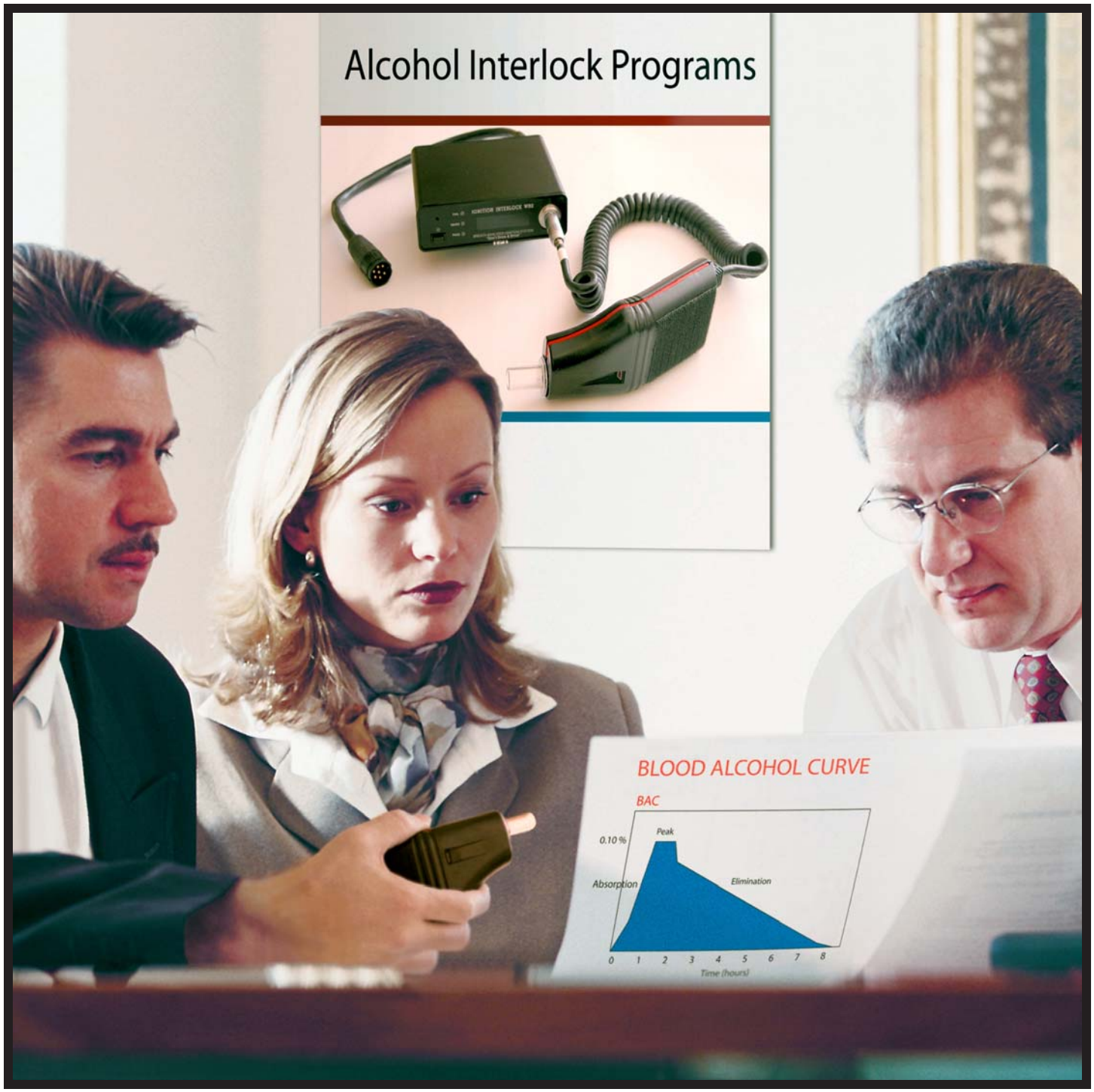

Alcohol Interlock Programs:

Pushing Back the Frontiers

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Alcohol Interlock Programs: Pushing Back the Frontiers

Proceedings of the Fifth International Symposium on Alcohol Ignition Interlock Programs

Tempe, Arizona
October 24-26, 2004

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Table of Contents

1.0 Introduction

1.1 Background to the symposium

Scientific evaluations of interlock programs have repeatedly demonstrated that DWI[1] re-offence rates among DWI offenders who participate in interlock programs are significantly lower than comparable groups of offenders who do not participate. Despite this evidence and the proliferation of interlock programs throughout the United States, Canada, Australia, and Europe, many challenges remain. For example, participation rates in most interlock programs are notoriously low – typically less than 10% of DWI offenders participate in an interlock program. Even mandatory programs often fail to achieve high participation due to non-compliance with either judicial orders or the requirements of licence reinstatement. Hence, there remains significant potential for the growth of interlock programs by increasing the number of interlock programs available, encouraging greater participation in interlock programs, and enhancing compliance with interlock requirements.

Another challenge is to prolong the benefit of interlock programs. A repeated finding from interlock evaluation studies is that lower recidivism rates are evident only during the period the interlock is actually installed in the offender's vehicle. Once offenders have served the required period of time in the interlock program and the device is removed from their vehicle, recidivism returns to a rate similar to that among DWI offenders who did not participate in the interlock program. Thus, it would appear that while the vast majority of participants are able to comply with the demands of the interlock program while the device is installed, many fail to make lasting changes in their behaviour. Once the interlock is removed, they return to their previous habits and driving after drinking continues.

Although some would argue that this latter finding suggests that interlock programs are not effective, others would argue that it merely indicates that interlock programs need to be longer. Still others would suggest that it represents a failure to develop a comprehensive program integrating interlocks with alcohol rehabilitation programs to effect more enduring changes in behaviour. A substantial proportion of DWI offenders, particularly repeat offenders, have serious drinking problems and are in need of some type of intervention and/or rehabilitation. Without changes in the pattern and extent of alcohol consumption, drinking-driving behaviour will eventually re-appear. But interlock programs were never intended to treat drinking problems. They are primarily a means of incapacitation, to prevent the drinker from driving. Creative and novel approaches are needed to integrate interlock programs with rehabilitation programs to help ensure participants begin to make significant changes in their behaviour that will persist after the completion of the interlock program.

[1] In this report, the acronyms DWI and DUI are used interchangeably to represent an alcohol-impaired driving offence.

This challenge was a key feature of the discussions at the Fifth International Symposium on Alcohol Ignition Interlock Programs.

1.2 History of the Symposium

The first international symposium on alcohol ignition interlock programs was held in Montreal in September, 2000. It was a relatively informal meeting attended by about 25 individuals representing the research community, interlock manufacturers, service providers, and policy makers. The discussions focused on the current state of the art of interlock programs, their effectiveness, and ways to enhance and expand these programs. The discussions were summarized in a report entitled "*Best Practices for Alcohol Interlock Programs*" (Beirness 2001).

Since then, an international interlock symposium has been held every year:

- November 2001 -- Toronto, Ontario
- October 2002 -- Vero Beach, Florida
- October 2003 -- Hilton Head, South Carolina

Reports from each of these events can be found by visiting the TIRF website *www.trafficinjuryresearch.com*. *Hard copies can be obtained by sending a request to tirf@trafficinjuryresearch.com*.

The Fifth International Symposium on Alcohol Ignition Interlock Programs was held in Tempe Arizona in October, 2004. This event attracted over 150 delegates from 12 countries and 23 states.

1.3 Purpose of the Symposium

The overall purpose of the ignition interlock symposium is:

> *To provide a forum for researchers, program specialists, vendors, policy makers and others to learn from each other about the latest developments, strategies, and tactics and to discuss current and emerging issues in interlock programs.*

In keeping with this purpose, the theme of the fifth international symposium was "*Pushing Back the Frontiers*" and was intended to challenge participants to find novel ways to enhance the value of interlock programs.

1.4 Scope of the Report

This document provides a summary of each of the presentations at the symposium. The symposium opened with a session on alcohol rehabilitation programs and how they can be successfully integrated with interlock programs to enhance and extend the beneficial impact. This was followed by sessions on innovations in interlock programs, testing and certification issues, the implications of TEA-21 for interlock programs, a update on new and innovative interlock programs around the world, and an update on interlock research.

2.0 Integrating Rehabilitation and Interlock Programs

Overview of State Alcohol and Treatment Rehabilitation Services

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The National Association of State Alcohol and Drug Abuse Directors (NASADAD) is a not-for-profit membership-based association that was founded in 1971 to serve individual state authorities on the issue of substance abuse. Members include representatives from the 50 states, the District of Columbia, and Territories. NASADAD's basic purpose is to foster and support the development of effective alcohol and other drug abuse prevention and treatment programs throughout every State and Association members are responsible for administering and managing public substance abuse treatment and prevention systems through a $1.779 billion Federal Block Grant.

NASADAD consists of three components: the National Prevention Network, which provides a national advocacy and communication system for prevention; the National Treatment Network, which is dedicated to the promotion of effective, socially responsive programs, and evidence- and research-based best practices to expand and improve the publicly-funded substance abuse treatment system in each State; and, the State Methadone Authorities.

Within NASADAD, there are a number of committees structured to address particular issues such as public policy, prevention, research, treatment, criminal justice, and child welfare. Of greatest importance to the field of impaired driving is the public policy committee. The primary objectives of this committee are to support the programs and goals of the Substance Abuse and Mental Health Services Administration (SAMHSA), to facilitate relations between the State Directors and Federal partners, and to address issues of immediate interest.

NASADAD is responsible for administering the funds that support the public-funded substance abuse system. Currently, NASADAD is working with SAMHSA on the transition from the traditional grant to a new Performance Partnership Grant which calls for increased accountability through reporting requirements in exchange for more flexibility in spending. Treatment referrals for alcohol use disorders are frequently based on specified placement criteria with consideration of results obtained from utilizing the Addiction Severity Index. Generally treatment occurs in four types of service categories. These include:

- *Detoxification/24 hour/Day care.* This may involve inpatient treatment at a hospital or residential facility that is equipped to handle withdrawal and the medical complications associated with this process.
- *Rehabilitation/Residential care*. This can involve a short-term or long-term treatment for alcohol and other drug dependency and may occur in a hospital or residential setting. In some instances these services may include transitional living arrangements such as halfway houses.
- *Ambulatory services*. This typically involves outpatient treatment services or other pharmacological services other than methadone. Services may be offered to individuals and to families. Intensive treatment of this nature may last two or more hours a day for three or more days per week.
- *Methadone*. There are treatment services offered in conjunction with prescribed methadone that may involve detoxification, maintenance or abstinence.

These services are available to all persons with alcohol/drug dependency problems. Many clients have a history of DWI offences and DWI offenders are eligible and should be considered for these programs.

Treatment of the DWI Offender

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What is Treatment?

For persons with alcohol/drug problems, treatment can involve a broad range of services, including identification, brief intervention, assessment, diagnosis, counselling, medical services, psychiatric services, psychological services, social services, and follow-up (Institute of Medicine 1990). For DWI offenders, treatment is typically associated with rehabilitation efforts, which have included education programs, victim impact panels, community service, and/or more traditional substance abuse treatment. The overall goal of alcohol/drug treatment services is to reduce or eliminate the use of alcohol/drugs as a contributing factor to physical, psychological, and social dysfunction and to arrest, retard, or reverse the progress of associated problems. (Institute of Medicine 1990). In the case of DWI offenders, this includes the prevention of repeat DWI offences.

Does Treatment Work?

Evidence for the success of treatment comes from a variety of sources and involves a number of outcome measures. For example, following treatment, health care costs tend to go down dramatically and DWI recidivism rates are 7-9% lower. Research has demonstrated that treatments that focus on abstinence alone tend to have poorer outcomes and those that focus on broad spectrum goals have better outcomes. Treatments that combine strategies and have aftercare follow-up have the best impact. For DWI offenders, treatment is often viewed as an additional sanction, which effectively imposes an additional period of monitoring. The longer the person stays in the treatment program, the better the outcome. A primary problem associated with mandated treatment for DWI offenders is engaging them in treatment. Once engaged, the problem becomes one of retention. A recent study showed that the risk for subsequent DWI arrest was greatest for the group that signed up for a DWI rehabilitation course but never attended. Those who began the program but dropped out before it was finished showed greater risk for subsequent DWI arrest than those who completed the program. However, even those with some exposure to the program appeared to show a reduced risk for recidivism relative to those who did not show up at all.

Orientations to Treatment

Within the field of addictions, there are several theoretical models of addictions that guide a particular approach to treatment. For example, the medical/disease approach assumes that the cause of the addiction is an underlying physiological malfunctioning. A psychological orientation assumes there is some underlying psychopathology or inappropriate social learning that manifests itself as problem drinking. The biopsychosocial approach is based on the assumption that problem drinking/drug use is the result of a complex interaction of the biological, psychological and sociocultural risk

factors. The approach that has guided much of the work with DWI offenders in New York is the Transtheoretical Model of Change or Stages of Change approach.

The Stages of Change Approach

The Transtheoretical Model of Change identifies five stages leading up to behaviour change (Prochaska, DiClemente and Norcross 1992). Early states focus on problem recognition -- i.e., precontemplation, contemplation; middle states deal with readiness to take the challenge of changing behaviour -- i.e., preparation; and later stages deal with implementation and maintenance of the behaviour -- i.e., action, maintenance. Many DWI offenders have yet to enter a cycle of change and will most likely be in the precontemplation stage. For the most part, DWI offenders are content in their pattern of substance use and enter a rehabilitation/treatment program reluctantly and/or under some degree of coercion. They are often labelled as being in “denial”. A thorough assessment is required to help understand the client’s pattern of substance use behaviour and their current stage of change.

The treatment approach utilizes motivational interviewing techniques to have clients begin to move through the stages of change by: raising doubts within the client about their use of alcohol/drugs; increasing the perception of risks associated with current patterns of use; creating ambivalence about alcohol/drug use; evoking reasons to change and the risks of not changing; helping the client prepare for, and strengthen the commitment to, change; implementing a plan for change; setting goals; and developing a strategy for the prevention of relapse.

Motivational interviewing is a counselling approach to help people recognize and do something about their present or potential problems (Miller and Rollnick 1991). It is particularly useful with people who are reluctant to change and ambivalent about changing. It is intended to help resolve ambivalence and get the individual moving along the path of change. The approach views client behaviour in terms of the total process or cycle of change. The focus is on matching the client’s stage of readiness to change with treatment. The goal is to help the client work through the ambivalence and indecision that invariably accompanies change. It avoids confrontation, which can lead to an entrenchment or defence of the benefits of substance use by the client. Motivational interviewing acknowledges and explores the conflict over change and encourages the client to consider the benefits of change and instils a sense of self-confidence in the individual’s own ability to effect change and achieve the desired outcome.

Conclusions

There is a need in the field for training around assessment procedures for criminal justice clientele.

Retention of individuals in alcohol/drug treatment programs is essential to achieve a reduction in recidivism rates. Getting DWI offenders to attend a few sessions appears beneficial; having them complete the program is better.

Treatment should be focused on the specific needs of the individual and should include components focused on motivation for change, behavioural skills, and relapse prevention.

Current approaches to the treatment/rehabilitation of DWI offenders may need to be altered to enhance the overall beneficial effect. For example, the use of harm reduction approaches may prove to be beneficial; there is a need to provide alternatives to abstinence; continuous assessment throughout the treatment process is required to alter treatment goals to meet the need of the client; individual therapy should be used if deemed necessary; and multiple approaches may be required.

References

Institute of Medicine (1990) *Broadening the Base of Treatment for Alcohol Problems.* Washington DC: National Academies Press.

Miller, W.R. and Rollnick, S. (1991) *Motivational Interviewing. Preparing People for Change.* New York: Guilford Press.

Prochaska, J.O., DiClemente, C.C. and Norcross, J.C. (1992) In search of how people change. Applications to addictive behaviors. *American Psychologist*: pp 1103-1114.

Ignition Interlocks As a Component of the Judicial and Treatment Systems

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Evaluation studies have indicated the effects of interlock programs are quite robust; however, there are little if any residual effect in terms of preventing impaired driving once the device is removed (Beirness & Marques 2004). There have been two approaches utilized to overcome the temporary nature of the interlock effect. These are: 1) improving the ability of the Judicial system, primarily probation departments and motor vehicle authorities to predict which DWI offenders pose the highest risk to public safety if they become fully re-licensed and no longer controlled by the interlock, or those offenders who choose to drive impaired even while under restraint; and 2) improving the quality of DWI treatment programs while the offender is still required to be on an interlock (Beirness & Marques 2004; Marques, Tippets, Voas, Danseco and Beirness 2000).

The Judicial System and Interlocks

The use of interlocks required by probation departments in Colorado has been quite low. Data submitted by Alcohol Drug Evaluation Specialists (ADES) over the past several years indicate that so few DWI offenders were recommended for interlocks, that the percentage was 0.0 (ADAD 2004). Informal discussion about why more interlocks are not required shows the concerns include cost, lack of information on the devices (including availability), perception of them not working, negativity from judges, and the perceived extra monitoring requirements (ADES 2003-2004)

In terms of predicting recidivism, the number of BAC tests above .02 strongly predicts another DWI offense (Marques, Tippets, Voas & Beirness 2001; Marques, Voas & Tippetts 2003; Marques, Tippetts & Voas 2003). Evaluation of the relative strength of this effect to other known predictors -- e.g., prior DWI offenses, moving violations, demographics and screening and assessment questionnaires -- has shown this to be superior.

In light of these compelling data, what should ADES be doing in terms of interlocks? Certainly the use of interlocks should be increased. First time DWI offenders who are assessed as being high risk as well as repeat offenders should be seriously considered for having an interlock installed on <u>all</u> vehicles available to them. In order to have the interlocks work best, the following recommendations are being made: 1) become familiar with the devices and the companies that provide them in the area in which your DWI offenders reside; 2) establish written agreements with the interlock providers concerning reporting requirements; 3) establish written protocols for when and what actions you will take against DWI offenders when positive BACs are reported to you; 4) communicate in writing to the DWI offender the potential consequences of positive BACs while on the interlock; 5) communicate with your judges concerning the requirements associated with the interlock and your agency's menu of responses; and 6) require the treatment agency to whom the DWI offender is referred to include in the treatment regimen either an integrated component of the program designed to prepare the individual to prevent

another DWI charge once the interlock is removed as well as using the interlock therapeutically while it is still installed; or to have the treatment agency utilize a specially designed interlock enhancement program such as the Support for Interlock Planning Program (SIP)(Timken & Marques 2001a; 2001b).

Interlocks, particularly when combined with other court-ordered sanctions can be a most useful and effective tool in preventing recidivism and in turn increasing public safety. While interlocks have been proven to be somewhat beneficial only a small percentage of eligible DWI offenders (generally 20% at most) choose to participate in an interlock program rather than remain under restraint with no driving privileges (Voas et al. 1999). The concern is obvious considering the number of DWI offenses committed by suspended drivers flaunting the law. Court ordered interlock requirements have much more clout behind them particularly when imposed as part of a multi-year probation requirement.

Interlocks and Treatment

Regarding the improvement of DWI treatment programs for offenders using interlock, a manually driven protocol was developed and is currently being evaluated in Texas (Timken & Marques 2003a; 2003b). This combines cognitive behavioral treatment with aspects of the Community Reinforcement Approach (Meyers & Smith 1995), Harm Reduction (HR) (Marlatt 1998), the Driving With Care model (DWC), (Wanberg, Milkman & Timken 2003), the Transtheoretical Model of Change (Prochaska et al. 1992) and Motivational Enhancement (Miller & Rollick 2002; Miller et al. 1992)) This intervention combines 12 hours of services delivered in both individual and group sessions. This approach has been titled “Support for Interlock Planning (SIP). While preliminary data indicate that significant reductions have been made in drinking level and drinking consequences, it is premature to speculate on long term outcomes including DWI recidivism (Beirness & Marques 2004).

It has become clear when viewing the experiences from the SIP program that a number of clinical enhancements need to be initiated. All DWI offenders entering the program should be screened in terms of their alcohol and drug use and driving behavior. Examples of such instruments are the Adult Substance Use Driving Survey (Wanberg & Timken 1998), Lovelace Institute’s Comprehensive Screening Instrument, (Lapham, Wanberg, Timken & Barton 1996), and the Driver Risk Inventory (Lindeman 1987). At the conclusion of the SIP program, an in-depth differential assessment instrument such as the Adult Clinical Assessment Profile (ACAP) (Wanberg 1999), or the Alcohol Use Inventory (AUI)(Horn, Wanberg & Foster 1990) should be administered along with a DWI offender profile such as the Master Profile (MP) (Wanberg, Milkman, & Timken 2003) which is completed independently by both the client and counselor. The FRAMES model (Miller & Rollnick 1991; 2002) should be utilized with all such instrumentation.

While the group portion of SIP has been completely delineated, the individual sessions have not been detailed. This was an error and needs to be rectified.

Counseling staff needs to be competent in motivational enhancement techniques as well as being comfortable with the approaches combined in the SIP program. Persons grounded in the abstinence only approach will be detrimental to the program and will

have great difficulty providing fidelity to the model, which is paramount to positive outcomes.

State standards in terms of charting and other record keeping and federal confidentiality must be met. The Health Insurance Portability and Accountability Act (HIPAA) requirements need to be met if applicable to the agency providing interlock counseling services.

In addition to standard quality assurance procedures, regularly scheduled clinical supervision must be included. Videotaping of sessions and/or supervisor attendance at sessions along with feedback need to be provided in order to assure "best practices" and fidelity to the model.

Intense and continued effort must be made toward establishing and maintaining communication with referral sources. Reports must be submitted on time and be of the utmost accuracy and completeness. Poor communication along with lack of "ownership" of the program by referral sources can result in the termination of the program.

An interlock counseling program regardless of whether it accepts court referrals or MVD referrals can "stand alone" or be part of an overall DWI treatment program. It can also serve as a "booster" to DWI treatment programs. The latter may be particularly effective when the State in question requires an interlock be installed for a period of time after a driver's license revocation has been served and all reinstatement requirements including the completion of treatment have been met. Interlock counseling programs should not be used in lieu of treatment but to complement it. DWI offenders who have been screened and assessed as not needing treatment, may indeed benefit from a brief interlock enhancement counseling program as a "stand alone" intervention.

Continued evaluation of interlock counseling programs and the use of interlocks by the judicial system must be maintained. Future decisions concerning them need to be made on the basis of outcomes.

References

Alcohol and Drug Abuse Division, (2004). *Alcohol Drug Driving Safety Coordinated Data System*. Computer printout generated, September, 2004. Colorado Department of Human Services, Denver.

Beirness, D. J, and Marques, P.R. (2004) Alcohol interlock programs. *Traffic Injury Prevention5: 3(September 2004)*; Philadelphia. Taylor and Francis.

Horn, J.L., Wanberg, K.W. and Foster, F.M. (1987 1990). *Alcohol use inventory (AUI).* Minneapolis, MN. National Computer Systems.

Lapham, S., Wanberg, K.W., Timken, D.S., and Barton, K. (1996). *Lovelace's Comprehensive Screening Instrument.* Albuquerque, NM. Behavioral Health Research Center of the Southwest.

Lindeman, H. (1987). *Driver risk inventory (DRI).* Phoenix, AZ. Behavior Data Systems, Inc.

Marlatt, G.A. (1998). *Harm Reduction*. New York, Guilford Press

Marques P., Tippets, S., Voas, R., Danseco, G. and Beirness, D. (2000). Support services provided during interlock usage and post-interlock repeat DUI: Outcomes and processes – Alcohol Ignition Interlock Device Section. In: H. Laurell, F. Schlyter (eds), *Alcohol, Drugs and Traffic Safety –T 2000: Proceedings of the 15th International Conference on Alcohol, Drugs and Traffic Safety, May 22-26, 2000.* (Vol. 4, pp 1127-1132). Stockholm, Sweden: ICADTS

Marques, PR, Tippetts, AS, Voas, RB, Beirness, DJ (2001) Predicting repeat DUI offenses with the interlock recorder. *Accident Analysis and Prevention,* Vol. 33, No. 5, pp609-619.

Marques, PR, Tippetts, AS, Voas, RB. (2003). Comparative and joint prediction of DUI recidivism from alcohol ignition interlock and driver records. *Journal of Studies on Alcohol,* Vol. 64, No. 1, pp 83-92.

Marques, PR, Voas, RB, Tippetts, AS. (2003). Behavioral measures of drinking: Patterns in the interlock record. *Addiction,* Vol. 98(suppl. 2) pp. 13-19.

Meyers, R.J. and Smith, J.E. (1995). *Clinical guide to alcohol treatment: The Community reinforcement approach.* New York, Guilford Press.

Miller, W.R. and Rollnick, S. (1991, 2002). *Motivational Interviewing: 2nd ed. Preparing People for Change.* New York, Guilford Press.

Miller, W.R., Zweben, A., DiClemente, C.C., and Rychtarik, R. (1992). *Motivational enhancement therapy manual: A clinical research guide for therapists treating individuals with alcohol abuse and dependence* (Project MATCH Monograph series, Vol. 2). Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.

Prochaska, J.O., DiClemente, C.C. and Norcross, J.C. (1992). *The transtheoretical approach: Crossing the traditional boundaries of therapy*. Malagar, FL. Krieger

Timken, D.S. and Marques, P.R. (2001a) *Support for Interlock Planning (SIP): Participant's Workbook.* Calverton, MD: Pacific Institute for Research and Evaluation.

Timken, D.S. and Marques, P.R. (2001b) *Support for Interlock Planning (SIP): Provider's Manual.* Calverton MD: Pacific Institute for Research and Evaluation.

Voas, RB, Marques, PR, Tippetts, AS, Beirness, DJ. (1999). The Alberta Interlock Program: The evaluation of a province-wide program on DUI recidivism. *Addiction,* Vol. 94, No. 12, pp 1849-1859.

Wanberg, K.W. (1999). *The adult clinical assessment profile (ACAP).* Arvada, CO. Center for Addictions Research and Evaluation.

Wanberg, K.W., Milkman H.B. and Timken, D.S. (2003) *Driving With Care: Alcohol, other drugs and driving safety education-strategies for responsible living and change. Provider's Guide.* Denver, CO. The Center for Interdisciplinary Studies.

Wanberg, K.W., Milkman H.B. and Timken, D.S. (2003) *Master Profile.* Instrument found in : K.W. Wanberg, H.B. Milkman & D.S. Timken, Driving With Care: Alcohol, other drugs and driving safety education-strategies for responsible living and change. Provider's Guide. Denver, CO. The Center for Interdisciplinary Studies.

Wanberg, K.W. and Timken, D.S. (1998) *Adult Substance Use and Driving Survey, (ASUDS)* Arvada, CO Center for Addictions Research and Evaluation (CARE).

Identifying Potential Recidivists: Who will "GET IT", Who Won't, and How Do We Tell the Difference?

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This paper combines information on two topics related to interlock programs that are roughly parallel to a researcher's variation on the serenity prayer: How can we detect the offenders that we cannot change? How do we go about trying to change the offenders who are able to change? And how do we know the difference? These are relevant questions regarding the interlock device and programs because we know that no matter how well interlock programs can control offenders while the device is on the car and working, some portion of those offenders will revert to drinking driving and public endangerment after the interlock control period ends. And the final part of this puzzle is how do we get the courts to take action when we are able to make a distinction between the changeable and the unchangeable with a reasonable probability of accuracy?

How do we detect the offenders that we have not changed?
Since we know that self-report about future intentions is of limited value in predicting future behavior, it is necessary to rely on objective indicators to make such predictions. Work that we have done and published in several places (Marques et al., 1999, 2001, 2003a, 2003b) has shown that the rate and timing of BAC tests elevated above .02% (20 mg/dl) logged on the ignition interlock record are excellent predictors of future post-interlock recidivism. In Cox regression analyses we have determined that prior DUI offense records and data about the daily patterns of BAC tests in the interlock are the only predictors, among dozens tested, that prove noteworthy in final predictive models.

This category of predictors depends entirely on the behavior of the offender; one type (prior offenses) is based on historical behavior from the DUI record, and the other type is derived from more proximal drinking behavior as captured by the interlock device. As good as this evidence is as a predictor, however, it is incomplete. While the objective profile from these behavior records don't lie, they fail to completely scale the risk of first time DUI offenders (who have no prior DUI record), and these two predictors will miss some offenders who use cars other than the one with an interlock.

A supplementary method of scaling drinking risk is available from alcohol biomarkers. These markers can be collected from a variety of body specimens including urine, whole blood, serum, and hair. Some will also be found in oral fluid/saliva. The types of markers available to estimate past drinking are generally divided into two types: indirect markers and direct markers. BAC level itself is a direct marker (directly reflects ethanol consumption), but the trace is gone in most cases after a period of 8-12 hours when ethanol has cleared from circulation. The rapid loss of detectable levels of ethanol in circulation makes it difficult to rely solely on ethanol to document exposure. The other markers can be detectable for days to months later depending on which biological specimen is used for sampling, the frequency and degree of drinking, and in some cases gender and age factors.

Indirect alcohol biomarkers are those that are dependent upon some transformation of a target organ or molecule following alcohol exposure. The two indirect alcohol biomarkers used for the longest time in clinical practice are ALT (alanine

aminotransferase), and AST (aspartate aminotransferase). These are very non-specific markers because many types of liver disorders can cause them to become elevated. Nonetheless, when someone has been a long term heavy drinker, elevation of AST and ALT can support a diagnosis of alcohol abuse if other elements of a person's life are concordant. Today the most widely used of the indirect markers are GGT (gamma glutamyltransferase) and CDT (carbohydrate deficient transferrin). GGT elevates in the presence of repeated exposure to ethanol as does CDT. Current evidence suggests that at a consumption rate of approximately 60 gm/day (5 standard drinks) for a week or two will raise CDT. CDT is a form of the iron transport protein, transferrin, that has become deficient in carbohydrate on its sialic acid residues. CDT is the most specific to ethanol exposure of all the indirect markers and that is a distinct advantage since it means there are no other known factors that will cause CDT to elevate. GGT is about equally sensitive as CDT, but is somewhat less specific than CDT. GGT has a cost advantage since it is quite inexpensive (under $5 per sample and is widely available vs. approximately $35 per sample to measure CDT which requires a specialty lab that can either do HPLC methods or is qualified to use the Axis-Shield %CDT kit). All of these markers are found in serum. There are other, more recently discovered, indirect markers, such as beta hexosaminidase and apolipoprotein J, and undoubtedly more will be discovered soon. Alcohol biomarkers are under active study at this time.

The direct markers of alcohol are products of alcohol metabolism, some of which linger long after the parent compound, ethanol, has been deactivated. Some, like ethyl glucuronide (EtG), can be found in serum, urine or hair. In serum the duration of detectability is brief (a day perhaps), in urine it is detectable for several days up to a week, whereas in hair it will be around for months – or as long as the hair is around. Fatty acid ethyl esters (FAEE) similarly can be found in serum and hair. More work has been done to date on FAEE in hair, particularly by Fritz Pragst and collaborators (2001), as a long-term exposure marker than any other alcohol biomarker.

The advantage of the direct markers is that they directly reflect consumption levels since they are ethanol biotransformation products. Phosphatidyl ethanol (PEth), found in the red cell fraction of blood is also very specific to ethanol and in studies of alcoholism treatment samples was reliably elevated in all new intakes (Wurst et al., 2004). There are other direct markers as well, such as glucuronide conjugates (GTOL) of hydroxytryptophol (HTOL) as well as HTOL itself. It is yet to be determined the extent to which these markers will elevate in routine DUI offenders (some have been studied) but they elevate very well in the body fluid or hair specimens of alcoholics. We (Marques, Allen, Wurst and Javors) currently have a study underway in Alberta, Canada that will examine the predictive profiling that is possible by combining alcohol biomarkers (both direct and indirect) and the behavioral test record from the interlock BAC test record. Blood and hair are being collected along with diagnostic and self-report instruments and the interlock data records on willing participants who are currently active participants in the Alberta interlock program.

How do we change the offenders that can be changed?

We (Marques, Voas, Timken and Field) have implemented a motivational enhancement program specific to the court-ordered interlock user in the Dallas-Ft. Worth area of Texas. The program has both group and individual components. The comprehensive MATCH study determined that motivational approaches are the most helpful among those who are most resistant to the idea of personal change. Conventional treatment is

often too much too soon for people who have not given much thought previously to changing drinking decisions.

The purpose of the motivational interventions is to improve the DUI offenders' awareness of the self-interest benefits that will follow from adhering to plans that separate drinking and driving even after the controlling function provided by the interlock device has been removed. That is, the program attempts to build the motivation to stick with whatever life adjustments were made to accommodate to the interlock device.

The behavior theory underlying the intervention models studied in these interlock-linked programs is built around personal change readiness and motivational enhancement theories. The former is usually associated with the research of Prochaska, DiClemente, and collaborators (Prochaska & DiClemente 1984; Prochaska et al. 1992), while the latter is associated with the work of Miller, Rollnick, and collaborators (Miller and Rollnick 1991; Bien, Miller, & Tonigan 1993; Miller & Sanchez 1993). A combination of these approaches arises from evidence that personal change proceeds along a somewhat predictable readiness to change sequence. Until someone believes that an effort to change has some self-interested benefit, the offender will rarely make the effort. Wieczorek et al. (1997) found that motivational approaches are effective with DUI populations, and that among DUIs there is has a high proportion of "precontemplators," people who have not thought much about personal change.

How do we differentiate those who will embrace change and those who will not? We believe the best decisions will be made when a combination of behavioral and biological indicators are used to supplement or validate anything that is learned from the usual self-report and interview assessments. Our own preliminary findings in the Texas interlock support program have identified a group of offenders who pose the greatest risks (based on the interlock record) are among those least likely to disclose information about their drinking and adverse drinking consequences. Accordingly, a combination of traditional assessments together with more objective evidence from the interlock record and alcohol biomarkers may provide the most specific information about whether DUI offenders should be free to drive without an interlock device.

We look forward to a day when court systems or DMVs will be willing to implement criterion-based sanctioning. In this scenario, objective evidence would help form one of the bases for decisions about issuing unrestricted licenses and aid in deciding whether it is in the public interest to extend interlock time for offenders who demonstrate that their drinking still poses a significant risk to the general public. As sanctions go, the interlock is very offender-friendly compared to more restrictive forms of control such as house-arrest. Only the court can insist on more restrictive sanctions, so it is likely that only the courts can motivate offenders to recognize that accepting the restrictions of an interlock program is a form of pragmatic and enlightened self-interest. It may be that inventive laws such as those recently passed in New Mexico will remove the judicial barriers to more widespread use of interlock devices.

References

Bien, T. H., Miller, W. R., & Tonigan, J. S. (1993). Brief interventions for alcohol problems. A review. Addiction, 88(3), 315–336.

Marques, P. R., Tippetts, A. S., & Voas, R. B. (2003). Comparative and joint prediction of DUI recidivism from alcohol ignition interlock and driver records. Journal of Studies on Alcohol, 64(1), 83–92.

Marques, P. R., Tippetts, A. S., Voas, R. B., & Beirness, D. J. (2001). Predicting repeat DUI offenses with the alcohol interlock recorder. Accident Analysis and Prevention, 33(5), 609–619.

Marques, P. R., Voas, R. B., & Tippetts, A. S. (2003). Behavioral measures of drinking: Patterns in the interlock record. Addiction, 98(Suppl 2), 13–19.

Marques, P. R., Voas, R. B., Tippetts, A. S., & Beirness, D. J. (1999). Behavioral monitoring of DUI offenders with the alcohol ignition interlock recorder. Addiction, 94(12), 1861–1870.

Miller, W. R., & Rollnick, S. (1991). Motivational interviewing. Preparing people to change addictive behavior. New York: Guilford.

Miller, W. R., & Sanchez, V. C. (1993). Motivating young adults for treatment and lifestyle change. In G. Howard (Ed.), Issues in alcohol use and misuse by young adults. Notre Dame, IN: University of Notre Dame Press.

Pragst, F., Auwaerter, V., Sporkert, F., & Spiegel, K. (2001). Analysis of fatty acid ethyl esters in hair as possible markers of chronically elevated alcohol consumption by headspace solid-phase microextracion (HS-SPME) and gas chromatography-mass spectrometry (GC-MS). Forensic Science International, 121, 76–88.

Prochaska, J. O., & DiClemente, C. C. (1984). The Transtheoretical Approach: Crossing traditional boundaries of therapy. Malabar, FL: Krieger.

Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: Applications to addictive behaviors. American Psychologist, 47, 1102–1114.

Wieczorek, W. F., Callahan, P., & Morales, M. A. (1997). Motivation for change among DWI offenders. In C. Mercier-Guyon (Ed.), Alcohol Drugs and Traffic Safety (Vol. 3, pp. 1069–1075). Annecy, France: CERMT.

Wurst, F. M., Wiesbeck, G. A., & Metzger, J. W. (2004). On sensitivity, specificity, and the influence of various parameters on ethyl glucuronide levels in urine – results from the WHO/ISBRA study. Alcoholism: Clinical and Experimental Research, 28(8), 1220 – 1228.

3.0 Innovations in Interlock Programs

Interlocks in all Vehicles[2]

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Drink Driving is responsible for almost 40 percent of fatal road crashes in the United States and around 30 percent of fatal crashes in Australia. First time DWI offenders are responsible for many of these fatal crashes. Evidence from many researchers clearly illustrates that first time offenders are a gross misnomer as these individuals have probably driven between 200 and 2000 times before being caught the first time. Interlock programs, in their current form, are not going to prevent first time DWI offenders from crashing vehicles after consuming alcohol. Alcohol interlock programs are effective in preventing drinking drivers from using an interlock equipped vehicle. Until interlocks are installed and operating in every vehicle, drinking drivers will continue to cause death and injury on roads.

Interlocks in all vehicles are a longer-term goal that must be preceded by effective interlock programs targeting convicted DWI offenders. Unfortunately no state or country has developed a fully effective interlock program that mandates interlocks in vehicles driven by all convicted DWI offenders at this time. Continuous improvement of present alcohol interlock programs is necessary to achieve the longer-term goal.

Cost-benefit studies show that interlocks in all vehicles can vary from marginal to positive results, reporting ratios in the order of 8 to 1. Work is needed to more accurately assess the cost of an interlock suitable for all vehicles and the longer-term costs of operating with interlocks in all vehicles. The extremely high costs of alcohol related crashes are well known and create a significant burden on all communities. Lobby groups need to urge politicians to take more action to reduce the incidence of drinking drivers in alcohol related injury crashes.

As of October 2004 there were two published attempts to have interlocks placed in all vehicles. The first attempt was in the United States by the State of New Mexico in February 2004. New Mexico is recognised as a leader in addressing convicted DWI drink drivers, and they have developed a very strong interlock program. The New Mexico approach was proposed as a phased-in program commencing in 2008 for new vehicles, and for used vehicles, a retrofitting program when changing owners commencing in 2009. Ongoing installation of interlocks in used vehicles that change owners was

[2] This paper is disseminated in the interests of information exchange. The views expressed are those of the Author and are not necessarily those of the Transport Planning Agency of the South Australian Government.

proposed to continue after 2010. The program involved tax credits for the sale of cars with interlocks, and severe penalties including vehicle forfeiture if a driver was caught in a vehicle after drinking alcohol.

Unfortunately the New Mexico Legislature indefinitely postponed action on the related bills early in 2004. However, the seed has been planted that interlocks in all vehicles has community benefits and other attempts may emerge in the near future.

In September 2003, the Australian parliament organized a committee to accelerate the reduction of injury crashes in Australia. Their enquiries found that compliance with drink drive laws was less than expected and driver impairment by alcohol was a major issue to address. One solution was to ensure that all drivers take a breath test before starting their vehicle by using an alcohol interlock. The committee concluded that this was a more effective strategy than present enforcement systems.

Report recommendations included the mandatory fitting of alcohol interlock in all new vehicles. Another recommendation was that the government and states only purchase vehicles with best practice safety features for their fleets to provide an incentive for manufacturers to introduce more safety features than are presently available. Unfortunately the report is now part of a government that has changed as the result of an election, so action on the report is not obligatory for the new government. New priority actions remain to be set by the new Australian government and will not be known until well into 2005.

One emerging issue is that of free trade agreements between countries or regions and the impact of laws that are unique to one country or region. Any unique law, such as requiring alcohol interlocks in all new vehicles, may be the subject of legal challenge due to the free trade agreement where goods from one country can pass without restriction to another country.

Sweden is also looking at the possibility of interlocks in all vehicles, but more information on this subject is not yet available.

Specifications for interlocks suitable for new vehicles requires attention with specific interest in what features are essential, such as rolling retests, data logging, anticircumvention, variable set points, and sensing technology to provide long time intervals between calibration checks. Input from vehicle manufacturers is also needed on the best standard method to connect the interlock into the vehicle's electrical system to minimise cost, and facilitate service and maintenance. A specific task force with international representation is needed to pursue this issue and could possibly include members attending this symposium.

In summary alcohol interlocks in all vehicles remains a goal but an achievable one within the next 5 to 10 years. It has the potential to significantly reduce the 5 percent of the population who continue to drive regularly while intoxicated, causing fatal and serious injury crashes.

Application of transdermal alcohol detection

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In an effort to combat impaired driving, Transbio-Tec has developed a steering wheel wrap that is capable of alcohol detection and can be used in a fashion similar to an ignition interlock. These wraparound, retrofit units are available in a variety of colours and textures and will conform to automobiles, trucks, boats and planes transparently. The wraparound unit can be easily and quickly installed in any vehicle and has a maximum retail price of $675.

To use the device, the driver must make skin contact with the steering wheel when starting the vehicle. Testing is periodic which will allow the driver to wear gloves while the vehicle is warming up. Similar to an interlock, the testing for ethanol alcohol is continual during the entire time the vehicle is being operated. Additionally, there is also periodic testing for a common element in sweat secretion to ensure skin contact. When ethanol is detected, the vehicle will not start, and similar to an interlock, if the vehicle is in operation when alcohol is detected, the horn will sound and lights will flash.

Research clearly demonstrates that approximately one-third of sweat glands are located in the hands and it takes about 30 minutes for alcohol to be detected through sweat. This device has been NHTSA-certified and it is expected that NHTSA will create new standards for this system.

Currently, multiple markets exist for this product. Initial markets may include the parents of teenagers who would install the device as a safety feature. There is a considerable market for convicted DWI offenders; however, the obstacles that have been previously encountered by ignition interlock manufacturers will have to be addressed before the device will gain acceptance. Trucking and shipping companies spend up to 25% of revenue on insurance and incur efficiency costs as a result of random checks. This device can minimize those costs. And finally, government and commercial fleets are a priority target market.

The first production of this new technology has a projected completion date of December 2005.

Alcolocks in Commercial Vehicles: Overview of the commercial trials as part of the European alcolock project[3]

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Introduction

In 2003 the European Commission published a call for proposals in the field of transport. The Belgian Road Safety Institute formed a consortium of European institutes to study the implementation of alcolocks in the European Union (EU). The consortium comprises Belgium (BIVV/IBSR as coordinator), Germany (BASt), the Netherlands (SWOV), Norway (TOI) and Spain (University of Valladolid). The project began officially on January 1st 2004.

This note highlights the rationale and proposed plan of the commercial trials in this EU-funded project.

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 EU through research on the impact on drivers whose vehicles are equipped with an alcolock.

The specific objective is not to investigate the efficacy of alcolocks but to explore subjective self-reported experiences related to different aspects of alcolocks (acceptance, attitudes, behavior and practice).

Qualitative field trial

A small-scale qualitative field trial of 30 bus drivers both in Norway and Spain and 30 truck drivers will be carried out. This study will be conducted without the inclusion of a control group, except in Norway, where acceptance of alcolocks by an experimental group will be compared with their acceptance among a control group. The aim is not to generalize the results based on a representative sample of subjects but to explore the diversity of experiences. This in-depth exploratory approach could serve as a preparation for future large-scale tests of interlock efficacy in the EU. This is a necessary

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and logical step towards legal implementation, because although the expertise with alcolocks in other parts of the world may perhaps be very important to Europe, it still needs to be translated to the European context.

Rationale

The rationale behind implementation of alcolocks in commercial vehicles is general prevention -- i.e. to prevent drink driving in general. This means that indications for drink driving problems at an individual level do not necessarily have to be present as a condition to install an alcolock. In this sense, alcolocks can be seen as a measure that contributes to traffic safety in general. The alcolock can also be seen as a way to increase safety and quality standards of bus companies, haulage companies, etc.

The commercial trials, therefore, focus primarily on usability and practicability of alcolocks, while studying the individual problem of drink driving plays a secondary role.

Program features

Germany

The German trial is being implemented in two truck companies with 35 truck drivers in total (15 drivers from an international company and all 20 drivers from a smaller company, which means there is no selection bias in the second company). The installation of the devices started in the beginning of September. In October, the pre-interviews with the drivers are carried out and the twelve-month test period is scheduled to start by the beginning of November.

Several practical problems occurred during the preparation of the trial. For example, honouring the tight time schedule creates difficulties for installation and the necessity to deal with the operation of the vehicle by different drivers.

Norway

The trial in Norway is carried out with municipal buses in Lillehammer, with approximately fifteen buses and about thirty drivers (all drivers of the company are included, which again means there is no selection bias). The installation of the alcolocks started early October 2004. After a couple of weeks of technical and practical testing as well as training of the drivers, the trial is planned to be fully operational by late October and to go on for twelve months. The acceptance and attitudes of the drivers, the company management, the passengers and the local population are surveyed by interviews and questionnaires during the initial, middle and final phases of the twelve-month period. As an exception to the methodology, a control group will be included in this trial to test the acceptance of the alcolock device by means of an acceptance scale.

As in the German trial several practical problems occurred during the preparation of the Norwegian trial -- e.g., honouring the tight time schedule becomes more difficult; participation of the bus company was conditional on the confirmation by the bus manufacturer that there will be no interference of the alcolock with the electronic circuits of the buses.

Spain

Due to elections and heavy administrative procedures there has been a delay in the Spanish trial. Official approval to carry out the project in collaboration with a bus company in Valladolid was only received in October 2004.

Conclusions

Three commercial field trials are underway in Europe and they are being carried out in parallel as part of the European Alcolock project. Each trial is facing several practical problems in the preparatory phase but it is expected these trials will be up and running soon. Preliminary data from the alcolock data logs, however, will only be available within 6 months, at the earliest.

The commercial use of alcohol ignition interlocks

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Introduction

Alcohol ignition interlocks were introduced in late 1999 as a tool for quality assurance in commercial traffic. The project initially involved a bus company, a taxi company and a company with a fleet of trucks. One hundred vehicles in each company were equipped with interlocks. This initial installation enjoyed considerable success. During the first two years of trials several other companies also wanted to install interlocks in their vehicles. Today some 4000 vehicles have interlocks and several transport buyers, such as local communities, request that interlocks be installed in school buses and other public transportation vehicles. Two Swedish truck manufacturers, Volvo and Scania, offer interlocks as optional equipment. Also, car manufacturers are looking for solutions -- SAAB is developing an integrated system using the car's own data system.

Evaluation of the introduction of interlocks in the first companies

The implementation process

The evaluation of the implementation phase demonstrates the need for good and robust technical solutions, good infrastructure for service and, most of all, provision of good information to all participants in the early stages of the implementation process. This information must then be repeated frequently for an extended period. It must also be clear to everyone that companies are using a high-quality system, and that following installation, there will be no further involvement from the government or any other body outside the company. One important element is the availability of practices, guidelines, and procedures during the implementation phase detailing how to manage outcomes of the research.

Attitudes towards interlocks

Due to some technical problems and errors regarding the service infrastructure, there was a great deal of mistrust in the beginning. However, over time this evolved into very positive attitudes from both the drivers and the leadership in the companies. It is, however, important to stress the fact that there were never any doubts about the need for interlocks and the mistrust was due largely to the technical solutions.

The first evaluation, spring 2000

The first evaluation was performed at the beginning of the installation period. One-third of all participants involved reported that the interlocks did not function as expected. Fifty percent of the drivers and two out of five employers believed that the interlocks could be manipulated. Drivers were also concerned that failures could result from substances other than alcohol, and believed that the use of interlocks required additional labour.

They also reported that the use of interlocks could be regarded as some kind of mistrust of drivers on the part of the company and the public. Despite this, drivers, employers and passengers believed that interlocks were the best alternative for reducing drunk driving.

The second evaluation, summer 2001

The second evaluation was performed during July and August 2001 after the interlocks had been installed for 18 months. Three out of four drivers reported that the interlocks did not have a negative impact on their role as drivers. More than five out of ten reported that the interlocks can even improve their driver status. Although the technical solutions were still not perceived as adequate, drivers were less worried about failures than they were at the beginning of the project.

The evaluation shows that the degree of trust in interlocks has increased in all groups (drivers, company management, and passengers/transport buyers). Even though there is a growing interest from companies buying transports to request interlocks, the issue still has not become a reality.

The third evaluation, late 2002

The third evaluation was performed at the completion of the trial. Most of the involved parties had used interlocks for almost three years and nearly everyone was convinced that interlocks were the best way to avoid drunk driving.

The drivers believe that the use of interlocks does not negatively impact their role as drivers although they still have problems with the technique. This is mostly due to the extended period of time required to warm up the device, especially during winter months. The majority of the drivers says that interlocks have become a natural part of their work.

The leadership in the companies also believe that they soon will see benefits accrue from the use of interlocks when competing with other companies for contracts. Also, transport buyers have become more positive about the device and report that they will request interlocks in the near future.

Evaluation of start failures

It is critical that it be completely clear to participants that the government has no involvement in the use of a quality system. This must remain a matter between the parties involved -- the seller and the purchaser of the transport. Having said this, the SNRA received some information about the outcomes. All three of the companies reported failures, as was expected. Most of the failures occurred at the beginning of the project; however, it is not surprising that drivers would experience a few serious failures during five years time. The vast majority of failures will be in the beginning when people are likely to test the device. Additionally, failures may occur periodically due to mouth alcohol. More serious failures are rare. This can probably be interpreted as drivers learning over time that interlocks are an effective system and their subsequent avoidance of attempting to start a vehicle when they are drunk. Both drivers and the management of the companies regard interlocks as effective and the fact that some drivers were prevented from driving impaired was a very positive result.

Conclusions

Attitudes towards interlocks during the last five years have significantly improved and perceptions about these devices have become more realistic. Today, more and more public transport buyers request interlocks and a plan for ten governmental authorities to introduce interlocks in their own vehicles, as well as in purchased transports, during the next three years has been presented to the government. The government also recently initiated investigative work to study the possibility of a demand for interlocks in all new vehicles. As indicated previously, there is a growing interest from the car manufacturers which may be a key factor for success. This also opens the door for other solutions -- e.g. reduced capacity for any reason, not only alcohol.

Abstinence Monitoring and Interlock Systems with Positive Identification

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One of the ongoing concerns with the use of ignition interlocks is the inability to positively identify the driver providing the breath sample. While several jurisdictions have passed legislation making it an offense to either provide a breath sample to an interlock-restricted driver, or for an interlock-restricted driver to request a bystander for a breath sample, the ability to enforce this behavior is limited. Some interlock devices are capable of breath-pulse recognition, however, this feature cannot provide positive identification of the driver in a manner that is acceptable to courts.

Lifesafer Interlock is currently developing a prototype of a device that would include the ability to accurately identify the individual providing the breath sample and there are several unique features associated with this device.

Camera integrated with sampling system

There are several advantages associated with a modified interlock device having a camera integrated with the sampling system. It embeds the mouthpiece in the photograph to ensure positive identification when the breath test is being delivered. Moreover, the driver can avoid distractions that are typically associated with dash, windshield, or rearview mirror mounting. These types of devices are not only more difficult to tamper with or circumvent, but they also minimize other installation issues.

Attitude sensing ensures proper photo orientation

This feature verifies that the image is properly positioned before, during and after the test. If the image is not properly positioned, the test sequence is aborted and the process must be re-started. An additional benefit associated with this feature is that it prevents a driver from turning the unit upside down to take a picture of the chin instead of the face when a sample is being given.

Photograph exposure evaluator

This feature includes a facial recognition evaluator that defines whether a proper image is present to allow the test sequence to proceed and ensures that the picture produced is usable. The inclusion of this feature ensures that circumvention or other fraudulent activity, such as holding a finger over the lens or shining a light into it, are minimized. It can also deter the use of masks, disguises or other attempts to thwart positive identification because such instances will cause the test sequence to abort.

Electronic Dash Mounted Holster

This holster is swivel mounted to the dashboard and custom positioned. The position is locked into place and specially sealed to prevent tampering. Using this holster will ensure the camera is properly positioned to photograph the driver/passenger compartment before a test sequence can begin or be completed. In this fashion, the driver is deterred from switching seats with others in the vehicle or from obtaining curbside assistance.

Surveillance through the entire test sequence

Five valid photographs are required during any test or retesting sequence in order for the driver to complete and pass a test. Multiple photographs will deter the driver from coercing passengers to provide a sample and drivers will be unable to leave the device on the seat to start or complete a random running retest.

Photo Sequencing – Full test sequence for a positive ID

This feature will take up to three photos – one prior to the test, one during the test, and one post-test. The benefit associated with this feature is that it ensures a full capture of the entire test and positive identification of the driver can be achieved using one or more of the photos.

Violation reporting using photo technology

This feature allows for key event log data to be embedded, including positive ID photos, after alcohol violations and failures. This contributes to a simple and efficient reporting process that will meet evidential standards associated with probation violation hearings.

Authorized and unauthorized user identification

When the interlock device is installed authorized, photographs are embedded in the device memory. This permits the device to sort through 1000s of photographs in order to flag fails and violations, and unauthorized passes. Clients are monitored to ensure that they are driving an interlock-equipped vehicle when they are required to.

In-driveway alcohol monitoring

Finally, this device can be programmed with random and set times at which the driver must provide a breath sample when the vehicle is sitting in the driveway as opposed to being in use. Alarms/horn and early recall sanctions can be programmed to ensure the driver provides the samples at the specified times. This provides a low-cost alternative to additional in-house testing, the collection of urine samples, or bracelet alcohol monitoring to ensure the driver remains abstinent as well as refrains from drinking and driving.

Conclusions

In general, this device can provide an opportunity to identify individuals who fail alcohol tests, commit violations, or are non-compliant. The ability of offenders to avoid identification or to circumvent the device is minimized and offenders are substantially deterred from obtaining a breath sample from others. Of considerable benefit, the inconvenience associated with this device is nominal with drivers being required to remove such items as hats and sunglasses. This also serves to create positive identification and report information in a form that is acceptable to both courts and licensing agencies.

As a final note, the technology that has been incorporated in this device is both reliable and economically viable.

Dealing with Program Violations

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The Florida Department of Highway Safety and Motor Vehicles (DHSMV) have implemented a system to assist clients participating in ignition interlock program to complete the interlock program. Moreover, the evolution of interlock programs has begun focusing on pairing treatment with those clients who are violating the conditions of the program.

As part of the interlock program, information from the data recorder is reviewed by the vendor and sent via FTP to the DHSMV. The DHSMV has identified three instances in which an interlock violation will result in a letter being sent to the client. The three events resulting in a letter are:

1. a running retest refusal or BrAC above the fail point on a running retest;
2. a 2nd breath test above the fail point; and/or,
3. equipment tampering.

This letter requires the client to schedule a review with one of the 26 DUI Programs throughout the state. Violation letters are automatically generated by the HSMV and mailed to the violating clients. Once an appointment has been made, the DUI program then sends an email notification to DHSMV including the client's information and date of the appointment. The DHSMV subsequently add this information to the driving record. The information is also forwarded to the vendors to allow data access for the DUI program.

Upon receiving the violation letter and making an appointment, the client then meets with a program evaluator at the local DUI program and discusses the violation. Program evaluators review the data from the download with the client and both the client and evaluator process ways the client can refrain from future violations. Evaluators also use these sessions to reinforce the benefits of remaining in the interlock program. However, if the client fails to report to the DUI program, then a letter canceling the driver's license is sent and the cancellation goes into effect 45 days following of the original violation letter.

For a first violation, the DHSMV requires the client to attend the review session with the DUI program evaluator. Following the review session, if the client commits subsequent violations according to the above criteria, they are required to meet with the DUI program evaluator monthly for the remainder of the time they are on the interlock program. The first meeting for the second violation will include a brief case history and the development of a case management plan. The remainder of the sessions are geared towards maintaining program compliance.

The focus of the DHSMV is to keep the clients on the program and in compliance with the interlock. The DHSMV has made some steps in the right direction and the level of compliance with the interlock program has improved. Continued efforts will be made to address problem areas and evolve the process to produce the most effective interlock program possible.

Provision of Interlock Services in Remote Areas

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The key definitions of “remote” provide interesting insight into interlock operations generally. “Remote” means distant, sparsely populated, limited facilities, poor communications. The secondary meaning -- control from a distance by means of an electronically operated device -- describes perfectly what interlocks do. In fact, all interlock programs could be described as remote because they are legislated by one group, manufactured by another, provided by a third, utilized by someone else, and all controlled electronically!

Taking the intended purpose of the presentation – distant, sparsely populated areas as the basis – an examination of the situations likely to be encountered will lead to the identification of the key factors involved. It is easy to be misled into a mindset where the program designer’s own environment colours the perception of the overall problem. A trip to the store for milk in suburbia is easy – but it may involve considerable distance in remote areas, and the car may be the only form of transport for a family. So it becomes essential to closely examine the geographical area where the device will be used, and identify similar features so that they can be grouped together to manage in the intended program. A description of the key factors that emerge are described below.

Program Design

Design must be based on clear aims, and must be flexible. Given that there are no alternate methods of transport available, some variations may be required for differing regions. The design must recognise the facilities and infrastructure available in the areas, together with any extremes of climate. Accordingly, the mandatory obligations specified for the program must be carefully drafted, and must recognise that any program must be commercially viable, or subsidised so that it is.

Communications

All aspects of the intended program must be communicated to all stakeholders during the early planning, and stakeholders must be actively involved. It is important that all sections of the bureaucracy understand what they are trying to achieve, and develop legislation that reflects their aim. The involvement of the judiciary and the community in early planning will preclude difficulties as the intended program unfolds. Implicit in the planning is the funding and development of implementation and communications plans to avoid problems.

Commercial Reality

Any intended program must be commercially viable, and will require flexibility to achieve program aims where participation, facilities or infrastructure are limited. It may become necessary to seek assistance of other departments to enable use of other government facilities in order to implement the program. To minimize costs, programs must recognise that there will be inherent delays in the provision of services in remote areas.

Program Integrity

The major challenge will be to maintain integrity because of the compelling need for vehicle use in remote areas, especially where climates are extreme. It will be important to design the program to ensure that participants remain "connected" to the program and that there can be a continuity of data. Traditional interlock programs have a high degree of supervision by the provider, but it may be more appropriate to place the responsibility back onto the participant in remote areas.

Geography

It will be imperative to fully explain the geography of the area so that authorities understand the necessity for vehicle use. It is likely that demand for interlocks will be low because there aren't many vehicles. On the other hand, use of the vehicle is essential, and it is likely to be used by multiple drivers. The cultural aspects of any indigenous groups must also be carefully considered. Inappropriate interlock functions should be designed out to avoid dangerous situations.

Authorities

Authorities must recognise their own responsibilities to provide services, and be prepared to assist in the implementation. They should avoid "uniform cost" or "no cost to us" situations because they are involved, and must contribute to the success. The authority must communicate the program to all concerned as it is planned, developed and implemented. Budgets must be established that allow for the ongoing support of the program.

Recognition

Considerable progress will be made once it is recognised that "one size does not fit all". It will be necessary to craft solutions for remote areas based on the geographical characteristics. Separation of the drinker from his/her vehicle is the starting point for any program, and may be the only achievable situation in more remote areas.

Approach

The only logical approach is to review the overall area to determine demographics, and use the results to "group" areas in generic terms. Terms such as "metropolitan", "regional", "remote" or "special area" may be appropriate. Once the characteristics of each group are established, then appropriate requirements for each area can be determined. An "event by event" methodology will reveal the requirements for each group.

Conclusion

In summary, the provision of interlock services in remote areas can only be successful if all involved contribute to the success of the program.

Ignition Interlocks in Washington State

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Since the mid-1980s, the decision to impose an ignition interlock device as part of the sentencing requirements rested entirely in the hands of the courts and, more specifically, the judge.

When Washington lowered the legal limit from .10% to .08% BAC, the law was also modified to "require" judges to order an ignition interlock device whenever a driver was convicted of DUI or granted deferred prosecution, if the BAC was .15% or greater. Judges were also required to impose an interlock if it was the driver's second or subsequent conviction, regardless of the BAC. Unfortunately this lead to an increase in the number of plea bargains and charge reductions and ultimately resulted in drivers avoiding the ignition interlock program. Many judges perceived the ignition interlock requirement as a moneymaker for the interlock providers and not a reliable method of reducing recidivism.

In 2003, the same rules that were previously given to the judges were also given to the Department of Licensing (DOL) to implement. In addition, drivers were required to provide "proof of installation" of an interlock device in order to reinstate their driving privilege. Unfortunately, DOL was often unable to require the device because the practice of reducing charges was still frequently occurring within the courts. Even those drivers that were required to prove that an interlock device was installed often tampered with or ultimately removed the device because there were no consequences for doing so.

In 2004, the legislature addressed these loopholes by making the ignition interlock an integral part of requirements for all drivers convicted of *any alcohol-related violation*. Interlock devices are now also required for any alcohol-dependency based deferred prosecution agreement granted by the court and the length of the required period is clearly defined. The first time an interlock device is required for one year. If a second suspension requiring an interlock occurs, the device is required for five years. Any third or subsequent requirement for interlock will be for a minimum 10-year period. Judges may add additional time to any of these requirement periods if they wish.

In addition the legislature closed the loophole relating to tampering or removing an interlock device. Now when the DOL receives notification that a driver is in noncompliance with an interlock requirement, the suspension is reinstated until further information is received from the interlock provider indicating that the device is once again installed and/or functioning properly.

The 2004 legislative changes substantially improved the interlock requirements except for one rather large exemption that was included in the legislation. An interlock device is "not necessary on vehicles owned by a person's employer and driven as a requirement of employment during working hours".

Moreover, ignition interlock devices are now also required for any Occupational or Restricted License (ORL) that the DOL grants if the underlying suspension is for an

alcohol offense, including refusal to take the breath test. On ORL is a temporary license given to suspended drivers for specific reasons such as driving to and from alcohol treatment or 12-step meetings, to court ordered community service, to obtain health care, and to and from work. The exemption for employment vehicles mentioned above, does not apply to the period that a driver holds an Occupational/Restricted License. Therefore an ignition interlock device *is required on employer's vehicles* for any driver holding an ORL with an interlock requirement.

The 2004 changes to Washington interlock laws have not been in place long enough to obtain adequate comparison data at this time. It will be interesting to see the overall impacts that the continuing changes will have on the numbers of interlock requirements, and ultimately how those requirements will change drivers' behavior.

4.0 Testing and Certification Issues

Status Report: An update of the NHTSA Model Specifications for Breath Alcohol Ignition Interlock Devices

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In 1992, the National Highway Traffic Safety Administration (NHTSA) published model specifications for ignition interlocks. These specifications were presented as guidelines as opposed to requirements and have subsequently served as a baseline for device performance for the past 12 years.

More recently, NHTSA has undertaken the process of revising and updating these guidelines to meet the needs of a changing environment and advances in technology. As part of the process, NHTSA is seeking and soliciting input from various sectors. The Federal Register announcement is expected in November 2004 and interested parties will have approximately 60 days to respond. It is expected that the publishing of the new model specifications will occur by September 2005. Input is being sought to address a series of relevant questions:

a) ***Sensor Technology:*** Should guidelines focus on performance of devices only or should the specifications be limited to alcohol-specific fuel cell sensor technology? Some states (e.g., Texas) have already limited their requirements to include only these type of devices.

b) ***Precision and Accuracy:*** Currently, devices must meet 90% accuracy at 0.01% above the set point in unstressed conditions. This is increased to 0.02% in stressed conditions. Is this level appropriate and should it be modified? In the 1992 specifications, the setpoint was .025%.

c) ***Breath Sample Size Requirements:*** Currently the minimum sampling size is 1.5 litres. Modifications that are being considered to include possibly reducing the sample size requirement to facilitate the provision of an adequate breath sample as well as possible minimum back pressure requirements at input.

d) ***Temperature Extreme Testing:*** Currently temperature extreme testing occurs at -40 Celsius, -20 Celsius, +70 Celsius and +85 Celsius. Are these requirements satisfactory or are modifications needed?

e) ***Radio-Frequency Interference:*** The 1992 protocol used power sources that are no longer commercially used in the marketplace. Changes are necessary so that devices conform to the existing RF environment.

f) ***Circumvention Testing:*** As technologies are improved, so are the ways in which the technology can be circumvented. Are the current testing procedures sufficient for the existing environment?

g) ***Interface with Vehicle Ignition Systems:*** What requirements, if any, can be proposed for the model specifications regarding the interface of the device with the vehicle ignition system? This is an issue that should be explored and input will be sought from the auto industry.

h) ***Calibration and Stability Testing:*** Is the current length of the calibration period sufficient or should the devices be required to maintain their calibration for a longer period.

i) ***"Ready to Use" Time Requirement:*** Should a specified time period be established within which the device to be ready to use after it has been powered up, and if so, what should this threshold be?

j) ***Conformance Testing:*** Should NHTSA undertake responsibility for testing devices against its model specifications, as it does for evidentiary breath tests and screening devices, leading towards establishing a new NHTSA-issued CPL for interlocks?

k) ***Harmonization of Formats and Data Recorder Output:*** Should NHTSA also specify minimum guidelines for the format of the output from the data recorder across different devices to facilitate use by program monitors and in data analyses?

l) ***Harmonization with the EU:*** How important will it be to harmonize the NHTSA model specifications with those being proposed by the European Union or to be harmonized with any other international standards?

Other topics for consideration include: whether NHTSA should develop model guidelines for programs; and, whether the model specifications should include guidelines for acceptance testing and how this could possibly be addressed. The responses to the NHTSA request for comments will be sorted and organized by the Pacific Institute for Research and Evaluation to create a series of recommendations for revised model specifications. Decisions regarding the final document will ultimately be made by NHTSA. If NHTSA does assume testing responsibilities, it could take up to a year longer to complete.

New European Standards on Alcohol Interlocks

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Since the formation of the European Union, the development of European Standards has become a highly effective method of standardizing and regulating practices across diverse countries. These Standards are frequently referenced in European and national laws and are highly relevant in a number of areas.

The European Committee for Electrotechnical Standardisation (CENELEC) is in the process of finalizing a European Standard of test procedures and performance requirements for alcohol interlocks. A draft was published for comment in April 2004 and it is expected that the final standards will be voted on in early August 2005. A range of stakeholders are participants in the process, including government authorities, users and manufacturers. Each of these groups is represented on a national committee, and this committee will vote on acceptance of the interlock standards.

As the technology associated with interlocks has advanced and their use has proliferated, several countries have also developed interlock standards to regulate their use. In the U.S., Model Specifications for Breath Alcohol Ignition Interlock Devices (BAIIDs) were instituted by the National Highway Traffic Safety Administration (NHTSA) in April 1992; the Qualification Test Specification for Breath Alcohol Ignition Interlock Devices (BAIIDs) for use in the Province of Alberta were developed in October 1992 and have since formed the basis of interlock standards for other provinces in Canada; and, Australian Standards for breath alcohol testing devices for personal use were first passed in 1988 and were subsequently revised in 1997.

There were several motivations for developing Standards specifically for the European community. Existing standards adopted by other jurisdictions were weak or unclear on several points and were not reflective of the more current technology. Moreover, as evidenced by the North American experience, insufficient technical performance can damage the image of new interlock programs and result in lower levels of use and acceptance. Moreover, it was necessary to develop an international or European document so that it could be referenced in legislation.

The decision was made to develop a Standard as opposed to a Directive (law) for several reasons. Laws have less flexibility and can be challenging to revise if it is determined that changes are required. Laws also do not contain the level of technical detail that is required to regulate the use of interlock devices. It is also more difficult to involve certain stakeholders in the legislative process and ensure their interests are adequately represented. Most importantly, laws are much more challenging to pass and the length of time that would be required before the final document would be ready was unacceptable.

With the decision to move forward with the development of a European Standard for interlocks, an unofficial, preliminary meeting of experts was convened in May 2003. These experts put forward a proposal to CENELEC for the creation of a committee to develop Standards. In July 2003 a decision was reached by the Technical Board of CENELEC and a committee, convened by Johannes Lagois, was created to develop EU

Standards for Interlocks. Other members of the committee represented Belgium, Germany, Netherlands, Spain and Sweden. The committee held meetings in November 2003 and January 2004.

Following these meetings, an official draft was published for comment in April 2004. CENELEC members were given 6 months for comments and this was the last chance for the submission of proposals.

The Standards have been organized into several chapters including: general requirements, labeling and marketing, instructions, general test methods, and test procedures and requirements. The standards include detailed technical requirement and test procedures for susceptibility to electromagnetic disturbances, analytical specificity, operating temperature range, warm-up time, and protection against circumvention. In October 2004, the CENELEC inquiry was completed and comments are to be discussed at an upcoming committee meeting. In November the final version of the document will be completed and members will be able to vote on the document. It is expected that this process should be completed within three months. If all of the members vote 'yes' then the final document should be ready for publication in mid-2005.

In conclusion, the preparation of this document occurred quite rapidly, being completed in approximately 2 years. A point for future consideration involves the worldwide harmonization based on the European Standard. There is currently no plan to develop a guide for the design and implementation of interlock programs due to the lack of European experience at this time.

The Evaluation of Interlock Devices in Wisconsin

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The Wisconsin Department of Transportation (DOT) Division of State Patrol Chemical Test Section is responsible for evaluating breath alcohol testing instruments, including ignition interlock devices (IID), for use in the State. An evaluation protocol, written in January 2002 and adapted from NHTSA's 1992 Model Specifications for ignition interlocks, formed the basis for each device evaluation. In addition, WI Transportation Code 313, that specifies operational requirements for WI IIDs, was provided to each manufacturer requesting evaluation and approval of a device.

Between March 2002 and August 2004, six evaluations were initiated by four different manufacturers of IIDs employing fuel cell technology. To date, just one device has received approval. The evaluation protocol includes a number of areas including: the installation of the device; accuracy, precision and calibration verification; interferent testing, tampering and circumvention; and, electromagnetic wave/radio frequency (RFI) interference. The device program features that are tested include: anti-circumvention technique, rolling re-test, violation resets, set point, lockout features, and data logging. The device is tested by human subjects in the field as well as undergoing simulator testing at three breath alcohol concentrations at 0, 30, and 60 days.

All devices submitted for approval were initially programmed improperly, but these deficiencies were not the ultimate reason for disapproval of any IID evaluated. IIDs failing to be approved in Wisconsin demonstrated poor accuracy when compared to known breath alcohol concentrations of controlled-dosed human subjects. Two re-evaluations are anticipated in 2004-2005.

5.0 Implications of TEA-21 for Interlock Programs

Transportation Equity Act of the 21st Century (TEA-21): An update

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***Editors' Note**: This paper provides an integrated summary of the presentations and discussions from the three participants on this panel. It does not necessarily the reflect the views and opinions of all three panelists.*

The Transportation Equity Act of the 21st Century (TEA-21) is the Federal Transportation Bill in the United States. It consists of a five year authorization for certain surface transportation programs (1999-2003), and currently its re-authorization, "Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 (SAFETEA) is being negotiated.

Agencies involved in this legislation include the Federal Highway Association (FHWA), the National Highway Traffic Safety Administration (NHTSA), and the Federal Motor Carrier Safety Association (FMCSA). The Safety Programs previously included in TEA-21 version included:

- A highway safety grant programs (Section 402)
- Three occupant protection grant programs (Sections 157, 405, 2003(b))
- Two impaired driving grant programs (Sections 163, 410)
- A data improvement grant program (Section 411)
- Two safety transfer programs (Sections 154, 164)

Section 164 contained specific requirements that states must meet regarding repeat offenders. The four criteria that had to be met included:

- A minimum one-year hard license suspension
- Offender's vehicle must be subject to impoundment, immobilization, or an ignition interlock system
- Alcohol assessment and treatment for offenders as appropriate

- Mandatory minimum sentences for 2nd offences, and stiffer sentences for 3rd and subsequent offences.

According to the requirements of TEA-21, if a state had not enacted a repeat offender law by October 1st, 2000, the Secretary must transfer 1.5% of certain highway construction funds into the Section 402 program. The same penalty would also apply on October 1st, 2001, if the requirement still had not been met. Penalty amounts were increased to 3% in 2002. Funds could only be used for impaired driving or safety infrastructure construction projects. As of October 1st, 2004, 36 states plus DC were in compliance.

New Mexico has incurred sanctions for the past five years for not meeting the repeat offender requirement. However, they have been able to accomplish a variety of projects including increased checkpoints/saturation patrols, an ignition interlock database has been created, and a variety of traffic records improvements have been made. Moreover, despite their failure to meet the requirements of the one-year hard suspension, their interlock program has the highest usage rate per capita in the US.

A main concern in New Mexico involved the one year hard license suspension that was mandated by TEA-21. During the suspension period, no hardship or limited license was available to drivers, interfering with employment as well as attendance in treatment programs. The regulations specified in the legislation may have actually encouraged offenders to drive (albeit more carefully perhaps) without a license during the hard suspension period. Moreover, the regulations did not permit ignition interlocks to be installed while the offender was receiving treatment or under supervised probation, inhibiting monitoring for compliance and perhaps minimizing treatment successes. Essentially, the regulations negated the benefits associated with the installation of the interlock device.

Fortunately, both the House and Senate reauthorization bills are seeking to correct these problems by providing states with two options. First, an option to the mandated one-year hard suspension involves a combination of suspension of all driving privileges for the first 45 days of the suspension period followed by a reinstatement of limited driving privileges with an interlock for the purpose of getting to and from work school, and treatment. The second option involves a 90-day suspension before driving privileges can be reinstated with an interlock device.

Generally speaking, the House and the Senate versions of the SAFETEA legislation are largely similar. The main differences are in the details of the legislation, not the basic program structure, and it is hoped that these differences can be worked out in conference. Differences regarding funding levels are more substantial and will require more work to negotiate. Currently MADD supports the 90-day suspension prior to the reinstatement of driving privileges with an interlock, whereas GHSA supports both versions and recommends a 60-day compromise.

6.0 Update on Interlock Programs

Manitoba's Ignition Interlock Program

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Manitoba's Ignition Interlock Program was implemented on December 1, 2003. Participation in the Ignition Interlock Program is mandatory for drivers granted conditional licences following a conviction for impaired driving and for all repeat offenders or drivers convicted of impaired driving causing injury or death. Conditional licences include explicit restrictions on the driver such as limiting the hours during which they may operate a vehicle and the purposes for which they are able to drive. Use of an ignition interlock device is an additional restriction on a conditional licence for impaired drivers.

To qualify for a conditional licence, applicants must demonstrate that a full suspension would create undue hardship for them and undergo an assessment to show that they do not pose a safety risk to the public. The assessment is conducted as part of Manitoba's Alcohol and Drug Program that has been in place since 1984. A driver charged with or convicted of an impaired driving offence is required to provide an impaired driver's assessment prior to re-licensure. The assessment is completed by the Addictions Foundation of Manitoba (AFM). As a result of the assessment, drivers may be required to attend treatment or educational programs.

In Manitoba, the Registrar has the authority to require drivers who are deemed to be alcohol dependant to participate in the interlock program. These drivers would have failed all other recovery and remedial measures and installing an ignition interlock may be a re-licensing requirement.

The program also mandates device inspections by the manufacturer every 60 days to prevent tampering and to download the results of recorded breath tests for evaluation by Driver and Vehicle Licensing. Penalties for tampering include fines, jail, extension of the ignition interlock term or expulsion from the program. Penalties also apply to anyone who provides a breath sample on behalf of the program participant or loans them an alternate vehicle.

Monitoring of participants is an integral part of a successful program. Upon enrollment, all participants have indefinite ignition interlock conditions on their licence. Prior to allowing the device to be removed from the vehicle, their history will be reviewed. If the results are favorable, the device and conditions may be removed. If the results are unsatisfactory, the participant may face further licensing sanctions which could include suspension, extension in, or expulsion from, the program.

All licensing documents as well as staff and police licensing information clearly identify drivers that are required to operate vehicles with an ignition interlock device. If drivers in

the program operate a vehicle without ignition interlock, they can be charged with driving while suspended and may be subject to vehicle impoundment.

Manitoba legislation also allows a peace officer, without warrant, to stop drivers in the program to ensure the vehicle they are operating is equipped with a device and that the device is functioning properly.

Experimental Program of Ignition Interlock Devices on First Offenders in France

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In January 2004, a pilot ignition interlock project was initiated in the area of the Justice Court of Annecy, France. This project is an alternative program proposed on a voluntary basis to 35 first offenders for driving under the influence of alcohol over the penal limit. The drivers agree to drive only a car equipped with an Interlock Ignition Device for a period of six months. They also participate in a two-day training course with the Prévention Routière. They pay the total cost of the program and if they succeed, the prosecutions are cancelled.

Legal Context

In France, two legal limits are established:

- 0.25 mg/l in the breath or 0.5 g/l in blood is a simple offence leading to a fine and a withdrawal of 6 points of the driving licence.
- 0.4 mg/l in the breath or 0.8 g/l in the blood is a penal offence leading to a suspension or cancellation of the driving licence, plus a fine, possibly jail and a withdrawal of 6 points of the driving licence.
- Until 2003, the court could propose a conditional licence allowing the driver to use his/her car during the week or for work purposes. This possibility was cancelled after 2003.
- The French law allows the court to decide on alternative sanctions to the fine or to the jail but not the suspension. Those alternative sanctions include training courses.
- The normal driving licence has 12 points but the new licences (young drivers, first licence, or after cancellation) have only 6 points, and 6 additional points are added after 3 years of driving.

The Project

The project targets first offenders with a blood alcohol concentration between 0.8 g/l and 1.60 g/l (0.4 mg/l and 0.8 mg/l in breath). Young or new drivers (with only 6 points) are excluded, as are recidivists and alcohol addicted people. Drivers must not be involved in an accident with injuries. The age limit is 65 years. The presence of illicit drugs is also one of the exclusion criteria.

Under the control of the Prosecutor, the Police can propose the program to the driver. If he agrees, within 48 hours he has to meet the delegate of the Prosecutor (official presentation), and the manager of the program (President of the local committee of the Prévention Routière). He has to be checked with a medical assessment and receives a "passport" for the follow-up. He has to install the equipment within 3 days and is then allowed to drive only this car for a period of 6 months. A two-day training course is mandatory, led by a driving school teacher and a psychologist especially sanctioned by the authorities.

The data from the interlock recorder are collected every month. At the end of the 6 months, a report is given to the Prosecutor by the Manager of the program and he can decide whether or not to cancel the prosecution.

Technical Aspects

Two firms participate to the program: Alcolock (ACS) and Draeger.
The installation is performed in a certified garage which also provides service and collects the data.
The level of detection in breath is 0.15 mg/l.
The driver has to test for starting, and then after 20 to 25 minutes, and then every 40 to 60 minutes.
There is no immobilisation of the car as the result of a positive alcohol test.

Financial aspect

The entire cost is paid by the driver. The normal cost (without incidents) is 1260 €. This includes installation and removal, equipment rental, the two-day training course, and administrative costs.

Results

The evaluation is ongoing. As of February 12th 2005, 35 drivers have been included in the program, and the last ones will complete their program in July 2005. One driver was removed due to an administrative cancellation of his driving licence caused by previous non-alcohol related offences (lost of all his 12 points). No other violations have been found at this time and the program seems successful for the moment.

The future

The official report will also be given to the Ministries of Transportation and of Justice.
A second phase will start in April 2005 with an extension to four other justice courts, and it will involve 200 drivers.

We also will propose to the Parliament to include this system in the frame of the French law as part of the complementary sanctions for recidivists (actually excluded from the program, but an essential target of it, and as a part of the "guilty plea" system recently implemented in France). It could also remain as a part of the alternative sanctions only for new offenders.

Ontario's Ignition Interlock Program

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Ontario's Drunk Driving Strategy:

The ignition interlock program is one component of a broader strategy to deal with drinking and driving. This broader strategy involves a variety of measures that include: administrative driver's licence suspensions (ADLS), extended mandatory suspension periods, and a remedial measures program. Other components of this strategy include: a 12-hour roadside driver licence suspension for a blood alcohol concentration (BAC) from .05 to.08, vehicle impoundment for drivers caught driving with a licence suspended for a *Criminal Code of Canada* violation, and dedicated funding for random spot check programs -- i.e., R.I.D.E. (Reduce Impaired Driving Everywhere).

Jurisdictional Characteristics:

Ontario is the largest jurisdiction in Canada, by both driver population and number of vehicles, numbering 8.3 million drivers and 9.4 million vehicles. It is also worth noting that Ontario averages approximately 16,000 convictions for impaired driving annually. Alcohol-related driving collisions and the fatalities associated with these collisions have been dramatically reduced over the last ten years as a result of the cumulative effect of the programs that Ontario has introduced over the same period including:

Legislative Background

- In 2002 the ignition interlock program was implemented.
- In 1999 a vehicle impoundment program was implemented targeting persons caught driving while suspended for driving-related *Criminal Code* convictions.
- In 1998 several changes were implemented including:
  i. a mandatory remedial measures (assessment, education/treatment and follow-up) program prior to licence reinstatement
  ii. licence suspension periods increased for repeat offenders
  iii. driver record search ("look-back") length increased from five years to a "rolling" 10-year window, for determining repeat offences
  iv. fines increased for drivers who drive while suspended.
- In 1996 an immediate 90-day administrative driver's licence suspension (ADLS) program was created targeting drivers that:
  i. fail or refuse to provide a breath sample on a roadside screening device
  ii. fail or refuse to submit to a BAC test (either blood sample or breath sample)
  iii. exceed the legal limit of .08 BAC (supplementary to any charges that may be filed by police under the *Criminal Code of Canada*).
- In 1994 a graduated licensing program was implemented that included a zero BAC for novice drivers.

Ignition Interlock End to End, From Idea to Action

Ontario's Ignition Interlock Program evolved through a number of steps to become the program it is today. Key features include: technology, legislation, program design, service delivery model, assurance regime, and a program evaluation methodology.

Technology

Ontario uses the WR2 device manufactured by Alcohol Countermeasure Systems Corp. of Mississauga. The fail level is calibrated at 0.02 BAC. The device is not equipped with an emergency bypass feature.

Legislation

Enabling legislation was passed on December 21, 2000. Drivers convicted of an impaired driving offence committed on or after December 23, 2001 are subject to ignition interlock requirements. The program itself was implemented on December 28th, 2002. Upon reinstatement, a licence is issued with a condition requiring an ignition interlock device on any vehicle driven by the offender. As of October 1, 2004, 28,793 drivers will be subject to the interlock program upon reinstatement.

Program Design

The interlock condition applies to:

- 1st offenders for a minimum of 1 year;
- 2nd offenders for a minimum of 3 years; and,
- 3rd offenders indefinitely (if suspension reduced from lifetime to 10 years).

Drivers may comply with the program by choosing not to drive during the conditional period. The program is operated under a "User-Pay" principle such that participants establish a lease and maintenance agreement with the service provider. Fees are $125 (CDN) for installation and $95 per month maintenance. Ontario's *Highway Traffic Act* establishes offences for driving without the interlock, tampering with interlock, and knowingly allowing an offender to drive without the device. Fines for these offences range from $200 to $20,000 for commercial vehicles and $200 to $1,000 for other motor vehicles.

Service Delivery Model

The Ontario Ministry of Transportation is responsible for oversight of service providers and licensing aspects of the program including: notifying offenders of the ignition interlock requirement, decisions to remove the licence condition, and collecting a cost recovery of $6/participant/month paid to the Ministry from the service provider. The service provider, Guardian Interlock Systems, is responsible for: management of service delivery, including installation, de-installation, service and calibration of ignition interlock devices (to this end, Guardian has partnered with Standard Auto Glass to provide service centre locations across the province); management of participants' data; and providing violation reports to MTO for licensing decisions.

Assurance Regime

The Ministry's Internal Audit Services was engaged to establish a framework to ensure that an appropriate control environment existed for the ignition interlock program. The Assurance Regime is comprised of four specific tools:

- an operational readiness checklist to assess the readiness of new centres;
- an operational review checklist to ensure continued compliance of existing centres;
- an annual assertion report to ensure compliance with the terms and conditions of the service agreement; and,
- a program performance report to monitor overall performance of the program.

Program Evaluation

The Traffic Injury Research Foundation designed a program evaluation methodology that is scheduled to be executed in 2006. The evaluation will accomplish the following:

- determine the extent of the contribution of the interlock program to overall changes in the prevalence of drinking and driving in Ontario;
- determine the effect of the program in preventing driving after drinking episodes among participants while in the program;
- evaluate the long-term impact of the interlock program on recidivism after participants have completed the program;
- assess the behaviour pattern of interlock program participants while in the program using the information from the data recorder to examine breath test results according to time of day, day of week, and demographic characteristics; and,
- address additional research questions using the available data that could be useful for future policy analysis, program evaluation, and program design.

Program Status

To date, 4,585 offenders have completed the remedial measures program, had their licence reinstated and are subject to the ignition interlock condition. Of these 4,585 reinstatements, 1,989 offenders have chosen to install an ignition interlock in their vehicle. This reflects a participation rate of 43%.

Issues to Date

Q: Are there any exemptions from the Ignition Interlock Program?
A: All classes of Ontario driver's licences will be subject to the ignition interlock condition. This means that all drivers of passenger vehicles, commercial vehicles and motorcycles will face the same consequences for drinking and driving.

Q: Does the ignition interlock device provide flexibility for individuals with breathing related problems such as asthma?

A: Adjusting the breath requirement of the ignition interlock device would result in easier circumvention, therefore exemptions for medical reasons will not be issued.

Q: Do offenders have to participate in the program?

A: No, offenders can choose not to participate in the program. If they make that choice, they must not drive during their conditional period. Offenders with the ignition interlock condition on their driver's licence can only drive vehicles equipped with an approved device.

Q: Can the interlock device be used on all types of vehicles?

A: It can be installed on all vehicles, including buses and transport trucks. However, the current technology has not been developed for use with motorcycles. Therefore, offenders with a Class M licence cannot drive motorcycles during their ignition interlock period.

Q: What about someone who was charged with impaired driving due to drugs?

A: The legislation does not provide for a distinction between convictions for Impaired Driving under section 253(a) or 253(b) of the Criminal Code (Canada). The Ignition Interlock Program will apply to all convictions under section 253 of the *Criminal Code*.

Alcolocks in Belgium: Overview of the Belgian trial as part of the European alcolock project[5]

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Introduction

The General Assembly on Road Safety (a large-scale official consultation on road safety, involving all relevant partners), set up by the Council of Ministers on May 18, 2001, as a response to the poor level of road safety on Belgian roads, recommended studying the use of alcolocks in Belgium as a preparation for legal implementation. Therefore the Belgian Road Safety Initiative took the initiative in 2002 to carry out a small-scale alcolock project in Belgium.

In 2003 the European Commission published a call for proposals in the field of transport. The Belgian Road Safety Institute formed a consortium of European institutes to study the implementation of alcolocks in the European Union (EU). The project began officially on January 1st 2004.

This paper highlights the key-points of the Belgian trial in this EU-funded project.

Objectives of the Belgian trial

The general objective of the project is to contribute to a reduction of the number of victims on Belgian roads by preparing and facilitating legal implementation of alcolocks in Belgium through research on the impact on drivers whose vehicles are equipped with an alcolock.

The specific objective is not to investigate the efficacy of alcolocks but to explore subjective self-reported experiences related to different aspects of alcolocks (acceptance, attitudes, behavior and practice).

Qualitative field trial

A small-scale qualitative field trial of 30 recidivists and 30 abstinent alcohol dependent patients will be carried out. This study will be conducted without the inclusion of a control group. The aim is not to generalize the results based on a representative sample of subjects but to explore an as large as possible diversity of experiences. This in-depth exploratory approach could serve as a preparation for future large-scale tests of efficacy in the EU. This is a necessary and logical step towards legal implementation, because

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although the expertise with alcolocks in other parts of the world may be very important to Europe, it still needs to be translated to the European context.

Research subjects

To date, 15 Flemish subjects convicted for drink-driving have been included in the project. This group comprises a rather heterogeneous mix of participants: three females and twelve males; age ranging between 21 and 54; most are multiple offenders, some are first offenders with a BAC of at least 1.2g/l. In Wallonia, only three recidivists have been included officially but 9 others are on the verge of being included.

The ethical commission recently approved the study design for the alcohol dependent patients, the other target group of the Belgian project. The inclusion criteria for alcohol dependent patients are: to fulfill the DSM-IV-R criteria for substance dependence; to be abstinent at the time of installation of the alcolock; to follow a medical treatment for the problem of substance dependence; to be fit to drive a car, assessed by the treating physician (a psychiatrist); and to volunteer to take part in the alcolock project. Preparations are currently underway to include both 15 Flemish speaking and 15 French speaking patients at the latest by the end of November 2004.

Program features

Recidivists enter the alcolock program after a conviction for drink driving by a judge in one of the 6 judicial districts involved in this project (3 districts in Flanders and 3 in Wallonia). The judge proposes driving with an alcolock as a probation condition. The subject is free to accept or not; the alternative, however, is license withdrawal and/or a fine. After having accepted the probation terms, a probation assistant explains in more detail what exactly is expected from the subject. Being fully aware of all the implications, the subject is now able to confirm or reconsider his participation. Then, the subject participates in a group session highlighting the most important features of the alcolock device[6]. The first part of a driver improvement course takes place at the same occasion. Next, an appointment is made to install the device (first installations are scheduled for November 8th 2004) and after installation the subject will get an overview of the instruction of the alcolock device during an individual training session at the service center. Just before this individual session, a face-to-face interview with a researcher takes place. Each subject's car will be equipped with an alcolock for a period of 12 months and for each program violation, an additional face-to-face interview will take place and the probation assistant will be informed. These probation assistants liaise with the Probation Commission who is the only agency that has the power to decide how to react on a program violation. After six months, a midterm evaluation will take place by means of a face-to-face interview and subjects will attend the second part of the driver improvement course. De-installation will take place after 12 months and at the same time a final interview will take place. This time not only the subject will be interviewed but a relative too.

The curriculum of alcohol dependent patients is the same as for the recidivists, except that they are not supervised by probation assistants or by the Probation Commission. There are, however, treated by a physician for their problem of substance dependency.

[6] Parameter settings of the alcolock device can be obtained upon request.

7.0 Research Update

The Hard Suspension Barrier: Does New Mexico's Interlock Licensing Law Solve the Problem?

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Introduction

Mandatory programs may conflict with license suspension/revocation laws. Although several states have mandated interlocks for multiple DUI offenders, such programs have generally failed to produce a high proportion of offenders on interlocks. An important barrier to the effectiveness of such laws has been the conflicting requirements of laws mandating administrative license actions by departments of motor vehicles (DMVs). These include implied-consent suspensions/revocations for refusals of the breath test, administrative license revocation/suspension (ALR/ALS) laws for offenders with blood alcohol concentrations (BACs) higher than the per se limit, and mandatory suspensions/revocations for a DUI conviction. These laws generally specify a minimum period of full or "hard" license suspension/revocation for a DUI offender that precludes the issuance of a limited or "hardship" license or a limited license for driving an interlock-equipped vehicle. Judges have generally been unwilling to require the installation of an interlock when the offender is fully suspended or revoked and unable to drive legally under any circumstances.

California provides an example for such a conflict. State law requires a two-year hard suspension for second DUI offenders and, simultaneously, requires judges to impose a mandatory interlock condition on multiple offenders. Despite the interlock mandate, few judges applied the sanction. DeYoung (2002) studied the implementation of the interlock law and found that only a small portion of all eligible offenders installed interlocks. Further, the interlock programs were poorly monitored, consequently, they appeared to have little impact on recidivism.

Federal legislation, in reauthorization of the Highway Safety Act – the "Transportation Equity Act of the 21st Century" (TEA-21) – required states to enact a minimum one-year hard suspension for second DUI offenders or face a 3% transfer of their highway construction funds to safety programs. Because imposition of the interlock by the court following conviction was in conflict with the mandatory one-year hard suspension/revocation, a number of states enacted laws requiring offenders to install the interlock as a condition for license reinstatement after they had completed the hard suspension/revocation period. Many offenders do not reinstate when eligible and some postpone reinstatement indefinitely; therefore, the effectiveness of that procedure remains to be determined.

Three types of DMV policies. These varying laws relating to the function of the DMVs in the imposition of interlocks on DUI offenders fall into three categories:

1. *DMV policies that may conflict with court-mandated programs:* Court-ordered interlock programs make the interlock a condition of probation and, potentially, provide the strongest incentive for offenders to install interlocks because failure to do so can result in relatively severe consequences. DMV ALR/ALS programs can support the court action by issuing an interlock license and placing an entry on the offender's driving record. Conversely, they can potentially interfere if the department is prevented by law from issuing limited licenses that permit the installation of an interlock.

2. *DMV policies that permit interlocks during otherwise hard-suspension/revocation periods:* These policies provide for a portion of the administratively required full-suspension/revocation period to be served with an interlock vehicle.

3. *DMV policies that require interlocks for license reinstatement:* These make the interlock a condition of reinstatement. They can delay eligibility for full reinstatement or prevent it without interlock installation.

The New Mexico Law

On January 1, 2003, New Mexico implemented a law that mandates interlocks for first-time aggravated offenders (arrest BAC $\geq$.16) and all repeat DUI offenders. To avoid a conflict with administrative revocation requirements, the state's legislature passed a companion law, "Ignition Interlock Licensing Act" (IILA). The law makes it possible for revoked offenders to get a license to drive vehicles equipped with interlocks at anytime, provided they have insurance. This made it possible for suspended offenders, mandated by the courts to install interlocks, to obtain licenses to operate the interlocked vehicle, thus potentially eliminating the conflict. Nonetheless, the IILA did not overcome the problem created by TEA-21 and New Mexico is still subject to the 3% transfer of its highway construction funds.

The IILA law prevents the type of conflict with the court system described in item 1 under the DMV policies. With respect to item 2, it also makes it possible for any offender to avoid any or all of the revocation period by applying for an interlock license, the IILA does not require a minimum period of revocation as do similar laws in other states. Finally, if the offender has completed the required period of revocation, as is the case with the states listed in item 3, it does not delay full reinstatement.

An important support for the mandatory law is the provision for an Interlock Indigent Fund, which reduces one factor cited by the courts for not imposing the interlock on offenders who claim to be unable to meet the installation and monthly maintenance costs. None of the laws, however, overcome a major limitation in mandatory interlock programs, which is the ability of offenders (most of whom resist an interlock program) to avoid installation by claiming not to own or have access to a vehicle in which an interlock can be installed.

NHTSA Contract to PIRE

The National Highway Safety Administration (NHTSA) has awarded a contract to the Pacific Institute for Research and Evaluation to study the impact of New Mexico's interlock laws.

Study Objectives. The NHTSA-funded evaluation program has four major objectives:

1. Evaluate the impact of the mandatory law.
2. Evaluate the predictive variety of breath-test patterns in the BAC record.
3. Identify features of the new law that contribute to a reduction in recidivism.
4. Identify shortcomings in the law and how they might be remedied.

The effort is centered on evaluating the impact of court-mandated interlocks on DUI recidivism and crashes. In addition to this prime objective, we also will attempt to extend our previous research on the predictive validity of the BAC record from the interlock recorder for estimating future impaired driving (recidivism and crashes). Because the New Mexico-mandated interlock legislation involves three different laws, is relatively complex in its application, and applies to both current and past offenders, we will attempt to assess the relative significance of the various features of the laws. Thus, we will evaluate the impact of the mandatory law in relation to new offenders who avoid the interlock sanction and those long-term offenders who elect to install interlocks in order to drive legally.

Analysis of loopholes in the law. We also will attempt to study limits in the law or in the court procedures that affect the proportion of arrested offenders that wind up installing interlocks. Some issues that will need to be considered follow:

- Arrested DUI offenders often avoid adjudication.
- Technicalities frequently result in not-guilty verdicts.
- The interlock is often not required by the court when the offender does not own a vehicle.
- When the offender fails to install when mandated, there is often no systematic follow-up.
- The ALR period may end before the interlock period ends, potentially undermining the need for the interlock to drive legally.

Study will require a complex analysis of multiple datasets. The New Mexico laws appear quite straightforward; nonetheless, evaluation of their impact involves significant complexity. Eight outcome groups will be identified from the court-mandated interlock process. The driving records of these groups will be contrasted from the day of their arrest, using their prior records as a covariate in the recidivism analysis.

To conduct the recidivism study and to meet the four objectives listed above, we will be collecting the following large set of measures:

- Interlock installation and removal
- Interlock reports to courts
- Interlock vendors' reports to the court
- Interlock event recorder
- Interlock licenses granted
- Interlock mandates from court
- DUI and associated offenses
- Convictions for DUI, MVL

To provide time to collect a sufficient number of cases and to permit post-adjudication driver records to mature, the research plan will require 3 years. By the end of that period, we expect to have a good indication of the extent to which the mandatory interlock law in combination with the IILA has increased the use of interlocks in New Mexico and whether this increase has produced the expected reduction in recidivism and crash involvements of DUI offenders.

References

Beck, K., Rauch, W., Baker, E., & Williams, A. (1999). Effects of ignition interlock license restrictions on drivers with multiple alcohol offenses: A random trial in Maryland. *American Journal of Public Health,* 89, 1696-1700.

Coben, J. H., & Larkin, G. L. (1999). Effectiveness of ignition interlock devices in reducing drunk driving recidivism. *American Journal of Preventive Medicine*, 16(1 S), 81-87.

DeYoung, D. J. (2002). An evaluation of the implementation of ignition interlock in California. *Journal of Safety Research*, 33,473-482.

Shults, R. A., Elder, R. W., Sleet, D. A., Nichols, J. L., Alao, M. 0., Carande-Kulis, V. G., Zaza, S., So sin, D. M., Thompson, R. S., & Task Force on Community Preventive Services. (2001). Reviews of evidence regarding interventions to reduce alcohol-impaired driving. *American Journal of Preventive Medicine*, 21(4 Suppl), 66-88.

Simpson, H. M., Mayhew, D. R., & Beirness, D. J. (1996). *Dealing with the hard core drinking driver* (107 pp.). Ottawa, Canada: Traffic Injury Research Foundation.

Vezina, L., & Dussault, C. (2001). *Programme d'antidemarreur: Impact sur la recidive et les accidents au Quebec*. Quebec, Canada: Societe de l'assurance automobile du Quebec.

Voas, R. B., Blackman, K. 0., Tippetts, A. S., & Marques, P. R. (2002). Evaluation of a program to motivate impaired driving offenders to install ignition interlocks. *Accident Analysis and Prevention*, 34(4),449-455.

Voas, R. B., Marques, P. R., Tippetts, A. S., & Beirness, D. J. (1999). The Alberta Interlock Program: The evaluation of a province-wide program on DUI recidivism. *Addiction*, 94(12), 1849-1859.

Quebec's Approach to Emergency Override Use for Interlock Program Participants

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Every jurisdiction undertaking either the launch of a new ignition interlock program for drink-driving offenders or the review of an existing program is confronted with a dilemma: whether on the one hand to permit interlock devices used by program participants to have an emergency override (or bypass) feature and risk misuse by persons who have demonstrated their unwillingness or inability to make responsible decisions about driving after drinking or, on the other hand, to prohibit the use of an emergency override and run the risk that an interlock-equipped vehicle may represent or exacerbate a threat to life and limb in a true emergency because the interlock device prevents the vehicle from being started or operated.

Against this backdrop, officials responsible for Quebec's Ignition Interlock Program have devised an approach to use of the emergency override designed to ensure that the feature is available if needed in a true emergency situation, while at the same time minimizing the incidence and the attendant risks associated with misuse. In operation since December, 1997, this approach involves a single-use override feature combined with an audible and visible alarm system. The alarm system is activated in tandem with activation of the emergency override feature, and remains on during the entire time the interlock device is in override mode.

In order to assess whether Quebec officials have been successful in achieving this goal, an investigation was undertaken consisting largely of an examination of events log data gathered by the interlock division of Alcohol Countermeasure Systems Corp in the course of its activities as the designated service provider for Quebec's Ignition Interlock Program.

Table 1 shows the number of emergency override transactions recorded over a six year period from 1998 to 2003 inclusive, as well as the rate of EO use measured with reference to the average number of program participants per month in each of those years. Looking at the number of transactions alone would tend to suggest that the rate of EO activation went up substantially in 1999, remained high in 2000, dropped dramatically in 2001, and in the last couple of years has plateaued. However, when viewed in terms of the number of program participants in each of the years in question, it can be seen that the rate of EO activation has actually declined steadily throughout the period.

The precise reasons for the decline in EO use over the past six years cannot be stated conclusively at this time. Nevertheless, there is evidence to suggest that the explanation involves a number of factors. These include first-hand experience by program participants who realize after activating the emergency override that they cannot drive without the alarm horn sounding and auxiliary lights flashing continuously; second-hand experience as this information is passed on from one participant to another; development of a more effective system for timely reporting of non-compliant

participants; and a concerted effort on the part of administering authorities to ensure non-compliance is appropriately sanctioned

Table 1
Quebec Ignition Interlock Program Emergency Override Transactions
(1998 – 2003)

Year	EO Transactions	Av Participation/Mo	%
1998	926	2052	*45%*
1999	1255	3151	*40%*
2000	1133	2929	*39%*
2001	743	2394	*31%*
2002	678	2527	*27%*
2003	693	2945	*24%*

In spite of an apparent decline in EO use over the past six years, the number of transactions involving activation of the emergency override feature remains significant. Approximately one out of every four participants activates the EO at one time or another.

Using events log data, it was determined that more than one-half of EO transactions in 1999 and more than two-thirds in 2003 did not involve driving. In both instances a further 7% of EO transactions involved driving for less than 6 minutes. That still means a substantial percentage -- 39% in 1999 and 24% in 2003 -- of EO transactions entailed driving for extended periods. However, relative to the number of participants overall, the EO transactions involving extended periods of driving represent a small percentage (15%) in 1999 and just 5% in 2003.

Using service providers' records, it was determined that of the 218 EO transactions which were deemed to have involved driving (i.e. engine running for more than three minutes), 5 represented emergencies and/or situations beyond participants' control, and in a further 99 instances it was concluded that there was no violation of program conditions (i.e., the participant was not driving). That left 114 transactions which were considered to involve participants who activated the emergency override and drove a vehicle in violation of program conditions. Notably, the latter figure includes 73 transactions involving activation of the emergency override following the logging of a BAC Fail event (i.e. a breath test result indicating a BAC level in excess of the fail level set for the device). Putting the matter in perspective, however, it is worthwhile bearing in mind that the fail level in Quebec is 20 mg%, and that only 3 of the 73 EO transactions associated with BAC Fail events were preceded by BAC Fails in excess of 40mg%.

The number of EO transactions regarded as program violations in 2003 represents 45% of EO transactions involving driving. Yet, when considered in relation to the total number of program participants, the percentage who activated the emergency override and drove in circumstances amounting to a violation of program conditions is limited to just 4% of participants.

In summary, the foregoing analysis supports the view that Quebec's approach to the use of the emergency override feature has had the desired effect. This research shows that although significant numbers of program participants activate the emergency override in non-emergency situations, few of them actually drive after doing and only a very small number drive for extended periods of time.

An International Inventory of Interlock Programs

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The Traffic Injury Research Foundation has undertaken the creation of an international inventory of ignition interlock programs. This international resource is designed to provide current information about interlocks to researchers and practitioners working in this field, and to those individuals and agencies considering, developing, or undergoing program implementation. Its primary goals are to provide guidance to jurisdictions aiming to develop and implement programs, identify research needs and opportunities, share information, and facilitate ongoing initiatives by providing current, easily accessible sources of information, data, and contacts.

The development of this inventory began with a comprehensive interlock survey designed to capture information relating to key program features, administrative and monitoring data, operational details, participating agencies and program contacts. Jurisdictions included in the survey were Australia, Canada, Europe and the United States. Supporting legislation for programs was also gathered with the assistance of the National Traffic Law Center, the National Conference of State Legislators, and program administrators.

The initial distribution of the survey was extremely challenging and time-consuming because a diversity of agencies is involved in the administration of these programs and the needed information was frequently collected by multiple agencies. Moreover, the existence of interlock programs is not always well-known among the relevant professionals. In many instances, several agencies were contacted before the appropriate authority was located. Once identified, individuals were contacted with a request to complete the survey.

To date, completed surveys have been received from most jurisdictions in Australia, Canada, and Europe. Information has been gathered from a significant number of States as well; however, information from some jurisdictions is still lacking. Survey information was most difficult to collect from those states in which interlock programs are supervised by courts and probation, mainly because practices vary across counties, making it necessary to contact multiple courts and probation officers to gather statewide information.

As this project progressed, it became apparent that many jurisdictions were in the process of developing or implementing an interlock program, or revising an existing program, meaning that any technical report produced would be rapidly outdated before it could be published. Information about interlock programs was constantly changing as programs were being added, expanded, and improved.

Consequently it was decided that the survey findings would be much more useful as a web-based inventory as compared to a technical report. Not only would the web-based inventory provide easy access for researchers and practitioners, but it could also be updated to provide current, practical program information. Moreover, this inventory could identify opportunities for program evaluations, facilitate tracking and measuring changes

over time within and between programs, permit comparisons among programs, and most importantly, create a network between program practitioners.

Currently the information is being transcribed and formatted into an appropriate web-format and efforts are ongoing to gather information from those missing jurisdictions. The program information that will be part of the inventory includes: agencies involved in the program and primary contact persons, the type of program, eligibility of offenders, program size, program length, information about hardship licenses, funding, treatment, servicing, monitoring, and sanctioning.

To supplement the program inventory, current research and practical information is also being compiled and included in the inventory. This includes: information about interlock devices and how they function, leading research, legislation supporting the implementation of interlock programs, and current activities in the field of interlocks. Proceedings from an international symposia series on interlocks are included as are contact information for research agencies and interlock manufacturers.

The development of this inventory has been a considerable undertaking, and appropriate methods will be developed to update and revise existing information to ensure the inventory remains current. This inventory can serve to guide the development and improve the administration of interlock programs in all jurisdictions. It can also measure successes and demonstrate the benefits of expanding the use of interlocks to reduce impaired driving.