATA) |        |         |        |        |         |
|------------------------------------------------------------------------|--------|---------|--------|--------|---------|
| YEARS                                                                  | 2018   | 2019    | 2020   | 2021   | 2022    |
| Alcohol                                                                | 98,469 | 104,599 | 52,212 | 82,054 | 121,161 |
| Drugs                                                                  | 49,826 | 37,294  | 27,358 | 40,800 | 41,729  |

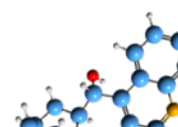
(See additional information in the ANNEX: Graphs 6-7 and Table 2)

### D. Data from the Public Prosecutor's Office for Road Safety.

The trends in the figures provided in the annual reports of the Public Prosecutor's Office for Road Safety regarding the problem of drink-driving over the last six years are also consistent with this and show the same upward trend as the data previously presented by other bodies involved in this area. The number of **proceedings initiated** rose from 69,121 in 2018 to 77,133 in 2022; in turn, the number of **charges** increased from 54,033 in 2018 to 58,041 in 2022; and lastly, the number of **sentences** went up from 56,173 in 2018 to 59,461 in 2022, although both the number of convictions and the number of charges fell in 2023.

**Table 6.** *Proceedings, charges and sentences by year*

| Year | Proceedings initiated | Charges by the Public Prosecutor's Office | Sentences |
|------|-----------------------|-------------------------------------------|-----------|
| 2018 | 69,121                | 54,033                                    | 56,173    |
| 2019 | 69,039                | 50,537                                    | 48,078    |
| 2020 | 57,262                | 39,485                                    | 38,241    |
| 2021 | 70,674                | 53,298                                    | 54,764    |
| 2022 | 77,133                | 58,041                                    | 59,461    |
| 2023 |                       | 52,008                                    | 50,071    |



### 3. EFFECTS OF ALCOHOL ON THE MENTAL AND PHYSICAL CONDITIONS OF DRIVERS. Is drink driving really so serious and dangerous?

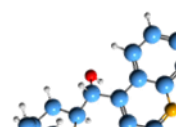
In a 3,200-year-old document from ancient Egypt, the first identified reference to the effects of alcohol on people driving chariots (as well as the first fine) has been found. However, it was in the 1920s that society and governments began to take concern over the clear link between alcohol and road accidents. This led to the inclusion of this risk in many European Highway Codes. Spain already addressed the issue of drink-driving in Article 5 of the Regulations on the use of Motor Vehicles (1926) and more explicitly in the 1934 Highway Code (Articles 274, IV, 17 and 296).

There were two key events in the history of alcohol consumption. In 1953, Robert Borkenstein patented the first breathalyser. Later, in 1964, this researcher built a line of rigorous research on the risk of accidents based on blood alcohol content (Borkenstein et al., 1964). There is currently a vast amount of information available on the serious health problems and accidents caused by alcohol.

All research, road safety experts and accident statistics agree that alcohol is one of the most significant risk factors when driving. The negative effects of alcohol on a driver's behaviour and mental and physical condition are so numerous that it is almost impossible to list them all. Below is a summary – obviously brief and schematic – of the most important points, with several objectives: to highlight the reasons why alcohol causes so many serious accidents; to serve as a guide for developing initiatives on the risks of drink-driving; and because they justify the need, amongst many others, to lower blood alcohol contents and enforce a zero-tolerance policy towards drivers exceeding the legal limits.

The following are some of the main effects of alcohol on drivers' behaviour and mental and physical condition, depending on the amount and type of drink, the characteristics of the person and other variables: (INTRAS-DGT, 2017; Montoro et al., 2000; Chamberlain & Solomon, 2002; Blandino et al., 2022).

1. - Significant increase in infringements.
2. - Severe behavioural disorders.
3. - More risky decision-making and a higher tolerance for risk.
4. - Reduced ability to process information and analyse the road environment.
5. - Reduced perception of danger.
6. - Various psychomotor disorders.
7. - Less precise movements and a higher number of errors during manoeuvres.
8. - Increased reaction and braking times.
9. - Severe sensory impairments.
10. - Greater risk of being dazzled.
11. - Impairments in sensory-motor coordination.
12. - Serious disturbances in the field of perception and reduced perception of signs.
13. - Greater fatigue and possibility of drowsiness.



14. - Reduced attention span and increased distractions.

15. - In the event of an accident, the likelihood of death increases significantly (Evans & Frick, 1993; Evans, 2004).

*(See additional information in ANNEX: Tables 1 and 2. More extensive information in, for example, Montoro et al., 2000, p. 272-285)*

Lastly, it is very important to point out that, like speed, alcohol is a serious risk that affects all aspects of driving (Evans, 2004). Any mechanical failure in the vehicle that requires the driver to take action; any problem on the road that must be dealt with quickly; in the event of any distraction, illness, fatigue, unexpected manoeuvre, inappropriate speed, etc., being under the influence of alcohol significantly increases the likelihood of an accident.

#### 4. SHORT-TERM INTERVENTIONS ON ALCOHOL-RELATED ACCIDENTS

A series of direct priority actions are proposed below for short-term implementation, along with others that will be described later. According to numerous studies, they can have a direct impact on the reduction of alcohol-related road accidents.

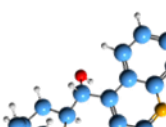
##### 4.1. Lowering the current blood alcohol content in Spain: 12 reasons for a change

**R.1.** Taking into account the various **statistics on road accidents** in Spain set out above, caused directly by drivers who had consumed alcohol, together with the **alarming trend in the statistics**, clearly indicating the serious impact of this risk factor in recent years, and the **recommendations of numerous national and international bodies** (which will be outlined below), it is proposed to reduce the maximum permitted blood alcohol content for all drivers to 0.2 g/L or 0.10 mg/L in exhaled air.

**R.2.** The best guarantee of road safety is a blood alcohol content of **0.00**, but as will be discussed and explained below at length, **this level is unrealistic in practice**. In any event, sophisticated laboratories have confirmed that an alcohol level of 0.2 g/l-0.10 mg/l is eliminated very quickly and has practically no effect on driving, with only a slight impact on certain very complex cognitive activities that do not occur during driving.

By contrast, it has been confirmed over years by various studies that **above an alcohol level of 0.3 g/l, and especially at 0.5 g/l or its equivalent in exhaled air, the risk of a casualty accident can be three times higher, or even more, than for sober drivers** (e.g. Bogen, 1932; Borkenstein et al., 1964; Perrin et al., 1971; Krüger et al., 1995; Allsop, 2020; Garrisson et al., 2021). (See ANNEX, Graph 8).

**R.3.** Various parts of the **World Health Organization (WHO)** Global Plan for the Decade of Action for Road Safety 2021-2030 address the issue of alcohol and accidents, recommending action on alcohol limits. Likewise, in the Global Alcohol Action Plan 2022-2030, WHO refers to the need to act on drink driving in order to prevent traffic accidents, which also features in the 2030 Agenda for Sustainable Development, adopted by the **United Nations General Assembly**.



**R.4.** Another argument in favour of lowering the limits also comes from the **European Parliament**, within the framework of the European Union's Road Safety Policy for the decade 2021–2030. The Parliament has adopted a series of recommendations for governments to take action on blood alcohol content and to develop a zero-tolerance policy towards people who drive under the influence of alcohol.

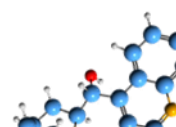
**R.5.** Possibly the most recent and important document on the need to lower alcohol limits is the European Transport Safety Council report (ETSC, 2022): *“Progress in Reducing Drink-Driving and other Alcohol-Related Road Deaths in Europe”*. This report analyses the progress in 30 European countries (including 25 in the EU) in reducing drink driving fatalities. And most importantly, **it explicitly recommends that European Union countries (page 6 of the report) reduce their maximum BAC to 0.2 g/l**, under the consideration that this amount is virtually equivalent to 0.00. **(See the ANNEX for alcohol limits in the various European countries, Table 3).**

**R.6.** The blood alcohol limit of 0.2 g/l – 0.10 mg/l proposed for introduction in Spain, in line with, amongst others, the recommendation of the European Transport Safety Council (ETSC), is already in force in two European countries with the best road safety and accident statistics in the world: **Norway and Sweden**. Specifically (although with slight variations depending on the year), in 2022–2023 per million inhabitants, Sweden registered 22–22 fatalities respectively (the best figures in the European Union), **Norway** 21–22 and **Spain** 37–36, with the **European Union** average standing at 46 in both 2022 and 2023 **(See supplementary data in ANNEX: Table 4)**. With regard to the IF3 fatality rate per 1 billion vehicle-kilometres in 2022: **Sweden** had a rate of 3.5, **Norway** 3.1 and **Spain** 7.8.

**R.7.** The actions, strategies and results in these two countries are a global benchmark. The fact is that in 1990 the alcohol limit in Norway and Sweden was reduced from 0.5 g/l to 0.2 g/l. This resulted in a **12% reduction in casualty accidents, an 8% reduction in fatal accidents and also a 16% drop in the number of people driving under the influence of alcohol** (Norström and Andersson, 1996; Laurell, 2004). However, it is very important to bear in mind that this success was not only due to lowering the alcohol limits. In addition to this, there was a complete range of strategies and measures that needed to be implemented, which will be discussed later.

Apart from the aforementioned case of Norway and Sweden, various studies conducted in countries where alcohol limits were lowered and the strategy was complemented by other measures (Australia, Poland, France, Estonia, Belgium, Austria, Chile, Turkey, Japan, etc.) demonstrate that it is possible to achieve reductions in alcohol-related road accidents, as well as in the number of drink drivers, although researchers remain cautious about referring to overly specific percentages (Desapriya et al., 2007; Karakus et al., 2015; Otero & Rau, 2017; Nistal-Nuño, 2017; Moreau et al., 2022).

Against this backdrop, Høye & Storesund (2023) undertook an interesting meta-analysis of the studies conducted in the various countries on the effects of reducing legal alcohol limits and concluded that there is a direct relationship between such limits and accident levels. Naturally, they also found that the higher the BAC limit, the greater the number of serious accidents. This relationship is close to an exponential relationship, leading to the conclusion that a small reduction in the number of drivers who have consumed alcohol can have considerable effects on the number of road accidents.



**R.8.** In relation to the Norwegian-Swedish model, the level of acceptance among Spanish drivers for low alcohol limits (0.00 mg/l - 0.10 mg/l) is very high according to the results of the 2023 ESRA3 international survey. Behind the Czech Republic, Spanish citizens are the Europeans who are most in favour of low limits.

**R.9.** In addition to the studies and recommendations from the various international bodies mentioned above regarding the advisability and usefulness of lowering blood alcohol limits, a number of prestigious international institutions, universities and other social organisations involved in road safety have also called on governments to consider introducing lower blood alcohol limits.

**R.10.** Taking into account the high level of substance use among Spanish drivers (it is worth reiterating that in 2023, 53.6% of driver fatalities had alcohol in their blood and/or other drugs of abuse or psychoactive substances of some kind), lowering the alcohol limits could help reduce and possibly shorten the effects of a possible mixture of products, with the corresponding impact on road accidents (Hels, 2011; Elvik, 2013).

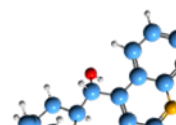
**R.11.** It is proposed that, as in Norway and Sweden, the limit of 0.10 mg/l - 0.2 g/l should be applicable to all drivers, without differentiating between groups (general population, novice or professional drivers), thereby fostering the idea that the risks of alcohol are the same for all types of drivers. It has been proven (also through the experience in Sweden and Norway) that the simpler the rule on permitted alcohol level, the greater the degree of compliance, and the easier it is to communicate, the higher the level of recall and the less confusion there is.

**R.12.** Lastly, in this context, it should be noted that in more developed countries, in accordance with the most advanced international technical standards, laboratories analysing traffic fatalities currently tend to regard a blood alcohol content above 0.10 g/l (previously 0.3 g/l) as the detection threshold (D'Orazio et al., 2021).

## **4.2. The dilemma of an alcohol limit of 0.00 compared to 0.10 mg/l - 0.2 g/l**

This is a complex issue, in which it is necessary to distinguish what is desirable from what is “possible in practice,” also take into account the impact that introducing a 0.00 level might have on certain sectors of society. Following a review of various documents, studies and research papers relating to the issues posed by establishing an alcohol limit of 0.00, it is worth highlighting the following:

1. The presence of alcohol in fermented fruit has been described by, among other researchers, the primatologist Christina Campbell and in particular the biologist Robert Dudley of the University of California in his book *The Drunken Monkey* (Dudley, 2004). Ethanol can be found naturally in very mature fruit such as apples, bananas, grapes, pineapples, pears, etc., which are fermentable because of the type of sugars they contain. Due to its tannins, rowanberry fruit can contain up to 4% alcohol. To give another example, **durian** may also contain alcohol, as has been demonstrated in numerous studies and experiments carried out by the Chinese traffic police.



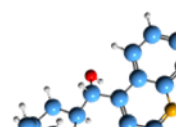
2. There are various chocolate bars on the market and in particular certain types of chocolates that contain, as one of the components, alcohol (in certain cases a considerable proportion of pure alcohol): rum, whisky, cognac, Cointreau, brandy, amaretto, etc. In addition, some meat dishes and a considerable variety of desserts are flavoured with certain types of liqueurs, rum, whisky, etc., the amount of which varies depending on the recipe, the establishment or type of dessert. In exceptional cases this could of course lead to an alcohol level above 0.00.
3. To improve the taste, alcoholic drinks are also added (in greater or lesser amounts) to a substantial number of flambéed foods. Numerous studies, most notably those conducted by Mateus & Ferreira (2011), show that, depending on the amount of alcohol added, as well as the type, boiling time and other interesting variables, significant traces of alcohol may remain in food. This was also uncovered by the research undertaken by Ryapushkina et al. (2016) and other studies published in various publications, such as the Journal of the American Dietetic Association, published from 1925 onwards. It is important to bear in mind that the boiling points of water and alcohol are not the same.
4. In this context, it is also necessary to mention the existence of certain pharmaceutical products, including a considerable number of types of syrups, which contain alcohol. Some authors indicate that there could be more than 700 liquid preparations sold as medicines around the world, which may contain alcohol, some in significant concentrations (Salazar & Pimentel, 2003). It is also important to bear in mind that traces of alcohol in the mouth can, in some exceptional cases, lead to measurement errors.
5. Lastly, with regard to the 0.00 alcohol limit, it is necessary to address the issue of alcohol-free drinks and those known as "0.0" (the latter have the lowest amount of alcohol). In the case of beers (the most popular "alcohol-free or 0.0-type" drinks), the methods most commonly used to remove alcohol are the following: controlling the amount of alcohol produced during fermentation and separating the alcohol from the beer after brewing.

Among the studies on this type of drink consulted (which, it must be said, are few in number), the paper by Pastor, Varo & Fenollar (2000) was considered to be worth highlighting as it was conducted in Spain with "alcohol-free" drinks marketed, specifically in our country. The method used to establish the alcohol content was photometric absorbance (enzyme immunoassay).

After analysing a large number of brands, with many variations, the research team found that in the case of "alcohol-free" beers (and other beverages), some brands have an alcohol content of 1% by volume. This means that "alcohol-free" drinks also contain a small amount of alcohol, which could reach a level above 0.00 if several are consumed.

In summary, based on the above and other factors that could be added, it can be said that the ideal level of 0.00 can be affected by the consumption of certain everyday products (or other circumstances), which in practice make it technically impossible to achieve a blood alcohol level of zero. Indeed, in relation to this issue, the European Commission (2023) "Road safety thematic report: Alcohol and drugs" states - verbatim in section 5.2, page 14 - that the main arguments for a 0.2g/l enforcement limit (rather than zero), are *"to take account of the possibility of inaccuracy in breath testing devices at these low levels, and to avoid (falsely) prosecuting drivers who only have some small amount of alcohol in the mouth without having consumed alcohol"*.

However, it must be made clear to the motoring public that the only safe level is 0.00, but that just as a "margin of error" is tolerated with speed cameras, a margin of tolerance will be applied to the (possible) new alcohol limits in order to avoid the problems outlined: 0.10 mg/l - 0.2 g/l,



as applied in Norway and Sweden. In fact, many of the countries that have an alcohol limit of 0.00 in their regulations in practice only sanction drivers when they test above zero.

#### 4.3. Sanctions and deduction of points.

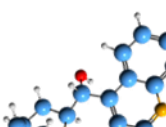
The issue of *police enforcement* and sanctions is one of the most widely discussed, applied and studied in the field of road safety (Elvik & Vaa, 2006). The necessity and effectiveness of road safety sanctions is unquestionable and has been demonstrated in countless studies. Just three examples: when traffic police officers went on strike, the number of infringements doubled or tripled and there was a significant increase in the number and severity of casualty accidents (Summala et al., 1980); in the Netherlands it was established over a period of thirty years (1970-2000) that when alcohol testing was increased, drink driving fell considerably, as did alcohol-related accidents (Mathijssen, 2005); It has been found that in the months following a sanction, the risk of having an accident is reduced by more than 35% (Redelmeier, Tibshirani & Evans, 2003).

However, it is very important to bear in mind that for fines (and the deduction of points) to be effective, they must comply with a number of principles, such as: proportionality to the risk posed by the offence, and the promptness of notification (something that has largely been achieved with the launch of the ESTRADA Centre), as well as other principles such as awareness of the seriousness of the offence, knowledge of the amounts of the fines, and the perceived risk of being penalised.

In summary, short-term actions should include conducting a major analysis and perhaps reconsidering the aspects discussed above (and others) to improve the effectiveness of alcohol-related sanctions. It is very important to emphasise that the strategy of lowering the legal blood alcohol limits only has a significant impact on road behaviour and accident rates when – in addition to training and information – it is combined with highly publicised, visible and frequent police enforcement, and with random alcohol testing (Fell, 2019), a strategy that generally yields better results in reducing drink-driving offences than the imposition of more severe penalties (SWOV, 2021), particularly when fine levels are already within acceptable limits, as is the case in Spain.

Having said all that, the two proposals regarding guidelines for blood alcohol limits, penalties and penalty points submitted to the Directorate-General for Traffic – should the limits of 0.10 mg/l and 0.2 g/l ultimately be introduced – are set out in the two attached tables and have the following characteristics:

1. As in the cases of Sweden and Norway, the aim was to produce a very simple table of alcohol limits and sanctions.
2. It has been found that the more complex the table of alcohol limits, the lower the level of memorisation and compliance.
3. It is a relatively straightforward concept to explain, and its simplicity helps to minimise confusion as far as possible.
4. The deduction of points and the sanctions proposed in both tables as a guide - adapted naturally to the new alcohol limits - are largely proportional to the current fines.





## PROPOSAL ONE

## FOR ALL DRIVERS

| BAC g/l                     | CURRENTLY |        | FUTURE PROPOSAL |        |
|-----------------------------|-----------|--------|-----------------|--------|
|                             | SANCTION  | POINTS | SANCTION        | POINTS |
| $0.2 < \text{BAC} \leq 0.5$ | 0         | 0      | €300            | 2-3    |
| $0.5 < \text{BAC} \leq 1.0$ | €500      | 4      | €500            | 4      |
| $1.0 < \text{BAC}$          | €1,000    | 6      | €1,000          | 6      |

## PROPOSAL TWO

## FOR ALL DRIVERS

| BAC g/l                     | CURRENTLY |        | FUTURE PROPOSAL |        |
|-----------------------------|-----------|--------|-----------------|--------|
|                             | SANCTION  | POINTS | SANCTION        | POINTS |
| $0.2 < \text{BAC} \leq 0.4$ | 0         | 0      | €200            | 2      |
| $0.4 < \text{BAC} \leq 0.6$ | €500      | 4      | €300            | 3      |
| $0.6 < \text{BAC} \leq 1.0$ | €1,000    | 6      | €500            | 4      |
| $1.0 < \text{BAC}$          | €1,000    | 6      | €1,000          | 6      |

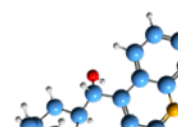
### 4.4. The new alcohol limits and repeat offenders.

It is very important to bear this issue in mind and plan for it, as lowering the legal blood alcohol limits could lead to an increase in the number of offences committed by drivers who have consumed alcohol within a one-year period. Furthermore, this is a very significant problem that needs to be addressed in the short to medium term, within the context of the measures on drink-driving set out in the 2024–2025 Action Plan on Road Safety (DGT, 2024a). (See Table 3 in ANNEX, point 22.1.7.2).

Without delving into the complex issue of the concept of repeat offences or the specific provisions of the Criminal Code, two types of repeat offenders could be identified: in very brief terms, those who are ‘alcoholics’ or habitual heavy drinkers, and drivers who, whilst not being alcoholics, have received several penalties over a period of time for driving with a positive blood alcohol level.

**“Alcoholic” repeat offenders.** Various sources, such as Alcoholics Anonymous, suggest that there may be around three million alcoholics in Spain, although it is extremely difficult to obtain a figure with any degree of accuracy. There is a considerable number of studies on these drivers, indicating that reductions in alcohol limits or sanctions have little or no influence on their behaviour if they are unable to separate alcohol from driving (Podda & Meinero, 2022). There is also a widespread opinion in the scientific world that only retraining and healthcare treatment programmes are generally effective for these drivers, while some researchers even believe that if such programmes did not prove successful, it would be justified to ban them from driving (Goldenbeld et al., 2020).

**Non-alcoholic repeat offenders with multiple fines.** No scientific evidence has been found regarding the impact of a reduction in blood alcohol limits on “recidivism” in non-alcoholic drivers. However, what has been proven is that this group (unlike alcoholics) is more susceptible to penalties, exercises greater self-control over their alcohol consumption, and is more likely to





moderate their behaviour when faced with the prospect of prolonged penalties, the loss of points or the withdrawal of their driving licence (Ross, 1984; Wagenaar et al., 2007).

In any event, it is recommended that the Directorate-General for Traffic maintain the same principles existing in the current model for “repeat offenders with multiple fines”: the same time period, the same financial sanctions and the same number of points deducted, while, needless to say, adjusting them to the new blood alcohol limits that are ultimately introduced.

#### 4.5. Increase alcohol and drug testing.

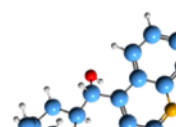
In addition to the WHO’s Global Action Plan on Alcohol 2022–2030, the strategy of stepping up alcohol testing is, among many other organisations, particularly highlighted and endorsed in the recommendations of the report “*Progress in Reducing Drink-driving and other Alcohol-related Road Deaths in Europe*” by the European Transport Safety Council (ETSC, 2022).

Increasing the number of tests and **their randomness** in line with the provisions of points 24.2.2.07 and 24.2.7.01 of the Action Plan on Road Safety (DGT, 2024a) (See Table 3 in the ANNEX), would be highly useful and effective in addressing drink-driving behaviour, as has been demonstrated in numerous studies.

Of particular note is the review conducted by H. Laurell (2004) of the results of 23 studies carried out on this random testing strategy. It has been estimated that random testing is more than twice as effective as testing at pre-selected fixed checkpoints. The implementation of random testing in Australia – well planned, implemented and studied – resulted in a 22% reduction in fatal accidents in some areas.

In this context, it is also worth highlighting that, in addition to drivers killed in road accidents who had alcohol in their blood (see section 2.B), according to the National Toxicology and Forensic Science Institute, in the last six years around 20% had consumed other drugs, an issue that is not confined to Spain as it occurs in many European Union countries (European Commission, 2023).

Given that the number of drivers who use drugs is rising every year, that there is an ever increasing variety of such toxic substances, that the channels through which they can be obtained are proliferating and that patterns of use are more diverse and complex, it would be advisable to standardise the use of dual tests (alcohol + other toxic substances) when conducting alcohol testing, in view of the evident road safety risk posed by poly-substance use, and also to explore the legal possibility of imposing some form of special sanction in these cases of substance mixing in order to take proactive measures to address a problem that, according to all the data, appears to be on the rise.



## 5. CONDUCTING A MAJOR PUBLIC AWARENESS-RAISING MEDIA CAMPAIGN

In 1970 the international group of experts set up by the OECD was the seed from which the Safety Campaign Handbook grew, a pioneering guide on how to run campaigns and promote road safety. There are now countless experts, studies, articles and books on the subject, providing guidelines for the most successful approaches for road safety communication (De Vrieze, 2001).

Moreover, despite the doubts raised by some administrations and groups, various research projects have shown that road safety communication campaigns, when designed and disseminated effectively, have a significant effect on driver behaviour, although their major issue is that they are affected by the passage of time and must therefore be carried out on an ongoing basis (Elder et al., 2004; Fisa et al., 2022).

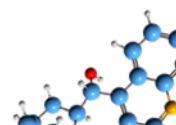
It is clear that an action on alcohol and driving like the one put forward here, with the various aspects involved and the significant social impact that it will have, needs to be communicated appropriately in order to fulfil all its aims and objectives (Delhomme et al., 2009; Steinka-Fry et al., 2015). To this end, every effort must be made to ensure that three key principles are strictly met if success is to be guaranteed:

- A. Ensure that the message is widely publicised in the appropriate media, so as to guarantee that it reaches all drivers.
- B. The campaign must explain all changes to the regulations in a very clear and straightforward manner, so that they are understood and remembered.
- C. The campaign must also clearly explain the changes being made in relation to alcohol, so that they are understood and accepted.

Furthermore, the public awareness campaign on drink-driving should focus primarily on the three objectives outlined very briefly below:

1. To highlight the objective seriousness of the situation as revealed by the various statistics (accidents, injuries, fatalities, penalties, etc., in line with all the data described in Point 2) relating to drink-driving, and therefore the need and obligation to take action on this issue.
2. To raise public awareness of some of the key mental and physical effects that alcohol consumption has on drivers, which are precisely what account for the high accident rates resulting from it.
3. To communicate clearly and simply the main changes being introduced: blood alcohol content, penalties, points deductions, etc.

Experts in road safety communication indicate that the three points above are of particular importance (Elliott, 1989; SWOV, 2017).



## 6. ACTIONS TO BE TAKEN IN THE SHORT, MEDIUM AND LONG TERM

It is very important to note that the positive results achieved by Sweden and Norway when they lowered their blood alcohol content limits were largely due to the fact that they accompanied this measure with a planned set of road safety initiatives. Simply changing the limits is unlikely to yield meaningful results on its own.

Indeed, numerous countries have reduced their limits to 0.00 and utterly failed to control alcohol-related accidents. As such, in addition to the actions already recommended in previous sections (controls, campaigns, repeat offending, sanctions, etc.), further measures should be introduced to complement and support these efforts in order to deter drink-driving. For example:

**A.** Take the necessary steps to ensure that driving schools reinforce all aspects of alcohol-related information and training.

**B.** Increase the number of alcohol-related questions in driving tests so that learner drivers receive more training on this subject and also understand the so that people preparing to obtain a driving licence can learn more about this issue and also realise that the problem of alcohol is particularly relevant to driving.

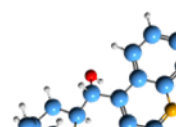
**C.** In line with the above, given the significant role of alcohol in accidents involving pedestrians and different vehicle users, emphasis should be placed on boosting the presence of this topic at all stages of road safety education and in every programme.

**D.** Within the points-based licence system as a whole, it is also important to promote re-education and greater awareness of the serious risks involved in failing to separate alcohol consumption from driving.

**E.** Consult relevant experts in the field to explore the possibility of introducing penalties of some kind for warning other drivers about the presence of alcohol testing.

**F.** Take the necessary steps to ensure that recent technologies such as alcohol interlocks are effectively implemented in vehicles in categories M2–M3, in accordance with the provisions of the 2024–25 Action Plan on Road Safety (DGT, 2024a). (See ANNEX, Table 3, point 22.2.3.01).

**G.** Clearly, steps must be taken to ensure that the plan involves the cooperation (in addition to the Traffic Division of the Civil Guard) of local and regional police forces, victims' associations, organisations and foundations involved in road safety, the Spanish Federation of Municipalities and Provinces, the road safety committees of the autonomous communities, etc., and, in particular, to involve all the main mass media.



## 7. SUMMARY AND CONCLUSIONS

1. In order to carry out the research and draw up various recommendations that might help reduce the impact of alcohol consumption on road accident rates, in addition to conducting an extensive review of the scientific literature on the subject, it was deemed necessary to obtain objective and reliable data from a variety of sources and perspectives, so as to gain a clear understanding of the situation regarding the problem of drink-driving and road accidents in Spain.

To achieve this objective - in addition to the data that could be obtained by consulting scientific literature and/or research - three types of Spanish sources were used directly. **Data from the ARENA database of the Directorate-General for Traffic**, for the last five years available (2018-2022). Of the **467,117** casualty accidents that occurred during this five-year period, **18,727** were identified as involving alcohol.

The following aspects were analysed separately: alcohol-related accidents in which at least one driver involved in the accident had tested positive for alcohol; casualties in accidents involving alcohol; fatalities in alcohol-associated accidents, in relation to the total number of people killed in road accidents; and the severity of the accidents involving alcohol.

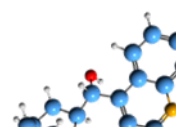
Data were also gathered from the **National Toxicology and Forensic Science Institute** (2018-2023) on the trend in the number of driver fatalities involving alcohol and/or other types of toxic products (drugs/medicines). Moreover, data were obtained on the number and variations in the percentages of pedestrians killed in road accidents who tested positive in toxicological analyses.

These data were also supplemented by several types of information from the **Public Prosecutor's Office for Road Safety** (2018-23): proceedings initiated, charges and sentences. Lastly, data of particular interest were also obtained relating to **sanctions and penalty points** for positive alcohol tests for the period 2018-2022.

All these aspects are described and elaborated in section 2 of this report. In summary, it could be said that, from various perspectives, all the data obtained indicate that there is in effect a serious and consolidated situation of accidents caused by drink driving and that this is an alarming trend. Added to this, moreover, there has been a significant rise in the consumption of other toxic substances and/or medicines by drivers, which are often taken together with alcohol.

2. The information provided in the previous point regarding the worrying statistics on alcohol-related accidents in Spain (a problem that also exists in many European countries), combined with the recommendations on this issue from numerous road safety experts, research centres and international bodies and institutions (the World Health Organisation, the European Commission, the United Nations General Assembly, the European Transport Safety Council, etc.), make it necessary to promote a series of measures, among which the revision of the current legal blood alcohol content stands out in particular.

Point 4.1 of the report summarises 12 reasons - backed by data and research where appropriate - that recommend reducing the alcohol content limit for all vehicle drivers in Spain to 0.2 g/l BAC - 0.10 mg/l in exhaled air, that is, implementing in Spain the recommendations made by many bodies including the European Transport Safety Council (ETSC), and it urges others to implement the positive experience of Sweden and Norway, countries that have had this limit for years.



These are, in fact, the two safest countries in the world according to various indicators, such as: the number of road deaths per billion vehicle-kilometres, the number of deaths per million inhabitants, and the number of vehicles.

Given this limit of 0.10 mg/l – 0.2 g/l, there are in practice only two main alternatives at international level: 0.5 g/l or the so-called ‘zero tolerance’ limit. With regard to the former, over the years numerous studies have revealed (the report provides extensive data on this) that a blood alcohol content of 0.5 g/l can, in most cases, triple the risk of death whilst driving – something that is unacceptable to society and should not be tolerated by the relevant authorities.

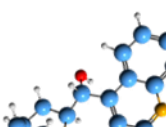
On the other hand, the so-called ‘0.00 limit’ is very straightforward to communicate, but it is unworkable for numerous reasons outlined in the report: some ripe fruits ferment or contain alcohol; countless syrups containing alcohol are sold; alcohol is added to various foods and desserts; many drinks labelled ‘non-alcoholic’ contain some alcohol; there are liqueur-filled chocolates, etc. In fact, quite a few of the countries whose regulations provide for a 0.00 blood alcohol content, in practice only impose penalties when the driver’s test result is above zero (to avoid the so-called ‘false’ positives)

3. In addition to the general recommendations from organisations, research centres and experts regarding the desirability and effectiveness of reducing alcohol limits and the various studies on this subject cited in the report, there are also specific data showing that countries that lowered their legal alcohol limits also reduced the number of alcohol-related accidents, their severity and the number of drivers who drive after having taken alcoholic drinks. This would be the case mentioned regarding Sweden and Norway, but this reduction was also observed (albeit with less statistical data) in other countries such as Australia, France, Belgium, Austria, Chile, Turkey and Japan.

However, it is important to point out that with alcoholics and/or drivers who are habitual heavy drinkers, to lower blood alcohol limits or tougher penalties have little or no influence on their behaviour in terms of not separating alcohol consumption from driving. It has generally been found that, for these drivers, only specific re-education and medical treatment programmes can be effective.

4. It is very important to note that the positive results achieved by Sweden, Norway and other countries when they lowered the legal blood alcohol limits were largely due to the fact that they accompanied this measure with a well-planned set of road safety initiatives. Changing the limits alone is unlikely to yield meaningful results. It has been demonstrated in various countries that when limits were lowered to 0.00 without any other measures, efforts to control alcohol-related accidents failed spectacularly. Among the various measures that should be prioritised are, first, those relating to alcohol testing, particularly in urban areas.

The enforcement of traffic offences and penalties is one of the most debated, applied and studied topics in the complex field of road safety. Concisely, the conclusion is clear: the necessity and effectiveness of penalties in road safety are beyond question and have been demonstrated in countless studies. However, police checks must be widely publicised, visible and frequent, with breathalyser tests carried out at random (without over-reliance on pre-selected fixed checkpoints); this strategy generally yields better results in reducing drink-driving incidents than the imposition of more severe penalties, particularly when fine amounts are already within



acceptable limits, as is the case in Spain. It has been found that the perceived risk of being stopped for a breathalyser test generally acts as a greater deterrent to drink-driving than the amount of a financial penalty.

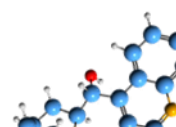
It would also be advisable to extend the use of 'double-test' controls (for alcohol and other toxic substances) more widely, given the obvious serious risks associated with poly-substance use, and to explore the legal possibility of introducing some form of special penalty for such cases of substance mixing.

5. Experience from other countries and expert studies suggest that it is essential to accompany the reduction in blood alcohol limits with a major public awareness campaign, explaining to the public the new limits, the new penalty system, changes to the points-off system, etc., and, in particular, the key reasons behind these regulatory changes, which are justified by accident statistics and the serious effects of alcohol on drivers.

6. To support all the actions and strategies set out in various of the sections above, it would also be advisable in the short, medium and long term to introduce, activate and disseminate a series of complementary actions, described below:

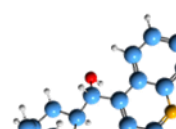
- Enhancing information and training at driving schools (and other associated centres) on all aspects relating to alcohol use, accidents and road safety.
- Giving particular importance to the issue of alcohol throughout the assessment system (tests) for driving licence applicants.
- Ensuring that the risks posed by alcohol in mobility (pedestrians and different vehicles and/or transport systems) are explained in all road safety training courses.
- To give greater emphasis to this issue in the re-education of drivers penalised for drink-driving under the points-based licence system, by improving the training and refresher courses for instructors, gathering more information on the profiles of offenders, gaining a better understanding of the strategies used in other countries in this regard, and examining existing systems for tackling the problem of repeat offenders.
- As a final point, it is also essential to ensure the involvement in preventing the serious problem of alcohol and driving of associations, organisations, institutions, etc., including: the Traffic Division of the Civil, regional and local police forces, the Autonomous Communities' Road Safety Commissions, the Spanish Federation of Municipalities and Provinces, social organisations (victims' groups, foundations, universities, etc.) and some others that in some way have responsibilities, carry out activities, campaigns or research in the field of road safety.

Lastly, it is important to point out that, where appropriate, every attempt has been made to reference and cite the studies on which all the comments, statements and recommendations in this report were based or to indicate the source of the data used to ensure that the information provided is as rigorous as possible. As such, no general bibliography on the subject has been included; all the referenced bibliography (listed on the next page) was obtained from the citations and documents specifically mentioned in the text of the report.



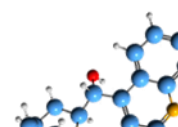
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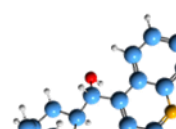


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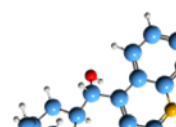




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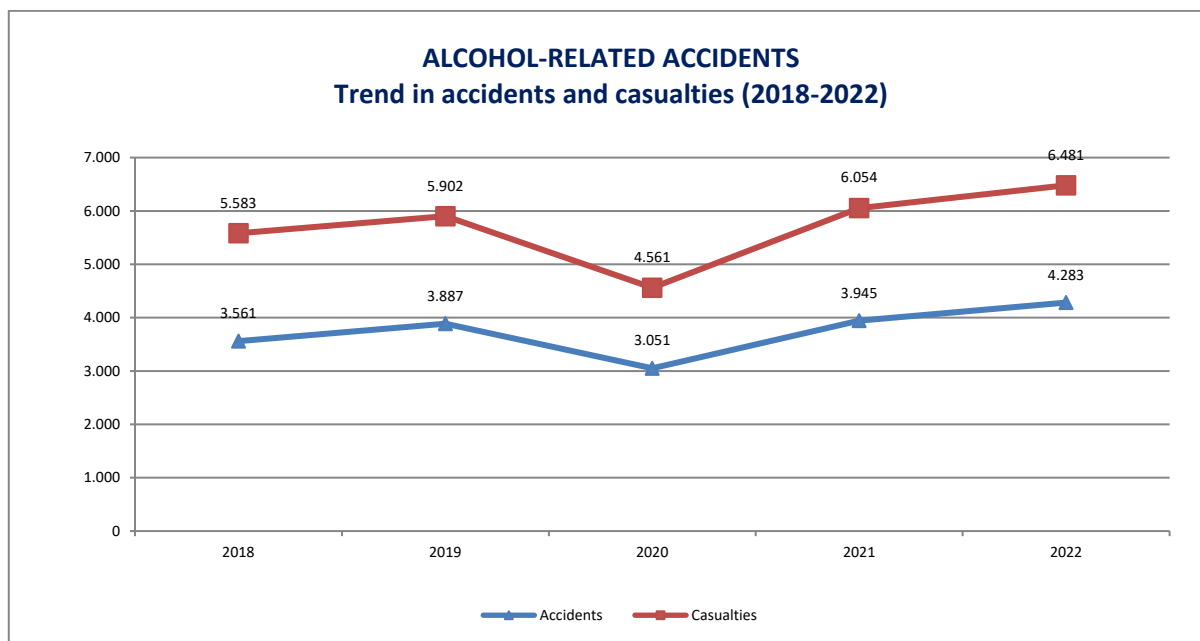


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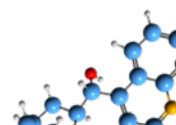
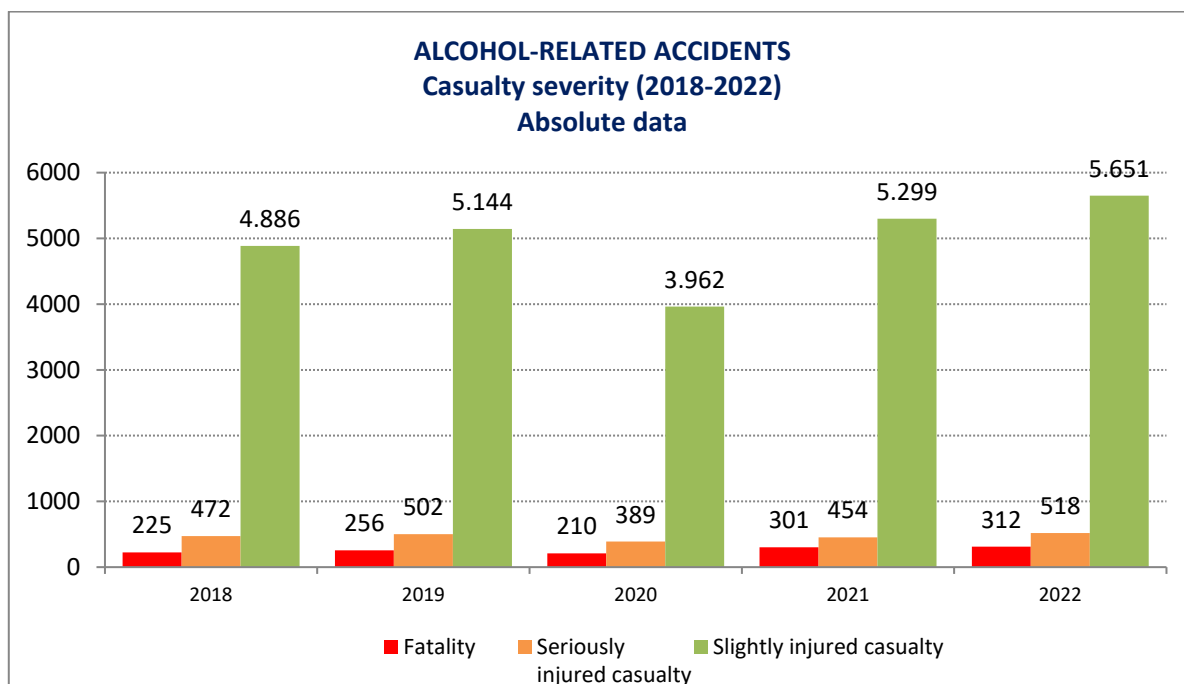


## ANNEX

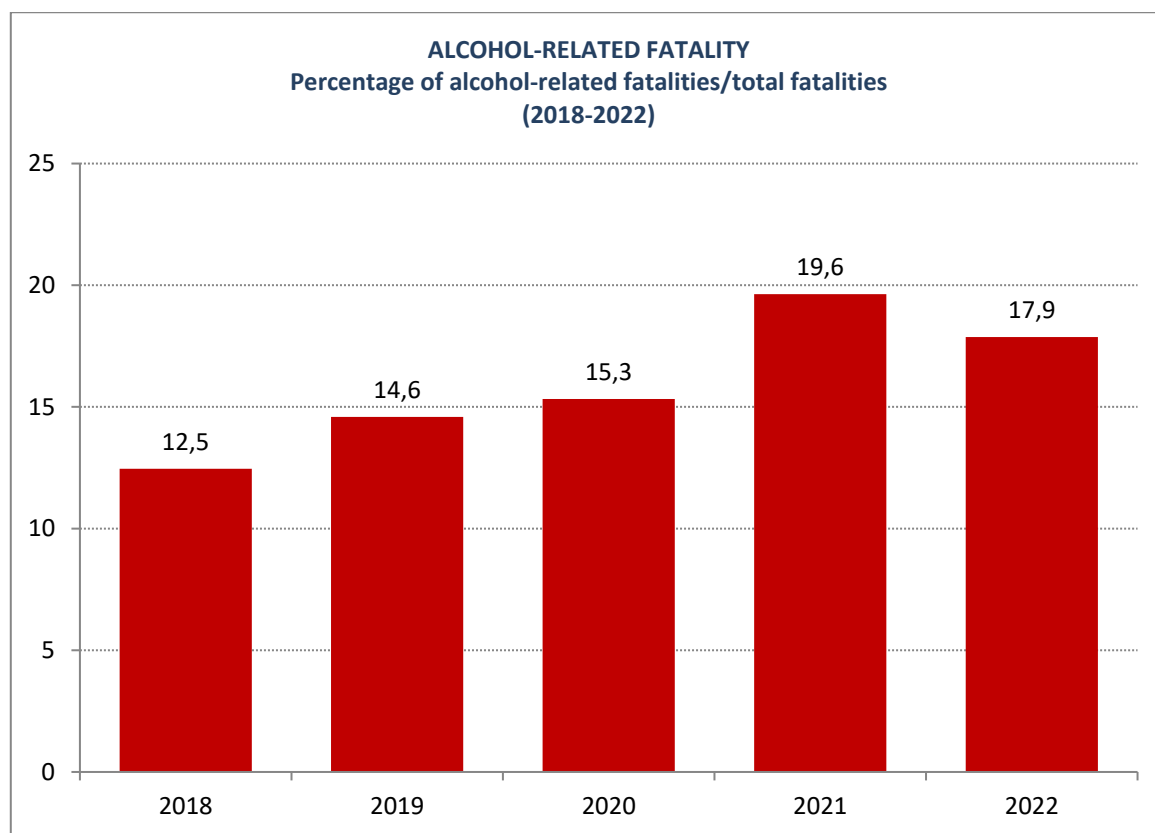
Graph 1.



Graph 2.

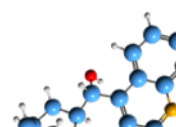


**Graph 3.**

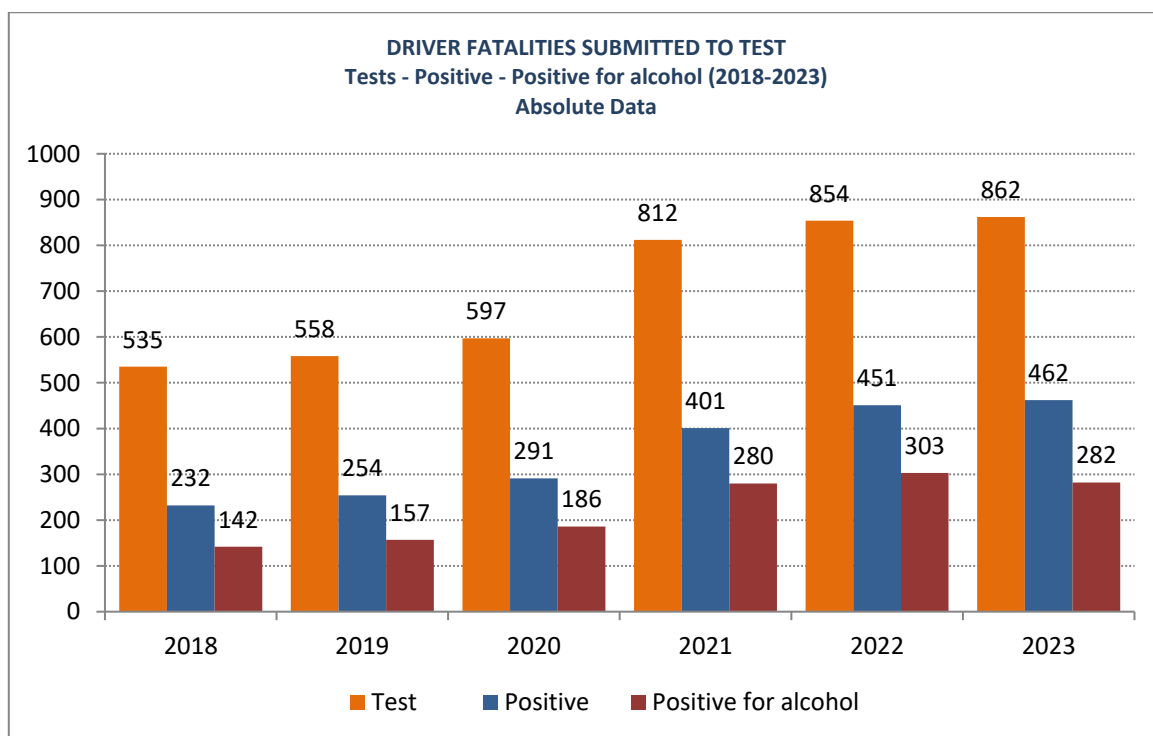


**Table 1.** Toxicology. Driver fatalities who tested positive for alcohol (Results obtained from INTCF reports) Absolute data

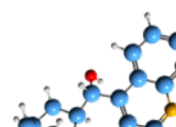
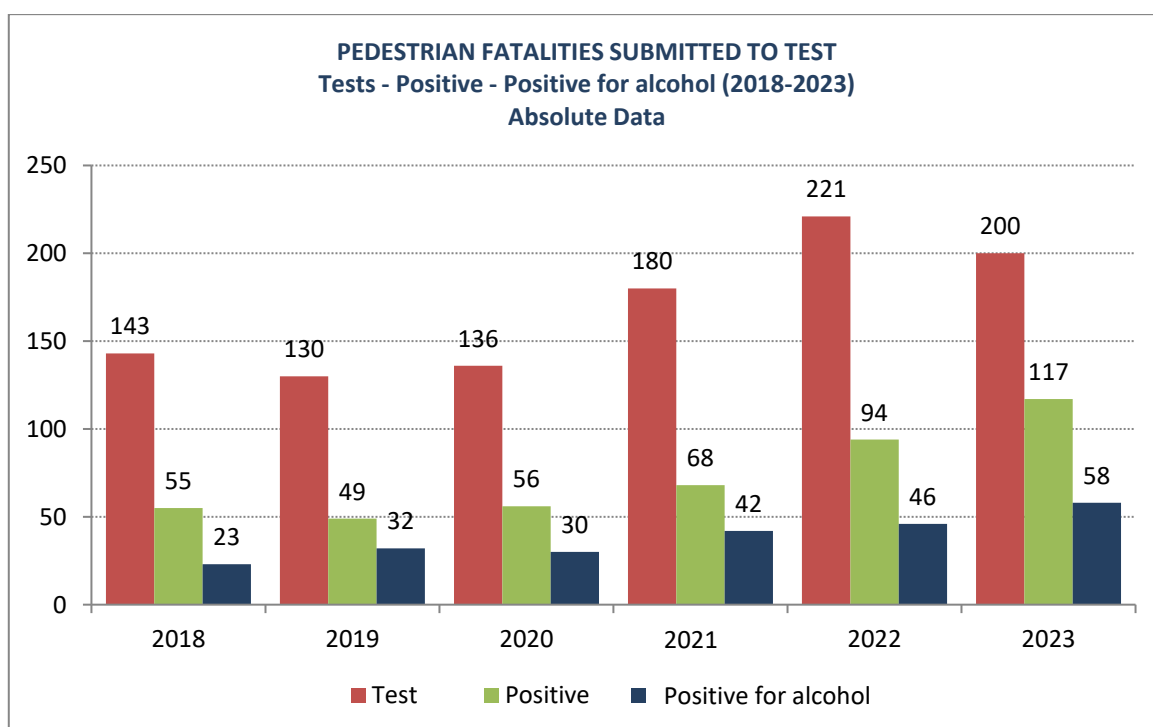
| Year | Analysis | Positive | Positive for alcohol |
|------|----------|----------|----------------------|
| 2018 | 535      | 232      | 142                  |
| 2019 | 558      | 254      | 157                  |
| 2020 | 597      | 291      | 186                  |
| 2021 | 812      | 401      | 280                  |
| 2022 | 854      | 451      | 303                  |
| 2023 | 862      | 462      | 282                  |



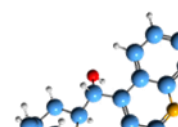
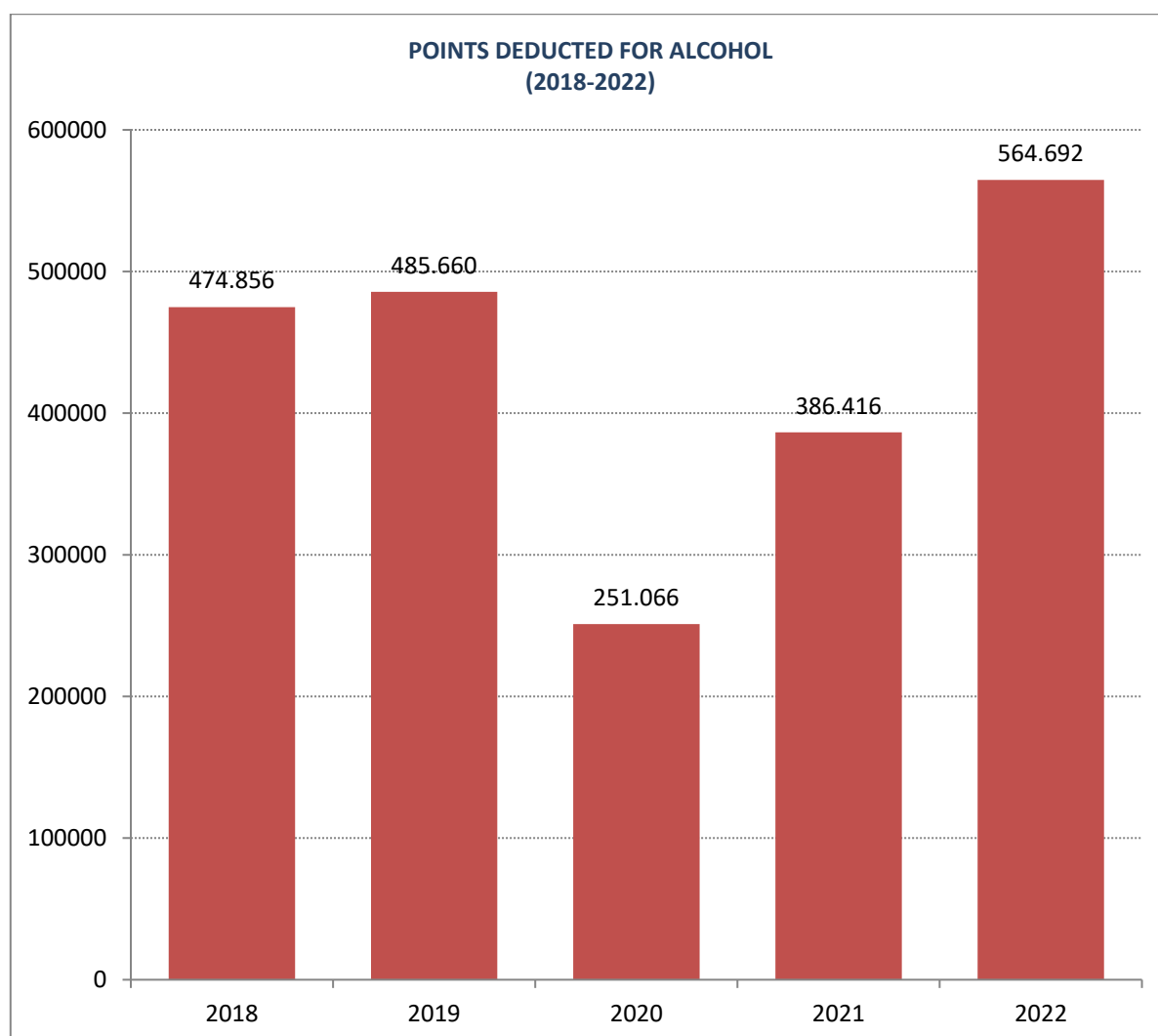
**Graph 4.**



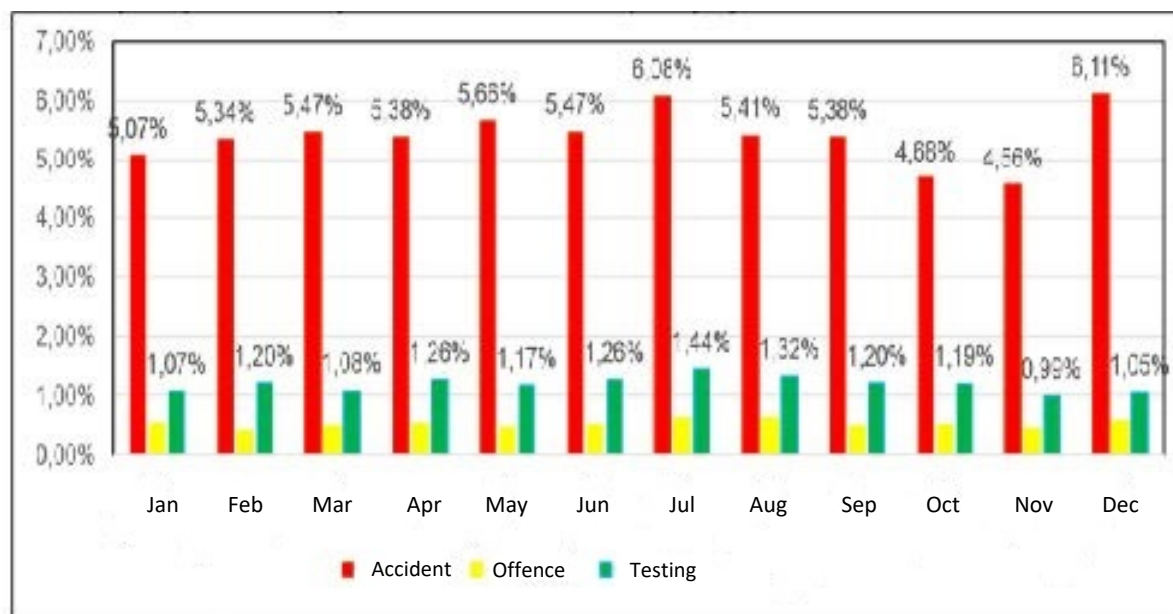
**Graph 5.**



**Graph 6.**



**Graph 7.** Percentage of alcohol test positives by type and month. 2023

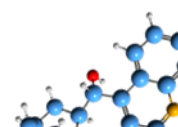


**Source:** DGT based on ATGC data.

**Table 2.** Percentage of alcohol positives by test type (2018-2023)

| INDICATOR                           | 2018      | 2019      | 2021      | 2022      | 2023      |
|-------------------------------------|-----------|-----------|-----------|-----------|-----------|
| <b>Tests performed</b>              | 5.509.022 | 6.598.675 | 4.552.163 | 5.836.074 | 6.700.937 |
| By accident                         | -         | -         | -         | -         | 126.944   |
| By offence                          | -         | -         | -         | -         | 956.984   |
| By testing                          | 4.752.798 | 5.610.291 | 3.617.582 | 4.823.397 | 5.617.009 |
| <b>Percentage of positive tests</b> | -         | -         | -         | -         | 1,17%     |
| By accident                         | -         | -         | -         | -         | 5,38%     |
| By offence                          | -         | -         | -         | -         | 0,50%     |
| By testing                          | 1,30%     | 1,23%     | 1,18%     | 1,47%     | 1,19%     |

**Source:** ATGC and DGT.





**Table 1.** Effects of alcohol on drivers according to alcohol level

**Beginning of risk zone: alcohol level 0.3 to 0.5 g/l**

Emotional excitability  
 Reduced mental acuity and judgement  
 Relaxation and feeling of well-being  
 Impairment of eye movements

**Alarm zone: alcohol level 0.5 to 0.8 g/l**

Generally slowed reaction time  
 Reflex abnormalities  
 Onset of motor disturbance  
 Euphoria in driver, relaxation and feeling of well-being  
 Tendency towards emotional inhibition  
 Onset of impulsive and aggressive driving behaviour

**Dangerous driving: alcohol level 0.8 to 1.5 g/l**

Significant state of intoxication  
 Highly impaired reflexes and slowed response time  
 Loss of fine motor control  
 Serious coordination problems  
 Difficulty maintaining visual focus  
 Marked decrease in alertness and risk perception

**Highly dangerous driving: alcohol level 1.5 to 2.5 g/l**

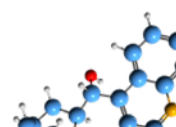
Full intoxication with possible narcotic effects and confusion  
 Unpredictable behaviour changes: psychomotor restlessness  
 Severe psycho-sensory disturbances and marked mental confusion  
 Double vision and hesitant attitude

**Driving not possible: alcohol level >3 g/l**

Profound intoxication  
 Stupor with analgesia and progressive loss of consciousness  
 Loss of reflexes, paralysis and hypothermia  
 May lead to coma

.....

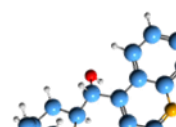
**Source:** Directorate-General for Traffic. Study on the reduction of alcohol limits. Working Group 36. Madrid: Consejo Superior de Tráfico y Seguridad de la Circulación Vial, 1998.



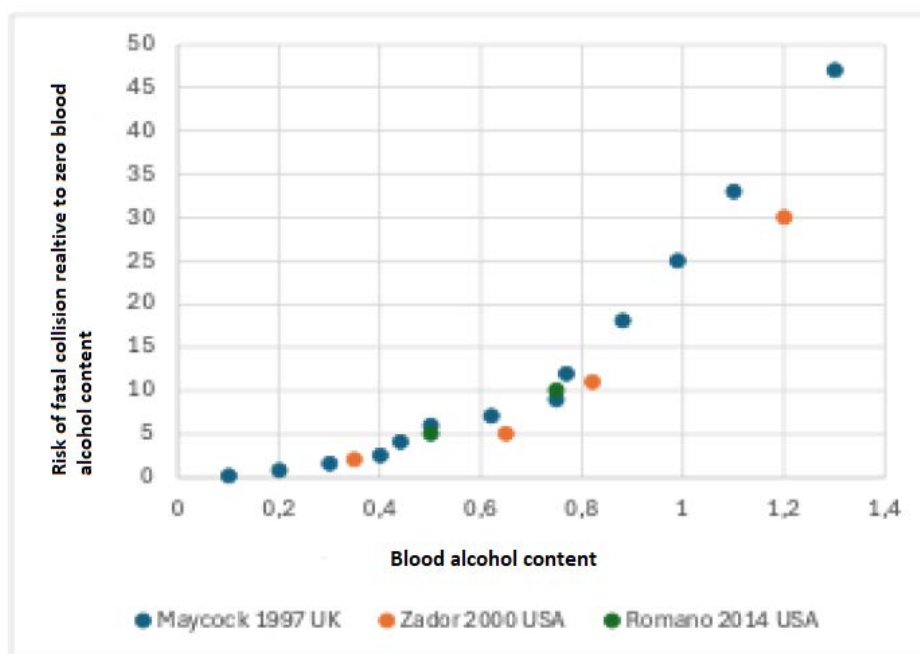
**Table 2.** Effects of alcohol on drivers according to alcohol level

|                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| <b>Beginning of risk zone</b>                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Up to 0.5 g/l</b> |
| Some perceptual disturbances appear.<br>Some impairments in decision-making.<br>Emotional excitability and disinhibition.<br>Underestimation of speed.<br>Greater risk tolerance.<br>Longer reaction time.<br>Motor and psychomotor coordination problems.<br>Impaired motor precision.                                                                                                                                               |                      |
| <b>Alarm zone</b>                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>0.5 - 0.8 g/l</b> |
| Impaired distance perception.<br>Problems adapting vision to changes in light (dazzling).<br>Decreased sensitivity to red light.<br>Impaired decision-making.<br>False sense of self-confidence.<br>Impulsivity and aggression.<br>Motor and psychomotor impairments.<br>Increase in lane-keeping errors.<br>Balance impairment.<br>Reduced feeling of fatigue.<br>Increased drowsiness.                                              |                      |
| <b>Dangerous driving</b>                                                                                                                                                                                                                                                                                                                                                                                                              | <b>0.8 - 1.5 g/l</b> |
| Serious perceptual problems (double vision, dazzling, tunnel vision, etc.).<br>Severe attentional impairments (especially alertness and divided attention).<br>Severely impaired decision-making.<br>Poor perception and greater risk tolerance.<br>Overestimation of one's own abilities.<br>Impulsive and unpredictable behaviour.<br>Severely impaired reaction time.<br>Severe problems with coordination and movement precision. |                      |
| <b>Highly dangerous driving</b>                                                                                                                                                                                                                                                                                                                                                                                                       | <b>1.5 - 2.5 g/l</b> |
| Severe perceptual and attentional problems.<br>Severe impairments in motor control and coordination.<br>Severely impaired decision-making.<br>Hesitant, impulsive and unpredictable behaviour.                                                                                                                                                                                                                                        |                      |
| <b>Driving not possible</b>                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Over 3 g/l</b>    |
| Profound intoxication.<br>State of stupor and progressive loss of consciousness.<br>Possibility of coma (over 4 g/l) and death (over 5 g/l).                                                                                                                                                                                                                                                                                          |                      |

**Source:** DGT-INTRAS (2024).

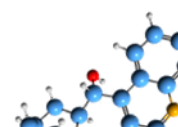


**Graph 8.** Estimates from three different widely recognised studies regarding the increased risk of a fatal accident as the blood alcohol content rises, expressed in grams per litre of blood.



Source. Allsop, 2020.

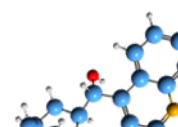
Source. Allsop, 2020.



**Table 3.** Blood alcohol content limits in Europe expressed in grams per litre

|                | Drivers | Professional drivers  | Novice drivers     |
|----------------|---------|-----------------------|--------------------|
| Austria        | 0,5     | 0,1                   | 0,1                |
| Belgium        | 0,5     | 0,2                   | 0,5                |
| Bulgaria       | 0,5     | 0,5                   | 0,5                |
| Croatia        | 0,5     | 0                     | 0                  |
| Cyprus         | 0,5     | 0,2                   | 0,2                |
| Czech Republic | 0       | 0                     | 0                  |
| Denmark        | 0,5     | 0,5                   | 0,5                |
| Estonia        | 0,2     | 0,2                   | 0,2                |
| Finland        | 0,5     | 0,5                   | 0,5                |
| France         | 0,5     | 0.5 (0.2 Bus drivers) | 0.2                |
| Germany        | 0,5     | 0                     | 0                  |
| Greece         | 0,5     | 0,2                   | 0,2                |
| Hungary        | 0       | 0                     | 0                  |
| Ireland        | 0,5     | 0,2                   | 0,2                |
| Italy          | 0,5     | 0                     | 0                  |
| Latvia         | 0,5     | 0.5                   | 0,2                |
| Lithuania      | 0,4     | 0                     | 0.0                |
| Luxembourg     | 0,5     | 0,2                   | 0,2                |
| Malta          | 0,5     | 0,2                   | 0,2                |
| The Netherland | 0,5     | 0,5                   | 0,2                |
| Norway         | 0,2     | 0,2                   | 0,2                |
| Poland         | 0,2     | 0,2                   | 0,2                |
| Portugal       | 0,5     | 0,2                   | 0,2                |
| Romania        | 0       | 0                     | 0                  |
| Slovakia       | 0       | 0                     | 0                  |
| Slovenia       | 0,5     | 0                     | 0                  |
| Spain          | 0,5     | 0,3                   | 0.3 (0.0 under 18) |
| Sweden         | 0,2     | 0,2                   | 0,2                |
| United Kingdom | 0,8     | 0,8                   | 0,8                |
| Switzerland    | 0,5     | 0,1                   | 0,1                |

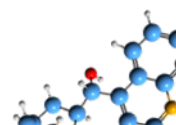
**Source:** Podda & Meinero (2022)



**Table 4.** Fatalities per million inhabitants in European countries

|                    |      |      | Percentage change in 2023 compared to: |      |              |
|--------------------|------|------|----------------------------------------|------|--------------|
|                    | 2022 | 2023 | 2022                                   | 2019 | Mean 2017-19 |
| <b>EU</b>          | 46   | 46   | -1%                                    | -10% | -12%         |
| <b>Belgique</b>    | 46   | 43   | -6%                                    | -22% | -19%         |
| <b>Bulgaria</b>    | 78   | 82   | -1%                                    | -16% | -18%         |
| <b>Czech Rep.</b>  | 50   | 46   | -5%                                    | -19% | -18%         |
| <b>Denmark</b>     | 26   | 27   | 4%                                     | -20% | -12%         |
| <b>Germany</b>     | 33   | 34   | 2%                                     | -7%  | -11%         |
| <b>Estonia</b>     | 37   | 43   | 20%                                    | 13%  | 6%           |
| <b>Ireland</b>     | 31   | 35   | 19%                                    | 31%  | 29%          |
| <b>Greece</b>      | 63   | 60   | 5%                                     | -10% | -12%         |
| <b>Spain</b>       | 37   | 36   | 0%                                     | -1%  | -3%          |
| <b>France</b>      | 50   | 48   | -3%                                    | -2%  | -4%          |
| <b>Croatia</b>     | 71   | 71   | 0%                                     | -8%  | -13%         |
| <b>Italy</b>       | 54   | 52   | -2%                                    | -2%  | -6%          |
| <b>Cyprus</b>      | 41   | 37   | -8%                                    | -35% | -34%         |
| <b>Latvia</b>      | 60   | 76   | 27%                                    | 9%   | 4%           |
| <b>Lithuania</b>   | 43   | 56   | 33%                                    | -14% | -13%         |
| <b>Luxembourg</b>  | 56   | 39   | -28%                                   | 18%  | -6%          |
| <b>Hungary</b>     | 55   | 49   | -12%                                   | -22% | -24%         |
| <b>Malta</b>       | 50   | 26   | -46%                                   | -13% | -21%         |
| <b>Netherland</b>  | 37   | 35   | -6%                                    | 5%   | 8%           |
| <b>Austria</b>     | 41   | 43   | 7%                                     | -5%  | -5%          |
| <b>Poland</b>      | 50   | 52   | 0%                                     | -35% | -35%         |
| <b>Portugal</b>    | 60   | 61   | 3%                                     | -8%  | -8%          |
| <b>Romania</b>     | 86   | 81   | -5%                                    | -17% | -17%         |
| <b>Slovenia</b>    | 40   | 39   | -4%                                    | -20% | -20%         |
| <b>Slovakia</b>    | 49   | 52   | 5%                                     | 4%   | 4%           |
| <b>Finland</b>     | 35   | 32   | -10%                                   | -17% | 17%          |
| <b>Sweden</b>      | 22   | 22   | 2%                                     | 5%   | 5%           |
| <b>Switzerland</b> | 28   | 32   | -20%                                   | 3%   | 3%           |
| <b>Norway</b>      | 21   | 22   | 5%                                     | 13%  | 13%          |
| <b>Iceland</b>     | 24   | 21   | -11%                                   | 33%  | -40%         |

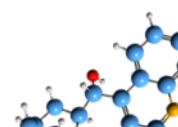
Source: Atasayar, Fleischer & Donabauer, 2024.



**Table 3.** 2024-25 Action Plan on Road Safety. Directorate-General for Traffic

**Drink driving-related actions**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>22.1.7.02 Implementation of specific measures targeting repeat offenders for offences relating to driving under the influence of alcohol and other drugs.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <p>Development of a project setting out specific measures to tackle repeat offences relating to drink-driving and other drug-related driving offences, which was presented in 2023 to the Inter-territorial Council of the National Health System and the Sectoral Conference on Drugs.</p>                                                                                                                                                                                                                                                                                                                                                                           |
| <p>To facilitate the coordination of the measures required to implement this project, a working group is due to be set up in 2024 between the Directorate-General for Traffic and the regional health departments of the autonomous communities.</p> <p><b>Responsible body:</b> DGT/SGFEV<br/> <b>Participating bodies:</b> M.Health (Directorate-General for Public Health and Government Office for the National Plan on Drugs), Autonomous Regions, DGT/UN, DGT/JPT</p>                                                                                                                                                                                           |
| <p><b>22.2.3.01 Implementation of alcolock devices in public passenger transport.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p>The necessary measures will be taken to ensure the proper implementation of the mandatory use of alcohol interlocks in passenger transport vehicles that are fitted with the installation interface envisaged in Regulation 2019/2144.</p>                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p>Under the 2024-2025 Plan, action will be taken to foster meetings with administrations and entities in the field of public passenger transport, and to assess the level of implementation of the Fifteenth Additional Provision of Royal Legislative Decree 6/2015 of 30 October, adopting the amended text of the Law on Traffic, Use of Motor Vehicles and Road Safety, which sets out that category M2 and M3 vehicles used to transport passengers that are fitted with a standardised interface for the installation of ignition interlock devices shall be fitted with said interlock devices, which shall also be used by the drivers of such vehicles.</p> |
| <p><b>22.2.4.01 Amendment to the General Regulations on Drivers to improve the protection of groups.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p>One of the pillars is: “the reduction in alcohol level limits for novice drivers and for professionals: 0.20 g/l of alcohol in the blood or 0.10 mg/l of alcohol in exhaled air. This reduction is in line with the World Health Organization requirements.”</p>                                                                                                                                                                                                                                                                                                                                                                                                   |



**24.2.2.07. Increased alcohol and drug testing, part of Measure 4 of the 2024 Emergency Plan.**

The preventive alcohol testing to be performed on the roads will increase by 400,000, further to around six million by the end of this year. In addition, drug testing will increase by 20,000, reaching a total of 120,000 throughout 2024.

**24.2.7.01 Enhanced monitoring of professional transport, part of Measure 6 of the 2024 Emergency Plan.**

Monitoring of professional transport and transport by van, particularly on weekdays will be enhanced. In addition, more alcohol and drug tests will be performed on professional drivers.

**24.7.6.01 Obtaining key performance indicators and publication of the scorecard**

The necessary statistical analysis and field work will be conducted to obtain the key performance indicators (KPIs): speed, belt/CRS, helmet, distractions (mobile telephones), alcohol and other drugs, and vehicles.

**22.8.8.02 Fostering the prevention of drug dependence and addictions in the workplace**

Impetus is given to the prevention of drug dependence and addictions to address the challenges arising from the consumption of alcohol, drugs and other substances in the workplace, identifying and seeking solutions to the situations and risks arising from such consumption as part of a policy of prevention.

