



# Effectiveness and impact of alcohol interlock-controlled driving rights

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## FOREWORD

An alcohol interlock device is a piece of equipment that measures the alcohol content of a driver's exhalation, and prevents starting of the vehicle if the permitted limit is exceeded. This study examined the effectiveness and impact of alcohol interlock-controlled driving rights. In Finland, alcohol interlock-controlled driving rights were taken into permanent use on 1 July 2008, based on the positive experiences gained during a three-year trial.

The following parties were represented in the study's steering group:

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- the Police Administration; Hanna Piipponen and Heikki Ihalainen
- the Ministry of Transport and Communications; Kimmo Kiiski
- Ramboll Finland Oy; Anne Vehmas

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Marita Löytty from Trafi wrote Chapters 1 (Background), 5 (Other countries' alcohol interlock practices related to persons guilty of driving while intoxicated) and 6.3 (Causes of death), as well as parts of Chapter 2 (Alcohol interlock-controlled driving rights).

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## ABSTRACT

### Effectiveness and impact of alcohol interlock-controlled driving rights

The study investigated the effectiveness and impact of alcohol interlock-controlled driving rights. The materials for the study consisted of a survey sent to all drivers who chose alcohol interlock-controlled driving rights, email surveys sent to police departments, district courts and alcohol interlock importers, as well as interviews of health care representatives and drivers. In addition, the driving rights, traffic violation data and causes of death of persons with alcohol interlock-controlled driving rights registered in the Traffic Information System, as well as the log data decoded from the alcohol interlocks of a single manufacturer were analysed in the study, and a review of other European countries' alcohol interlock practices regarding drivers guilty of driving while intoxicated was drawn up.

During the period 1 July 2008 – 12 June 2012, a total of 1,687 drivers held alcohol interlock-controlled driving rights, and 24 (1.4%) of these drivers died. Alcohol-related causes of death and suicides were much more prevalent among persons with alcohol interlock driving licences than in the general population. The average age of the drivers was 51, and 84% of the drivers were male. The youngest driver was 20 years old; the oldest, 82.

More than half of the drivers had been convicted of driving while intoxicated several times before receiving an alcohol interlock-controlled right to drive. Of all drivers, 54 (3.3%) were caught driving while intoxicated during their period of alcohol interlock-controlled driving rights. After the end of alcohol interlock-controlled driving rights, 41 (2.5%) drivers were caught driving while intoxicated. Thus, a total of 95 (5.7%) drivers were caught driving while intoxicated during and/or after their period of alcohol interlock-controlled driving rights. The recidivism percentage of alcohol interlock users seems to be significantly smaller than that of all persons convicted of driving while intoxicated (29–30%).

Most drivers said that alcohol interlock use had affected their alcohol use and helped them avoid driving while intoxicated. Based on the log data, alcohol interlocks used in controlled driving rights have prevented 12 000 instances of driving while intoxicated ( $\geq 0,5 \text{ ‰}$ ), and over 40 000 times a driver who had “had a few” ( $\geq 0,2 \text{ ‰}$ ) to start a vehicle for driving (the number includes also the cases with  $\geq 0,5 \text{ ‰}$ ). Roughly a third of all drivers said they had kept or would keep the alcohol interlock in voluntary use after the end of the probationary period.

The average length of alcohol interlock-controlled driving rights was 506 days, i.e. slightly less than 18 months. Even though cases of interrupted driving rights were deleted from the material, 15% (229) of all alcohol interlock-controlled driving rights lasted less than the statutory 12 months. Many drivers complained of difficulties in obtaining information on the length of the probationary period before making the decision whether to acquire an alcohol interlock, and the duration of the period remained unclear for many even during use, since drivers had received contradictory information from different authorities. According to the district courts, likely explanations for the overly-short probationary periods included difficulties in interpreting the law, ignorance, negligence and human error.

Persons convicted of driving while intoxicated perceived the alcohol interlock in varying ways. At one end of the spectrum, the alcohol interlock was viewed as a problem, a nuisance in everyday life and a shameful reminder of driving while intoxicated. At the other extreme, the alcohol interlock was considered a helper, an aid in life management and safe travel companion, which prevented further mishaps. Most drivers felt exhaling into the interlock in

public to be awkward. A tenth of all drivers concealed the existence of the alcohol interlock from everyone but their own family, and a few drivers even concealed it from their families.

Most drivers did not experience trouble with obtaining information, but according to 10–15% of those interviewed, no one was able to give advice on matters related to the alcohol interlock, and the information was scattered, unclear and too general. Drivers expressed a wish for more detailed information on the locations of vendors and installers of alcohol interlocks, the required appointment with a physician, duration of the probationary period, and the possibility to obtain an alcohol interlock driving licence even before the district court had made its decision. The general level of knowledge on the possibility of using an alcohol interlock has improved in recent years, but still more communication and instruction on alcohol interlock-controlled driving rights is required, for both drivers and authorities.

Many shortcomings were identified in the effectiveness of alcohol interlock-controlled driving rights. It is crucial to eliminate these shortcomings to make alcohol interlock use more common, with the positive effects on the safety of traffic this entails. The development recommendations formulated in the study are summarised below.

- More communication on alcohol interlocks and alcohol interlock-controlled driving rights (An alcohol interlock campaign and website)
- There should be drawn up clarifying instructions on alcohol interlock-controlled driving rights for district courts, police departments and health care professionals
  - Guidance from the Ministry of Social Affairs and Health regarding the content and objectives of discussion
  - Authorities could recommend the alcohol interlock to persons caught driving while intoxicated, as well as retaining the alcohol interlock in voluntary use after the probationary period.
  - Local cooperation meetings between the police, district courts and health care services
- A log data register defined and maintained by the authorities should be created to store the decoded log data of all alcohol interlock manufacturers or their representatives in a uniform format.
  - Making use of alcohol interlock log data when, e.g. restoring driving rights and treating substance abuse, as well as for purposes of research and the compiling of statistics.
- Authorities should define and approve all processes related to alcohol interlock use required from the devices' manufacturers or their representatives.
- Proposed changes to the alcohol interlock-controlled driving rights process
  - Driving bans ordered for driving while intoxicated should be lengthened to equal the length of the probationary period of controlled driving rights.
  - A normal driving licence should be restored to the driver only once the alcohol interlock's log data is found to contain no rejected exhalations in the past six months. If a driver has attempted to set off under the influence of alcohol, the police could either extend the validity of the alcohol interlock driving licence until such time that all exhalations in the past six months have been accepted, or direct the person to substance-use monitoring and health-based alcohol interlock use.
  - A health care professional should evaluate each individual's need for discussion sessions, e.g. from one to three sessions.
  - A short driving ban before receiving alcohol interlock-controlled driving rights should be considered for all persons caught driving while intoxicated.

- Device manufacturers and importers should improve the user instructions of alcohol interlocks and continue technical development to alleviate problems related to, e.g. exhalations and warming up.
  - Garages should be instructed on the handling of alcohol interlocks during servicing of the car.
  - The number of alcohol interlock log data-decoding stations should be increased, or a reliable method of remote decoding developed.
- Subjects for further study include the various categories of persons with alcohol interlock driving licences (e.g. first-time-offenders, and recidivists) and instances of driving while intoxicated during a period of holding alcohol interlock-controlled driving rights.

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Separate Annex 9. Free-form answers to the survey (82 pages, published only in Finnish on Trafi's website,

[http://www.trafi.fi/filebank/a/1361786250/db68d306e776047b01db7cb3013d7864/11615-Trafin\\_julkaisu\\_05-2013\\_-\\_Erillisliite\\_9.pdf](http://www.trafi.fi/filebank/a/1361786250/db68d306e776047b01db7cb3013d7864/11615-Trafin_julkaisu_05-2013_-_Erillisliite_9.pdf)).

# 1 Background

During the years 2007–2011, 79 people died and 900 were injured on average in road traffic accidents related to driving while intoxicated. These figures represent a quarter of all road traffic accident casualties and one-tenth of all injuries sustained in road traffic accidents. (Liikenneturva 2012)

The reduction of drivers' alcohol and other intoxicant use is a key part of the long-term work of improving safety in road traffic. A diverse selection of means exists for reducing the incidence of driving while intoxicated: education of drivers and other road users, training and seeking to influence attitudes, campaigns, enhancing and focusing traffic surveillance, general alcohol policies, the per mille limit of driving while intoxicated, various substance abuse treatment, rehabilitation and evaluation programmes directed at drivers, driving bans and confiscation (loss of the car).

The alcohol interlock prevents a vehicle from being driven while under the influence of alcohol and is an efficient method of preventing driving while intoxicated. For example, evaluation studies conducted in the United States have found that alcohol interlock use reduced recidivism by 64 per cent on average (Sprattler 2009). Alcohol interlocks entered the market in the United States and Canada in the 1980s as part of a rehabilitation programme for persons guilty of driving while intoxicated.

In Finland, alcohol interlocks were taken into use in July 2005 as part of a trial for alcohol interlock-controlled driving rights for drivers guilty of driving while intoxicated. The experiences of other nations, Sweden in particular, were charted as part of the groundwork for the trial. Sweden conducted its first alcohol interlock trials as early as in the 1990s.

At the same time, alcohol interlocks were being voluntarily adopted for use in commercial traffic. A report of the experiences gained during the trial was published entitled 'Voluntary Trial Use of the Alcohol Interlock' (Donner, Vehmas and Herkkola 2008). Since August 2011, alcohol interlock use has been mandatory in chartered school and day care transport (Act 1110/2010 and Government Decree 405/2011).

## 2 Alcohol interlock-controlled driving rights

A trial of alcohol interlock-controlled driving rights was conducted in Finland between 1 July 2005 – 30 June 2008. Approximately 300 drivers participated in the trial, whose purpose was to investigate the functionality and acceptability of alcohol interlock devices and the processes related to them. A process follow-up report (Beilinson, Britschgi, Higgins and Lähesmaa 2007) as well as a report on the opinions of drivers who passed the trial (Beilinson and Poutanen 2007) were published.

Based on the positive experiences gained during the trial, alcohol interlock-controlled driving rights were taken to permanent use on 1 July 2008, subject to a few minor alterations (Act 439/2008 and Government Decree 474/2008). Alcohol interlock use is an alternative to the driving ban resulting from driving while intoxicated; drivers may apply for an alcohol interlock-controlled driving right that is tied to a single vehicle, fitted with an alcohol interlock that prevents starting the vehicle while under the influence of alcohol.

By virtue of the Act (439/2008), alcohol interlock-controlled driving rights may be granted to persons residing permanently in Finland and who are found guilty of driving while intoxicated with alcohol, and who are not subject to a driving ban for a different reason. Such a person must hold driving rights for passenger cars, vans, lorries, buses or tractors. Alcohol interlocks can be fitted in one or more vehicles used by the person being monitored.

A driver who exercises alcohol interlock-controlled driving rights leaves his or her regular driving licence in the care of the police upon the start of the controlled driving rights and receives what is termed an ‘alcohol interlock driving licence’ in its stead. The requirement to use an alcohol interlock is indicated by national special condition 111 marked on the alcohol interlock driving licence. The registration number of the vehicle to which the driver’s driving rights are limited is also entered in the Driving Licence Register.

A driver being monitored by an alcohol interlock must visit a doctor or other health care professional to discuss the driver’s intoxicant use, its effects on his or her health and the treatment possibilities for substance use before being issued with an alcohol interlock driving licence. In addition to the certificate of such a visit, a driver applying for an alcohol interlock driving licence must also deliver proof of alcohol interlock installation in his or her vehicle or vehicles, as well as a certificate of the vehicle or vehicles’ alteration inspection, to the police in his or her place of residence.

The court will set a probationary period of no less than a year and no more than three years for drivers monitored by alcohol interlocks. Such a driver must use an alcohol interlock for the entire duration of the probationary period, irrespective of the length of the conditional driving ban imposed on him or her. On average, the cost of alcohol interlock use is roughly EUR 110–160 per month, including purchase and installation costs. However, it is not necessary to buy an alcohol interlock; drivers can also rent one for the duration of their controlled driving rights. In either case, the monitored driver will be responsible for the costs.

Three different models have been approved for use in alcohol interlock-controlled driving rights: the German Dräger Interlock XT, the Canadian ACS Guardian WR2 and the American SmartStart SSI 20/20. The Finnish Transport Safety Agency has approved the above-mentioned alcohol interlocks for use by virtue of Acts 439/2008

and 1109/2010. The importer's website contains more information on the Dräger Interlock XT:

[http://www.draeger.com/media/10/07/98/10079867/Interlock\\_XT\\_pi\\_fi\\_L2.pdf](http://www.draeger.com/media/10/07/98/10079867/Interlock_XT_pi_fi_L2.pdf); information on the Guardian WR2 can be found on the website of its representative in Finland, Suomen Alkolukko Oy: <http://www.suomenalkolukko.fi/fi/valvottu-ajo-oikeus>; details on the SmartStart are available on the importer's website: <http://www.malux.fi/fi/default2.asp?lang=fi>.

Alcohol interlocks must be calibrated to prevent the vehicle from being started if the driver's exhalation contains at least 0.10 milligrammes of alcohol per litre of air. This corresponds to a blood alcohol level of approximately 0.2 per mille. After the first exhalation is rejected due to excessive alcohol content, alcohol interlocks must lock for five minutes and for 15 minutes after each subsequent rejected exhalation, until an exhalation is accepted. After an accepted exhalation, the driver has five minutes to start the car. After the engine has been turned off, the car can be restarted within five minutes without the alcohol interlock requiring a new breath sample.

Alcohol interlocks must also demand breath samples at random intervals during driving. The driver has six minutes to provide such an exhalation. The alcohol interlock must require the first exhalation within 5–10 minutes of starting the car, followed by exhalations every 30–45 minutes. If an exhalation is not provided within the set time limit, or if the alcohol content measured in the driver's exhalation exceeds the permitted limit, the alcohol interlock will not turn off a running engine; rather, the alcohol interlock's alarm system will start sounding the car's horn with the intention of discouraging further driving.

An alcohol interlock will stop the vehicle from being started if the interlock has not been serviced within seven days of the ending of the service interval, within five days of the alarm system having been engaged, within five days of the car having been moved or started without providing an accepted exhalation, or within five days of the central processing unit's power source having been shut down for more than 15 minutes.

Alcohol interlock log data and any violations of the terms of alcohol interlock use will be automatically registered in the central processing unit's memory. Monitored drivers must have their alcohol interlock log data decoded every 60 days by an authorised representative of the manufacturer registered with the Finnish Transport Safety Agency. In practice, these representatives are the installers of alcohol interlocks. Authorised installers of alcohol interlocks are listed by device on the website of the Finnish Transport Safety Agency. The alcohol interlock importer's representative delivers the log data to the police in the customer's place of residence, who can then revoke the monitored driver's driving rights if required.

Controlled driving rights will be revoked if the monitored person, without a valid reason, violates a condition of the controlled driving rights, neglects a duty related to the controlled driving rights or disables or attempts to disable the alcohol interlock. A monitored driver is not allowed to drive vehicles other than those fitted with alcohol interlocks and entered in the Driving Licence Register, and he or she must take his or her vehicle to an authorised representative of the device manufacturer for the decoding of log data and calibration of the alcohol interlock at specified intervals.

Alcohol interlock-controlled driving rights must also be revoked if the monitored driver is found guilty of causing a serious traffic hazard, driving while intoxicated or

driving while seriously intoxicated. In addition, alcohol interlock-controlled driving rights must also be revoked if the monitored driver so requests.

A brochure has been published on alcohol interlock-controlled driving rights. The police hands this brochure to all drivers found guilty of driving while intoxicated. The brochure can also be found on the police website, under Luvat > Ajokortit > Alkolukkoajokortti (in Finnish).

The number of drivers choosing controlled driving rights has been increasing since July 2008 (Figure 1). Between 1 July 2008 and 12 June 2012, a total of 1,687 have chosen alcohol interlock-controlled driving rights. However, this is only a small percentage of all drivers caught driving while intoxicated. In 2011, the police were aware of more than 21,000 cases of driving while intoxicated (including recidivists) and slightly more than 19,000 in 2012. More than half (54%) of these were cases of driving while seriously intoxicated. (Official Statistics of Finland 2013)

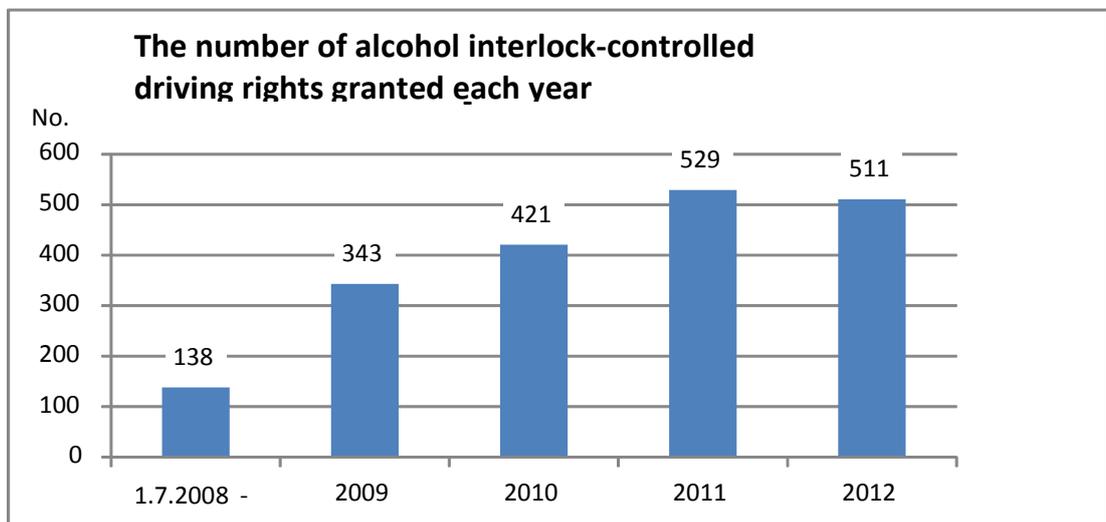


Figure 1. The number of alcohol interlock-controlled driving rights granted each year.

The report of the alcohol interlock working group of the Ministry of Transport and Communications (2012) recommends, for example, that the possibility of ordering conditional driving bans without control by alcohol interlock should be eliminated. The report also recommends that the position of alcohol interlock-controlled driving rights as an alternative to a driving ban should be reinforced by making it mandatory for courts to order such driving rights if the prerequisites are met and the convicted person agrees. A minimum duration of two years is also suggested for the controlled driving rights of persons repeatedly found guilty of driving while seriously intoxicated.

A person who is addicted to alcohol or cannot refrain from driving while under the influence of alcohol cannot be considered to meet the health requirements for driving. This requirement is based on the Driving Licence Directive. However, under the new Driving Licence Act (2011), a physician can consider the health requirements to be met if such a person's vehicle has been fitted with an alcohol interlock that prevents driving while intoxicated. This provision is based on the regulations of the Driving

Licence Act (Section 17(1), Paragraph 3 and Section 18(1), Paragraph 4) that entered into force at the beginning of June 2011. By virtue of these provisions, persons suffering from illness that affects their ability to drive could fulfil the health requirements of driving by using a vehicle fitted with an alcohol interlock that prevents driving while intoxicated. From 19 January 2013, Sections 12 and 16 of the Driving Licence Act have provided for the use of alcohol interlocks. Such alcohol interlocks are termed 'health-based alcohol interlocks', and are marked on driving licences by national special condition 113.

### 3 Objectives of the study

The objective of this study was to gather information on the functionality and effectiveness of alcohol interlock-controlled driving rights. The results of this study support the goal of expanding the scope of controlled driving rights and, in particular, the goal of reducing the incidence of driving while intoxicated.

The study's purpose was to shed light on the following questions:

#### Acquisition of alcohol interlocks and alcohol interlock driving licences

- How did drivers who chose controlled driving rights perceive the length of the period required for obtaining an alcohol interlock driving licence, given that it is possible for the police to issue such licences quickly, before the case is heard in court? [This process was changed on the basis of the experiences gained and feedback received during the trial.]
- Did drivers who chose controlled driving rights feel that they received timely and sufficient information on acquiring an alcohol interlock, having it installed, having their vehicles alteration-inspected and applying for an alcohol interlock driving licence? Did the drivers experience problems at any stage of the process? If they did, what sort of problems were they?
- How did drivers who chose controlled driving rights perceive the required visit to a doctor or other health care professional to discuss the driver's intoxicant use, its effects on his or her health and the treatment possibilities for substance use before being issued with an alcohol interlock driving licence? [Based on the experiences gained and feedback received during the trial, visits to physicians/substance abuse evaluation programmes during the controlled driving rights were stopped.]

#### Experiences of alcohol interlock use

- Did drivers who chose alcohol interlock-controlled driving rights receive sufficient information on the device's functioning, calibration and appropriate use in connection with installation?
- How did drivers who chose alcohol interlock-controlled driving rights perceive the decoding of alcohol interlock log data every 60 days? Were the drivers ever contacted by their local police regarding the decoded log data?
- How did drivers who chose alcohol interlock-controlled driving rights perceive alcohol interlock use in general? E.g. the awkwardness of exhaling in public, additional exhalations required during driving, the devices' functioning in freezing temperatures.
- What were the drivers' thoughts on the possibility of misusing the alcohol interlock?
- What were the drivers' opinions on expanding the scope of alcohol interlock use?

### Duration of alcohol interlock-controlled driving rights

- How did drivers who chose alcohol interlock-controlled driving rights perceive the length of the probationary period? Was the period's duration suitable, overly long or overly short?
- What were the authorities' views on the duration of alcohol interlock-controlled driving rights?
- What length of driving ban (following driving while intoxicated) did drivers who chose alcohol interlock-controlled driving rights feel to be sufficiently motivating to choose alcohol interlock-controlled driving rights?

### Functionality of the legal process related to alcohol interlock-controlled driving rights

- Did drivers who chose alcohol interlock-controlled driving rights consider interrupting their probationary period at any point? If yes, for what reason?
- How many drivers interrupted their alcohol interlock-controlled driving rights?
- How many drivers who chose alcohol interlock-controlled driving rights elected to voluntarily continue using the alcohol interlock in their vehicles after the end of the probationary period? What were the reasons for electing to continue alcohol interlock use? What were the reasons for declining to continue alcohol interlock use?
- Were the drivers who chose alcohol interlock-controlled driving rights guilty of recidivism at any point after the end of the probationary period?
- How often did alcohol interlocks prevent the starting of vehicles during alcohol interlock-controlled driving rights, and on which days of the week and time of day were these incidents concentrated?
- How large were the costs incurred over the entire duration of alcohol interlock-controlled driving rights by drivers who chose alcohol interlock-controlled driving rights?
- What costs and how much extra work do alcohol interlock-controlled driving rights cause to the various authorities?
- How do different organisations gather information on and supervise alcohol interlock-controlled driving rights?
- What are the views of drivers and authorities regarding the functionality of the alcohol interlock-controlled driving rights process?

The research methods used in the study are described in Chapter 4. Chapter 5 presents an international overview of alcohol interlock use, and chapters 6–9 present a combined report of the results achieved from study of the various research materials,

organised by topic. Chapter 10 relates the study's conclusions and presents some recommendations.

## 4 Research methods

The following materials were used as the source information for the study:

- Traffic Information System data on the driving rights, traffic violations and causes of death of alcohol interlock driving licence holders
- A survey of alcohol interlock driving licence holders
- Log data decoded from alcohol interlocks (of one manufacturer)
- E-mail surveys sent to police departments, district courts and importers of alcohol interlocks
- Interviews with a physician and a few drivers

In addition, the overview of alcohol interlock practices related to drivers found guilty of driving while intoxicated in other European countries was updated.

The driving rights and traffic violation data (for the period 1 July 2008 – 5 April 2012) of drivers who chose alcohol interlock-controlled driving rights were retrieved from the driving licence application of the Traffic Information System (TIS) maintained by Trafı. The system contained data on 1,593 drivers, of whom 22 were deceased and two under a security prohibition (Table 1). This left 1,569 persons, and the survey was sent to each of them.

For the analysis of the data retrieved from the Traffic Information System, some clarifications regarding the presentation of the data were requested from the retriever of the data. As a result, we received a new sample for the period 1 July 2008 – 12 June 2012. This sample included 1,687 drivers, of whom 24 were deceased and two were under a security prohibition. The analysis of data retrieved from the TIS covered 1,661 holders of alcohol interlock driving licences.

*Table 1. Samples retrieved from the Traffic Information System (TIS).*

	First sample	Second sample
<b>Date of sample</b>	5 April 2012	12 June 2012
<b>Use of the material</b>	Survey mailing	TIS data analysis
<b>In mailing/analysis</b>	1,569	1,661
<b>Security prohibition</b>	2	2
<b>Deceased</b>	22	24
<b>Total number</b>	1,593	1,687

The intention was to combine responses to the survey with background information obtained from the Traffic Information System. Due to the new sampling, combining the survey answers with the TIS data would have required combining each case manually, since the data was sorted differently in the second sample and with different sequential codes. There were insufficient resources to combine the data within the scope of this study.

The nature and acquisition of the source material used in this work are described in more detail below.

#### **4.1 Report on international alcohol interlock practices**

An overview of the alcohol interlock practices related to drivers guilty of driving while intoxicated in other European countries was drawn up. Data from other European countries had already been collected in the autumn of 2011, for the report of the Ministry of Transport and Communication's alcohol interlock working group. This data was updated in this study.

#### **4.2 Analysis of alcohol interlock driving licence holders' traffic violation data**

The driving rights and traffic violation data (for the period 1 July 2008 – 12 June 2012) of drivers who chose alcohol interlock-controlled driving rights were retrieved from the driving licence application of the Traffic Information System (TIS) maintained by Trafı. Violation data was retrieved for three separate periods: before the beginning of controlled driving rights, during controlled driving rights and after the end of controlled driving rights.

The appropriate permit for using data from the Traffic Information System was received. By virtue of Section 19(1), Paragraph 3 of the Vehicular and Driver Data Register Act (541/2003), register data can be handed over for research purposes. The handover of personal data was based on the requirements for research provided for by Section 14 of the Personal Data Act (523/1999). Confidential data can be handed over for purposes of research pursuant to Section 28 of the Act on the Openness of Government Activities (621/1999).

In connection with retrieving the personal data of alcohol interlock driving licence holders, it was discovered that 24 of them had died. The deceased were not particularly old, so the appropriate permit for determining the causes of their deaths for purposes of research was applied for from Statistics Finland (data use permit TK-53-1339-12). The data was handed over by virtue of the Statistics Act (280/2004), the Act on Determining the Cause of Death (858/1997) and the Act on the Openness of Government Activities (621/1999).

#### **4.3 A survey for alcohol interlock driving licence holders**

A survey was mailed to all drivers who chose alcohol interlock-controlled driving rights (during the period 1 July 2008 – 5 April 2012), asking for their experiences of and opinion on controlled driving rights. The names and addresses of these drivers were retrieved from the Traffic Information System's (TIS) driving licence application.

In addition to some background questions, the survey included questions on the drivers' experiences of alcohol interlock and alcohol interlock driving licence acquisition, alcohol interlock use, the alcohol interlock-controlled driving rights process and the alcohol interlock in general (Annex 1). As far as applicable, this survey used the same questions used in the survey conducted during the alcohol interlock-controlled driving rights trial (Beilinson and Poutanen 2007) and alcohol interlock survey for professional drivers (Vehmas, Sirkiä and Kinnunen 2012). Thus, the questions' functionality and intelligibility had been tested and the answers were comparable.

## Survey implementation

The alcohol interlock survey was implemented as a mailed survey in May–June 2012. It was also possible to take the survey online, at the address indicated in the covering letter, using a personal password. The form and covering letter were sent to the drivers either in Finnish or Swedish, based on their language code in the register.

The survey forms and covering letters were mailed on 14 May 2012. A reminder for drivers who had not yet taken the survey was mailed on 31 May 2012. The survey period was extended so that forms that arrived by 15 June 2012 were still taken into account.

A total of 1,569 forms were sent, of which 1,504 were in Finnish and 65 in Swedish. Only 23 letters did not reach their recipients.

The survey was taken by 685 Finnish-speaking and 19 Swedish-speaking drivers. Thus, a total of 704 answers were received. This makes the response rate of Finnish-speaking drivers 45.5% and that of Swedish-speaking drivers 29.2%.

Of all recipients of the survey, 25 contacted us by telephone or e-mail, a few of them several times. Three of these respondents contacted us for practical reasons (lost return envelope, Internet connection not working). Four respondents asked us: "How did you find out about my driving while intoxicated?" Six recipients of reminder letters contacted us to say they had already taken the survey. The rest wanted to discuss or give feedback on the alcohol interlock or their views of it.

We received 600 answers (85%) by letter and 104 (15%) via the Internet. Some questions in the online survey contained an 'I cannot say' option, while none existed in the mailed survey. However, this did not have a substantial effect on the results, since there was no statistically significant difference between mailed and online responses, apart from the fact that online respondents were highly significantly younger (49 years old on average) than those who responded by mail (54 years).

Five service station gift vouchers worth EUR 50 were awarded to respondents by drawing lots. The lottery tickets and answers were processed confidentially and separately. The survey was not entirely anonymous, since the original intention was to combine survey responses with traffic violation data. This was not done, however, since the combination proved to require too much effort due to the complex nature of the traffic violation data matrix. Therefore, the survey results were analysed anonymously in practice.

The survey was carried out according to market research quality standard ISO 20252:2009.

## Respondents

The majority of respondents (83%) were male. Correspondingly, 84% of alcohol interlock driving licence holders were male and 16% female. Thus, women were slightly more active than men in taking the survey. However, the survey's sex ratio was within one percentile of the situation in reality.

The age of respondents varied between 21 and 81, and the average respondent was 53 years old. In comparison to the age distribution of alcohol interlock driving licence holders, people over 50 years of age were slightly more active than those under 50 in taking the survey (Figure 2).

A third of respondents were workers and a third clerical workers or entrepreneurs, while the final third comprised students, pensioners, unemployed people and people on family leave (Figure 3). Half of the respondents resided in cities, a third in rural areas and the rest in smaller population centres (Figure 4).

The respondents drove an average distance of 24,000 km each year. However, there was great variation in the annual distances driven by respondents, the minimum being 60 and maximum 200,000 km per year (Annex 2). Five per cent of respondents (38) identified themselves as professional drivers, and their average annual distance driven was nearly double that of the non-professionals. The majority (62%) of respondents indicated that they used a car at least once or twice a week. However, a quarter stated that they only drove rarely or not at all.

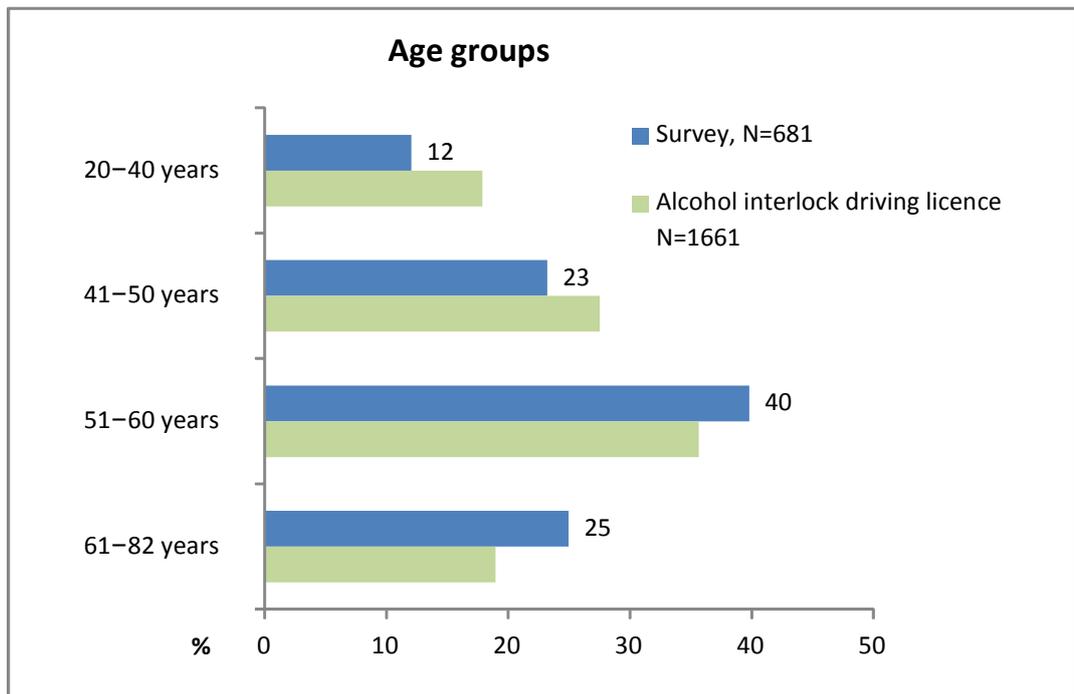


Figure 2. Respondents by age category.

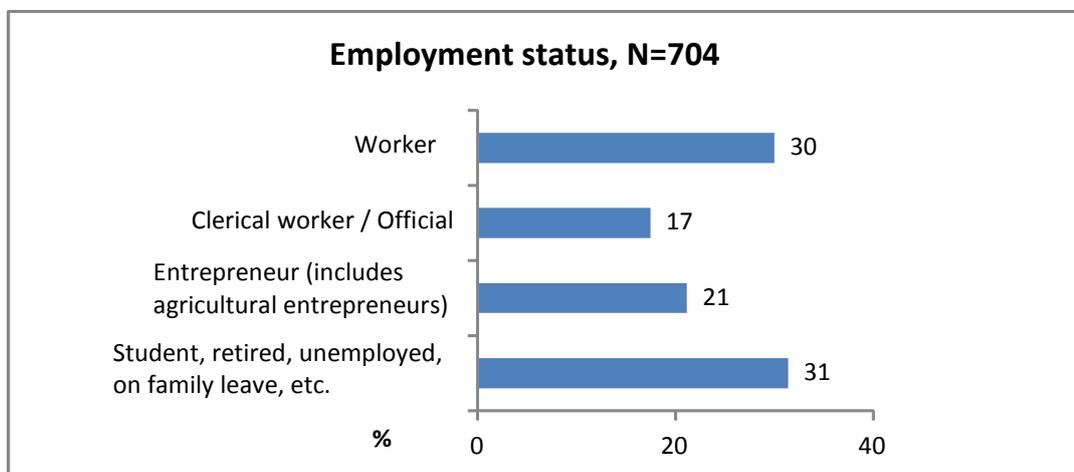


Figure 3. Respondents by employment status.

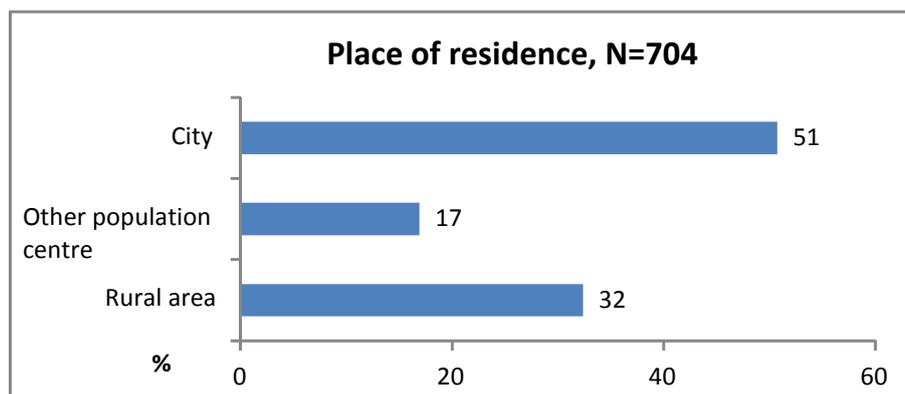


Figure 4. Respondents by place of residence.

#### 4.4 Analysis of log data decoded from alcohol interlocks

The log data of alcohol interlocks used by drivers holding alcohol interlock-controlled driving rights is decoded every 60 days at an alcohol interlock installation and service point. The data is transferred to a register maintained by the alcohol interlock manufacturer or its representative. Previously, the data was only stored in the register for a maximum period of five years from receipt, but the Act on Alcohol Interlock-Controlled Driving Rights was amended on 19 January 2013 to allow for the storage of such data for five years from the end of alcohol interlock-controlled driving rights. The representatives of alcohol interlock importers will notify the police in the customer's place of residence of any violations that may cause the alcohol interlock driving licence to be revoked.

Log data decoded from Dräger alcohol interlocks were analysed in this study. The majority of respondents (86%) of the driver survey used this model, which is the most common in Finland. This material contains the log data of 1,505 Finnish holders of alcohol interlock driving licences, retrieved in late 2012. The probationary period of 700 of these drivers had ended, five had removed the alcohol interlock without authorisation and 94 had not had their log data decoded within the previous 180 days. Therefore, the probationary period of slightly more than half (53%) of the drivers in the material had ended.

The log data of only one model of alcohol interlock was analysed within the scope of this study, since different manufacturers have different data registers, and combining these would have been an arduous task. The analysed model of alcohol interlock has the largest market share of the three interlocks approved for use in alcohol interlock-controlled driving rights.

#### 4.5 E-mail surveys

In late 2012, questions regarding the functionality and development needs of the alcohol interlock-controlled driving rights process were e-mailed to six judiciary bodies and three representatives of alcohol interlock manufacturers (annexes 3 and 4). We received replies from the police departments of Kainuu, Varsinais-Suomi and Pohjois-Savo, as well as the district courts of Keski-Suomi, Pirkanmaa, Pohjois-Savo and Varsinais-Suomi. All alcohol interlock importers also sent replies.

## **4.6 Telephone interviews**

Chief Physician Kaarlo Simojoki of Espoo A-Clinic was interviewed as the health care representative in January 2013. We asked for his views on the visit to a physician or other health care professional to discuss intoxicant use, its effects on health, and the treatment opportunities for substance abuse, required as part of the legal process related to alcohol interlock-controlled driving rights (Annex 5).

In addition, five drivers who had received the survey telephoned the researcher on their own initiative to discuss their views on alcohol interlocks. These opinions were recorded and presented together with the results of the study.

## **5 International review of alcohol interlock practices relating to persons guilty of driving while intoxicated**

There is no EU legislation on the use of the alcohol interlock.

### **5.1 Sweden**

#### **Trial 1999–2011**

Sweden was the first European country to introduce alcohol interlock programs. A trial on alcohol interlock use for persons guilty of driving while intoxicated was launched in 1999. In the beginning, the program was only introduced in three counties, but from 2004 it was expanded to the whole country.

A person whose driving licence would be revoked due to driving while intoxicated or driving while seriously intoxicated may, instead of losing his or her licence, choose to participate in the alcohol interlock programme. In the programme, alcohol interlocks can be installed in passenger cars, and from 2004 even for light or heavy lorries and buses. An applicant may only drive in Sweden. The duration of the alcohol interlock programme is two years, and participating drivers are liable for all costs incurred through the programme. Participation in the programme does not reduce fines or sentences of imprisonment for driving while intoxicated.

A person who wants to participate in the programme sends an application to the Swedish transport authority, the Swedish Transport Agency. The application must include a medical certificate, an expression of intent (*viljeförklaring*) to observe the rules and regulations of the programme, an agreement between the participant and an alcohol interlock supplier, and an application fee of SEK 1,000.

If the Swedish Transport Agency accepts the application, the person will agree on the installation of an alcohol interlock with a representative of the manufacturer. The participant pays the actual participation fee (SEK 5,300) to the Agency. The programme's total cost is approximately SEK 50,000 per participant, divided over a period of two years. The cost comprises the application fee, medical certificate, the Transportstyrelsen's participation fee, alcohol interlock hire, medical examinations including blood tests, and the manufacture of the alcohol interlock driving licence.

Persons who use addictive medicines or pharmaceutical substances cannot participate in the alcohol interlock programme. Temporary use of addictive sedatives or analgesics can be approved on the basis of a medical certificate.

Participants must undergo another medical examination within four weeks of receiving permission from the Transportstyrelsen to participate in the programme, and every three months thereafter until the end of the programme. Participants are responsible for all log data recorded in the alcohol interlock's memory.

The log data must be decoded every other month. Decoded log data are delivered to the Transportstyrelsen. Manipulation of the alcohol interlock, and attempts to start the vehicle while under the influence of alcohol that are recorded in the log data, may lead to the person's removal from the alcohol interlock programme. Drivers participating in the alcohol

interlock programme should refrain from using alcohol for the entire duration of the programme. During the second year of the programme, the driver's sober way of life must be demonstrated by medical certificates and blood tests with normal values.

If the participant has fulfilled all the conditions of the alcohol interlock programme, he or she will be issued with a regular driving licence after two years. This driving licence will be of the same class as the one revoked due to driving while intoxicated.

If a participant wants to interrupt the alcohol interlock programme, or the Transportstyrelsen decides to remove the participant from the programme due to infractions, the Transportstyrelsen will repossess the alcohol interlock driving licence and impose a predefined qualifying period on the participant.

Approximately 5,000 drivers have participated in the alcohol interlock programme in 1999–2009. However, only 11–13% of the target group have applied for the programme, and as many as 40–50% have failed to complete it. Reasons for this low rate of success have included the high cost of participation, the strict demand of an intoxicant-free life, the length of the trial period, and the shorter duration of driving bans imposed for driving while intoxicated.

Nevertheless, participants who successfully completed the programme considered it a positive experience. Among these participants, recidivism has decreased, alcohol use habits have changed permanently and alcohol consumption, sick leaves and periods of hospitalisation have decreased.

### **Permanent programme from 1 January 2012**

A new alcohol interlock programme, intended for persons guilty of driving while intoxicated and modified on the basis of experiences from the trial programme, was adopted on 1 January 2012 (regeringsproposition 2010/11:26; <http://www.transportstyrelsen.se/alkolas>).

Driving bans imposed for driving while intoxicated were also lengthened on 1 January 2012. The purpose of these new regulations is to increase the willingness of drivers guilty of driving while intoxicated to apply for controlled driving rights, and to keep these drivers within the scope of driving licence legislation.

A total of 3,985 driving licences were revoked due to driving while intoxicated in January–August, 2012. The driving licence is always initially revoked for a short period, even when the driver applies for an alcohol interlock driving licence. Of these 3,985 drivers, 1,323 have applied for an alcohol interlock driving licence. By the end of August 2012, 844 alcohol interlock driving licences had been issued under the new programme. These figures indicate that approximately 33% of drivers guilty of driving while intoxicated have applied for an alcohol interlock driving licence (compared to 11% during the trial).

### *Limits of a controlled right to drive*

Alcohol interlock controlled driving rights can be granted in cases of driving while intoxicated ( $\geq 0.2\%$ ), instead of revoking the driver's driving licence. Anyone who have or risk having their license revoked because of drunk driving or aggravated drunken driving has the opportunity to apply for a license with conditions for alcohol interlocks. Persons guilty of driving under the influence of other intoxicating substances, or alcohol in combination with

other intoxicating substances, do not fall under the scope of the alcohol interlock programme.

Alcohol interlock controlled driving rights can be granted to persons with driving licences issued in an EU or EEC Member State, and who reside permanently in Sweden. The loose conditions set for participation have been justified with the fact that, at present, many drivers never regain their driving rights and are therefore frequently guilty of operating a vehicle without a licence.

National special condition 107 will be attached to the driving licence to indicate the obligation to use an alcohol interlock. The alcohol interlock driving licence is only valid in Sweden. During the trial, the number of the national special condition was 105. Drivers who participated in the trial will continue to use alcohol interlocks until 31 December 2012 they are finished in the program.

Alcohol interlock controlled driving rights are voluntary. If a person does not apply for a controlled right to drive, or such a right cannot be granted, his or her driving licence will be revoked. In such cases, the length of the driving ban will be equivalent to that of the condition period of a controlled right to drive, i.e. one or two years.

For persons guilty of driving while intoxicated ( $\geq 0.2\text{‰}$ ), a condition period of one year will be imposed. A two-year condition period will be imposed if the driver is guilty of driving while seriously intoxicated ( $\geq 1.0\text{‰}$ ), has been guilty of at least two cases of driving while intoxicated within a five-year period, or has been diagnosed as an alcohol addict or alcohol abuser. If a one-year condition period is applied, and during this period the driver is found to be addicted to alcohol or an alcohol abuser, the condition period will be lengthened to two years. The holder of an alcohol interlock driving licence is obligated to deliver a medical certificate to determine possible alcohol addiction.

#### *Applying for a controlled right to drive*

The police or prosecutor decides whether to confiscate a person's driving licence due to driving while intoxicated. Customs or the Border Guard can also confiscate a driving licence due to driving while intoxicated. After such confiscation, the Swedish Transport Agency immediately decides to revoke or reinstate the driving licence. A decision on granting alcohol interlock controlled driving rights can also be made at this stage. The Swedish Transport Agency will make the final decision on the matter after the sentence for driving while intoxicated has become final.

Unlike during the trial, it is also possible to grant controlled driving rights during a short-term, two-year right to drive. This is intended to provide young drivers guilty of driving while intoxicated with an opportunity to alter their traffic behaviour. During the trial, holders of short-term driving rights had to take a new driving examination after driving while intoxicated. It is estimated that avoiding the need to take a new driving examination by participating in the alcohol interlock programme will increase the popularity of controlled driving rights with alcohol interlocks.

Applicants are required to present a medical certificate and an expression of intent (*viljeförklaring*) to comply with regulations when applying. Applications must be submitted to the Swedish Transport Agency within four weeks of the expiration of the period during which the driver had the opportunity to issue a response to the final decision to revoke his or her driving licence.

Alcohol interlock controlled driving rights can be granted in connection with the decision to impose a temporary driving ban. It is a precondition for making such a decision that the applicant is considered suitable for the programme regarding his or her personal characteristics and health. Suitability requires that the applicant can be assumed to observe traffic regulations and demonstrate sound judgement in traffic. On the other hand, factors such as a long traffic violation history or being repeatedly guilty of driving while intoxicated can be indicators of an applicant's unsuitability. Users of narcotics are not suitable for the programme. Applicants must also meet the mandatory health standards regarding traffic safety.

#### *Supervision during the programme*

Alcohol interlock log data are decoded every six months. A driver will be requested to decode log data outside the normal six-month interval if he or she has repeatedly (more than five times when starting the vehicle, or more than three times during driving) provided an exhalation that contains more than 0.2‰ alcohol, or if the driver has otherwise broken the rules of the programme.

A decision on controlled driving rights can be revoked if the person breaks the rules governing the controlled right to drive or is otherwise found unsuitable to participate in the alcohol interlock controlled driving rights programme. The decision can also be revoked due to narcotics use by the driver, or if the driver no longer fulfils other requirements related to his or her health. If the decision is revoked, the alcohol interlock driving licence will also be revoked. In such cases, the length of the qualifying period shall be equivalent to the remaining length of the trial period.

In addition to the medical examination required for the issuing of an alcohol interlock driving licence, the person must visit a physician for medical examination at the midpoint of the programme (after 6 or 12 months).

#### *Costs*

Persons applying for alcohol interlock driving licences will not incur application fees or participation fees. During the trial, applicants were liable for these costs (SEK 6,300).

Applicants will be liable for all other costs related to the alcohol interlock programme.

The cost of a one-year alcohol interlock programme is in the region of SEK 21,500–27,000 (EUR 2,150–2,700), and those of a two-year programme are approximately SEK 28,500–41,500 (EUR 2,850–4,150). The costs include the alcohol interlock device (purchased or hired), servicing and decoding costs and medical certificates including alcohol and narcotics tests.

The medical certificate required after the two-year conditional period costs an additional SEK 7,000–10,000 (EUR 820–1,000).

#### *After the trial period*

Alcohol interlock driving licences are not valid after the end of the trial period. This proposal is intended to prevent the exploitation of an alcohol interlock driving licence in situations where the driver cannot regain his or her previous driving licence or does not apply for the

reinstatement of that licence. After the end of the controlled right to drive, participants must apply for new driving licences without the alcohol interlock special condition.

A new driving licence free of the alcohol interlock special condition will be issued if the applicant has a valid driving licence permit. Persons applying for a driving licence permit are required to undergo a medical examination, blood test or other examination required to determine their suitability. If a person does not apply for a controlled right to drive or his or her application could not be accepted, a qualifying period, during which he or she cannot be issued with a new driving licence, must be imposed on the person. This period must be no shorter than the duration of the corresponding trial period for controlled driving rights.

After the revocation of a driving licence, a new licence is normally granted if the applicant has a driving licence permit, has passed an approved driving examination, and otherwise meets the conditions for being issued with a driving licence. If the driving licence has been revoked for one year or less, a new driving examination is not normally required. A new driving examination is never required after the end of controlled driving rights, since the person is deemed to have demonstrated the retention of his or her driving skills by driving the vehicle during the alcohol interlock programme.

## 5.2 Norway

The consequences of driving in road traffic while intoxicated are exceptionally severe in Norway. These consequences range from fines (if the driver's blood alcohol level is slightly over the legal 0.2‰ limit) to the revocation of the driver's driving licence or imprisonment (conditional or unconditional). In most cases, courts can order combinations of criminal and administrative sanctions.

A national alcohol interlock working group started work in Norway in June 2011, with representation from the Ministry of Justice and the Police, the Ministry of Transport and Communications, the Ministry of Health and Care Services, the Traffic Police, the Public Roads Administration and the Prison Administration. The working group investigated the possibility of enacting new regulations to make alcohol interlock use a possible alternative to a driving ban for persons guilty of driving while intoxicated. Such alcohol interlock use would be included in the drink-driving prevention programme currently in use in Norway.

The working group's report, along with proposed amendments to regulations, was published on 24 October 2012 ([http://www.regjeringen.no/upload/JD/Vedlegg/Rapporter/Rapport\\_alkolas\\_2012.pdf](http://www.regjeringen.no/upload/JD/Vedlegg/Rapporter/Rapport_alkolas_2012.pdf)). The report was sent for public hearing at the end of 2012.

The opportunity to use an alcohol interlock would be available to 'high-risk' drivers, i.e. those guilty of driving with a blood alcohol level of more than 1.2 per mille, and recidivists. The objective of concentrating on high-risk drivers is to improve traffic safety.

Alcohol interlock use requires participation in the drink-driving prevention programme, as well as undergoing a medical examination.

The drink-driving prevention programme is an alternative to conditional imprisonment. Criminal courts can sentence persons to participate in the programme, but participation is voluntary. The Prison Administration is responsible for implementing the programme. The programme's duration is ten months. The programme helps drivers to separate alcohol use from driving.

Medical examinations would be required every six months in the alcohol interlock programme. During the last year, examinations would be required every three months. Such medical examinations consist of a clinical examination and the monitoring of biomarkers. A participant's biomarkers must remain at a normal level for one year before he or she can be issued with a new driving licence.

The validity of the alcohol interlock driving licence would be limited to the driving rights of certain vehicles equipped with alcohol interlocks. Geographically, the alcohol interlock driving licence would only be valid in Norway, with a validity period of six months. The alcohol interlock driving licence would be renewed after each medical examination and alcohol interlock servicing (data decoding).

A participant would regain a normal driving licence by completing the drink-driving prevention programme, meeting the normal requirements for being issued with a driving licence, and demonstrating his or her sobriety at medical examinations and with alcohol interlock log data containing no 'red exhalations' (more than 0.2‰) during the past year.

In Norway, the Vägverket issues driving licences, and the police are authorised to confiscate driving licences. Driving licences can be confiscated due to driving while intoxicated or because of other serious traffic offences (e.g. speeding), medical reasons, or reasons of alcohol use. The administration of the alcohol interlock programme has been planned to fall under the purview of the police.

### **5.3 Denmark**

In June 2010, the Danish Parliament passed an act that contains general regulations on alcohol interlock use as a condition for the right to drive of drivers guilty of driving while intoxicated. Preparations for the implementation of the act are currently under way. The working group responsible for the preparations includes representatives from the Ministry of Justice, Ministry of Transport and Energy and the Police.

A three-year driving ban is imposed on high-risk drivers. Alcohol interlock use would be required for a period of two years. Three-year driving bans are imposed on low-risk drivers, but such drivers could apply for an alcohol interlock driving licence before the expiration of the driving ban (after two years).

A medical evaluation would be mandatory for participating drivers. If the evaluation reveals alcohol abuse, the person would be required to seek treatment.

### **5.4 The Netherlands**

An alcohol interlock trial was held in the Netherlands in 2008 with the participation of 80 volunteer drivers. Preparations for a permanent alcohol interlock programme for drivers guilty of driving while intoxicated were begun during the trial. The implementation of the actual programme was set to start at the beginning of 2011, but was delayed due to challenges posed by the acceptance of alcohol interlock devices, among other factors. The programme was finally launched in December 2011.

In addition to the European alcohol interlock standard (EN 50436-1), national requirements have been set for alcohol interlocks regarding matters such as data protection (Data Protection Profile).

When a driver is caught driving while intoxicating, a court can sentence him or her to a fine (blood alcohol level less than 1.5‰) or a fine and driving ban (blood alcohol level more than 1.5‰).

In addition, drivers whose blood alcohol level is 1.3–1.8‰ when they are first caught driving while intoxicated must participate in the alcohol interlock programme by administrative order of the CBR. Drivers with blood alcohol levels ranging from 0.8–1.3‰ will be ordered to participate in a 'driver improvement' programme. Drivers with blood alcohol levels of more than 1.8‰ will first be subjected to a medical and psychiatric evaluation. If no alcohol addiction is discovered, such drivers will be ordered to participate in the alcohol interlock programme.

The alcohol interlock programme is also mandatory for new drivers with a blood alcohol level of more than 1.0‰, as well as for recidivists.

If a person will not participate in the alcohol interlock programme, such a person will lose his or her driving rights for five years.

#### *Programme contents*

Participants are liable for the costs of the programme and alcohol interlock. Alcohol interlocks can only be installed in passenger cars. The two-year programme costs EUR 1,000, which includes administrative fees, monitoring and a support programme. The price of alcohol interlock hire is EUR 2,500, including installation, decoding and calibration.

Participants in the programme will be issued with driving licences in which national special condition 103 indicates the requirement to use an alcohol interlock. Participants will have the log data of their alcohol interlock decoded every six weeks and must enrol in a support programme within six months of starting the alcohol interlock programme.

The programme's duration (two years) can be individually extended for participants by six months at a time, until the participant is able to demonstrate compliance with all requirements. The requirements of the programme become stricter toward the end, but the decoding interval of log data can be lengthened if the driver has committed no infractions (e.g. too many 'red exhalations', missed or refused re-exhalations, manipulation attempts).

The alcohol interlock programme includes a mandatory support programme, consisting of three group sessions. The purpose of these sessions is to motivate participants to stick with the programme, provide information on the physical and mental effects of alcohol and to support drivers in separating drinking from driving.

Manipulation of the alcohol interlock device, or an excessive number of failed re-exhalations during driving, will lead to removal from the programme. On the basis of fresh infractions, participants will be directed to voluntary health care. Such health care fees are compensated by medical insurance.

#### *Programme evaluation*

Three years after the launch of the programme, i.e. in late 2014, an evaluation study of the programme's effectiveness will be published in the Netherlands. The study will investigate the reasons why not all drivers in the target group participate in the programme, as well as

the suitability and practicality of the programme's rules, among other issues. The need to allow alcohol interlock installation for lorry drivers will also be assessed.

The results on the impact of the alcohol interlock programme will be published five years after the beginning of the programme. The analysis will concentrate particularly on recidivism figures in the Netherlands before and after the launch of the programme. The effect of the alcohol interlock programme on the number of traffic accidents in which alcohol played a part will also be investigated.

## **5.5 France**

In 2004, the commune of Annecy launched an alcohol interlock trial aimed at drivers guilty of driving while intoxicated. This trial was later expanded to cover four other administrative districts.

The alcohol interlock trial is intended for first-time offenders. A driving ban with a duration of two to four weeks is imposed on drivers before they begin the alcohol interlock programme. The programme's duration is six months. In addition to alcohol interlock use, the trial includes an educational support programme.

The preparation of a national alcohol interlock programme is currently in its final stages, and the programme will probably be implemented in the next few years.

## **5.6 Austria**

From September 2011 to February 2012, an alcohol interlock use trial for professional drivers of heavy vehicles was organised by the KFV (Kuratorium für Verkehrssicherheit, Austrian Road Safety Board) in Austria. The trial concentrated particularly on evaluating the acceptance of alcohol interlocks among drivers and transport companies. Approximately 60% of drivers felt that the alcohol interlock was easy to use. An improvement in traffic safety after the adoption of alcohol interlocks was expected by 70% of drivers. Half of the involved transport companies were in favour of providing for alcohol interlock use in legislation. A third preferred to increase alcohol interlock use on a voluntary basis. Of all transport companies, 16% were in favour of making alcohol interlocks standard equipment in buses, lorries and combination vehicles.

As a result of the trial, the Austrian Road Safety Board recommends alcohol interlock use particularly in sectors with high driver responsibility (e.g. school transport), by making alcohol interlock use a factor in competitive tendering. The KFV promotes the installation of alcohol interlocks in all vehicles used in 'high driver responsibility' transport (e.g. transport of hazardous materials, school transport).

The Austrian Road Safety Board currently conducts a pilot project for the use of alcohol interlocks in the rehabilitation of drivers caught driving while intoxicated. The objective is to ensure the suitability of alcohol interlocks for everyday use, and to eventually draft new legislation.

The result will be suggestions for a 'probation model' for all drivers guilty of driving while intoxicated. The model's intent is to shorten or replace driving bans. Drivers will be monitored and offered continuous mentoring. The objective is to support changes in the drivers' behaviour in addition to the existing measures of awareness raising courses. Special support will be offered to high-risk drivers and recidivists.

## 5.7 Belgium

An act on alcohol interlock installation and monitoring related to alcohol interlock use entered into force in Belgium on 1 October 2010.

By virtue of the act, courts have the opportunity to impose alcohol interlock use to limit the driving rights of drivers found guilty of driving while intoxicated (first-time offenders with a blood alcohol level of more than 0.8‰, recidivists or alcohol addicts). At the judge's discretion, the obligation to use an alcohol interlock can be imposed for a period of one to five years. It is also possible to impose an indefinite obligation to use an alcohol interlock.

In practice, however, this act has not yet been implemented.

Alcohol interlocks intended for use by persons found guilty of driving while intoxicated must comply with the requirements of standard EN 50436-1, as well as with national requirements relating to the calibration of alcohol interlocks and the protection of their use data.

### *Participation in the programme*

A court will issue an advance notification of alcohol interlock use to the person guilty of driving while intoxicated. The advance notification contains information on the legal grounds for the sentence of driving while intoxicated, an up-to-date list of repair shops that install alcohol interlocks, and alcohol interlock use monitoring centres, as well as an exhortation to contact a monitoring centre of the person's choice.

The alcohol interlock must be installed within thirty days of receipt of the advance notification.

If the person ordered to use an alcohol interlock does not report to a monitoring centre, he or she will lose all driving rights. The court will send a copy of the advance notification to the sentenced person's municipality of residence and to the central transport authority. The sentenced person must hand his or her copy of the advance notification over to the monitoring centre chosen by him or her.

A driver convicted of driving while intoxicated can be approved for the alcohol interlock programme if he or she meets the five conditions defined in Section 3 of the act. Such a person must participate in training organised by the monitoring centre, national special condition 112 (indicating alcohol interlock use) must be displayed on his or her driving licence, all motor vehicles used by the person must be installed with alcohol interlocks, alcohol interlock log data must be regularly decoded, and the person must comply with all other conditions of the alcohol interlock programme, such as the prohibition to circumvent or manipulate the alcohol interlock.

### *Programme requirements*

Participants must attend the first meeting organised by the monitoring centre within two weeks of receipt of the advance notification. During the first meeting, the monitoring centre will review the conditions of the alcohol interlock programme (including the consequences for circumventing the alcohol interlock) with the participant and issue him or her with a certificate of having begun the programme organised by the monitoring centre.

After this, the participant will visit the monitoring centre every other month during the first year, and twice a year over the following years. If decoded log data show it to be necessary, these meetings can be arranged more often.

Monitoring centres must be authorised by the Ministry of Transport, and a minimum of one psychologist or criminologist must be available at each centre. Doctors are not required, since no medical supervision is related to the programme.

Once four to eight months have passed from the installation of the alcohol interlock, a training event will be organised for the person guilty of driving while intoxicated. The person's experiences of alcohol interlock use and any perceived problems will be reviewed during the training.

Participants must decode alcohol interlock log data every other month for the first year of participation, and every six months in following years. The log data are decoded at an authorised repair shop. The shop must notify the monitoring centre immediately of the decoding of log data. Decoded log data will be filed in protected form, so that only the monitoring centre will have the right to handle and print them.

Log data can be registered and moved within the area of the European Union. The handing over of log data to third parties is only possible for purposes of research and the compiling of statistics, in which case the identities of participants must not be apparent from the data. National data protection legislation is applied to the collection, handover and storage of alcohol interlock data.

Failure to comply with regulations laid down in legislation concerning the technical requirements for alcohol interlocks is considered as circumvention of the alcohol interlock. In addition, the alcohol interlock stores the data for each exhalation containing alcohol. The monitoring centre will summon the participant for an interview if his or her exhalation results are abnormal.

Turning the alcohol interlock off, other technical tampering with its functioning, failure to pay the costs incurred from alcohol interlock use, and failure to attend training, are also deemed to constitute circumvention. According to the government proposal, activities not mentioned in the government proposal may also be deemed to constitute circumvention.

## **5.8 Germany**

There is no statutory basis for an alcohol interlock programme in Germany. Alcohol interlock use cannot provide limited suitability if the driver does not otherwise comply with the medical prerequisites for obtaining a driving licence.

An alcohol interlock trial has been launched in Germany. The project has a duration of seven years.

The objective of the project is to determine the efficacy of an alcohol interlock programme in Germany. The purpose of any alcohol interlock programme would be to reduce the incidence of driving while intoxicated by reducing the alcohol consumption of drivers, separating alcohol use from driving, and promoting driver sobriety.

The alcohol interlock would be a secondary way to avoid revoking driving licences. An alcohol interlock condition attached to a driving licence would entail a controlled right to drive.

In addition, the trial's purpose is to investigate the effectiveness of various rehabilitation programmes and interventions, and to determine the best practices of experts in different fields (medicine, psychology, technology) for cooperation intended to support individuals and guarantee their mobility.

There are four trial groups and three control groups in the trial. All drivers in the trial groups will have alcohol interlocks installed in their vehicles. A rehabilitation programme or psychological interventions will not be organised for drivers in the first trial group. Drivers in the second group will be subjected to personal psychological interventions. A behavioural psychology intervention will be staged for drivers in the third group. The fourth trial group consists of drivers with alcohol addictions. Drivers in the fourth group will undergo detoxification and treatment for alcohol dependency.

No vehicles in the three control groups will be installed with alcohol interlocks. No psychological interventions will be staged for drivers in the first control group, no individual psychological interventions will be staged for drivers in the second group and no behavioural psychology intervention will be staged for drivers in the third group.

The German alcohol interlock trial is based on several hypotheses. The first hypothesis is that alcohol interlock users are less likely to be guilty of recidivism than non-users. The second hypothesis is that rehabilitation programmes also reduce the likelihood of recidivism after the removal of the alcohol interlock, and such programmes also support a behavioural change in alcohol consumption. According to the third hypothesis, recidivism is more likely among those with an alcohol addiction than those prone to alcohol abuse, and these two groups also differ in their drinking behaviour and alcohol-sensitive biomarkers. The final hypothesis is that the evaluation of driving skill in accordance with uniform national criteria can predict recidivism within three years of the removal of the alcohol interlock.

## **5.9 United Kingdom**

An alcohol interlock trial for persons found guilty of driving while intoxicated was launched in the United Kingdom in 2004. In 2006, Parliament passed an act that enables courts to impose alcohol interlocks on drivers convicted of driving while intoxicated.

The act has not so far been implemented.

## **5.10 Slovenia**

A national alcohol interlock programme is being prepared in Slovenia, with a framework in which judges could limit for a set period the driving rights of persons convicted of driving while intoxicated. This would depend on the driver's relationship with and possible addiction to alcohol. Alcohol interlocks would most probably be part of the rehabilitation programme of persons convicted of driving while intoxicated.

A pilot of the alcohol interlock programme is currently under way.

## **5.11 The United States, Canada and Australia**

The web site of the Canadian Traffic Injury Research Foundation (TIRF) collects data on US, Canadian and Australian alcohol interlock programmes for drivers found guilty of driving while intoxicated. The Inventory of Interlock Programs can be found at <http://iiip.tirf.ca/inventory/index.php>.

## 6. Alcohol interlock driving licence holders

During the period 1 July 2008 – 12 June 2012, a total of 1,687 drivers held alcohol interlock-controlled driving rights. Of these drivers, 24 were deceased in April 2012 and two had security prohibitions. The information presented below is based on the details of 1,661 drivers.

### 6.1. Background information

Of all holders of alcohol interlock-controlled driving rights, 84% were male and 16% female. The group included 73 Swedish-speakers (4%). The youngest driver was 20 years old; the oldest, 82. The average age of alcohol interlock driving licence holders was 51. The proportion of women was highest in the 41–50 age bracket (Figure 5).

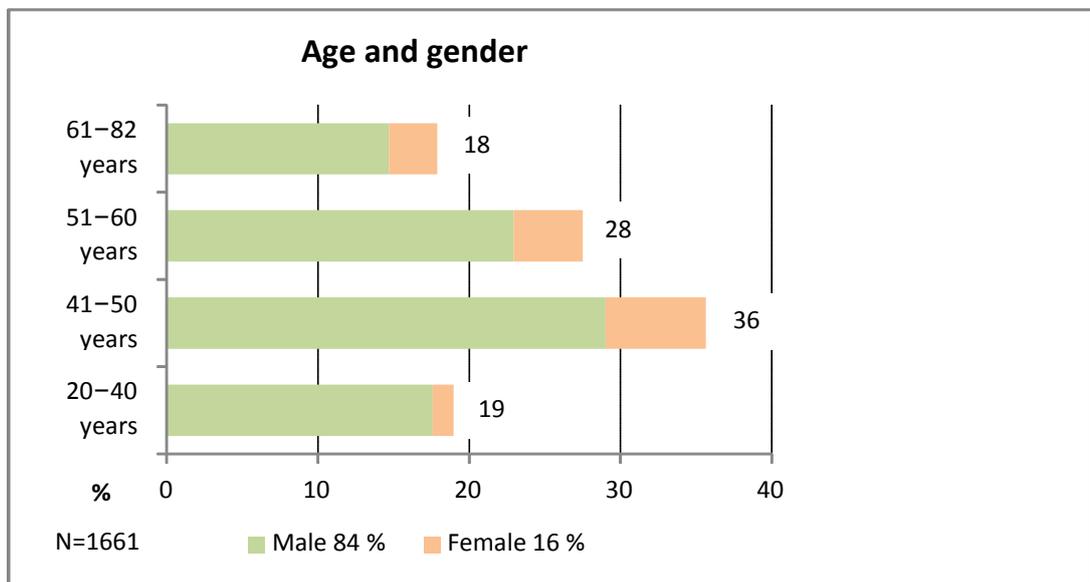


Figure 5. Age and gender of alcohol interlock driving licence holders.

All regions of Finland were represented among alcohol interlock driving licence holders, with Uusimaa being the most common home region (21%) (Annex 6). The least-represented areas were Kainuu, Keski-Pohjanmaa and Etelä-Karjala. However, in proportion to population, the number of alcohol interlock driving licence holders was of the same order of magnitude in all regions, and the number did not correlate with the number of cases of driving while intoxicated recorded in the region (Figure 6).

The majority (91%) of alcohol interlock driving licences were issued for passenger cars (Annex 6). Of all alcohol interlock driving licences, 9% were issued for lorries. In addition, the sample included six bus licences and two tractor licences.

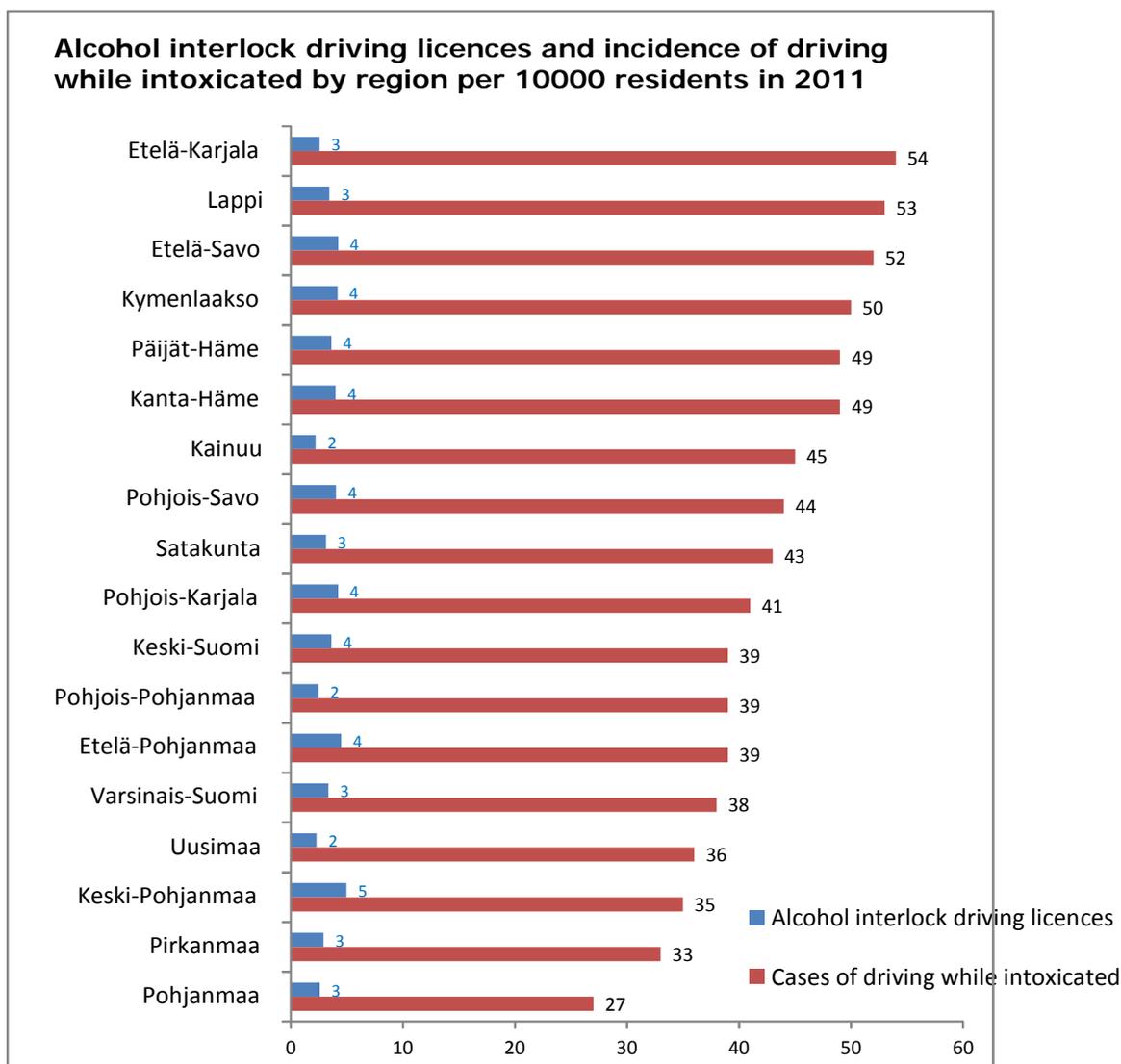


Figure 6. Number of alcohol interlock driving licences and cases of driving while intoxicated by region, per 10,000 inhabitants in 2011 (Official Statistic of Finland (OSF), Statistics Finland 2011)

## 6.2. Traffic violations

All holders of alcohol interlock driving licences, apart from two, were issued with their licences due to driving while intoxicated, the majority seriously (76%) (Annex 6). More than half (51%) of drivers had been guilty of more than one traffic violation before being issued with their alcohol interlock driving licences (Figure 7). Fourteen drivers had been guilty of more than 10 violations, the record being 17. For the most part, the serious traffic violations that led to alcohol interlock-controlled driving rights consisted of driving while intoxicated, but they included some cases of operating a vehicle without a licence and causing a serious traffic hazard.

The ability to drive of six of the drivers guilty of driving while seriously intoxicated was significantly impaired, and two drivers had used another intoxicant in addition to alcohol. Pursuant to the Act (439/2008), only drivers guilty of driving while intoxicated or while their ability to drive was significantly impaired are entitled to request alcohol interlock-controlled driving rights, but two users of other intoxicants were

nevertheless issued with alcohol interlocks. However, the probationary period of one of these two was interrupted due to a new case of driving while intoxicated with an intoxicant other than alcohol.

The register data of two alcohol interlock driving licence holders did not contain a record of being caught driving while intoxicated. Apparently, these cases represented alcohol interlock issued at the recommendation of a physician. Unfortunately, these cases cannot be differentiated in the system at present, since their special condition is the same 111 as for other alcohol interlock driving licences. In theory, physicians have been able to recommend alcohol interlocks from 1 June 2011, but these alcohol interlock driving licences only received their own special condition (113) on 19 January 2013.

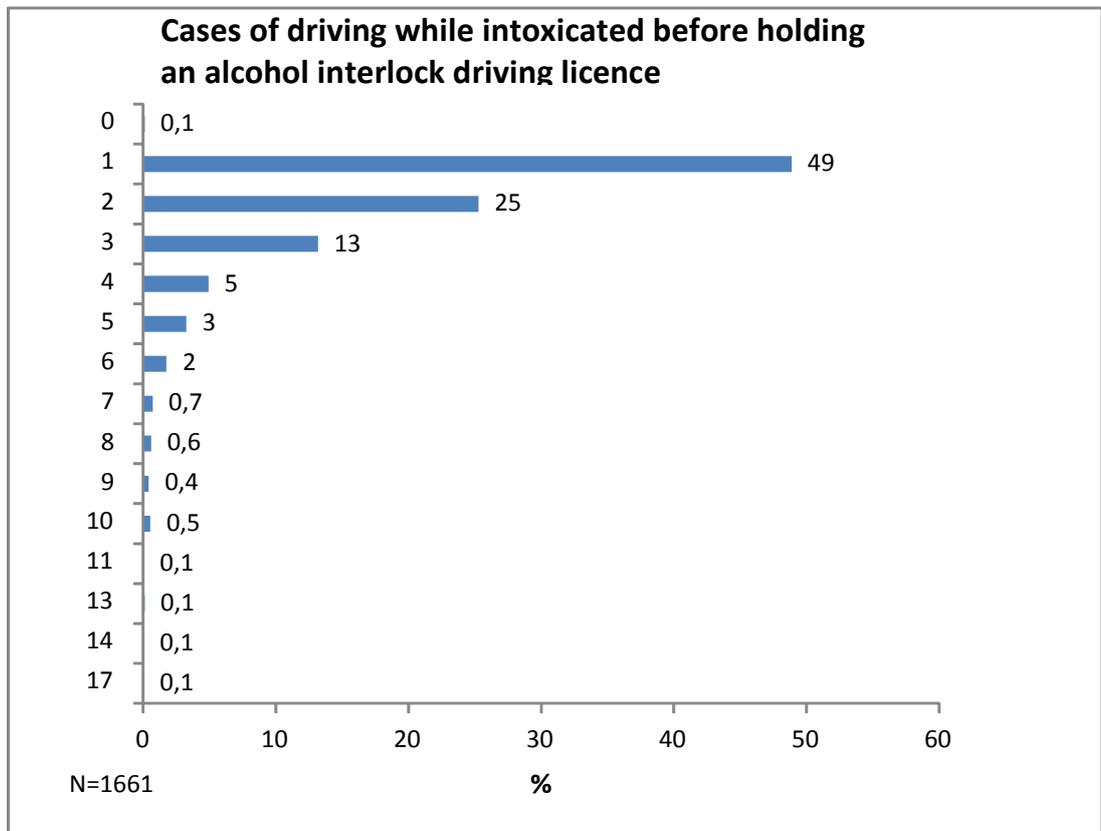


Figure 7. Number of cases of driving while intoxicated before being issued with an alcohol interlock driving licence.

Of all drivers, 54 (3.3%) were caught driving while intoxicated during their alcohol interlock-controlled driving rights, causing their probationary period to be terminated before the original end date (Annex 6). Two of these drivers had retracted their request for alcohol interlock-controlled driving rights on the day they were caught driving while intoxicated. In addition to those caught driving while intoxicated during their probationary period, four drivers chose to change their alcohol interlock-controlled driving rights to a driving ban, and two had initially retracted their request for alcohol interlock-controlled driving rights, but had continued using an alcohol interlock after a temporary driving ban.

Thus, the alcohol interlock-controlled driving rights of 60 drivers were interrupted. These drivers were statistically highly significantly younger than the rest, the average age of these drivers being 46 years, whereas the average age of drivers whose alcohol interlock-controlled driving rights were not interrupted was 51 years (Annex 6). The drivers whose alcohol interlock-controlled driving rights were interrupted also had more counts of driving while intoxicated before being issued with an alcohol interlock. Drivers whose probationary period was interrupted had been guilty of 4.5 counts of serious traffic violations on average, and those whose probationary period was not interrupted had been guilty of 2.1. This difference is statistically highly significant.

After the end of alcohol interlock-controlled driving rights, 41 (2.5%) drivers were caught driving while intoxicated. Thus, a total of 95 (5.7%) drivers were caught driving while intoxicated during and/or after their period of alcohol interlock-controlled driving rights (Figure 8). Nearly a third of these drivers accumulated more than one conviction of driving while intoxicated.

Close to half (47%) of past and present holders of alcohol interlock-controlled driving rights had only been guilty of one serious traffic violation – the one for which they were issued with their alcohol interlock driving licences (Figure 9). A quarter of drivers (26%) had been guilty of two counts of driving while intoxicated, 13% had been guilty of three, and the rest of even more. This group had driven while intoxicated before, during and after alcohol interlock use. Nevertheless, the driver who had accumulated 17 violations before alcohol interlock use was not guilty of new violations during the probationary period, nor after it, as of publication.

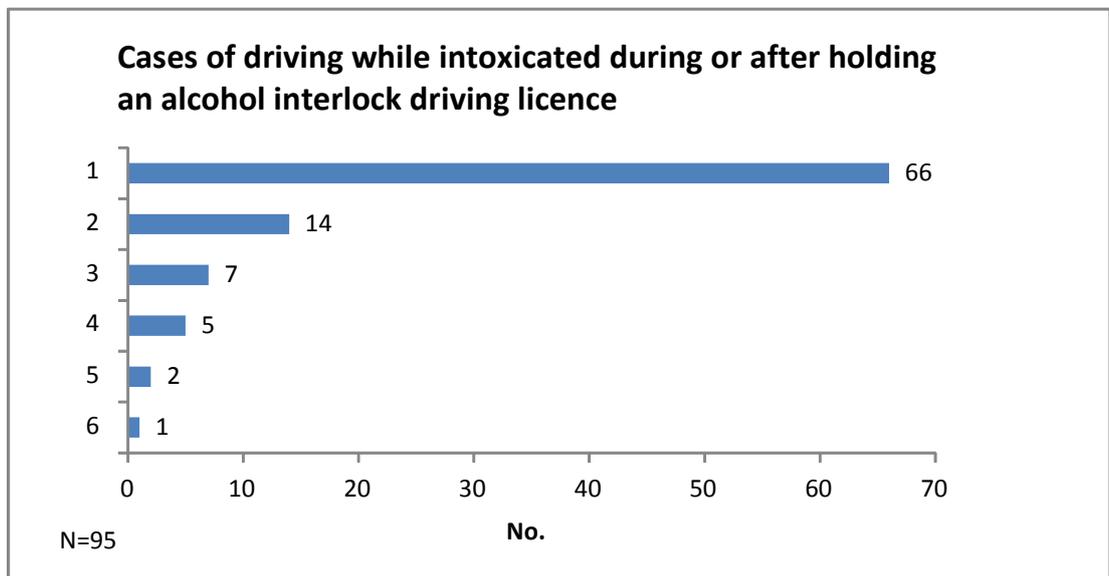


Figure 8. Number of convictions for driving while intoxicated during or after holding an alcohol interlock driving licence.

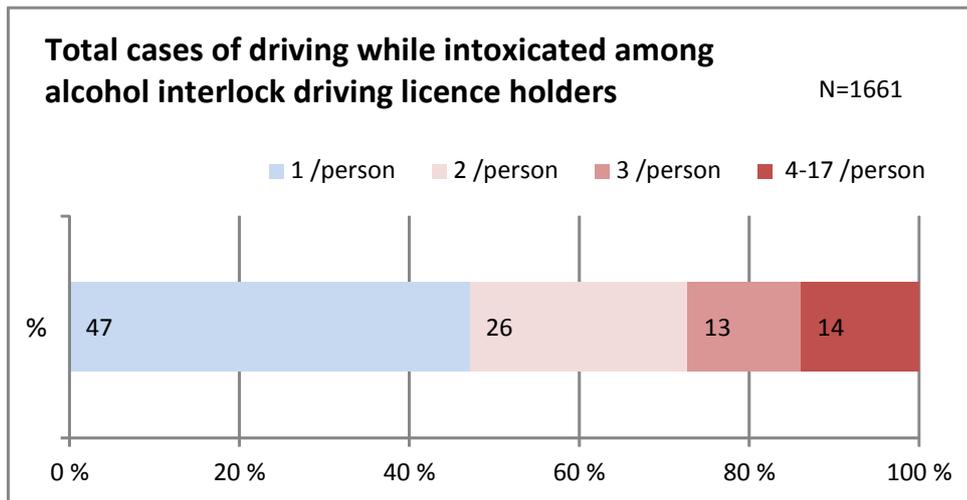


Figure 9. Total number of convictions for driving while intoxicated (before, during and after holding an alcohol interlock driving licence).

### 6.3. Causes of death

While reviewing the traffic violation data of alcohol interlock-controlled driving right holders, it was discovered that 24 persons in the target group had died since being issued with an alcohol interlock driving licence. Two of the deceased were women, and 22 men. The percentage of women (8%) was only half that of the total among alcohol interlock driving licence holders (16%). The average age of the deceased was 53 years, the youngest being 26 and oldest 70 years of age.

A permit for determining these persons' causes of death for purposes of research was applied for. According to the material received from Statistics Finland, the deaths of 37.5 per cent of the deceased were caused by alcohol (alcohol-related disease or accidental alcohol poisoning). Of the other causes of death, 25.0% were due to tumours, 16.7% to suicide, 12.5% to cardiovascular disease and 8.3% to accidents (falling over).

Among the entire Finnish population, cardiovascular disease is the most common cause of death (Table 2). Of all deaths in 2011, 38.7% of men and 41.1% of women died of cardiovascular disease. Alcohol-related disease and accidental alcohol poisoning accounted for 3.7% of Finnish deaths in 2011. Alcohol-related causes of death and suicides were much more prevalent among persons with alcohol interlock driving licences than in the general population.

Table 2. Causes of death of alcohol interlock driving licence holders and all Finnish people (Source: Official Statistics of Finland)

Causes of death	Finnish deaths in 2011			Alcohol interlock driving licence
	Men	Women	Total	
Cardiovascular disease	38.7%	41.1%	39.9%	12.5%
Tumours	24.6%	22.5%	23.5%	25.0%
Dementia, Alzheimer's disease	7.5%	17.1%	12.3%	-
Accidents	6.1%	3.4%	4.7%	8.3%
Respiratory disease	5.0%	3.1%	4.0%	-
Alcohol-related disease and accidental alcohol poisoning	5.7%	1.8%	<b>3.7%</b>	<b>37.5%</b>
Suicide	2.8%	0.8%	<b>1.8%</b>	<b>16.7%</b>
Other causes	9.7%	10.4%	10.1%	-
<b>Total deaths (no.)</b>	<b>25,327</b>	<b>25,241</b>	<b>50,568</b>	<b>24</b>
<b>Total population in group</b>	<b>2,652,534</b>	<b>2,748,733</b>	<b>5,401,267</b>	<b>1,687</b>
<b>Mortality rate</b>	<b>0.95%</b>	<b>0.92%</b>	<b>0.94%</b>	<b>1.42%</b>

According to the cause of death statistics compiled by Statistics Finland, alcohol-related causes of death have been the most common among working-age men and women for several years. The number of alcohol-related deaths fell by four per cent from 2010 to 2011. This decrease in alcohol-related mortality affected men more than women. In 2011, 1,450 men and 440 women died of alcohol-related causes, whereas in 2010 the numbers were 1,536 men and 426 women. In 2010, 77 per cent of alcohol-related deaths happened to people under the age of 65.

The changes in alcohol-related mortality rates correlate with changes in total alcohol consumption.

#### 6.4. Duration of alcohol-interlock controlled driving rights

The duration of alcohol interlock-controlled driving rights varied from 13 days to nearly four years (Annex 6 and Figure 10). The average duration was 506 days, i.e. slightly less than 18 months. Naturally, the average duration of the alcohol interlock-controlled driving rights of drivers whose probationary period was interrupted (304 days) was clearly shorter than that of those who completed their probationary period (514 days). This difference is statistically highly significant.

In contrast to the interruptions, 70 drivers (4.2%) still held an alcohol interlock driving licence when this study was made, despite having completed their probationary periods. These drivers had not applied for normal driving licences, but had chosen to continue to hold alcohol interlock-controlled driving rights.

*"I only realised after receiving this survey that I could have had the alcohol interlock removed a year ago. I will find out what this voluntary alcohol interlock use means in practice. Otherwise OK, but the current two-month control interval and the resulting costs do not encourage retaining the interlock on a voluntary basis."*

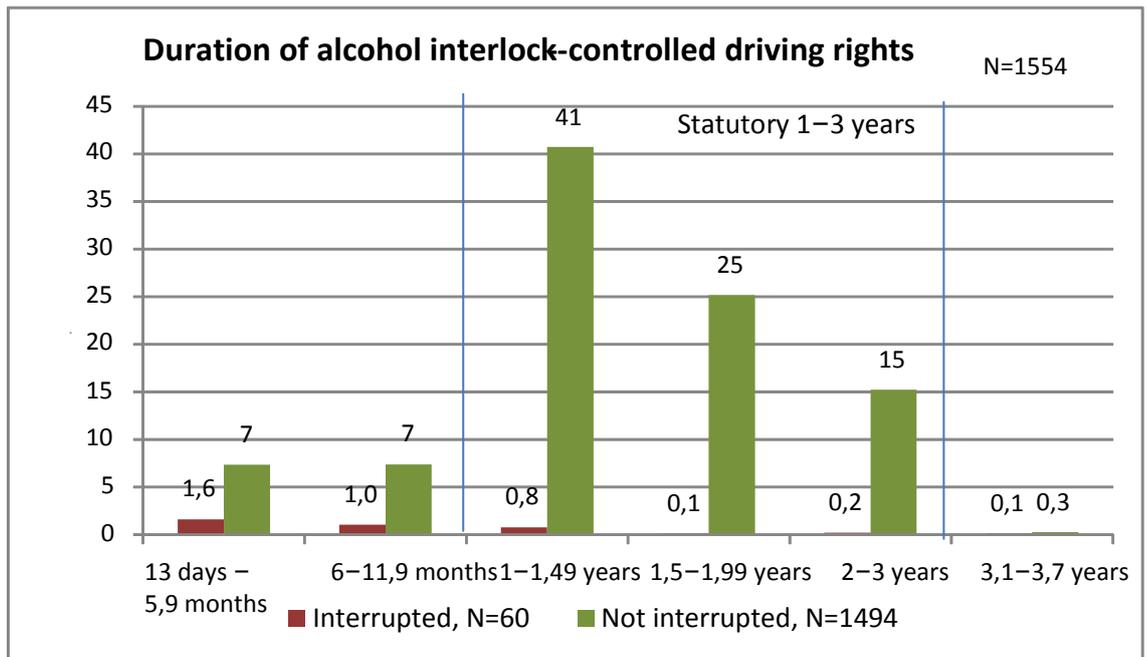


Figure 10. Duration of alcohol-interlock controlled driving rights.

By law, the probationary period of alcohol interlock-controlled driving rights must be a minimum of one year and no more than three. Nevertheless, according to the Driving Licence Register in the Traffic Information System, the probationary period of 114 persons had lasted less than six months, and that of 115 from six months to less than a year. These figures do not include drivers whose probationary periods were registered as interrupted due to another case of driving while intoxicated (54) or by their own request (6), neither do they include drivers for whom the length of the probationary period had not been recorded (107). A representative of the device manufacturers also commented that, in practice, 'judges can reinstate normal driving licences earlier than decreed by law'.

Thus, the alcohol interlock-controlled driving rights of 15% (229/1554) of all alcohol interlock driving licence holders lasted less than the statutory year. A representative of the police commented that either the court had imposed an overly-short probationary period, or the police had returned the driving licences by mistake. Error on the part of the judge is the more likely explanation, given that the police are required to act according to court decisions. Two district court representatives presumed that these errors had to be due to ignorance, carelessness or human error. One representative mentioned that 'in the early days, there may have been some difficulties with interpreting the law. Legislation on the subject could be clearer.' A small part of the overly-short probationary periods may also be simple data errors in the system.

A short probationary period may also result from a situation where the police has granted controlled driving rights before the district court's decision, but the district court did not grant alcohol interlock-controlled driving rights for reasons such as not being informed of the possibility, the person changing his or her mind in court and not wanting the alcohol interlock after all, or the person being guilty of a driving ban violation before the district court hearing. After all, the police do not determine the length of the probationary period, they only issue controlled driving rights when the prerequisites are met.

Many drivers complained of difficulties in obtaining information on the length of the probationary period before making the decision whether to choose an alcohol interlock or not. Some drivers only found out, as an unpleasant surprise, that the duration of alcohol interlock-controlled driving rights is longer than the driving ban from the district court decision. For some drivers, the duration of the probationary period remained unclear even after they had started to use an alcohol interlock, since different sources had provided conflicting information.

*'I never received a clear answer on how long I had to use the device.'*

*'But at first, they did not tell me how often I had to exhale. And I did not realise it would be for such a long time, over a year. The driving ban would only have lasted for seven to eight months. A driving ban would be over soon.*

*Now, I am serving a much longer sentence.'*

*'I have received conflicting information regarding the following sentence: According to the district court decision, the alcohol interlock must remain installed in the vehicle for a minimum of one year. Can it really be the case that I have to keep the alcohol interlock for at least a year, even though the driving ban would be shorter than that (e.g. 3–6 months)? Today (6 August 2012), the police told me over the telephone that I could have the alcohol interlock removed when my driving ban ends. Did the police provide me with false information, or have I misunderstood somehow?'*

Therefore, overly- short probationary periods are mostly explained by a lack of information regarding alcohol interlock-controlled driving rights on the part of the police and district courts, and by problems in communication between authorities. The regulations concerning alcohol interlock-controlled driving rights should probably be clarified and instruction on the matter increased, since even office holders continue to have difficulties interpreting the law.

## 7. Acquisition of alcohol interlocks and alcohol interlock driving licences

### 7.1. Knowledge of alcohol interlock-controlled driving rights

The majority of drivers who took the survey were informed of the possibility of alcohol interlock-controlled driving rights by the police, either during their interview or by telephone (Figure 11). The police had informed only 7 per cent of drivers in connection with their breathalyser test. The same percentage received the information in court or from their attorney. Close to one third of drivers were aware of the existence of alcohol interlock-controlled driving rights before they were caught. They had learned this information from the Internet, television or from acquaintances. Some drivers indicated that they had learned of the possibility independently, by telephoning the authorities and asking questions 'persistently'.

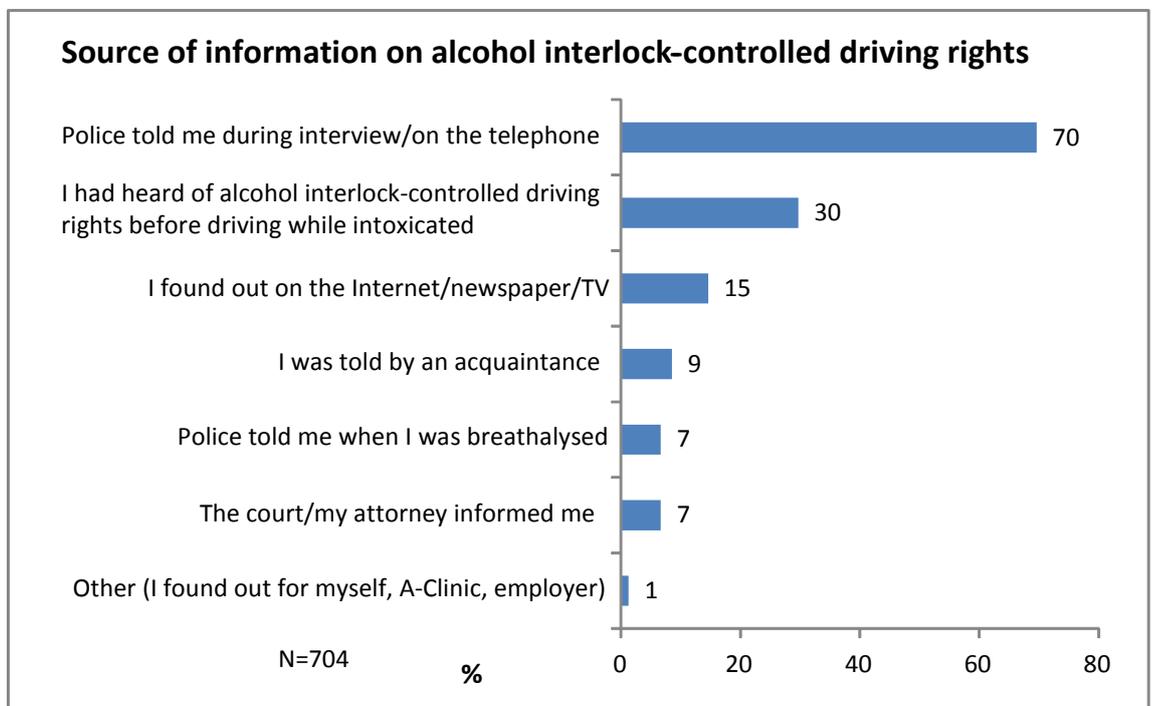


Figure 11. Where drivers learned of alcohol interlock-controlled driving rights.

The majority of drivers (85%) did not experience problems obtaining information on alcohol interlock-controlled driving rights (Annex 7). However, 15% of respondents described various problems (Annex 9). Approximately two dozen drivers stated that no one was able to advise them, and that the information was scattered, unclear and too general. More detailed information was requested on the sales and installation locations of alcohol interlocks, prices, the visit to a physician and the licence process. Eleven respondents said that the police had not informed them of the possibility of choosing an alcohol interlock, and eighteen commented that the police did not know about, or provided false, outdated information on subjects such as the possibility to obtain alcohol interlock-controlled driving rights even before the court decision. Many drivers were never informed of the duration of alcohol interlock-controlled

driving rights, and their length came as an unpleasant surprise to them. Many respondents complained that they had to acquire the information themselves.

*'The instructions on the Internet were extremely unclear, the licence services personnel ignorant.'*

*'I had to find all information on the device myself.'*

*'The chief of police was not aware of the amendment to the Act. We had to wait two months for the district court decision!!??'*

*'During my interview, I was not directly told that I had the right to have an alcohol interlock installed and apply for alcohol interlock-controlled driving rights immediately. I thought that I needed to wait for a court decision or authorisation from the chief of police.'*

We asked police departments and district courts about their communications regarding alcohol interlocks. The judges said that they had not received any instructions on informing accused persons of the possibility of choosing an alcohol interlock. 'Every judge informs according to his or her discretion and practices.' 'The role of judges as communications officers is difficult once the case is already being heard in court. The accused should be informed at an earlier stage. The role of the police and prosecutors is more relevant in this regard.' 'Judges do discuss the possibility of choosing controlled driving rights with the defendant when the subject comes up in a hearing. It is often the case that defendants no longer want controlled driving rights after they learn how expensive they are.'

The Police Administration has issued a guideline (POHADno/2009/1218) on alcohol interlock-controlled driving rights to police departments. According to the guideline, police must actively inform suspects of the possibility of alcohol interlock-controlled driving rights during the pre-trial investigation. The content, conditions and costs of control must be described to the suspect both verbally and in writing. In addition, the police are required to present the alcohol interlock brochure drawn up by the Ministry of Transport and Communications to the suspect. The brochure is available online ([www.poliisi.fi](http://www.poliisi.fi), Luvat / Ajokortit / Alkolukko). In practice, 'we first inform the suspect verbally of the possibility. If the suspect shows interest in alcohol interlock-controlled driving rights, we print out the brochure.' To keep the police from forgetting to inform suspects, a section on informing about alcohol interlock-controlled driving rights, to be ticked off once the information has been provided, was added to the pre-trial form a few years ago.

Two district courts considered that judges had a poor knowledge of alcohol interlocks and two felt that judges were well informed. 'The level of information is based on statutes and, to an extent, on information available on the Internet.' 'Judges are certainly aware of the possibility to choose alcohol interlock-controlled driving rights and know the prerequisites for granting them. However, they are rarely granted by judges. On the other hand, judges are relatively ignorant of matters relating to acquiring the alcohol interlock, control visits and the costs incurred by the convicted person from using the system.' 'When a defendant shows up at the hearing, he or she is usually not aware of the costs and practical arrangements related to using an alcohol interlock, and neither are the prosecutor or district court (apart from some vague ideas).' In the judges' opinion, 'the police should inform defendants better.'

Different police departments had varying views on how well the police are informed on matters related to alcohol interlocks. According to one department, the licence administration knows what it is doing, another related that the level of knowledge has

improved constantly and a third felt the current level of knowledge to be poor. 'There are major deficiencies in enforcement in the field regarding alcohol interlocks. To clear matters up, regular policemen should be able to check the special condition information on the reverse of the driving licence in connection with normal traffic supervision.'

General knowledge on the possibility of alcohol interlock-controlled driving rights has improved, but it would appear that both drivers and authorities need more detailed information and guidance regarding the process related to alcohol interlock-controlled driving rights.

## 7.2. Application grounds for alcohol interlock-controlled driving rights

The majority of respondents (62%) said they chose the alcohol interlock over a driving ban because they need a car in their work or for travelling on business (Figure 12). Nearly half of drivers stated they needed a car to commute as well as during their free time. Some drivers explained in their free-form answers that the remoteness of their place of residence made use of a car a necessity, since there was no public transport (Annex 9). Others related that they needed a car due to their own or a family member's disability or other illness and the travel related to its treatment.

*'You can't drive an excavator without driving rights.'*  
*'I have to transport my disabled child to the hospital every week.'*  
*'I have a disabled person's driving licence.'*  
*'I live in a remote area, there is no public transport. The distances here are long, and I have to take my companion to work.'*

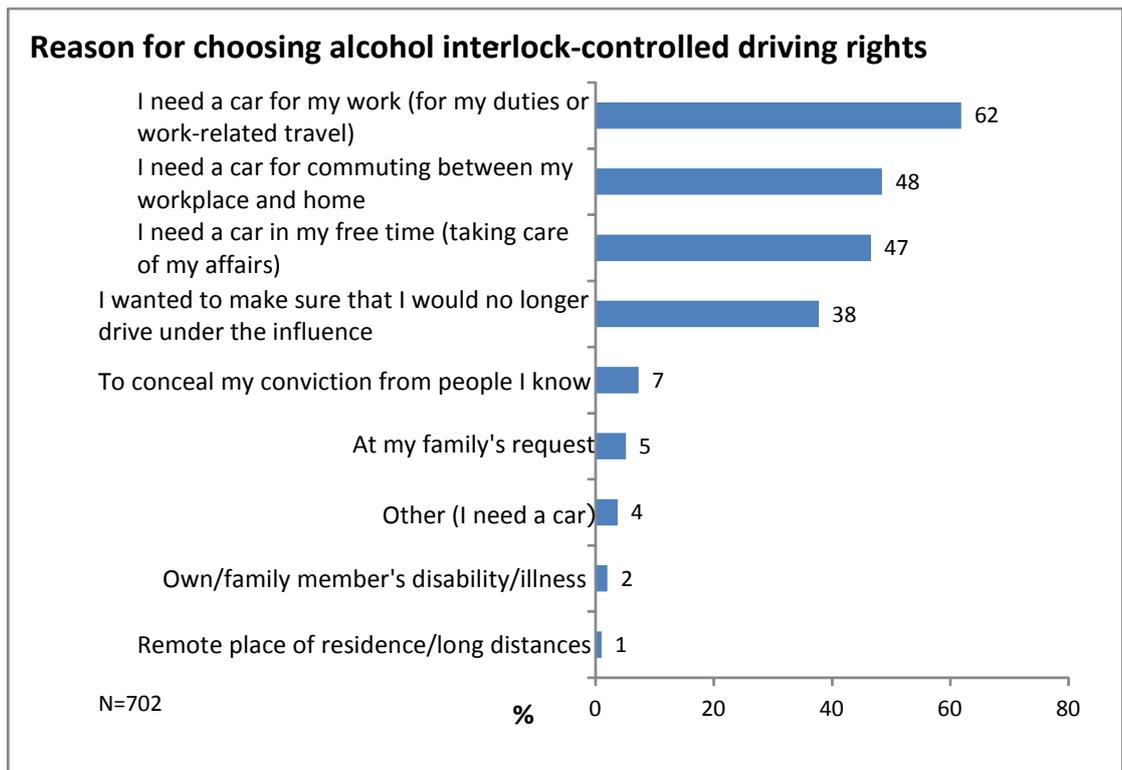


Figure 12. Drivers' reasons for choosing alcohol interlock-controlled driving rights

A few drivers felt that the ability to drive was vital to gaining employment, being able to function or to their mental health. Some said that driving was a daily way of life for them. A few respondents stated that they chose alcohol interlock-controlled driving rights so that they would not be guilty of driving without a licence.

*'I feel able to function.'*

*'I need a car for the sake of my mental health.'*

*'I need my car every day, it's a 'way of life'.'*

*'I need a car every day.'*

*'So that I would not have to drive without a licence.'*

More than a third of drivers (38%) chose alcohol interlock-controlled driving rights to ensure that they would no longer drive under the influence of alcohol.

*'I wanted to turn a page in my life.'*

*'Limits my alcohol use.'*

*'Insurance. Therapeutic effect.'*

Some drivers (7%) chose alcohol interlock-controlled driving rights to conceal their conviction from acquaintances. One respondent said on the telephone that driving while intoxicated and the alcohol interlock that exposed it was such a horrible shame that he would have gone to any lengths to conceal it from others. Exhaling only when no one could see limited his driving and made life difficult for him. The driver felt that the alcohol interlock detracted from the quality of his life, since it prevented him from seeing friends and trying to find a girlfriend for the year. He regretted choosing alcohol interlock-controlled driving rights, saying it would have been easier to say his car had broken down, instead of having to justify not driving in sight of others.

*'I do not want to share it (driving while intoxicated, the alcohol interlock) with any one, this is the ultimate shame. A lynching mentality has prevailed since that woman ran those children over while intoxicated. If people found out, they would want to kill me.'*

*'The alcohol interlock annoys me and is a constant cause of trouble. I have to plan every trip and parking so that no one can see me exhale.'*

*'This is a year gone from my life! Only when this is over can I start living again. I regret having taken the alcohol interlock. It would have been easier to tell everybody that my car had broken down, since it is old. Now I have to come up with all sorts of explanations as to why I can't go.'*

Some drivers chose alcohol interlock-controlled driving rights at the request of their family. A few even justified their choice by wanting to ensure that others did not drive their car while intoxicated.

*'My wife thinks I drink and drive.'*

*'So that my family would not drink and drive.'*

*'So that when I lend my car to someone, I can be sure that the driver won't be drunk.'*

In their free-form answers and telephone calls, a few drivers denied ever having driven while intoxicated. One caller explained that driving while hungover did not constitute driving while intoxicated.

*'I have never been guilty of such an act. I wanted to do the right thing and atone for my actions IMMEDIATELY, even though the court did give me a hefty fine. I am a teacher, and this summer I miscalculated the amount I had consumed the previous night. I wanted to do the right by myself and immediately got an alcohol interlock. I have since realised that I may have driven under the influence before. But no more – EVER!!'*

### 7.3. Acquisition, installing and user instructions of alcohol interlocks

The majority of respondents (86%) had the Dräger Interlock XT alcohol interlock (Annex 7). The Guardian WR2 of Suomen Alkolukko was used by 13 per cent and the Malux SmartStart by one per cent.

Slightly under 10% of drivers indicated having had trouble acquiring or installing the alcohol interlock or having their vehicle alteration-inspected (Annex 7).

Approximately a dozen respondents asked how, where, what kind, how is it installed? (Annex 9) These drivers stated that information had been poor and hard to come by. 'I had to find out for myself on the Internet.' The drivers felt that sales and installation locations were few, far between and far away. Not every installation went smoothly either.

*'I had difficulties finding a functional, easy-to-use alcohol interlock and appropriate maintenance services.'*

*'I had to get the alcohol interlock from 300 km away.'*

*'First alcohol interlock purchased from an authorised installation and service representative: they tried to download the software for the interlock from the United States for several days.'*

*'Installation at an 'authorised' representative in Kuusamo was highly unprofessional. The installer at Raskone in Oulu said the same thing, criticising the quality of the installation.'*

*'There is no competition whatsoever, even though there are many installers. The installers have no idea what they are about. I had my alcohol interlock removed because of the maintenance, since the servicemen didn't know what they were doing. The same servicing cost EUR 30 at one garage and 140 at another.'*

The instructions received at the installation point or from the installer were felt to be appropriate and sufficient by 86% of respondents (Annex 7). One-tenth of drivers thought that instructions were too hasty or inadequate. A few drivers (3%) stated that they had to ask to receive instructions, and some (2%) had not received any instructions at all.

Six per cent of drivers had trouble with the alteration inspection of their vehicles. These problems were mostly related to a lack of information during the early days of alcohol interlock use. Some inspection stations were completely unfamiliar with alcohol interlocks and the inspectors made mistakes during the first inspections. The drivers also felt the police were not sufficiently informed. A few respondents had not been told they had to have their vehicle alteration-inspected. Some drivers felt that the inspection was just a way to squeeze more money out of them. Taking the vehicle to an inspection station without driving rights was also mentioned as a problem.

*'I visited several inspection offices, and only the third knew how to conduct an alteration inspection of a car equipped with an alcohol interlock.'*

*'The inspectors succeeded in locking the alcohol interlock, which took money to unlock – money not paid by the inspection office.'*

*'Taking the vehicle to the inspection station. The police would not issue a separate driving permit until the prerequisites for alcohol interlock-controlled driving rights were met.'*

#### 7.4. Applying for an alcohol interlock driving licence

The period of time from being caught driving while intoxicated to being issued with an alcohol interlock driving licence varied greatly (Annex 7). Generally, the most common waiting period was from two to four weeks. The shortest period cited in the answers was one day, with the longest being over five years. However, the waiting period was rarely longer than one year (18 cases). One of the questions in the survey covered the length of time the drivers waited before applying for their alcohol interlock driving licences. Shorter periods were more prevalent among the answers, i.e. the survey was mostly taken by drivers who applied for an alcohol interlock driving licence sooner after being caught driving while intoxicated.

Nearly half (47%) of respondents felt that the period of time from being caught driving while intoxicated to being issued with an alcohol interlock driving licence was reasonable (Annex 7). The period was thought long by 40% and short by 13% of respondents. The circumstances of individual respondents had a significant impact on how he or she experienced the length of the period, and the views of the drivers had no direct correlation with the real length of the period. Some respondents stated that they had not applied for alcohol interlock-controlled driving rights immediately due to being injured or because of their financial situation, or because they wanted to carefully consider the matter. However, other respondents would have acted sooner, had they been informed of the possibility earlier.

*'I did not have the interlock installed right away, since the expense made me stop and think for a while.'*

*'I would have acquired the alcohol interlock sooner if, during my interview, they had told me that the police could make the decision before the court hearing.'*

*'The period was long. I would have acquired the interlock immediately if I had known the length of the wait.'*

Many drivers felt the wait to be long, citing difficulties in moving about and arranging lifts. Some drivers had been prevented from working.

*'A watched pot never boils.'*

*'I had to ask my friends to take care of my affairs.'*

*'The period was extremely long. It was difficult to arrange lifts.'*

*'Long, since I need a car for my work every day.'*

Mental pressure and self-accusations also affected how the waiting period was experienced.

*'Difficult and guilty in front of my child.'*

*'A terrible situation. I had never done anything wrong before or been convicted in court. The wait was hell. I never want to find myself in this situation again. The guilt I felt over driving while intoxicated was infernal. I have never committed a crime – on purpose. Luckily, I had support close by. I'm scum, I admit it. I will never drive while intoxicated again. I will leave the alcohol interlock in my car after the probationary period ends.'*

Eight per cent of respondents mentioned problems with regard to applying for the alcohol interlock driving licence. These problems were related to the flow of information between the police and district court, cold treatment received from the authorities and a lack of information during the early stages (Annex 9). The office staff at police departments did not know the procedures. The police had not given infor-

mation, did not have the information, or had given false advice. For example, some respondents had not been told that the alcohol interlock driving licence could be obtained immediately when submitting the application, or that the licence could only be granted by the driver's local police department. One respondent felt it unreasonable that he had first been told to have the alcohol interlock installed and acquire all the required certificates, and pay for them, without any certainty of being granted alcohol interlock-controlled driving rights.

*'The flow of information between the police and district court. I had already been issued with an alcohol interlock driving licence by the police, but the information had not reached the district court, and I lost my licence. I had to appeal the decision in the Court of Appeal, i.e. be without driving rights for roughly four months, even though I had an alcohol interlock installed in my car.'*

*'Time and again, I had to queue for several hours at the police department and explain the same things each time.'*

*'The chief of police denied my request for alcohol interlock-controlled driving rights; I only obtained them after a court ruling.'*

*'The issuer of the driving rights acted in a sick and authoritarian manner.*

*'First, I was told to have the interlock installed, have my car alteration-inspected and get a whole bunch of certificates before I could apply for my licence, and it wasn't done in a day either. I burned through hundreds of euros without any guarantee of being granted alcohol interlock-controlled driving rights by the police. I was treated unfairly and not informed properly.'*

### **Flow of information between authorities**

In the opinion of the police and district courts, communication between them on alcohol interlock-related matters is objective and informative. The police should record the suspect's request for controlled driving rights in the pre-trial record, as should the prosecutor in the application for a summons. 'Pre-trial records sometimes indicate that the police have informed the suspect of the right to controlled driving rights.'

Both authorities felt that the flow of information had improved after some early difficulties, but the controlled driving rights granted by the police before the district court decision remained a 'stumbling block'. Describing the initial gaps in communication, one judge stated that 'I once placed a person, to whom the police had issued alcohol interlock-controlled driving rights since the pre-trial record had been drawn up, under an unconditional driving ban.' 'Citizens sometimes assume that once they have told the police something about needing driving rights or an alcohol interlock, the district court will automatically be aware of it.' 'The Vehicular and Driver Data Register extract should more clearly indicate alcohol interlock-controlled driving rights granted by the police. We have experienced a great deal of trouble with this issue.' 'The customer often thinks the matter resolved once the police has issued him or her with an alcohol interlock driving licence. The flow of information between the police, prosecution and district court should be made more reliable in these matters.'

A police officer also commented that 'some confusion has been caused by the fact that the suspect is guilty of both driving while intoxicated and causing a serious traffic hazard by the same act. In such a case, alcohol interlock-controlled driving rights cannot be granted, since the person is also under a temporary driving ban for causing a serious traffic hazard.' Persons issued with alcohol interlock-controlled driving

rights, who nevertheless do not install alcohol interlocks in their vehicles, present a problem for the police's licence administration.

## 7.5. Health care discussion on intoxicant use

The alcohol interlock-controlled driving rights process includes a visit to a physician or other health care professional to discuss intoxicant use, its effects on health, and treatment opportunities for substance abuse. The majority of respondents considered the visit to have been useful (39%) or positive, even though not particularly useful to the respondent him- or herself (45%). The visit was felt to be of no use by 17% of respondents (Annex 7).

The interviewed health care representative judged that the usefulness of the visits varied due to reasons attributable to both parties. Some customers only came to get their certificates as quickly as possible and be able to drive again, and were not motivated or show interest in the discussion. On the other hand, being caught driving while intoxicated had set some customers thinking, making them highly motivated to discuss the issue and even start treatment. For the majority, the level of interest fell between these two extremes, requiring competent personnel able to inspire the customers to think about their intoxicant use and life management.

The A-Clinic personnel are naturally versed in the subject, but other health care personnel do not necessarily have experience discussing alcohol use. Many health centre physicians are faced with alcohol interlock-related discussions so seldom that they never develop an aptitude for them.

The interviewed health care representative stated that no guidelines existed for the alcohol interlock-related discussion; there are no instructions regarding the discussion's content and objectives, duration, or who can conduct such discussions and what kind of certificate should be drawn up. Since the discussion lacks a structure and clear objective, many health care professionals are reluctant to conduct it. Some feel that they serve as a mere rubber stamp during the single visit required to obtain the certificate. The work team of the A-Clinic had discussed the matter, and the interviewee had created a form template to serve as the certificate. There had also been some discussion regarding whether social workers specialised in intoxicant use and familiar with the subject could conduct the discussion, despite lacking health care training.

The lack of guidelines was also reflected in the answers of the customers. Close to one-tenth (9%) of drivers told of problems related to the discussion. The problems mentioned mostly concerned the lack of knowledge during the early stages of alcohol interlock use. The respondents indicated that no one seemed to know where they should go and 'who was qualified' to conduct the discussion (Annex 9).

*'I had to spend a lot of time on the telephone before I found the right place.'*  
*'Getting an appointment was difficult; the matter was new to the health care staff.'*

*'The health centre directed me to contact an addiction clinic, which would have handled the matter according to the process of restoring driving rights, i.e. by taking blood samples every four months, etc. The personnel were not aware of the medical certificate required for acquiring an alcohol interlock.'*  
*'A certificate written by a regular health centre physician was not sufficient.'*  
*'The physician had never written such a paper before, but he managed it.'*

### Price of the visit

More than half of respondents (56%) used public health care services to arrange the discussion; the rest (44%) used private health care services (Annex 7). The price of the visit varied from EUR 6 to EUR 6,500. The average price quoted for the health care visit was EUR 60, but 21 respondents quoted a figure of more than EUR 1,000 (Figure 13). The largest figures likely do not indicate the price of a single visit, but rather the price of a lengthier substance abuse treatment programme. Public health care visits usually cost a little less than private sector health care, but the comparison is muddled by the fact that some prices quoted for both sectors are for a single visit, whereas others represent the total cost of several visits.

According to the interviewed health care representative, the cost of an alcohol interlock discussion in the private sector is EUR 80–120. In addition to this, the certificate can cost EUR 20–40. Addiction treatment services are free in the public sector. Health centres only charge the normal clinic fee for a visit. A-Clinics offer free discussions and substance abuse treatment programmes that can last several years. Particularly in the Helsinki metropolitan area, the queues to health centres are so long that health centres recommend that their customers use private health care services as much as possible.

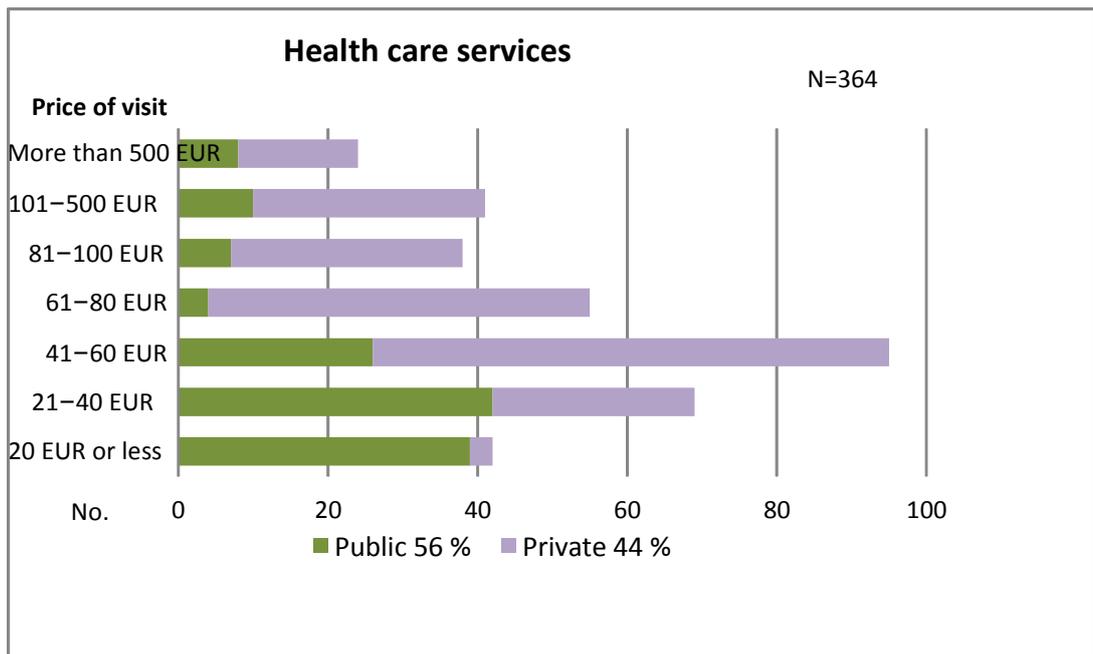


Figure 13. Prices of health care visits quoted by drivers.

### Developing the discussion on intoxicant use

In the health care representative's opinion, additional guidance is required from the Ministry of Social Affairs and Health, perhaps in cooperation with Trafi. The discussions could be made more useful with proper instructions. The guidelines should clarify the goal of the discussion and provide a check list of subjects to discuss, creating a structure for the discussion. The results of the discussion should be recorded. The appropriate duration for the discussion would be in the area of 45 minutes.

The goal of the discussion is to make the driver think about his or her alcohol use and its effects on the driver's life, helping him or her acknowledge a potential substance abuse problem. The key objective is to identify drivers willing or able to change, whom the alcohol interlock can then help avoid recidivism. The discussion should create an understanding of the possibilities of changing one's habits and receiving treatment for alcoholism. If the driver does not have a serious alcohol problem, and he or she is willing to change, a single visit can set that change in motion. One should never expect too much from a single visit, but it can be a first step that makes the driver think and can be helpful later on, when the desire for change materialises.

The interviewee also asked if it were possible to require the customer to participate in the discussion at some level, however rudimentary. Now, physicians are obliged to issue a certificate of the discussion, even if the customer just sits and grumbles that he or she is not interested. In an ideal situation, the health care professional could carry out an independent evaluation of the amount of discussions needed, such as from one to three sessions. A functional model could include one discussion before granting the alcohol interlock driving licence and another control visit after the driver has accumulated some experience of using the alcohol interlock.

### **Cooperation and an alcohol interlock campaign**

The interviewed health care representative called for more cooperation between authorities. One cooperation meeting had been held with the local police, mostly concerning driving skill evaluations. The health care representative also suggested discussions with district courts to ensure that all authorities convey the same message: crime doesn't pay, but alcohol interlocks and seeking treatment can prevent recidivism. In the opinion of the interviewee, alcohol interlocks could be decreed mandatory for everyone caught driving while intoxicated.

The prevailing lack of information could be dispelled with active communication and organising an alcohol interlock campaign directed at health centres, police departments, district courts and the general population. After alcohol interlock use becomes more common, the prices would go down as well. The recidivism rate of drink-drivers is high, so alcohol interlock use should be made mandatory for them. The campaign could be jointly implemented by several parties, such as Trafı, the Automobile and Touring Club of Finland, Liikenneturva, the Ministry of Social Affairs and Health and the Ministry of Transport and Communications.

In the opinion of the health care representative, the judiciary and medical perspectives can be hard to reconcile. The opinion expressed by the district courts reflected a highly practical approach: alcohol interlock revocation hearings are frustrating and laborious, so district courts wish to keep their number low. One judge felt it unnecessary for the prosecutor to notify the court of the defendant's request for alcohol interlock-controlled driving rights, when it is immediately apparent from the nature of the case that the defendant will be placed under a temporary driving ban. Sometimes defendants have already installed expensive alcohol interlocks in their cars on the basis of the temporary alcohol interlock driving licence issued by the police, but are nevertheless placed under conditional driving bans. Another judge felt that 'the police should inform defendants better on the prices of alcohol interlocks and that, for short driving bans (the police can deduce the likely length of the driving ban from the alcohol content of the driver's exhalation), it is rarely worthwhile to acquire an alcohol interlock.' 'Worthwhile' is being defined here by the finances of the driver and the work load of the judge, rather than from the perspectives of traffic safety, pre-

venting recidivism, helping the individual manage his or her life and treating alcoholism.

## 8. Experiences of alcohol interlock use

### 8.1. Alcohol interlock functionality

The length of alcohol interlock use among the respondents of the survey ranged from one month to nearly six years (Figure 14). The average length of use was three years. One-third of respondents stated that their alcohol interlocks had functioned faultlessly (Figure 15). The greatest number of reported problems related to exhalation technique and freezing temperatures. The following chapters present a more detailed treatment of the problems mentioned in Figure 15.

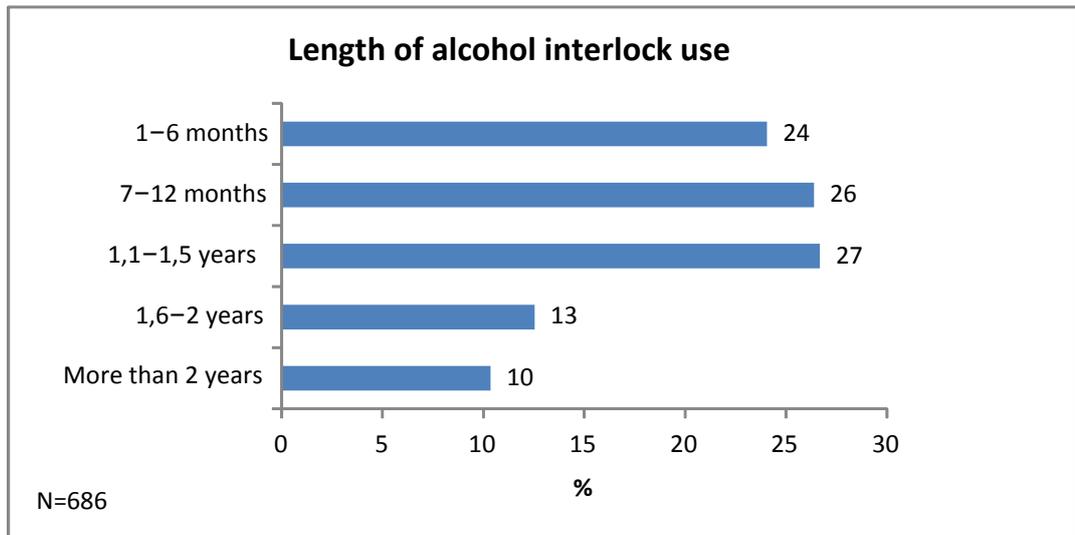


Figure 14. Length of alcohol interlock use.

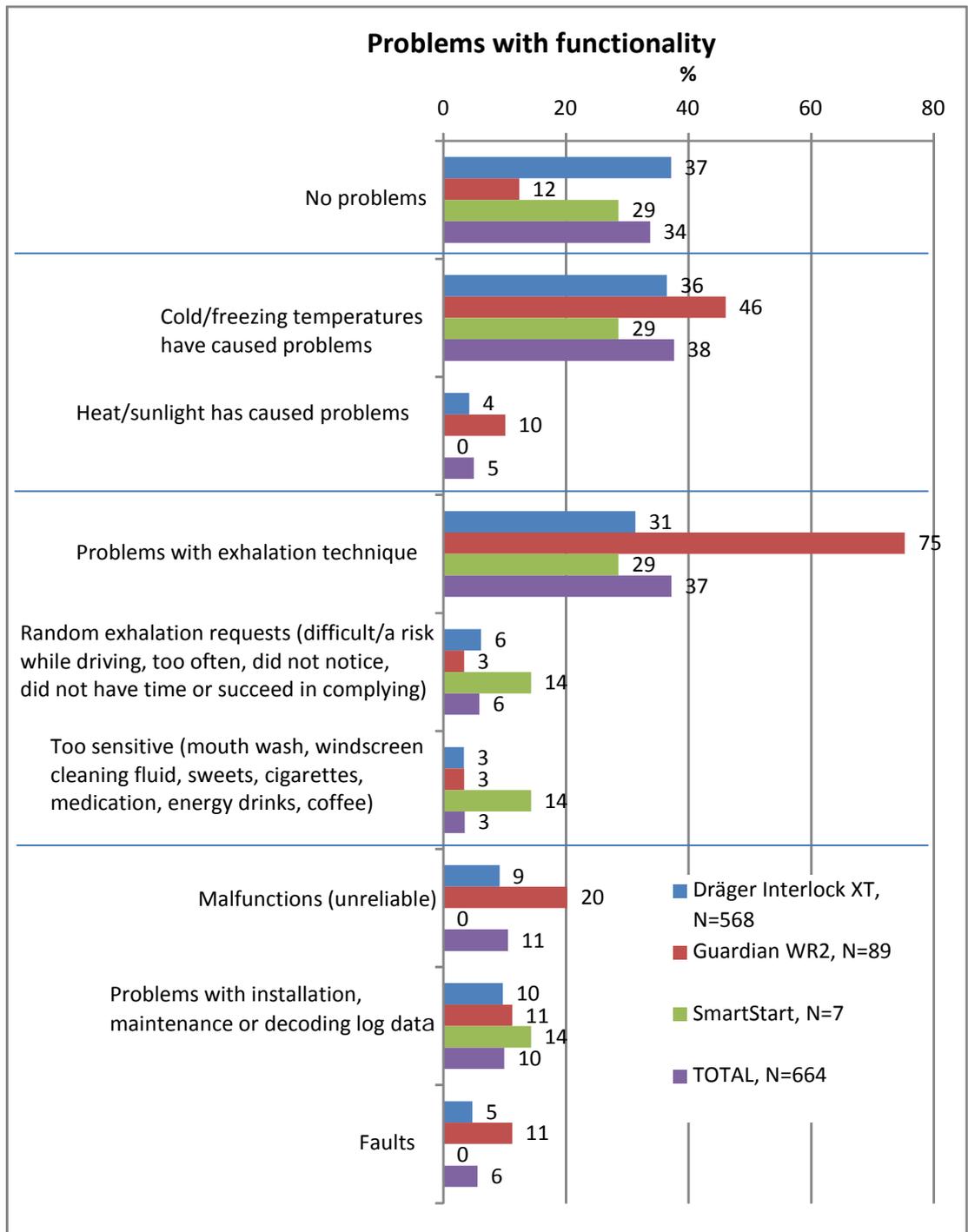


Figure 15. The functionality problems highlighted by respondents have been grouped into categories related to exhalation technique, temperature and servicing. The sub-categories within these categories have been formed on the basis of the free-form descriptions submitted by the respondents.

## 8.2. Exhalation technique

An alcohol interlock registers an exhalation once it exceeds a specific flow threshold. After this, the exhalation must be maintained until the minimum volume (criteria) has been met. Two of the alcohol interlocks approved for use in controlled driving rights requires what is termed as 'sound vibration' in connection with an exhalation. According to the importer, 'the device requires an approximately five-second exhalation, during which the user must produce a whirring sound.' The third alcohol interlock model requires a vacuum to be produced in the system after an exhalation. In practice, this is done by sucking on the mouthpiece immediately after providing an exhalation, after the device has given a sound signal. The purpose of these additional exhalation procedures (not required from alcohol interlocks in voluntary use) is to make it more difficult to circumvent the system.

### Exhalation problems

Many drivers found the correct exhalation technique difficult to master. However, some drivers stated that the problems stopped once the correct technique had been perfected. However, other drivers said that the problems persisted: 'The device doesn't always accept my exhalation, but makes me try several times.'

*'It took some time to learn the exhalation technique. After I mastered it, the device has worked.'*

*'I sometimes still struggle to provide a correct exhalation.'*

*'Using the device has been truly difficult. It keeps beeping, and exhaling is hard. But it is a punishment, after all...'*

*'I sometimes have difficulties providing the correct kind of 'suction' for the device; it keeps rejecting my exhalations. Another thing is that sometimes the hand piece clearly indicates that I have to suck, at other times I have to guess.'*

Many drivers felt the required exhalations to be overly long; 'my lungs nearly gave out.' In particular, respondents with asthma, pulmonary or vocal cord diseases or influenza found exhaling difficult. The family members of several drivers could not provide a sufficiently strong exhalation or master the technique, and were thus unable to use the car. The sound vibration feature was felt to be particularly troublesome.

*'It requires a strong exhalation and suction; I find it hard when I have the flu.'*

*'My wife couldn't exhale strongly enough, and so couldn't drive the car.'*

*'It is hard to get the sound vibration right.'*

*'I kept having trouble producing the sound vibration, until the requirement was removed from my device by special authorisation.'*

*'The device requests re-exhalations very often. Messages: exhale harder, exhale longer, sound vibration. As a whole, this particular device is really tricky to use.'*

*'My first alcohol interlock's exhalation technique – I had to produce a certain sound frequency, which did not always succeed, no matter how hard I trained. When I was driving, I had to pull over when the device started complaining about my exhalations and requiring maintenance within 24 hours. That meant another 100 km drive to the service station, cutting my work day at short, and every week the same. Another model proved to be a good device without these kinds of teething troubles. Driving has been easy again, since I haven't needed to be nervous about when the maintenance light will come on again.'*

Some drivers stated that their alcohol interlocks were overly sensitive to odours. These respondents commented that the devices had reacted to, for example, windscreen washer fluid, cologne, energy drinks, coffee, breath mints, sweets, chocolate, juice, soda, ”kotikaljaa”, cigarettes, cough syrup and chewing gum. These errors caused unnecessary maintenance visits.

*'I ran into trouble when I washed my windscreen while driving. That cost me 40 euros.'*

*'At first, it was difficult to keep in mind that I shouldn't take cough syrup, breath mints, chewing gum or sour juice before setting out, since all of these caused a red exhalation.'*

In the opinion of one device manufacturer's representative, exhaling into the alcohol interlock while simultaneously producing a sound required normal lung capacity, and the interlock recognised several different frequencies of sound. 'However, users must adapt their exhalation technique to the alcohol interlock, not vice versa. Some people have more trouble mastering the technique than others.' According to one device manufacturer, the percentage of rejected exhalations cannot be determined from the system. Another manufacturer stated that 15% of exhalations were rejected, and the log data analysis of a third manufacturer indicated that the average amount of exhalation errors was 9% of a driver's exhalations.

According to the decoded log data, only six drivers had avoided exhalation errors altogether. Slightly over one-third (37%) had failed 1–5% of their exhalations, while another third (35%) had failed 6–10% (Annex 8). Some drivers had failed more than half of all exhalations.

The percentage of exhalation errors decreased toward the end of the probationary period. This was discovered in a comparison of the exhalation error percentages of the early and later exhalations of drivers that had completed a probationary period of more than eight months (Annex 8). Of all drivers, 77% made fewer errors toward the end of their probationary period. The average error percentage was 8.3% at the start of the probationary period and 5.3% at the end. Some drivers made considerable progress: from a 51% error percentage to 17%. On the other hand, the opposite happened to others, with an error percentage of 8% at the start and 31% at the end, but in these cases, the total number of exhalations was considerably greater toward the end of the probationary period.

### **Exhalations requested during driving**

Pursuant to the Decree (474/2008), alcohol interlocks must require exhalations at random intervals during driving. Drivers have six minutes to provide such exhalations. The alcohol interlock must require the first exhalation within 5–10 minutes of starting the car, followed by exhalations every 30–45 minutes.

The majority of respondents (92%) stated that they usually exhaled while driving. Most of them (86%) also related that they had experienced no dangerous situations due to the exhalation requests.

In their free-form answers, some drivers said that the random exhalation request were difficult in many respects: first, they pose a traffic safety hazard; secondly, exhalations are required too often; and thirdly, drivers did not always notice the request, or the device did not accept the exhalation (Annex 9).

Dangerous situations were reported particularly in urban traffic, at crossings and when the traffic was congested. In heavy traffic, traffic lights or on the motorway, it is usually not possible to stop and exhale at the side of the road. When drivers had to concentrate on exhaling while driving and within a certain time limit as well, they felt that it distracted them from observing traffic, particularly in situations requiring quick reactions. Drivers who found exhaling difficult in the first place found it even more so while driving. If the exhalation is rejected, the driver is forced to concentrate on the device even more, as he or she attempts to find out what went wrong. The time limit certainly does not make it any easier to provide the re-exhalations. In addition, when exhaling into the device, drivers only have one hand available for steering and changing gear. Exhaling while driving was compared to using a mobile phone.

*'Exhaling while driving makes it harder to concentrate on driving.'*

*'I had to drive and change gear with one hand. As dangerous as using a mobile phone.'*

*'The exhalations required while driving are dangerous. If you don't get it right immediately, you have to check the screen to see what went wrong and provide another exhalation. This creates REAL hazards on the motorway, for example.'*

*'Some extremely unpleasant situations. While it is forbidden to use a mobile phone while driving, it is allowed to fiddle with the alcohol interlock. Highly dangerous!! I can't see why you have to combine these tricks with exhaling. Providing the exhalation should be enough. These can cause very dangerous situations.'*

Some drivers mentioned examples of dangerous situations that they had experienced personally.

*'Drove off the road twice, into a snow bank.'*

*'I was in danger of crashing five times.'*

*'Sudden braking was required once or twice, as I lost concentration.'*

*'In the beginning, I nearly crashed into a car in front of me.'*

*'I experienced a few near-misses at crossings.'*

*'The horn signal made a car in front of me run a red light.'*

Drivers felt that exhalations were requested too often during driving.

*'I had to concentrate on exhaling in a certain manner and within a certain time limit, to prevent the device from entering maintenance mode. This always made me panic and cause my eyes to stray from the road.'*

*'Inappropriate for lumber transport, since loading is always different, which made me miss exhalation requests and forced me to go to Joensuu to have the interlock calibrated each time.'*

*'The device requires a rather long exhalation (not always possible in traffic).'*

*'The first control exhalation after setting out (5–10 minutes) tended to come when I was stuck in city traffic, presenting a real safety hazard (when getting in lane at traffic lights, turning, on the acceleration lane, etc.) I have already experienced several dangerous situations.'*

One device manufacturer stated that the average interval of exhalation required during driving was 20 minutes, with others stating intervals of 30–45 minutes. A difference of this magnitude must be noticeable, although drivers usually only use one model and do not have the opportunity to compare differences between devices.

Based on the log data, one-third of drivers had managed to take care of all re-exhalations in time (Annex 8). The largest group (40%) had missed one or two exha-

lations, but some had missed dozens. The number of missed re-exhalations decreased towards the end of the probationary period. On average, 1.0 re-exhalations were missed at the beginning of the probationary period and 0.6 at the end. At the beginning of the probationary period, 51% of drivers successfully provided all re-exhalations, the corresponding percentage being 65% towards the end. Nevertheless, there was considerable variation from one individual to the next.

Based on the log data, 16% of drivers completed their probationary periods without a violation leading to an extra maintenance visit (Annex 6). Approximately half of respondents (52%) accumulated one to three extra maintenance visits, and slightly less than one-third (30%) accumulated four to ten visits. A handful of drivers had to make more than twenty extra maintenance visits. The number of violations requiring extra maintenance visits also decreased slightly towards the end of the probationary period (Annex 8). The average amount of extra visits was 1.7 at the beginning of the probationary period and 1.2 at the end.

Of all drivers, 13% had neglected to have their log data decoded in time. Thus, they had used the alcohol interlock unlocking code to take their vehicles to maintenance. Just under 6% (81) of alcohol interlock service stations had requested the maintenance code. Using the code, the car can be started and kept running for a few hours without an exhalation test and maintenance can be carried out without decoding log data.

### 8.3. Waiting for the device to warm up

In addition to exhalation technique, the second major functionality problem cited by respondents was the cold. Drivers perceived the wait for a cold exhalation mouthpiece to warm up as being long. Many drivers learned to take the alcohol interlock indoors in freezing temperatures. Some also did this to avoid leaving the device visible in their cars. However, the connecting cord did not always tolerate being detached repeatedly. In addition to the warming-up period, another problem mentioned by drivers was that the alcohol interlock consumed electricity in freezing temperatures, 'went berserk during severe freezes' and would not accept exhalations.

*'It takes a really long time for the device to warm up in freezing temperatures.'*

*'It will not accept exhalations in freezing temperatures.'*

*'In winter, the alcohol interlock must be taken indoors. It takes a really long time for the interlock to warm up before it can be exhaled into.'*

*'I had to take it indoors, causing the connecting cord to wear out and cause fault situations.'*

*'The device's connecting cord's 'locking/clip' mechanism came loose, and the device had to be replaced subject to the warranty.'*

One device manufacturer stated that an interlock that had been stored in warm surroundings would be ready to accept exhalations in 1.5 minutes in freezing temperatures, whereas two stated a warming up period of 10 seconds. The manufacturer of one of these models said that it would warm up in 30 seconds even in freezing temperatures. The others stated that the warming up period was dependent on the temperature – the colder, the longer. One manufacturer reported a warming-up period of 50 seconds at zero degrees and less than three minutes at -40 °C.

According to the manufacturers, the handsets of all devices could be quickly and easily detached. However, when connecting one of the devices 'users have to check that the connector is in the right position to avoid damaging the studs. The correct position is indicated by an arrow.' The second device is equipped with a durable quick connector, and the third comes with a rather durable, plastic locking connector as standard equipment, which can be exchanged for a more durable metal one.

#### 8.4. Errors and malfunctions

One-tenth of respondents had experienced problems related to alcohol interlock maintenance. Many described malfunctions: the device would not accept exhalations, the battery kept draining, and the device 'kept getting stuck' or the exhalation tube got clogged up too often. The worst part about these malfunctions was that they led to the device locking up, necessitating an extra maintenance visit with the trouble and expense it entails.

*'It goes nuts for no reason. The device starts screaming in the middle of driving. The device requires immediate servicing, since it imagines a violation has been committed.'*

*'The device malfunctions often, and I had to take it to maintenance 70 km away several times.'*

*'It locks up too easily. The battery also drained, requiring extra maintenance visits.'*

*'The device drained its battery in roughly two days.'*

*'The first device was a piece of shit. It required maintenance every week, twice a week at worst. I spent around EUR 1,500 in the space of a few months because of the device. Then I dissolved the lease, purchased my own device and had it installed. It cost an arm and a leg to be sure – EUR 1,700, but that was the end of my problems.'*

According to a representative of the device manufacturers, the reason behind exhalation errors is nearly always that the exhalation did not meet the criteria. The devices do not often malfunction. Nevertheless, alcohol interlocks can malfunction now and then, just like any other technical device. Rough handling can damage the device's internal components, resulting in error messages. Outside influences, such as humidity or interference caused by other devices, can be minimised by using the device correctly.

A device manufacturer's representative described a situation as explained by a driver, where the first test was accepted, i.e. contained less than 0.1 mg/l of alcohol in the exhalation (e.g. 0.098 mg/l), but then the limit was exceeded in a re-exhalation (e.g. 0.101 mg/l). This causes the device to report a violation, as it should. The reason can be a rising blood alcohol level, but is often that a different exhalation technique was used, or the measuring accuracy tolerance of the device. The customer normally blames the device for the situation, even though it functioned appropriately according to the manufacturer. The importer has investigated many similar situations.

*'After approximately ten months of use, the alcohol interlock could not be relied on any more. If the exhalation was close to the tolerance limit, the car would start, but then the re-exhalation might exceed the limit by a small margin. A very harrowing experience, and it happened twice (extra expense of EUR 40 each time).'*

Alcohol interlock malfunctions were reported by 29 respondents (Annex 5). Some of these drivers had experienced more than one malfunction. When the alcohol interlock broke down, it entailed a greater than usual amount of trouble and expense, since the car had to be towed to maintenance, which was far for many respondents.

*'The display malfunctioned; I got several error messages and had to replace one handset.'*

*'The telephone unit broke down once. The terminal unit broke once and the battery also went dead once.'*

*'I had to take it to maintenance earlier when the CPU failed. It just went dead (the CPU was destroyed and the car had to be towed 220 km to Oulu from my cabin in Perukka).'*

*'The devices did not work. The CPU was replaced twice, the handset three times. There was only one competent repairman in the garage.'*

*'Technical errors, functional problems, error codes. The handpiece broke down, the device went into error mode for reasons not due to the customer; finally, the CPU also malfunctioned.'*

One device manufacturer told us that 'we replace alcohol interlock devices when customers have problems with them. The number of replaced devices is greater than that of real malfunctions discovered.' According to another manufacturer, less than 0.6% of devices had malfunctioned so badly that they needed to be repaired or replaced. A third stated that three devices had malfunctioned, but there was no accurate information on the total number of devices.

## 8.5. Log data decoding

An often mentioned problem was the frequency and high price of decoding log data. Some felt the normal frequency of decoding to be too much. Some drivers also had to have their log data decoded additional times due to malfunctions. Garages were not familiar with alcohol interlocks, so car maintenance frequently also necessitated an extra decoding maintenance for the lock. The number of alcohol interlock log data decoding stations was felt to be too low, and they were far away for many drivers.

*'The maintenance interval was too frequent. It smacked of cashing in – EUR 60 per visit.'*

*'Update every two months (240 km).'*

*'The battery keeps draining. If I am a week on the road, the battery will drain, which means unnecessary maintenance costing EUR 69, even though it is not my fault.'*

*'E.g. changing the car's battery required lock maintenance.'*

*'After the car was serviced, the interlock always reported too many exhalations, etc., and I had to have the error data decoded. This happened despite me instructing the servicemen.'*

Problems related to alcohol interlock log data decoding were described by 6% of respondents. The problems were often related to errors in the decoding software or a lack of information.

*'The installers were not sufficiently familiar with decoding log data, and the memory ran out several times, since the maintenance personnel downloaded the same programs many times.'*

*'They did not always succeed in decoding the log data, since they had not updated the software.'*

*'The decoding software updated delivered by the importer did not work.'*

*'Different garages had different updates.'*

*'The maintenance men did not have a clue. I went to five places, and not one of them knew how to do it.'*

Long distances (240 km), getting appointments in time and fitting maintenance in with work were also mentioned as problems related to decoding log data. The users had no information on where the decoded log data went.

*'Getting an appointment in time; the device was installed in a difficult manner; decoding was a chore.'*

*'The installer quit. It took some time for me to find a new place.'*

*'The decoding date alarm function and mandatory decoding schedule. (Not necessarily compatible with my work schedule).'*

*'No knowledge of where the data went. The maintenance request sometimes came at an awkward time, for instance, when I was travelling.'*

Only six respondents indicated that the police had contacted them due to decoded log data, and only two of these drivers stated why: 'I sometimes forgot the decoding' and 'Firearms certificates, etc...'

## **8.6. Best and worst things about using an alcohol interlock**

Naturally, keeping one's driving rights was felt to be the largest benefit of alcohol interlock-controlled driving rights (Figure 16). More than half of drivers also appreciated the certainty that they would not accidentally set out intoxicated. One-third of drivers kept their jobs thanks to the alcohol interlock. The emphasis on traffic safety was also valued. Free-form answers listed getting sober as a benefit of the alcohol interlock, as well as the fact that the interlock 'teaches one to think' and reminds of 'the dangers of the drink'. Some drivers viewed the alcohol interlock as a friend and travel companion.

*'It helped me on the way to an intoxicant-free way of life.'*

*'Reduces my alcohol use, no risks when I use the device.'*

*'I drive a Renault and I've named the alcohol interlock Pierre. Pierre tells me when it's safe to drive. Above all, the alcohol interlock is a health instrument and friend.'*

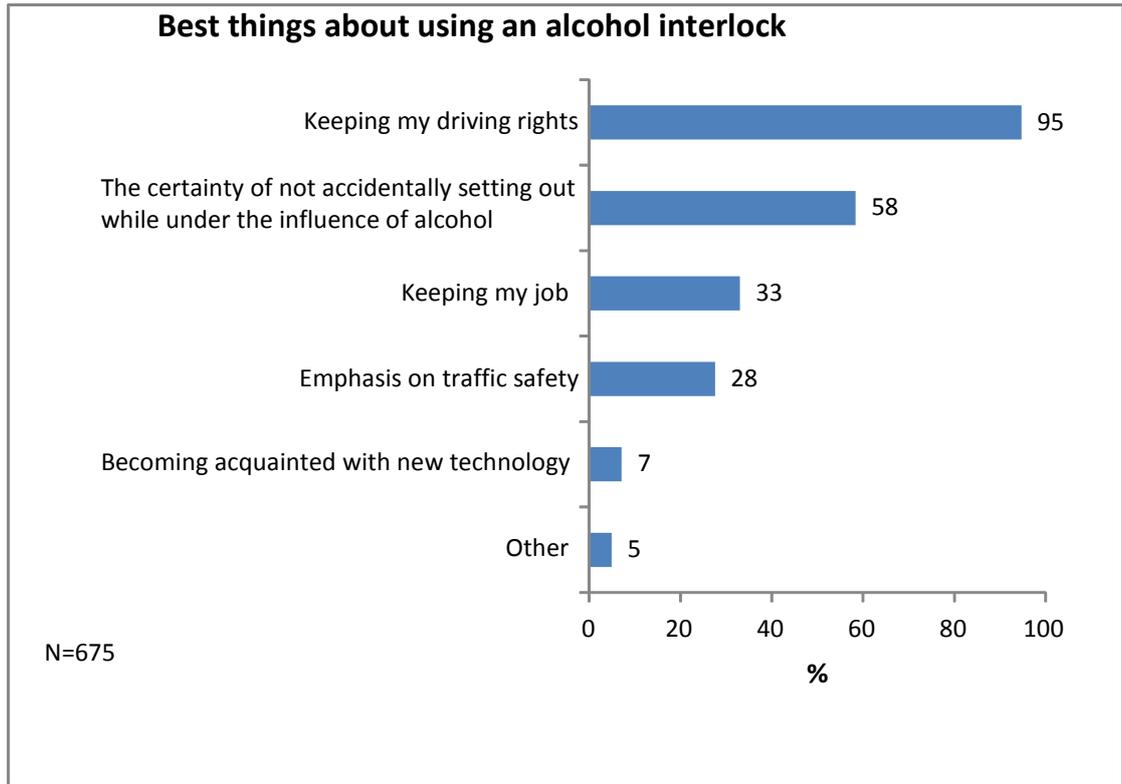


Figure 16. Best things about using an alcohol interlock according to the respondents.

The drivers perceived waiting for the device to warm up and the expenses as the worst aspects of using an alcohol interlock (Figure 17). Almost half of the respondents considered exhaling while driving to be unpleasant, and many felt it to be a safety hazard, especially in a tight spot. The interval of re-exhalations was felt to be too frequent and, conversely, the restart interval too short.

*'The device requests exhalations while driving far too often.'*

*'I can't leave my car running, e.g. during a severe freeze, since the device might require an exhalation.'*

*'Dangerous device in traffic! Should be banned like the cell phone (during driving).'*

*'Keeping track of exhalation alerts while operating the crane on my lorry.'*

Exhaling in public was felt to be awkward by 43% of respondents. Many also described the attitude of outsiders as suspicious or negative.

*'I could not give my friends a lift, since I did not want them to know about my conviction.'*

*'I was ashamed to tell my family.'*

Other negative aspects mentioned were the rudimentary nature of the device and 'the ever-present uncertainty of the device's functionality.' The device was considered, large, clumsy, loud, complicated, and too sensitive to odours. The alcohol interlock was also felt to make normal car maintenance unpleasant, since they resulted in extra maintenance requirements in addition to the alcohol interlock's normal maintenance, which was perceived as unpleasant. Another negative aspect was the commitment to using one car and trouble caused for the families of the respondents.

*'Apparently, not even all accredited service stations know how to use the device. This resulted in two extra decodings, for a total of EUR 110.'*  
*'My wife will not drive the car.'*

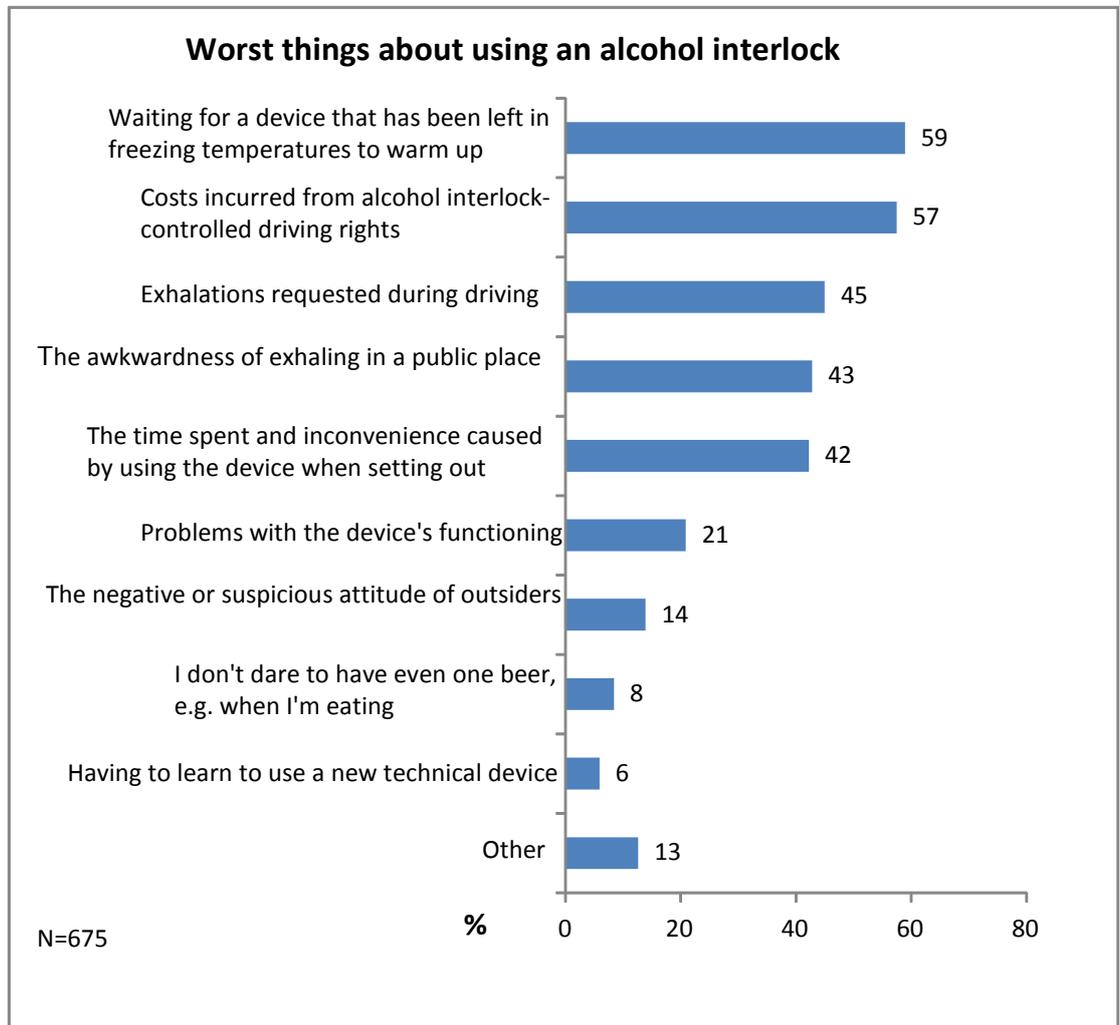


Figure 17. The worst things about using an alcohol interlock according to the respondents.

### 8.7. Attitudes of family members and outsiders

More than half of respondents stated that their family had encouraged them to acquire an alcohol interlock, and the families of more than a third understood the need to use an alcohol interlock, even though they did not like it (Annex 8). The families of 13 respondents opposed the acquisition of an alcohol interlock. Family members must also use the alcohol interlock if it is installed in the family car.

*'They considered it expensive, but understood the need.'*  
*'It was OK; there was nothing that could be done about it.'*  
*'We have two cars, so the rest of the family did not need to use this one.'*  
*'My sober wife got her own car, since she did not want the stigma.'*

In their free-form answers, many respondents stressed that the decision to acquire an alcohol interlock was their own, or that they had not even asked the opinions of others. Some drivers did not have family. Some did not receive comments from others, some did not even tell their families.

*'My choice for my car!'*

*'I didn't ask them for their opinion.'*

*'No comments. Most of them don't even know.'*

*'No one else knew.'*

*'My family does not know I use an alcohol interlock.'*

*'I told them this was a test car.'*

The most respondents (39%) stated that outsiders had not commented on their alcohol interlock use in any way (Figure 18). One-third of drivers said that outsiders had shown interest in the alcohol interlock as a technological device, and slightly less than one-third stated that outsiders thought the alcohol interlock user to be a responsible driver. Free-form answers described attitudes as positive, matter-of-factly curious, even humoristic.

*'What's that? was the question.'*

*'It has been received with understanding and interest.'*

*'It acquired humoristic dimensions when I was trying to be serious and exhale.'*

A quarter of respondents said that people outside their families were not aware of the alcohol interlock. One-tenth felt others considered them to have an alcohol problem, and felt alcohol interlock use to be embarrassing. One driver said that he had claimed the alcohol interlock was standard equipment for the car. A few respondents described negative reactions.

*'I exhale behind my shirt at home and at work. Awkward.'*

*'It is sort of embarrassing to explain that I have it and why.'*

*'It is humiliating when others rejoice at my misfortune...'*

*'I have had widely varying comments, and haven't publicised the matter too much.'*

*'Many were against the alcohol interlock, saying that it was too lenient a sentence.'*

*'Prejudiced and accusing.'*

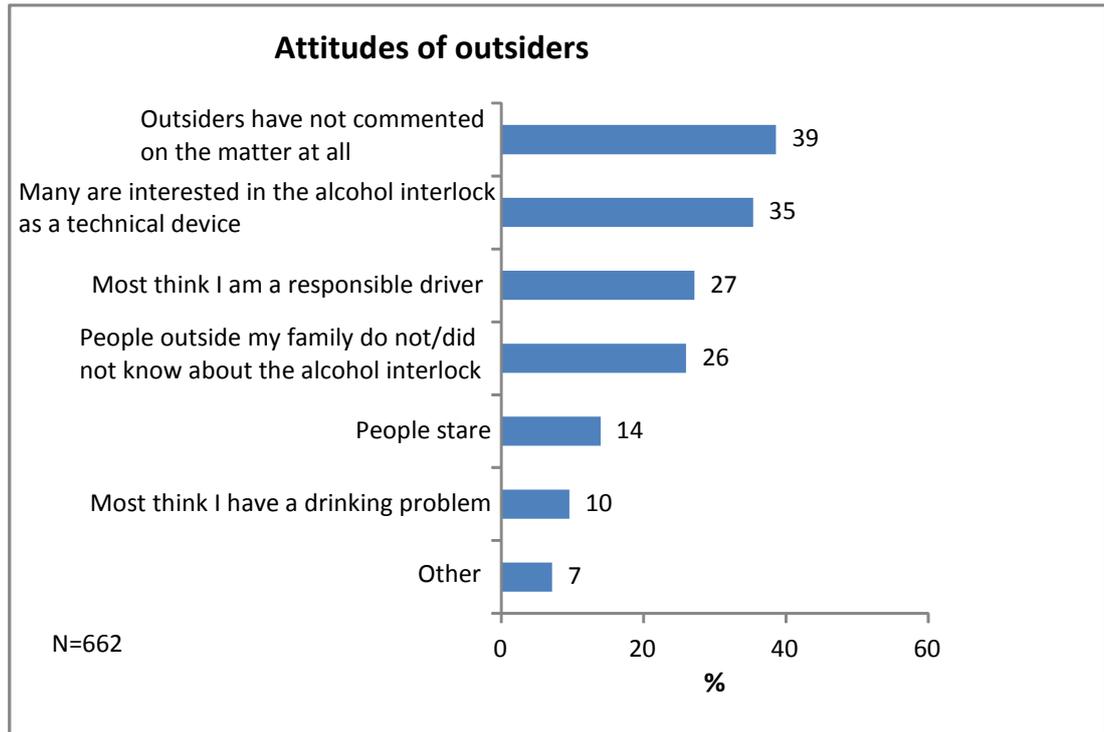


Figure 18. Respondents' views of the attitudes of outsiders towards alcohol interlock use.

The great majority of respondents (97%) said that misusing the alcohol interlock had never crossed their minds (Annex 8). Eighteen drivers stated that they had thought about how they could bypass the alcohol interlock, but never tried to in practice. One respondent said he had asked a friend to exhale into the alcohol interlock, and another stated he had successfully bypassed the alcohol interlock. A third driver's son had exhaled into the alcohol interlock, but the driver had nevertheless been sober and passed the re-exhalations.

*'Due to youth (18 years old), stupidity and thoughtlessness, I once let a friend exhale into the alcohol interlock after I had been drinking.'*

*'Disconnect the cord and away you go.'*

*'I once had my kid exhale into it, and my son, who is 13, gave me a long look, but I did the re-exhalation myself and it was OK.'*

### 8.8. Alcohol interlock's influence on alcohol use

The majority of respondents (64%, 444) said that the alcohol interlock had affected their alcohol use (Figure 19). Most drivers stated that they had begun to drink less. The respondents drank less or less often, or switched stronger drinks for milder. Some said that the alcohol interlock had made them stop drinking before driving.

One-tenth of the respondents (77) explained they had stopped drinking altogether, and that the alcohol interlock had motivated them in this decision. The alcohol interlock process also had a therapeutic, helping effect on some drivers, as they received professional and peer support.

*'Its effect was clearly MOTIVATING and SUPPORTIVE.'*

*'I refrained from drinking in the evening if I had to drive the next morning.'*

*'I started assessing in advance when I would be fit to drive.'*  
*'I started evaluating the amount and time of drinking more carefully.'*

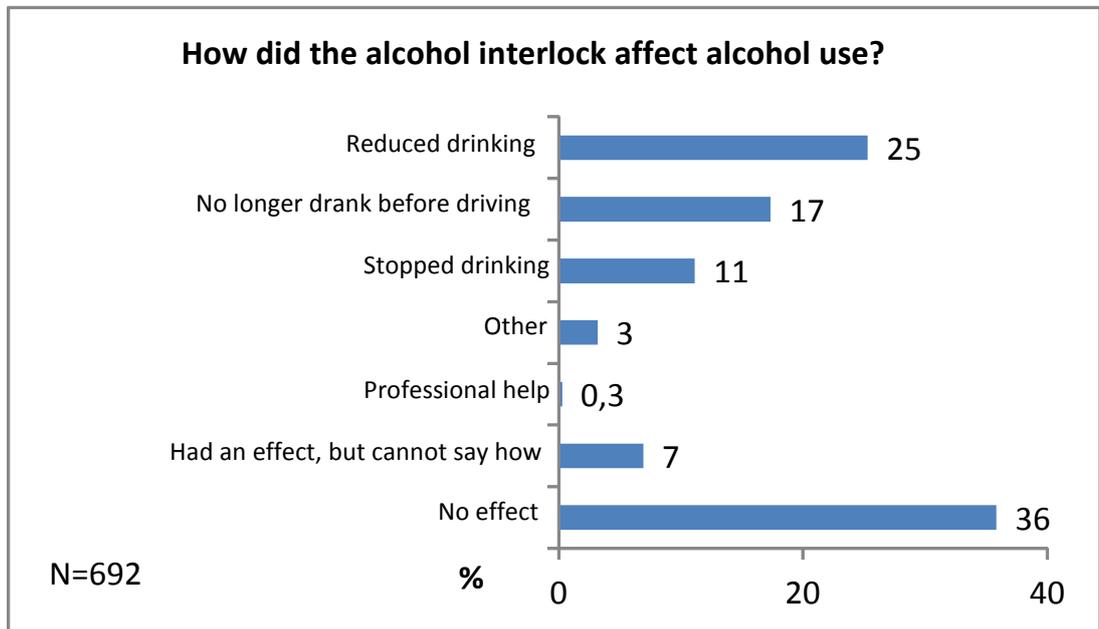


Figure 19. Alcohol interlock's influence on alcohol use.

### 8.9. Preventing driving while intoxicated

The drivers were asked whether the alcohol interlock helped them avoid driving again while intoxicated. The purpose was to discover whether the drivers had intended to drive while intoxicated, but the alcohol interlock had stopped them. All respondents did not quite understand the question. Of all respondents, 41% (285) stated that the alcohol interlock had not helped them avoid driving again while intoxicated (Annex 8). However, just under 6% of the respondents had been caught driving while intoxicated during or after their probationary period. Apparently, some of the 'no' answers mean that the alcohol interlock did not help because help was not needed.

The majority (59%) answered 'yes', the alcohol interlock had helped them avoid driving again while intoxicated, but the explanation provided was often one of those mentioned above, such as giving up alcohol entirely, reducing drinking or learning to control their condition to drive (Annex 8). One-tenth of respondents explained their 'yes' answer by stating that they could no longer drive while intoxicated, since the alcohol interlock would prevent them from starting the car. Approximately two dozen respondents described actual situations where the alcohol interlock had stopped them from driving.

*'It stopped me from driving, even though I thought I was in good condition.'*  
*'I was fully convinced I was fit to drive, but the meter thought differently.'*  
*'I had a bit to drink in the evening, but the alcohol interlock stopped me from driving the following morning.'*  
*'Some mornings, I had to wait one or two hours.'*

According to decoded log data, 15% of drivers had not provided any rejected exhalations containing alcohol (more than 0.2‰, i.e. 0.1 mg/l) (Annex 8). Seventeen per cent of drivers were always sober when providing the initial exhalation, whereas 58% never failed a re-exhalation. The percentage of rejected exhalations varied between 1–23% per driver, the average being 1.25%. An average of 1.8% of initial exhalations and 0.4% of re-exhalations was rejected. Based on the log data, it can therefore be said that alcohol interlocks prevented 1,198 drivers (83% of those analysed) from setting out under the influence of alcohol, dozens of times for certain drivers. The alcohol interlock model chosen for this study had accumulated a total of 40,105 rejected initial exhalations. The majority of exhalations containing alcohol remained below the limit for driving while intoxicated (0.5 ‰), but approximately 12,000 exhalations in excess of the limit did accumulate. Some of these cases may represent simple testing of the device, but considering that other models of alcohol interlock are in use as well, it can be stated with confidence that alcohol interlocks have prevented driving while intoxicated approximately 12,000 times.

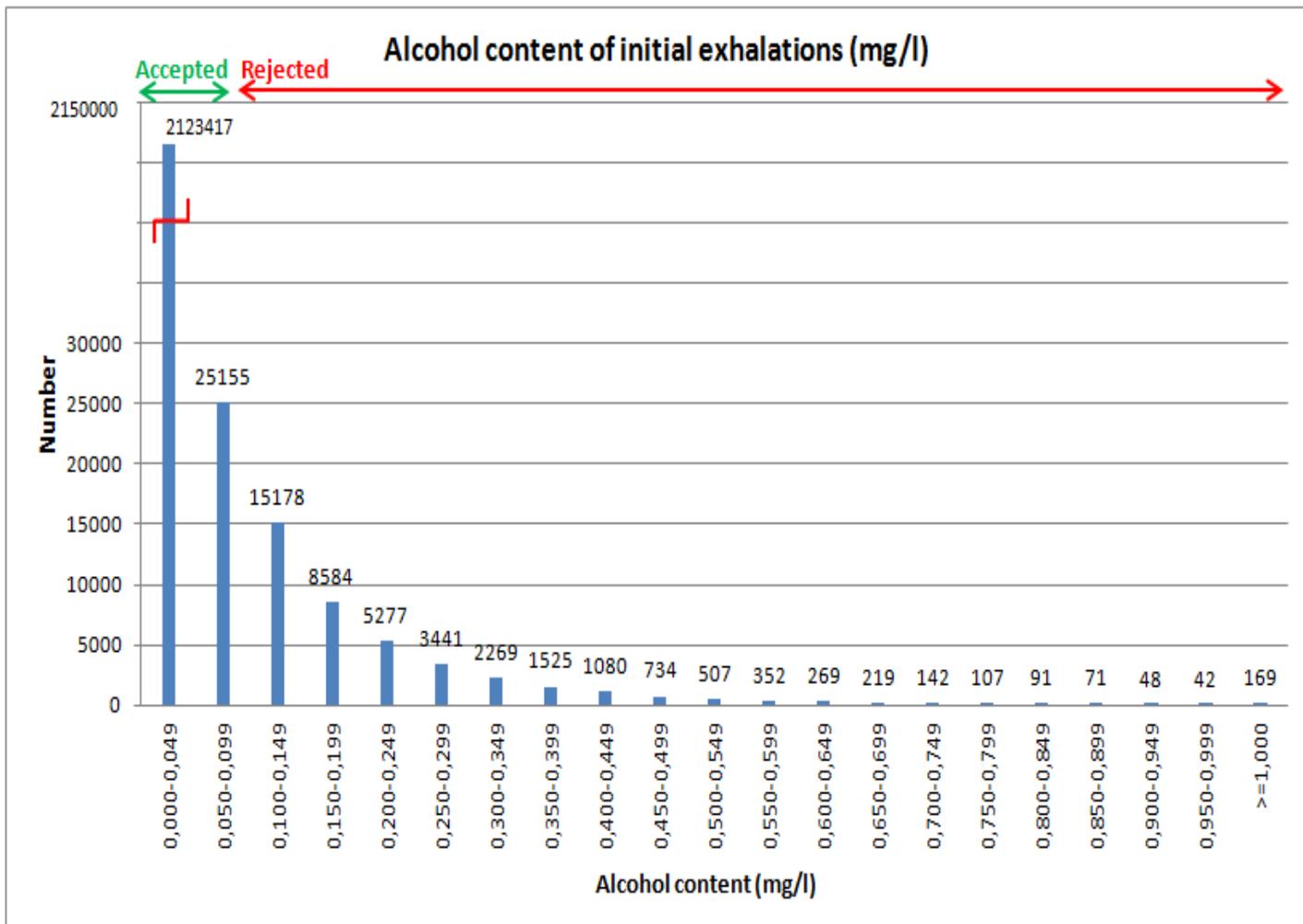


Figure 20. Alcohol content of initial exhalations.

A considerable number of rejected initial exhalations remained below the limit for driving while intoxicated: 0.5‰, i.e. 0.22 mg/l (Figure 20). However, exhalations with very high alcohol levels were also logged. The average alcohol content of rejected re-exhalations was considerably lower than that of rejected initial exhalations (Annex 8). Initial exhalations were most often rejected during the weekend and on Mondays, the most common times of day being Sunday afternoons and Monday mornings (Figure 21). On the other hand, rejected re-exhalations were most common on Fridays and Mondays (Figure 22), when approximately one in six of drivers who had failed their initial exhalation attempted a re-exhalation. Therefore, drivers give up driving more easily on Saturdays and Sundays.

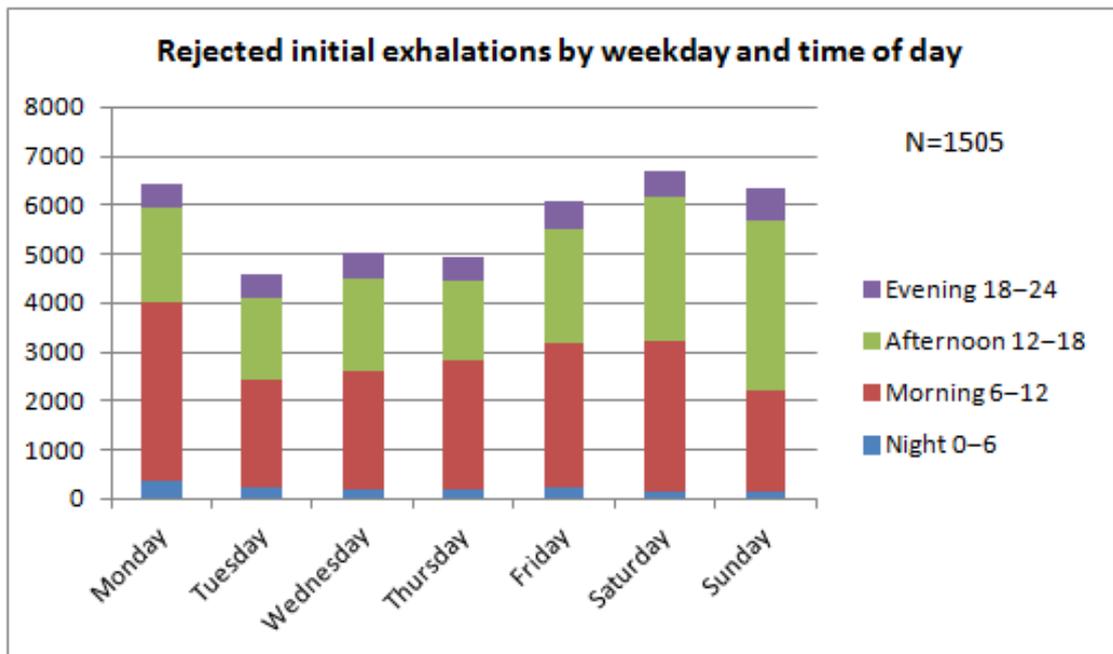


Figure 21. Rejected initial exhalations by weekday and time of day.

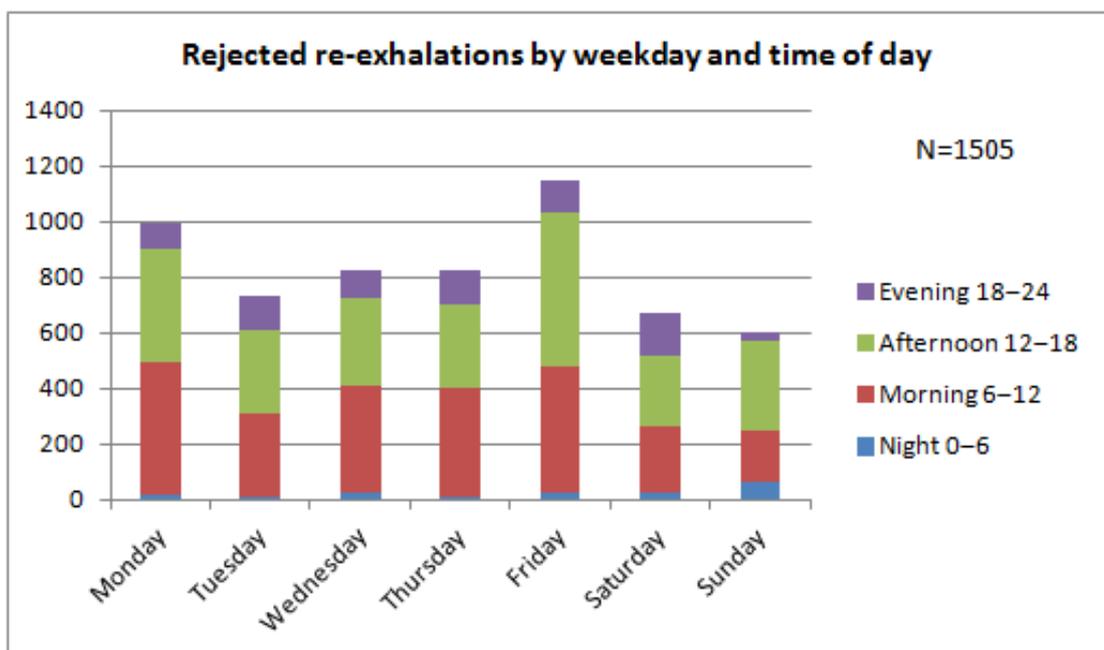


Figure 22. Rejected initial exhalations by weekday and time of day.

Even though alcohol interlock log data are regularly decoded and transferred to a register maintained by the device manufacturer on the Internet, the data do not see much use. The representatives of device manufacturers inform the police of violations and misuse that could lead to revocation of the alcohol interlock driving licence. For instance, rejected exhalations are not being monitored in any way, even though they could be used for monitoring the progress of substance abuse treatment, among other things.

There was no significant change in the percentage of rejected exhalations with an alcohol content in excess of 0.2‰ between the beginning and end of the probationary period (Annex 8). The average percentage of rejected exhalations was 0.40% at the beginning and 0.39% at the end of the probationary period. However, one-fifth (19%) of drivers passed all exhalations at the beginning of the probationary period and 23% at the end. For individual drivers, the percentage could develop either way. For some drivers, the percentage of rejected exhalations decreased dramatically, such as from 21 per cent to 6 per cent. On the other hand, the rejection percentage of one driver increased from 0.2 per cent to 37.5 per cent; the total number of the driver's exhalations also decreased to one-tenth of that at the beginning of the probationary period.

## 9. Opinions on alcohol interlock-controlled driving rights

### 9.1. Length of the probationary period

When planning the survey, we thought that it would be difficult to obtain answers on the length of the probationary period calculated according to uniform criteria. After several years, it can be difficult to recall the exact length of the period. For this reason, we intended to retrieve the lengths of probationary periods from the Traffic Information System, but since the matrices could not be combined, individualised data are not available at present. The average probationary period for alcohol interlock-controlled driving rights lasted 506 days. When interrupted probationary periods were eliminated from the data, an average length of 514 days (1.4 years) was arrived at.

Only eight respondents felt the duration of controlled driving rights to be overly short, and 41% deemed the length suitable (Figure 23). More than half of the respondents considered the probationary period overly long. The length of the probationary period was usually compared to the length of the driving ban imposed. When choosing alcohol interlock-controlled driving rights, some drivers were not aware that the duration of the probationary period is usually much longer than that of the driving ban imposed for the offence.

*'In my opinion, controlled driving rights are unreasonably long and expensive.'*

*'I was under the impression that I could give up the alcohol interlock at the end of the driving ban (5 months). This was not the case, however.'*

*'The probationary period is too long. I am a first-timer (didn't drive while seriously intoxicated), and the length of my probationary period was two years, which was also the duration of obligatory alcohol interlock use.'*

*'I have felt controlled driving rights to be a very harsh punishment. I have the feeling that many drivers end up breaking the law and driving cars with no alcohol interlocks, i.e. without driving rights. The punishment should be shorter, since extended-time- controlled driving rights eat away at a person's self-esteem, breed bitterness toward society and lower the moral threshold to break the law.'*

*'In my opinion, the time required to use an alcohol interlock is unreasonably long. If I had not chosen an alcohol interlock, I would already have my driving licence back. A senior police constable I know shares my view. It feels like being punished for needing a car to work.'*

*'My punishment was a two-month driving ban or 18 months of alcohol interlock use.'*

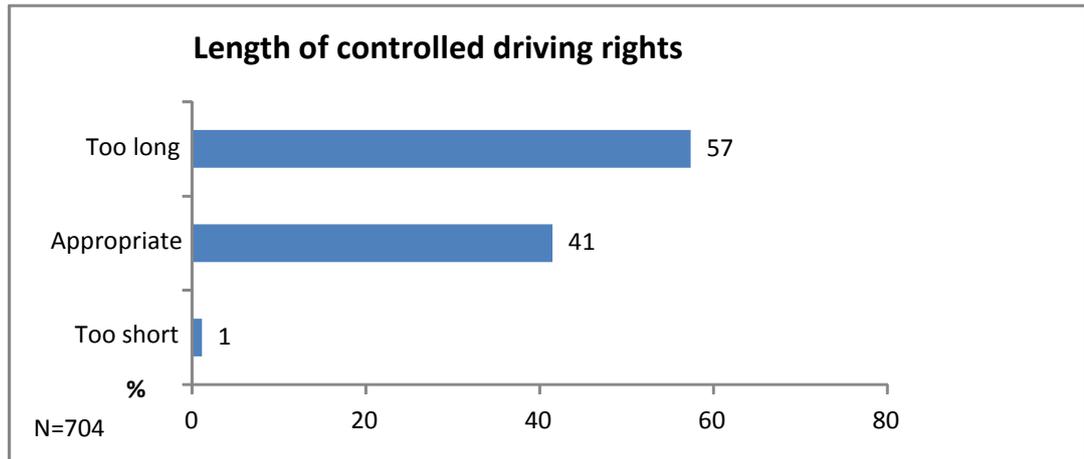


Figure 23. Drivers' perception of the length of alcohol interlock-controlled driving rights.

The respondents were also asked how long, in their opinion, should the length of the driving ban resulting from driving while intoxicated be to motivate people to choose alcohol interlock-controlled driving rights. The answers ranged from a month to 18 years (Annex 8). The average answer was one year.

However, only 9% (63) of drivers recounted that they had considered giving up their controlled driving rights. The most common reasons stated for contemplating interruption were the length and expense of the probationary period, as well as the alcohol interlock being hard to use for the driver and his or her family. Malfunctions, intervals between exhalations during driving being perceived as too short and health reasons also made drivers consider giving up the alcohol interlock. Some drivers felt they no longer needed the alcohol interlock since they had sobered up.

*'I only considered it. I just don't know how it would work/succeed in practice?'*

## 9.2. Cost and functionality of controlled driving rights

The average cost quoted by the respondents for the entire duration of controlled driving rights was EUR 2,200. For the majority (71%), the cost varied between EUR 1,000 and EUR 3,000 (Figure 24). Middle-aged drivers (40–60 years old) had larger expenses than did the younger and older age groups.

Both oddly low and high figures were quoted in the answers. The minimum and maximum costs stated, EUR 70 and EUR 50,000, are likely keying errors, but the approximately forty answers stating sums under EUR 500 seem low for the cost of the entire probationary period. On the other hand, six drivers quoted a sum of more than EUR 8,000, which seems high. It can be difficult to estimate the total cost for a period of several years or after many years have passed from the probationary period, unless the costs were written down at the time.

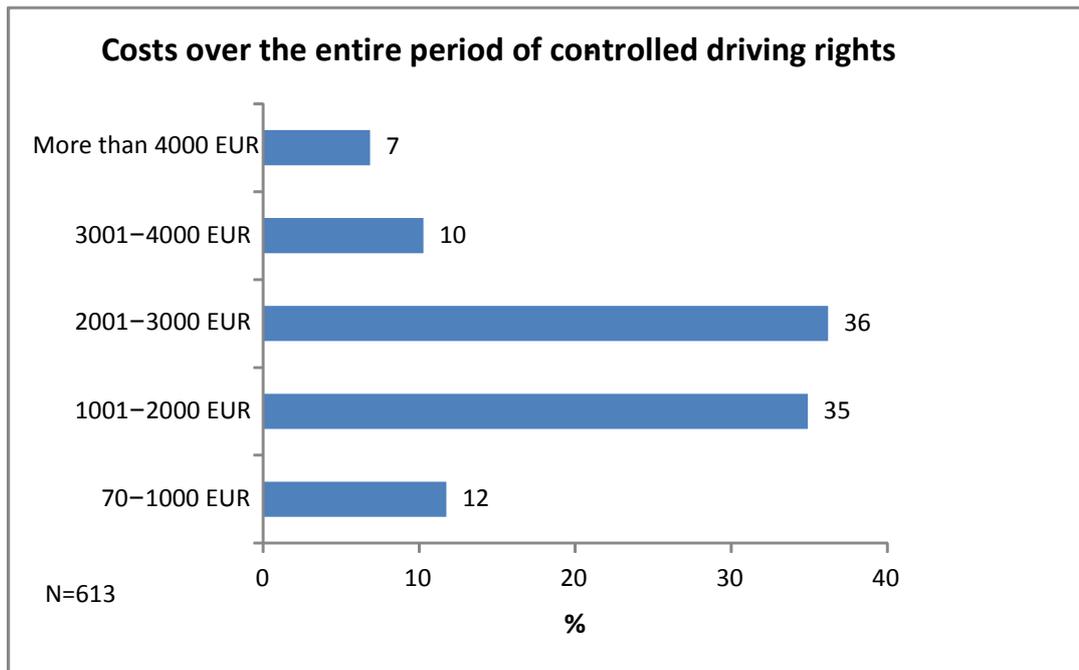


Figure 24. Respondents' estimate of the cost of the entire period of alcohol interlock-controlled driving rights.

In their free-form comments, 98 respondents commented that the device was expensive. Both the purchase/lease price and frequent maintenance were felt to be so expensive that they precluded voluntary use of the alcohol interlock.

*'The price/operating cost of an alcohol interlock is high. Not everyone can afford it, even if they would want to use it.'*

*'The device is too expensive: EUR 1,500 + installation and calibration EUR 50-80 each time every three months.'*

*'The number of users would multiply if the costs were lower.'*

*'The alcohol interlock is a splendid device. But it is beyond the reach of many, due to the extortionate cost. A 10-minute maintenance appointment costs EUR 100.'*

The representatives of district courts and the police also considered the cost of alcohol interlock-controlled driving rights an impediment to their wider use, 'The alcohol interlock is so expensive that not everyone who is interested in theory wants one in practice.' 'As long as defendants have to pay for the alcohol interlock themselves and take an active role in having it installed and inspected, you cannot expect alcohol interlock use to increase substantially.'

The majority of respondents (86%) considered the alcohol interlock-controlled driving rights process to be functional (Figure 25). Only 5% of drivers thought the process not functional.

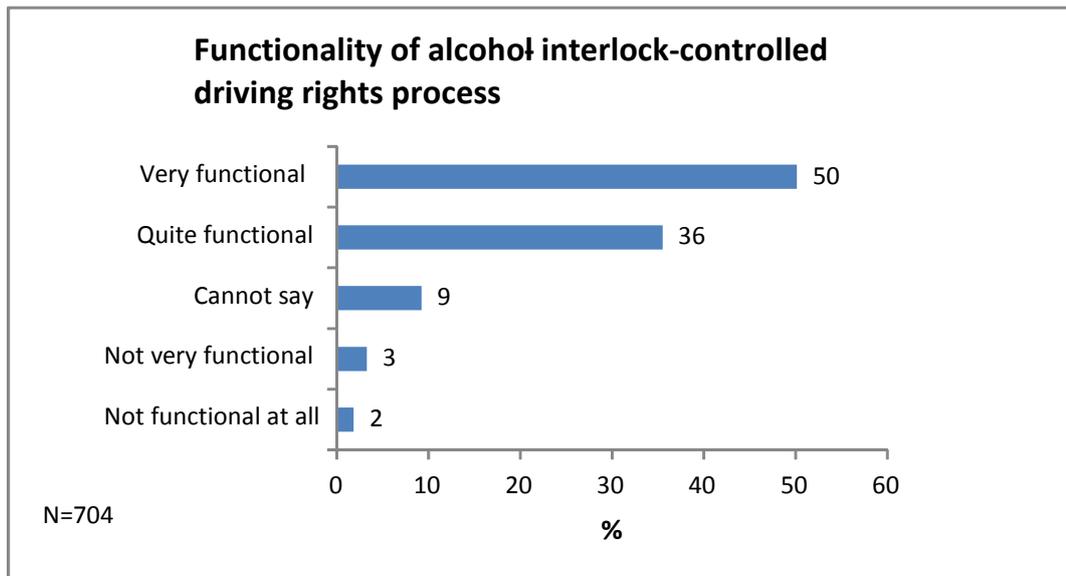


Figure 25. Drivers' perception on the functionality of alcohol interlock-controlled driving rights.

### 9.3. The alcohol interlock after the end of the probationary period

Half of the respondents said they had removed or would remove the alcohol interlock after the end of controlled driving rights (Annex 8). Close to one-third had left or would leave the alcohol interlock in their car. Roughly one-fifth of drivers had not yet decided how they would act. Removing the alcohol interlock was favoured more by younger drivers, leaving it in place by older drivers.

Drivers justified removing/intending to remove the alcohol interlock by not needing it due to having stopped using alcohol altogether, not intending to drive while intoxicated any more, having served their punishment or intending to buy a breathalyser (Figure 26). Use of the device was described as tricky due to the constant exhaling and slowness of use in winter. The alcohol interlock was felt to be too expensive to keep, at least as a leased device. Some drivers justified giving up the alcohol interlock with it being leased or changing cars.

*'Two-month rent for the alcohol interlock, EUR 250, maintenance, EUR 50.'*  
*'The rent was far too high, EUR 190/month.'*

Drivers also did not wish to continue using the device due to being ashamed of it, or because others used the same vehicle as well.

*'Shameful device.'*  
*'Awkward situations, being branded a drink-driver.'*  
*'The other members of my family did not want it around.'*  
*'Voluntary use is difficult for the individual, since public opinion has not come around yet. If you cannot justify alcohol interlock use by, e.g. mandatory use for professional drivers, you have to justify your own, voluntary use.'*

Problems during removal were described by 15 (2%) respondents. These drivers had trouble finding a place of removal and making appointments, as well as obtaining information on when the alcohol interlock could be removed. Even more respondents

(7%) told of problems caused by a lack of information toward the end of controlled driving rights. The authorities either did not have the information, or it was not communicated between the police, district court, health centre and inspection station. These respondents did not know how long they were supposed to use the alcohol interlock.

*'No clear interpretation on when I could remove the alcohol interlock. The police and court gave different answers.'*

*'Converting the alcohol interlock to voluntary use was difficult due to the ignorance of the inspectors.'*

*'The health centre had not informed the police that I had completed the required visits.'*

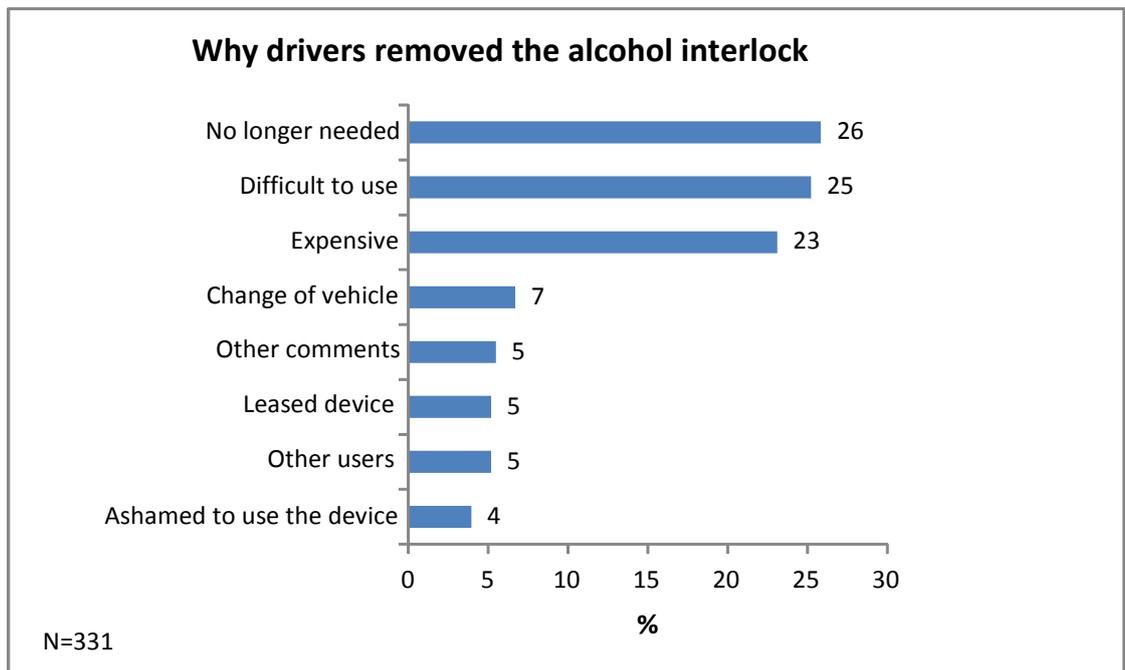


Figure 26. Respondents' explanations for removing or intending to remove the alcohol interlock.

The majority of drivers who chose to continue using the alcohol interlock justified leaving it in their vehicle by stating that it was a safe device that ensured that they would not drive again while intoxicated (Figure 27). Drivers wanted to use the expensive device they had purchased, and having the alcohol interlock removed would incur additional costs. Some respondents explained that they had grown accustomed to using the alcohol interlock and were not bothered by it any more, while others stated that the alcohol interlock was also useful to other users of the car and should be included in all cars as standard equipment. A few drivers said they would leave the alcohol interlock in their car as a reminder, and for moral support.

*'I don't see the harm in it, and everyone will know I am not drunk when I drive.'*

*'I have grown used to the alcohol interlock and don't see it as troublesome enough to have it removed yet.'*

*'No one drives my car while intoxicated.'*

*'An expensive acquisition; the children are nearing driving age, let them use it.'*

*'To stop me from driving while intoxicated. The interlock is also a good anti-theft device, since I always take it in the house with me.'*

*'The device can be calibrated to avoid having to puff into it all the time. And now the car is harder to steal :-)'*

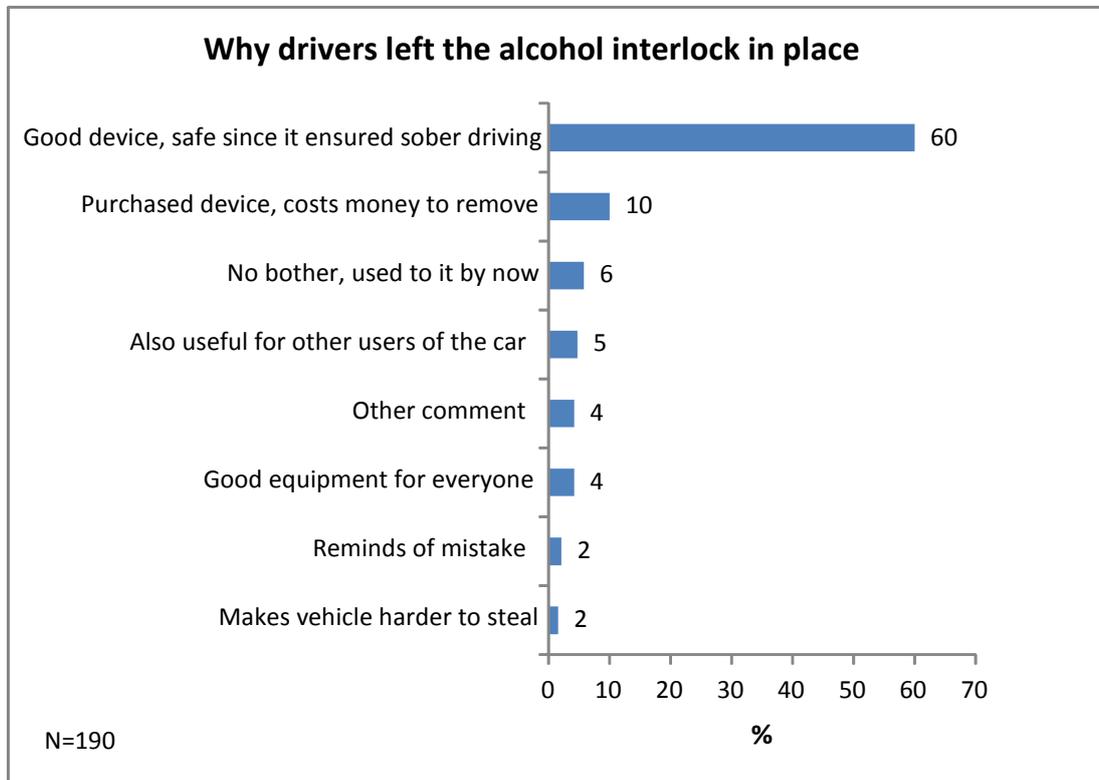


Figure 27. Respondents' reasons for leaving or intending to leave the alcohol interlock in their car.

The majority of drivers (77%) replied that they would choose an alcohol interlock again if they were caught driving while intoxicated. The justification was retaining driving rights, since the drivers needed a car in their work (Annex 8). The alcohol interlock prevents driving while intoxicated, it is a good device. Respondents would choose an alcohol interlock for the sake of traffic safety, and some are using it already.

Slightly under one-fourth of the drivers would not choose an alcohol interlock again, since they do not intend to drive again while intoxicated or are already using an alcohol interlock (Annex 8). In the opinion of some respondents, the alcohol interlock was so difficult and expensive that they would not want to use it again. A few drivers felt the probationary period to be so long that they would choose a driving ban instead.

### 9.4. Views on the alcohol interlock and expanding its use

The facts that respondents were most unanimous about were that the alcohol interlock ensures that the driver's blood alcohol level is below 0.2‰ while driving, and that alcohol interlocks are not easy to bypass (Figure 28). In the experience of the majority of drivers (82%), using the alcohol interlock became easier towards the end of the probationary period, as using it became routine. Nevertheless, one-third of respondents felt the alcohol interlock hindered driving in practice. The subject that divided opinions the most was exhaling while driving. Roughly half of the drivers felt exhalation requests issued while driving to be highly stressful, while the other half did not.

Two-thirds of drivers felt exhaling in public to be awkward. This problem will probably only be alleviated once voluntary alcohol interlock use becomes common or alcohol interlocks become standard equipment in cars.

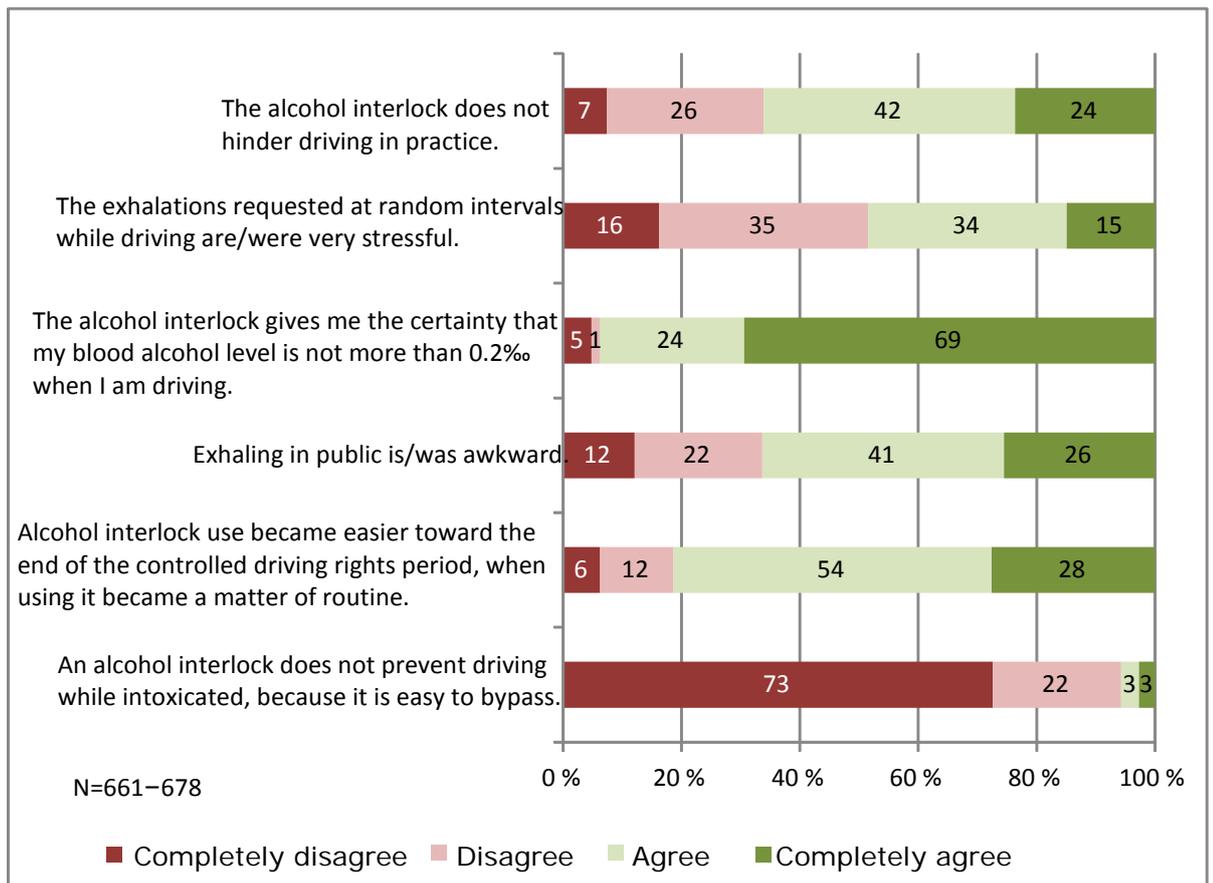


Figure 28. Respondents' views on the alcohol interlock.

Even though 88% of respondents thought the alcohol interlock was necessary for people caught driving while intoxicated, only 75% wanted to make alcohol interlock use mandatory for everyone guilty of driving while intoxicated (Figure 29). Nevertheless, the respondents were more ready to impose alcohol interlocks on persons repeatedly guilty of driving while intoxicated. Interestingly enough, more drivers would make alcohol interlock use mandatory in professional transport than for per-

sons guilty of driving while intoxicated. Half of the respondents would install an alcohol interlock in all new motor vehicles, but not retroactively in all vehicles.

*'Make the alcohol interlock mandatory for everyone caught driving while intoxicated!'*

*'Every car should come with an alcohol interlock as standard equipment.'*

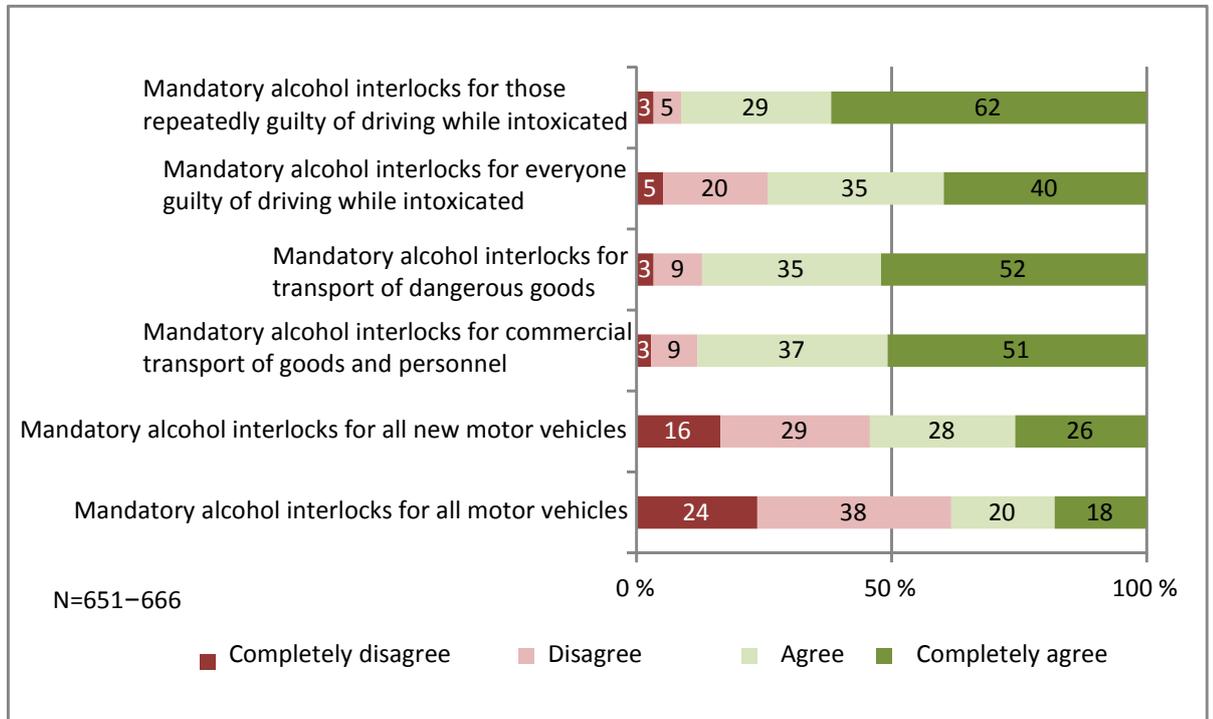


Figure 29. Respondents' views on expanding alcohol interlock use.

The free-form comments of respondents were grouped into thematic categories (Figure 30, Annex 9). Most comments concerned the cost of acquiring and using an alcohol interlock, but nearly as many described the positive sides of alcohol interlock use: the alcohol interlock was described as a good device that had been helpful and that the drivers would recommend to others.

*'Far too expensive with all the related costs. Most people couldn't afford an alcohol interlock even if they wanted one.'*

*'I suppose the costs will decrease once the device becomes more common. At current prices, many people will leave the thing on the shelf.'*

*'I've told my friends that it looks after you better than your wife or the police do.'*

*'I heartily recommend it to everyone and hope it would be made mandatory for all drink-drivers and professional drivers. Very functional! A sufficiently long period of controlled driving rights taught me a lot, and I also learned to moderate my drinking if I have to drive the following day. It prevents me from repeating my crime if I have an alcohol interlock in my car, should I suffer a lapse in judgement while drunk. It also made me reflect on my conviction every time I drove my car. As a result, I have been intoxicant-free for three years now :)'*

*'Alcohol interlocks surely reduce drink-driving, but they only work for those already motivated. It should of course be normal behaviour to only drive when sober, but if you lack the sense, the alcohol interlock will take care of you. A sufficiently long period of alcohol interlock use does make you reflect on what you have done, and also points the way to a different/sober way of life.'*

*'The alcohol interlock enabled me to continue working normally despite my conviction.'*

*'The alcohol interlock is the only option for me (three counts of driving while intoxicated). It encourages me to seek treatment and effectively prevents me from driving while intoxicated. Misusers should be severely punished.'*

*'An alcohol interlock is a good way of controlling my alcohol use. It moved my attitude toward a more sober way of life.'*

*'The period of alcohol interlock use must be long enough (e.g. two years) to remind you of what you've done. The alcohol interlock taught me to use public transport if I had been partying the previous night. In general, the alcohol interlock is a fantastic device for controlling driving while intoxicated.'*

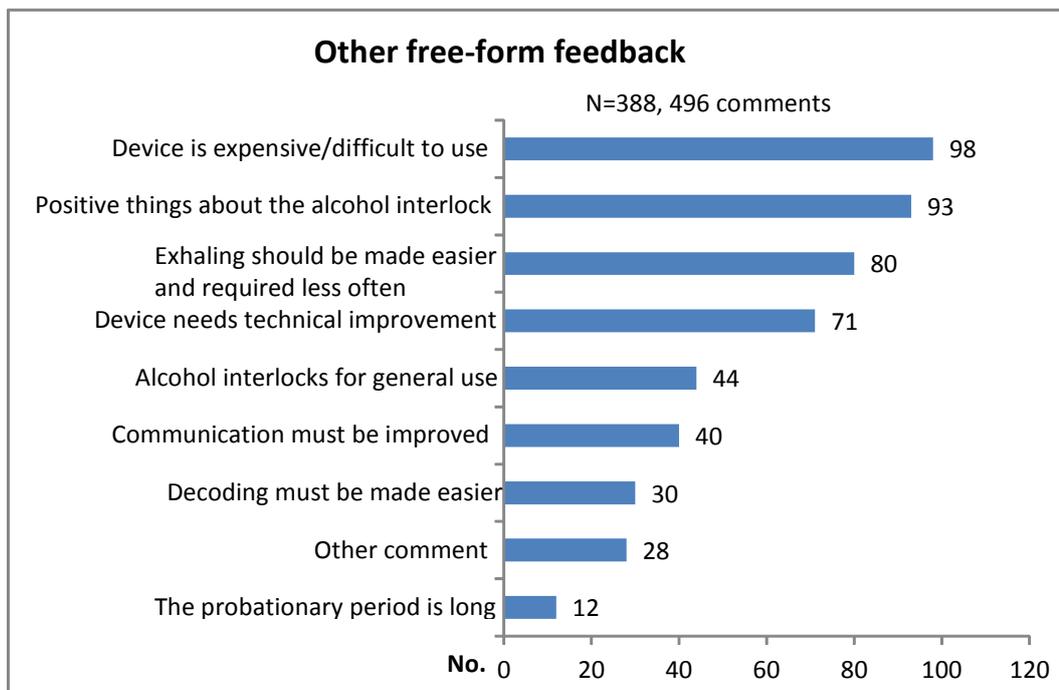


Figure 30. Free-form comments of respondents

Many respondents felt that exhaling had been made too difficult and re-exhalation requests were too frequent. The required duration of the exhalation was considered too long and producing the sound vibration was felt to be difficult and unnecessary. However, the repeated re-exhalation requests received the most criticism. Drivers would want less re-exhalation requests or none at all. Some respondents proposed the elimination of re-exhalation requests while the vehicle was stationary, since they were difficult to notice during loading or other work.

*'It should work with much less lung power and sound vibration.'*

*'The sound vibration required while exhaling is difficult to produce and, in my opinion, unnecessary. If someone needs to bypass the device, I think they will manage it with the sound-vibration model equally well.'*

*'The random exhalation requests should only come while driving, not while the vehicle is stationary (applies to heavy machinery). It is almost impossible to operate the crane, it causes dangerous situations. The function could be linked to the tachograph.'*

*'In mild cases, the device could be calibrated to only require exhalations when starting the car.'*

*'Difficult to use when you have to stop several times, since you have to exhale again each time you start the car. A longer time limit would serve better.'*

*'The exhalation schedule is unnecessarily tight; it should be enough to exhale when setting out, and every two hours after that.'*

The respondents presented suggestions for the technological improvement of alcohol interlocks: they should be faster to use, smaller, less noticeable, quieter and easier to use (e.g. a sensor on the steering wheel). Easier decoding of log data was also requested, as was expanding the service network to car dealers. The drivers also wished that alcohol interlocks would indicate blood alcohol level, even if at a rough order of magnitude. As a development suggestion for the future, one driver proposed remote log data decoding and updates.

*'The car's own technical malfunctions, such as the battery being drained or the car being towed, should not result in error messages or lock the alcohol interlock.'*

*'The log data could be decoded directly at police stations.'*

*'Maintenance could be performed by car dealers as well.'*

*'It should be possible to use the interlock as a breathalyser without registering the data, i.e. some sort of toggle or button to change the function. Of course, the interlock should still prevent driving if the blood alcohol level is more than 0.2 per mille.'*

*'Why can't the alcohol interlock display the alcohol level to the user, to enable a rough guess at how long I need to wait.'*

*'In the future, it will be in every car, which is a good thing; now, the device is vehicle-specific. Possible decoding of log data and updates using IP technology.'*

Comments were made in favour of increasing alcohol interlock use to be mandatory for all persons caught driving while intoxicated and in all vehicles.

*'Alcohol interlocks should be standard equipment in vehicles as much as warning triangles.'*

*'They should be installed in all new vehicles. It would be better for the exhalation device to be fixed. Now, I keep misplacing it.'*

*'I hope that alcohol interlocks will become mandatory in all motor vehicles, motor boats included. That would spare much suffering.'*

More communication regarding the alcohol interlock was requested toward various parties. Drivers had encountered a lack of knowledge at police stations, from judges, at garages and during inspections. The respondents wished for more information on the length of the probationary period, the use and removal of the alcohol interlock, as well as the use and effects of log data decoded from alcohol interlocks. More marketing was also requested from device manufacturers. According to one comment, the

fact that used alcohol interlocks are not accepted for use in controlled driving rights should be communicated more widely. This is a decision made by the importer. There are no other impediments to using used alcohol interlocks, and it would be advisable to accept them, since this would lower the costs incurred by drivers and increase alcohol interlock use.

There is no legal obstacle to using used alcohol interlocks, so the matter is up to the importer. Accepting used interlocks should be recommended, since it would reduce the expense borne by drivers, and increase alcohol interlock use.

*'Courts need to clearly state how long the alcohol interlock must be used...'*  
*'I was never told that choosing the alcohol interlock increased the duration of my driving ban. Had I known, I would have bought an alcohol interlock!! The police need to inform people of this NOW!'*  
*'No one knows how to remove the entry from my registration certificate, even if I keep using the alcohol interlock voluntarily.'*  
*'More practical information; and alcohol interlock manufacturers could market their products so that society would start accepting alcohol interlocks as a standard part of vehicles, instead of as a part of drink-drivers' vehicles. I kept mine after the end of controlled driving rights, partly as a matter of principle, and even decorated the hand piece. I tell everyone that my car is equipped with an alcohol interlock.'*  
*'Is my wife allowed to drive my car?! There is no information available on this.'*  
*'They should also tell people that used alcohol interlocks are not accepted for use in controlled driving rights.'*

It was unclear to many drivers where the decoded data went and how they were used. One driver wrote that the police could comment on the data, even if there was no cause for concern. According to some drivers, the authorities could recommend choosing the alcohol interlock, instead of only saying that it is expensive.

*'The authorities (police) could give some instructions on how 'warnings' affect you, for example. Can you lose your driving rights? Just so you would know to be careful.'*  
*'The authorities could contact you regarding the decoded data, even if there was nothing to be alarmed about.'*  
*'It was really unfortunate that the police did not inform me of or offer the possibility. They only told me that it was very expensive! I would have taken it earlier. Give more information to the police, so that they will start offering it to everyone. It's incredible that they didn't offer it and couldn't tell me anything about it. The cost is really high, which must reduce the number of users. It should be possible to buy it (for cheaper). Fantastic invention.'*  
*'The authorities should recommend the alcohol interlock more when you're busted.'*

## 10. Conclusions and recommendations

### 10.1. Impact of alcohol interlock-controlled driving rights

#### Alcohol interlock driving licence holders

Approximately half of alcohol interlock driving licence holders were first-time offenders, the other half having accumulated several counts of driving while intoxicated before being issued with an alcohol interlock driving licence. During the four years covered by the study, 1.4% of alcohol interlock driving licence holders had died. The cause of death of over one-third of the deceased was related to alcohol (alcohol-related disease or accidental alcohol poisoning). The number of suicides was also significantly larger than amongst the general population.

At least for a portion of the first-timers, driving while intoxicated seems to have resulted from a false estimate of the time required for the alcohol to leave the system and an inability to assess their capacity to function under the influence of alcohol, instead of actual, continuous alcohol abuse. The second group consists of problem users, some of which have trouble with life management in other ways as well. Regardless of the driver's background, being caught driving while intoxicated has set many drivers on the path to sobriety, safeguarded by the alcohol interlock. The existence of these groups of alcohol interlock driving licence holders is evident in the material, but their proportions cannot be estimated within the scope of this study.

#### Recidivism

There are no accurate figures available on the number of recidivists, nor of their percentage in all drivers guilty of driving while intoxicated. Of the cases of driving while intoxicated that came to the attention of the police in 2010, approximately 30 per cent of suspects had been suspected of a similar crime earlier during the same year (working group of the Ministry of Transport and Communications, 2012). Based on the data in the Driving Licence Register in the Traffic Information System (TIS) maintained by Trafı, it can be calculated that, of all drivers caught driving while intoxicated in the years 2007–2011, an average of approximately 29% had been convicted of a similar offence in a district court during the previous five years.

In the material for this study, 3.3% (54) of alcohol interlock driving licence holders were caught driving while intoxicated during their period of alcohol interlock-controlled driving rights. A controlled driver can be guilty of driving while intoxicated by driving a vehicle not equipped with an alcohol interlock, or by misusing the alcohol interlock. Eighteen respondents commented that they had planned to misuse the alcohol interlock, and three admitted to misuse. For two of these three, a friend had provided the initial exhalation (one of them said that he had passed the re-exhalations himself) and one recounted 'pulling the cord' and starting the car. However, it is not quite as simple to bypass an alcohol interlock as could be inferred from the statement above, and each time the car is started without providing an accepted exhalation is registered in the alcohol interlock's log data. In such cases, the alcohol interlock must be serviced within five days, or it will lock and prevent the car from being started. The importer's representative then informs the police that an attempt to manipulate the alcohol interlock was made. It is also possible to drive while intoxicated during the probationary period by unlawfully removing the alcohol interlock from the vehicle and being caught before the importer's representative has informed the police of the premature removal.

After their regular driving licences had been reinstated at the end of alcohol interlock-controlled driving rights, 2.5% (41) of the drivers had been caught driving again while intoxicated (situation on 12 June 2012). Therefore, a total of slightly less than 6% of all drivers recommitted their crime during alcohol interlock use or within three years of the end of their probationary period. Thus, the recidivism percentage among alcohol interlock users appears to be significantly lower than among all persons caught driving while intoxicated (29–30%).

### **Preventing driving while intoxicated**

The majority of drivers indicated that the alcohol interlock had affected their alcohol use. One-tenth of respondents stated that they drank less or less often, and 5% had stopped drinking altogether. These drivers recounted that the alcohol interlock had motivated them in this process.

Almost 60% of the drivers stated that the alcohol interlock had helped them avoid driving again while intoxicated. Many respondents commented that the alcohol interlock had motivated and supported them in reducing or stopping drinking, and in evaluating the amount they had drunk, as well as their condition to drive. Some drivers mentioned situations where they had thought that they were fit to drive, but the alcohol interlock had prevented them from driving, and they had to wait for a few hours before setting out.

The analysis of decoded log data indicated that only 15% of the alcohol interlock driving licence holders had been sober (blood alcohol level less than 0.2‰) every time they exhaled into the alcohol interlock. An average of 1.8% of initial exhalations were rejected (alcohol content  $\geq 0.2‰$ ), but there was considerable individual variation within the material. The alcohol interlock model chosen for this study had accumulated a total of 40,105 rejected initial exhalations. Some of these may represent simple testing of the device, such as during a party, without an actual intent to drive. Nevertheless, taking account of the other models as well, it can be estimated that alcohol interlocks have prevented an alcohol interlock driving licence holder from driving while under the influence of alcohol ( $\geq 0.2‰$ ) approximately 40,000 times. The majority of exhalations containing alcohol remained below the limit for driving while intoxicated (0.5 ‰), but approximately 12,000 exhalations in excess of the limit did accumulate. Therefore, alcohol interlocks have prevented drivers who provided an exhalation with alcohol content in excess of the limit for driving while intoxicated from starting their vehicles 12,000 times. Even though some of these cases likely represent testing as well, it can be surmised that alcohol interlocks have prevented several thousand drivers from driving while intoxicated.

As of publication, 4% of the drivers still held an alcohol interlock driving licence, even though their probationary period had ended. In other words, these drivers have not applied for the return of their regular driving licences; rather, these drivers continue to only use their alcohol interlock-equipped vehicle as during their probationary periods, but do not need to have the alcohol interlock serviced every 60 days for decoding the log data. The material did not include details on how many drivers had re-applied for their regular driving licences, yet continued to use an alcohol interlock on a voluntary basis. Roughly a third of the respondents said they had kept or would keep the alcohol interlock in voluntary use after the end of the probationary period.

## Opinions on the alcohol interlock

Persons convicted of driving while intoxicated perceived the alcohol interlock in varying ways. At one end of the spectrum, the alcohol interlock was viewed as a problem, a nuisance in everyday life and a shameful reminder of driving while intoxicated. At the other extreme, the alcohol interlock was considered a partner, an aid in life management and safe travel companion, which prevented further mishaps. It is recommended that authorities reinforce this positive view of alcohol interlocks as a guardian of driving condition in their communications.

For many persons with an alcohol interlock driving licence, the alcohol interlock was an embarrassing reminder of shamefully driving while intoxicated that the drivers would rather have forgotten. Most drivers felt exhaling into the interlock in public to be awkward. A tenth of all drivers concealed the existence of the alcohol interlock from everyone but their own family, and a few drivers even concealed it from their families. In order to conceal their conviction, some drivers said they had claimed the alcohol interlock was standard equipment for their car, or that the car was a test vehicle. The embarrassment caused by alcohol interlock use will probably only be alleviated once voluntary alcohol interlock use becomes common or alcohol interlocks become standard equipment in cars.

The punishment for driving while intoxicated is a driving ban, instead of which the guilty party may request alcohol interlock-controlled driving rights and thus be able to continue driving after his or her conviction. Some alcohol interlock driving licence holders considered using an alcohol interlock to serve as a reminder of their wrongdoing, while others perceived it as a part of their punishment. A few drivers even described alcohol interlock use as a greater punishment than a driving ban, since the probationary period was longer than the driving ban would have been. However, only 9% (63) of drivers related that they had considered giving up their controlled driving rights, and only four had exchanged their alcohol interlock-controlled driving rights for a driving ban. In other words, the majority of respondents preferred alcohol interlock-controlled driving rights over a driving ban.

Some respondents recounted that outsiders considered the alcohol interlock too mild a punishment, since it is possible to obtain an alcohol interlock driving licence immediately after being caught driving while intoxicated. In practice, the driving ban usually lasted from three to four weeks before the alcohol interlock driving licence was issued, but the shortest duration reported was only one day. Countries such as Sweden, France and the Netherlands first impose a driving ban before granting alcohol interlock-controlled driving rights. This should be considered in Finland as well. This might serve to combine punishment (driving ban) with ensuring safe travel for the driver and other road users (alcohol interlock) in the eyes of the public. During the alcohol interlock-controlled driving rights trial (2005–2008), the police could not issue an alcohol interlock driving licence immediately, but when alcohol interlock-controlled driving rights were made a permanent option, their attractiveness was increased by speeding up the process.

## **10.2. Problems in the functionality of the alcohol interlock-controlled driving rights process**

### **Lack of information**

Most drivers did not experience trouble with obtaining information, but according to 10–15% of those interviewed, no one was able to give advice on matters related to the alcohol interlock, and the information was scattered, unclear and too general. Drivers expressed a wish for more detailed information on the locations of vendors and installers of alcohol interlocks, the required appointment with a physician, duration of the probationary period, and the possibility to obtain an alcohol interlock driving licence even before the district court had made its decision. The general level of knowledge on the possibility of using an alcohol interlock has improved in recent years, but still more communication and instruction on alcohol interlock-controlled driving rights appears to be required, for both drivers and authorities.

The majority of drivers had been informed of the possibility of alcohol interlock-controlled driving rights by the police. By law, the police must actively inform suspects of the possibility of choosing alcohol interlock-controlled driving rights during the pre-trial investigation. Thus, the police have a key role in increasing alcohol interlock use among those caught driving while intoxicated.

As stated by the respondents to the survey, the online information on alcohol interlocks is scattered. Forming a reliable overall picture is difficult, since the official information is also scattered across the web sites of several authorities. In addition to Trafı and the police, information on alcohol interlocks is available in the information bulletin published by Liikenneturva, on the web sites of importers, in the texts of various acts, from the installers, service sites and vendors of alcohol interlocks, and on Internet discussion boards.

As a development suggestion, we propose the creation of an alcohol interlock web site on the Internet, where general information on alcohol interlocks and alcohol interlock-controlled driving rights would be collected. The site should also include answers to frequently asked questions, links to the web pages of the various parties involved with alcohol interlocks, detailed information on specific questions and contact details for additional information.

The general lack of information could also be addressed through an extensive alcohol interlock campaign, which could be jointly implemented by, for example, Trafı, the Ministry of Transport and Communications, the Ministry of Social Affairs and Health, Liikenneturva, alcohol interlock importers and the Automobile and Touring Club of Finland. In addition to an information campaign for citizens, police stations, district courts, health centres, vehicle inspectors and garages should be actively informed of matter related to alcohol interlocks.

### **Official guidelines**

The Police Administration has issued guidelines for police regarding alcohol interlock-controlled driving rights in 2009 and later added a section on informing suspects of the possibility to choose alcohol interlock-controlled driving rights to the pre-trial form. Judges and physicians have received no guidelines for alcohol interlock-controlled driving rights. District courts also require more detailed guidelines on the alcohol interlock-controlled driving rights process, as do the police. These guidelines should also apply to the flow of information between the police and district courts, so

that judges will be informed of alcohol interlock driving licences issued by the police, for example.

According to the interviewed health care representative, the usefulness of the required discussion with a physician or other health care professional on substance use, its effects on health and treatment possibilities vary. The discussion's usefulness is determined by how both parties perceive the purpose of the discussion. In practice, some drivers are not motivated to have the discussion, but would rather just have the certificate quickly for their alcohol interlock driving licence. Health care personnel can also have differing views on the objectives of the discussion, since no guidelines exist for it.

As a development proposal, we recommend that the Ministry of Social Affairs and Health would draw up guidelines for the discussion with a health care representative required of persons caught driving while intoxicated. The guidelines should clarify the discussion's purpose and structure and present a list of topics to cover. The key objective of the discussion should be to identify those drivers with the ability or willingness to change their alcohol use habits, and to help them perceive the alcohol interlock as a device to aid them in that purpose. If the driver does not have a serious alcohol problem and is willing to change, even a single visit can set that change in motion or, at least, show the driver a place to turn to for help later on. Instead of treating persons caught driving while intoxicated in a patronising or degrading manner, they should be encouraged to assume responsibility for preventing recidivism.

It should be required that persons applying for an alcohol interlock driving licence participate in the discussion, even to a modest extent. Some drivers might find it easier to concentrate on the discussion after they have been issued with their alcohol interlock driving licences. Some of those capable of change can do with one visit, whereas others may require more. During the alcohol interlock-controlled driving rights trial (2005–2008) several mandatory visits were tested for all drivers, but only one visit was retained when the process was made permanent. As a development suggestion, we recommend that the health care professional carry out an independent evaluation of the amount of discussions needed, such as from one to three sessions. One of these discussions could take place before granting the alcohol interlock driving licence, with the second or third discussions being arranged according to need during the probationary period.

To help draw up the guidelines for the discussion, a cooperation meeting should be arranged between representatives of the police, district courts and health care. Alcohol interlock-controlled driving rights should be discussed at the meeting, and perhaps driving skill evaluations as well. After the people get acquainted with each other, cooperation and the flow of information will improve.

### **Differences of opinion**

Driving while intoxicated results in either a driving ban or alcohol interlock-controlled driving rights. With alcohol interlock-controlled driving rights, the alcohol interlock simultaneously has punitive and preventative functions, giving the guilty party an opportunity to continue driving despite his or her conviction. From the perspective of criminal sanctions, it makes no difference whether a person is under a driving ban or holds alcohol interlock-controlled driving rights. Unless the person has been caught committing a serious traffic offence, his or her driving licence will automatically be reinstated at the end of the driving ban or probationary period, regard-

less of how many times that person has attempted (or succeeded) to drive while intoxicated. From the perspective of preventing recidivism and treating alcoholism, drivers convicted of driving while intoxicated should be 'awakened' to try and control their alcohol use by reducing it, stopping entirely or, at the very least, refraining from driving while intoxicated. For this purpose, the alcohol interlock is an excellent safeguard and support. From both perspectives, alcohol interlocks prevent recidivism during the probationary period. Nevertheless, from the perspective of treatment, the effect should persist after the end of the probationary period as well.

Ex officio, the police and judges would appear to represent the judiciary perspective and the health care personnel the treatment perspective. In the opinion of some judges and police officers, the alcohol interlock is so expensive that it is not an attractive choice for persons placed under conditional or short driving bans, or that 'it is not worth it' for such people to choose an alcohol interlock. However, from the point of view of traffic safety and preventing the, sometimes serious, consequences of recidivism, or from the perspective of treating the driver's alcoholism, an alcohol interlock can very much be 'worth it', both for the individual and for society. According to the drivers, the officials should share other information on the alcohol interlock in addition to its cost. It would be best for all authorities, and other citizens as well, to convey a message combining the perspectives of treatment and criminal sanctions: driving while intoxicated is a serious offence, and it is important to prevent recidivism by using alcohol interlocks and, if necessary, treating the driver's alcoholism.

The guidelines issued to judges, the police and health care personnel should stress that the communications of all authorities are to reinforce a positive view of the alcohol interlock as a safeguard of a responsible driver's driving condition. The alcohol interlocks should primarily be perceived as promoting traffic safety and recommended for all persons caught driving while intoxicated, also for voluntary use after the end of the probationary period. Persons sentenced to conditional or short driving bans could also be encouraged in voluntary alcohol interlock use.

### **Costs**

For the majority of drivers, the total cost of alcohol interlock-controlled driving rights ranged from EUR 1,000 to EUR 3,000. The costs varied greatly, reflecting whether the alcohol interlock was purchased or leased, the duration of the probationary period, the price of maintenance, the number of extra maintenance visits and the location of the health care discussion. Middle-aged drivers incurred larger expenses than did the younger and older age groups. Thus, the cost of alcohol interlock-controlled driving rights can be partly regulated through the driver's own choices. The free-form comments complained about high purchase or lease prices and recurring maintenance expenses. The authorities also considered alcohol interlocks to be so expensive that the cost was detrimental to alcohol interlock driving licences becoming more common.

The increased voluntary use of alcohol interlocks, both in professional transport and among drivers caught driving while intoxicated, will lower their cost and develop the maintenance network. However, this cost effect will remain slow, unless the number of users increases dramatically.

### 10.3. Developing the alcohol interlock-controlled driving rights process

#### Length of the probationary period

By law, the duration of the probationary period is a minimum of one year. For 15% of the drivers (229), the duration of alcohol interlock-controlled driving rights remained under the statutory year, and this figure does not include recidivists (54), those who interrupted their probationary period voluntarily (6), nor cases with missing data (107). The drivers, device manufacturers and authorities also confirmed the finding made in the Traffic Information System, i.e. that regular driving licences had been returned to many drivers before the statutory minimum period had elapsed. Surmised reasons for these overly- short probationary periods included ignorance, human error, gaps in the flow of information between the police and district court, and problems with the interpretation of the law.

The legislation relating to the matter probably requires clarification, since even professionals have difficulties with its interpretation. The driving bans imposed for driving while intoxicated are shorter in Finland than elsewhere in Europe. In Sweden, the driving bans imposed for driving while intoxicated were extended on 1 January 2012, so that the length of driving bans corresponds with that of the probationary period of controlled driving rights, being one year for persons guilty of driving while intoxicated and two years for persons guilty of driving while seriously intoxicated, guilty of several counts of driving while intoxicated or addicted to alcohol. The purpose of these new regulations is to increase the willingness of drivers guilty of driving while intoxicated to apply for controlled driving rights. As a development proposal, we recommend that driving bans would be extended in Finland as well, according to the Swedish model.

#### Alcohol interlock log data register

Since all device manufacturers maintain their own alcohol interlock log data registers, utilising and analysing the decoded data as a whole is challenging in practice. The variables and data in the various registers should first be specified and made uniform. Depending on the model, the event logs of alcohol interlocks can contain more than a hundred different data items. For the purposes of this study, for example, only the decoded log data of the most widespread model could be analysed.

At present, the Finnish representatives of the alcohol interlock devices manually notify the police in the customer's place of residence of any violations and misuse, which could lead to the customer's alcohol interlock driving licence being revoked. It was the original intention for police licence administration officials to directly check each device model's log data register to see if the customer had complied with the terms of alcohol interlock-controlled driving rights. However, this operating model did not work in practice, since the police licence administration lacked the resources to check the data from different registers.

Sweden updated its alcohol interlock-controlled driving rights regulations in early 2012. A shared log data register, defined and maintained by the Transportstyrelsen, was adopted at the same time for log data decoded from alcohol interlocks. Alcohol interlock manufacturers or their representatives must use ICT solutions that comply with the requirements set forth in the Transportstyrelsen document "Alcohol Inter-

lock – Log Format” ([http://www.transportstyrelsen.se/Global/Vag/Alkohol%203%20a5s/Loggformat\\_en%20v3.1.pdf](http://www.transportstyrelsen.se/Global/Vag/Alkohol%203%20a5s/Loggformat_en%20v3.1.pdf)).

As a development proposition, we recommend that a log data register defined and maintained by the authorities should be created to store the decoded log data of all alcohol interlock manufacturers or their representatives in a uniform format.

A log data register defined and maintained by the authorities, into which the representatives of all alcohol interlock manufacturers would be obligated to deliver the log data decoded from alcohol interlocks, would be a sustainable, appropriate and secure solution. A single register administered by the authorities would also guarantee the availability of uniform register data for research and the compilation of statistics. The register should also automatically notify the police of log data that could affect a driver's alcohol interlock-controlled driving rights, and inform the police if a driver neglects to have his or her alcohol interlock log data decoded within the decreed time limit.

### **Using alcohol interlock log data**

In their study, American researchers Marques, Tippetts and Voas (2003) stated that alcohol interlocks are an under-used instrument in foreseeing cases of driving while intoxicated and controlling drivers guilty of driving while intoxicated. According to the researchers, a 0.2–0.4‰ alcohol level in a driver's exhalation makes it even likelier that he or she will drive while intoxicated than having previous convictions for driving while intoxicated.

In Finland, drivers must have alcohol interlock log data decoded every 60 days, but the authorities make almost no use of the data (cf. countries such as Sweden and the Netherlands in Europe; Chapter 4). Representatives of alcohol interlock importers inform the police of drivers neglecting to have alcohol interlock log data decoded within the time limit, attempting to manipulate alcohol interlocks or having an alcohol interlock removed prematurely, but rejected exhalations (alcohol content over 0.2‰), for example, are not monitored at all.

The concentration of failed initial exhalations on Sunday afternoons and Monday mornings reflect some level of alcohol problem. Of the initial exhalations of the 42 most problematic drivers, 11–35% were rejected. The alcohol interlock prevented them from driving while intoxicated during their probationary periods, but regular driving licences were automatically returned to these drivers after the end of the probationary period. Under the current legislation, the police cannot act in any other way.

As a development suggestion, we propose that the police would check alcohol interlock log data after the end of the probationary period. The regular driving licences of drivers would only be reinstated if the log data did not contain any rejected exhalations within the previous six months. If the driver had attempted to drive while under the influence of alcohol within the past six months, the police could either continue the validity of his or her alcohol interlock driving licence indefinitely, until all exhalations in a six-month period were accepted, or direct the driver to substance abuse monitoring and health-based alcohol interlock use (see Chapter 2, pg. 4). To keep the police from being overburdened by checking alcohol interlock log data, the log data register should provide a summary of a driver's rejected exhalations during the probationary period.

Alcohol interlock log data should also be used in the treatment of substance abuse. The nursing staff could examine the weekdays and times of day on which exhalations were rejected, as well as the alcohol content of rejected exhalations.

### **Approval of alcohol interlocks and related processes**

Only alcohol interlocks approved by the Finnish Transport Safety Agency pursuant to the Act on Approving Alcohol Interlocks for Traffic (1109/2010) may be used in alcohol interlock-controlled driving rights. Our current legislation does not impose any other requirements on the processes related to alcohol interlock use, due to which current and future device manufacturers do not necessarily provide an adequate level of service. For example, some drivers explained that instruction in alcohol interlock use had been insufficient, which had required additional maintenance visits. One importer answered the questions of this survey in Swedish, despite them being presented in Finnish. This makes one wonder whether a Finnish customer would have received service in Finnish.

In Sweden, for example, not only the devices themselves, but also alcohol interlock manufacturers and their representatives must comply with a number of requirements regarding alcohol interlock-controlled driving rights and the related process before their alcohol interlocks will be approved for use in controlled driving rights. These requirements include submitting a testing report, a description of the alcohol interlock's suitability for use in the Swedish alcohol interlock programme, competence and training criteria for alcohol interlock installation and maintenance personnel, equipment related to the decoding and transmitting of log data, as well as a description of the function and use of log data, the processing of reported data and quality assurance. (Ansökan om godkännande av alkoholås, Transportstyrelsen.)

As a development proposal, we recommend that Finnish authorities should also, in addition to approving alcohol interlock models, define and approve all processes related to alcohol interlock use required from the devices' manufacturers or their representatives. The Finnish Transport Safety Agency could be authorised by decree to approve processes related to alcohol interlock use, in addition to approving alcohol interlock models.

## **10.4. Problems in the functioning of alcohol interlocks**

Slightly over one-third of drivers experienced no problems with the functioning of their alcohol interlocks. The most common problems described were related to freezing temperatures and exhalation technique. These problems were usually mitigated after a learning period.

### **Exhalation technique, warming up and malfunctions**

Many drivers felt the correct exhalation technique hard to master, but, once mastered, the problems ceased. A smaller percentage described continuous trouble with their exhalation technique. Exhaling while ill, producing the required sound vibration and the exhalations requested while driving were perceived as particularly difficult. Worry over failing to exhale correctly, resulting in an extra maintenance visit, added to the difficulty of exhaling. According to the log data of one alcohol interlock model, the percentage of exhalation errors was 9%, while another manufacturer provided a figure of 15%. The percentage of exhalation errors decreased toward the end of the probationary period.

Drivers perceived the wait for a cold exhalation mouthpiece to warm up as being long. These drivers learned to take the mouthpiece indoors during freezing temperatures, but the connecting cord's coupling could not always handle constant detaching.

Slightly less than one-tenth of drivers complained of malfunctions and device failures. According to the device manufacturers, the majority of malfunctions are caused by the user, and device failures are rare.

From the user's perspective, the worst aspect of failing to exhale correctly, malfunctions, maintenance problems and fault situations is that these frequently cause the device to lock up, which requires an extra maintenance visit. This, in turn, incurs additional costs and loss of free time, in addition to long drives, loss of working time and waiting to receive a maintenance appointment in the case of some drivers. According to the decoded log data, only 16% of drivers had managed to complete their probationary period without a single extra maintenance visit.

As a development suggestion to reduce the functionality problems resulting from the actions of users, we propose that alcohol interlock use instruction be developed. Importers should make sure that their manuals are illustrative and intelligible. An instructional video could be created to complement the manuals. However, the most essential thing is that users be afforded the opportunity to practise their exhalation technique with an instructor (the installer) to answer any questions after the installation of the alcohol interlock. Alcohol interlock importers should train all installers (instructors) personally since, according to feedback received by Trafı, some installers have only been trained over the telephone without any practical training at all. Importers must provide adequate training for installers and instruct them in the correct teaching methods.

Device manufacturers should continue the technological development of alcohol interlocks to mitigate the problems related to exhalation technique and warming-up problems. Features requested by users also included the possibility to adjust the exhalation request signal volume and to exhale more discreetly, such as into a wireless device before entering the vehicle. In connection with the approval of alcohol interlock models, devicemanufacturers should be obligated to monitor the technical functioning of their devices and to report on matters such as device failure percentages and most typical faults.

### **Car and alcohol interlock maintenance**

One-tenth of respondents had experienced problems related to car or alcohol interlock maintenance. Car maintenance usually necessitated an extra decoding of log data if the garage was unfamiliar with alcohol interlocks. Garages require information on the handling of different alcohol interlock models during car maintenance to avoid unnecessarily causing alcohol interlocks to lock up, making the driver incur the trouble and cost of an extra decoding. According to decoded log data, the maintenance code had been used in only 6% of all alcohol interlock-equipped car maintenance. The maintenance code allows the car to be started and kept running for a few hours without providing an exhalation and maintenance to be carried out without requiring the decoding of log data.

Particularly in sparsely populated areas such as Lapland and Eastern Finland, the distance to alcohol interlock maintenance sites were long. To shorten these distances, the number of authorised alcohol interlock log data-decoding stations should be increased, or a reliable method of remote decoding developed.

## 10.5. Subjects for further study

It was originally the intention to analyse the background data contained in the Driving Licence Register of the Traffic Information System (TIS) together with the driver data obtained through the survey. However, these materials could not be combined, since the sample taken from the TIS data was different to that used for the survey. Combining these materials would require a moderate amount of manual labour, but would produce new material for analysis with relatively little effort, allowing, for example, the typification of alcohol interlock driving licence holders and a comparison of the opinions of first-timers and those of recidivists. Further studies should more accurately define the various groups of alcohol interlock holders, to enable the development of the driving rights process to better reflect the situations of first-timers and recidivists, for example.

Another subject for further study is the nature of cases of driving while intoxicated during alcohol interlock-controlled driving rights. Did the drivers use other vehicles than their own, or did they somehow misuse the alcohol interlock?

## 10.6. Summary and development suggestions

Alcohol interlocks used in controlled driving rights have prevented several thousand instances of driving while intoxicated. Therefore, alcohol interlock-controlled driving rights have the appropriate effect, also having an impact after the end of the probationary period. Roughly a third of all drivers said they had kept or would keep the alcohol interlock in voluntary use after the end of the probationary period. The recidivism percentage of alcohol interlock users seems to be significantly smaller than that of all persons convicted of driving while intoxicated.

However, many shortcomings were identified in the effectiveness of alcohol interlock-controlled driving rights. It is crucial to eliminate these shortcomings to make alcohol interlock use more common, with the positive effects on the safety of traffic this entails.

### Development suggestions in brief:

- More communication on alcohol interlocks and alcohol interlock-controlled driving rights
  - Alcohol interlock web site on the Internet
  - Extensive alcohol interlock campaign
- Clarifying guidelines on alcohol interlock-controlled driving rights should be drawn up for district courts, police departments and health care personnel
  - Guidance from the Ministry of Social Affairs and Health regarding the content and objectives of discussion
  - Authorities could recommend the alcohol interlock to persons caught driving while intoxicated, as well as retaining the alcohol interlock in voluntary use after the probationary period.
  - Local cooperation meetings between the police, district courts and health care services

- A log data register defined and maintained by the authorities should be created to store the decoded log data of all alcohol interlock manufacturers or their representatives in a uniform format.
  - Making use of alcohol interlock log data when, e.g. restoring driving rights and treating substance abuse, as well as for purposes of research and the compiling of statistics.
- Authorities should define and approve all processes related to alcohol interlock use required from the devices' manufacturers or their representatives.
- Proposed changes to the alcohol interlock-controlled driving rights process
  - Driving bans ordered for driving while intoxicated should be lengthened to equal the length of the probationary period of controlled driving rights.
  - A normal driving licence should be restored to the driver only once the alcohol interlock's log data is found to contain no rejected exhalations in the past six months. The validity of the alcohol interlock driving licence would be extended indefinitely, until all exhalations in the past six months have been accepted.
  - A health care professional should evaluate each individual's need for discussion sessions, e.g. from one to three sessions.
  - A short driving ban before receiving alcohol interlock-controlled driving rights should be considered for all persons caught driving while intoxicated.
- Device manufacturers and importers should improve the user instructions of alcohol interlocks and continue technical development to alleviate problems related to, e.g. exhalations and warming up.
  - Garages should be instructed on the handling of alcohol interlocks during servicing of the car.
  - The number of alcohol interlock log data-decoding stations should be increased, or a reliable method of remote decoding developed.
- Subjects for further study include the various categories of persons with alcohol interlock driving licences (e.g. first-time-offenders, and recidivists) and instances of driving while intoxicated during a period of holding alcohol interlock-controlled driving rights.

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## ANNEX 1. Survey form for holders of alcohol interlock driving licences.

### ALCOHOL INTERLOCK-CONTROLLED DRIVING RIGHTS

#### QUESTIONNAIRE for alcohol interlock users

Please answer each question by selecting one (○) or more (□) alternatives, or by writing your answer on the line.

---

#### BACKGROUND INFORMATION

1. Your gender  
1○ Female  
2○ Male
2. Your year of birth \_\_\_\_\_
3. Which of the following best describes your current employment situation?  
1○ Worker  
2○ Clerical worker  
3○ Entrepreneur (includes agricultural entrepreneurs)  
4○ Student, retired, unemployed, on family leave, etc.  
5○ Other, please specify. \_\_\_\_\_
4. Your area of residence  
1○ City  
2○ Other population centre  
3○ Rural
5. How many kilometres do you drive each year on average? Approximately \_\_\_\_\_ km
6. Are you a professional driver?  
1○ Yes  
2○ No  
Do you need a car in your work or for work-related travel (not commuting)?  
1○ Yes, at least a few times each week.  
2○ Yes, once every week or month.  
3○ Rarely or not at all.

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#### ACQUIRING AN ALCOHOL INTERLOCK AND AN ALCOHOL INTERLOCK DRIVING LICENCE

7. How did you find about alcohol interlock-controlled driving rights (you can select more than one alternative)?  
1□ I had heard of alcohol interlock controlled-driving rights before being guilty of driving while intoxicated.  
2□ The police told me about it when I was breathalysed.  
3□ The police told me about it during my interview.  
4□ I was told about it during the handling of my case in court.  
5□ I found the information on the Internet.  
6□ I heard about it from an acquaintance.  
7□ From elsewhere, please specify. \_\_\_\_\_
8. What made you choose to use an alcohol interlock (you can select more than one alternative)?  
1□ I need a car for my work (for my duties or work-related travel)  
2□ I need a car for commuting between my workplace and home.  
3□ I need a car in my free time (e.g. to transport my children).

- 4  I wanted to conceal my sentence from my acquaintances.
- 5  I wanted to make sure that I would no longer drive under the influence.
- 6  It was the wish of family or friends.
- 7  Other reason, please specify. \_\_\_\_\_

9. Which model of alcohol interlock do you/did you use?

- 1  Dräger Interlock XT
- 2  Guardian WR2
- 3  SmartStart

10. Did you have any problems with the following matters, or with receiving information about them?

	No	Yes	If you did, please specify the kinds of problems.
Receiving information on alcohol interlock-controlled driving rights	1 <input type="radio"/>	2 <input type="radio"/>	
Acquiring the alcohol interlock	1 <input type="radio"/>	2 <input type="radio"/>	
Having the alcohol interlock installed	1 <input type="radio"/>	2 <input type="radio"/>	
The modification inspection of the vehicle	1 <input type="radio"/>	2 <input type="radio"/>	
The visit to a doctor or other health care professional	1 <input type="radio"/>	2 <input type="radio"/>	
Applying for an alcohol interlock driving licence	1 <input type="radio"/>	2 <input type="radio"/>	

11. How long did it take for you to be issued with an alcohol interlock driving licence after driving while intoxicated? \_\_\_\_\_ days

12. How was this period in your opinion (from driving while intoxicated to being issued with an alcohol interlock driving licence)?

- 1  Short
- 2  Suitable
- 3  Long

Free-form description \_\_\_\_\_

13. What is your opinion of the visit to a doctor or another health care professional to discuss intoxicant use, its effects on health, and treatment opportunities, required before receiving an alcohol interlock? Did you find it useful?

- 1  Of no use
- 2  OK, but not too useful
- 3  Useful

Free-form description \_\_\_\_\_

14. Did you use public or private health care services?

- 1  Public
- 2  Private

15. How much did your visit cost? \_\_\_\_\_ euros

16. How would you rate the operating instructions you received at the installation site or from the installer of the alcohol interlock?

- 1  I did not receive any instructions.
- 2  I had to ask to receive instructions.
- 3  Instruction was too hasty and inadequate.
- 4  Instruction was appropriate and adequate.

**EXPERIENCES OF ALCOHOL INTERLOCK USE**

17. How long have you used/did you use an alcohol interlock? \_\_\_\_\_years \_\_\_\_\_ months

18. Have you experienced problems with the functioning of the alcohol interlock (you can select more than one alternative)?

- 1 No
- 2 Problems relating to the exhalation.
- 3 Heat/sunlight has caused problems.
- 4 Cold/freezing temperatures have caused problems.
- 5 Problems relating to the decoding of installation/servicing/log data.
- 6 Other, please specify. \_\_\_\_\_

Please describe your problems in more detail: \_\_\_\_\_

19. What in your opinion has been the best thing about using an alcohol interlock (you can select more than one alternative)?

- 1 Keeping my right to drive.
- 2 Keeping my job.
- 3 The emphasis on traffic safety.
- 4 The certainty of not accidentally setting out while under the influence of alcohol.
- 5 Being acquainted with new technology.
- 6 Other, please specify. \_\_\_\_\_

20. What in your opinion has been the worst thing about using an alcohol interlock (you can select more than one alternative)?

- 1 Having to learn to use a new technical device.
- 2 Problems related to the device's functioning.
- 3 The time spent and inconvenience caused by using the device when setting out.
- 4 Waiting for a device that has been left in freezing temperatures to warm up.
- 5 The negative or suspicious attitude of outsiders.
- 6 The awkwardness of exhaling in a public place.
- 7 I don't dare to have even one beer, e.g. when I'm eating.
- 8 The costs accrued from the alcohol interlock-controlled right to drive.
- 9 Exhalations required while driving.
- 10 Other, please specify. \_\_\_\_\_

21. How did you usually take care of exhalations required while driving?

- 1 I found a suitable place to stop and only exhaled once I had stopped the car.
- 2 I exhaled while driving.

22. Did you experience any dangerous situations caused by exhaling while driving?

- 1 No
- 2 Yes, please specify. \_\_\_\_\_

23. What did your family think about your alcohol interlock use?

- 1 They were against getting an alcohol interlock (for the car used by the entire family).
- 2 Although they didn't like it, they understood the need.
- 3 They encouraged me to acquire an alcohol interlock.
- 4 Other, please specify. \_\_\_\_\_

24. What is/was the attitude outsiders take/took to your alcohol interlock use (you can select more than one alternative)?

- 1 People outside my family do not/did not know about the alcohol interlock.
- 2 Outsiders have not commented on the matter at all.
- 3 Many look at me suspiciously.
- 4 Many are interested in the alcohol interlock as a technical device.
- 5 Most think I have a drinking problem.
- 6 Most think I am a responsible driver.
- 7 Other, please specify. \_\_\_\_\_

25. Did you try, or did it cross your mind to try, to misuse the alcohol interlock, e.g. by having someone else provide the exhalation for you?
- 1○ Misusing the alcohol interlock never even crossed my mind.
  - 2○ I thought about how I might bypass the alcohol interlock, but did not attempt to in practice.
  - 3○ I attempted to misuse the alcohol interlock, but did not succeed.
  - 4○ I misused the alcohol interlock.

How did you attempt to misuse the alcohol interlock, or how did you succeed?

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**THE ALCOHOL INTERLOCK-CONTROLLED DRIVING RIGHTS PROCESS**

26. Did you have any problems with the following matters, or with receiving information about them?

	Has not (yet) been done	No problems	Yes, I had problems	If you did, please specify the kinds of problems.
Decoding alcohol interlock log data	1○	2○	3○	
Having the alcohol interlock removed	1○	2○	3○	
The decision-making stages in the alcohol interlock-controlled driving rights process	1○	2○	3○	

27. How was the length of the controlled driving rights period in your opinion?
- 1○ Short
  - 2○ Suitable
  - 3○ Long
28. What in your opinion should be the length of the driving ban resulting from driving while intoxicated, to motivate people to choose alcohol interlock-controlled driving rights? \_\_\_ years  
months
29. Did the alcohol interlock help you avoid driving again while intoxicated?
- 1○ No
  - 2○ Yes, please specify. \_\_\_\_\_
30. Did using the alcohol interlock affect your alcohol use in any way?
- 1○ No
  - 2○ Yes, please specify. \_\_\_\_\_
31. Did the police contact you on account of decoded log data?
- 1○ No
  - 2○ Yes, why? \_\_\_\_\_
32. Have you, at some point during your controlled right to drive, considered giving it up?
- 1○ No
  - 2○ Yes, why? \_\_\_\_\_
33. What did you do/will you do after the end of your controlled right to drive?
- 1○ I removed/will remove the alcohol interlock. Why? \_\_\_\_\_
  - 2○ I left/will leave the alcohol interlock in the vehicle for voluntary use. Why? \_\_\_\_\_
  - 3○ I do not know yet.

34. What costs did you incur/will you incur for the entire period of controlled driving rights? \_\_\_\_\_ €
35. In your opinion, how well does the alcohol interlock-controlled driving rights process function?
- 1○ Not at all
  - 2○ Not very well
  - 3○ I cannot say
  - 4○ Quite well
  - 5○ Extremely well
36. Would you take the alcohol interlock again, if you were caught driving while intoxicated?
- 1○ No, why? \_\_\_\_\_
  - 2○ Yes, why? \_\_\_\_\_

**OPINIONS ON THE ALCOHOL INTERLOCK**

37. How well do the following statements describe your opinions?

	Completly disagree	Disagree	Agree	Completly agree
The alcohol interlock does not hinder driving in practice.	1○	2○	3○	4○
The exhalations requested at random intervals while driving are/were very stressful.	1○	2○	3○	4○
The alcohol interlock gives me the certainty that my blood alcohol level is not more than 0.2‰ when I am driving.	1○	2○	3○	4○
Exhaling in public is/was awkward.	1○	2○	3○	4○
Alcohol interlock use became easier toward the end of the controlled driving rights period, when using it became a matter of routine.	1○	2○	3○	4○
An alcohol interlock does not prevent driving while intoxicated, because it is easy to bypass.	1○	2○	3○	4○

38. In your opinion, how necessary is the alcohol interlock for those caught driving while intoxicated?
- 1○ Completely unnecessary
  - 2○ Rather unnecessary
  - 3○ I cannot say
  - 4○ Quite necessary
  - 5○ Very necessary

39. How well do the following statements describe your opinions?

	Completly disagree	Disagree	Agree	Completly agree
The obligation to use an alcohol interlock could be expanded to cover				
those repeatedly caught driving while intoxicated	1○	2○	3○	4○
all people guilty of driving while intoxicated	1○	2○	3○	4○
transport of dangerous goods	1○	2○	3○	4○
commercial transport of goods and personnel	1○	2○	3○	4○
all new motor vehicles	1○	2○	3○	4○
all motor vehicles	1○	2○	3○	4○

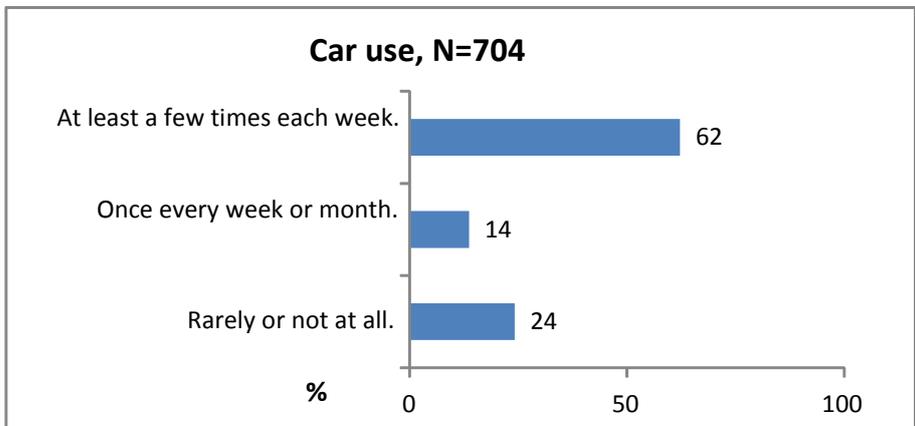
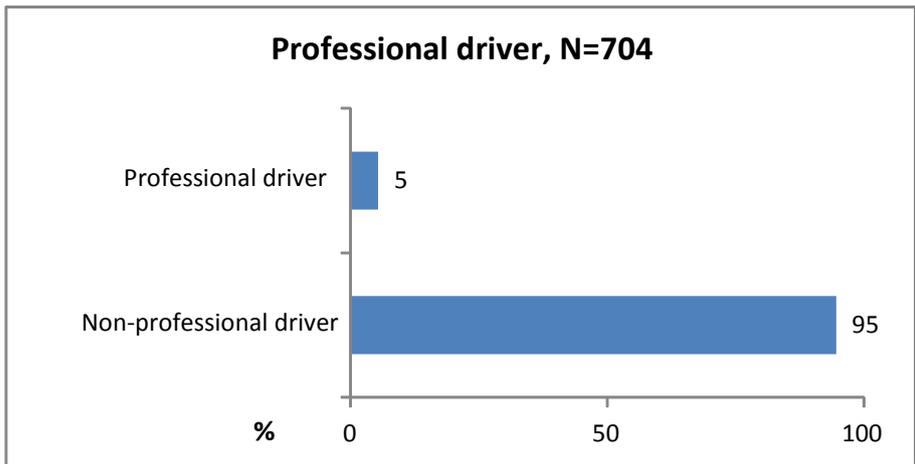
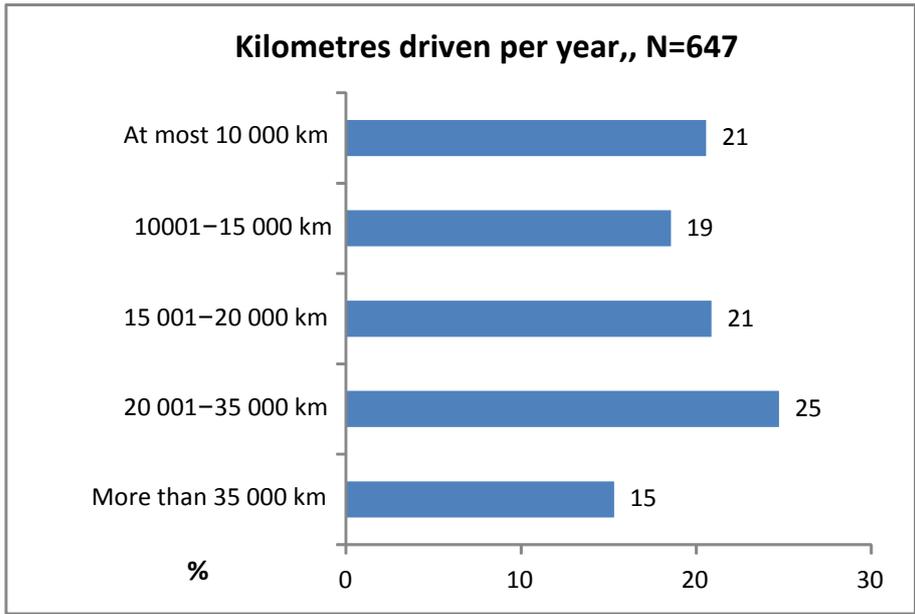
40. What else would you like to say about the alcohol interlock? Feedback/development ideas for the controlled right to drive?

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THANK YOU!

**ANNEX 2. Background to the survey.**



## ANNEX 3. Questions for police departments and district courts.

### ALCOHOL INTERLOCK-CONTROLLED DRIVING RIGHTS

#### Questions for the police

1. By law, the probationary period for alcohol interlock-controlled driving rights has a minimum duration of one year and a maximum duration of three years. However, according to the Traffic Information System, alcohol interlock-controlled driving rights have had a duration of less than a year for 229 persons, and these figures do not include drivers whose probationary period has been interrupted due to a new case of driving while intoxicated or by their own request. What is the explanation for this? How is it possible that the probationary period was this short?
2. In your view, what is the current level of knowledge of the various actors (police, district courts, health care, inspection stations) on alcohol interlock-controlled driving rights?
  3. What guidelines do the police have regarding communication on alcohol interlock-related matters?
  4. For how long have police forms included a section on communication on alcohol interlock-related matters?
  5. What kinds of written instructions (brochures, websites) do the police provide to customers?
6. How would you characterise the flow of information between different authorities regarding matters related to alcohol interlock-controlled driving rights? Do you have any suggestions for development?
7. How often do alcohol interlock importers notify the police of drivers neglecting to decode log data, attempting to manipulate alcohol interlocks or having them removed too early? How does this notification process function? Do you see a need to develop the process?
8. In your opinion, should the law be changed so that device manufacturers would also inform the police of red exhalations (over 0.2‰)? In your view, what consequences would be most appropriate for red exhalations?
9. Is there anything else you would like to point out regarding alcohol interlock-controlled driving rights?

THANK YOU!

## **ALCOHOL INTERLOCK-CONTROLLED DRIVING RIGHTS**

### **Questions for district courts**

1. By law, the probationary period for alcohol interlock-controlled driving rights has a minimum duration of one year and a maximum duration of three years. However, according to the Traffic Information System's Driving Licence Register, alcohol interlock-controlled driving rights have had a duration of less than a year for 229 persons, and these figures do not include drivers whose probationary period has been interrupted due to a new case of driving while intoxicated or by their own request. What is the explanation for this? How is it possible that the probationary period was this short?
2. In your view, what is the current level of knowledge of the various actors (police, district courts, health care, inspection stations) on alcohol interlock-controlled driving rights?
3. What guidelines do judges have regarding communication on alcohol interlock-related matters?
4. How would you characterise the flow of information between different authorities regarding matters related to alcohol interlock-controlled driving rights? Do you have any suggestions for development?
5. Is there anything else you would like to say regarding alcohol interlock-controlled driving rights and the functionality of the process?

THANK YOU!

## **ANNEX 4 Questions for alcohol interlock importers.**

### **ALCOHOL INTERLOCK-CONTROLLED DRIVING RIGHTS**

#### **Questions for device manufacturers**

1. How long is your device's warming-up period in freezing temperatures, if a) the hand-held unit has been left in the vehicle in freezing temperatures; and b) if the hand-held unit has been kept indoors at room temperature?
2. How portable is the hand-held unit (to prevent it from having to be left out in the cold/susceptible to theft)? How functional and durable is the connection system?
3. What kinds of exhalations does the device require during controlled driving rights (exhalation power, suction, sound vibration)?
4. What is the average frequency of required re-exhalations?
5. How many/what percentage of all exhalations are rejected on grounds of exhalation technique?
6. How often have the devices malfunctioned, and how many devices have malfunctioned (amount/percentage)?
7. Can device malfunctions cause an exhalation to be rejected on grounds of exhalation technique? If yes, what is the amount/percentage of such exhalations?
8. What percentage of your devices have experienced malfunctions (warranty replacements, repairs, updates)?
9. Is there anything else you would like to say regarding alcohol interlock-controlled driving rights and the functionality of the process?

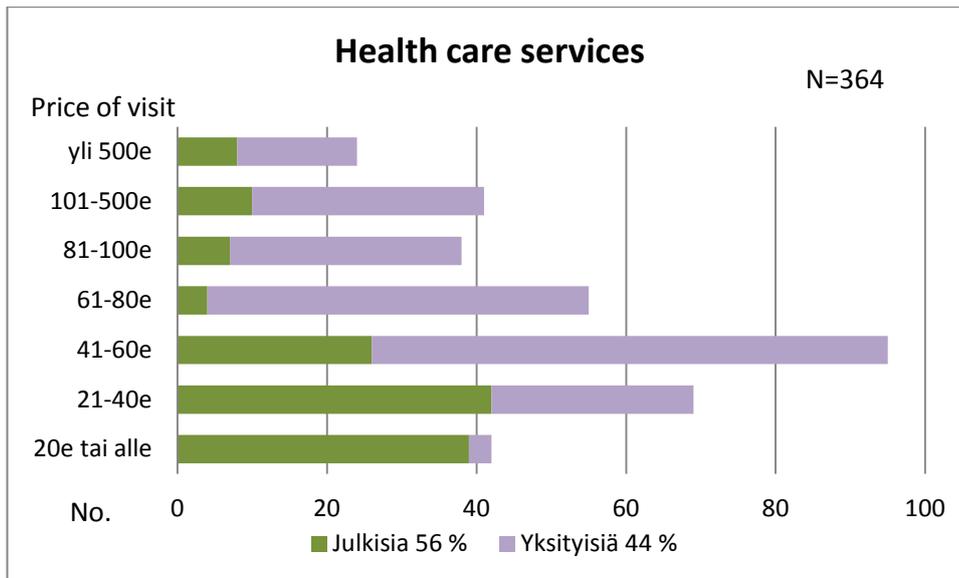
THANK YOU!

## ANNEX 5 Questions for the health care representative.

### ALCOHOL INTERLOCK-CONTROLLED DRIVING RIGHTS

#### Questions for health care

1. The alcohol interlock-controlled driving rights process includes a visit to a physician or other health care professional to discuss intoxicant use, its effects on health and treatment opportunities for substance abuse. Of drivers who took the survey, 39% considered the visit to have been useful, 45% OK but not very useful, and 17% as completely fruitless.  
What are your thoughts on these results? How would you develop the discussion to make it more useful to the customer?
2. What guidelines do physicians and health care personnel have for conducting this discussion? Who/which party has issued these instructions?
3. Would physicians and health care personnel benefit from more instructions from the Ministry of Social Affairs and Health and the Ministry of Transport and Communications? If yes, what type of instructions?
4. Nearly a tenth (9%) of drivers described problems related to arranging the discussion (Annex 1). The majority of these problems were caused by a lack of information: no one seemed to know who conducted these discussions, what kind of health care employee 'was good enough', or what forms needed to be filled out. What is the current level of knowledge of physicians and health care personnel regarding alcohol interlock-controlled driving rights and the required discussion? From the perspective of health care, are there any problems in arranging the discussions?
5. How would you characterise the level of knowledge and flow of information between the various actors (police, district courts, health care) in matters related to alcohol interlock-controlled driving rights?
6. More than half of respondents (56%) used public health care services to arrange the discussion; the rest (44%) used private health care services. The price of the visit varied from EUR 6 to EUR 6,500. The average price quoted for the health care visit was EUR 60, but 21 respondents quoted a figure of more than EUR 1,000 (see Figure below).



Julkisia=public 56 %, Yksityisiä=Private 44 %

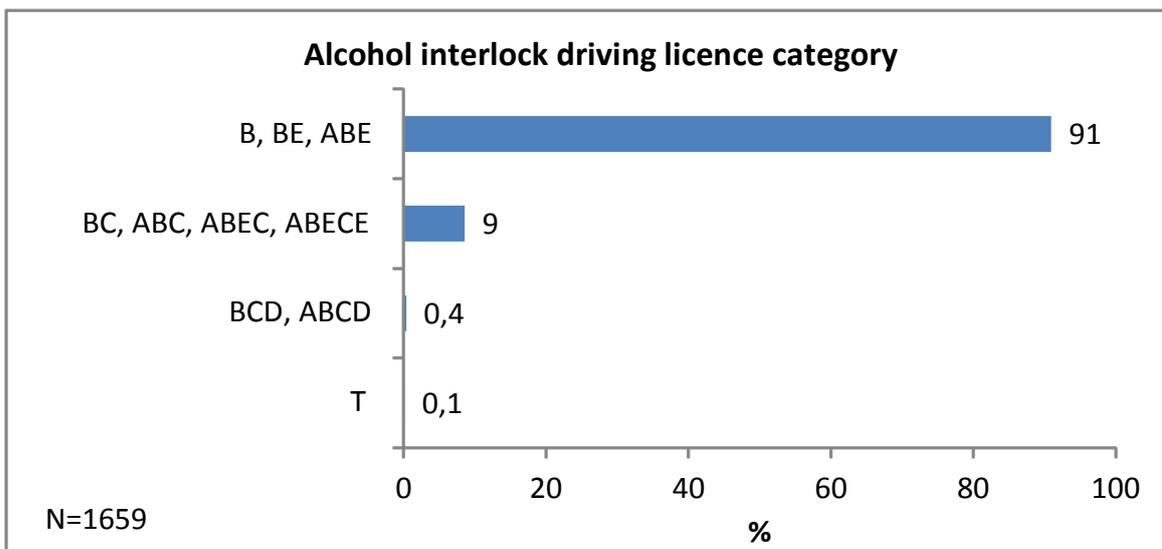
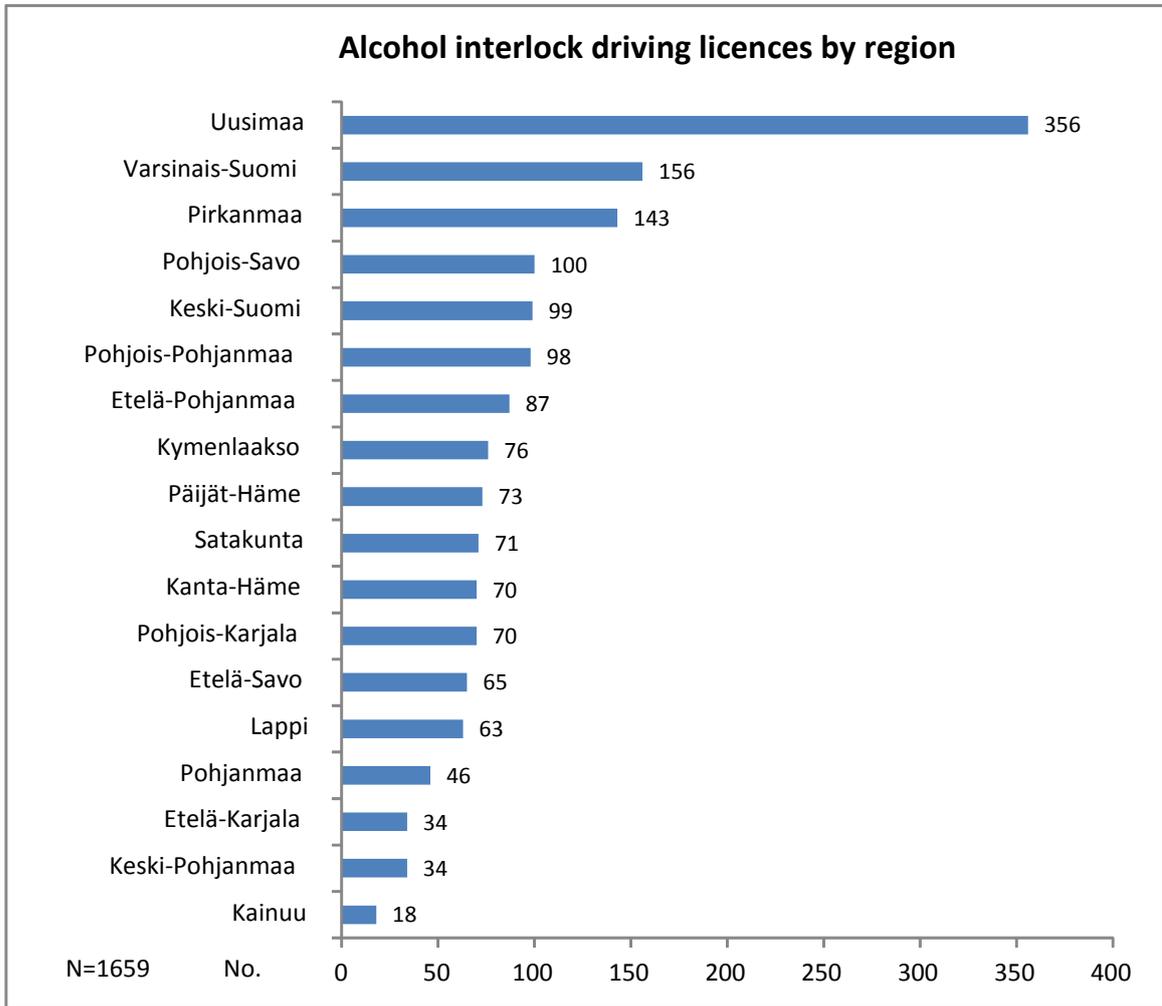
The largest figures probably do not indicate the price of a single visit, but rather the price of a lengthier substance abuse treatment programme. Do you have information on the prices of individual appointments in the public and private sectors? What about the prices of substance abuse treatment programmes?

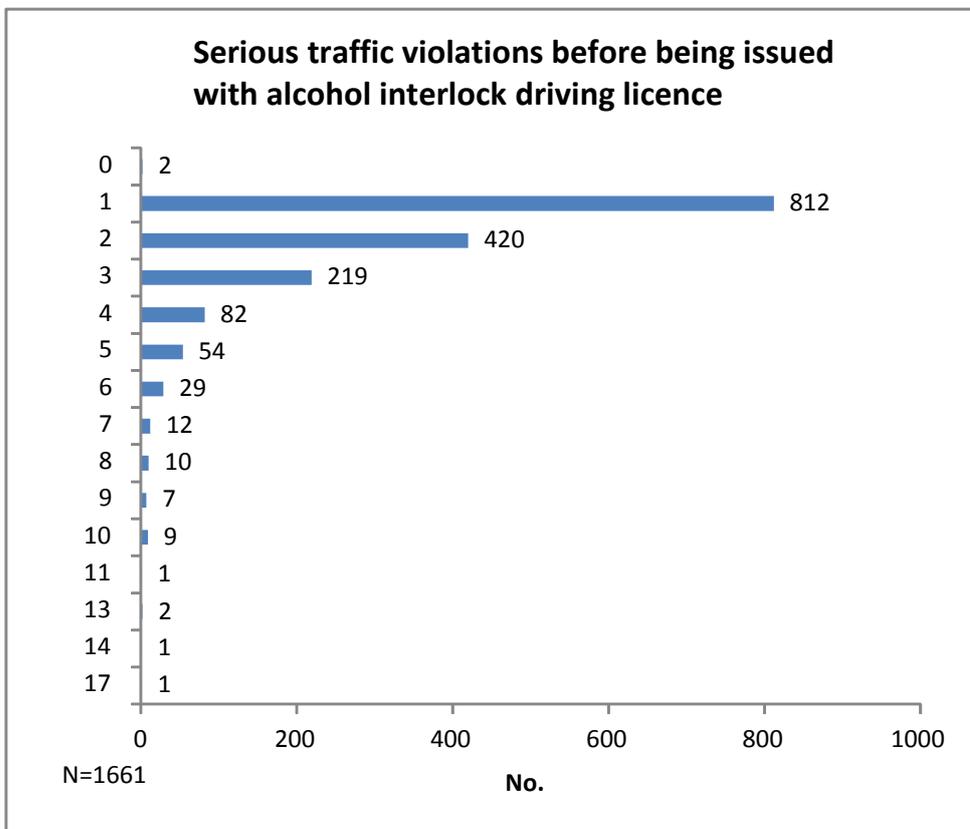
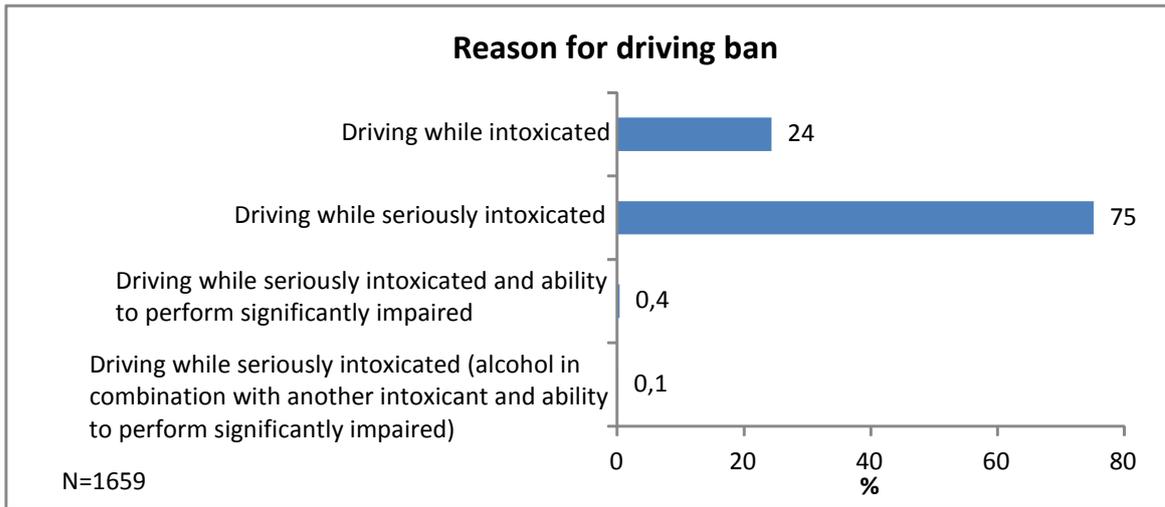
7. How many customers use A-Clinic services each year, and how many certificates do you sign for controlled driving rights?
8. Are you in favour of mandatory substance addiction evaluations and follow-up examinations for all holders of alcohol interlock-controlled driving rights, as was the case during the alcohol interlock-controlled driving rights trial in 2005–2008?
9. Is there anything else you would like to say regarding alcohol interlock-controlled driving rights and the functionality of the process? Do you have any suggestions for development?

THANK YOU!

Enclosed are the free-form answers related to the visit to a health care professional.

**ANNEX 6 Results figures for alcohol interlock driving licence holders.**





<b>Alcohol interlock-controlled driving rights were interrupted</b>	<b>No.</b>
Driving while intoxicated during the probationary period - Two of these drivers had withdrawn their request for alcohol interlock-controlled driving rights on the same day they were caught driving while intoxicated	54
Withdrew their application for alcohol interlock-controlled driving rights (-> driving ban)	4
Withdrew their application for alcohol interlock-controlled driving rights, but continued the process after a temporary driving ban	2
	60

Age

	<i>Probationary period interrupted</i>	<i>Probationary period not interrupted</i>	<i>Total</i>
Average	46.1	50.7	50.6
Standard deviation	13.5	11.0	11.1
Minimum	21.0	20.0	20.0
Median	49.0	52.0	52.0
Maximum	66.0	82.0	82.0
No.	60	1,601	1,661

F = 9.93 degrees of freedom: 1 and 1,659  
p = 0.00166 Statistically significant

Number of serious violations before probationary period, during probationary period and after probationary period

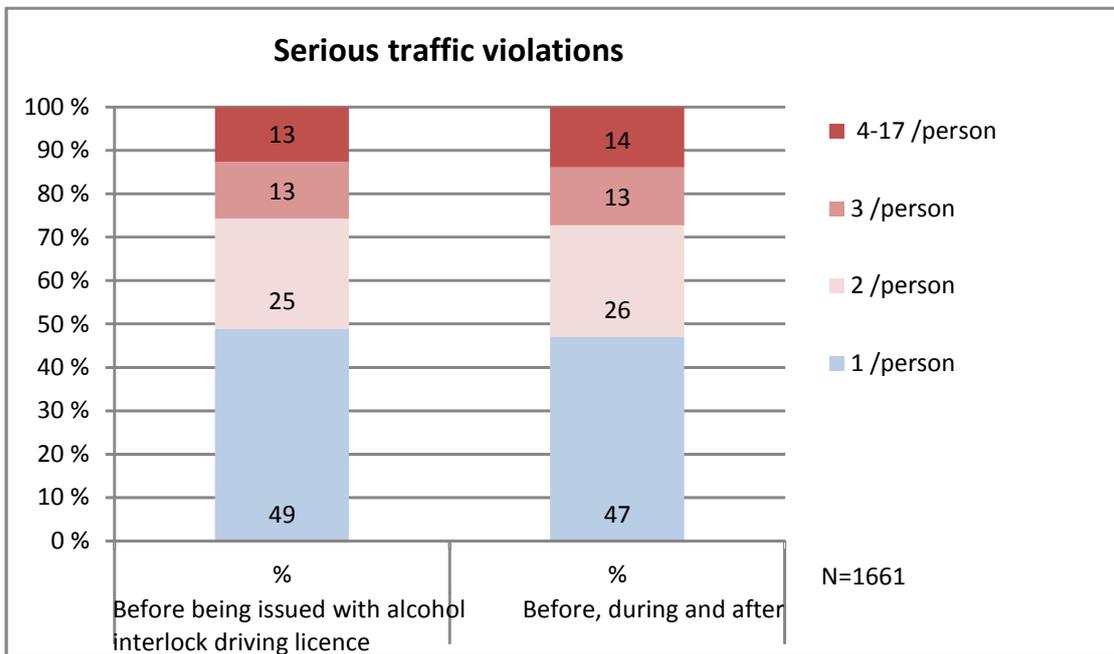
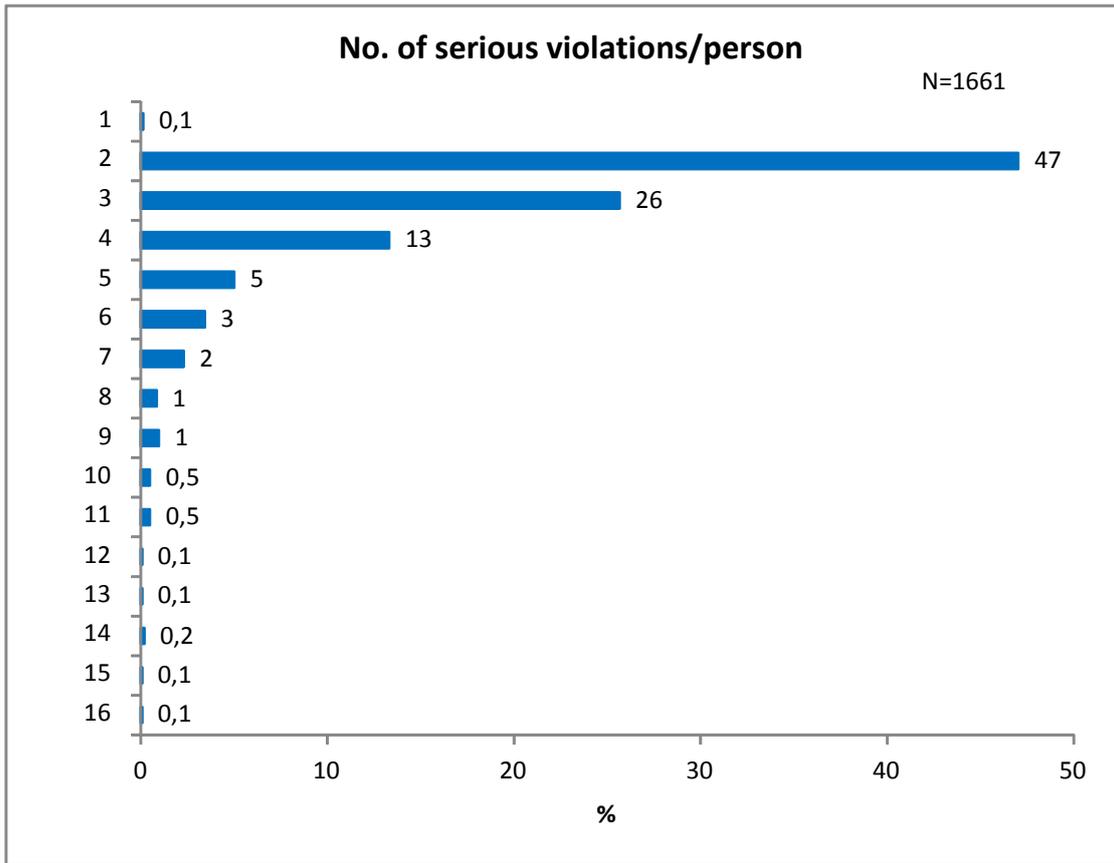
	<i>Probationary period interrupted</i>	<i>Probationary period not interrupted</i>	<i>Total</i>
Average	4.5	2.1	2.2
Standard deviation	3.1	1.6	1.8
Minimum	1.0	0.0	0.0
Lower quartile	2.0	1.0	1.0
Median	4.0	2.0	2.0
Upper quartile	6.0	3.0	3.0
Maximum	15.0	17.0	17.0
No.	60	1,601	1,661

F = 116.41 degrees of freedom: 1 and 1,659  
p = 0 Statistically highly significant

Serious traffic violations before being issued with alcohol interlock driving licence

	<i>Probationary period interrupted</i>	<i>Probationary period not interrupted</i>	<i>Total</i>
Average	3.0	2.1	2.1
Standard deviation	2.4	1.6	1.7
Minimum	1.0	0.0	0.0
Lower quartile	1.0	1.0	1.0
Median	2.0	2.0	2.0
Upper quartile	4.0	2.0	3.0
Maximum	13.0	17.0	17.0
No.	60	1,601	1,661

F = 16.99 degrees of freedom: 1 and 1,659  
p = 0.00004 Statistically highly significant





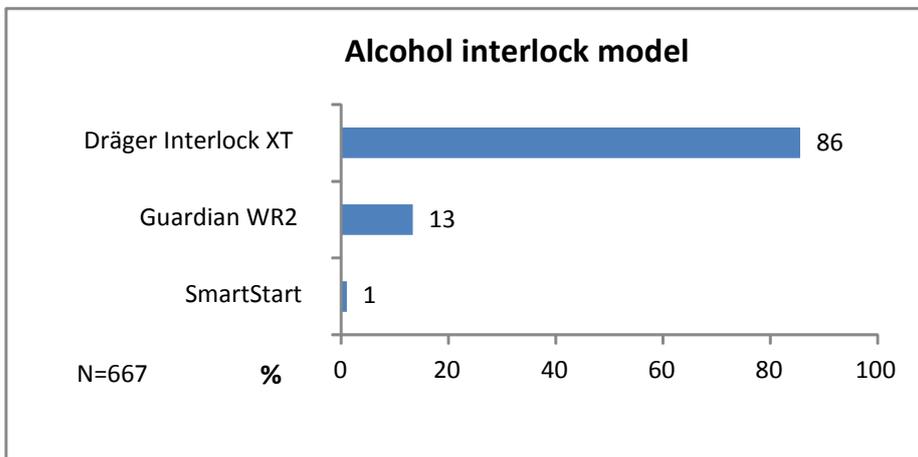
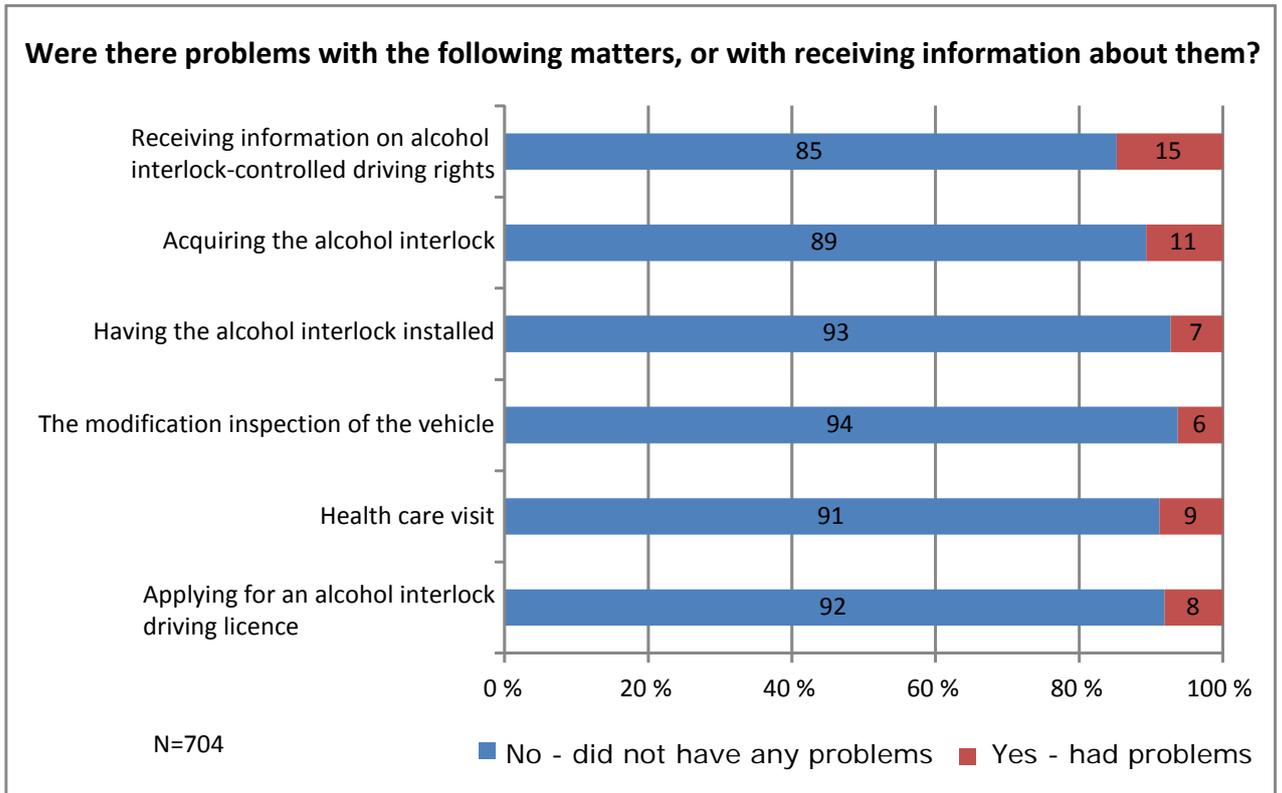
Duration of alcohol interlock-controlled driving rights (days)

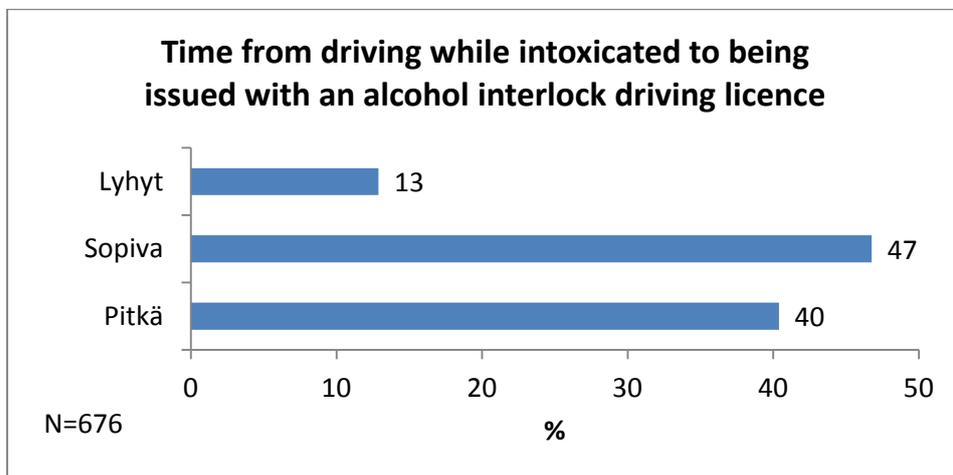
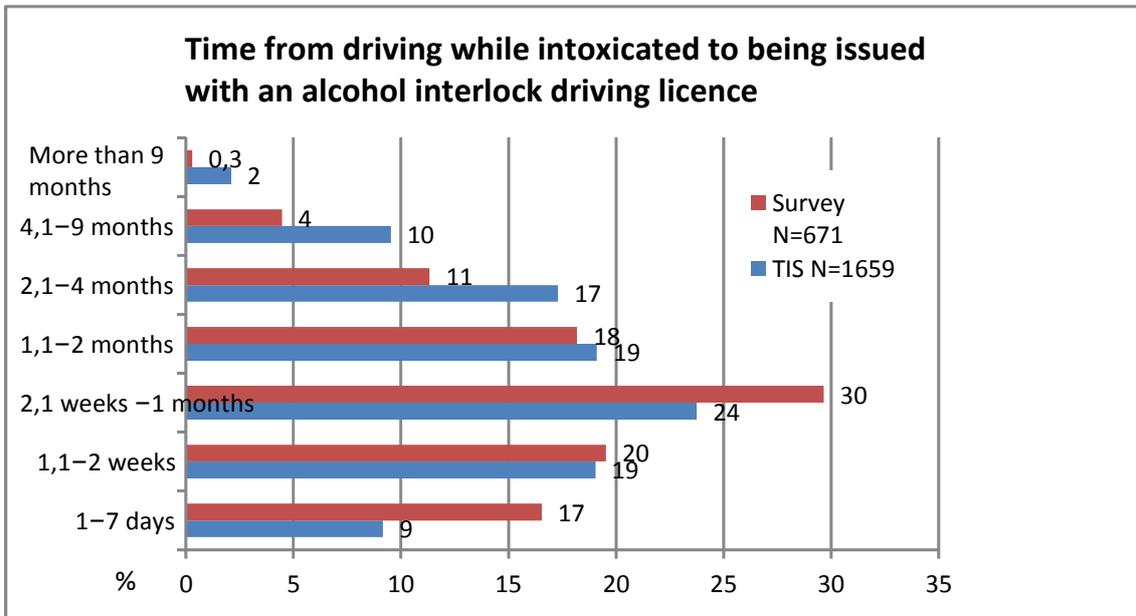
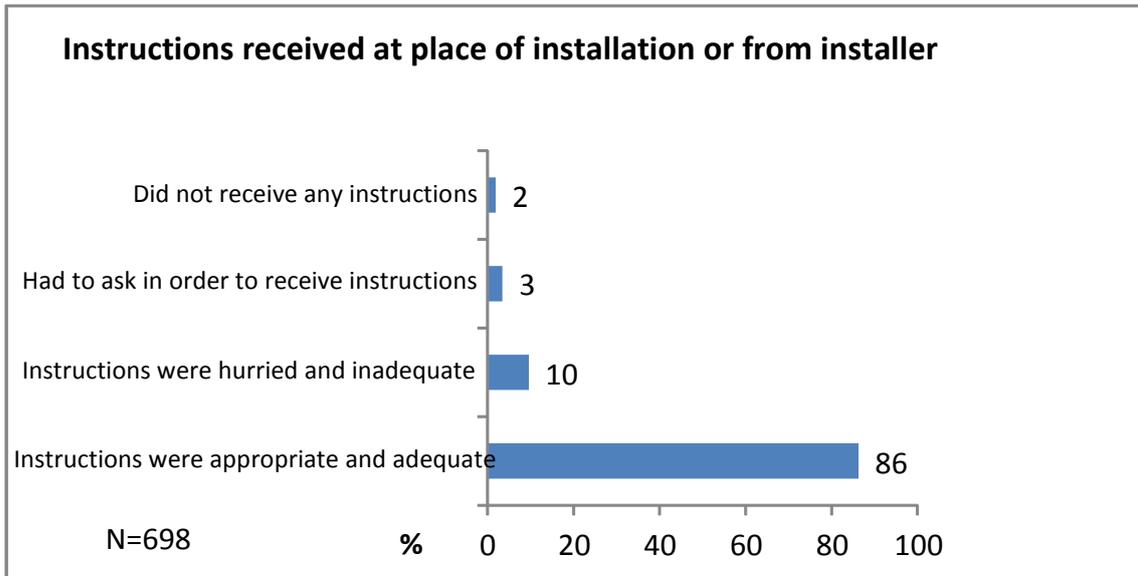
	<i>Probationary period interrupted</i>	<i>Probationary period not interrupted</i>	<i>Total</i>
Average	304.0	514.1	506.0
Standard deviation	283.5	200.3	208.0
Minimum	13.0	14.0	13.0
Lower quartile	99.0	399.3	390.0
Median	233.5	509.0	502.0
Upper quartile	419.3	646.8	640.0
Maximum	1337.0	1309.0	1337.0
No.	60	1494	1554

F = 61.14 degrees of freedom: 1 and 1,552

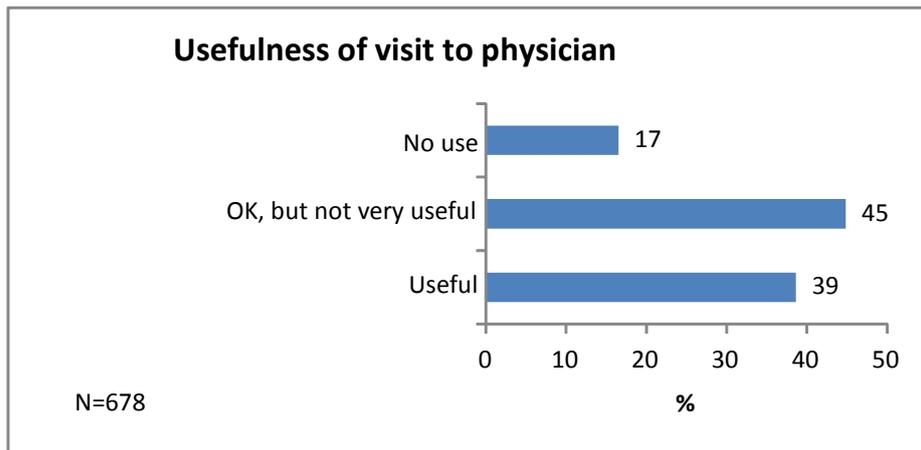
p = 0 Statistically highly significant

**ANNEX 7 Results figures related to alcohol interlock driving licence acquisition.**





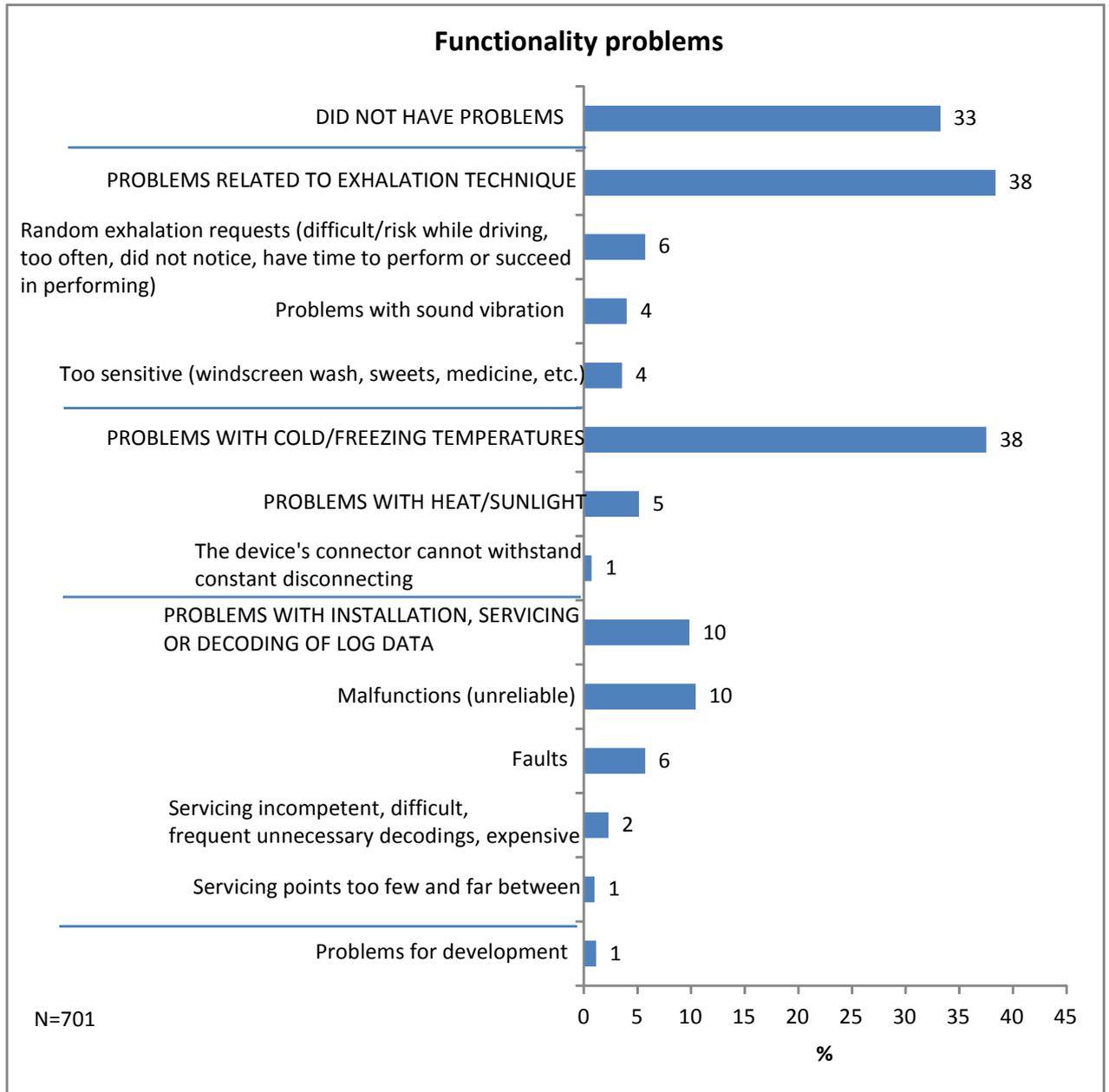
Lyhyt=Short, Sopiva=Reasonable, Pitkä=Long



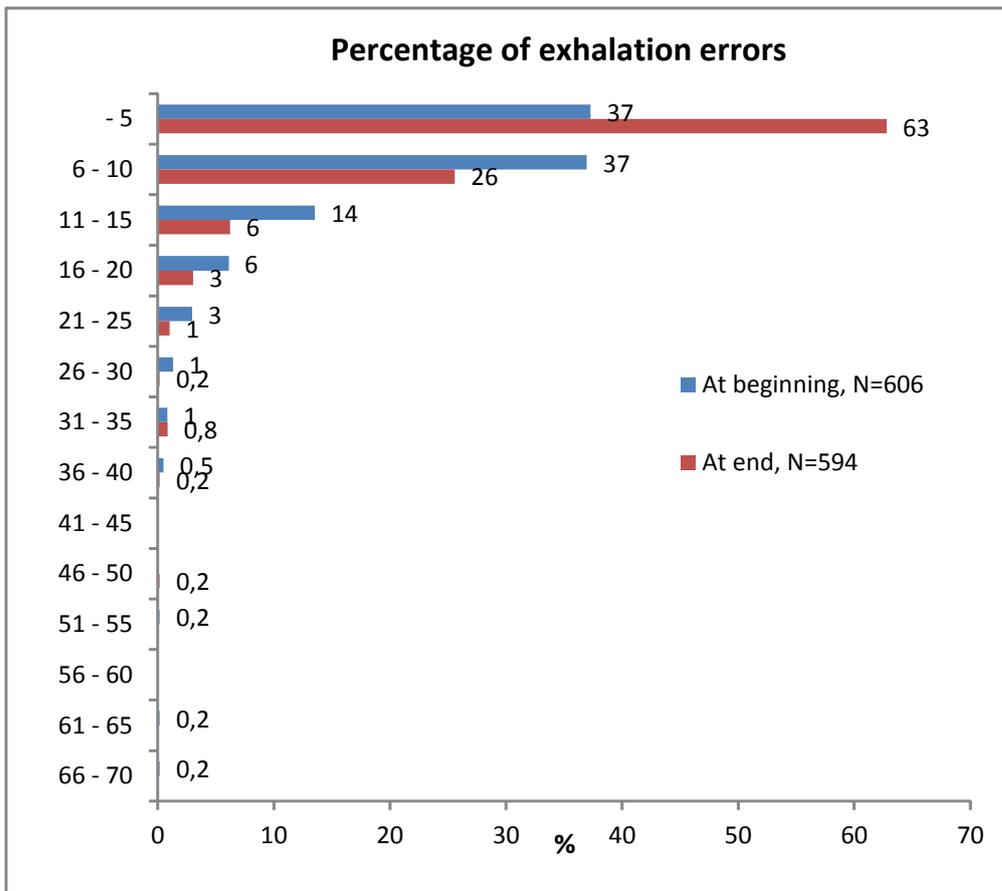
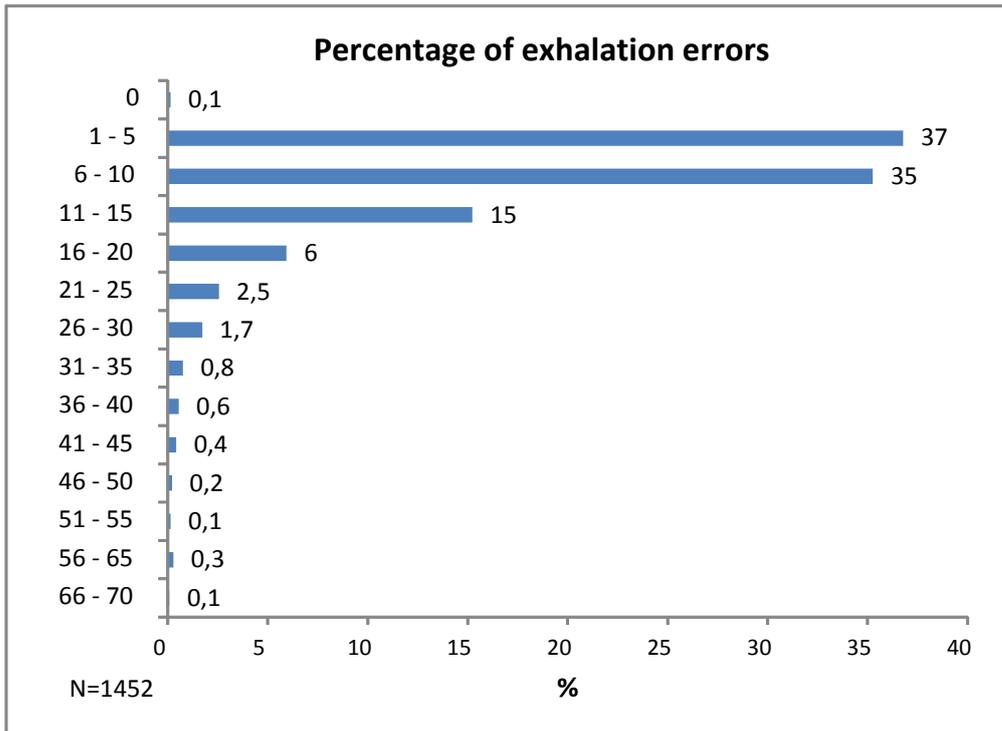
Health care services

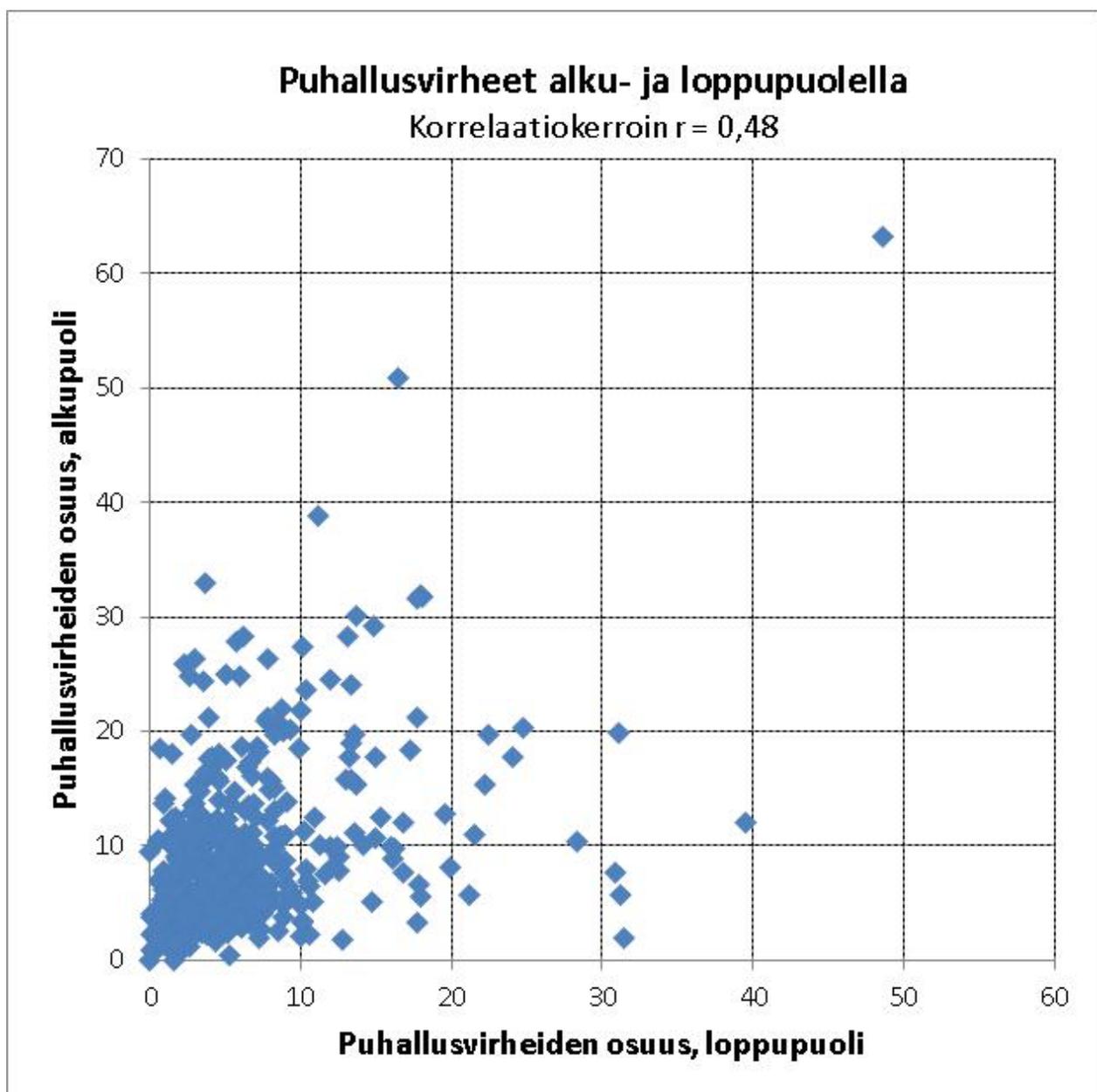
	<i>No.</i>	<i>%</i>
Public	381	56
Private	301	44
Total	682	100

**ANNEX 8. Results figures related to alcohol interlock use and opinions on it.**

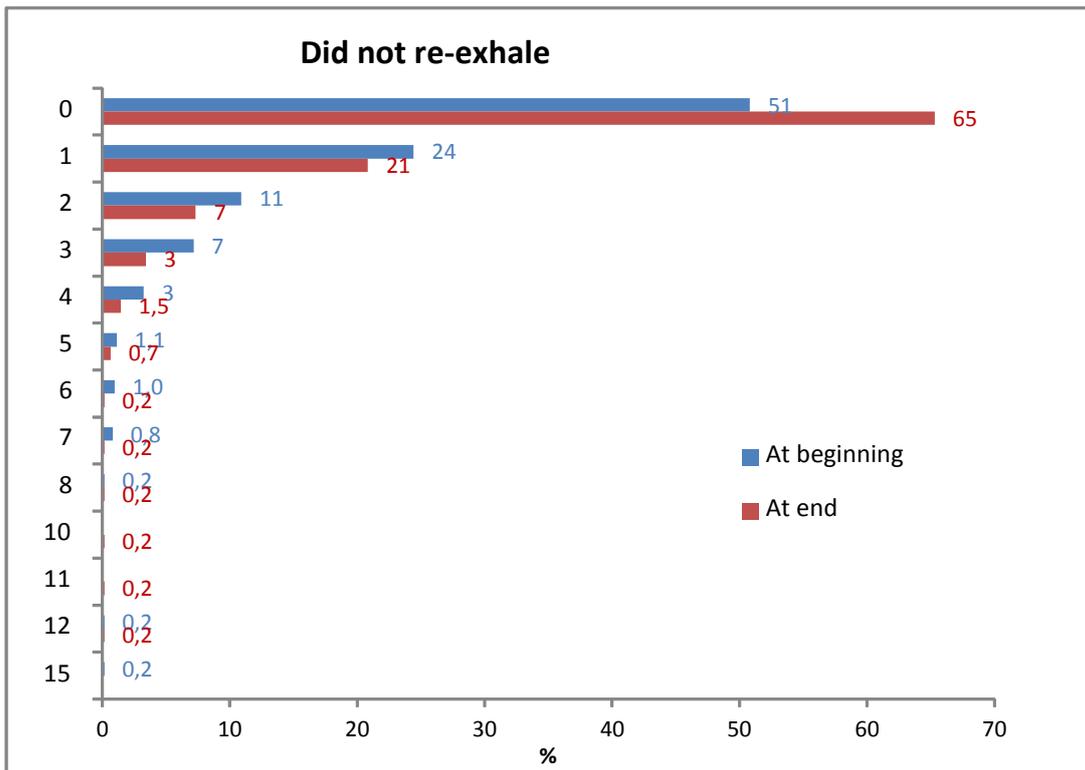
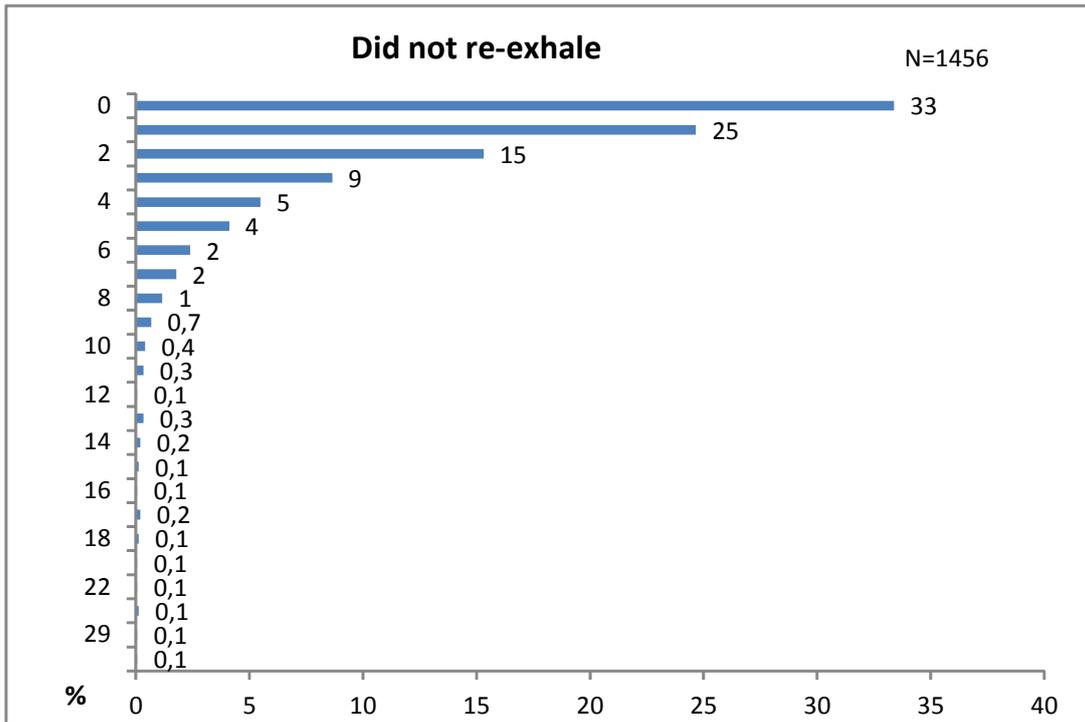


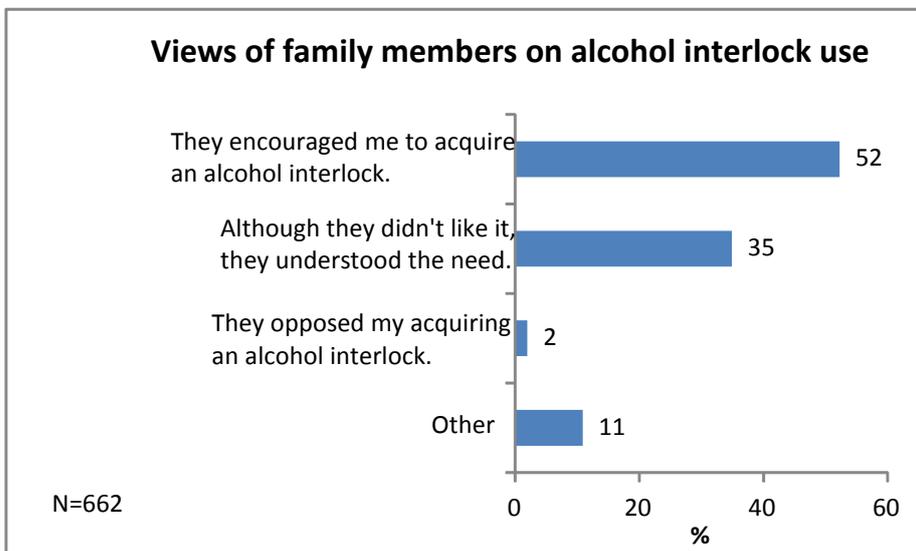
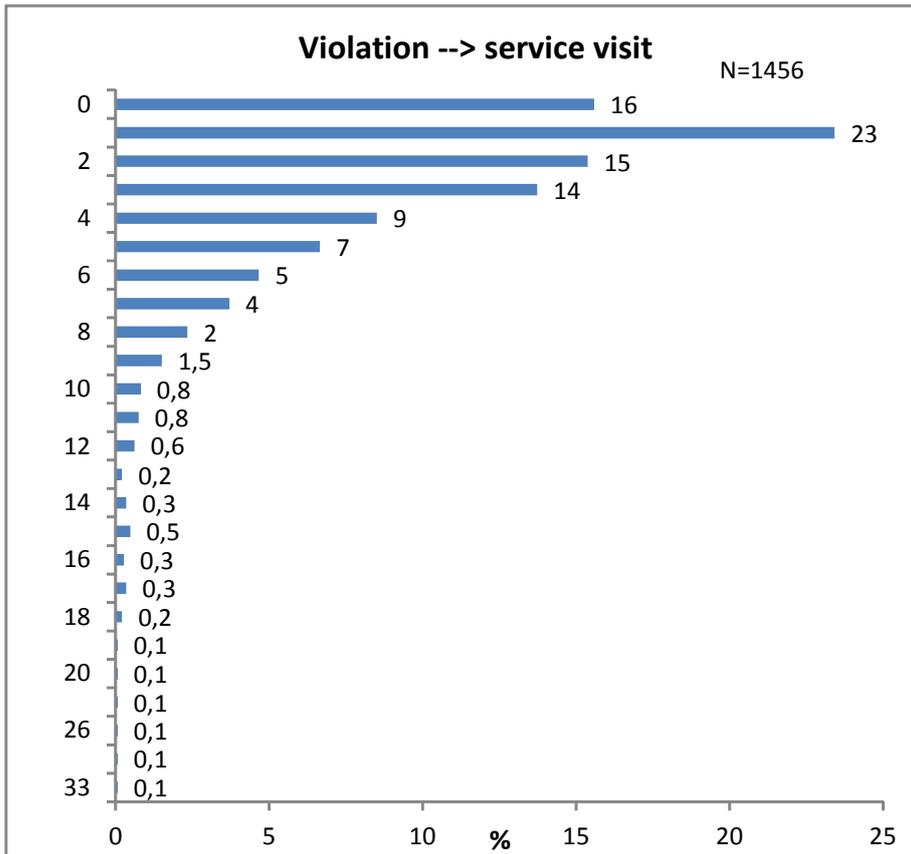
Reported problems related to the functionality of alcohol interlocks were grouped into categories related to providing the exhalation, temperature and servicing. The sub-categories within these categories were defined on the basis of the respondents' free-form descriptions of the problems.





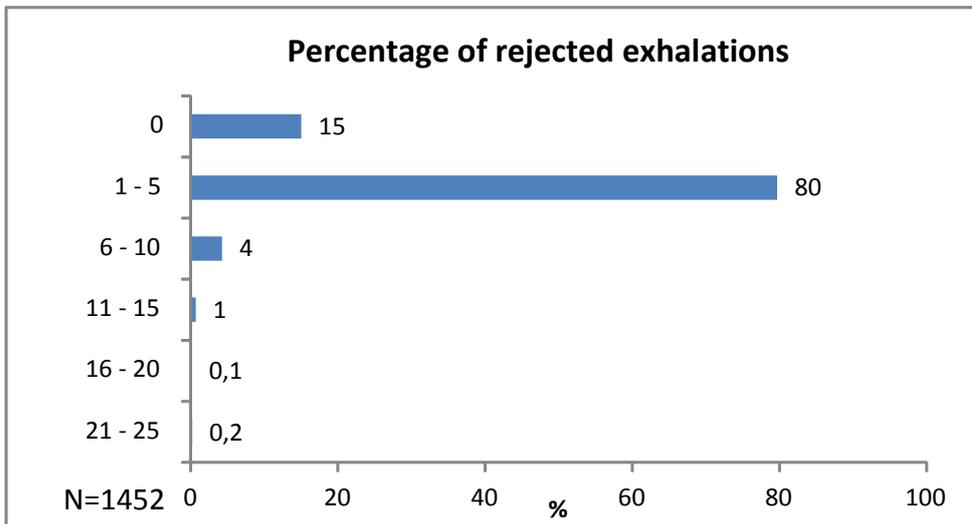
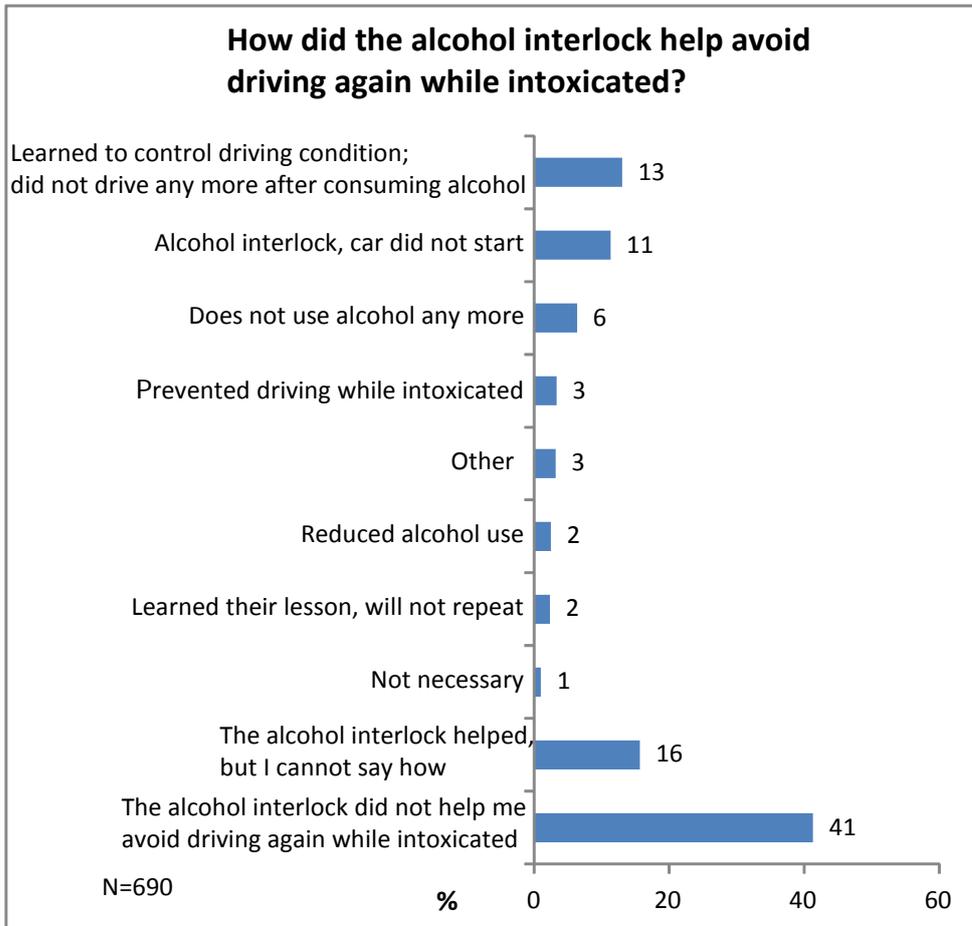
<b>FINNISH</b>	<b>ENGLISH</b>
Puhallusvirheet alku- ja loppupuolella	Exhalation errors at beginning and end
Korrelaatiokerroin $r=0,48$	Correlation coefficient $r=0.48$
Puhallusvirheiden osuus, alkupuoli	Percentage of exhalation errors, beginning
Puhallusvirheiden osuus, loppupuoli	Percentage of exhalation errors, end



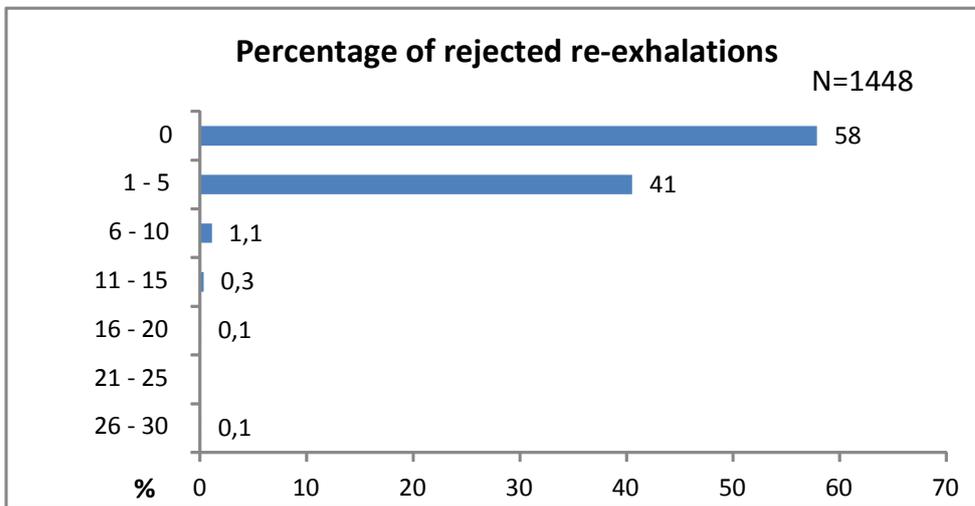
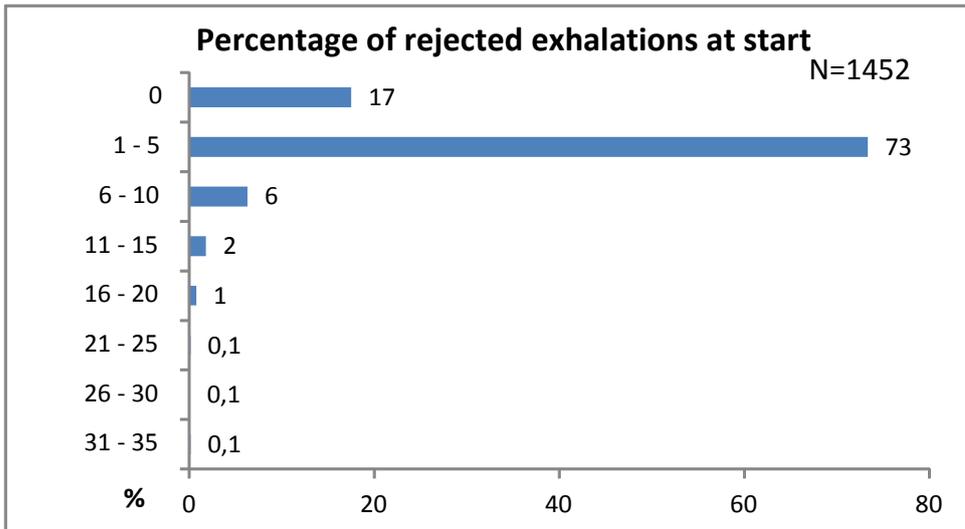


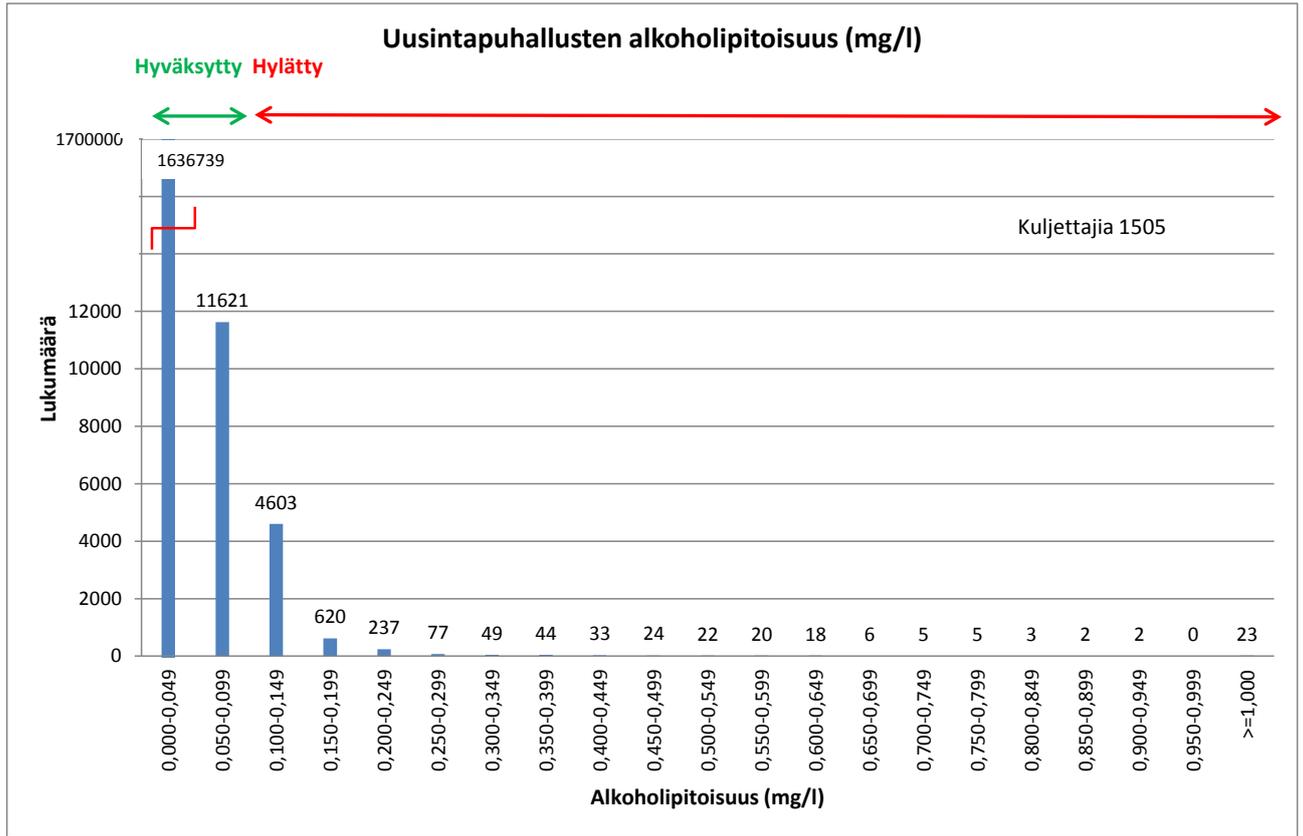
**Alcohol interlock misuse**

	No.	%
Misusing the alcohol interlock never even crossed my mind.	683	97
I thought about how I might bypass the alcohol interlock, but did not attempt to in practice.	18	2.6
I attempted to misuse the alcohol interlock, but did not succeed.	0	0
I misused the alcohol interlock.	3	0.4
<b>Total</b>	<b>704</b>	<b>100</b>

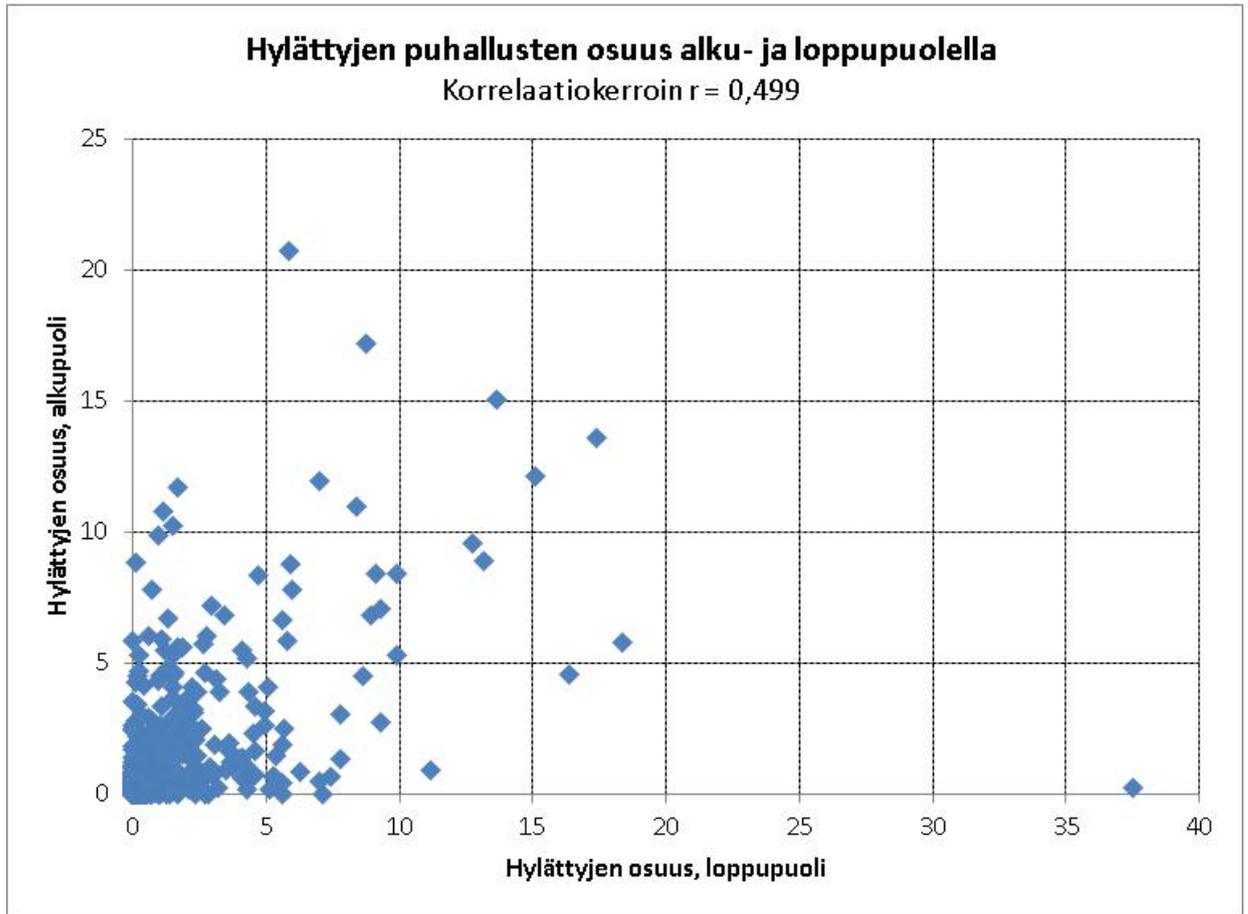


Rejected exhalation = blood alcohol content of more than 0.2‰ or more than 0.1 mg/l of alcohol contained in exhalation

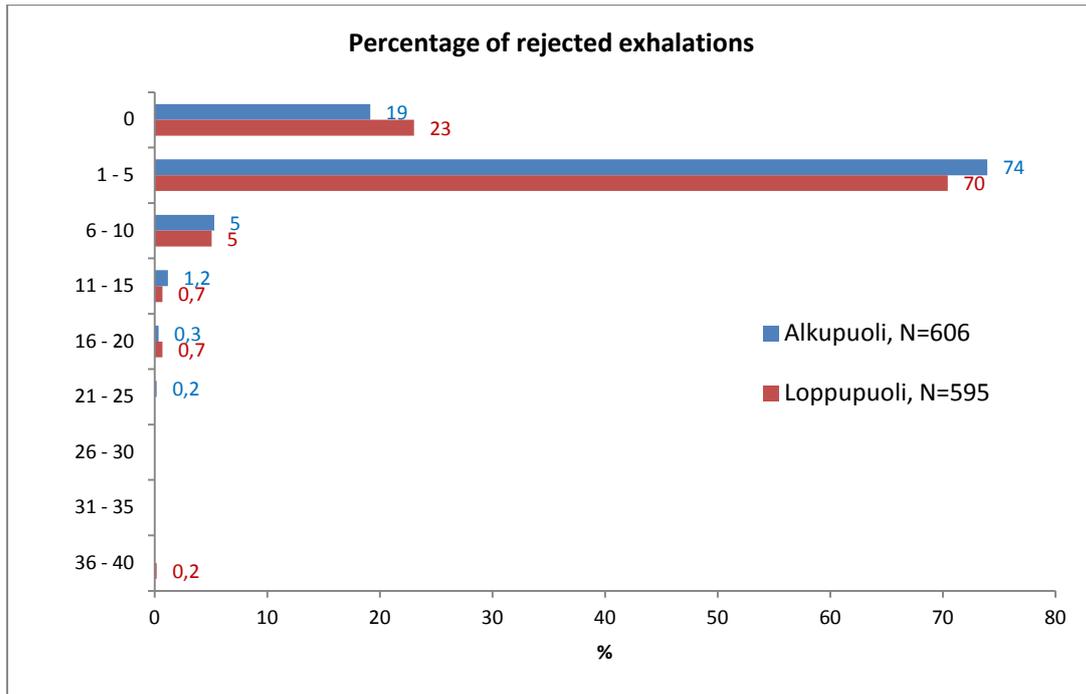




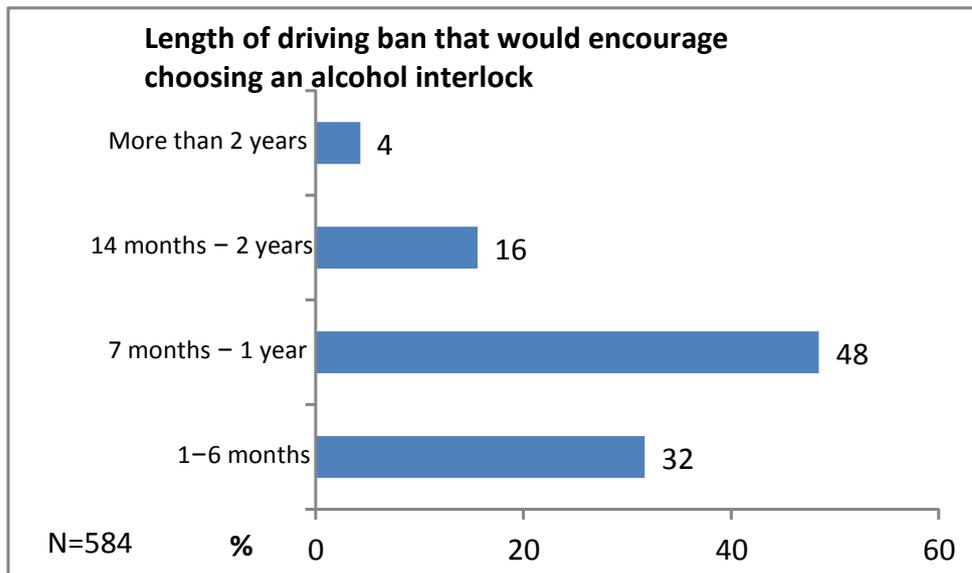
FINNISH	ENGLISH
Uusintapuhallusten alkoholipitoisuus (mg/l)	Alcohol content of re-exhalations (mg/l)
Hyväksytty	Passed
Hylätty	Rejected
Kuljettajia 1505	Drivers 1,505
Lukumäärä	Number
Alkoholipitoisuus (mg/l)	Alcohol content (mg/l)



<b>FINNISH</b>	<b>ENGLISH</b>
Hylättyjen puhallusten osuus alku- ja loppupuolella	Percentage of rejected exhalations at beginning and end
Korrelaatiokerroin $r=0,499$	Correlation coefficient $r=0.499$
Hylättyjen osuus, alkupuoli	Percentage rejected, beginning
Hylättyjen osuus, loppupuoli	Percentage rejected, end



<b>FINNISH</b>	<b>ENGLISH</b>
Alkupuoli, N=606	At beginning, N=606
Loppupuoli, N=595	At end, N=595



**Course of action after the end of controlled driving rights**

	No.	%
I had/will have the alcohol interlock removed	352	50
I left/will leave the alcohol interlock in my vehicle	216	31
I do not know yet	136	19
<b>Total</b>	<b>704</b>	<b>100</b>

