

A European pilot trial on alcohol ignition interlocks

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Fit-to-drive

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The consortium

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- TØI Institute of Transport Economics, Norway
 - » Terje Assum
- University of Valladolid, Spain
 - » Javier Alvarez
- Federal Highway Research Institute BASt, Germany
 - » Claudia Evers
- SWOV Institute for Road Safety Research, The Netherlands
 - » René Mathijssen
- Belgian Road Safety Institute (BIVV / IBSR), Belgium

Objectives

Study the applicability and practicability of alcolocks in a European context:

- primary prevention of drink driving
 - » commercial drivers
 - » alcohol dependent patients
- secondary prevention of drink driving
 - » offenders (single offenders and recidivists)

Qualitative study of the (subjective) impact of the alcolock:

- Practical: Interference with driving task
- Psychological: Subjective experience of driving with alcolock
- Social: Reactions of others and how drivers experience these
- Behavioural: Subjective impact on drinking & driving

Not an effectiveness study, nor cost-benefit analysis

Design

Professional trials

- Bus drivers and bus passengers
 - » Norway (n=30)
 - » Spain (n=30)
- Truck drivers and their clients
 - » Germany (n=34)

Non-professional trials

- Offenders and their family
 - » Belgium (n=33)
- Alcohol dependent patients and their family
 - » Belgium (n=7)

General Method: Procedure

- Inclusion: 2004
 - Selection of companies and program supervisors
 - Selection of participants
- Installation: 2004 / 2005
 - Pre-alcolock interviews
 - Alcolock training
 - Installation of devices
- Field trial: 12 months
 - Intermediate and ad hoc interviews with drivers and management/supervisors
 - Monitoring of alcolock data
- Removal: 2005 / 2006
 - Removal of devices and post-alcolock interviews
 - Evaluation meetings with all the stakeholders

General Method: Data collection

QUALITATIVE ANALYSIS OF DRIVERS' EXPERIENCES

- Standardized interviews with drivers: Questionnaires
 - » practical impact: experiences with using the device
 - » psychological impact: expectations (pre) & experiences (post)
 - » behavioural impact: subjective effect on drinking, driving, drink driving
 - » social impact: reactions of others
- Ad hoc interviews with drivers
- Standardized interviews with relatives (e. g. passengers, family)
- Evaluation meetings with stakeholders (e. g. management, judges)
- Alcolock data
 - » breath tests results (BrAC => BAC)
 - » data on test attempts, attempts to circumvent the system etc...

Non-professional trials:

- drink driving offenders
- alcohol dependent patients



Offender target group

Framework: Alcolock as a voluntary accepted alternative measure
=> collaboration with 6 judicial departments for monitoring data

Inclusion criteria:

- 1) Being judged for a drink driving offence
 - » more than once: recidivists
 - » single offenders with BAC ≥ 1.2 g/l
- 2) No manifest signs of alcohol problems
- 3) Judge evaluates alcolock as an appropriate measure
- 4) Offender accepts alcolock program conditions
- 5) No professional drivers

Alcohol dependent target group

Framework: Alcolock voluntary accepted as a part of treatment
=> collaboration with specialized psychiatrists

Inclusion criteria:

- 1) DSM-IV-R criteria for alcohol dependency
- 2) Abstinence for several months
- 3) Alcolock (possibly) useful for patient according to psychiatrist
- 4) Patient accepts alcolock program conditions
- 5) Drink driving history:
 - originally: non-offender patients
 - finally: at risk drivers (offenders and non-offenders)

Method: Materials

ALCOLOCK DEVICES:

- ACS WR3 device
- Circumvention prevention features:
 - » humming technique
 - » running retests (mean time interval of 20 minutes)
 - » no override
- Threshold: .2 g/l BAC

DOCUMENTS:

- explanatory brochure
- contract:
 - » no drink driving cf. threshold of .2 g/l
 - » not driving vehicles without alcolock
 - » not attempting to circumvent system
 - » assuming responsibility for all test results

Method: Procedure

cf. common method

specific element Belgian trials: Driver Improvement Courses

pre-alcolock course:

- » drink driving
- » alcolock

course at 6 months

- » drink driving
- » alcolock experiences
- » anticipation of post-alcolock period

Results of inclusion

Table 1: Intended and actual distribution of participants over target groups

INTENDED					ACTUAL				
		Group					Group		
		Patients	Convicted	Total			Patients	Convicted	Total
Community	Dutch	15	15	30	Community	Dutch	3	14	17
	French	15	15	30		French	4	19	23
	Total	30	30	60		Total	7	33	40

15/15 ratio of single/multiple offenders not respected:

- » normal license suspension for single offences much shorter than 12 months
- » judges more inclined to propose alcolock to multiple offenders

Overlap between offender and patient subgroups:

- high percentage of offenders in patient subgroup
 - = motivation to participate (plead alternative measure)
 - high percentage of alcohol problems in the offender group
 - cf. alcolock data, interviews, offender history
- => no mutually exclusive target groups
=> results of all non-commercial drivers analysed as one group



Alcolock data

1. Overall breath test results:

	PRE-TEST	RETEST	Total
test < .2 g/l	56974	37516	94490
.2 g/l =< test < .5 g/l	590	26	616
.5 g/l =< test	275	4	279
Total	57839	37546	95385
Total fail + high fail	865	30	895
Percent Fail	1.52%	0.08%	0.95%

- 61% of valid tests performed before starting, remaining 39% while driving
- few failed test while driving: 26 + 4
- distribution of failed tests over participants:
 - » 5 participants with 0 fails
 - » 17 participants with > 0 but < 10 fails
 - » 18 participants with 10 or more fails (max. = 139)

Alcolock data

2. Distributions of test results:

- 1) Max BAC: 14 participants with $\max < .5 \text{ g/l}$, 6 participants with $.5 \text{ g/l} \leq \max < 1 \text{ g/l}$, 20 participants (50%) with $1 \text{ g/l} \leq \max$
- 2) 49% (136 /279) high fails after day 100
- 3) 39% of all high fails between 5 and 11 a.m.
- 4) 2 participants removed from program (1 for other probation condition)

Interviews

Practical impact:

- » technical dysfunctions in first months
- » high satisfaction, easiness of use and subjective reliability of test results

Psychological impact:

- » high self-reported impact on drink driving awareness
- » reassuring effect

Behavioural impact:

- » high self-reported impact on drink driving contrasts with alcolock data
- » prevention of drink driving above legal limit in 279 - 4 cases

Social impact:

- » generally positive or neutral reactions
- » direct relatives often reassured by the device
- » privacy infringement negatively evaluated

CONCLUSION AND RECOMMENDATIONS

NON-PROFESSIONAL TRIALS

Inclusion:

- Criteria to be defined more precisely
- Medical screening of ability to perform breath tests

Program procedures:

- Offenders: no consistent consequences for disrespecting program conditions
=> define clearer monitoring procedures

Technical problems:

- Start trial with override switch
- Foresee compensations for problems in contract with manufacturer
- Prepare supervisors to evaluate discussions between drivers and manufacturer(s)

CONCLUSION:

Introduce alcolocks as alternative measure for offenders on a larger scale

Continue research on impact of alcolocks (generalizability of present research insufficient)

PROFESSIONAL TRIALS

A priori assumption:

- primary prevention
- no at risk drink driving group but more severe consequences of accidents

Target groups:

Bus drivers

Norway (n=30)

Spain (n=30)

Goods transport drivers

Germany (n=40)

Overall procedure:

cf. common methodology

with the exception of the following differences:



SPECIFIC PROCEDURES FOR PROFESSIONAL TRIALS

Germany: Dräger Interlock® XT - 0.30 g/l BAC

2 companies – 27 trucks

34 drivers: 19 compulsory and 15 voluntary

Test results known to researcher only

Norway: Dräger Interlock® XT - 0.2 g/l BAC

1 company – 14 busses + 1 passenger car

30 drivers – all compulsory

120 passengers (sample)

Test results known to management

Spain: ACS Model WR3/V3 - 0.3 g/l BAC

1 company - 15 busses

30 drivers – all voluntary

1031 passengers (sample)

Test results known to researcher only

All three countries: Override switch



ALCOLOCK IMPACT IN PROFESSIONAL TRIALS

Practical:

- » No hinder experienced in daily work
- » Time consuming according to about 50% of the drivers in all trials
- » No major technical problems at all
- » Long warm-up time in all professional trials

Psychological:

- » high acceptance
- » alcolock recommended for busses/trucks according to > 70 % of drivers in all trials
- » high perceived effectiveness / safety

Social:

- » suspicion of alcohol problems: between 10 and 43 percent
- » positive effect on driver image: 57 to 64 percent agree
- » generally very positive reactions by bus passengers, but no real demand
- » truck drivers clients generally rather neutral / indifferent

Behavioural:

- » dependent upon procedures for monitoring data
- » cf. alcolock data



ALCOLOCK DATA PROFESSIONAL TRIALS

Germany:

- » no consequences of positive tests
- » 0.45 % of all (pre-)tests > .3 g/l BAC
- » testing of devices

Spain:

- » no consequences of positive tests
- » 0.8% of all (pre-)tests > .3 g/l BAC
- » testing devices

Norway:

- » individually monitored data
- » 0.05 % of all tests > .2 g/l BAC
- » extraneous alcohol + 1 unexplained case



CONCLUSIONS AND RECOMMENDATIONS

PROFESSIONAL TRIALS

- All companies in all countries in favour of alcolocks, but only 1 of the collaborating companies prepared to pay the price
- Procedures for dealing with failed test attempts needed
- Final decision dependent upon cost-benefit analysis => future research
- Most importantly: in both professional and non-professional trials the alcolock actively prevented driving under the influence of alcohol

MORE INFORMATION

<http://www.bivv.be>

<http://www.ibsr.be>

=>

<mailto:http://www.bivv.be/main/PublicatieMateriaal/research/catalogDetail.shtml?detail=718866192&language=nl>

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- THE END -

Thank you for your attention



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