Alcohol Ignition Interlocks: Research, Technology and Programs

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Overview of presentation

- Reductions in recidivism
- Predicting future offenses
- Offenders’ opinions about interlocks
- Impact on family
- Interlocks and treatment
- Removing the device
- Strengths and limitations of the research
- Technology of interlocks
- Program applications
- Costs and benefits
- Conclusions
Recidivism

- Research shows that alcohol interlocks reduce recidivism among both first-time and repeat offenders (including hardcore offenders).

- More than 10 significant evaluations of interlock programs have demonstrated reductions in recidivism ranging from 35-90% with an average reduction of 64% (Willis et al. 2005).

- During the period of interlock installation (while the device is installed in the vehicle), interlock users have lower total recidivism rates than non-users.
Recidivism

First-time offenders:

- A handful of studies have found that alcohol interlocks are effective in reducing recidivism among first-time offenders.
  - A New Mexico study found a 65% decrease in the likelihood of being arrested for a second DWI offence.
  - An Alberta, Canada study comparing first offenders with interlocks to a control group without interlocks found large reductions in recidivism amongst the first-time offenders when compared to those in the control group.

- The drinking behavior of first-time offenders is very comparable to that of repeat offenders.
Recidivism

Hardcore offenders:

- Several studies of hardcore or repeat DWI offenders revealed that interlocks were effective in reducing recidivism while the device was installed.

- A Maryland random assignment study showed that interlock program participation reduced the risk of committing an alcohol traffic violation within the first year by 65% (Beck et al. 1999).

- An Illinois study found similar results – offenders who used the interlock were 1/5 as likely to be arrested for a DWI during the first year compared to those without the device (Raub et al. 2003).
Recidivism

Hardcore offenders:

- Research has found that once the alcohol interlock is removed, there can be a rapid return to pre-device recidivism (Raub et al. 2003).

- As a result, interlocks should remain installed until drivers are able to demonstrate that they can remain compliant for an extended period of time and separate their drinking and driving.

- Offenders who have the interlock device still show a net benefit from interlock program participation.
Compliance with installation

- Many studies estimate that between 25-75% of suspended or revoked drivers continue to drive, making the installation of interlocks essential to protect the public (Waller 1985; Hagen et al. 1980; etc.).

- Recent research suggests that offenders often fail to install the device.
  - A California study revealed that of 775 DWI offenders sentenced to install an interlock as a condition of probation, 191 (approx. 25%) were non-compliant (DeYoung 2002).
Predicting future offences

Several variables, but primarily more prior DWIs and more interlock warnings/failures logged during the first 5 months of interlock usage predict more than 60% of repeat DWI violations, with a false positive rate of less than 10% (Marques et al. 2001).
Offenders’ opinions

- Most surveyed offenders are supportive of the device and report that it is effective in preventing them from driving impaired (Beirness et al. 2007).

- A study conducted in the UK found that many offenders credited the interlock for:
  - stopping them from driving drunk;
  - reducing their drinking;
  - invoking serious thought about their drinking habits;
  - assisted in changing their drinking habits.
Offenders’ opinions

According to a survey of more than 5,000 offenders in New Mexico (Roth 2005):

- 87% agreed the interlock reduced driving after drinking;
- 85% agreed that interlocks were a fair sanction; and,
- 67% agreed all DWI offenders should have an interlock.
Impact on family

- The alcohol interlock affords the offender the ability to travel to and from work, run errands, and maintain financial stability and everyday functioning within the family unit.

- According to findings from a pilot study in the UK, family members are generally supportive of the interlock as it provides reassurance that their spouse can contribute to the family and better control their drinking (Beirness et al. 2007).
Interlocks and treatment

- Alcohol interlocks serve as a nexus between criminal justice sanctions and substance abuse treatment by restricting an offender’s driving privileges while giving them the opportunity to learn how alcohol consumption affects behaviour (Beirness 2001).

- The alcohol interlock is an opportunity to change life habits and provides a safety net to greatly reduce the likelihood that relapses do not result in impaired driving (Beirness et al. 1998).
Removing the device

- The interlock device has consistently been found to reduce recidivism while installed and has the potential to provide change in drinking behaviour if it is a component of a larger rehabilitative program.

- As a consequence of increased recidivism following the removal of the device, several studies have reported that employing interlocks may be necessary as a long-term or permanent condition of driving for repeat offenders (DeYoung 2002); Raub et al. 2003; etc.).

- Future research should look to determine whether or not a longer/permanent time frame will be effective in reducing recidivism.
Strengths of research

- Highly comparable findings from several studies and a convergence of evidence demonstrated by a majority of these studies.

- Sufficient overall sample sizes to allow for broad application of findings.

- Wide range of offender status and populations examined as comparison groups.

- Reliably measured findings (through comparison groups).
Limitations of research

Comparison Groups

- Most of the difficulties involve the inability and lack of resources to select a comparison group equivalent to the interlock group.

- The inability to find a truly comparable control population introduces a bias against finding a positive impact of the alcohol interlock.

Selection Bias

- Studies involving voluntary participants may have a selection bias effect whereby there are some differences in these participants compared to other eligible offenders creating an artificial/biased result.
How does it work?

- **BAC = 0**
- **BAC <= 0.02**
- **BAC > 0.02**

**Ignition**

**Warn**

**Running**

**Retest**

**Interlock**
Installation

- On average, the installation of the interlock device takes approximately 45 minutes.

- It can take up to 2 hours depending on the experience of the installer and sophistication of the vehicle electronics.

- During the installation the offender receives information about the device and learns how to blow into it to provide a breath sample.
Sensor technology

- There are three different types of sensors that may be used in alcohol interlock devices:
  - Semiconductor sensors
  - Electrochemical sensors (fuel cells)
- Accuracy
- Performance specifications
- Mouth alcohol
Device features

Device features are typically set as requirements by the state.

- Language and visual display
- BrAC threshold (pre-set limit)
- Lock-out time
- Stall protection time
- Pullover notice
- Recall notice
- Breath volume
- Data recorder
Program features

- Alcohol interlock programs have a variety of features, although no two programs are alike.
  - Target population
  - Program goals
  - Court based / administrative
  - Mandatory / voluntary
  - Program authority and supporting agencies
  - Coordination and communication
  - Monitoring
  - Indigent funding
Program participation

- The rate of imposition of alcohol interlocks has been historically low and inconsistent.
- Offender participation in alcohol interlock programs has also been low.
- Advances in interlock research and technology are not well known.
- Myths and misconceptions must be addressed through education.
Costs vs. benefits

- The findings of an overview of cost-benefit analyses demonstrate that new vehicle safety features, including the alcohol interlock, are some of the most cost-effective measures and contribute to the largest reductions in fatalities (ERSO, 2006).

- A Norwegian study notes that installing interlocks in the vehicles of all impaired drivers has an estimated cost-benefit ratio of 8.75 which means that for every dollar spent there will be a saving of almost nine dollars (Elvik 1999).
Costs vs. benefits

- Mass production of the alcohol interlock would also drastically reduce the cost of the device (ETSC 2005).
  - As the alcohol interlock becomes more widely used as a sentence, the associated costs would decrease, thus maximizing the benefits associated with the device.
Conclusions

- Alcohol interlocks help reduce recidivism for both first-time and repeat (hardcore) offenders.
- Once the device is removed, recidivism rates may return to pre-interlock levels, specifically for hardcore offenders.
- More education is needed for judges in order to combat the misconceptions that act as sentencing barriers.
- Offenders and family members are supportive of device.
- Treatment is needed to support long-term behavior change.
- Research is robust and there is a strong convergence of findings across diverse studies.
Conclusions

- Technology is sophisticated and reliable.
- Devices have many programmable features and anti-circumvention strategies.
- Program applications are diverse and more research is needed in this area.
- Legislation is only a first step.
- Alcohol interlocks are a cost-effective strategy to reduce impaired driving.
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