TRAFFIC INJURY RESEARCH FOUNDATION

INTEGRATING SYSTEMS: CREATING A CONTINUUM OF CARE

PROCEEDINGS OF THE 12TH INTERNATIONAL ALCOHOL INTERLOCK SYMPOSIUM

TIRF

The knowledge source for safe driving

The Traffic Injury Research Foundation

The mission of the Traffic Injury Research Foundation (TIRF) is to reduce traffic-related deaths and injuries. TIRF is an independent, charitable road safety institute. Since its inception in 1964, TIRF has become internationally recognized for its accomplishments in identifying the causes of road crashes and developing program and policies to address them effectively.

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Traffic Injury Research Foundation

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ACKNOWLEDGMENTS

The ongoing support of this international symposia series that has been provided by manufacturers during the past 12 years has greatly contributed to the development of new knowledge, to advances in technology and program development, and the diverse partnerships which have enabled us to achieve considerable progress to strengthen interlock delivery and reduce impaired driving.

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Their ongoing commitment to this international symposia series encourages the pursuit of innovative ideas, the sharing of perspectives and the development of collaborative partnerships among governments, practitioners, researchers, policymakers, and industry that is needed to advance the field.

TIRF also acknowledges the contribution of the many speakers, moderators, discussion group leaders, and note takers who facilitated dialogue, captured discussion, and stimulated the sharing of important information needed to support the delivery of alcohol interlocks in a range of settings. Finally, TIRF extends its appreciation to all of the participants who attended this annual event to share their experiences, opinions, insights, and expertise to help guide the development and implementation of alcohol interlock programs across jurisdictions and around the world. The content of this report is based on the summary of discussion and perspectives at the Symposium and does not necessarily reflect the views of individual presenters, participants, or sponsors.

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INTRODUCTION AND GOALS

The 12th International Alcohol Interlock Symposium held in Palm Springs, California, was the largest of the Symposia to date. More than 175 attendees representing 18 different countries attended the event. The growth of the Symposium, which had humble beginnings with only 26 attendees present in 2000, demonstrates the continued interest in not only the use of alcohol interlocks but also in the enhancement of existing interlock programs, the pursuit of technological innovation, and the implementation of new legislation and programs internationally. It also highlights the growing body of knowledge regarding treatment, recidivism, and best practices research. Many of these issues were addressed at this year's Symposium and are discussed in greater detail in the following proceedings.

In the past year, great strides have been made around the globe as jurisdictions have achieved progress in encouraging the use of alcohol interlocks as well as strengthening existing programs by focusing on improving program implementation and delivery. International interest in the use of alcohol interlocks has also increased as several jurisdictions have expressed interest in learning more about and exploring the use of alcohol interlocks, including New Zealand, Poland, Turkey, Peru, Mexico, Denmark, and Chile. Other jurisdictions continue to pursue and/or expand the implementation of alcohol interlocks including Belgium, Japan, Finland, Sweden, France, Germany, the United Kingdom, and the Netherlands.

There has also been new innovation in interlock programs. For example, there is an increased interest in indigenous populations such as those in remote parts of Australia where vehicles are shared by communities. In Finland, interlocks are now being used by all vehicles that transport children to and from school, which can often be taxis instead of buses. Similarly, France is now requiring that all school buses be equipped with interlocks. Such commercial applications open the door for broader usage of interlocks as a public health device as opposed to solely a public safety device.

In addition, all 50 states in the U.S. now have alcohol interlock laws with the passage of high-BAC legislation in Alabama earlier this year. More importantly, there are now 32 states in the U.S. that have some degree of first offender legislation either at .08 or for high blood alcohol concentration (BAC).

Additional work has been done in several U.S. jurisdictions as states have begun to re-examine their interlock programs to strengthen technical standards, laws, and/or operational practices. These jurisdictions include Illinois, Colorado, Oklahoma, Missouri, Idaho, North Carolina, New Jersey, Kansas, and Washington.

Government agencies and national organizations have also worked diligently and demonstrated tremendous leadership in this area by supporting interlock efforts in North America. This includes the National Highway Traffic Safety Administration (NHTSA), Transport Canada and the Canadian Council

of Motor Transport Administrators (CCMTA), the Centers for Disease Control and Prevention (CDC), the Century Council, the American Association of Motor Vehicle Administrators (AAMVA), and Mothers Against Drunk Drivers (MADD).

In Europe, the RDW in the Netherlands has shown great leadership, particularly in regard to data management efforts and privacy protection. The Swedish Road Administration has been a strong force to encourage a national framework for interlocks in the European Union. France and the French Road Safety Association have also provided much direction by convening a group of international experts to inform the development of programs in France. In Australia, initiatives continue to be led by Vic Roads including the hosting of a national meeting in Melbourne to discuss the development of a national framework for interlock programs. Similarly, interest in Japan continues to grow with strong support from MADD Japan and the Japanese Automobile Research Institute.

In recognition of the continued efforts made by governments, agencies, program administrators, and practitioners to improve the delivery of alcohol interlock programs, the theme of this year's symposium was "*Integrating Systems: Creating a Continuum of Care*". More jurisdictions are exploring opportunities to integrate elements of licensing, criminal justice, and treatment systems into interlock programs in an attempt to not only reduce the occurrence of impaired driving but to also address underlying issues that lead to offending behaviour. This strategy will ultimately serve to better manage offender risk and resource allocations to maximize opportunities to reduce impaired driving.

This approach can enable program staff to better address the varying levels of risk posed by offenders and respond to their diverse needs. Through the identification of offender risk level (e.g., likelihood of recidivating), resources can be utilized in the best way by targeting those who are more likely to re-offend. Not only is there a growing emphasis on incorporating a treatment component into interlock programs to target high risk offenders with diagnosed alcohol dependency issues, but there is also a growing recognition that criminal justice elements may be the only strategy to ensure that offenders who are consistently non-compliant are appropriately managed and adequately supervised.

The inclusion of screening practices and treatment into interlock programs is one important trend but there are many other emerging issues that jurisdictions are currently working to address as programs expand and participation rates increase. These include the issue of jurisdictional reciprocity which involves the management and tracking of offenders across jurisdictions to close gaps that permit offenders to avoid interlock supervision. Efforts are needed to better understand the magnitude of this issue, why it occurs, and how it can be overcome. Program administrators in the United States as well as Canada are beginning to work with neighbouring jurisdictions to develop reciprocal arrangements to ensure that offenders cannot slip through the cracks when they travel from one jurisdiction to another.

Another area of interest for jurisdictions looking to improve existing interlock programs is the transitioning from paper-based to electronic reporting systems to facilitate the management of offenders. This provides an ideal opportunity to explore opportunities to integrate data systems that would allow licensing, criminal justice, and treatment agencies to better share information and improve the monitoring and tracking of offenders across agencies and jurisdictions. There are many benefits associated with having such a system in place including the sharing of interlock data with agencies that could use it to better manage resources and inform decisions regarding supervision or treatment. The trend of frontline practitioners wanting access to interlock data in order to strengthen operational practices is present in both offender-based and commercial interlock programs and is an issue which will require further exploration in the future.

It is clear that the level of confidence in alcohol interlocks has grown as seen by the increasing investment in program development and implementation, which have become priorities as jurisdictions are taking ownership of these programs.

At the same time, we have also seen jurisdictions looking to examples in other countries and leveraging their knowledge and experiences to streamline program development and benefit from existing examples. Program administrators are networking and sharing experiences about what works and how to overcome challenges. Perhaps most promising is the growing recognition that vendors are part of the process. Governments and program administrators are reaching out to vendors as partners, as a valuable source of expertise, and a resource they can rely upon to streamline and better manage the delivery of interlocks.

The agenda of this year's symposium featured a broad range of speakers who shared their perspectives on new interlock research and new impaired driver research as well as the use of treatment strategies, and court involvement in managing higher risk offenders. Various jurisdictions also spoke about progress made in improving the delivery of interlock programs, strengthening data collection strategies, and establishing reciprocal arrangements to track offenders as they travel. International representatives spoke about efforts to enhance laws and expand existing programs as well as the strides that are currently being made in the development and implementation of new interlock programs. The Symposium and these subsequent proceedings demonstrate the importance of building multi-agency partnerships, improving the allocation of resources, identifying priorities, and working towards a common goal in an effort to inform the development and enhance the delivery of interlock programs internationally.

Robyn Robertson, MCA
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NATIONAL IMPAIRED DRIVING PREVENTION STRATEGIES

Plenary Session

Based on a presentation by Dr. David Manning, National Highway Traffic Safety Administration

Traffic crashes are a silent epidemic in the United States. There is one traffic injury every 13 seconds and one fatality every 14 minutes. This amounts to a tremendous loss of life. In fact, traffic crashes are the number one preventable form of death for all Americans, specifically for Hispanics, Native Americans, African Americans, and those ages 15-20. When compared to other forms of crime, there are nearly three times as many driving under the influence (DWI) arrests per hour (167).

As a result, the National Highway Traffic Safety Administration (NHTSA) has made its mission to save lives, prevent injuries, and reduce economic costs due to traffic crashes. In an effort to do so, there has been recognition that traffic injury prevention represents an intersection among public health, public safety, state and local legislators, and highway safety and transportation sectors. All of these sectors must work collaboratively to develop strategies and partnerships with the common goal of reducing the occurrence of traffic crashes and their associated costs.

Every year, the economic burden of traffic crashes exceeds $230 billion. Of this, $32 billion is spent on medical costs and $51 billion can be attributed to impaired driving. To reduce some of these costs, NHTSA has identified several traffic safety priorities including seat belt use, impaired driving, distracted driving, high visibility enforcement, and motorcycle safety. Along with these priorities, NHTSA has also developed prevention strategies that seek to reduce the occurrence of traffic crashes, injuries, and fatalities related to these issues.

The issue of impaired driving has long been a target of intervention and considerable progress has been made in reducing fatalities. Between the years 1999 and 2009, there has been a decline in the number of impaired driving fatalities which were at a record low in 2009 (10,839). While this figure represents a tremendous reduction in fatalities since the 1980s (where annual fatalities peaked at 21,000), there is still much work that needs to be done. An impaired driving crash occurs once every 38 minutes and a fatality every 48 minutes. Three in ten Americans will be affected by impaired driving at some point in their lifetime.

NHTSA has identified three primary prevention strategies to reduce the occurrence of impaired driving. These include:

- High visibility enforcement;
- Screening and brief intervention; and,
- The use of alcohol interlocks.

High visibility enforcement involves engaging law enforcement agencies in periodic impaired driving crackdowns and sustained impaired driving enforcement efforts. These campaigns rely on a high level of visibility and calculated timing in order to create a perception of risk/apprehension. They are meant to be well-publicized through paid and earned media support. Research has shown that these types of law enforcement campaigns are effective when highly publicized, highly visible, and frequently used (Fell et al. 2004). In 2011, NHTSA launched a new national crackdown campaign *'Drive Sober or Get Pulled Over.'*

Screening and brief interventions are important to identify impaired drivers who suffer from alcohol dependency issues. Through the use of these tools, the underlying behaviour that leads to impaired driving can be identified and an appropriate treatment plan can be created. The time of arrest and/or conviction for a DWI can be an important teachable moment and represents an opportunity to promote behaviour change. Research has shown that up to 75% of repeat offenders are alcohol dependent and that many first offenders also meet the criteria for alcohol dependency (Baker et al. 2002). Also of note, in 2009, 56% of drinking drivers involved in fatal crashes had a BAC level at or above 0.15 (NHTSA 2009). This demonstrates the need to not only punish offenders who drink and drive but to look for rehabilitative opportunities to prevent future offending. NHTSA promotes partnerships and works with the medical community (emergency departments and trauma centres) as well as colleges and workplaces to develop and use new screening instruments and brief interventions.

NHTSA's final prevention strategy to reduce impaired driving is the use of alcohol interlocks. In the United States, there are currently more than 212,000 interlock devices installed in vehicles. Also, all 50 states now have enacted interlock legislation making the devices mandatory for repeat (and possibly high-BAC) offenders. Fourteen states (and four counties in California) have made interlock mandatory for all convicted impaired drivers, including first offenders. Studies have shown that alcohol interlocks are effective in reducing recidivism among both first and repeat offenders while the device is installed (Vezina 2002; Voas and Marques 2003). Alcohol interlocks have been found to reduce the relative risk of recidivism by an average of 64% making them a promising tool for combating impaired driving when combined with other prevention strategies (Willis et al. 2005).

NHTSA will continue to support efforts made at the national, state, and local level to reduce impaired driving through partnerships and initiatives such as the aforementioned prevention strategies.

ALCOHOL-IMPAIRED DRIVING INITIATIVES IN CALIFORNIA

Plenary Session

Based on a presentation by Chris Murphy, California Office of Traffic Safety

The California Office of Traffic Safety (OTS) is focused on eliminating all traffic deaths and injuries through funding various programs at both the state and local level. OTS not only provides grants; it also oversees public awareness campaigns and serves as a traffic safety resource.

OTS' program goal is to help communities develop traffic safety programs which will contribute toward the reduction of California's mileage death rate (MDR) to zero. When identifying programs to fund, OTS takes into consideration which initiatives are most cost-efficient and effective in reducing traffic deaths and injuries.

In 2010, California's traffic fatalities decreased 11.9% (from 3,081 to 2,715), reaching the lowest level they had been at since the federal government began recording traffic fatalities in 1975. The 2009 California MDR is 0.95 (fatalities per 100 million miles traveled) which marks the first time California has been below 1.0 and is better than the national average of 1.14. In an effort to further reduce this number, the OTS has identified several priority issues that need to be addressed.

There are currently eight priority program areas for grant funding. These include:

- Alcohol and other drugs;
- Occupant protection;
- Pedestrian and bicycle safety;
- Traffic records;
- Emergency medical services;
- Roadway safety;
- Motorcycle safety; and,
- Police traffic services.

With regard to alcohol and other drugs, the program goal is to reduce deaths and injuries attributable to alcohol and drug involvement by removing alcohol- and drug-impaired drivers from the roads. Alcohol impaired driving fatalities decreased 7.6% between 2008 and 2009, marking a staggering 26.8% drop since 2005.

Several initiatives are underway to target impaired driving. These include identifying and targeting California's "Top 50 DWI Cities" and providing funding to these cities to conduct additional DWI

checkpoints. As a result, the "Top 50 Cities" planned to conduct 598 DWI checkpoints in 2011. Additional funding was also provided to twelve county probation departments to target repeat DWI offenders who violate their conditions. Strategies used to target these offenders include intensive supervision, unannounced home contacts and searches, surveillance operations, highly publicized warrant service operations, alcohol and drug testing, and the distribution of "hot sheets" to local law enforcement agencies.

Other funded DWI initiatives in 2011 are listed below:

- Statewide DWI Checkpoint Program for local law enforcement agencies;
- Countywide and Regional DWI Avoid programs in 42 counties;
- Live DWI Courts and Sentencings in California high schools – that allow students to see the consequences of drinking and driving;
- Every 15 Minutes Program – 150 programs that focus on educating high school students about the consequences of drinking;
- DWI courts – using a staggered sentencing model;
- Traffic Safety Resource Prosecutor (TSRP) Program; and,
- Vehicular Homicide Seminar for the California District Attorneys Association (CDAA).

Progress has been made in California in reducing alcohol-impaired fatalities. Between 2009 and 2010, the number of fatalities decreased by 14.4% from 924 to 791. Of the five states with the greatest number of total traffic fatalities, California has the best alcohol-impaired driving fatality rate. California has approximately 196,000 DWI arrests in 2010 as a result of increased enforcement efforts and it maintains a high conviction rate of 79%.

The increased detection rate can be partially attributed to the $13 million allocated to conduct 2,500 sobriety checkpoints. About 90% of these checkpoints are conducted in communities by local law enforcement and the other 10% are conducted by the California Highway Patrol. More than 2.7 million vehicles went through these checkpoints which resulted in 7,000 arrests and 32,000 vehicle impoundments. Of those arrested for DWI it has been found that 29% are repeat offenders.

The other issue that OTS is now focusing on is the combination of alcohol and drug-impaired driving. Of those drivers involved in crashes with known test results, 1 in 3 test positive for drugs and approximately 23% of fatally injured drivers test positive for drugs. OTS advocates increasing testing and reporting of fatally injured drivers (only 63% of those who were killed in 2009 were tested for drugs). Moving forward, the goal is to amend statutes to provide separate and distinct sanctions for alcohol-impaired and drug-impaired driving.

CALIFORNIA'S INTERLOCK PROGRAM

The interlock program in California is one of the oldest in the United States. Implemented more than 25 years ago, the program has undergone a number of legislative changes culminating in a pilot initiative in four counties for first offenders launched in 2010. The outcome of this pilot program, to be reported in 2015, will determine whether the entire state adopts first offender legislation.

California's Ignition Interlock Program

Based on presentations by Mimi Khan, California DMV; Lt. Brandon Johnson, California Highway Patrol; and Ron Cyger, LA County Superior Court

California has a hybrid interlock program that has been in place since 1986 and was implemented statewide in 1990. The California DMV is responsible for the approval of vendors and administrative oversight of the program. Additional responsibilities include managing licence suspensions, reinstatements, and the issuance of restricted licences. The DMV does not however, review interlock data or enforce program compliance. The DMV also has no authority to impose sanctions on those individuals who either fail to have the interlock installed or violate program rules and regulations. The only recourse that the DMV has at its disposal is to revoke the restricted licence. In order for a driver to be fully re-licenced, they must successfully complete the interlock program.

The courts, on the other hand, are responsible for ordering the interlock device as part of sentencing for impaired driving offenders. The interlock legislation is mandatory for repeat offenders and discretionary for first offenders. The court has the general authority (as per Sec. 23575 of the Vehicle Code) to order the installation of an interlock on any DWI conviction. The court is to give heightened consideration in the case of high-BACs, test refusals, or offenders with two or more prior traffic violations. This statute is not mandatory per se and relies heavily upon judicial discretion to order the device. There are mandatory interlock provisions for offenders who are caught driving while suspended or revoked for DWI. For example, offenders convicted for a second DWI serve a two year suspension but can get an interlock restricted licence after 90 days permitted that they meet all eligibility criteria (e.g., proof of DWI education, financial responsibility, and interlock installation).

The interlock is ordered infrequently and is not applied uniformly as a sanction across the state; judges in some counties tend to order the device with greater consistency than others. The monitoring of interlock offenders is the responsibility of probation officers but only if those individuals are actively supervised (many offenders are on paper probation and do not regularly meet with a probation officer).

Several interlock program evaluations have found that more first offenders participate in the program than repeat offenders. Reinstatement rates after three to four years are also higher for first offenders than repeat offenders (75% vs. 50%).

In an effort to further address the impaired driving problem in the state, California recently introduced a pilot program (see Sec. 23700 of the Vehicle Code) in four counties (Alameda, Los Angeles, Sacramento, and Tulare) for first offenders. As of July 1st, 2010, interlocks are required for all DWI offences – both first time and repeat. First offenders are required to have the device installed for a period of five months. Repeat offenders are required to have the device installed for periods of 12, 24, or 36 months depending on the number of prior DWI convictions. The results of this pilot are due to be presented to the legislature in 2015. At present, the participation rate for the program is 20-25%.

Pilot program participants must return to the service centre at least once every 60 days to have the device calibrated and data downloaded. The vendor is required to notify the DMV if the device is removed or if there is evidence that the offender attempted to remove, bypass, or tamper with the device. The DMV is also notified if the offender fails to comply with any requirements for the maintenance and calibration of the interlock on three or more occasions.

If at any time during the restriction period the DMV receives notification from the vendor that an offender failed to comply with any of the interlock requirements, the DMV will "pause" the interlock restriction. The offender is not given credit for any time that they are not actively participating in the interlock program. The interlock restriction termination date is therefore extended each time an offender fails to comply.

Under the conditions of the interlock program, the following are also illegal:

- Removing, bypassing, or tampering with the interlock device;
- Operating any vehicle not equipped with a functioning interlock device;
- Requesting or soliciting any other person to blow into the device; and,
- To knowingly rent, lease, or lend a vehicle to an interlock-restricted driver.

Penalties associated with these violations include up to six months imprisonment and a fine of $5,000. If an offender is caught driving a non-interlock equipped vehicle the court is required to notify the DMV. For offenders who are convicted under VC 13352, the restricted licence is terminated and the driving privilege shall be suspended and/or revoked for the remaining period of the originating suspension/revocation and until all reinstatement requirements are met. For offenders who are required to participate in the interlock program (convicted under VC 23700 and 23575), the DMV shall suspend the driving privilege for one year from the date of conviction for this new offence.

It is important for law enforcement to receive education regarding not only the operation of interlock devices, but also what charges may apply at roadside if they encounter an offender driving a non-interlock equipped vehicle. Law enforcement officials must check the driver record using CLETS (California Law Enforcement Telecommunications System) to determine whether or not an individual has an interlock

restriction. Under the licence status it will say suspended/revoked and under 'other' the interlock restriction is noted. Running the driving record is necessary because the interlock restriction is not noted on the physical driver's licence.

The California Highway Patrol issues approximately 130 citations per year for interlock violations. More education is needed to make officers aware of how to properly cite offenders (citations for driving on a suspended licence are often issued instead of under the interlock provisions).

SPOTLIGHT ON U.S. INTERLOCK PROGRAMS

All 50 states in the United States now have alcohol interlock programs or are enacting legislation. These programs are all different in their structure and delivery which is dictated by legislation at the state level. Programs can either be judicial-based, administrative, or a combination of the two. Some programs have been in place for decades whereas others are in the first stages of implementation. The structure and components of an interlock program should meet the needs of an individual jurisdiction. While there is no single model program that jurisdictions should refer to, it is beneficial to take stock of some the common features among long-standing programs.

The following series of articles discuss alcohol interlock programs in three states – Illinois, North Carolina, and Maryland.

Illinois' Interlock Program

Based on a presentation by Susan McKinney, Illinois Secretary of State

The Breath Alcohol Ignition Interlock Device (BAIID) program expanded to include first offenders in Illinois in 2009. Legislation made it possible for first offenders to use the alcohol interlock on a voluntary basis. Those offenders who decide to participate in the interlock program are required to install an interlock and obtain a Monitoring Device Driving Permit (MDDP). This legislation had the potential to create significant growth in the population of interlock offenders and increase the number of participants from 3,000 to as many as 24,000 if all eligible first offenders opted to participate in the program.

Since the passage of the new legislation there has been gradual growth in the interlock program. In 2009, 6,500 MDDPs were issued. In 2010, 9,000 were issued. These numbers reveal that while more first offenders are opting into the interlock program, more than half of those eligible were choosing to wait out the hard suspension period instead.

There have been several measures of success for the Illinois interlock program for first offenders. The first is that in 2009, there were over 1,500 instances of people in the interlock program blowing .05 or higher who were not able to start their vehicle due to the interlock. This means that 1,500 impaired driving trips were prevented. Also, the program has expanded from 3,000 offenders in 2008 to 11,000 in 2010. Lastly, alcohol-related fatalities are down in Illinois. There has been a steady decline since 2008 when there were 425 fatalities. In 2010, there were only 246 alcohol-related fatalities.

Illinois' experience passing first offender interlock legislation can serve as a model for other states who are considering doing the same. In passing the law, important steps were taken to ensure the implementation process ran smoothly. When the law was drafted, all stakeholders were included in the process to ensure

that those who would be responsible for implementing the operational aspects of the program would have a say in how best to do so. The Secretary of State's Office (SOS) was also at the table when the bill was being drafted which was essential given that this agency would be in charge of implementing and managing the program. The bill was kept as detail-free as possible to afford program administrators the discretion and flexibility to address issues as they arose without being constrained by restrictive legislation. The other important consideration made was to allot sufficient time to prepare for the implementation. The SOS had 18 months before the law became effective which gave staff adequate time to complete all necessary tasks in preparation for the program becoming operational.

In order for Illinois to successfully implement the first offender interlock legislation, a number of tasks had to be completed to make the program efficient. These included creating terms and conditions of participation, developing a computer program for monitoring program participants, designating a trusted monitoring authority, establishing vendor and installation site certification and oversight procedures, and designing a fast-moving system that was easily accessible to those in charge of monitoring.

Other important activities that were critical to the successful implementation were:

- Cultivating a change in thought and attitude within the Secretary of State's office to recognize that a punishment-only mentality is not the best way to address the problem of impaired driving;
- Drafting a well written administrative code and law (which includes clearly defining the responsibilities of vendors, addressing all issues associated with dealing with DWI offenders, and not using prescriptive language to allow for some flexibility when implementing and administering the program);
- Training staff to deal with monitor reports, device readings, and offender appeals; and,
- Securing buy-in and support from every stakeholder involved in the process.

Even with all of these considerations, there were still some challenges that had to be overcome prior to implementation. These included:

- Obtaining buy-in from the courts (judges) and attorneys;
- Changing attitudes within the state;
- Determining how to address the issue of indigency;
- Determining how best to deal with hard core offenders;
- Dispelling myths and misconceptions about device effectiveness;
- Certifying vendors and their installation sites; and,
- Having adequate staffing.

Jurisdictions can learn from the experience in Illinois and give consideration to operational practices to support the implementation of any proposed interlock legislation. This can ensure that the purpose and goals of legislation are achievable and have the desired impact.

North Carolina's Interlock Program

Based on a presentation by Mike Robertson, North Carolina DMV

The North Carolina interlock program was first established in 1989 and by May 1991, all offenders convicted of second and subsequent DWI offences were required to install an ignition interlock as a condition of licence reinstatement. The objective of the interlock program has always been to hold drivers convicted of certain DWI offences accountable and to change their driving behaviour with the goal of increasing public safety.

New legislation introduced in 2007 made it possible for offenders to obtain a limited driving privilege 45 days after their suspension. Through these new provisions, offenders were eligible to enter into the program earlier which reduced the time period in which they can learn to drive unlicenced.

Within 30 days of conviction and prior to being granted a conditional licence, all repeat and high-BAC offenders must undergo a substance abuse assessment overseen by the Department of Health and Human Services (DHHS). If the assessing agency finds that a second or subsequent offender has a substance abuse issue the court may order them to participate in a treatment program. The court shall not require the offender to participate in treatment for more than 90 days unless a longer treatment program is recommended by the assessing agency and their BAC was greater than 0.13 or this was their second or subsequent offence within five years.

Other important components of the interlock program include:

- The interlock restriction is noted on the physical licence ('I/I' on the front) and the end date of the interlock restriction is noted on the back.
- There is a 50 mile radius in place to ensure that all offenders have access to servicing throughout the state.
- Fuel cell (electrochemical sensor) devices are the only devices approved for use in North Carolina.
- Service providers download records of the driver's BAC level at each start attempt over the preceding month. All data collected are sent to a private website for access only by judges and the DMV.
- There is no indigent fund to help those who cannot afford the cost. The interlock provider may accommodate certain offenders by utilizing a sliding fee scale.
- Non-compliant offenders are currently removed from the interlock program. However, hearing officers can reinstate suspensions or allow offenders to continue to participate in the interlock program; they can also extend program participation as they see fit.

An issue that has been encountered is the delay in receipt of violation reports. This makes it challenging to hold offenders accountable for violations in a timely fashion. As a result, some of the deterrent effect is lost. For this reason, North Carolina has expressed interest in transitioning from a paper-based to an automated system to improve program efficiency and effectiveness.

The establishment of reciprocal arrangements is another priority for North Carolina's interlock program. Many offenders avoid participating in the interlock program by crossing state lines. As a result, reciprocity efforts are underway with neighbouring states.

North Carolina is currently in the process of revising administrative rules and has opened the state up to multiple interlock vendors for the first time. Previously, only one vendor operated in the state. As of February 2011, North Carolina implemented a new certification process to select devices for approval. The new 'Program Standards and Procedures' can be found here: www.ncdot.org/download/dmv/DBDMV_IgnitionInterlockRFC.pdf

Lastly, there are currently two pending first offender bills and if they are passed, every person convicted of DWI will be required to have an interlock installed. The program currently has between 8,000-8,500 participants but these numbers are expected to increase with the passage of new legislation.

Maryland's Interlock Program

Based on a presentation by JoAnn Schlachter and Tom Liberatore, Maryland MVA

The interlock program in Maryland was first established in 1989 with enacting legislation. Since that time, there has been considerable program growth, particularly in the past ten years. Participation numbers have continually increased with an average of approximately 8,500-9,000 offenders in the interlock program at any given time (currently, there are 9,100 participants in the program). This program expansion can be attributed to the multiple referral sources through which an offender can be compelled to enroll in the interlock program. These sources of referral include:

- Administrative per-se (TR Sec. 16-205.1) opt-in for BAC > .15 and refusal (it is estimated that approximately 20% of referrals enter the program based on this administrative per se code);
- Maryland Vehicle Administration (MVA) Medical Advisory Board (MAB) (24%);
- Office of Administrative Hearings (OAH) (24%);
- Courts (18%);
- Opt-in under points assignment associated with DWI/DWI (14% combined with mandatory repeat offender provisions); or,
- Repeat offender (mandatory participation).

As can be seen from these different referral sources, Maryland has a hybrid program involving both administrative and judicial elements. It is structured as a two-tier process with multiple components that provides offenders with several routes to enter the program. The use of multiple pathways for program entry has had a net-widening effect whereby more offenders receive information about their eligibility to participate in the program and come into contact with the program, and are required to install the interlock device. As the above percentages indicate, offenders appear to be entering the interlock program through each of these separate channels.

In Maryland, both first and repeat offenders can participate in the interlock program. Repeat offenders and high-BAC (.15 and over) first offenders are mandated to complete the interlock program as a condition of licence reinstatement. High-BAC offenders and those who refuse the breath test have the option of participating in the interlock program or serving a suspension. First offenders may not opt into the interlock program. They may only be ordered to participate by the courts if they request a hearing following a revocation notice. At the hearing, the judge can impose the ignition interlock as a sanction. Repeat offenders are mandated to serve a 45-day hard suspension, and then a 10.5 month interlock assignment.

As of October 1st, 2011 the *Drunk Driving Reduction Act* took effect. Under this new legislation, offenders under the age of 21 are required to serve a one year suspension or be on the interlock. Those with a second alcohol conviction within a five year period are required to serve either a suspension or a period on the interlock. If an offender is convicted of a high-BAC offence, they are required to serve one year on the interlock.

Maryland has good policies in place in relation to the certification of interlock devices and vendors. All interlock devices must be alcohol-specific and comply with state and federal requirements for accuracy and functionality. Vendors are required to submit independent laboratory testing of each device model that it wishes to have certified for use in the state. The MVA will then have the results of this testing independently reviewed to verify compliance. This certification process ensures that all devices approved for use in Maryland meet the criteria that are outlined in administrative rules and legislation.

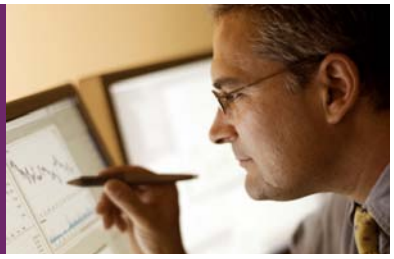
Given that Maryland has multiple interlock vendors certified to do business in the state, the creation of an automated monitoring program was important to make offender management efficient. This is one area where the program has undergone major changes. An automated alcohol ignition interlock program reporting system serves to automate routine tasks relating to the management of interlocked offenders which can be especially helpful in jurisdictions that have a large number of offenders on the interlock. Automation can:

- streamline activities;
- increase timeliness of reporting;
- reduce workload;
- improve communication among agencies;
- improve program management and offender monitoring; and,
- facilitate program evaluation.

The MVA pioneered an automated interlock monitoring program that combines electronic data receipt and program management. Vendors send all interlock data for each participant to the MVA. The interlock program system then analyzes the data and applies interlock program rules to determine if any violations have occurred. If violations are present, the system generates the necessary action notices. A notification letter is sent to the offender to communicate the nature of the violation and make them aware that their time in the program has been extended. The interlock system also automatically extends the period of

program participation for that offender by 30 days. With the introduction of this system, Maryland was able to remove an average of 20,000 paper documents each month.

NEW INTERLOCK RESEARCH



Interlock research has traditionally focused on the effectiveness of the device in reducing recidivism. There is a smaller body of literature that examines optimal program features and the implementation of successful interlock programs. It is important to focus attention on programs and their delivery as many jurisdictions are currently making changes to administrative rules, technical standards, certification procedures, and monitoring practices. The following papers identify some of the effective features of interlock programs that have been identified through various studies.

NHTSA Impaired Driving Countermeasures

Based on a presentation by Heidi Coleman, NHTSA

The National Highway Traffic Safety Administration (NHTSA) is the lead federal agency for highway safety and impaired driving. NHTSA has a singular goal to save lives, prevent injuries, and reduce crashes and associated costs. In an effort to reach this goal, NHTSA works with staff, federal agencies, national organizations, experts, and other individuals from a broad range of fields and disciplines and they rely upon a data driven approach to improve safety.

There was tremendous progress in reducing the occurrence of impaired driving fatalities in the 1980s and early 1990s. Since the mid-1990s there has been a steady but modest decline in the impaired driving fatality rate. Until 2007, the numbers of fatalities hovered around 13,000. In 2007, there was a 4% decline in fatalities from 13,491 deaths in 2006 to 12,998 deaths. In 2008, there was an additional 10% decline (11,773). This number fell by 7% in 2009. However, much of the decrease may be attributable to the downturn in the economy. While these reductions are promising, there is still much work that needs to be done in order to further decrease the number of impaired driving fatalities.

Many of NHTSA's impaired driving countermeasures are designed specifically for the target audience, i.e., drunk drivers. The target audience can be divided into three different categories:

- **First offenders** – this group includes 'first caught'; about 1/3 of first offenders will be re-arrested for impaired driving;
- **Highest risk offenders** – this group includes repeat and high-BAC offenders;
- **Potential offenders** – on average, drivers will drive impaired (above the legal limit) 50-90 times before they are caught and arrested for impaired driving. There are many offenders who have yet to enter the criminal justice system and it is important to reach this group as well.

An analysis of Fatality Analysis Reporting System (FARS) data determined the involvement of these three offender groups in fatal crashes.

- 1.2% of drivers had two or more convictions on their record;
- 6.6% had one conviction;
- 17% had no convictions, but had one or more suspensions;
- 4.2% were unknowns; and,
- 71% were first offenders with no convictions or suspensions on their records (in the last three years).

Each of these groups has different needs that should be addressed. First offenders need deterrence which involves the application of appropriate sanctions in an effort to curb future offending. Highest risk offenders need more attention which means supervision, and in many instances, treatment to address underlying alcohol dependency issues. Lastly, potential offenders need prevention which includes delaying the onset of drinking among youth and intervening so that drinkers do not drive.

NHTSA has identified some priority approaches for each of these groups. With regard to prevention for the potential offender, NHTSA emphasizes high visibility enforcement (HVE) and screening and brief intervention (SBI). HVE focuses on increasing the perceived risk of arrest by creating general deterrence. In order for these efforts to be effective, there must be sustained enforcement at the local level at high-risk times as well as increased levels of visible enforcement combined with publicity. SBI takes advantage of a teachable moment and can be used to identify whether a person may have an alcohol misuse problem. A brief intervention (5-15 minute conversation) empowers and motivates an individual to change their behaviour. The use of SBI is becoming a routine practice in certain medical settings and its use is expanding on college campuses.

Countermeasures targeted at the highest risk offenders include DWI Courts and other close supervision practices. There are currently more than 550 DWI Courts and NHTSA is encouraging further expansion. Key publications include the American Probation and Parole Association's (APPA) Guidelines for Community Supervision of DWI, case studies and evaluations of various types of programs, and the implementation of the 24/7 program in South Dakota, North Dakota, and Montana.

NHTSA has determined that some countermeasures are appropriate for ALL impaired driving offenders, including first offenders. These include:

- Training and education for criminal justice professionals;
- Risk assessment; and,
- Ignition interlocks.

More than twenty years of research has shown that interlocks reduce recidivism by 50-90% while they are installed. NHTSA supports the use of ignition interlocks and has become engaged in a number of activities that back four primary objectives – strong laws, increased interlock use, effective programs, and research/ evaluation.

There has been a tremendous amount of legislative activity with regard to interlocks over the last few years. In 2006, there were interlock laws in all but five states and there was a mandatory all offender law in place in New Mexico. By 2011, there were laws in all 50 states and mandatory all offender laws in 16 states. Many states have also expanded/amended their laws to make participation mandatory as opposed to voluntary and require that both repeat and high-BAC offenders participate in the program. Key barriers and loopholes to participation have been addressed and/or removed in many jurisdictions.

Activities in support of the increased use of interlocks have included Ignition Interlock Institutes which have been held in seven regions in partnership with MADD. A National Ignition Interlock Summit was also organized with cooperation from the Governors Highway Safety Association (GHSA) and the Centers for Disease Control and Prevention (CDC). In the last five years, the number of interlocks has more than doubled from 100,000 in 2006 to 212,000 in 2010.

Additional research that NHTSA has supported includes *Key Features of Ignition Interlock Programs* (www.nhtsa.gov/staticfiles/nti/impaired_driving/pdf/811262.pdf), interlock case studies of six jurisdictions (CO, FL, IL, NM, NY, OK), the *Alcohol Interlock Curriculum for Practitioners* (www.aic.tirf.ca/section1/index.php), and training and technical assistance to support States with the implementation and delivery of their interlock program.

NHTSA has also been involved in evaluations, most recently funding an evaluation of New Mexico's interlock program. This included eight studies with several important findings:

- Recidivism of multiple offenders with and without interlocks – 66% lower while interlocks in use; 22% lower overall;
- Recidivism of high-BAC first offenders with and without interlocks – 61% lower while interlocks in use; 39% lower overall;
- Voluntary interlock installations after third DWI offence – 10% installed interlocks voluntarily; 32% lower recidivism among volunteers;
- Alternative sentence of house arrest (in Santa Fe) – 71% installation rates when presented with option of house arrest;
- Pattern of interlock failures by day and time – 99% tests passed; highest lockouts on Saturdays; 6 – 9 am weekdays and 9 am – noon on weekends;
- Predictors of recidivism – younger age, prior DWI, rate of failed tests, failed morning tests;
- Discussions with representatives of interlock systems (judges, prosecutors, probation officers) – supportive; issues include financial burden on low income offenders, loopholes in laws, administrative burden; and,
- Discussions with offenders – interlock changed the way they drink, allows them to drive, family is supportive; concerns include embarrassment and cost.

Future plans include the formation of an Association of Ignition Interlock Program Administrators which would provide jurisdictions with the opportunity to coordinate, share ideas, and solve problems across state lines. NHTSA is also looking into the possibility of developing interlock program guidelines similar

to interlock model specifications. Research related to strategies for increasing interlock use and ways to extend reductions in recidivism after removal will be ongoing. Case studies on mandatory and all-offender programs are also planned.

In order to achieve these goals, there is a continued need for training and education, partnerships and cooperation, operational support and guidance, and research/evaluation. This will help support continued program growth, consistency across the nation, the effective use of interlocks, and the effective delivery of interlock programs.

Interlock Programs: New Research from the Community Guide

Based on a presentation by Gwen Bergen, Centers for Disease Control and Prevention

The Community Guide is a collection of systematic reviews and recommendations for community-based interventions that are directed at improving the health of the public. Systematic reviews use a scientific process to gather and assess the evidence (or evaluations) about an intervention to determine whether or not the intervention is effective.

The questions the Community Guide systematic review tries to answer include:

- What interventions have or have not worked?
- In what populations and settings does the intervention work?
- What is the cost of the intervention?
- Does the intervention lead to any other benefits or harms?
- Is more research needed on the intervention?

The purpose of the Community Guide is to encourage providers to use interventions that work and avoid those that do not work. There are three possible outcomes for the systematic review process. An intervention can be recommended, recommended against, or there may be insufficient evidence to determine whether or not an intervention is effective. Also, by indicating research gaps, the Community Guides hope to encourage the field to address these gaps through additional research.

There are currently 13 reviews on interventions that reduce alcohol-impaired driving (AID) injuries and deaths. For 9 of the 13 AID interventions, there was sufficient evidence to recommend them as effective. Interlock programs were the most recently reviewed AID intervention.

The review revealed that interlock programs have generally been optional although there is an increasing push for mandatory programs; interlocks are required after mandatory licence suspensions; cost can influence an offender's decision to install the device; and, program participation can be either a condition of probation or a condition of licence reinstatement (or both).

Sources for the interlock review included the existing Cochrane Collaboration review (2004) as well as papers published between March 2003 and December 2007 in Proceedings of the International Ignition Interlock Symposium and Traffic Injury Prevention. In the Cochrane Review, 11 studies were identified and

the findings revealed that interlocks can reduce alcohol-impaired driving while installed but these effects do not persist after removal of the device.

The literature review revealed the there was a median decrease of 67% in re-arrest rates while interlocks are installed and upon removal, rates are similar to those of offenders who have not had the device installed. With regard to crashes, drivers with interlocks:

- Have fewer alcohol-related crashes than those with suspended licences;
- Have more overall crashes than drivers with suspended licences; and,
- Have overall crash rates similar to those of the general driving population.

Other benefits associated with interlocks are reduced transportation burdens on the driver and the family and the ability to use interlock data for the purposes of treatment.

Following the completion of the review, the task force was able to conclude that:

- There is strong evidence of effectiveness while interlocks are installed.
- The public health benefits are limited by the small proportion of offenders who install interlocks.
- To obtain maximum population effects, issues that limit use of these devices should be addressed.

The review process also served to identify some of the research gaps relating to interlock programs. The following areas will require more attention in the future:

- How programs are implemented and operated:
  - What is the ideal time period that interlocks should be installed?
  - How should treatment be integrated with the interlock?
- Potential for effectiveness at the population level;
- Increasing participation rates:
  - Including all offenders?
  - Making participation mandatory?
- Making the interlock more difficult to circumvent:
  - Improved hardware?
  - Monitoring to ensure a non-interlock vehicle is not being used?
- Establishing a uniform set of "guidelines for best practices" to address:
  - Requirements for program participation;,
  - Length of participation;
  - Agency responsible for monitoring;
  - Oversight of interlock providers; and
  - Consequences of repeated high-BAC readings or other non-compliance issues.

Can a Two-Year Interlock Licence Restriction Program Reduce Recidivism Post-Intervention?

Based on a presentation by Dr. William Rauch, VP Research, Association for Unmanned Vehicle Systems International

Several randomized control trial (RCT) studies in Maryland have examined the effectiveness of interlock program participation in reducing the occurrence of alcohol-related traffic violations. These studies identified several key components of interlock programs that can maximize program effectiveness.

The first study conducted by Beck et al. (1999) used a RCT that assigned 698 multiple DWI offenders (with an average of 3.6 prior offenses) to a one-year administrative interlock program. All eligible offenders were enrolled regardless of vehicle ownership status. The interlock licence restriction was visible on the physical licence and offenders were monitored for program compliance while the interlock was installed. The comparison group was subjected to normal and customary sanctions imposed upon to multiple DWI offenders in Maryland. The study had a one-year post-intervention period.

The results demonstrated that a one-year administrative ignition interlock licence restriction program led to a 64% reduction in recidivism, a 4% decrease in crashes, an 80% reduction in alcohol-related crashes, and a 39% reduction in moving violations. Stated another way, only 2.4% of those assigned to the interlock group and 6.7% of those assigned to the control group had committed an alcohol-related traffic violation within the first year. With the inclusion of the one-year post-intervention period, 5.9% of those assigned to the interlock group and 9.1% of those assigned to the control group had committed at least one alcohol-related traffic violation. Overall, there was a high acceptance rate among participants for both the interlock and control groups (85% and 88% respectively).

Six factors were identified for program effectiveness including:

- A one-year administrative interlock program;
- Enrollment of all eligible offenders regardless of vehicle ownership status;
- Interlock notation on the physical licence;
- Ignition interlock installed in the vehicle;
- Monitoring of offenders for program compliance; and,
- High acceptance rate by offenders.

It is also important that interlock programs not be 'on/off' in nature. In other words, offenders should stay in the program until they can demonstrate their ability to separate drinking and driving through a period of compliance as opposed to exiting the program at a specified time regardless of their level of compliance.

In order to achieve similar results, an interlock program must replicate the conditions used in this evaluation. A common myth is that a program that simply installs and removes the device at a prescribed time will not likely achieve the same success rates reported.

The current evaluation investigated whether a two-year administrative interlock program would further reduce recidivism among multiple DWI offenders. The study also examined whether these reductions in recidivism would be maintained following program completion and the removal of the interlock device. A total of 1,927 offenders were randomly assigned to either the interlock group or the traditional sanctions afforded to multiple DWI offenders in the state of Maryland. The study was four years in length (two-year intervention and two-year post-intervention monitoring period) and recidivism was defined as incurring a subsequent alcohol-impaired traffic violation.

The study found that those offenders who participated in the interlock program had a 36% reduction in DWI recidivism during the two-year intervention and a 26% reduction in DWI recidivism during the two-year post-intervention period. This translated into an overall reduction in recidivism of 32% over the four-year study. The study also found decreases in:

- total crashes;
- alcohol-related crashes;
- non-alcohol related crashes; and,
- moving violations.

There were also carryover effects for reductions in recidivism, crashes, and alcohol-related crashes at least two years post-intervention.

This evaluation replicated five of the six program features contained in the Beck et al. study (administrative setting, enrolling all eligible offenders regardless of vehicle ownership, interlock licence restriction, interlock device installed, high acceptance rate by offenders). However, there were several key differences between the two evaluations including:

- The definition of multiple offender was changed from two offences in five years or three offences in ten years to two offences within a lifetime;
- The intervention length increased from one to two years;
- Close monitoring vs. on/off program;
- The frequency of calibration (60 days vs. 30 days);
- The use of a datalogger; and,
- The average number of prior offenses (3.6 vs. 3.3).

The first evaluation had a much larger decrease in DWI recidivism than the second evaluation (64% vs. 36%). This begs the question, what is the contribution of close monitoring to program effectiveness?

In an effort to answer this question, a third program evaluation was conducted that looked at close monitoring vs. an on/off program. The results of this evaluation revealed that:

- In 89% of cases there was at least one violation.
- 53% of cases were referred to the Medical Advisory Board.

> The majority of drivers continue to violate program requirements during the last 45 days in the program.

These findings suggest that, program administrators should consider whether it is preferable to allow known offenders (those who demonstrate non-compliance) out of the program using on/off program criteria. Also, program administrators must consider how best to address the issue of non-compliance with the program.

Overall, Maryland's two year administrative interlock licence restriction program significantly reduced recidivism, total crashes, alcohol-related crashes, and moving violations at the time of evaluation. There were also demonstrated carry-over effects in terms of reductions at least two years post-intervention. The findings also revealed that close monitoring is important and may yield additional benefits by steering non-compliant offenders to treatment or intervention programs.

Subsequently, it is recommended that there be a national interlock program policy of criterion-based removal (or performance-based exit). An interlock programs that simply requires offenders to install and remove devices at a prescribed time will likely not achieve the same success rates and reductions in recidivism as found in these studies.

Maryland elected not to continue the third evaluation and returned to an on/off program. Therefore, results on the full effectiveness and benefits of close monitoring are not available at this time.

WORKSHOP SESSIONS

Symposium attendees had the opportunity to participate in one of four special workshop sessions that touched on a variety of issues related to alcohol interlock programs. The purpose of these workshops, as in previous years, was to engage participants in constructive dialogue about some of the key components of interlock programs. The issues discussed included transitioning from paper-based to automated reporting systems; monitoring and supervision strategies; vendor oversight; and lastly, the inclusion of a treatment component in interlock programs. The following summarized the discussions that took place during these workshops.

Transition from Paper-based to Automated Systems

Workshop leader: Susan McKinney, Illinois Secretary of State

States can benefit from previously built automated systems (such as South Carolina's) so that they do not have to build a new system from scratch. Although each jurisdiction has a different interlock program, the underlying concepts and components tend to be similar. This means that with some tweaking, an existing system could be altered to fit the needs of different jurisdictions. This is preferable to building a brand new system as this is a very costly venture.

The development of an automated system should include input from:

- Vendors;
- IT;
- Monitoring agency;
- Researchers; and,
- Hearing officers.

A balance is needed between collecting as much data as possible versus only collecting what is required by the program authority for the purposes of administering the program. While the collection of large amounts of data can facilitate evaluation and research it may also inundate the program authority and be challenging to manage. Jurisdictions are encouraged to determine which pieces of data are most important for the purposes of their individual programs.

Government agencies often only receive initial funding dollars and have one opportunity to automate a system. If no additional funding is available downstream to make adjustments to the system it is crucial that the entire system be built at once because it will not be possible to build add-ons (which can be very costly).

Other important considerations include not losing the system that is already in place, ensuring that data are entered accurately (using filters and edit checks), and keeping paper as a back-up following the implementation of the automated system so that information is not completely lost should there be problems with the new system.

Overall, the biggest concerns relating to automation were:

- Obtaining the resources to build and maintain an automated system;
- Ensuring the security of the data;
- Backing up systems to avoid losing data; and,
- Developing unique identifiers across vendor data (this would be necessary if a national database was created).

A roadmap for national standardization of violations and violation reporting is something to strive for as this would make the automation process easier due to uniformity.

Monitoring and Supervision of Different Impaired Driver Offender Typologies

Workshop leader: Dr. Charles Mercier-Guyon, CERMT

Most screening is based on driving history, alcohol use history, and the facts of the current incident/arrest. Special attention is needed when there are aggravating factors, such as a crash. The typology of drivers developed in the special workshop in Annecy, France, organized by CERMT in April 2011, can form the basis of a continuum ranging from offenders with no alcohol dependency issues to those who have severe alcohol dependency issues.

Screening, assessment, and treatment should ideally be included in an interlock program. This way, offenders who pose the greatest risk can be identified and the underlying causes of impaired driving can be addressed.

It was agreed that DWI Courts are most appropriate for high-risk or repeat offenders. The model however, is too intensive and expensive for offenders who are at lower risk of recidivism. This is why screening and assessment are important.

The interlock should not necessarily be viewed solely as a punishment but rather as a useful tool for the offender. It was also noted that there are better ways of enforcing abstinence orders than relying solely on an interlock. The device alone cannot be the only component of supervision.

An interlock program that does not have compliance-based removal and instead is an 'on-off' model is not as effective, particularly in the absence of immediate feedback and accountability. Components of good supervision should include timely responses to violations, consequences/sanctions for non-compliance, positive feedback, and medical monitoring throughout program participation (if needed). Participation in the program should be extended until the offender is able to demonstrate that they are capable of separating drinking from driving.

Interlock programs can be tailored to offenders' needs but there should always be minimum participation requirements. Ideally, an interlock program will move toward compliance-based removal which shifts the onus on the offender to remain violation free while the device is installed.

Vendor Oversight

Workshop leader: Toby Taylor, Oklahoma Board of Tests

Vendor oversight is important to maintain the integrity of an interlock program. All jurisdictions should develop a comprehensive oversight protocol that includes the development of technical standards, service centre audits, technician testing and certification, device/calibration testing, standardized violation definitions and reporting, and rigorous certification/de-certification processes.

Some important steps that need to be accomplished include:

- Developing a common vocabulary;
- Determining how often vendors and devices need to be certified; and,
- Establishing consistency in oversight guidelines.

With the development of more comprehensive vendor oversight measures, there are also certain concerns that manufacturers and service providers raise. These include:

- Does the ability to provide service become compromised if regulations are too rigorous?
- What is the state's responsibility when a service centre is found to be violating rules?
- Whose responsibility is it to make sure that technicians are trained (the manufacturer or the service provider)?
- Can vendors abide by specific minimum standards?

The issue of developing uniform and standard vendor oversight guidelines was proposed. The creation of a consistent standard would make it easier for jurisdictions to enforce oversight and it would also provide vendors with a single set of expectations to meet as opposed to different regulations in each jurisdiction.

However, there are some challenges with the creation of a single standard and these have to do with language (contained within administrative rules or legislation) and data management limitations. Not all programs are as advanced as others which could limit the ability of jurisdictions to implement oversight guidelines.

The Inclusion of Treatment in Interlock Programs

Workshop leaders: Dr. David Timken/Christine Flavia, Colorado

The presenters introduced a new adjunct to the treatment for impaired drivers called Interlock Enhancement Counseling (IEC). IEC is built on a pilot program conducted in Texas in 2003 called *Support for Interlock Planning*. IEC is a brief intervention for DWI clients who have an interlock installed in their vehicle. It is an evidence-based intervention, combining cognitive behavioural treatment with motivational interviewing. The program consists of 10 hours of individual and group counseling over a period of five

months. The program is designed to be flexible and can be delivered on its own or in conjunction with a required DWI/DWI education or treatment program.

One of the key elements to this educational program is that it links treatment to alcohol interlocks. The program is standardized to assist in ensuring that all topics, exercises, and worksheets are being presented in a consistent fashion as well as helping providers demonstrate fidelity to the model. There are two manuals – a Provider's Guide and a Participant's Workbook. The program also uses the interlock data logs.

Development

The development of the IEC program was built on the existing DWI treatment structure in Colorado. DWI offenders are required to complete education and therapy. The interlock is mandatory for a period of two years for repeat and first time offenders with a high-BAC of .17 or more. Offenders with a first offence per se violation (.08) can reduce their revocation period by obtaining an interlock restricted licence. Those drivers who experience continued problems with their interlock may receive an extension of their suspension.

Funding for initial development and counselor training

The Colorado Persistent Drunk Driver (PDD) cash fund has been the primary support for the development of IEC and training of counselors. The PDD cash fund is generated from surcharges assessed on convicted DWI offenders.

The program is supported by the Colorado Division of Behavioural Health, Colorado Division of Motor Vehicles: Persistent Drunk Driver Committee; Interagency Task Force on Drunk Driving; IEC authors (D. Timken, A. Nandi, P. Marques); Center for Impaired Driving Research & Evaluation; and the Center for Change.

Logistics and implementation

Some of the IEC implementation tasks included:

- Train counselors in IEC protocol and in reading interlock data logs;
- Identify target population and incentives (clients receive support for their interlock use; experience reduced problems while on the interlock; reduce the probability of recidivism);
- Provide support and technical assistance to treatment agencies; and,
- Develop program evaluation design.

Clinical overview

The most severe DWI clients have the highest number of failed starts and morning BAC readings. One of the best predictors of recidivism with this population is failed starts. The effectiveness of short-term approaches measured in contact hours conducted over a shorter period of time has been validated by research.

Interlock Enhancement Counseling (IEC) protocol

The IEC is ten hours in length and consists of four individual 30 minute sessions and four group sessions that are two hours in length. The groups can be both open and closed. The individual sessions focus on the data obtained from the interlock.

Colorado's DWI offenders receive an evaluation by specially trained probation officers, which is standardized in all 22 of the state's judicial districts. The probation officers make recommendations to the court and placement is based on clinical indicators and parallels American Society of Addiction Medicine (ASAM) criteria. DWI specific education and therapy are provided by state licenced agencies. DWI services range from 12 hours to 24 hours of education followed by 86 hours of therapy. This range accommodates those offenders who require a more intensive level of care.

Exercises and worksheets can be completed both in and out of session and are tied directly to the topics. IEC is designed to be used in either a closed or open group format. Case management practices determine if the group is closed or open. Closed groups are preferable because of the consistency and continuity they provide. The total number of group members should never exceed 12. The group's minimum number should not be lower than five.

Session topics include the following:

- Being successful on the interlock;
- Learning and change;
- Managing high risk situations; and,
- Maintaining success while off the interlock.

The primary goals of the program are to increase clients' chances of being successful while on and off the interlock; reduce the number of failed starts; eliminate driving non-interlock equipped vehicles; and prevent DWI recidivism once the interlock is installed. In order for clients, to be successfully discharged from IEC they must:

- Complete all 10 hours of the program;
- Complete all worksheets in the IEC workbook;
- Have no further DWI arrests while participating in IEC;
- Have no further driver licence restraint actions related to interlock use;
- Have no failed tests for an extended period of time (minimum of 90 days); and,
- Have no evidence of tampering or circumvention.

Currently there are a number of IEC programs and counselors. Counselors need training relative to the functionality of the interlocks and how to explain the functionality to their clients; they need to know how to interpret data logs (running retests completed, temporary lockouts, early recalls, and emergency

overrides) and provide objective feedback and review IEC manuals; review each client's clinical chart; and review monthly performance reports.

All DWIs in Colorado are screened by trained probation staff utilizing the ASUDS instrument. The results of this self-report instrument are combined with other data (e.g., BAC level, prior offence history, criminal justice system and driving records) and are calculated in a scoring protocol that leads to a placement recommendation. Referrals may be to some level of outpatient treatment, residential treatment, or both and services may range from six weeks to a year or more depending upon the severity of the substance dependence.

Screening and referral process

The procedures related to the screening and referral process are contained in a comprehensive manual written by Dr. Timken and Dr. Wanberg. Colorado is entertaining adopting the ASUD-R and if they do, the manual will be revised. The current manual is limited by contract and is only available to probation departments in Colorado, as is the ASUDS itself, and related User's Guide including scoring and interpretation protocols.

Referrals for the IEC will come primarily through treatment agencies and the DMV. It is hoped that in the near future probation will begin to refer clients. Offenders who must have an interlock before restoration of driving privileges, or those with low-BACs who may reduce their revocation time by installing an interlock, will be informed by the education and treatment agency of the details of the program. They will also be told of incentives to enroll, including whether IEC may run concurrently with other treatment requirements and whether the 10 hours of the program will count as part of the required treatment hours.

COURT INVOLVEMENT IN INTERLOCK PROGRAMS

The involvement of courts in interlock programs is of paramount importance. In court-based interlock programs, the court is responsible for issuing and enforcing an order to install an alcohol interlock either as a condition of pre-trial release or post-conviction as a condition of sentencing or probation. Court-based programs have the potential to be mandatory but there can be too great a reliance on judicial discretion which results in a lack of uniformity in applying the interlock sanction.

The involvement of the courts in interlock programs is not limited to jurisdictions that only have judicial-based programs. Hybrid programs or those programs that rely on probation officials to monitor interlock program participants can also benefit from the involvement of various justice entities (e.g., law enforcement, prosecutors, judges, probation officers, and treatment providers) in program delivery. For this reason, it is important to provide appropriate training and education as needed to ensure that justice practitioners have the latest information and research about interlock effectiveness, technology, and supervision/delivery strategies.

Rethinking Ignition Interlocks and DWI Courts

Based on a presentation by Judge Harvey Hoffman, Eaton County Court, Michigan

Historically, from a court perspective, there has been an ongoing debate as to whether drunk drivers are best managed by controlling the vehicles with an ignition interlock or monitoring the offender for alcohol consumption. Most judges have opted to monitor the individual. This can be attributed to several factors including a lack of knowledge about interlock technology and its effectiveness. Many judges distrust the use of technological responses (such as the interlock) to address the complex and deeply ingrained problems of addictive behaviour.

Technological improvements have helped to alleviate some of the concerns of the judiciary. Innovative features such as photo identification, data loggers, and early recall mechanisms provide judges with the ability to monitor and address offender non-compliance.

While there have been numerous studies that have shown substantial reductions in recidivism while the device is installed, most interlock programs are run through licensing agencies which means that there is no way to ensure installation compliance. In fact, as few as 22% of offenders ordered to install the interlock actually comply.

Also, if nothing is done to address alcohol dependency issues, the recidivism rates of program participants will return to levels comparable to offenders who did not participate in the interlock program once the

device is removed. DWI Courts attempt to solve this problem by including a rehabilitative component with interlock usage.

DWI Courts are not like traditional courts. They are designed for high-risk, repeat drunk drivers who are unlikely to be deterred by traditional sanctions and are more likely to re-offend. These courts aim to reduce drunk driving by treating the underlying drinking problem and holding offenders accountable for their behaviour. This is accomplished through the use of a team approach that focuses on assessment, close supervision, appropriate sanctions and reinforcements, and long-term treatment.

The use of DWI Courts is endorsed by many organizations including the International Association of Chiefs of Police (IACP), MADD, NHTSA, Governor's Highway Safety Association (GHSA), National Association of Prosecutor Coordinators (NAPC), National District Attorneys Association (NDAA), and the National Sheriff's Association.

There have been several DWI Court evaluations conducted recently. The results of these studies are as follows:

- Michigan (2007) – 3 DWI Courts:
  - Program participants were three times less likely to re-offend than non-program participants.
- Georgia (2011) – 3 county evaluation:
  - Repeat drunk drivers were 65% less likely to re-offend.
- Waukesha, Wisconsin (2009):
  - 24-month post-entry study;
  - Similar population, same jurisdiction without DWI Court – recidivism rate for all offences for court participants was 29% vs. 45% for non-participants.

One of the most challenging issues that courts face is that most participants have no driver's licence. This makes it very difficult to get to and from work, school, and treatment. For this reason, the marriage of DWI Courts and ignition interlock programs is an ideal partnership. Participation in an interlock program allows offenders to drive on a restricted licence while also ensuring that their drinking is separated from driving. The benefits associated with being a DWI Court participant – e.g., close monitoring and treatment – can improve the outcomes for interlock offenders.

A one-year pilot project began on May 1st, 2009 in Eaton County, Michigan. An ignition interlock equipped with a camera was required for all participants. This was to serve a dual purpose – separating drinking from driving and monitoring offender alcohol consumption. Of the participants ordered to install an interlock, 88% complied. There were additional benefits to having the device for the purposes of the court such as:

- Alcohol testing could be conducted in the offender's driveway;
- There is no excuse for missing a test; and,
- Both the vehicle and the offender could be controlled with one technology.

A critical factor for courts is speed. It is important to address non-compliance in a swift and certain fashion in order to create offender accountability and subsequently, modify behaviour. The early recall mechanism and email communication among parties (courts, probation, treatment, and vendors) facilitates this process.

Michigan passed an Interlock/Restricted Licence Law that reduces the hard suspension period to 45 days if an interlock is installed on the offender's vehicle. The offender is subject to restricted driving privileges (to and from work, school, and treatment) while on this licence. The Michigan Association of Drug Court Professionals managed to get a bill signed into law that included the 45 day hard suspension and a restricted licence for repeat offenders as long as they installed an interlock on all vehicles and were a participant in a DWI Court.

A new pilot project for DWI/Sobriety Courts began on January 1st, 2011 and will continue for three years. The target group is repeat offenders with two or more convictions. As part of the pilot, certain pieces of data will be collected including:

- Percentage of offenders who have the interlock installed;
- Percentage of offenders who remove the device without permission;
- Percentage of offenders who consume alcohol;
- Number of instances of tampering;
- Number of offenders who are caught operating a vehicle without an interlock;
- Treatment information; and,
- Number of offenders who have a new Operating While Intoxicated (OWI) or Operating While Visibly Intoxicated (OWVI) charge.

There will be benefits for both the interlock program and the DWI Court. For the interlock program, there is likely to be higher installation rates and treatment/accountability should keep recidivism rates from going up once the device is removed. For the DWI Court, the restricted licence makes it easier for offenders to maintain employment and attend treatment. DWI Court participation also becomes more attractive to offenders as they have an incentive to participate.

Issues that will need to be addressed as the pilot continues include aggregate cost, the defendant's ability to pay, the availability of interlock service, and the timely sharing of information among agencies.

Supervision and the Use of Interlocks

Based on a presentation by Mary Ann Mowatt, APPA; NHTSA Probation Fellow

An ignition interlock can be an effective control mechanism for alcohol impaired drivers while other interventions, such as treatment, are being applied. Research indicates that the devices do separate drinking and driving behaviour, but do not change the behaviour in the long-term once the device has been removed from the vehicle. The interlock should be used in combination with other sanctions and interventions that can help effect more permanent change.

The inclusion of criminal justice professionals is an essential part of any strategy to improve the application of interlocks in more comprehensive programs and increase participation rates. As such, two key components for effective and efficient utilization of interlocks are comprehensive educational opportunities and materials regarding the devices and well-planned program delivery systems that recognize the requirements placed on professionals by other components of the justice system.

Various sectors of the justice system are involved in the delivery of interlocks. Each of these entities has different needs.

Law enforcement. The role of the police officer is to determine whether an interlock-restricted driver has a device installed in their vehicle. Officers must be aware of ways to identify an interlock-restricted driver (e.g., a notation on the driver's licence or driving record). They must also have knowledge of the operation of interlock devices so tampering or circumvention can be identified at the roadside.

Prosecution. Prosecutors must have knowledge about interlock technology, research, and applications. This is essential to enable prosecutors to effectively manage a range of court proceedings. They must have knowledge of the cost implications for the offender and which devices have been approved by the state. They must also have confidence that these devices cannot be easily tampered with and/or circumvented before making a recommendation for the use of interlocks as a sanction. And, if the courts cannot appropriately respond to a violation, it is doubtful that the use of this tool will be recommended.

Judiciary. It is important for judges to become familiar with the research supporting interlocks and to be aware of common myths and misperceptions regarding interlock technology. Interlocks are not intended to change behaviour but rather to incapacitate offenders while allowing them to remain in the community and maintain employment and fulfill family obligations. Judges need to be aware that the interlock is an option at the time of sentencing and in what situations its use would be most appropriate.

Probation. The monitoring of offenders is key to ensure compliance with installation orders and program requirements. Probation officers must have knowledge of the device and make a determination whether it is an appropriate sanction for a particular offender. Regular access to reports from service providers is necessary for officers to determine if violations have occurred and if any action is warranted.

There are many advantages associated with the use of interlocks. From a monitoring perspective, it is important to protect the public but also to allow an offender to continue to be a productive member of society by maintaining employment and attending treatment. The use of the interlock is also a more cost-effective option than incarceration and it can be used as a behaviour modification tool when combined with other interventions.

These advantages need to be communicated to criminal justice professionals and at the same time, numerous myths and misconceptions must be dispelled. Common myths about interlocks include:

- The device is easily circumvented;
- There are no mechanisms in place to ensure compliance;
- It is a disproportionate penalty for low-income offenders;
- Compliance rates are low due to distance and expense; and,
- The expense associated with the interlock is an undue hardship on the offender.

It is essential for criminal justice professionals to dispel these myths and address concerns that arise when considering the interlock for offenders. Many of the disadvantages listed have been addressed by vendors and criminal justice agencies. For example, when treatment is added as a component of an interlock program, alcohol dependency can be dealt with appropriately. Issues regarding circumvention have been overcome with the improvement of interlock technology such as the addition of a camera feature.

With regards to probation, conditions that accurately reflect what is expected of the offender are critical to supervision practices. Therefore, it is imperative that probationers understand the interlock program requirements and any related probation conditions. If probationers are aware of expectations they can be held accountable for any program violations. For example, in New York these expectations are clearly outlined:

"The defendant shall install and maintain an IID in any vehicle owned, operated or rented by the defendant for the period listed above. Failure to install and maintain such device(s) will subject the defendant to incarceration for violation of the Court's Order. Further, if the defendant operates a motor vehicle without the court-ordered IID, he/she may be arrested and charged with a new crime…"

In order for the supervision of interlocked offenders to be successful, there must be a comprehensive and research-based approach that provides practitioners with the tools, knowledge, and resources necessary to properly support an effective interlock program.

Interlocks and the Criminal Justice System

Based on a presentation by Steve Talpins, National Partnership on Alcohol Misuse and Crime (NPAMC)

In order for the criminal justice system to work effectively, and more specifically, in order to prevent future occurrences of impaired driving, the criminogenic needs and risks of DWI offenders must be considered.

Interlocks have traditionally been used to prevent a person with a BAC at or above a certain level from starting a vehicle. The interlock is a tool to separate drinking from driving. However, there are additional opportunities to improve and expand its use. For example, interlocks can be used to address criminogenic needs as part of a larger rehabilitative framework. Also, compliance-based remedial measures and sanctioning, or performance-based exit criteria shifts responsibility to the offender and ensures that only those who are able to address their drinking and driving issues successfully complete the interlock program. Interlocks can also facilitate abstinence monitoring and can be used as an alternative to other sanctions such as house arrest, and in-home monitoring.

While implementing some of these strategies will undoubtedly increase interlock usage, there are some associated risks:

- **Overselling the product**
  - Interlocks offer an unrivaled point-in-time protection for the public vis-a-vis a particular vehicle but they appear to have little or no impact on behaviour after they are removed. The device itself does not address criminogenic needs. Therefore, interlocks should be used as part of a comprehensive approach, not as a cure-all.
- **Saying what we mean and meaning what we say**
  - What constitutes a positive test? There should be a standard definition.
- **Admissibility of breath results**
  - Justice professionals have been trained to expect regular and frequent testing. If interlock data will be used to impose remedial measures or treatment, standards must be set and the issue of admissibility of results in court must be addressed.
- **Civil liability**
  - What happens when an interlock device fails to work properly?
  - What happens in states with compliance or criterion-based removal laws if devices falsely report alcohol use?

Additional recommendations for interlock programs are that stakeholders must do a better job of communicating and working together collaboratively. The delivery of effective interlock programs requires a coordinated effort from multiple agencies and it is important for each entity to be aware of its individual roles and responsibilities as well as their place in the larger system. The creation of a manufacturers association could be beneficial in educating legislatures and agencies about interlock technology and how best to maximize the benefits of the device. The formation of a government agency association could ensure the overall quality of devices, standardize practices, and communicate to the industry what is expected and needed. Lastly, educating prosecutors and judges is of utmost importance in jurisdictions that have court-based programs. This can be accomplished through the Traffic Safety Resource Prosecutor (TSRP) and judicial outreach liaison programs.

It is also worth noting that interlocks should not be a sanction applied exclusively to drunk drivers. Approximately 80% of the offenders under state and federal supervision have substance misuse issues and could benefit from having the device for both monitoring and treatment purposes.

NEW IMPAIRED DRIVER RESEARCH

The following articles share findings from impaired driving research that can inform the use of alcohol interlocks and program development.

State of Knowledge: Female Impaired Drivers

By Robyn Robertson, Traffic Injury Research Foundation

There is no doubt that males constitute a significant proportion of the drunk driver problem (Ageriou et al. 1986; Jones and Lacey 2001; Mayhew et al. 2003; Zador et al. 2000). However, evidence of a growing number of DWI arrests among females, and incremental increases among female drivers testing positive for alcohol in fatal crashes in some jurisdictions in the United States suggest that women are an important part of the problem that is worthy of our attention and concern. Moreover, available research reveals that female DWI offenders may possess some different characteristics and have different treatment needs. As such, there is a need for greater understanding of this phenomenon and more defined approaches to prevention, detection, sentencing, supervision, and treatment of this population.

Magnitude of the problem. Data from a number of different sources reveal that a relatively small percentage of females self-report drinking and driving (10-20%) and this number has been stable for many years (Drew et al. 2010; Royal 2003; Schwartz and Rookey 2008; Wilsnack et al. 1984). However, there is growing data to suggest that DWI arrests for women have risen nationally, and especially in some jurisdictions in the last three decades (NHTSA 2009; Schwartz and Steffensmeier 2007). To illustrate, in 1980, just 9% of those arrested for DWI were female; this percentage rose to nearly 15% by 1996 and 20% by 2004. The number of female DWI arrests has risen nationally by 28.8% between 1998 and 2007 (Schwartz and Rookey 2008; Lapham et al. 2000) and there are several different explanations for this growth.

An examination of alcohol crash data from the U.S. Fatality Analysis Reporting System (FARS) indicates that the involvement of female drivers in alcohol impaired road crashes has remained fairly stable with incremental increases. Females accounted for 12% of alcohol impaired drivers in the 1980s, 13% in the 1990s, and 14% in the 2000s. Since 2006, the percent of women drivers who tested positive for any amount of alcohol in fatal crashes has averaged 16% and in 2008 there were 1,837 fatalities in crashes involving a alcohol impaired female driver (NHTSA 2009). Of interest, it has been argued that the incremental increases in female drunk driver crashes is due to sharper declines in male compared to female rates of DWI from the 1980s to the 1990s (Schwartz and Rookey 2008).

Characteristics of female offenders. For the most part, the profile of female drunk driving offenders differs somewhat from that of male drunk driving offenders, yet they also share some common characteristics.

- **A substantial proportion of female drunk drivers experience alcohol problems** and the gravity and complexity of those problems is not insignificant (White and Hennessey 2006). Females tend to develop substance abuse problems when they are older. They also tend to develop them faster than men and require medical intervention on average four years earlier (Green 2006; McMurran et al. 2011).
- **The average age of a female drunk driver is 31**, although this fact is drawn from older research (Shore and McCoy 1987). Generally, rates of involvement in alcohol-related motor vehicle crashes decrease with age, and the population of greatest concern is often young females (Peck et al. 2008). In particular, the increasing involvement of young women with alcohol, in combination with their inexperience driving and their growing propensity for risky driving (Lynskey et al. 2008; Tsai et al. 2010) warrants attention and further research.
- **Findings regarding the level of education and employment among female drunk drivers are mixed.** Generally, female drunk drivers are older than males and have higher levels of education but lower paying jobs (Shore and McCoy 1987; Chalmers et al. 1993). Female offenders in general are more likely to be the primary caretaker of children at the time of arrest (Bloom et al. 2003). Further, a significant proportion of female drunk drivers is single, divorced or separated, or more likely to be living with a partner with an alcohol problem (Argeriou et al. 1986; McMurran et al. 2011; Shore and McCoy 1987; Chang et al. 1996).
- **Research indicates that there is a need to treat a not insignificant part of the female drunk driver population for mental health problems.** Female DWI offenders have significantly higher psychiatric co-morbidity relative to their male counterparts (Maxwell and Freeman 2007). Diagnoses of anxiety, depression and post-traumatic stress disorder (PTSD) are common among female drunk driving offenders. The use of drugs also appears to be somewhat common among female drunk drivers (Maxwell and Freeman 2007; SAMHSA 2005).
- **Many female DWI offenders who were admitted to addiction treatment had multiple factors that contributed** to their alcohol consumption including a history of alcoholism within the family, experience with abuse, anxiety and depression, and family and personal relationships that encouraged heavy drinking (White and Hennessey 2006).
- **Available data suggest recidivism risk may be higher for young males than women** (Argeriou et al. 1986; Jones and Lacey 2001; McMurran et al. 2011; Webster et al. 2009; Wells-Parker et al. 2001), but it appears that risk of recidivism may converge as adults of both genders age (Lapham et al. 2000; Rauch et al. 2010). Compared to males, female DWI recidivists often share similar characteristics to their male counterparts with minor differences (Argeriou et al. 1986).
- **There is limited data to suggest that a smaller number of female first DWI offenders** (relative to male first DWI offenders) have a history of other traffic offenses or criminal offenses, although more research into this topic is needed. Common criminal offenses may include drug offenses, theft offenses, and assault (Caldwell-Aden et al. 2009).

Involvement of female alcohol positive drivers in fatal crashes. The characteristics of fatal crashes involving female drivers testing positive for alcohol were investigated by TIRF using the National Highway Traffic Safety Administration's FARS data from 2005 to 2009. National results revealed that in general, the profile of male alcohol positive drivers resembles that of female alcohol positive drivers. However, male drivers testing positive for alcohol were more often considered by police to be using drugs, to be speeding, to not be properly licensed at the time of the fatal crash, and more often had previous other convictions and previous license suspensions compared to female drivers testing positive for alcohol.

When comparing different breath alcohol concentration (BAC) levels, the higher the BAC level of a female driver in a fatal crash, the more likely it is the driver was involved in a single vehicle crash. Likewise, the higher the BAC level of a female driver in a fatal crash, the more likely it is that they were not wearing a seatbelt or helmet and that the driver was considered by police to have been using drugs. As BAC levels rise from below .08 to above .08, the more likely it is for a female driver to be between the age of 21 and 34. With regards to speeding and not having a valid licence at the time of the fatal crash, the higher the BAC of the female driver in the fatal crash, the more likely it is the driver was considered by police to have been speeding or that the driver did not have a valid licence. The same patterns were noted for males. For females who had been previously convicted of DWI on one or more occasions, as BAC levels of drivers increase to higher levels, the more likely it is that the driver had a previous DWI conviction. The same was true for previous licence suspensions. Finally, as levels of BAC among female drivers increase, the more likely it is that the fatal collision occurred at night (9:00pm-5:59am). The same patterns were noted for males.

Effective programs and practices. Little is known about the effectiveness of programs and interventions for convicted female drunk drivers, although data illustrate that women account for 15-25% of DWI offenders in traditional drunk driving programs such as alcohol monitoring and DWI courts. Available research mainly focuses on treatment effectiveness among substance abusing females. Once in treatment, there is little difference between males and females generally in terms of effectiveness and this goes for different measures of effectiveness including program retention, completion, and outcomes (Greenfield et al. 2007).

A review of studies examining substance abusing women in treatment found that certain characteristics are associated with better outcomes in terms of treatment retention and completion for both men and women. These characteristics include lower levels of psychiatric symptoms, higher income, being employed, having higher levels of education, and social supports, as well as having personal and social stability (Greenfield et al. 2007). However, many of these predictors vary by gender and have been found to be associated with women's retention in substance abuse treatment (Greenfield et al. 2007).

Features of effective programs include:

> Access to substance abuse treatment could be enhanced by providing childcare and family services to women, including transportation (Green 2006).

- Customized treatment to address each person's particular needs (Freeman et al. 2011).
- Individual counseling should be additionally offered to women when possible (Sun 2006).
- Women-only programs should be made available when possible, and when not, the option of women-only groups should be offered (Grella and Greenwald 2004).
- Programs which address the needs of different sub-groups of offenders may be more beneficial than gender-specific programs alone (Tsai et al. 2010).

In summary, female drunk drivers are a problem that is worthy of our attention and concern, and more research about what works with female drunk drivers in relation to the effectiveness of traditional sanctions is needed. Much of the available research about this population is outdated, and renewed efforts to examine this population can do much to inform the development of effective programs and practices targeted towards the risks and needs of this population. In particular, greater understanding of what particular components of treatment produce better outcomes and what specific features contribute to change (Sun 2006) can inform efforts to address this problem.

DWI Recidivism: A Criminological Perspective

Based on a presentation by Dr. Matthew DeMichele, Justice Center for Research – Penn State University
Study analysis completed with assistance from Dr. Brian Payne (Georgia State University) and Nathan Lowe (Council of State Governments/American Probation and Parole Association) .

Every year there are approximately 15,000 deaths resulting from alcohol-related crashes. This is a huge number if one considers that homicide frequency is about the same. The problem is also much more pervasive than many think. It is estimated that there are approximately 100 million drunken driving trips every year, yet there are only about 1.5 million DWI arrests.

In an effort to address this problem and to prevent future offending, the use of assessments to identify offender risk-level and probability of re-offence are encouraged. Actuarial assessments have been found to outperform clinical judgment. This is not, of course, to suggest that risk assessments are always correct. Rather, researchers can use statistical tools to provide estimated ranges of accuracy.

In developing assessment tools, it has been found that the better performing instruments relied upon theory to create them. In creating a new DWI assessment tool, the question of differentiating between one-time and chronic-DWI offenders arose. In other words, what separates limited from persistent DWI offenders? Why do some individuals continue to drink and drive and others are apprehended only once?

Criminologists have routinely pointed out that most people, at some point in their lives commit a crime. Research however, has found that persistent criminality is rare. Some notable criminologists—Wolfang et al. in the 1970s, Blumstein et al., in the 1980s, and Terrie Moffitt in the 1990s—have all found that typically it is only a small percentage (about 5-10%) of delinquent/criminal samples that maintain criminal behaviour throughout much of their lives.

The Traffic Injury Research Foundation was instrumental in bringing attention to the notion that DWI recidivists are a small subpopulation of DWI offenders. They identified two general categories:

- Social drinkers that may receive a single DWI
  - The characteristics of this type of offender include lower BACs, have pro-social attitudes, and are employed. The embarrassment from their arrest is likely to result in a change in behaviour and they will not reoffend.
- Hard core drinking drivers
  - The characteristics of this type of offender include high-BACs (.15 or higher), multiple arrests, and multiple drunk driving episodes.

There is also reason to believe that DWI recidivism is a function of more than alcohol and other drug disorders (AOD) and is instead multi-causal. Using principles of evidence-based practices, the American Probation and Parole Association (APPA) conducted a risk assessment study to develop a pilot risk assessment instrument that can be used to identify convicted offenders who are at an increased risk for future drunk driving. This process entailed reviewing prior research on drunk driving, addressing the way that criminological theory explains drunk driving, developing a methodology to study drunk driving, conducting a study on a sample of 3,884 convicted drunk drivers, statistically analyzing factors that seemed to predict levels of repeat drunk driving, and developing a pilot instrument from these findings.

During the course of the analysis, the goal was to identify any underlying social learning principles and psychological factors that may enable one to repeatedly choose to drive drunk. Social learning theory would suggest that repeat offenders learned that it is okay or legitimate to drive drunk. These individuals justify, minimize, or rationalize their actions through the use of neutralization techniques. Psychological factors that may come into play are that chronic offenders tend to have an external locus of control which means they blame others for their problems. Again, this is another way to rationalize and make excuses for their actions.

Logistic regression was used to identify the differences between individuals with a single DWI from recidivist DWI offenders using a categorical dependent variable. In order to do this an assortment of variables are used to determine the odds of an offender with certain characteristics being a recidivist relative to not being a DWI recidivist. The Adult Substance Use and Driving Survey (ASUS) and Level of Service Inventory-Revised (LSI-R) were used along with four controls – age, race, gender, and marital status.

The demographic variables suggest that unmarried, white, younger, males are more likely to be chronic DWI offenders. The LSI-R provided 7 significant variables pointing to differences between those with no-priors (one DWI offence) and those with two or more priors (three offences). Mental health was identified as one of the more important factors associated with chronic DWI. Some of the other variables found to be associated with chronic DWI offending included:

- Chronic amphetamine and tranquilizer use;
- Smoking more than a pack of cigarettes per day;
- More likely to pass out from drinking;
- Auditory/visual hallucinations;
- Mental confusion;

- Anxious/nervous demeanor;
- Suspensions/expulsions;
- History of breaking the law;
- Propensity for lying; and,
- Need help for alcohol dependency issues.

Individual indicators can be grouped into latent constructs (larger categories) that fit criminological theories. Therefore, it is plausible that individuals living in or coming from neighbourhoods characterized by high levels of residential instability, and high crime rates fosters a lack of cohesion or investment among residents to provide:

- The structural conditions necessary to foster the emotional and structural strains that contribute to involvement with anti-social peers and family members; and,
- The anti-social attitudes/values (social learning) that lead to low levels of self-control which manifest in impulsive, risky behaviours such as impaired driving.

These four latent variables coalesce to form a composite latent variable referred to as criminogenic habitus. The crime schema is seen as an overall perspective on the world and it provides individuals with mental constructs that are used to define appropriate behavioural responses to situations.The likelihood that someone continues to drive drunk may depend upon the level of criminogenic schema that the individual possesses and the specifics of a given situation.

The risk assessment tool is currently being pilot tested in several locations across the country. A training curriculum will be developed to train probation and parole officers on the use of the instrument.

How Can Research On The Brain Inform Us About How Best To Use Interlock Programs?

Based on a presentation by Dr. Marie Claude Ouimet, University of Sherbrooke

Repeat impaired driving offenders pose an elevated risk of recidivism. In order to reduce the probability of future offending, a better understanding of the mechanisms underlying recidivism is needed. This knowledge might also allow programs to be tailored to the individual needs of these offenders and hence increase participation and compliance with programs. One area of research that can potentially provide greater understanding of DWI recidivism is neuropsychology.

Can results of neuropsychological research help better understand recidivism?

Several characteristics have been associated with DWI offenders, including male gender, sensation seeking, hostility, substance misuse, high-BAC at time of arrest, criminal history, and previous traffic tickets and crashes. Preventing and predicting DWI using only these characteristics, however, has been problematic. Recidivists are a heterogenous group. Instead of attempting to predict recidivism based upon individual factors, clarification of high-risk subgroups using a more multidimensional, explanatory approach is needed (Brown et al. 2009).

There are several general features associated with recidivism: refractory problem behaviour, difficulty in behavioural self-regulation, intervention non-compliance, and poor intervention outcomes. These features have been associated with neural-level dysfunctions in other clinical populations. As a result, our research team is studying several facets of neuropsychological functioning in DWI offenders, including executive control and decision-making dysfunctions associated with the prefrontal cortex, and dysregulation of stress-arousal system connected with the hypothalamic-pituitary-adrenal (HPA) axis.

Executive control deficits

Previous work showed that DWI recidivists have deficits in neurocognitive capacities originating in the prefrontal cortex (Glass et al. 2000; Ouimet et al. 2007). These deficits suggest that it is difficult for offenders to effectively plan their behaviour and remember important details that could serve to inhibit previously rewarded behaviour, such as recidivism (e.g., devise alternative solutions to DWI, especially after drinking, remember the consequences of past DWI convictions).

Research showed that deficits were found in about 70% of recidivists involved in mandatory alcohol treatment programs and in the general population (Glass et al. 2000; Ouimet et al. 2007). Our cross-sectional studies also indicate that more deficits (i.e., poorer memory and visual spatial capacities) were correlated with more past DWI offences (Ouimet et al. 2007; Brown et al. 2008). In addition, more deficits (i.e., poorer response inhibition capacities) were found in offenders who failed to engage in DWI remedial programs in a timely fashion compared to those who did engage rapidly (Brown et al. 2008). Our research group is now conducting an on-going prospective study with first-time offenders to examine the relationship between deficits and risk for future offences.

Decision-making anomalies

Exercise good decision-making abilities depends on capacities related to the functioning of the ventromedial prefrontal cortex, among other areas. In a recent study, recidivists made more choices reflecting appeal of immediate but less advantageous rewards (e.g., drinking and driving and driving without a licence) vs. longer-term but more advantageous rewards (e.g., drinking and using other modes of transportation and getting involved in long-term relicensing process) than non-offender drivers (Maldonado-Bouchard et al. 2010). Also, those with worst decision-making had more frequent past DWI offences. These findings suggest that the cognitive processes associated with the ventromedial prefrontal cortex are not functioning optimally in recidivists, resulting in more impulsive decision making, characteristic of the competing paralimbic system.

HPA-Axis activity (stress response)

Non-response to stress might help explain greater risk seeking and lack of risk aversion in some individuals. Arousal theory posits that individuals with low levels of arousal will seek more optimal arousal states by engaging in risky behaviour. Decreased arousal to stress could be a DWI risk factor as an individual may engage in some risky driving behaviour, including DWI in an effort to "feel normal". Conversely, more

normal arousal to stress might have a protective effect by decreasing self-induced exposure to stressful situations.

Low arousal to stress might also help explain why some drivers, by repeatedly engaging in DWI behaviour, seem to forget the negative consequences associated with past DWI convictions they have experienced. The learning necessary for the ability to inhibit future behaviour appears to arise if an experienced event produces an emotional response strong enough to create a neural path linked to the event. As a result, low arousal to a typically stressful event (e.g., DWI-related arrests, fines, accidents) may lead to a disruption in the emotional information processing needed to prevent future recidivism.

Our cross-sectional studies have found that recidivists have a blunted response in the stress hormone cortisol compared to non-offenders (Brown et al. 2005; Couture et al. 2008). Low cortisol reactivity was the best predictor of recidivism status over and above self-reported and biological measures of chronic alcohol misuse (Brown et al. 2005). An on-going longitudinal study with first-time offenders is being conducted to clarify the relationship between blunted cortisol responses and future offences.

Summary

More deficits, more anomalies, and more dysregulation were linked to more past DWI convictions.

It appears difficult for some offenders to plan and remember, inhibit previously rewarded behaviour, choose more advantageous but long-term rewards over less advantageous immediate rewards, and appropriately appraise risk in light of past negative experiences.

Subgroups of recidivists do appear to have neural characteristics associated with persistence in problem behaviour, treatment non-compliance, and poor intervention outcomes.

Caution: Deficits, anomalies, and dysregulation do not necessarily result in specific behaviour. The link between findings from applied neuropsychology and behaviour appear intuitive, but are in fact complex and reflect the influence of many other factors. On-going prospective studies by our research team will help to clarify the link between the neuropsychological correlates of DWI recidivism and future DWI behaviour.

Can results of neuropsychological research help increase compliance to and efficacy/ effectiveness of interlock programs?

Given the fact that some recidivists may lack the ability to effectively self-regulate, devices such as the alcohol interlock may be selectively advantageous in preventing impaired driving in these offenders. Unfortunately, interlock program participation rates remain relatively low and the effectiveness of the intervention decreases once the interlock is removed from the vehicle.

When considering the results of the studies concerning the neural processes in recidivists, it is plausible that DWI laws and regulations are not designed optimally to the characteristics of some offenders. The re-licensing process is long, complex, and expensive. The short-term alternative of driving unlicenced can

be much more attractive. After all, 70% of recidivists were found with cognitive deficits affecting memory, planning, and behavioural inhibition. Also, many find short-term rewards more appealing than long-term rewards. To address the problem of recidivism and ultimately public safety, the main focus on punishment (and not on both punishment and rehabilitation) may not be the best strategy for the recidivists we are most worried about. Unfortunately, most DWI remedial programs, including interlocks, are based on punishment though they have many of the elements that would help to rehabilitate. A balance between sanctioning and treatment must be reached and programs such as the interlock could be used to reach this goal. In some offenders identified in our research, this might be the key to more successful intervention

The main challenge is how to rehabilitate in a punitive environment. Brief interventions are particularly suited in remedial programs. These interventions, such as motivational interviewing, are not authoritarian or punitive, and thus appear to take into account cognitive factors (Brown et al. 2010).

The results of our studies also suggest that another important aspect of remedial programming would be the immediate reinforcement of positive behaviour. Immediate positive reinforcement can promote engagement and adherence to treatment and behavioural change. Contingency management is one intervention focussing on positive reinforcement and several meta-analysis have shown positive results in treatment adherence and outcome in substance use populations who share self-regulatory problems similar to that found in DWI recidivists (Dutra et al 2008; Ersner-Herschfield et al. 1981; Hagenzieker et al. 1997; Lussier et al.. 2006; Prendergast et al. 2006).

Results of research on neuropsychology suggest that many recidivists operate with a different cognitive paradigm than the rational approach underlying current legal and regulatory strategies. Early use of positive reinforcements for interlock and treatment program participation seems beneficial as part of more comprehensive remedial strategy.

More research is needed to demonstrate the effectiveness and efficacy of contingency and/or reinforcement approaches with offenders who show the executive control and decision making problems observed above. The use of interventions like motivational interviewing and contingency management will necessitate an important paradigm shift away from a focus on punishment to a more nuanced approach that better balances both punishment and positive reinforcement for rehabilitation.

INTERNATIONAL PROGRESS

The development and enhancement of alcohol interlock programs continues internationally. With the growing use of interlocks throughout the world, new approaches to address the impaired driving problem have been established and reliance on interlocks as an important tool to separate drinking from driving has increased. The expansion of interlock programs in North America, Europe, and Australia/New Zealand has led to an emphasis on improving interlock legislation, development of program standards, and addressing underlying alcohol dependency issues. The continued focus on these efforts provides the basis for identification of common program features and best practices that can be utilized by jurisdictions that are in the process of drafting laws and implementing new interlock programs. This year, programs from New Zealand, Sweden, Finland, and Canada were highlighted.

New Zealand

Based on a presentation by Gerald Waters, Road Safety Advocate

Following the death of his friend Katherine Kennedy in an alcohol-related crash caused by an offender with 17 previous convictions for drink driving, Gerald Waters focused on advocating for change in the way that drink driving is handled in New Zealand. It was not uncommon for repeat drink drivers to have five or more convictions. In many instances, these offenders are caught, jailed, and released with no supervision and they subsequently re-offended. The offender who was responsible for the crash that killed Katherine Kennedy had only been out of jail for 10 days after serving a sentence for a previous drink driving offence.

Drink driving has been a serious problem in New Zealand for many years. The number of fatalities was in excess of 300 in the late 1980s. Throughout the 1990s, substantial progress was made in reducing the number of fatalities and serious injury crashes, especially following the introduction of compulsory breath testing (CBT) in 1993.[1] However, progress began to stagnate in 2000.

Repeat drink driving offenders are a notable part of New Zealand's drink drive problem. The total number of convicted drink drive offenders comprises approximately 1% of New Zealand's driving population, and repeat offenders account for 0.3%. With regard to crashes however, 23% of serious and fatal alcohol-related crashes between 2005 and 2007 can be attributed to repeat offenders.

In an effort to address these problems, the New Zealand government has recently introduced the following measures:

[1] Compulsory breath testing operations are not only the frontline of detection but are also a general deterrent. In order to ensure ongoing effectiveness, there is a need to keep the public aware of these operations through advertising. The perception of probable detection is what serves as the deterrent.

- Zero BAC tolerance for youth (drivers under the age of 20);
- Maximum penalties for causing death or injury by drink driving will be raised from five to ten years;
- Zero BAC allowance for repeat and high-BAC offenders (those who are twice the legal limit or over); and,
- Use of alcohol interlocks.

The Ministry of Transport recognized that "the benefits of interlock use have been well-researched and documented, and there is a proven reduction in reoffending after using an interlock." As such, they recommended that interlock participation be extended to first offenders as well as repeat offenders. The rationale is that the use of an interlock following a first conviction will take advantage of an opportunity to alter behaviour before future offences occur. The Government decided that at present, the interlock program would be limited to repeat and high-BAC offenders.

The interlock program will be implemented in July 2012 and it is estimated that approximately 7,500 repeat offenders could be required to have an interlock and zero BAC licence. Important components of the interlock program include the following:

- The courts will have the discretion to require repeat or high-BAC offenders to use interlocks;
- Funding will be available for those who are unable to afford an interlock;
- There will be a mandatory three month disqualification period and interlocks must be used for a minimum of one year;
- The interlock can only be removed when the offender can demonstrate six months of compliance on the device;
- Offenders will be subject to a zero BAC licence for three years following the removal of the interlock;[2]
- Interlock licences will identify offenders who are required to drive a vehicle equipped with the device; and,
- Data from the interlock will be submitted to the New Zealand Transport agency who will be responsible for administering the program.

Government agencies are also considering the use of alcohol assessments to determine if offenders can complete the program early. Screening, assessment, and treatment will likely be included in the interlock program. At present, only 5% of drink drive offenders receive assessments through the courts. There has been recognition that not enough is being done to assess and treat those who suffer from alcohol dependency issues.

Given that the offender who killed Katherine Kennedy had 17 previous convictions, there was an obvious gap in the system. The offender's alcohol dependency should have been identified and addressed. This "catch and release" approach to drink driving has left a legacy of repeat offenders, most with five or more

[2] Those repeat and high-BAC offenders who are not ordered to participate in the interlock program will also be subject to a three year zero drink drive limit following their disqualification period.

convictions, who have not received adequate treatment. The focus has been on punishment as opposed to rehabilitation.

Subsequently, three proposals were made to the Minister of Justice:

> Implementation of alcohol and other drug treatment courts in New Zealand;
> Greater powers for judges to prevent repeat drink driving;
> Monitoring of alcohol and drug use of offenders serving community-based sentences.

With the implementation of the interlock program next summer, there is hope that some of the aforementioned proposals will also be identified as priorities in an attempt to reduce the occurrence of repeat drink driving.

Sweden

Based on a presentation by Sven Hultman and Olof Stenlund, Swedish Transport Agency

Sweden has a population of 9.5 million and has issued six million driving licences. The nation has a long tradition of alcohol restrictions that includes a state monopoly for the sale of all beverages with more than 3.5% alcohol which results in a high taxation rate on alcohol. The legal BAC limit is also quite low at .02 and there is zero tolerance for DWI involving illegal drugs and narcotics.

In recent years, Sweden has focused on achieving *Vision Zero*, a goal to eliminate fatalities and serious injuries from road traffic crashes. In an attempt to achieve this goal, Sweden has conducted 2.5 million random roadside tests for alcohol. Medical doctors are also obligated to report unfitness to drive. As a result, there has been a steady reduction in the number of fatalities in the past decade from 540 in 1997 to 266 in 2010.

Alcohol interlocks have been identified as a tool that can be used to reduce the occurrence of impaired driving. A two-year trial program was launched with approximately 8,000 participants. Of these participants, 55% were found to have alcohol abuse or dependency issues. Participation in the trial program was voluntary and all DWI offenders could opt to enter into the program for two years as opposed to serving a licence suspension. As part of the program, medical controls were required every third month, the use of biomarkers was required during the second year, and breath test failures were not tolerated. The full driver's licence would be restored upon successful completion of the program.

At its conclusion, there were both positive and negative experiences to take away from the trial program. Ultimately, only 11% of the target group applied for participation. The high cost associated with participation was identified as a major barrier for some offenders. Also, 40% of participants dropped out as a result of being unable to meet the strict program requirements. However, those who successfully completed the interlock program noted that there were lasting changes in their alcohol consumption and driving habits. Other positive aspects included:

- Lower rates of recidivism;
- Reduced number of traffic crashes;
- Reduced need for hospital treatment;
- Reduced sick leave;
- Improved marriages; and,
- Steady employment.

These findings led to important considerations prior to the drafting of permanent interlock legislation. Lawmakers endeavoured to create a system that was simple and cheap and that included both incentives and sanctions (positive and negative reinforcement). Other considerations included:

- Test failures should not automatically mean exclusion from the program;
- Need for control and supervision of device quality;
- Costs of participation should be kept low; and,
- The program should be open for problem drinkers who have yet to be convicted.

New alcolock interlock programs are set to launch in 2012; one for high-risk offenders and one for first time offenders with low alcohol concentrations. High-risk offenders (recidivists and those with a BAC of .10 or higher) will be required to participate in the program for two years. First offenders will participate for only one year. The expectations for the new program are an increase in participation rates, reductions in recidivism, and increased soberness in traffic.

In an effort to get more offenders into the program, incentives will be offered. Participants will no longer have to pass a new driving test to get their licence back. Costs will be lowered as the administration fee will be removed, there will be less frequent intervals for servicing, and a reduced number of medical checks during the conditional period will be required. Those who refuse to participate will face stricter rules with longer suspension periods.

There will also be higher demands for interlock quality, specific requirements for vendors, supervision of vendor practices, better training and information provided to offenders at the time of installation, and more lenience for non-compliance prior to removal from the program. Another new requirement will be that vendors provide service throughout the entire country. Vendors will be required to have a quality assurance system, a technology agreement with the Transport Agency for systems of data transmission, and a privacy notice agreement for the processing of personal data. Vendors must meet the requirements set forth by the Swedish Transport Agency's regulations as well as the European standards in order to be approved for business in Sweden.

The projected growth of the program is from 11% to 60% and future considerations will focus on interlocks for detecting drug use and making interlocks a user friendly/standard vehicle feature.

Finland

Based on a presentation by Marita Löytty, Finnish Transport Safety Agency (Trafi)

Finland has issued 3.6 million driving licences and there are 4.9 million vehicles in traffic. In 2010, there were 270 traffic fatalities. Alcohol is involved in approximately every fourth fatal collision and each year there are approximately 26,000 DWI arrests.

In an effort to address this problem, interlock legislation has been introduced. Finland has had an offender program in place since July 2008. This three-year trial program was voluntary (participants had the option to enter into the interlock program instead of waiting out their suspension) and the courts would determine how long the offender was required to participate in the program, ranging from one to three years. Participation in the program was denoted on the driver's licence with a code.

Finland also has a commercial interlock program in place as interlocks have been mandatory in chartered school and daycare transportation beginning in August 2011. This includes 7,000-10,000 taxis and buses. All interlocks used in traffic must be approved by Trafi in accordance with European standards and vehicle regulations.

At present, Finland is seeking to introduce new interlock legislation. Under the new law, doctors will be able to recommend an interlock. Currently, driver licences cannot be issued to those who are alcohol dependent or unable to refrain from drinking and driving. The new legislation changes this and as of January 19th, 2013, doctors will be able to recommend an interlock to a driver who would not otherwise obtain a driving licence. The police will then be responsible for issuing the licence.

Other future plans in Finland include the creation of a national working group overseen by the Ministry of Transport and Communications that would analyze possibilities for imposing interlocks as a mandatory sanction for all DWI offenders. Also, there will be a national strategy for intelligent transport (ITS). The goal is to require interlocks in all transport services funded by public funds, scheduled bus traffic, and professional transport of passengers and goods. An investigation into implementation and effects is underway. The mandatory use of interlocks will be in force by 2014 at the latest.

British Columbia, Canada

Based on a presentation by Tyann Blewett, Office of the Superintendent of Motor Vehicles

British Columbia has introduced new impaired driving laws with penalties that are clear, swift, and severe. The province has seen reductions in impaired driving fatalities and injuries from 1987 to 2009, however these numbers have plateaued with slight increases since 2001. In an effort to meet a provincial goal of reducing alcohol-related fatalities by 35% by the end of 2013, an aggressive approach was taken to deter impaired driving.

Under the previous system, anyone caught driving with a BAC between .05 and .08 would receive a 24-hour prohibition at the roadside and could also be subjected to discretionary impoundment (for a

first and second offence). For a third offence, the 24-hour prohibition at the roadside and discretionary impoundment were still in effect. In addition to the roadside sanctions, drivers were also required to participate in the ignition interlock program for one year and complete the *Responsible Driver* remedial program.

For criminal offences (driving with a BAC above .08) the penalties for a first offence included a 90-day prohibition, 24-hour impoundment, and 21-day waiting period before prohibition begins. For a second offence there was a 90-day prohibition, 24-hour impoundment, 21-day waiting period before prohibition begins, mandatory one year participation in the interlock program, and mandatory completion of the *Responsible Driver* remedial program. In both instances, offenders would be processed at the police station and not at the roadside.

The challenges of the previous system included poor road safety outcomes, high recidivism rates, ineffective use of police resources, and ineffective use of the courts. High-risk drivers were also able to be back on the road within 24-hours.

Stakeholders and partner agencies such as the Office of the Superintendent of Motor Vehicles (OSMV), the British Columbia Automobile Association (BCAA) Road Safety Foundation, the Canadian Centre for Substance Abuse (CCSA), BC Association of Chiefs of Police, the Insurance Corporation of British Columbia (ICBC), and MADD met to discuss altering the existing laws.

The outcome was new immediate roadside prohibitions. Under the new system, the penalties are as follows:

Driving with a BAC between .05 and .08

> 1st offence – 3-day prohibition, $200 fine, 3-day vehicle impoundment, and licence reinstatement fee;
> 2nd offence – 7-day prohibition, $300 fine, 7-day vehicle impoundment, and licence reinstatement fee;
> 3rd offence – 30-day prohibition, $400 fine, 30-day vehicle impoundment, licence reinstatement fee, one year mandatory participation in the ignition interlock program, and mandatory completion of the *Responsible Driver* remedial program.

Driving with a BAC above .08

> 1st offence – 90 day prohibition, $500 fine, 30 day vehicle impoundment, licence reinstatement fee, one year mandatory participation in the ignition interlock program, and mandatory completion of the *Responsible Driver* remedial program.

Since the implementation of these new sanctions in September 2010, the number of 90-day immediate roadside prohibitions have increased dramatically. Interlock program referrals and installations have also increased. At the same time, there has been a sharp decline in the number of impaired driving Criminal Code violations.

Using ten year and five year averages for the months of October to June, there has been a 47% decrease in the number of alcohol-related fatalities since the new sanctions were implemented. Between October 2010 and June 2011, there were only 44 alcohol-related fatalities compared to 80 (ten year average) and 84 (five year average) fatalities.

INTERLOCK PROGRAMS

Is There A Great Divide? Treatment versus Sanctions

Based on a presentation by Dr. Jane Maxwell, Center for Social Work Research (The University of Texas at Austin)

Addiction or substance dependency is a disease of relapse. Success can be measured by the length of abstinence or longer periods between the occurrences of impaired driving incidents. In order to combat impaired driving, there are a number of tools and sanctions currently available. These include screening, assessment, screening and brief intervention (SBIRT), DWI education courses, treatment, alcohol monitoring technologies (e.g., ankle bracelet to monitor alcohol use, ignition interlock), and incarceration.

Screening is normally a precursor to assessment and treatment. It is a process designed to identify who can be excluded from a more detailed examination for the presence of substance abuse issues, and who needs to be included for further examination or assessment. It is usually based on the results of specific testing instruments given to offenders to establish whether they have alcohol dependency issues that require an intervention. Some of the commonly used screening tools are the MAST, DAST, CAGE questionnaire, and Drug Use Screening Inventory (DUSI). Most screening instruments are brief. Some can be self-administered and some do not query about drugs (prescription or illicit).

The purpose of assessment is to determine the presence and severity of dependency issues and to identify the appropriate level of care needed to address it. Traditionally, the need for a more detailed assessment of alcohol use dependency is determined by the results of preliminary screening. Assessments are more formal, comprehensive, and in-depth than screening. They are also typically administered by trained practitioners. An example of an assessment is the Addiction Severity Index (ASI). This tool examines several different areas including medical history, employment/support, alcohol and drug use, legal issues, family/social, and psychiatric disorders.

SBIRT are delivered following admission to an emergency room or trauma department. They are designed to help problem alcohol and drug users initiate change and seek treatment for their dependency issues. Many SBIRTs rely on the use of motivational interviewing, a one-on-one, patient-centered, non-confrontational counseling session. The person delivering the intervention will also provide direct advice to reduce or stop substance use.

Treatment is a long-term and ongoing process that begins with intensive services and eventually tapers off into regular 12-step meetings. Treatment can encompass a range of interventions at various levels of care.

The appropriate level for an individual offender is determined based on the findings of an assessment. Different levels of treatment include:

- Detoxification – the removal of toxins and treatment of medical problems. Detoxification can be done on both an outpatient and inpatient basis. It is not treatment but rather a precursor to treatment.
- Residential/inpatient – intensive live-in recovery oriented programs.
- Outpatient – medical management, family therapy, individual and group counseling, Alcoholics Anonymous/Narcotics Anonymous, medication assisted treatment, etc.

There are various pharmacological treatments available to treat alcohol and drug dependence. Three oral medications (Naltrexone, Acamprosate, and Disulfiram) and one injectable medication (extended-release injectable Naltrexone known as Vivitrol) are currently approved for treating alcohol dependence by the U.S. Food and Drug Administration (FDA). These medications have been shown to help patients reduce drinking, avoid relapse to heavy drinking, achieve and maintain abstinence, or gain a combination of these effects. Approved opioids for treating drug use include methadone, buprenorphine (with or without naltrexone), and Naltrexone.

There are different protective and risk factors associated with successful treatment completion. The protective factors include a residential environment, medication for anxiety/depression, the involvement of family and friends in the treatment process, attending 12-step meetings, more months employed prior to treatment entry, and the overall length of stay in treatment. The factors that are likely to negatively affect one's ability to successfully complete treatment are the use of injected drugs, the frequency of substance use (daily), and gender (being female).

Protective and risk factors change over time. There are several factors that can affect abstinence (both positively and negatively) at a 90-day follow-up. The protective factors can be whether the individual completed treatment and how many 12-step meetings they attended in the last 30 days. The risk factors can include a living environment where there is exposure to alcohol and/or drug use, daily substance usage in the six months prior to treatment, more DWI arrests in the past year, and more family/ psychological/ employment problems.

The majority of DWI referrals to Texas treatment between 2005 and 2009 were from the criminal justice system, but many of the drug users may not be on DWI probation but in drug court or on other forms of probation. Research has also shown that many of these offenders are polysubstance abusers which can have significant treatment implications. This speaks to the importance of screening and assessment. In order to create an appropriate treatment plan, it is necessary to identify all of the substance abuse issues that are present.

Ultimately, abstinence and recidivism outcomes can be lessened with close coordination between treatment and probation. Communication between these parties can facilitate monitoring and lead to improved supervision and treatment plans through the sharing of information. Other strategies/interventions that

should be given consideration are sober housing for those who are at high risk of relapse, the use of mental health medications, medication-assisted therapy for substance dependence, and the use of alcohol and drug monitoring technologies for those who are high-risk.

DWI Education, Probation Monitoring, and Treatment

Based on a presentation by Angela Coleman, Virginia Alcohol Safety Action Program (VASAP)

Month 1	Month 2	Month 3	Month 4	Month 5
I	I	I		I
G	G	G	G	
I = Individual Session				
G = Group Session				

In 1972, the Virginia Alcohol Safety Action Program (VASAP) became the site of one of 35 national "Alcohol Safety Action Projects" funded by the National Highway Safety Administration (NHTSA). On March 24th, 1975, legislation passed by the Virginia General Assembly expanded this program statewide.

The VASAP system is composed of 24 local programs (ASAPs) strategically located throughout the Commonwealth of Virginia. Each ASAP operates in accordance with five component target areas in compliance with VASAP's mission of improving highway safety. Education and treatment is provided to more than 70,000 offenders annually. This also includes monitoring and probation services for DWI and habitual offenders and management of the statewide ignition interlock program. VASAP is an offender-funded initiative that does not utilize tax dollars.

There are three different VASAP classification categories. These include:

- **Education** – the offender shall be characterized as having an alcohol or other drug pattern which does not result in tolerance to the substance nor does the offender exhibit any substantial problems with the substance abuse. Probationers in this group are usually assigned to the ASAP education classes.
- **Intensive Education** – the offender shall be characterized as using quantities of alcohol or drugs resulting in increased tolerance and exhibits substantial problems with alcohol or other drugs without appearing addicted or exhibiting addictive patterns. Probationers in this group are usually assigned to ASAP intensive education classes.
- **Treatment** – the offender shall be characterized as exhibiting serious problems with alcohol or drugs, significant tolerance and possibly having addiction to alcohol or other drugs, and an abusive pattern of use. Probationers in this group are referred to a licenced treatment agency or individual.

An offender may be required to complete treatment for any of the following reasons:

- Self-admission of an alcohol or other drug problem;
- Prior alcohol or other drug-related offence within 10 years of the current offence;

- Prior alcohol or other drug-related treatment or education, including AA/NA or other community supported groups; detoxification; or any medical attention as a result of substance abuse;
- Positive reading from a breath alcohol screening device or urine or other drug screen during any ASAP appointment or meeting;
- Subsequent alcohol or other drug-related offence during the probationary period;
- A score on a Commission-approved alcohol or other drug screening test indicating that there is a "problem";
- Referral source mandates treatment, even when treatment criteria are not met; or,
- Other considerations.

The incorporation of treatment into an alcohol interlock program provides an opportunity to address an offender's underlying alcohol dependency issues while separating drinking from driving. Treatment for alcohol abuse can be a lengthy process with setbacks and relapses; the interlock provides a safety net to ensure that such relapses do not result in impaired driving. In order to reduce the likelihood of recidivism once the interlock has been removed, there is a need to incorporate interlocks into a more comprehensive rehabilitation program. The interlock program in Virginia can serve as a model for the inclusion of treatment.

An ignition interlock program has been in place in Virginia since 1995 with recent modifications made in 2009. The purpose of the program is to provide an alternative sanction, at no cost to the state, for persons convicted of driving under the influence. The program is both judicial and administratively-based and is administered by the Commission on VASAP as a condition of probation. Enrollment in an ASAP is a prerequisite to interlock program entry. Participation in the interlock program is mandatory for repeat and high-BAC offenders (.15 or higher). A first offender may be required to participate based on judicial discretion.

The program has been very successful and has experienced continual growth. In 2011, there were approximately 3,400 interlocks installed. Other successes of Virginia's interlock program include the use of electronic completion into the Department of Motor Vehicles system, contracted services, and on-site treatment programs. Some challenges that will continue to be addressed are limited treatment access in rural areas of the state and the issue of affordability for those of lower socio-economic status.

Interlock Enhancement Counseling

By Dr. David Timken and Christine Flavia, Colorado (Paper by Dr. David Timken, Anjali Nandi, and Paul Marques)

Introduction

This brief paper includes the following sections: Background and Development; a Program Description including the fact that Interlock Enhancement Counseling (IEC) is a manualized approach, specifics on individual as well as group sessions, length and intensity of the program, how IEC may function as a stand-

alone program or as a component of a comprehensive DWI treatment program, how it can be used in open or closed group format, and admission and discharge criteria. Clinical foundations, including information on Brief Intervention (BI), Motivational Interviewing (MI), Cognitive-Behavioural Treatment (CBT), and Harm Reduction (HR) are explained. Provider qualifications and training protocol for providers are also covered as is a proposed evaluation design. The paper concludes with a summary. References are followed by an appendix that displays the monthly Interlock Performance Record maintained by each DWI offender enrolled in the program.

Background and Development

IEC is based on earlier work in the area performed in both Canada and the United States (Marques, Tippets, Voas, Danseco & Beirness, 2000; Marques, Voas & Hodgins, 1998; Timken & Marques, 2001a; Timken & Marques, 2001b). These efforts were based on a composite approach of motivational enhancement, pragmatic counseling and anticipatory planning for life after the interlock. The Texas protocol by Timken and Marques in 2001 manualized the approach, utilized group as well as individual sessions, established structured sessions and had a training protocol with a quality assurance component. Relative to a contrast group, program participants had significantly fewer elevated interlock BAC tests that resulted in fewer failed starts, showed significant changes in the amount of alcohol consumed, a decrease in drinking consequences and higher degrees of personal satisfaction. However, an insufficient sample size precluded the researchers from making any conclusive statements regarding program impact upon actual recidivism (Marques, et al, 2007). Other studies indicate that BAC tests from the interlock are a good predictor for impaired driving (Marques, et al, 1999; Marques, Voas & Tippits, 2003b; Marques, Voas, Roth, Tippits, 2010). The results of the Texas study do indicate findings that are in a direction consistent with the idea that an interlock program linked to an evidence-based combination of CBT and MI could reduce the risk of post-interlock recidivism.

Based on the above, the authors developed IEC with funding from the Colorado Department of Human Services, Division of Behavioural Health. These funds were derived from monies paid by DWI offenders in Colorado who qualify as Persistent Drunk Drivers, i.e., high BAC levels or repeat DWI offences. Additional financial support was provided by two private agencies with whom two of the authors – Dr. Timken and Ms. Nandi are affiliated, The Center for Impaired Driving Research and Evaluation, and the Center for Change.

The protocols developed for the Texas study (Timken & Marques, 2001b) were significantly modified. In the intervening years, much was learned and an evolution of both MI and CBT occurred. These processes led to a product that looks considerably different than the original. The latest components and aspects of both MI and CBT were incorporated with the result being an approach that combines the latest thinking in the area with a pragmatic approach. The result is a program that may be used as a stand-alone intervention or as part of a comprehensive DWI treatment program.

IEC Program Description

The program is manualized in order to assist in assuring that all topics, exercises and worksheets are being presented in a consistent fashion as well as helping providers demonstrate fidelity to the model. There are two manuals – a Provider's Guide and a Participant's Workbook.

The IEC protocol has both individual and group sessions. The total length of the program is 10 hours conducted over a five month period. There are four individual sessions 30 minutes in length. These are conducted once monthly for three months with the fourth and final session being conducted in month five. There are also four, two-hour group sessions. They are conducted once monthly for four months. The diagram below demonstrates this schedule.

Sample Program Schedule

The session topics for both individual and group sessions are: 1) Being Successful on the Interlock; 2) Learning and Change; 3) Managing High Risk Situations and 4) Maintaining Success While Off the Interlock. Exercises and worksheets done both in and out of session are tied directly to the topics.

IEC is designed to be used in either a "closed" or "open" format regarding groups. Case volume will dictate which is practical but closed groups are preferable due to the consistency and continuity they provide and the ease of assisting in the development of group cohesiveness via the therapeutic process. The maximum number of group members should never exceed 12 with the minimum being five.

Prior to initiating the IEC program, an individual intake session is completed. During this time, the DWI client is provided orientation to IEC, rules are explored, a schedule established (if the individual meets admission criteria), releases of information required by law and rules are obtained and a differential assessment performed if needed.

A differential assessment would need to be done if there is no record of one being performed within the past six months. The assessment must not only address substance use issues but also mental health and cognitive functioning. The process must involve the gathering of comprehensive background data, the administration of a reliable and valid differential assessment instrument that meets professional and legal standards and an in-depth MI based interview. This process will assist in determining whether IEC can be used as a stand-alone program or needs to be an integral part of a long-term comprehensive DWI treatment program.

Generic admission criteria are as follows: 1) all legal and jurisdictional requirements must be met (requirements vary depending on jurisdiction); 2) agree to have the differential assessment performed if required; 3) sign the required releases of information, consent to treat and any other required forms; 4) provide proof that the interlock(s) has been installed; and, 5) agree to follow all program rules including completion of written exercises in the IEC Participants Workbook.

The client populations that may be served by the IEC program include mandated clients from the courts and/or driver licensing agencies and voluntary clients, including underage as well as adult drivers.

Clients, to be successfully discharged from IEC must have: 1) completed all 10 hours of the program – the four 30-minute individual sessions and the four two-hour group sessions; 2) completed all worksheets in the IEC workbook; 3) had no further DWI arrests while in IEC; 4) had no further driver licence restraint actions related to interlock use; 5) demonstrated no failed starts including failed rolling re-tests for a lengthy period (this will vary among jurisdictions, but there needs to be a minimum of 90 days); and no evidence of tampering or circumvention.

Clinical Foundations

Brief Interventions (BI) Component. IEC is a brief treatment that uses MI, CBT and HR approaches. The efficacy of short term approaches in terms of contact hours conducted over a shorter period of time has been borne out in numerous studies including clinical trials (Project Match Research Group, 1997; Bien, Miller & Tonigan, 1993; Dunn & Reis, 1997; Fleming, Barry, Manwell, Johnson & London, 1997; Hester & Miller, 1995).

Miller and Rollnick (1991) described a set of conditions that are consistently found among effective brief interventions. These strategies may be explained with the **FRAMES** acronym. **Feedback**, if solicited, is given to the individual about personal and public risk and/or impairment. **Responsibility** for change belongs to the client. **Advice** about change is provided by the counselor. **Menu** of alternatives or options is offered to the client. **Empathic** style is consistently used by the counselor. **Self-efficacy** or optimistic empowerment is engendered in the client.

Motivational Interviewing/Enhancement (MI) Component. Motivational enhancement treatment is a directive, client centered approach that attempts to reduce ambivalence and increase readiness to change. Motivational statements, supportive feedback and reducing resistance are key components. MI is a style of guiding clients that elicits and strengthens intrinsic motivation to change. Judgmental, sarcastic and punitive interactions are positively correlated with defensiveness, non-compliance and treatment failure (Miller & Rollnick, 1991, 2002).

MI, as do most effective briefer treatment approaches utilizes FRAMES but is more than the acronym conveys. Saying the two are synonymous is incorrect and misleading. MI is more than techniques. It is a philosophical approach to working and being with clients. MI has a spirit that actively elicits motivation by being collaborative, evocative and conveying respect for the clients' autonomy. MI emphasizes the strategic reinforcement of change language from the client.

Fundamental skills used in MI are open questions, affirmations, reflections and summarizations. The counselor also listens for, and selectively responds to, change talk from the client in terms of the client's desire, ability, reasons and need to change along with making a commitment and taking steps. The counselor uses the elicit-provide-elicit format to provide information and feedback. In response to change talk, the counselor also uses elaborating questions, affirmations and reflections (Miller and Rollnick, 2002).

Cognitive-Behavioural (CBT) Component. Cognitive-behavioural treatments are based on the theory that most voluntary behaviours are learned and therefore can be changed. CBT focuses on the identification of maladaptive behaviour patterns related to alcohol and other drug use and the training and implementation of strategies to effectively deal with them.

IEC uses both FRAMES and MI in the application of CBT. The social learning model of Bandura (1977) along with the work of Marlatt and Gordon (1985), Ingersoll, Wagner and Gharib (2000), Carroll (1998), Nandi (2009), Wanberg, Milkman and Timken (2000, 2009) were utilized in the CBT application to IEC.

Cognitive processes such as perception, attention, memory and expectancies influence the development and regulation of behaviour. Social interactions are of import because interpersonal experiences and observations are often potent and affect cognition in both rational and irrational ways. Changing problem behaviours means intervening at a number of places in the development and maintenance of these behaviours. CBT methods include assessing individual factors that facilitated the development and maintenance of these behaviours, assessing change impact and exploring cognitions and their role in changing problem behaviours, and maintaining pro-social behaviours. The motivational component focuses on **why** clients may change behaviour, whereas, CBT focuses on **how** they might do it. The crux of CBT is understanding that it is not the event per se, but interpretation of the event that leads to action. IEC uses a number of exercises – written and verbal – to help clients with ignition interlocks to gain this understanding. These exercises focus on alcohol use behaviour and the ignition interlock. Post interlock behaviour and behaviour while on the device are both addressed.

In using the combination approach, it is important to facilitate the process of change. Understanding where the client is in terms of thinking about change, the necessary counselor skills to facilitate change and what the client may do to at least get closer to behavioural change are all part of the process. IEC borrows the three stage concept from Wanberg and Milkman (1998, 2009), Prochaska, DiClemente and Norcross's Transtheoretical Model (1992) and Miller and Rollnick's phases of MI (1991, 1992). The stages used in IEC are: Problem recognition, Impact exploration, Decision to Change, Act of Change and Evaluation of Change. Each stage has both client and counselor tasks.

Harm Reduction (HR) Component. Either harm reduction or abstinence may be a goal of IEC. HR recognizes that abstinence may be an ideal outcome but accepts alternatives that reduce harm and is based on compassionate pragmatism as opposed to moralistic idealism (Marlatt, 1998). The decision must be assessment driven and involve client participation in the decision making process. Legal mandates have to figure in on the process. Harm reduction is a public health approach and an alternative to moralistic models and disease-focused models. While abstinence is a possible outcome, it provides alternatives that reduce harm even if drinking continues. The central goal of the IEC program is to prevent further episodes of drinking and driving after the interlock has been removed. While separating drinking and driving behaviour is a goal that clients easily get behind, goals around changing drinking habits are more difficult to establish. Goals could range from complete abstinence to no change in drinking. In some cases, especially with clients involved in their first DWI, "controlled" or "social" drinking may be considered a positive outcome

if it leads to a reduction in drinking and driving. This doesn't mean that we should encourage clients to have moderation as a treatment goal, but rather help the client set the agenda, developing discrepancy as needed.

Providing information about abstinence or moderation, as well as discussing their benefits and consequences with clients is a helpful process that can help develop discrepancy if the ambivalence is being articulated by the client. Our job as counselors is to facilitate the discussion. Mutual agenda-setting can also generate a discussion of other elements important to the clients, such as improving housing conditions, reducing family conflict, and employment or promotion. Focusing on these broader goals promotes increased motivation for the client to either abstain or moderate alcohol use.

Provider Skills and Qualifications

Persons who wish to provide IEC must meet all jurisdictional standards for providing DWI treatment services. They should have either a clinical Masters degree or higher and/or other DWI treatment licensing credentials. Training and experience in both cognitive behavioural treatment and motivational interviewing is mandatory as is successful completion of training in IEC by the authors or designees. At a minimum, an IEC provider will be knowledgeable in differential assessment, understand interlocks including interpreting reports, have group and individual counseling skills, and be able to integrate correctional and therapeutic approaches.

Proposed Evaluation Options

Process Questions

1. What does the delivery of the program look like?
2. How well does actual implementation mirror intended implementation?
3. What does the training look like? To what degree does the training follow the intended training model?
4. What challenges have providers and participants experienced as part of the program, or barriers to participation? What do participant and providers like and not like about the program? How well does the curriculum work for them?
5. How many people provide services (training, etc.) as part of the program? What are their characteristics? Particularly, what are their clinical skills and what training have they received?
6. How many people are served by the program, and what are their characteristics?
7. How many people are referred to the program, and from what sources? How many people are referred for additional sessions?
8. What can we learn from these initial efforts at implementation that could help with future implementation of the program?

Outcome Questions

1. What are the completion rates for the program? Do these vary by program site, by participant referral source, by severity levels, by whether participants are also engaged in other programs, or other reasons? What are the reasons some people do not complete?

2. What are the recidivism rates for people who complete, compared to those who do not complete, and those who do not participate?
3. What type of outcomes change for people who participate? These include quantity and frequency of alcohol abuse, other changes in negative consequences associated with alcohol abuse. Are there differences in outcomes based on how long someone is on interlock?
4. What are predictors of success; failed starts, completion status, demographics, etc)?

Summary

Interlock Enhancement Counseling (IEC) is a brief intervention that combines motivational interviewing, cognitive behavioural treatment and harm reduction. It is conducted in both individual and either open or closed group formats in monthly sessions providing 10 hours of treatment over a five month period. The evidence based program is designed to be presented by professionals trained in the approach who have demonstrated proficiency in the therapeutic components, and may be a stand-alone intervention or component of a comprehensive DWI treatment program.

INTERLOCK PERFORMANCE RECORD

Name: _____ Month: _____ Year: _____

Accurately maintain this record to help you make decisions for preventing further problems with driving. Answer the first two questions by circling YES or NO responses. Enter the # of times these unsuccessful starts happened and at what times these occurred in columns C and D. Write in the reasons for any failed attempts in Column E. Total each column at the bottom at the end of the month. Your counselor will review the chart with you.

	A	B	C	D	E
Date	Did you drive or attempt to drive today? Please circle	Were there any attempts, starts or rolling retests where the first blow was not successful?	If so, **how many times**?	If so, **what time(s)** did they occur?	If you had any failed attempts, what was/were the reason(s)?
1	YES NO	YES NO			
2	YES NO	YES NO			
3	YES NO	YES NO			
4	YES NO	YES NO			
5	YES NO	YES NO			
6	YES NO	YES NO			
7	YES NO	YES NO			
8	YES NO	YES NO			
9	YES NO	YES NO			
10	YES NO	YES NO			
11	YES NO	YES NO			
12	YES NO	YES NO			
13	YES NO	YES NO			
14	YES NO	YES NO			
15	YES NO	YES NO			
16	YES NO	YES NO			
17	YES NO	YES NO			
18	YES NO	YES NO			
19	YES NO	YES NO			
20	YES NO	YES NO			
21	YES NO	YES NO			
22	YES NO	YES NO			
23	YES NO	YES NO			
24	YES NO	YES NO			
25	YES NO	YES NO			
26	YES NO	YES NO			
27	YES NO	YES NO			
28	YES NO	YES NO			
29	YES NO	YES NO			
30	YES NO	YES NO			
31	YES NO	YES NO			

TOTAL # of "YES" in Column A _____ TOTAL # of "YES" in Column B _____

Ending mileage _____ Beginning mileage _____ Total mileage for this month _____

What are your thoughts about your interlock performance this month?

JURISDICTIONAL RECIPROCTY

The issue of jurisdictional reciprocity in relation to alcohol interlock programs is a concern for many interlock program administrators. Jurisdictional reciprocity refers to the effective management of offenders who are required to serve a period of interlock supervision by a jurisdiction where an impaired driving offence was committed when the offender resides in a different jurisdiction. The development of reciprocal arrangements can help jurisdictions close an important gap in interlock program delivery. Through enhanced cooperation and communication and the creation of protocols among agencies in neighbouring jurisdictions, offenders are less able to cross borders/state lines to avoid their interlock requirement.

West Virginia Reciprocal Interlock Arrangements

Based on a presentation by Harry Anderson, West Virginia DMV/Governor's Highway Safety Program

West Virginia encountered a situation where they were losing a large percentage of their interlock offenders (particularly repeat offenders) across state lines. For states that have many bordering jurisdictions, this is a common problem. In an effort to develop solutions, West Virginia has created an informal process to handle out-of-state residents.

The process begins when an out-of-state DWI offender with a mandatory interlock requirement contacts the West Virginia DMV DWI-Interlock Unit (in response to a West Virginia ruling). At this time, a phone interview is conducted for the purpose of reviewing all driving records to determine if the offender is eligible to participate. If they are, the offender may then apply to participate in West Virginia's interlock program.

The DWI-Interlock Unit then processes the non-resident interlock application with the same requirements as those required of all West Virginia residents. If the offender is denied an interlock they are eligible to re-apply after the reason(s) of denial are satisfied. The offender has a six-month period from the date of initial denial before they are required to pay another fee to re-apply. If the offender is approved, they proceed to the next step in the process.

The offender then receives a participation approval letter indicating their responsibilities as an interlock user. The offender must comply with the requirements outlined in the participation approval letter and provide proof that the interlock device has been installed by an approved West Virginia interlock service provider.

The DMV verifies that the device has been installed. Following verification of installation, interlock participation is then noted in the DMV mainframe system using MVIL (interlock data) and MVST (licence

status change) programs. This effectively changes the Problem Driver Pointer System (PDPS)[3] status from "Not Eligible" to "Eligible", allowing the offender to obtain their resident state's interlock restricted licence. They are responsible for providing photocopy proof of this licence to the WV DMV within 30 days of interlock installation. If the offender fails to provide this, they are disqualified from the program. The provider is notified via a conveyance system, and the offender is sent a notice via certified mail. The licence status is returned to "revoked" with "Not Eligible" status on PDPS.

The offender is monitored through the approved service provider's conveyance system in accordance with West Virginia DMV Demerit Policy, and must meet the following requirements:

- Provide certified copies of their driving record from their resident state every 180 days;
- Comply with all monitoring requirements for the entire term deemed necessary in the application process;
- Complete a Safety and Treatment Program; and,
- Pay reinstatement fees.

If the offender fails to meet any of these requirements, they are disqualified from the program. The interlock provider is notified via the conveyance system. The offender is sent a notice via certified mail, and the licence status is returned to 'revoked' with "Not Eligible" status on PDPS.

Lastly, the offender is required to provide a final certified driving record as well as a final proof of registered and/or co-registered vehicles for West Virginia DMV to review to obtain interlock program completion credit. If the offender fails to provide this, they are disqualified from the program. If the offender complies, then all requirements of the program are considered satisfied. The DWI files are then closed, the interlock restriction is removed, the licence status is updated to "Eligible-Not Licenced" on PDPS, and the driver can apply for a non-restricted licence in their resident state.

Jurisdictional Reciprocity in Canada

Based on a presentation by Paul Boase, Transport Canada

In Canada, addressing the issue of impaired driving is a shared responsibility between the federal and provincial/territorial governments. The federal government demonstrates national leadership through the promotion of research, data collection, program development, program evaluation, and knowledge transfer. At the provincial level, program implementation takes place and this includes interlock programs.

The Canadian Council of Motor Transport Administrators (CCMTA) is a non-profit organization established by the provincial, territorial, and federal governments. The goals of CCMTA include:

- Promoting awareness and sharing/exchanging information;

[3] The PDPS is used to search the National Driver Register (NDR). This is a repository of information on problem drivers provided by all 51 U.S. jurisdictions. Based on information received as a result of an NDR search, PDPS will "point" the inquiring jurisdiction to the State of Record(s) (SOR), where an individual's driver status and history information is stored. Based on the information received from the SOR(s), the issuing state will decide if the applicant is eligible to receive a new or renew his driver licence (AAMVA 2012).

- Pursuing harmonization of road user, motor carrier, and driver/vehicle licensing regulations and policies; and,
- Developing national models of motor vehicle transportation programs.

Given that impaired driving crashes account for a significant portion of road user deaths and serious injuries on public roadways, finding solutions to address the problem is a top priority. CCMTA supports the use of interlock programs. In an effort to promote uniformity and increase participation rates, CCMTA attempts to facilitate reciprocity and allow for jurisdictional flexibility when it comes to addressing program eligibility issues.

Reciprocity can be hindered by the unique nature of each provincial/territorial interlock program. In each jurisdiction there are different legacy licensing rules, interlock program rules, and program elements. While there is one technical standard and device test protocol for across the country (which allows for manufacturer flexibility as well as consistency), there are no program guidelines to facilitate reciprocity.

CCMTA currently supports the creation of such guidelines and formed a committee to identify components that should be included in this document. Some of these elements include:

- Ensuring jurisdictional responsibility;
- Respecting jurisdictional needs;
- Promoting evidence-based practices;
- Implementing administrative not judicial-based programs;
- Focusing on the device as a tool for incapacitation not treatment;
- Making the device widely available as soon as possible following arrest;
- Making the device part of a larger program;
- Making program exit criterion-based, not time-based;
- Ensuring that a blocked start is not a failure;
- Standardizing data reporting; and,
- Having providers comply with recognized standards.

The CCMTA committee had difficulty addressing the reciprocity issue. The overall goal is to facilitate transfers of offenders from a program in one province/territory to another. Unfortunately, the committee was unable to create a protocol and as a result, cases must be addressed individually as they are encountered. CCMTA did however, create awareness materials for such transfers.

AAMVA, Interlocks, and Jurisdictional Reciprocity

Based on a presentation by Tom Manuel, AAMVA

Established in 1933, the American Association of Motor Vehicle Administrators (AAMVA) is an international association representing state and provincial officials in the United States, Canada, and Mexico who are responsible for administration and enforcement of laws pertaining to motor vehicles and their use.

The goals of AAMVA are to provide a forum for the exchange of ideas, collect and exchange motor vehicle and driver related information, promote uniformity among member jurisdictions, develop and maintain services that facilitate the business of jurisdictions, work collaboratively with the motor vehicle community, and advocate for the interest of motor vehicle, highway safety, and law enforcement agencies.

AAMVA also oversees a number of different programs including:

- National Motor Vehicle Title Information System (NMVTIS);
- AAMVAnet;
- Driver examiners;
- Fraudulent document recognition;
- Novice drivers;
- Licence standards;
- Commercial drivers licence (CDL);
- Errant driver and driver education;
- Motorcycle safety;
- One driver, one licence, one record – PDPS; and,
- Driver Fitness.

(For more information on these and other AAMVA programs, please visit www.aamva.org)

AAMVA also supports ignition interlock programs and identified five important factors for interlock program effectiveness. These include:

- Administrative program – a program delivered and overseen by the licensing authority;
- Ignition interlock device (alcohol specific) – the use of fuel cell devices, which are ethyl alcohol specific, as opposed to semiconductor devices;
- Interlock licence restriction – a restriction noted on the physical driver licence that allows law enforcement to easily identify an interlock-restricted driver;
- Close monitoring for compliance – regular supervision to create accountability;
- High acceptance rate by offenders – participation of all eligible offenders in interlock programs.

With regard to the delivery of interlock programs, AAMVA promotes closing the gap between arrest and interlock usage to ensure that offenders have the device installed quickly and do not learn to drive unlicenced. AAMVA also advocates for the use of interlocks with all impaired driving offenders, not just repeat or high-BAC offenders. Moreover, AAMVA supports the use of removal criteria to ensure that offenders complete their participation in an interlock program only after they are able to demonstrate compliance. Other measures that AAMVA promotes include standardized reporting, standardized device settings, and the expansion of research and grants for interlock initiatives. Finally, AAMVA identifies the need to connect interlock vendors with a common data dictionary, standard settings, and standard

reporting. Only when this is done can jurisdictions create reciprocal arrangements with common restrictions and sanctions.

UPDATE FROM COMMUNITY GROUPS

MADD has continued to play an important role in the ongoing efforts to reduce the occurrence of impaired driving in both Canada and the United States. Through various campaigns, the organizations have been able to have an important impact on impaired driving policies and initiatives.

MADD Canada

Based on a presentation by Andrew Murie, MADD Canada

In Canada, interlock usage has steadily increased between 2008 and 2010. As of December 31st, 2010, there were 17,128 active interlock users in Canada. This represents a 32% increase over two years. Most of the provincial/territorial programs have some mandatory participation provisions, typically for repeat offenders and offenders with a high-BAC of .15 or greater. These increases demonstrate that interlocks are being used more frequently but participation rates can continue to grow. To illustrate, the ratio of interlocks installed to federal impaired driving convictions is only 43.7%.

In Canada, the main focus for MADD with regard to interlocks is making the use of the device mandatory for all convicted impaired drivers. Other priorities include:

- Making interlocks mandatory for a third or subsequent roadside licence suspension (BAC of .05 or higher but below .08) within a ten-year period;
- Shortening or eliminating any required hard licence suspension before an alcohol interlock licence is issued; and,
- Incorporating rehabilitative/treatment components into existing interlock programs in order to address underlying alcohol dependency issues.

Some of the barriers that MADD has encountered in these efforts are a lack of leadership from politicians who can be hesitant to move quickly on legislating such sanctions. Also, MADD has emphasized the need to mandate interlock program participation for all impaired driving offenders, including first offenders. At present, first offenders can typically participate on a voluntary basis while only repeat offenders or high-BAC offenders are mandated to participate. A final issue relates to the use of interlocks in a commercial capacity. Unlike in the European Union, interlocks are not used commercially (e.g., in buses, taxis, transport fleets) in Canada. MADD will continue to address these issues as well as advocate for the increased usage of alcohol interlocks throughout the country.

MADD US

Based on a presentation by J.T. Griffin, MADD US

In 2011, MADD US focused on developing a new logo and brand strategy. The organization has also expanded its use of social media and networking in order to reach a broader audience. This includes mediums such as Facebook and Twitter. The organization notes that Facebook is playing a growing role in grassroots advocacy efforts.

MADD has developed partnerships with other organizations. Most notable of these is the partnership with the National Football League (NFL) with the goal of making the game day experience safer. The NFL also supports MADD's underage drinking prevention programs.

Other key impaired driving accomplishments in the past year are the passage of all offender interlock laws in Connecticut and Kansas and high-BAC offender laws in Alabama, Maryland, and Oklahoma.

MADD has also continued its *Campaign to Eliminate Drunk Driving* which was initially launched in 2006. The primary goals of the campaign are to utilize high visibility law enforcement, require all convicted drunk drivers to use alcohol interlocks, and support technological innovation and advances in alcohol detection technology as a standard vehicle feature.

Some of the key campaign accomplishments to date include:

- Increasing the number of all offender interlock states from 1 to 16;
- Increasing the number of first offender interlock states from 4 to 34;
- Passing interlock legislation in all 50 states;
- Increasing the number of interlocks in use from 101,000 to 145,000;
- Having the Interlock Incentive Grant Program included in the Obama Administration's and Senate's Highway Bill; and,
- Advancing alcohol detection technology (DADSS) by supporting the DADSS project (Driver Alcohol Detection System for Safety – see www.dadds.org).

IMPROVING THE IMPAIRED DRIVING SYSTEM THROUGH EFFECTIVE LEADERSHIP: THE WASHINGTON EXPERIENCE

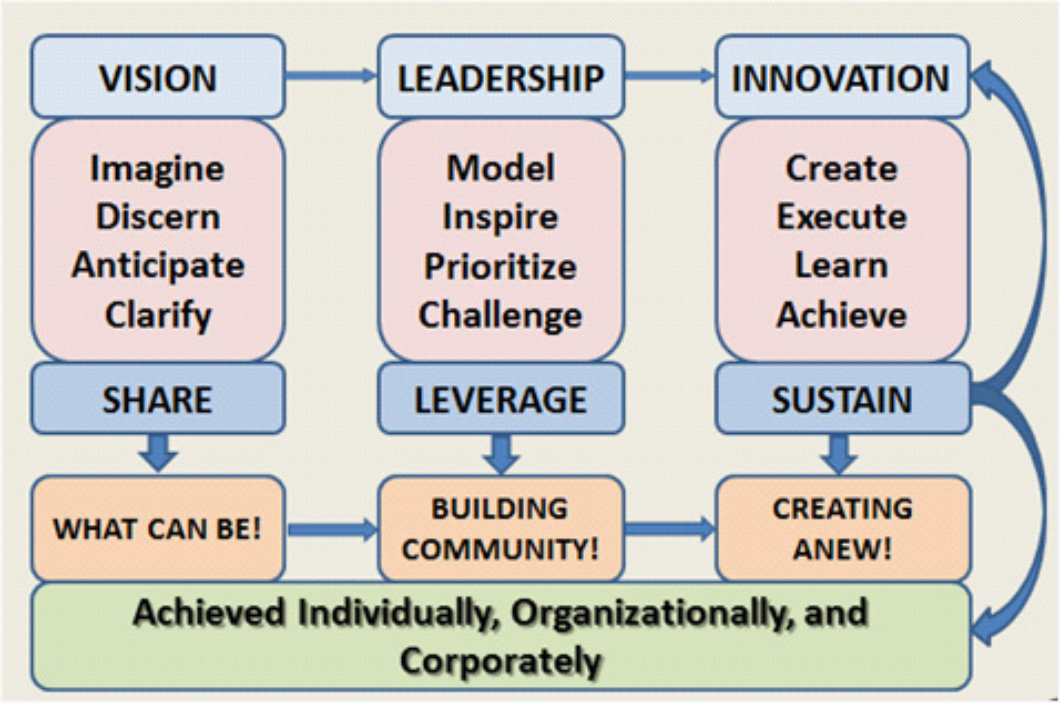
Closing Plenary

Based on a presentation by Lowell Porter, Washington Traffic Safety Commission

In Washington state, a coalition was built to align priorities and leverage resources in an effort to improve traffic safety. Out of this partnership came *Target Zero*, a strategic highway safety plan with the vision of eliminating all fatal and serious injury traffic crashes by the year 2030. The current trend in the state has been a decrease of ten fatalities per year. In order to reach the goal set forth by *Target Zero*, there will have to be a decrease of 26 fatalities per year.

The development of the strategic highway safety plan was a collaborative effort that took into consideration multiple facets of highway safety including engineering, enforcement, emergency medical services, education, and the Governor's priorities. The plan calls for investment in proven strategies and best practices like alcohol interlock programs. The initiative was eventually transformed into a data-driven, evidence-based, integrated systems approach.

In order to create and implement the safety plan, a leadership framework was developed that relies upon vision, leadership, and innovation.



The key to this framework was the leveraging of partnerships. There were many entities involved in this process including state agencies, Indian nations, local agencies, private industry and non-profit groups, licensing, Department of Social and Health Services, Washington State Patrol, Department of Transportation, Washington Traffic Safety Commission, and the Department of Health to name a few. As support grew for the initiative, more partners entered the fray:

- 2000 – 15 state and local traffic safety partners;
- 2007 – 46 federal, state, local, tribal, non-profit, and private industry partners;
- 2010 – almost 100 federal, state, local, tribal, non-profit, and private industry partners and stakeholders;
- This number continues to grow today.

An integral component of developing statewide *Target Zero* leadership included outreach to elected officials and their staffs in the Governor's Office, Senate, House of Representatives, Tribal governments, counties, and cities. The outcome was growing political support for the vision and goals of *Target Zero* statewide, as well as growing support for improving the state's impaired driving system.

In 2007, House and Senate leaders attended the Alcohol Interlock Symposium and learned how interlock technology and effective public policy could support *Target Zero*. The House and Senate leaders then formed a diverse working group to assist in implementing an innovative interlock policy in the state of Washington. The *Ignition Interlock Legislative Workgroup* is comprised of prosecutors, Department of Transportation and Department of Licensing officials, interlock manufacturers, representatives from the National Highway Traffic Safety Administration (NHTSA), defense attorneys, public defenders, judges, court administrators, researchers, law enforcement, toxicologists, breath test experts, representatives from the Washington Traffic Safety Commission, and advocacy groups.

The Workgroup was tasked with finding common ground for moving the state's interlock program forward. Some milestones achieved include:

- 2009 – Washington becomes the first state to pass an ignition interlock driver's licence law;
- 2011 – Washington institutes compliance-based removal (four months without any violations);
- 2011 – Interlock statute revisions;
  - State patrol was given full authority over the interlock program;
  - Standards were created for service centre certification, technician certification, and standardized calibration; and,
  - Unified reporting procedures were created.

The Workgroup has revisited the interlock law every year since to make enhancements. By educating legislators and stakeholders, Washington was able to improve program delivery and develop more effective interlock legislation. The leadership fostered by the Workgroup has kept impaired driving as the top priority

for highway safety and the Legislature. With the input of this group of stakeholders there have been major enhancements made to impaired driving legislation including:

- Tougher DWI statutes and sentencing;
- Felony DWI statutes;
- Expansion of the use of interlocks in sentencing; and,
- Expansion of vehicular assault and homicide statutes.

The focus has now shifted to developing innovative strategies for the interlock program. Some of the initiatives that have been created include educational videos for judges, probation, and treatment providers, DWI offenders participating in the interlock program, and law enforcement. Also, an intensive home monitoring demonstration project with high risk offenders is currently underway. Offenders participating in the project are subject to photo validation with geographic locators, alcohol interlock equipped vehicles, and offender home monitoring.

What can be learned from the experience in Washington is that by implementing an effective *Target Zero* leadership structure, jurisdictions can have the necessary framework to:

- Implement a data-driven, evidence-based, integrated systems approach to strategic highway safety planning;
- Garner statewide political support which will make highway safety (and impaired driving) a priority; and,
- Set effective public policy on complex issues such as impaired driving and alcohol interlocks.

Research involving several nations (see Transportation Research Board – Special Report 300 http://onlinepubs.trb.org/onlinepubs/sr/sr300summary.pdf) supports these findings. This survey of practices in ten nations has found that in order for national programs to function effectively, there must be three levels of activity:

1. Management and planning;
2. Technical implementation of specific countermeasures; and,
3. Political support and leadership.

The application of these principles, in a fashion similar to that of *Target Zero*, can be a starting point for jurisdictions to reduce the occurrence of impaired driving fatalities and injuries.

THE BARRY SWEEDLER AWARD

Barry Sweedler's influential career in road safety spanned more than three decades. Following his long and distinguished service at the U.S. National Transportation Safety Board, he became a founding partner of Safety and Policy Analysis International, and served as the president of the International Council on Alcohol, Drugs and Traffic Safety (ICADTS). Barry was also a strong supporter of solutions to prevent and reduce alcohol impaired driving, including alcohol ignition interlocks. He was an active attendee at the Annual International Alcohol Interlock Symposia series, and supportive of new attendees, new ideas, and perspectives to advance the field.

In honor of Barry's contributions to improve traffic safety, the **Barry Sweedler Award** is conferred upon one individual each year. Nominees of this award have shown leadership in the drunk driving field through their work to support, promote, strengthen, expand and/or advance the use and delivery of alcohol interlocks. They have also encouraged cooperation across agencies and built partnerships to raise awareness about the effectiveness of these devices and best practice program features.

The Traffic Injury Research Foundation (TIRF) was pleased to announce **Gerald Waters** as the inaugural Barry Sweedler Award recipient.

Mr. Waters is a road safety advocate from New Zealand, who after losing a friend in 2010 to a repeat drunk driver, wrote to New Zealand's Justice Minister asking for a review of the justice system's handling of drunk driving offenders. Later that year, Mr. Waters appeared before a parliamentary select committee and spoke of the need to do more to address recidivist drunk drivers and the impaired driving problem in New Zealand. Mr. Waters provided a voice for victims both living and deceased and was featured in the media for his participation in the committee hearings as well as his commentary on the trial of the repeat drunk driver who had killed his friend.

Ward Vanlaar (TIRF), Kathy Stewart (Sweedler's Partner), Harry Anderson, WV (Nominee), Steve Luce, WA (Nominee), Gerald Waters, NZ (2011 Recipient), Susan McKinney, IL (Nominee), Erin Holmes (TIRF), Robyn Roberston (TIRF).

Absent - Bob Maccarone, NY (Nominee) and Secretary of State Jesse White, IL (Nominee)

Although not an academic by trade, after learning more about alcohol and drug impaired driving and consulting with recognized experts and professionals around the world, he wrote a paper in 2011, entitled *The Case of Alcohol and Other Drug Treatment Courts in New Zealand*, highlighting the connection between drugs and alcohol and a majority of crime

in New Zealand. He further emphasized the value of alcohol interlocks as part of the solution, and the need for collaboration between New Zealand political parties on initiatives to address the problem. He also advocated for greater public education on the issue and ways that the public can be part of the solution.

It is Mr. Waters' unwavering drive for knowledge on and understanding of the issue of impaired driving, promotion of evidence-based solutions such as alcohol interlocks, and his pursuit of change in the justice system in dealing with these offenders that has earned him this year's Barry Sweedler Award. In a relatively short time Mr. Waters has been able to change the way many people in New Zealand view the impaired driving problem. We look forward to seeing what he has in store for us in the years to come.

REFERENCES

MANNING PAPER:

Baker, S., Braver, E., Chen, L., Li, G., & Williams, A. (2002). Drinking histories of fatally injured drivers. *Injury Prevention*, 8(3), 221-226.

Fell, J., Lacey, J., & Voas, R. (2004). Sobriety checkpoints: Evidence of effectiveness is strong, but use is limited. *Traffic Injury Prevention*, 5(3), 220-227.

National Highway Traffic Safety Administration (NHTSA) (2009). *Traffic Safety Facts 2008*. DOT HS 811 155. Washington, D.C.: U.S. Department of Transportation.

Venzina, L. (2002). The Quebec Alcohol Interlock Program: Impact on Recidivism and Crashes. In: D. Mayhew & C. Dussault (Eds.) Alcohol, Drugs and Traffic Safety 0 T2002. Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety. Montreal, August 4-9, 2002. Quebec City: Societe de l'assurance automobile du Quebec, pp. 97-104.

Voas, R. & Marques, P. (2003). Commentary: Barriers to interlock implementation. *Traffic Injury Prevention*, 4(3), 183-187.

Willis, C., Lybrand, S., & Bellamy, N. (2004). Alcohol ignition interlock programmes for reducing drink driving recidivism. *Cochran Database of Systematic Reviews*, 18(4), CD004168.

ROBERTSON PAPER:

Argeriou, M., McCarty, D., Potter, D., & Holt, L. (1986), Characteristics of men and women arrested for driving under the influence of liquor. *Alcoholism Treatment Quarterly*, 3, 127–137.

Bloom, B., Owen, B., & Covington, S. (2003). *Gender-Responsive Strategies: Research, Practice and Guiding Principles for Women Offenders*. Washington, D.C.: National Institute of Corrections.

Caldwell-Aden, L., Kaczowka, M., & Balis, N. (2009). *Preventing First-Time DWI Offenses. First –Time DWI Offenders in California, New York and Florida: An Analysis of Past Criminality and Associated Criminal Justice Interventions*. DOT HS 811 074. Washington, D.C.: U.S. Department of Transportation.

Chalmers, D., Olenick, N.L., & Stein, W. (1993). Dispositional traits as risk in problem drinking. *Journal of Substance Abuse*, 5, 401-410.

Chang, I., Lapham, S.C., & Barton, K.J. (1996). Drinking environment and socio-demographic factors among DWI offenders. *Journal Studies of Alcohol*, 57, 659–669.

Drew, L., Royal, D., Moulton, B., Peterson, A., & Haddix, (2010). *National Survey on Drinking and Driving Attitudes and Behaviors: 2008*. Washington, D.C.: U.S. Department of Transportation.

Freeman, J., Maxwell, J.C., & Davey, J. (2011). Unraveling the complexity of driving while intoxicated: A study into the prevalence of psychiatric and substance abuse comorbidity. *Accident Analysis and Prevention,* 43(1), 34-39.

Green, C.A. (2006). Gender and use of substance abuse treatment services. *Alcohol Research & Health*, 29(1), 55-63.

Greenfield, S., Brooks, A.J., Gordon, S.M., Green, C., Kropp, F., McHugh, K., Lincoln, M., Hien, D., & Miele, G.M. (2007). Substance abuse treatment entry, retention, and outcome in women: A review of the literature. *Drug and Alcohol Dependence*, 86(1), 1-21.

Grella, C.E., & Greenwell, L. (2004). Substance abuse treatment for women: Changes in settings where women received treatment and types of services provided, 1987-1998. *Journal of Behavioral Health Services and Research*, 31(4), 367-383.

Jones, R.K., & Lacey, J.H. (2001). *Alcohol and Highway Safety 2001: A Review of the State of Knowledge*. DOT HS 809 383. Washington, D.C.: U.S. Department of Transportation.

Lapham, S.C., Skipper, B.J., Hunt, W.C. & Chang, I. (2000). Do risk factors for re-arrest differ from female and male drunk-driving offenders? *Alcoholism: Clinical and Experimental Research*, 24(11), 1647-1655.

Lynskey, M.T., Bucholz, K.K., Madden, P.A.F., & Heath, A.C. (2007). Early-onset alcohol-use behaviors and subsequent alcohol-related driving risks in young women: A twin study. *Journal of Studies on Alcohol and Drugs*, 68(6), 798-804.

Maxwell, J.C., & Freeman, J. (2007). Gender differences in DUI offenders in treatment in Texas. *Traffic Injury Prevention*, 8, 353-360.

Mayhew, D.R., Ferguson, S.A., Desmond, K.J., & Simpson, H.M. (2003). Trends in fatal crashes involving female drivers, 1975-1998. *Accident Analysis and Prevention,* 35(3), 407-415.

McMurran, K., Riesman, R., Manning, N., Misso, K., & Kleijnen, (2011). Interventions for alcohol-related offending by women: A systematic review. *Clinical Psychology Review*, 31, 909-922.

National Highway Traffic Safety Administration (NHTSA). (2009). Alcohol-Impaired Drivers Involved in Fatal Crashes, by Gender and State, 2007-2008. *Traffic Safety Facts 2009*. DOT HS 811 095. Washington, D.C.: U.S. Department of Transportation.

Peck, R.C., Gebers, M.A., Voas, R.B., & Romano, E. (2008). The relationship between blood alcohol concentration (BAC), age, and crash risk. *Journal of Safety Research*, 39, 311-319.

Rauch, W.J., Zador, P.L., Ahlin, E.M., Howard, J.M., Frissell, K.C., & Duncan, G.D. (2010). Risk of alcohol-impaired driving recidivism among first offenders and multiple offenders. *American Journal of Public Health*, 100(5), 919-924.

Royal, D. (2003). *National Survey on Drinking and Driving Attitudes and Behaviors: 2001.* Washington, D.C.: U.S. Department of Transportation.

Schwartz, J., & Rookey, B. D. (2008). The narrowing gender gap in arrests: Assessing competing explanations using self-report, traffic fatality, and official data on drunk driving, 1980-2004. *Criminology*, 46(3), 637-671.

Schwartz, J. & Steffensmeier, D. (2007). "The Nature of Female Offending: Patterns and Explanation." In: R. Zaplin (Ed.), *Female Offenders: Critical Perspective and Effective Interventions.* (pp. 43-75). Boston: Jones & Bartlett.

Shore, E.R., & McCoy, M.L. (1987). Recidivism among female DUI offenders in a Midwestern American city. *Journal of Criminal Justice*, 15(5), 369-374.

Substance Abuse and Mental Health Services Administration (SAMHSA) (2005). *Substance abuse treatment for adults in the justice system: A treatment improvement protocol* TIP 44. U.S. Department of Health and Human Services. Center for Substance Abuse Treatment. www.samhsa.gov

Sun, A-P. (2006). Program factors related to women's substance abuse treatment retention and other outcomes: A review and critique. *Journal of Substance Abuse Treatment*, 30, 1-20.

Tsai, V.W., Anderson, C.L., F.E., & Vaca. (2010). Alcohol involvement among young female drivers in US fatal crashes: Unfavorable trends. *Injury Prevention*, 16, 17-20.

Webster, J.M. Pimentel J.H., Harp, K.L.H., Clark, D.B., & Staton-Tindall, M. (2009). Substance abuse problem severity among rural and urban female DUI offenders. *American Journal of Drug & Alcohol Abuse*, 35(1), 24-27.

Wells-Parker, E., Pang, M.G., Anderson, B.J., McMillen, D.L., & Miller, D.I. (1991). Female DUI offenders: A comparison to male counterparts and an examination of the effects of intervention on women's recidivism rates. *Journal of Studies on Alcohol*, 52(2), 142-147.

White, W. & Hennessey, M. (2006). *Evaluating, Treating and Monitoring the Female DUI Offender.*

Wilsnack, R.W., Wilsnack, S.C., & Klassen, A.D. (1984). Women's drinking and drinking problems: Patterns from a 1981 National Survey. *American Journal of Public Health*, 74(11), 1231-1238.

Zador, P.L., Krawchuck, S.A., & Voas, R.B. (2000). Alcohol-related relative risk of driver fatalities and driver involvement in fatal crashes in relation to driver age and gender. *Journal of Studies on Alcohol*, 61, 387–395.

OUIMET PAPER:

Brown, T.G., Ouimet, M.C., Nadeau, L., Gianoulakis, C., Lepage, M., Tremblay, J., Dongier, M., & Ng Ying King, N.M.K. (2009). From the brain to bad behaviour and back again: Neurocognitive and psychobiological mechanisms of driving while impaired by alcohol. *Drug and Alcohol Review*, 28, 406-418.

Glass, R.J., Chan, G., & Rentz, D. (2000). Cognitive impairment screening in second offense DUI programs. *Journal of Substance Abuse Treatment*, 19(4), 369–373.

Ouimet, M.C., Brown, T.G., Nadeau, L., Lepage, M., Pelletier, M., Couture, S., Tremblay, J., Legault, L., Dongier, M., Gianoulakis, C., & Ng Ying Kin, N.M.K. (2007). Neurocognitive characteristics of DUI recidivists. *Accident Analysis & Prevention*, 39, 743-750.

Brown, T.G., Ouimet, M.C., Nadeau, L., Lepage, M., Tremblay, J., Dongier, M., & Ng Ying King, N.M.K. (2008). DUI offenders who delay relicensing: A quantitative and qualitative investigation. *Traffic Injury Prevention*, 9(2), 109-118.

Maldonado-Bouchard, S., Brown, T.G., & Nadeau. L. (2010, August). Multiple DWI Offenders Show Poorer Decision-making Performance than Healthy Controls. Presented at the tri-annual meeting of the International Council on Alcohol, Drugs and Traffic Society (ICADTS), Oslo, Norway.

Brown, T.G., Gianoulakis, C., Tremblay, J., Nadeau, L., Dongier, M., Ng Ying Kin, N.M.K., & Ouimet, M.C. (2005). Salivary cortisol: A predictor of convictions for driving under the influence of alcohol? *Alcohol and Alcoholism*, 40(5), 474-481.

Couture, S., Brown, T.G., Ouimet, M.C., Gianoulakis, C., & Carbonneau, R. (2008). Hypothalamic-pituitary-adrenal axis response of driving to stress in male DUI recidivists. *Accident Analysis and Prevention*, 40(1), 246-253.

Brown, T.G., Dongier, M., Ouimet, M.C., Tremblay, J., Chanut, F., Legault, L., & Ng Yin Kin, N.M.K. (2010). Brief Motivational Interviewing for refractory DWI offenders not participating in mandated DWI intervention: a randomized controlled trial. *Alcoholism: Experimental & Clinical Research*, 34(2), 1-10.

Dutra, L., Stathopoulou, G., Basden, S.L., Leyro, T.M., Powers, M. B., & Otto, M.W. (2008). A meta-analytic review of psychosocial interventions for substance use disorders. *American Journal of Psychiatry*, 165, 179-187.

Ersner-Herschfield, S.M., Connors, G.J., & Maisto, S.A. (1981). Clinical and experimental utility of refundable deposit. *Behaviour Research and Therapy*, 19, 455-457.

Hagenzieker, M. P., Bijleveld, F. D., & Davidse, R. D. (1997). The effects of incentives to stimulate safety belt use: a meta-analysis. *Accident Analysis & Prevention*, 29(6), 759-777.

Lussier, J.P., Heil, S. H., Mongeon, J. A., Badger, G. J., & Higgins, S. T. (2006). A meta-analysis of voucher-based reinforcement therapy for substance use disorders. *Addiction*, 101, 192-203.

Prendergast, M., Podus, D., Finney, J., Greenwell, L., & Roll, J. (2006). Contingency management for treatment of substance use disorders: a meta-analysis. *Addiction*, 101, 1546-1560.

TIMKEN PAPER:

Bandura, A. (1977). *Social Learning Theory*. New York: General Learning Press.

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

Carroll, K. (1998). *Therapy manuals for drug addiction. Manual 1, Cognitive-behavioural approach: treating cocaine addiction*. Rockville, MD: U.S. Dept. of Health and Human Services, National Institutes of Health, National Institute on Drug Abuse.

Dunn, C.W. & Ries, R. (1997). Linking substance abuse services with general medical care: integrated, brief interventions with hospitalized patients. *American Journal of Drug and Alcohol Abuse,* 23, 1-13 (PMID: 9048144).

Fleming, M.F., Barry, K.L., Manwell, L.B., Johnson, K. & London, R. (1997). A randomized controlled trial in community-based primary care practices. *Journal of the American Medical Association*, 227, 1039-1045.

Hester, R.K. & Miller, W.R. (1995). *Handbook of Alcoholism Treatment Approaches.* Upper Saddle River, NJ: Prentice Hall.

Ingersol, K., Wagner, C., & Gharib, S. (2000). *Motivational groups for community substance abuse programs.* Richmond, VA: Mid-Atlantic Addiction Technology Transfer Center.

Marlatt, G.A. (1998). *Harm Reduction: Pragmatic strategies for managing high-risk behaviours.* New York: Guildford Press.

Marlatt, G. A. & Gordon, J.R. (Ed.). (1985). *Relapse Prevention: Maintenance strategies in the treatment of addictive behaviours*. New York: Guilford Press.

Marques, P.R., Tipetts, A.S., Voas, R.B., Danseco, E.R. & Beirness, D.R. (2000). Support services provided during interlock usage and post-interlock repeat DWI: 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, P. R., Voas, R. B., & Hodgins, D. (1998). Vehicle interlock programs: Protecting the community against the drunk driver. *Journal of Prevention & Intervention in the Community,* 17(1), 31-44.

Marques, P. R., Voas, R. B., Roth, R., & Tippetts, A. S. (2010, in press). *Evaluation of the New Mexico Ignition Interlock Program*. Washington, DC: National Highway Traffic Safety Administration.

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

Marques, P., Voas, R., Tippetts, S., Blackman, K., Timken, D., & Field, C. (2007). Motivational Intervention Keyed to Interlock Use Reduces the Rate of Positive BAC Tests. In B. K. Logan, D. S. Isenschmid, J. M. Walsh, D. Beirness, & J. Morland (Eds.), *Proceedings of the T2007 Joint International Meeting of TIAFT/ICADTS/IIS, August 26-30*. Seattle, WA: ICADTS. (Available online: www.icadts2007.org/print/iis23motivational.pdf).

Miller, W. R. & Rollnick, S. (1991). *Motivational Interviewing: Preparing people to change addictive behaviour.* New York: Guilford Press.

Miller, W. R. & Rollnick, S. (2002). *Motivational Interviewing: Preparing people to change addictive behaviour (2nd Ed.).* New York: Guilford Press.

Nandi, A. (2009). *Cognitive-behavioural Map*. Boulder, CO: Center for Change.

Project MATCH Research Group. (1997). Matching alcoholism treatments to client heterogeneity: Project MATCH posttreatment drinking outcomes. *Journal of Studies on Alcohol,* 58(1), 7-29.

Timken, D., & Marques, P. R. (2001a). *Support for Interlock Planning (SIP): Participants Workbook*. Pacific Institute for Research and Evaluation. Accessed April 20, 2009, from the World Wide Web: www.pire.org/sip/sipmanuals.htm.

Timken, D., & Marques, P. R. (2001b). *Support for Interlock Planning (SIP): Providers Manual*. Pacific Institute for Research and Evaluation. Accessed April 20, 2009, from the World Wide Web: www.pire.org/sip/sipmanuals.htm.

Wanberg, K. W., Milkman, H. B., & Timken, D. (2001, 2009). *Driving with care: Education and treatment of the impaired driving offender- Strategies for responsible living and change*. Thousand Oaks, CA: Sage Publications.

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