Alcolock Implementation in the European Union: An In-depth Qualitative Field Trial

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Abstract
In order to study the psychological, sociological, behavioural and practical impact of alcolocks on five different groups of thirty drivers (Spanish and Norwegian public transport drivers, German goods transport drivers, Belgian recidivists and Belgian alcohol dependent patients) alcolocks will be installed in these drivers' vehicles for a period of one year. Before, during and after this period participants' attitudes towards driving, drinking and drink driving will be investigated by means of questionnaire-based interviews and compared to the data recorded by the alcolock. At the same time a sample of related subjects of these groups (respectively passengers, company owners and persons living together with the driver for the last two groups) will also be interviewed. All together these data will provide an in-depth exploration of people's real life experiences with alcolocks in a European context. The recommendations resulting from this research, and the hypotheses it generates, will serve as a necessary step towards further quantitative trials and the legal implementation of alcolocks in Europe.

Background
An alcohol ignition interlock, or alcolock in short, is a device installed in a vehicle that requires the driver to provide a breath sample every time an attempt is made to start the vehicle. If the driver has a breath alcohol concentration above a specified threshold value, the ignition is locked and the vehicle cannot be started. Drivers are also required to perform a re-test at random intervals when travelling. For safety reasons the ignition is not locked during driving in case of a positive alcohol test or in case of a refusal of the re-test. All test results, test attempts and attempts to circumvent the system are electronically recorded [1]. Extensive studies carried out in the U.S. and Canada since the 1980s show that when embedded in a comprehensive monitoring program, alcolocks lead to 40-95% reductions in the rate of repeat driving under the influence (DUI) offenses of convicted DUI offenders [2]. This reduction in drink driving behaviour is however lost upon interlock removal, as systematically testified by comparable re-offence rates for formerly alcolock-using and no-alcolock control groups (e.g. [3]). It is estimated that there are more than 40,000 interlock devices currently in use throughout North America [4]. So, in over two decades of alcolock use a couple of hundreds of thousands of conductors had their car equipped with an alcolock in North America. These figures are in sharp contrast with the dawn of alcolock research and application in Europe. Only in recent years some initiatives concerning alcolocks have been developed in Europe. The most known of which is the Swedish program, which will lead to the installation of more than 20,000 alcolocks in Swedish commercial vehicles over the next few years [5]. Apart from the countries
conducting field trials in the framework of this project, other countries like Finland, the UK and the Netherlands are also preparing the legal implementation of an alcolock program and a large-scale application of alcolocks [6].

Inspired by the convincing findings of the large scale North American trials and by the recommendations based on a European feasibility study [1], the European Commission’s Road Safety Action Program explicitly refers to behavioural research on alcolocks, required to enhance wide-scale implementation of this measure. Examining driver impairment detection devices like alcolocks is set as one of the priorities to reach the goal of halving the number of road deaths by 2010. In parallel with the European Road Safety Action Program, a call for proposals in the field of transport (DG TREN/SUB/01-2003) was launched in the spring of 2003 to promote the objectives of the common transport policy. This call referred in particular to a project on trials with alcolocks. The Belgian Road Safety Institute (IBSR) took the initiative to form a consortium of European institutes that were interested in participating in a qualitative field trial. The consortium comprises Belgium (IBSR as coordinator), Germany (Bast, Federal Highway Research Institute), the Netherlands (SWOV Institute for Road Safety Research), Norway (TØI, Institute of Transport Economics) and Spain (University of Valladolid). In September 2003, the European Commission officially informed the consortium that the proposal submitted in response to the call in the field of transport was approved (cf. acknowledgement). The kick-off meeting of this European field trial took place in January 2004. All activities will be finalized in a period of two years [7].

**Objectives**

The general objective of the project is to contribute to a reduction of the number of victims on European roads by preparing and facilitating legal implementation of alcolocks in the European Union through research on the impact on drivers whose vehicles are equipped with an alcolock. The specific objectives of the field trial are to study the perceptions of four groups of drivers (public transport drivers, goods transport drivers, recidivists, and alcohol dependent patients) and of related subjects of these groups (respectively passengers, company owners and persons living together with the driver for the last two groups) towards driving with an alcolock. More precisely the purpose is to study (1) their ideas, beliefs, attitudes, expectations, problems, etc. – i.e. the psychological impact; (2) the impact of alcolocks on the relation between drivers of these four groups and their related subjects – i.e. the sociological impact; (3) the impact of alcolocks on the drinking, driving and drink driving habits of the four categories of drivers – i.e. the behavioural impact; and (4) the practical consequences on these drivers and their related subjects (e.g. safely managing running re-tests; using alcolocks in family cars with different drivers). This will form a solid basis for theoretical and practical input for larger quantitative experiments on efficiency that could be a logical continuation of this qualitative approach as a final step before legal implementation.

**Methodology**

To reach these objectives, we will conduct an in-depth qualitative field trial of thirty drivers per group of interest, except for the public transport drivers for which two trials of thirty bus drivers will be included in two different countries. The installation of the alcolocks in the participants’ cars will take place between July and September 2004. The devices will be installed for a period of twelve months, so the last alcolocks will be removed in September 2005. As our project just started, we are currently still discussing some procedural details, but the general methodology was already outlined at the kick-off meeting in January 2004. During the first phase of the project we will also develop a handbook for Quality Assurance
procedures, and an update of the exhaustive literature study of the foregoing European project on alcolocks [1].

A qualitative design
As the past research provided a quite conclusive answer as to the efficiency of alcolocks in terms of recidivism reduction while the alcolock is installed, the present study concentrates on the in-depth exploration of the alcolock-users' experiences. Such a trial will allow the collection of exploratory empirical field data, i.e. real life experiences with alcolocks in European countries. This is a necessary and logical step towards legal implementation, because the expertise with alcolocks in other parts of the world may perhaps be very important to Europe, but it still needs to be translated into the European context [6]. Moreover, at present it remains unclear why offenders continue to drink and drive once the device is removed from vehicles, nor what (if any) beneficial effects are derived from interlock usage [8]. Very little research has examined the impact of interlocks on offenders’ motivation to change and/or control their drinking and drink driving. So it is unclear what psychological and behavioural changes occur whilst the device is installed or what purpose offenders believe alcolocks serve (e.g., rehabilitation versus incapacitation).

As we investigate behavioural, psychological and social measures as well before, during, as after the alcolock period, without including any control group in our study, it might be tempting to identify our design with a one group pre-post (pre-) experimental design (cf. [9]). If the aim of our research would have been to investigate the effectiveness of alcolocks in reducing recidivism or accidents this would be the case indeed. The aim of the present study, however, is a completely different one. We are particularly interested in the self-reported impact of alcolocks on drivers and their related subjects, and in a comparison of these data with the log-data. The confinement of our research to an in-depth investigation of real life field data renders a control group irrelevant to our research purposes, as a comparison of our results with a control group has ipso facto nothing to reveal about people's experiences with alcolocks. Also following the logic of qualitative research (cf. [10]), our main goal in selecting participants is to obtain groups that are as heterogeneous as possible, regardless of the representativity of the selected sample. That is, the aim of our research is not to generalise our conclusions as such to the population as a whole, but to explore how the alcolock affects a wide variety of alcolock users. Hypotheses emerging from our results will still have to be tested in subsequent hypothesis-testing research with appropriate target groups.

Subjects
For the purposes of a qualitative exploration a total of five times thirty subjects should be more than sufficient. As Michelat [11] points out, in the area of attitude research experience showed that after some thirty to forty interviews, supplementary cases rarely add anything new. So, with a five-fold repetition of our research in five different contexts, we can be confident that our research will reveal all the essential variations of our subject of inquiry.

- All thirty-two bus drivers from the local bus company servicing the public transport of Lillehammer (Norway) will be included in the trial, thus avoiding the possibility of self-selection. According to the company and the drivers’ organizations there is no record of drink driving among drivers during the company's twenty years of operation. The question is consequently whether the company and the drivers consider the implementation of alcolocks as an unnecessary control implying extra efforts and time or as a confirmation of their good behaviour in this respect.
• Plans are underway to include thirty Spanish bus drivers from public transport companies of at least two cities. Managers of these companies and passengers using the service will also be interviewed.
• Thirty goods transport drivers from local haulage companies in the area of Cologne (Germany) will be included in the trial. Together with - depending on the number of participating companies - at least one company owner.
• Alcohol dependent persons (Belgium) are selected according to the DSM-IV-R criteria [12] for substance dependence. The program requires furthermore that these participants must have been sober for the last six months and pass an aptitude test for fitness to drive.
• Recidivist drink drivers (Belgium) are defined as drivers who have been caught and sentenced more than once for drink driving or who have been caught and sentenced only once but with a blood alcohol concentration (BAC) above 1.2 g/l.

Materials
The types and brands of alcolocks that will be used in our study will depend on the manufacturers' answers to the publication of a European call for tender. For the non-professional trials the threshold value will be set at 0.2 g/l. For the professional trials the threshold value will equal the legal threshold values in each of the participating countries. Before participation in the study all participants receive a detailed explanatory folder, explaining the purpose of the study, the rules of engagement and the possible consequences of breaking these rules. Non-professional drivers are also required to sign an official contract, which stipulates respecting the BAC limit value of 0.2 g/l, not driving a car without an alcolock, personal responsibility should someone else take the wheel, and the like. Participants are provided with a diary in which they note all problems and significant events they experience when using the alcolock (e.g. reasons for failing breath tests).

At each phase of the project (before, during and after alcolock use) the participants' attitudes towards drinking, driving, drink driving and the subjective impact of the alcolock on these issues are questioned by means of a closed answer format questionnaire, supplemented with open answer format questions probing elements participants feel missing in the questionnaire. The same core questionnaire will be used as a starting point for all target groups, but it will be tailored to the specific situation of each target group. A part of the questionnaire consists of questions regarding attitudes towards road safety, drink driving and drinking that are taken over and/or adapted from general attitude surveys (e.g. SARTRE 2 [13]). A rephrasing of these questions as a function of the phase of the project (before, during and after alcolock use) in terms of the expected or perceived impact of the alcolock, will allow us to measure the subjective impact of the alcolock and to track the eventual attitude changes over the course of the trial. Before the entire trial the AUDIT Alcohol Use Disorders Identification Test [14] is also administered, as a standardized check on the participants' drinking behaviour and attitudes towards alcohol consumption. At the end of the trial the participants will be asked to indicate to which degree they feel the alcolock had an impact on their answers to the AUDIT questionnaire's items. Finally, the questionnaire contains questions concerning basic demographic characteristics as well as traffic infraction and accident history. Other questions are more particular to the specific phase of the trial. At the pre-test phase the participants' expectations, fears, worries and feelings towards the alcolock are questioned, whereas at the interview after six months and after the entire experiment, participants real life experiences with the alcolock and its subjective impact on their drinking and driving behaviour are questioned in detail. After each failed breath test or after any breaches of the contract the participants are questioned by means of a specific questionnaire probing the specific circumstances.
and subjective motivations for failures to comply with the program. A specific questionnaire for related subjects is also developed.

**Procedure**
Participants are included through two different procedures. In order to avoid bias through self-selection of participants in the professional trials (which could for instance lead to the self-exclusion of the alcohol dependent bus drivers), we will as much as possible try to include the entire staff of companies. As the participants in the non-professional trials are selected individually, the emphasis in these trials lies on the maximisation of the heterogeneity of the subject sample. To this end, the supervising authorities (psychiatrists c.q. judges) are asked to refer as much as possible participants of all ages, gender, severity of infraction/dependence etc. In the course of subject selection the researchers provide further feedback to the authorities whenever the group selected up to a certain point in time appears too homogeneous with respect to other theoretically relevant parameters (educational background, income, etc.). In order not to exclude persons or companies who would refuse participation because of the costs (and thus reducing the heterogeneity of the sample) the participation in our trial and the leasing of the alcolocks are completely free of charges. As the cost of leasing an interlock from a service provider is sometimes cited as an important reason why interlocks are not more widely used [2] this must be taken into account when interpreting the results.

The general procedure is straightforward. Before the participants actually start driving with the alcolock, they follow practical alcolock training and are briefed again with respect to the conditions of participation. A first interview by means of the pre-alcolock questionnaire is conducted before the participants actually start using the alcolock. During the first month of alcolock use the alcolock's log data are monitored on a two-weekly basis. From the second to the sixth month the log data will be downloaded each month. From the seventh month till the twelfth month the log data will be downloaded bi-monthly. Regardless of whether failed breath tests do occur, participants are also interviewed after half of the total time of the trial has expired. In the non-professional trials the participants follow a driver improvement course at this time. Immediately upon alcolock removal at the end of the trial the participants are interviewed one last time. Each time a participant breaches one of the conditions of participation (e.g. failed breath tests, driving a car without alcolock) he is invited for a supplementary interview. As the supervising authorities have also access to the log data, the participants will eventually be given a warning or ultimately even be excluded from the program. In order to allow the participants to speak freely during the interviews, the authorities will however not have access to the questionnaire data. This is an important issue, because confidentiality is a necessary precondition to realise a genuine in-depth exploration of the participants' psychological and behavioural changes. Therefore the subjects are assured that the information gathered during the questionnaire-based interviews will only serve research purposes and will be treated strictly anonymously, even if the interview would reveal breaches of the conditions for participation.

**Next steps: data analysis, results and conclusion**
By the time of the ICADTS conference in August 2004 we will only be able to present a first report on the practical implementation of the trial in all five countries (including a report on the handbook for Quality Assurance procedures and on the update of the literature study), as well as the preliminary results of the pre-trial interviews with the participants. The final aim of our study is to achieve a qualitative analysis of the impact of alcolocks. Therefore, the starting point for our data analysis will consist of descriptive statistics of all the different measures performed in our trials (questionnaire items, open answer additions
to the questionnaires, behavioural measures from the data loggers, etc.). The closed
answer format questionnaire items, and the relationships between the items, will be
considered in general (over all target groups) as well as for each target group individually.
The answers to the open answer format questions will be categorized via an ad hoc
system that will be developed after all data of any given phase have been gathered.
Together with the log data, this will allow us to present an overview of the variations in the
different experiences of alcolock users, and of the parameters that seem to correlate with
more or less successful alcolock use. That is, an answer to our questions concerning the
psychological, sociological, behavioural and practical impact of alcolocks.

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