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The Ignition Interlock System:
An Evidentiary Tool Becomes a Sentencing Element

Andrew Fulkerson

Technology is becoming an increasingly pervasive aspect of the criminal justice system. One of the earliest technological innovations in the investigation of crimes was the use of fingerprints for identification of suspects.[1] Fingerprinting began as an investigatory tool and by the early 20th century was accepted as scientific evidence in court proceedings.[2]

Courts now increasingly rely upon expert witnesses to explain scientific evidence, which is often critical in the decision-making process for criminal and civil courts.[3] While technology has routinely been utilized as both investigatory and evidentiary devices, only in the last decade has a technological device made the transition from investigation to evidence to sentencing element. The breath-analyzed ignition interlock is the device that has experienced this metamorphosis.

Drunken driving emerged as a new crime in the 20th century. DWI was unknown at common law. With the development of the automobile in the dawn of the last century, the predilection for the fruit of the vine of some members of society combined dangerously with this new mechanized mode of travel.

By the 1970s the streets and highways of America were plagued by drivers who were too impaired to safely handle a vehicle. Enforcement of DWI laws was, at best, spotty. In the early 1980s, activist groups such as Mothers Against Drunk Driving (MADD) began organizing and pushing for reforms in the approach to DWI. Simultaneously, legislatures began proposing and passing new legislation aimed at the DWI problem.[4] As a result of a combination of this change in public opinion, more serious enforcement, and expanded penalties, the arrest rate fell from 1,124 per 100,000 drivers in 1986, to 809 per 100,000 in 1997.[5] This is a 28% decrease in the DWI arrest rate. But there are still a substantial number of impaired drivers on the roads. Even with this decrease, alcohol plays a role in far too many motor vehicle crashes. The National Highway Traffic Safety Administration reported that in 1999, alcohol was a factor in 38% of fatal crashes and in 7% of all vehicle crashes.[6] In 1998, 1.4 million persons were arrested for DWI.[7]

TECHNOLOGY AND DWI

Technology has long been of great importance in DWI cases. Alcohol was proven to be statistically related to fatal automobile crashes by the "Manhattan Study."[8] Studies of the association between degree of impairment and the amount of alcohol that is present in a person's system have concluded that even low doses of alcohol will impair one's visual perceptions and reaction times.[9]

Without the use of some form of test to ascertain alcohol levels in defendants, the court must rely entirely upon evidence of the defendant's demeanor. In cases of obvious intoxication, demeanor evidence may be sufficient, but impairment may be more difficult to establish from demeanor evidence alone.

The earliest tests for measuring blood-alcohol content were based upon venous blood samples. Alcohol, present in the breath of subjects, was determined to have a correlation with alcohol levels in venous blood. As a result, in 1953, the National Safety Council Committee on Alcohol and Drugs recommended that breath testing be used in drunken driving cases.[10] The first breath-testing device was the "Breathalyzer," which was developed by Robert Borkenstein in 1954. It is cheaper and much more convenient for a police officer to administer a breath test than to transport a suspect to a hospital or clinic for a blood test. Breath testing soon became the most predominant method of ascertaining the level of alcohol in a suspect's system.[11] The breath test is now so common that nearly all DWI cases rely heavily on the results of the testing device used in the local jurisdiction.

The passage of "per se" DWI laws based entirely upon a person's BAC have made testing devices even more common as an investigatory and evidentiary tool.

Footnotes

1. Jennifer L. Mnookin, *Fingerprint Evidence in an Age of DNA Profiling,* 67 Brooklyn L. Rev. 13 (2001).
2. *Id.*
3. Graham C. Lilly, *The Decline of the American Jury,* 72 U. Colo. L. Rev. 53 (2001).
4. Patrice N. Rogers & Steve E. Schoenig, *A Time Series Evaluation of California's 1982 Driving-Under-the-Influence Legislative Reforms,* 26 Acc. Anal. & Prev. 63-78 (1994).
5. Laura M. Maruschak, DWI Offenders Under Correctional Supervision (Bureau of Justice Statistics Report, 1999).
6. National Highway Traffic Safety Administration, U.S. Department of Transportation, Traffic Safety Facts 1999 at 13, 43, 56 (2000), *available at http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSFAnn/TSF1999.pdf* (last visited Sept. 20, 2003). NHTSA reported that 30% of all traffic fatalities in 1999 involved at least one driver or one person not an occupant of a vehicle in the crash who had a BAC of .10 or higher. *Id.* at 32.
7. *Id.* at 4.
8. J. McCarrol & W. Haddon, *A Controlled Study of Fatal Automobile Accidents in New York City,* 38 J. Chronic Diseases 811 (1962).
9. R. B. Forney, Jr., *Recognizing Alcohol Impairment, Observation and Testing* (presentation at an American Bar Association Traffic Court Seminar, 1999).
10. *Id.*
11. Elizabeth Baker & Kenneth Beck, *Ignition Interlocks for DWI Offenders-A Useful Tool?*, 7 Alcohol, Drugs & Driving 107 (1991).

THE IGNITION INTERLOCK DEVICE

It is not a great leap from the development of testing devices to determine blood alcohol level in a person, to the application of this technology to design "a car that drunks can't drive."[12] The use of breath-testing equipment for preventative purposes has been under consideration since 1970.[13] Early vehicle-based breath-testing devices were plagued by problems with reliability and circumvention.[14] A frequent means of cheating the early ignition interlock devices was the use of stored breath samples by drivers. When the technology was improved so as to effectively prevent circumvention, the stage was set for the widespread usage of the modern ignition interlock system.

The ignition interlock is typically a handheld device that is wired to a control unit under the dash of the vehicle. The driver must give a breath sample that has alcohol below a predetermined level. If the driver produces a sample above the programmed limit, the ignition system of the vehicle is shut down and the vehicle will not start. The unit is programmed to allow another attempt after a certain amount of time (usually 30 minutes) has elapsed.[15]

Circumvention may be prevented by requiring a "hum-tone" at the same time the sample is given. That is, the driver must hum and blow at the same time. Also required are "rolling re-tests," which keep drivers from having a sober friend provide the initial sample. Circumvention is further discouraged by the use of a data recorder, which stores information about each time there is an attempt to start the vehicle. The data includes date, time, subject's BAC, any lock-out events, and any attempts to bypass the interlock unit.[16] The offender must report at regular intervals for the unit to be inspected and the data downloaded. The information is provided to—and should be reviewed by—the offender's probation officer or the court.

California was the first state to enact legislation that authorized sentencing judges to require the installation of ignition interlock devices in the vehicles of DWI offenders.[17] As of 2002, 41 states and the District of Columbia had passed laws authorizing the use of the ignition interlock.[18] Some backers of the ignition interlock have suggested that the device be made another piece of mandatory automotive safety equipment along with seat belts and airbags.[19]

Circumvention may be prevented by requiring a "hum-tone" at the same time the sample is given.

DWI CASES AND THEORIES OF PUNISHMENT

Criminologists and researchers recognize four general purposes or goals served by the punishment of actions that society has deemed beyond the bounds of acceptable behavior: (1) retribution, (2) rehabilitation or reform, (3) incapacitation, and (4) deterrence.[20] Which of these four functions of punishment are effective in the handling of drunken driving cases?

Retribution

Retribution serves primarily to satisfy the urge to avenge the wrongful behavior of those who violate society's rules of conduct. From that standpoint, the punishment must only be proportionate to the offense in order to be effective. Preventing or deterring future criminal behavior is collateral to the retributive theory of punishment.

Rehabilitation

Rehabilitation operates upon the presumption that there is something "wrong" with criminals—that they suffer from some form of sickness, which causes their aberrant behavior. Rehabilitative programs began to be used extensively in the United States for DWI offenders in the period of the 1970s and early 1980s. It has been reported, however, that these programs had only minimal beneficial effects upon recidivism,[21] though Lucker and Osti[22] caution that it is inaccurate to draw generalizations from the applicable studies because of the broad variety of penalties, rehabilitation programs, and offenders that were considered.

12. Robert B. Voas, *Cars That Drunks Can't Drive* (paper presented at the annual meeting of the Human Factors Society, San Francisco, California, October 15, 1970).
13. *Id.*
14. Baker & Beck, *supra* note 11.
15. Kenneth H. Beck, William J. Rauch, Elizabeth A. Baker & Allan F. Williams, *The Effects of Ignition Interlock License Restrictions on Drivers with Multiple Alcohol Offenses: A Randomized Trial in Maryland,* 89 AM. J. PUBLIC HEALTH 1696 (1999).
16. Gregory T. Neugebauer, *Alcohol Ignition Interlocks: Magic Bullet or Poison Pill?,* 2 PITT. J. TECH. L & POL'Y 2 (2002).
17. Barbara J. Morse & Delbert S. Elliott, *Effects of Ignition Interlock Devices on DUI Recidivism: Findings From a Longitudinal Study in Hamilton County, Ohio,* 38 CRIME & DELINQUENCY 131 (1992).
18. States that have authorized the ignition interlock are Alaska, Arkansas, Arizona, California, Colorado, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin, and the District of Columbia.
19. Gregory T. Neugebauer, *supra* note 16, *citing* Douglas J. Beirness, *Best Practices for Alcohol Interlock Programs* (publication of the Traffic Injury Research Foundation, Ottawa, Ontario, April 2001, available at http://www.trafficinjuryresearch.com.
20. H. Lawrence Ross, *Are DWI Sanctions Effective?*, 8 ALCOHOL, DRUGS & DRIVING 61 (1992).
21. G. W. Lucker & J. R. Osti, *Reduced Recidivism Among First-Time DWI Offenders as a Correlate of Pre-Trial Intervention,* 24 J. OFFENDER REHAB. 1 (1997); R. Mann, G. Leigh, E. Vingilis & K. DeGenova, *A Critical Review of the Effectiveness of Drinking-Driving Rehabilitation Programs*, 15 ACCIDENT ANALYSIS & PREVENTION 441 (1983); J. Nichols, *Treatment Versus Deterrence*, 14 ALCOHOL HEALTH & RESEARCH WORLD 44 (1990);. R. Peck, D. Sadler, & M. Perrine, *The Comparative Effectiveness of Education and Treatment Programs for Drinking Drivers: A Decade of Evaluation*, *in* 1 *ALCOHOL, DRUGS AND DRIVING: ABSTRACTS AND REVIEWS* 15 (L. Goldberg, ed. 1985).
22. Lucker & Osti, *supra* note 21.

A recent study of recidivism rates of DWI offenders who were required to use the ignition interlock was conducted in northeast Arkansas.

Other studies have shown quite contrary results. Specifically, an examination of a treatment program used in lieu of a mandatory jail sentence for first-time DWI offenders demonstrated that offenders who went through this alternative program experienced a rate of recidivism that was almost one-half that of offenders who received the traditional jail sentence. The jailed offenders had a 37% recidivism rate while the offenders who were sentenced to the alternative program had only a 19% rate of re-offending.[23]

Incapacitation

The most severe form of incapacitation is incarceration. In the context of drunken driving, the punishment is effective because it keeps the offender off the road. But this efficacy is true only while the offender is incarcerated. Other less restrictive, but still effective, forms of incapacitative punishment are the utilization of ignition interlock devices, confiscation of vehicles, and suspension or revocation of driving privileges.[24]

An effective form of incapacitation of impaired drivers is the suspension or revocation of driving privileges. One study has found that DWI offenders who have had their license suspended or revoked have fewer subsequent violations and fewer crashes.[25] It is quite important to note that many of these offenders are still driving even though their right to drive has been taken away. While they violate the requirement that they not drive, they are apparently doing so with some degree of restraint and caution. This increased level of highway safety and defensive driving is very likely to have some positive bearing on the number of motor vehicle crashes, alcohol related or not, that occur on the streets and highways.

Deterrence

The fourth purpose of punishment is deterrence. This punishment goal can be directed toward the individual offender in the form of specific deterrence, or to society as a whole in the form of general deterrence.[26] Deterrence theory is based upon the presumption that people make rational choices before they act, consciously weighing the potential benefits of certain behaviors against the potential costs of the behavior. The ignition interlock operates independently of this rational choice. The motivation of the driver is irrelevant. Even if the subject, after making the choice to drive a motor vehicle after drinking alcohol, tries to drive, the ignition interlock will not allow the crime to be committed.

It has been observed that the deterrent effects of punishment for DWI are greatly reduced by the almost minimal risk of detection of offenders by law enforcement.[27] The perceived risk of arrest has a direct relationship to the numbers of persons who drink and drive. A greater perceived risk of detection and punishment to the potential offender will produce fewer occurrences of drinking and driving.[28] There is no certainty that an impaired driver will be stopped and arrested. Regardless of how severe the ultimate sentence may be, many persons will take their chances on the road because of the slim chance of being apprehended.

Each of the elements of deterrence interacts with one another. For example, even when an offense carries an extremely harsh punishment, if the certainty of detection and punishment is low, then there is little deterrent effect. Similarly, if the certainty of detection and punishment is high, and the punishment is also considered severe, but the process is extraordinarily slow, then the deterrent effect is lessened by this lack of celerity of punishment.[29]

Recidivism is related to specific deterrence. If the theory of deterrence is valid, then the affected offender should exhibit less criminal behavior and a lower rate of future involvement with the criminal justice system. Incarceration of DWI offenders has not been proven to be any more effective at reducing future DWI offenses than other legal sanctions.[30]

DOES IT WORK? RECIDIVISM STUDIES

A recent study of recidivism rates of DWI offenders who were required to use the ignition interlock was conducted in northeast Arkansas.[31] This study compared offenders in Greene County, Arkansas, which utilized the interlock, with DWI offenders in neighboring Craighead County, which did not include the interlock in DWI sentences. The Greene County interlock group consisted of all DWI offenders in the District Court for the period from May 1, 1995 through June 30, 1996. There were 315 DWI offenders in this group. The Craighead County non-interlock group consisted of all DWI offenders in the Craighead County District Court between January 1 and June 30, 1996, a group that included 312 persons convicted of DWI.[32] The Arkansas Office of Driver Control provided histories for all offenders in these two groups for

23. W. N. Evans, D. Neville, & J.D. Graham, *General Deterrence of Drunk Driving: Evaluation of Recent American* Policies, 11 Risk Anal. 279 (1991).
24. H. Lawrence Ross, *supra* note 20; Jeffrey H. Coben & Gregory L. Larkin, *Effectiveness of Ignition Interlock Devices in Reducing Drunk Driving Recidivism,* 16 Am. J. Prev. Med. 81 (1998).
25. Ross, *supra* note 20.
26. *Id.*
27. *Id.*
28. Robert B. Voas, H. D. Holder & P. J. Gruenewals, *The Effect of Drinking and Driving Interventions on Alcohol-Involved Traffic Crashes Within a Comprehensive Community Trial*, Addiction 221 (2nd Supp. 1997).
29. *Id.*
30. Morse & Elliott, *supra* note 17.
31. Andrew Fulkerson, *Blow and Go: The Breath-Analyzed Ignition Interlock Device as a Technological Response to DWI,* 29 Am. J. Drug & Alcohol Abuse 219 (2003).
32. *Id.* at 224.

three years subsequent to the subjects' conviction dates for the DWI offenses in the respective courts.[33]

The Greene County offenders were ordered to install an interlock in their vehicles for periods of either six months or one year. This requirement was also made a restriction on their driver's licenses for the court-ordered time period.[34] The three-year follow-up provided an opportunity to examine recidivism well after the time that the interlock was in place in the offenders' vehicles.

If reduction in future arrests is one of the goals of a sentencing judge, then recidivism must be examined. In the Arkansas study, the interlock group experienced three-year recidivism rates of 17.5%, compared with 25.3% rates in the non-interlock group.[35] Length of time for use of the interlock did not appear to make any difference in recidivism. The rates were nearly identical for the interlock offenders who were ordered to use the interlock for six months and the twelve-month interlock subjects.[36]

The study revealed more significant differences between the interlock and non-interlock groups when controlling for other variables. Multiple DWI offenders in the interlock group had re-offense rates of 18.1% compared with recidivism rates of 36.9% for the non-interlock group.[37] The interlock subjects then, were less than half as likely to have a subsequent DWI conviction within three years. For first offenders, the difference was much less substantial. The interlock group first offenders had three-year recidivism rates of 17.2% compared with 21.1% for the non-interlock group.[38] This is a very minor improvement, and was not statistically significant.[39]

Age also made a difference in future DWI convictions for the two groups. Interlock offenders under 30 had three-year recidivism rates of 12.2%. The under-30 non-interlock group had recidivism rates of 23.3%. For the over-30 offenders, 19.8% of the interlock group had another DWI conviction within three years, compared with 27.1% of the non-interlock group.[40] To summarize this data,

> Selective utilization of the interlock appears to produce much more substantial results than across-the-board use. Offenders under 30 years of age in the non-interlock group had nearly twice the recidivism rate than the interlock group members in the same age group. The most important variable is prior DWI history. The offenders who had previously been convicted of DWI in the interlock group were less than half as likely to receive another DWI within three years than the multi-offenders in the non-interlock group.[41]

The study revealed . . . significant differences between the interlock and non-interlock groups when controlling for other variables.

A Maryland study also found statistically significant reductions in recidivism by multiple offenders who installed interlock devices in vehicles.[42] The Maryland study found that 5.9% of the offenders in the interlock group were arrested for an alcohol-related traffic offense compared with 9.1% of the offenders in the non-interlock group.[43] The Maryland study included random assignment of offenders who had applied for reinstatement of license privileges to the interlock or non-interlock groups. The fact that all subjects in this study had requested license reinstatement may result in some self-selection bias. The Maryland subjects were all motivated to at least try to obtain a license. Thus, this group did not include those offenders who had rejected this attempt to improve their lot. The Arkansas study included all DWI offenders in the subject jurisdictions.

The Maryland study was only a two-year follow-up, but was consistent with the Arkansas study in showing statistically significant reductions in recidivism for offenders who were required to use an ignition interlock. The Arkansas study had 14.6% recidivism after two years for the interlock group and 21.8% recidivism for the non-interlock group.[44] One must also keep in mind that the Maryland study examined only multiple offenders, while the Arkansas study looked at first offenders and multiple offenders. While there are clear differences in methodology between these two studies, both reveal significant reductions in recidivism by multiple DWI offenders.

An early interlock study in Ohio found recidivism rates were three times higher for offenders who received a license suspension compared with offenders placed in an interlock group.[45] The Ohio study examined a population of eligible DWI offenders in Hamilton County, Ohio. Offenders were eligible for the interlock if they had a DWI offense were a repeat offender with two or more DWIs in the last 10 years; or a first offender who had a BAC of .20 or higher; or refused to take a breath test at the time of arrest.[46]

The Ohio study indicated overall recidivism rates that were much lower than in the Arkansas study. After 30 months, only 1.5% of the Ohio interlock subjects were rearrested, compared to 16.1% of the non-interlock group.[47] After 36 months, the Arkansas interlock group of multiple offenders had a recidi-

33. *Id.*
34. *Id.*
35. *Id.* at 226. This study also utilized quantitative analysis of the data. The association between interlock use or non-use and recidivism was measured by Phi, which indicated a moderate-to-weak relationship between these variables. The higher the Phi value, the greater the association between the independent variable (interlock use) and the dependant variable (recidivism).
36. *Id.*
37. *Id.* at 228. The Phi value for the multi-offender variable was .211, which indicates a moderate-to-strong relationship. *Id.*
38. *Id.*
39. *Id.*
40. *Id.* at 229.
41. *Id* at 228-29.
42. Beck *et al.*, *supra* note 15.
43. *Id.*
44. Fulkerson, *supra* note 31, at 226.
45. Morse & Elliott, *supra* note 17. All offenders in this study had their driving privileges suspended. However, those in the interlock group were allowed to drive so long as the vehicle they were driving was equipped with an interlock device.
46. *Id.*
47. *Id.*

vism rate of 18.1% compared to 36.9% for the non-interlock group.[48]

Differences in research design of these three examinations of recidivism rates and the ignition interlock make a comparison of the three studies extremely difficult. Even so, all three studies indicated a reduction in future DWIs through use of the ignition interlock. Based on these studies, the ignition interlock is statistically proven to significantly decrease future DWIs for multiple offenders, younger offenders, and high-risk offenders, such as those with high BAC levels or those who refused to be administered a breath test at the time of arrest.

PROBLEMS

The ignition interlock is not a perfect response to impaired drivers. As mentioned above, there is the opportunity for offenders to circumvent the system, if they are willing to risk dealing with a probation officer or the court. The interlock is specific to a particular vehicle, not a particular person. Thus, if an offender who is required to use an interlock has other persons in the household, then all of the other household members who drive that vehicle will have to contend with using the interlock on that vehicle—and the offender might still drive by using a different car.

There are some interlock devices that are not specific to alcohol, and can produce false positives from cigarette smoke.[49] A false positive prevents the driver from being able to use the vehicle for that period of time, which unfairly causes a hardship on the offender or family members.

Privacy issues have also been raised due to the data collection features of ignition interlock devices.[50] The data collected include all attempted starts, lock-outs, and BAC levels. This data will be collected regardless of who has been driving the vehicle.

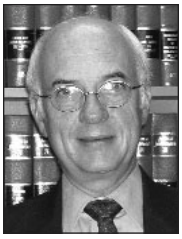
Would society be willing to make the ignition interlock a mandatory piece of equipment for all motor vehicles? Universal use of the interlock has been suggested as a means of further reducing the still staggering number of traffic fatalities that are related to drunken driving.[51]

SUMMARY

Ignition interlock, as with many sentencing options, features both positive and negative aspects. The device has been proven in empirical studies to reduce recidivism for repeat DWI offenders, young drivers, and persons with very high BAC levels. These reductions are substantial, and statistically significant.

The interlock is effective in preventing future violations even when the particular offenders have difficulty in controlling their own behavior. The interlock does not rely upon motivation or cooperation by the offender. It operates to prevent the offending behavior by intervening between the offender and the vehicle. It does not stop the person from drinking. It does not stop the person from driving. It only stops the person from drinking and driving in the vehicle equipped with an interlock. It thus, controls the "intersecting risk behaviors" of drinking and driving.[52]

Society has made great strides in overcoming the problem of impaired drivers on the roadway. But with almost 1.5 million DWI arrests each year, there is still much room for continued improvement. The ignition interlock device is not the sole response to DWI, but it clearly has established itself as one more valid option for consideration by sentencing judges in DWI cases.



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48. Fulkerson, *supra* note 31, at 228.
49. Gregory T. Neugebauer, *supra* note 16. There are two basic types of sensors that are used in interlocks. One of these is the semiconductor sensor, which is not alcohol specific. The other type is a fuel cell sensor, which is alcohol specific.
50. *Id.* This article raises the issue of this information being used by a plaintiff's attorney to build a negligence case against a person who may be a defendant in a personal injury case. The BAC levels would certainly build a case against the person.
51. *Id.*
52. Beck *et al.*, *supra* note 15, at 1696.