

PLEASE NOTE

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SWOV Fact sheet

Alcohol interlock devices

Summary

In the Netherlands, the use of alcohol plays a role in 11% to 24% of all road deaths. In recent years, traditional measures to reduce the unsafety due to alcohol have not resulted in a further decline in the number of casualties. This is one of the reasons why in March 2009 Dutch parliament decided to introduce an alcohol interlock programme (AIP) for serious offenders. The AIP was imposed on serious offenders from December 2011 to October 2014. This fact sheet discusses the advantages and disadvantages of the alcohol interlock device and presents the results of evaluation studies in other countries. The Dutch Ministry of Infrastructure and the Environment estimates that the introduction of the type of AIP that has been used for a number of years saves 5 to 6 road deaths per year.

Background and content

An alcohol interlock device is an alcohol tester which is connected to the start-up mechanism of the car. The tester acts as a vehicle immobilizer. It is not possible to start the car until the driver has successfully passed a breath alcohol test. Until now, the most widely used and most reliable testers for alcohol interlock devices are breath testers with an electrochemical fuel cell as a sensor. The Dutch police use such testing devices for tracing drink-drivers. There are also some cheaper alcohol interlock devices in which the breath tester uses the semi-conductor principle. However, the sensor in such a tester is less stable and has to be calibrated more frequently. A recent development are sensors in the steering wheel that function as testers by measuring the amount of alcohol from perspiration in the palm of the hand. The reliability of this method, however, has not yet been proven sufficiently.

This fact sheet will describe the experiences with the alcohol interlock device, particularly in the so-called alcohol interlock programmes. An alcohol interlock programme (AIP) is more than just fitting the alcohol interlock device into a car; it also includes supervision, guidance and evaluation. The fact sheet will also discuss the effectiveness of AIPs.

How does an alcohol interlock programme work?

The guidance programme of an AIP makes the participants familiar with using the alcohol interlock device and gives them advice on how to tackle their drinking problem. A data recorder is connected to the alcohol interlock device in which all data relevant to the alcohol interlock device is stored. This data is read out regularly, usually every other month. This data, among other things, includes (attempted) fraud in using the alcohol interlock device, and data about the extent to which the participant can separate the use of alcohol and road use. A good indicator of the latter is the number of attempts to start the car with raised blood alcohol content. Other countries sometimes include a medical test in the AIP, but this is not the case in the Netherlands.

The AIP was introduced in the Netherlands on 1 December 2011 and until October 2014 it could be imposed on heavy alcohol offenders by the Dutch Driving Test Organisation CBR. These offenders are defined as drivers with a blood-alcohol content (BAC) between 1.3‰ and 1.8‰, young novice drivers with a BAC of 1‰ or higher, and repeat offenders with a BAC of 0.8‰ or higher. At a BAC of 1.8‰ or higher, CBR first investigated whether the driver is alcohol dependent. In the Netherlands the AIP has a minimum duration of two years. Participants who after those two years still cannot separate the use of alcohol and driving a vehicle are given a six months' extension which is repeated until they can make the separation.

The Dutch AIP was temporarily suspended for new cases in October 2014, and in March 2015 the Council of State ruled that CBR could no longer impose an AIP, the main argument being that the AIP may have disproportional effects in a considerable number of cases. After consultation with the minister of Infrastructure and the Environment, the minister of Security and Justice announced in

February 2016 that he will not place the AIP under criminal law. This seems to put a final stop to using the AIP in the Netherlands.

Which countries use an alcohol interlock device?

Internationally, the alcohol interlock device is considered an effective method of reducing drink-driving, and recidivism in particular.

In 1986, the American state of California was the first to introduce an Alcohol Interlock Programme. Since then, tens of thousands of drivers who were caught drink-driving have had an alcohol interlock device installed in their car in the United States, Canada, and Australia. Until now, Sweden is the only European country that has introduced alcohol interlock devices on a large scale. They are not only used for those found guilty of drink-driving, but more in particular for general preventative use in trucks, (school) buses and taxis. In Sweden, the first alcohol interlock devices were installed in 1999. Early in 2009, approximately 750 offenders drove a car with an alcohol interlock device built in, and almost 40 000 alcohol interlock devices had been installed in lorries, (school) buses and taxis.

France started an experimental programme for offenders in 2004, followed by the United Kingdom in 2005. Also in 2005, Finland started a regular, but small-scale programme for offenders. The experimental programme in the United Kingdom did not (yet) get a follow-up, but France and Finland have been operating programmes at the national level since early 2009. Furthermore, Finland, France and Spain have announced alcohol interlock devices will be mandatory in school buses.

In 2004-2005, within the framework of an EU research project, several small-scale experiments with alcohol interlock devices were carried out in Norway, Germany, Belgium, and Spain (Silverans et al., 2006).

Why was an AIP introduced in the Netherlands?

In the Netherlands, the contribution of traditional measures to reducing drink-driving seems to have decreased (see also SWOV Fact sheet [Driving under the influence of alcohol](#)). Since 2000, the number of random police checks of drink-driving has doubled, and the designated driver campaign has been successful. However, between 2002 and 2010 the share of alcohol related road crash casualties (road deaths and serious road injuries) decreased only little or not at all. The most important explanation for the disappointing decrease of alcohol-related casualties seemed to be that a hard core remained who are heavy drinkers and are not susceptible to police supervision and public information. In spite of their relatively small numbers, these heavy drinkers are responsible for about two thirds of the serious alcohol crashes (Houwing et al., 2011). Only policy that could tackle this group effectively was expected to drastically reduce the alcohol threat in the Netherlands. In addition to maintaining or increasing risk of being caught, this required measures that considerably reduce recidivism. Several international assessment studies show that an alcohol interlock programme could be such a measure.

What are the results of the evaluation studies?

Various international studies show 65-90% fewer repeat offences for users of an alcohol interlock device than for drivers with a suspended or a revoked driving licence (Bax et al., 2001). In the initial years, not one of the participants in the Swedish AIP was caught drink-driving again (Bjerre & Bergman, 2004).

The international studies also show the weak points of AIPs. An important problem in countries that have already introduced the alcohol interlock device is the low participation rate of eligible drivers. In administrative law programmes this is caused by participation generally being voluntary. In Sweden, this, in combination with the high costs, has resulted in a participation rate of only 11% (Bjerre & Bergman, 2004). In criminal law programmes that are imposed and implemented by courts of law, AIPs often have an even lower participation rate. In California, judges only impose an alcohol interlock programme on 10% of the eligible drivers, and of this small group nearly 80% ignore the judge's sentence. According to DeYoung (2002), the most important reasons why drink-driving offenders in California are not sentenced to drive with an alcohol interlock device are:

- Many judges and public prosecutors do not believe that the alcohol interlock device works;
- Many drink-drivers say they cannot afford an alcohol interlock device;
- Many drink-drivers do not own a car, or maintain they don't.

According to DeYoung, the inadequate communication between courts, probation officers, and those who organise AIPs is the most important reason that a judge's sentence can be ignored. Another weak point of AIPs is that the positive effect on recidivism usually disappears as soon as the alcohol interlock device is removed from the car (Bax et al., 2001; Beirness & Robertson, 2002).

When is an alcohol interlock programme effective?

The introduction of the measure should be embedded in a programme in which the possibilities of the alcohol interlock device are optimally used. Alcohol interlock programmes have the highest success rate if all high BAC offenders participate, if the possibilities of offending again during the programme are as small as possible, and if driving with an alcohol interlock device is continued until it is clear that the offender is no longer alcohol-dependent. Beirness & Robertson (2002) have formulated the following criteria for alcohol interlock programmes to have a maximum road safety effect:

- Participation in an AIP must be *compulsory* for all high BAC offenders. If they can opt for a temporary or permanent licence withdrawal instead of an alcohol interlock programme, there is still a real chance that they will continue to drink-drive without a valid driving licence.
- The AIPs should be carried out under *administrative law* by the organization responsible for issuing driving licences. This criterion results from the fact that judicial bodies are not always capable of carrying out a consistent requisition and sentencing policy as well as enforcing the compliance with sentences.
- The *driving licence* should clearly specify that the driver can only drive a car with an alcohol interlock device. This criterion is aimed at facilitating enforcement.
- The *compliance* with the programme's preconditions must be properly enforced. This can be done by regularly, e.g. monthly, checking the alcohol interlock device system for fraud and/or attempts of fraud, and simultaneously downloading and analysing the data from the alcohol interlock device's data recorder.
- The *contents* and *duration* of the alcohol interlock programme need to be tailored to the characteristics of the target group, and it must be possible to adjust the programme to any observed alterations in behaviour and characteristics of individual members of the target group. The frequency of registered attempts to start the car after drinking serves as an indication that the desired behavioural intentions are not yet present and of the risk of recidivism (Marques et al., 2001). If the frequency is still high at the end of the programme duration agreed beforehand, the AIP will need to be extended.

In addition, Beirness & Robertson argue for providing funds in order to keep the costs of an AIP at a reasonable level, so as to prevent high BAC offenders from the lowest income group not being able to afford the programme.

What else improves the alcohol interlock programme's effectiveness?

Periodic alcohol dependence tests, as they take place in Sweden, make an AIP expensive. This can result in potential participants preferring their driving licence to be revoked to participation in an alcohol interlock programme. Because after a revocation the risk remains that an offender will drive without a valid driving licence, it is important to only make periodic medical examinations obligatory for those who are suspected of being heavily alcohol dependent. An indication for dependence is the BAC at the time of the offence. In 2003 the Regional Road Safety Enforcement Team in the Dutch province of Zeeland stopped 348 drivers for drink-driving. It appeared that 13% of the drivers with a BAC less than 1.3‰ concerned recidivists, this was the case for 21% of those with a BAC between 1.3‰ and 1.8‰, and for as many as 50% of those with a higher BAC.

The standard duration of AIPs varies between six months and two years. It should be possible to lengthen the period if data from the alcohol interlock device data recorder and/or the medical examinations show that participants still attempt to drink-drive and still are alcohol dependent after two years.

To ensure that most of the eligible offenders really do participate in the AIP, the restricted licence - only for a motor vehicle with an alcohol interlock device - should only be changed back to an unrestricted licence after successful completion of the programme. Furthermore, American studies indicate that a motivating intervention being part of the programme results in better compliance with the rules by AIP participants. This could, for example, be a course to motivate people to drive without having consumed alcohol. Such an intervention also seems to have a positive effect on the risk of recidivism after completing the alcohol interlock programme (Marques et al., 2000; Marques et al.,

2004). The contents of such an intervention could be partly comparable with the Dutch compulsory driver improvement course 'Educational Measure Alcohol and traffic' (EMA) and could partly be based on participants' positive experience with the alcohol interlock device.

Which effects is the Dutch alcohol interlock programme expected to have?

During the period in which the Dutch AIP was used (December 2011 to October 2014) it was compulsory for offenders with a high BAC and recidivists to have an alcohol interlock device installed in their cars. If they failed to do so, their driving licence was revoked. If all serious offenders were eligible for the AIP, there would approximately be 12,000 participants per year (Andersson Elffers Felix, 2011). However, the real number would have been considerably lower as not every offender was actually registered with CBR. Most of the remaining offenders first had to go through a period of suspension or revocation of the driving licence. Not until this period has terminated they could enter the AIP. The number of participants that would annually have entered the Dutch AIP would therefore not be 12,000, but only about 2000. If during the course of the AIP yet another 10% of the participants would drop out and the programme would be extended for 30% of the participants, there will always be about 5000 drivers participating in the alcohol interlock programme from the third year after its introduction (Andersson Elffers Felix, 2011).

In 2009, SWOV estimated that on an annual basis the AIP would save eight to ten road fatalities if offenders with a BAC of up to 2.1‰ were to participate. When other legal and administrative measures are optimally tuned in with the AIP, an annual saving of 30 to 35 road deaths seems feasible in the somewhat more distant future (SWOV, 2009). The estimate which was used by the Dutch Ministry of Infrastructure and the Environment used corrected data, as the upper limit for participation in the present AIP is not 2.1‰ but 1.8‰. In this case, the AIP could result in an annual saving of five to six road deaths.

In recent years, the number of serious alcohol offenders (BAC) has decreased in the Netherlands. The alcohol interlock device that was introduced in December 2011 could have played a role in the decrease. Due to the decrease of the number of heavy alcohol offenders, the proportion of deaths in road crashes caused by alcohol use went down from between 20% and 30% in 2009 to between 11% and 24% in 2014 (Houwing et al., 2014).

What are the costs of an alcohol interlock programme?

For 5000 participants the costs of an AIP would amount to approximately 12.5 million euros per year; this is about 2500 per individual offender. During the period the AIP was used in the Netherlands, these costs had to be paid by the participants themselves.

Conclusions

An alcohol interlock programme can be an effective means to prevent serious offenders who have been sentenced to continue participating in traffic. Suspension or revocation of the driving licence appears not to be sufficiently effective. The effect of the AIP on repeat offenders is limited to the duration of the programme. In the Netherlands an alcohol interlock programme was operational from December 2011 to October 2014. However, the programme was temporarily suspended for new cases in October 2014 and in March 2015 the Council of State ruled that CBR could no longer impose the AIP. The main argument for the decision was that the AIP may have disproportional effects in a considerable number of cases. In February 2016, the minister of Security and Justice announced that he will not bring the AIP under criminal law. Within the programme that was used during a number of years the alcohol interlock device was made compulsory for a duration of two years, and this could be extended repeatedly by periods of six months until the participant could separate drinking alcohol from participating in traffic. According to the Ministry of Infrastructure and the Environment an alcohol interlock device in that form saves an estimated five or six road deaths per year. If a different form is chosen a saving of 30 to 35 road deaths seems to be feasible.

Publications and sources

(SWOV reports in Dutch have a summary in English)

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