

## Alcolock

### Summary

In the Netherlands about an estimated 20% of all road deaths is related to the use of alcohol. 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 Dutch parliament decided in March 2009 to introduce an alcolock programme (ALP) for serious offenders. The ALP was introduced on 1 December 2011. This fact sheet discusses the advantages and disadvantages of the alcolock and presents the results of evaluation studies in other countries. The Ministry of Infrastructure and the Environment uses the estimate that the introduction of the ALP as defined in the bill which is proposed will save 5 to 6 road deaths per year.

### Background and content

An alcolock 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 test. Until now, the most widely used and most reliable testers for alcolocks are breath testers with an electrochemical fuel cell as a sensor. The Dutch police use such testers for tracing drink-drivers. There are also some cheaper alcolocks in which the breath tester works using the semiconductor 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 sufficiently been proven.

This fact sheet will describe the experiences with the alcolock, particularly in the so-called alcolock programmes. An alcolock programme (ALP) is more than just fitting the alcolock into a car; it also involves supervision, guidance and evaluation. The fact sheet will also discuss the effectiveness of ALPs.

### How does an alcolock programme work?

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

In the Netherlands, the ALP was introduced on 1 December 2011 and can be made compulsory by the Dutch Driving Test Organisation CBR for heavy alcohol offenders. 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. When a BAC is 1.8‰ or higher, CBR first investigates whether the driver is alcohol dependent. The ALP 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.

### Where is the alcolock already used?

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

The first alcolock programme was introduced in 1986, in the American state of California. Since then, tens of thousands of drivers who were caught drink-driving have had an alcolock installed in their car in the United States, Canada, and Australia. Until now, Sweden is the only European country that has introduced alcolocks on a large scale. They are not only used for those found guilty of drink-driving, but especially for general preventative use in trucks, buses, school buses and taxis. In Sweden, the

first alcolocks were installed in 1999. Early in 2009, approximately 750 offenders drove a car with an alcolock built in, and almost 40.000 alcolocks had been installed in lorries, (school) buses and taxis. In 2004, an experimental programme for offenders was started in France. The United Kingdom started such a programme in 2005. Also in 2005, Finland started a regular, but small-scale programme for offenders. The experimental programme did not (yet) get a follow-up in the United Kingdom, but France and Finland have been operating programmes at the national level since early 2009. Furthermore, Finland, France and Spain have announced alcolocks will be mandatory in school buses.

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

### **Why has an ALP been 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 been doubled, and the designated driver campaign has been successful. However, between 2002 and 2010 the share of alcohol related road crash casualties (fatalities and serious road injuries) decreased only little or not at all. The most important explanation for the disappointing decrease of alcohol casualties seems to be that there is a hard core of heavy drinkers who 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 manages to tackle this group effectively will be able to drastically reduce the alcohol threat in the Netherlands. In addition to maintaining or increasing risk of being caught, measures are required that strongly reduce recidivism. Several international assessment studies show that an alcolock programme can 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 alcolock than for drivers with a suspended driving licence or a revocation (Bax et al., 2001). In the initial years, not one of the participants in the Swedish ALP was caught drink-driving again (Bjerre & Bergman, 2004). The international studies also show the weak points of ALPs. An important problem in countries that have already introduced the alcolock 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, ALPs often have an even lower participation rate. In California, judges only impose an alcolock 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 alcolock are:

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

The most important reason for ignoring a judge's sentence is, according to DeYoung, the inadequate communication between courts, probation officers, and providers of ALPs.

Another weak point of ALPs is that the positive effect on recidivism usually disappears as soon as the alcolock is removed from the car (Bax et al., 2001; Beirness & Robertson, 2002).

### **When is an alcolock programme effective?**

The introduction of the measure should be embedded in a programme in which the alcolock's possibilities are optimally used. Alcolock 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 alcolock is continued until it is clear that one is no longer alcohol dependent. Beirness & Robertson (2002) have formulated the following criteria for alcolock programmes to have a maximum road safety effect:

- Participation in an ALP must be *compulsory* for all high BAC offenders. If they can opt for a temporary or permanent licence withdrawal instead of an alcolock programme, there is still a real chance that they will continue to drink-drive without a valid driving licence.
- The ALPs 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 alcolock. 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 alcolock system for fraud and/or attempts of fraud, and simultaneously downloading and analysing the data from the alcolock's data recorder.
- The *contents* and *duration* of the alcolock 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 ALP will need to be extended.

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

### **What else furthers the alcolock programme's effectiveness?**

Periodic medical examinations of the alcohol dependent, as they take place in Sweden, make an ALP expensive. This can result in potential participants preferring revocation of their driving licence to an alcolock programme. Because after a revocation the chance 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 ALPs varies between six months and two years. It should be possible to lengthen the period if data from the alcolock 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 ALP, the restricted licence - only for a motor vehicle with an alcolock - should only be changed back to an unrestricted licence after successful completion of the programme. Furthermore, American studies indicate that ALP participants comply better with the rules if the programme contains a motivating intervention. This is, for example, a course to motivate people to drive without having drunk alcohol. Such an intervention also seems to have a positive effect on the risk of recidivism after completing the alcolock 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 participant's positive experience with the alcolock.

### **Which effects is the Dutch alcolock programme expected to have?**

In the Dutch ALP it is compulsory for offenders with a high BAC and recidivists to have an alcolock installed in their cars. If they fail to do so, their driving licence is revoked. If all serious offenders were eligible for the ALP, there would approximately be 12,000 participants per year (Andersson Elffers Felix, 2011). However, the real number will be considerably lower as not every offender is registered with the Dutch Driving Test Organisation CBR. Most of the remaining offenders first have to go through a period of suspension or revocation of the driving licence. Not until this period has terminated they can enter the ALP.

Therefore, it is to be expected that the number of participants that will annually enter the Dutch ALP will not be 12,000, but only 2,050. If during the course of the ALP yet another 10% of the participants drop out and the programme is extended for 30%, there will permanently be about 5,000 drivers participating in the alcolock programme from the third year after its introduction (Andersson Elffers Felix, 2011).

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

### **What are the costs of an alcolock programme?**

For 5,000 participants the costs of an ALP amount to approximately eight million euros per year. These costs are paid by the participants themselves.

### **Conclusions**

An alcolock programme can be an effective means to prevent serious offenders who have been sentenced from participating in traffic. Suspension or revocation of the driving licence appears not to be sufficiently effective. The alcolock programme's effect on repeat offenders is limited to the duration of the programme. In the Netherlands an alcolock programme has been operational from 1 December 2011. Within this programme the alcolock is made compulsory for a duration of two years, but this can be extended repeatedly by periods of six months until the participant can separate between drinking alcohol and traffic. According to the Ministry of Infrastructure and the Environment the introduction of the alcolock in the present form will save an estimated five or six road fatalities per year. When a different form is chosen a saving of 30 to 35 road fatalities seems to be feasible.

### **Publications and sources (SWOV reports in Dutch have a summary in English)**

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