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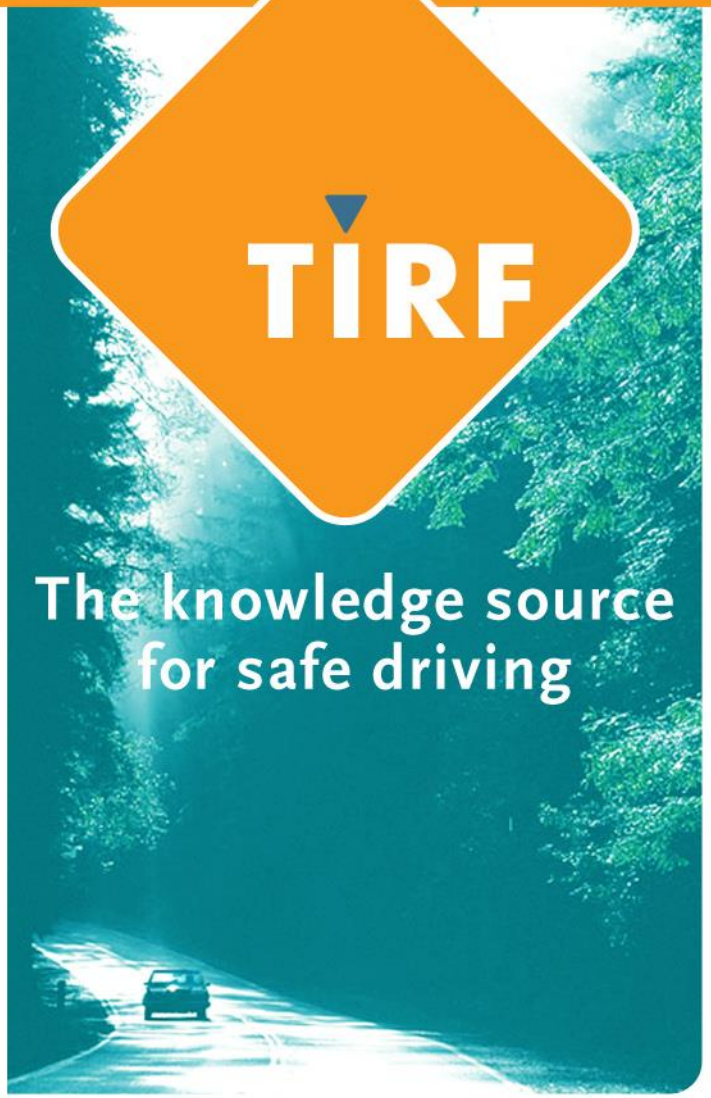

Enforcement of alcohol-impaired driving laws

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Overview

- **Problem statement;**
- **Two proven enforcement strategies:**
  - Use of road checks based on general deterrence theory;
  - Alcohol ignition interlocks.
- **Conclusions;**
- **Recommendations.**

Problem statement

- **Alcohol-impaired driving is a serious road safety issue;**
- **Estimates show it is a contributing factor in approximately 1/3 of fatal crashes in North America;**
- **3 Es, 4 Es, 5 Es: Engineering, Education, Enforcement, Evaluation, Engagement;**
- **Enforcement: road checks and interlocks.**

General deterrence theory

- **General deterrence theory predicts that the actual likelihood and the perceived likelihood of getting caught are important motivators for drivers to follow the law:**
  - **Actual** likelihood: actual chance of getting caught (e.g., 2 million checks for 10 million drivers, so 1 in 5);
  - **Perceived** likelihood: how likely people think it is they will be caught (can be higher or lower than actual likelihood).

General deterrence theory

- **This has led to different enforcement strategies among police:**
  - **Prevention** approach: make people believe "police is everywhere";
  - **Repression** approach: catch as many offenders as possible;
  - Combined approach.

Prevention approach

- **Objective: to make as many people as possible believe that police officers are enforcing alcohol-impaired driving laws everywhere and that drinking drivers will be caught;**
- **Targeting high traffic count road sites with high-visibility road checks is a priority because it serves to increase awareness of the enforcement activity.**

Repression approach

- Targeting times and places where the highest number of drinking drivers are to be expected;
- Rather than attempting to affect people's believe about the chance of getting caught, this approach seeks to increase the actual likelihood of getting caught;
- The objective is to apprehend as many drinking drivers as possible.

Use of Road checks

- Regardless of the objective, it is important to understand how traffic count affects drinking driving behaviour;
- Often police will base their decision of where to go on the expected number of cars driving by;
- It has to be "worth their time and efforts" to be at a particular location.

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Less is more: The influence of traffic count on drinking and driving behaviour

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Abstract

Drinking and driving road checks are often organized with either a clear prevention or repression objective in mind. The objective of a prevention strategy is to make as many people as possible believe that police officers are enforcing drinking and driving laws and that drinking drivers will most likely be caught. As such, targeting high traffic count road sites with high-visibility road checks is a priority because it serves to increase awareness of the enforcement activity. An alternative to this prevention approach is the "repression" approach that involves targeting times and places where the highest number of drinking drivers are to be expected. Rather than attempting to affect the subjective chance of getting caught, this approach seeks to increase the objective likelihood of getting caught; the aim is to apprehend as many drinking drivers as possible. Regardless of the chosen strategy, there is a need to understand how traffic count influences drinking and driving behaviour as traffic count may play a role in a police officer's choice of sites for a road check. The objective of this paper is to shed some light on this relationship between drinking and driving behaviour and traffic count. In this paper, data from a roadside survey, carried out in British Columbia in 2003, are used. A two-level logistic regression analysis was carried out with data from 2627 drivers coming from 48 different road sites to replicate a model that was previously obtained with comparable data from a Belgian roadside survey, also carried out in 2003. The present study successfully replicated the findings of the Belgian model, substantiating that the probability for drivers to be drinking and driving significantly decreases with an increasing level of traffic count. This supports the suggestion that drinking drivers avoid high traffic count road sites. The relevance of these findings with respect to organizing preventive or repressive road checks and possible confounding variables are discussed at the end of this paper.
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Keywords: Drinking driving; Traffic count; Multilevel analysis

Impact of traffic count

Table 3: Comparison of B.C. and Belgian probabilities (in percent) of drinking and driving by traffic count (parameters for calculation of Belgian probabilities borrowed from Vanlaar 2005a)

Traffic Count	*BC model, excluding control variables time and day*	*BC model, including control variables time and day*	*Belgian model*
	(β_0 =-4.026; β_1 =-0.004)	*(β_0 =-5.456; β_1 =-0.003)*	*(β_0 =-4.757; β_1 =-0.002)*
20	1.621%	0.401%	0.819%
50	1.440%	0.366%	0.771%
100	1.182%	0.315%	0.698%
500	0.241%	0.095%	0.315%
1,000	0.033%	0.021%	0.116%
1,500	0.004%	0.005%	0.043%

Less is more: 63/93 at <=250

Table 4
Traffic count in four categories by BAC in three categories; absolute numbers and row-percentages are presented

Traffic Count	BAC < 0.05%	0.05% ≤ BAC < 0.08%	BAC >= 0.08%	Total
≤75	147	7	8	162
	90.7%	4.3%	4.9%	100.0%
75< to ≤250	1057	19	29	1105
	95.7%	1.7%	2.6%	100.0%
250< to ≤500	607	9	12	628
	96.7%	1.4%	1.9%	100.0%
500< to ≤1500	410	5	4	419
	97.9%	1.2%	0.9%	100.0%
Total	2221	40	53	2314

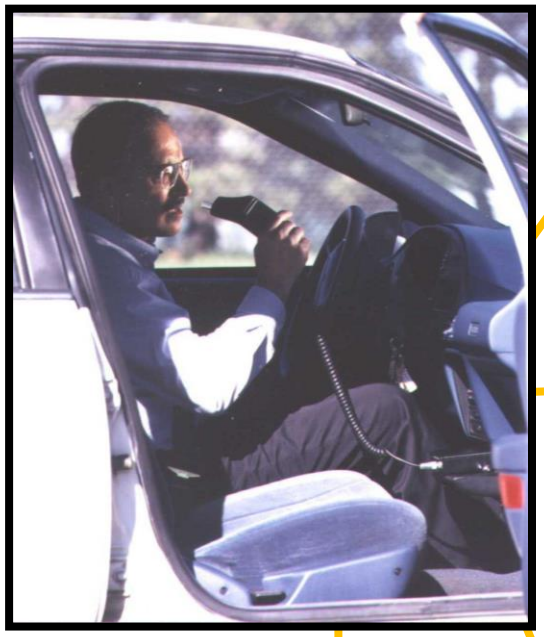
Conclusion road checks

- They are highly effective, particularly high-visibility road checks adopting prevention approach and combining enforcement with education (cf. NHTSA's countermeasures that work);
- Combination with repression approach can be used;
- When using repression approach, remember: less is more!

Alcohol interlocks

- A breath-testing device attached to a car's starter system.
- It prevents a vehicle from starting when a pre-set level of alcohol is detected in breath sample presumably provided by the driver.
- It is designed to separate drinking from driving.

How does it work?



BAC = 0

Ignition

BAC <= 0.03

Warn

Running Retest

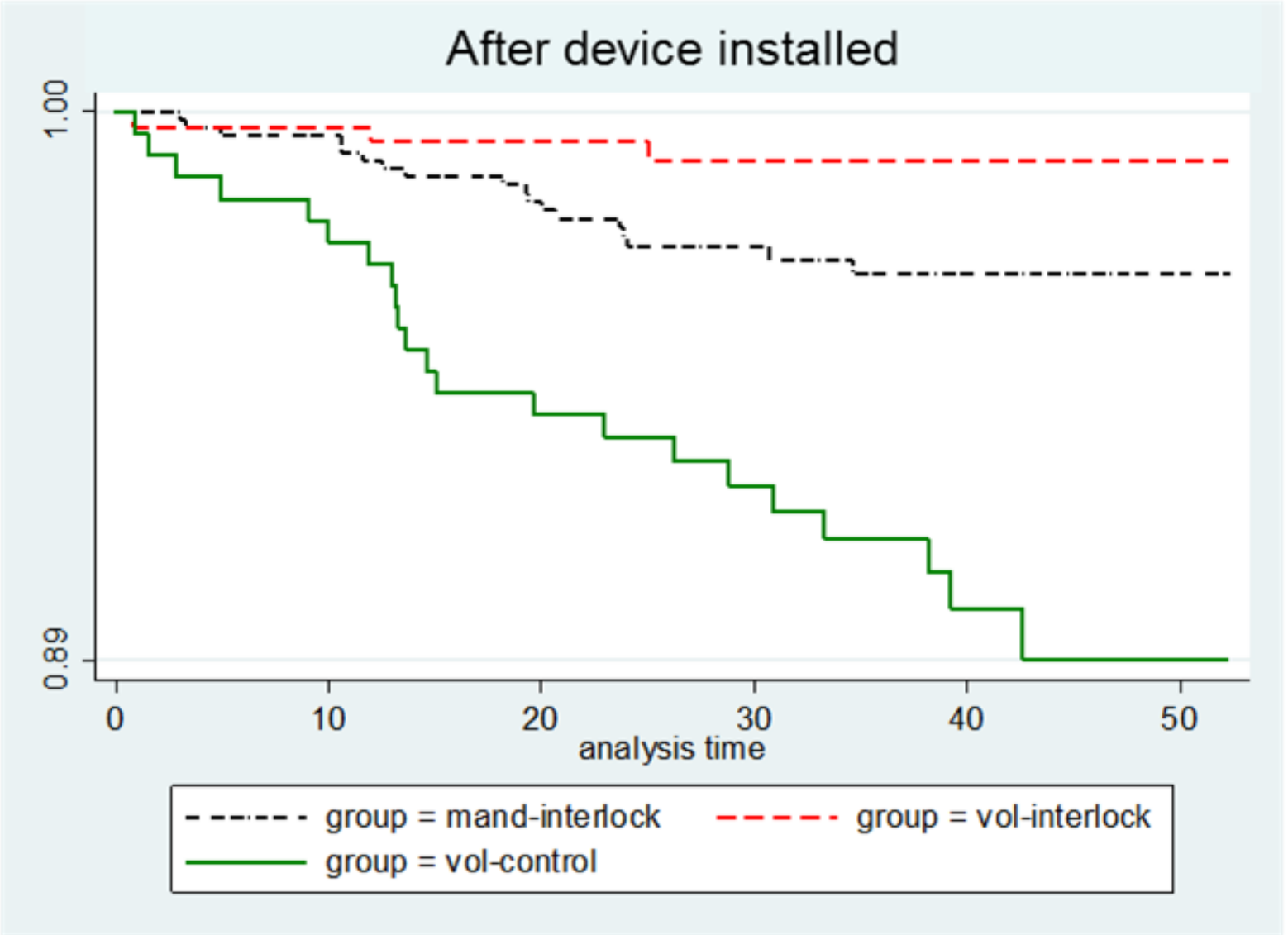
BAC > 0.03

Interlock

Proven reduction of re-offending

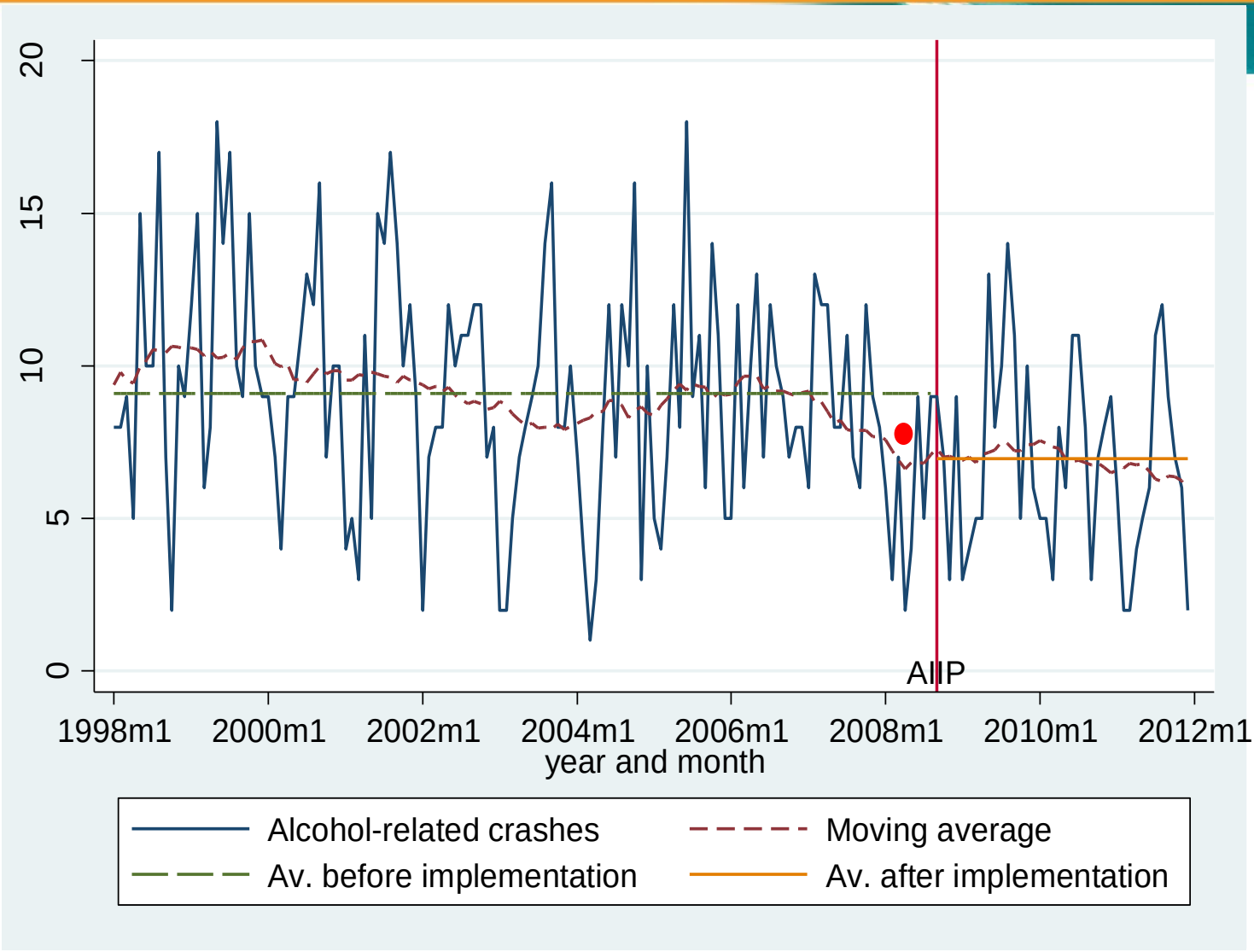
- **More than 10 significant evaluations of interlock programs have demonstrated reductions in recidivism ranging from 35-90% with an average reduction of 64% (Willis et al. 2005).**
- **A systematic review of 15 scientific studies conducted by the Centers for Disease Control and Prevention (CDC) found that while interlocks were installed, the re-arrest rate of offenders decreased by 67% compared to groups that did not have the device installed (Elder et al., 2011).**

Vanlaar et al.: 90% reduc-tion in Nova Scotia



Proven reductions in crashes

- **McCartt et al. (2013) reported an 8.3% reduction in single-vehicle late-night crash risk associated to a change in WA State in 2004 that extended the interlock order requirement to first time offenders with BACs below 0.15%.**
- **Vanlaar et al. (2016) found a small *significant permanent* decrease in the number of fatal and serious injury alcohol-related crashes, following the implementation of the program in Nova Scotia, Canada.**



Vanlaar et al.: significant gradual permanent decrease in crashes in Nova Scotia

Impact of State Ignition Interlock Laws on Alcohol-Involved Crash Deaths in the United States

Elinore J. Kaufman, MD, and Douglas J. Wiebe, PhD

Objectives. To investigate the impact on alcohol-involved crash deaths of universal ignition interlock requirements, which aim to prevent people convicted of driving under the influence of alcohol from driving while intoxicated.

Methods. We used data from the National Highway Traffic Safety Administration for 1999 to 2013. From 2004 to 2013, 18 states made interlocks mandatory for all drunk-driving convictions. We compared alcohol-involved crash deaths between 18 states with and 32 states without universal interlock requirements, accounting for state and year effects, and for clustering within states.

Results. Policy impact was apparent 3 years after implementation. The adjusted rate of alcohol-involved crash deaths was 4.7 (95% confidence interval [CI] = 4.0, 5.4) per 100 000 in states with the universal interlock requirement, compared with 5.5 (95% CI = 5.48, 5.53) in states without, an absolute reduction of 0.8 (95% CI = 0.1, 1.5) deaths per 100 000 per year.

Conclusions. Requiring ignition interlocks for all drunk-driving convictions was associated with 15% fewer alcohol-involved crash deaths, compared with states with less-stringent requirements. Interlocks are a life-saving technology that merit wider use. (*Am J Public Health.* Published online ahead of print March 17, 2016: e1–e7. doi:10.2105/AJPH.2016.303058)

limit (usually 0.02 g/dL), the vehicle cannot start. Since the introduction of practical interlock technology in the 1990s, use has increased steadily. There were 300 000 interlock devices in use nationwide in 2010, up from 100 000 just 4 years before, but they are still only used in about 30% of drunk driving convictions.[15,16]

Interlocks have been shown to reduce drunk-driving recidivism by 50% to 90% while installed.[8,13,17–22] However, past research has focused on recidivist arrests. To our knowledge, no studies have reported injuries or deaths as outcomes, and only 3 studies have assessed the impact of interlocks on crashes.[14,15] Of these, a Swedish study found a decrease in crashes, but had very low absolute numbers of crashes in both interlock and control groups, making the findings difficult to interpret.[15,21] The other 2 studies

Interlocks =15% fewer alcohol-involved crash deaths

Conclusion interlocks

- **Research shows that interlocks reduce recidivism among first and repeat offenders who have the device installed in their vehicle.**
- **Research also shows that there might be a residual effect, after the device is removed, especially when combining the interlock with treatment.**
- **There is evidence that interlocks can reduce crash deaths due to alcohol-impaired driving.**

Conclusion interlocks

- Interlocks are successfully used around the world with offenders (in North America, Australia and Europe), but also commercial fleets (taxis, trucks, etc.)
- Interlocks may be useful for young drivers as an extra layer of protection.
- For those jurisdictions where alcohol-impaired driving is a problem, interlocks are an effective solution, but the implementation has to be carefully tailored.

1 Overview

Introduction

Welcome to the Alcohol Ignition Interlock Curriculum for Practitioners!

This website contains a variety of instructional materials that can assist agencies and organizations in educating their staff and members about alcohol ignition interlocks.

An alcohol ignition interlock is a breath testing device that connects to the starter or ignition, or other on-board computer system of a vehicle. The device prevents the vehicle from starting if breath test results shows a breath alcohol concentration (BrAC) is found to exceed a certain pre-set limit (usually corresponding to blood alcohol concentration of .02%). This device also requires the driver to continue to pass repeated breath tests while the vehicle is in use to ensure that the driver remains sober. In addition, these programmable devices possess a range of anti-circumvention features. It should be noted that the alcohol interlock will never interfere with a running engine.

This curriculum allows instructors to tailor educational materials to meet their respective needs and deliver these materials at their convenience. It is designed to meet the educational needs of law enforcement, prosecutors, the judiciary, probation and parole officers, treatment and driver licensing professionals.

Most importantly, this curriculum is available to relevant practitioners at no cost.

Information relating to the following topics can be found at this site:

- international research findings from studies on alcohol interlocks;
- alcohol interlock technology including a range of visual materials;
- information about the implementation of alcohol interlocks as part of a program to control and monitor impaired driving offenders;
- legal concerns about the use of alcohol interlocks that may be raised in a criminal justice setting; and,
- information about contracting with vendors and service providers including a range of forms, contracts and other administrative materials.

This curriculum was developed with input from researchers and representatives of several national criminal justice organizations, treatment professionals, and licensing agencies.

Materials contained in this site are structured in a question/answer format and allow practitioners to select the topics and information that are most relevant to their audience.

They include:

- clear and comprehensive written materials for instructors;
- concise summaries that allow instructors to create their own handouts;
- powerpoint slides that allow instructors to create their own presentations;
- visual materials including an instructional video; and,
- glossaries and reference materials.

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