Field Evaluation of the Autotimer Unit for Monitoring Convicted Drinking Drivers

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BACKGROUND

This report describes the development and field testing of an in-vehicle recording unit designed to control illicit driving by convicted drinking drivers. The work was funded by the U.S. National Institute on Alcohol Abuse and Alcoholism under an SBIR grant titled, "The Use of the Auto-Timer in Alcohol and Drug Rehabilitation". The need for such a device grows out of the reluctance of courts to suspend the driving permits of offenders because of concern that they may lose their job or that innocent family members may be affected (Wells-Parker and Cosby, 1987). As a result, many of those convicted of Driving While Impaired (DWI) do not receive what has been demonstrated to be the most effective penalty for drunken driving; license suspension (Voas and McKnight, 1989; Sadler and Perrine, 1984; Peck, Sadler and Perrine, 1990). Further, among those who do not receive this penalty are many who continue not only to drive, but to drink and drive because of the difficulty of enforcing the license suspension sanction. In urban areas, police have no way to determine whether the operator is licensed unless the individual is stopped as a result of a traffic offense or involvement in an accident. Thus, most offenders can continue to drive with impunity. As a result, they continue to be at-risk for impaired driving crashes.

Several approaches have been proposed for controlling this illicit driving by drunk-driving offenders. The best known of these are safety interlock systems which require the driver to pass either a performance or breath alcohol test before the vehicle engine can be started. Interlocks making use of a performance test has not been widely used. (Allen, Stein, Cook and Summers, 1983). Breath alcohol interlocks have been used in widely scattered communities throughout the United States. Reports are available from Maryland, Ohio, Oregon and California (Baker, 1989; Morse and Elliot, 1990; Jones and Wood, 1989; and EMT Group, 1990). The monitoring unit tested and demonstrated in this research program makes use of a simpler, more tamper-proof device to monitor the driving of offenders. Thirty-nine States provide for the issuance of a "limited" or "vocational" license to travel to and from work, treatment programs and other "essential" activities (Voas and McKnight, 1989). These limited licenses normally restrict driving to specific purposes or to certain times of day in order to limit the possibility that the vehicle will be used in recreational driving in association with drinking. A
significant limitation of such vocational licenses is that they are difficult, if not impossible, for the police to enforce. The Autotimer was designed to provide a method for monitoring the driving of these offenders which would reveal whether they were staying within the limitations that were imposed by the court.

This research and development program involved the building of a small shoe-box sized unit which records the operation of a vehicle without dependence on its engine or electrical system. The Autotimer provides an objective record of the individual's driving for review by a court probation officer. The unit can be placed in the trunk of a car out of sight, secured with tamper-proof tape so as to ensure that it cannot be removed without the knowledge of the court or motor vehicle supervisor. With this record system in place, the actual day and hour of use of the vehicle can be monitored by the court. For example, the court can require, as a condition of probation, that driving be limited to driving to work, between 8:00 and 9:00 in the morning, and home from work between 5:00 and 6:00 in the evening. Any other operation of the vehicle is exposed by the Autotimer record. The system is intended to benefit local courts and State motor vehicle departments by encouraging them to limit the driving of drunk driving offenders while at the same time ensuring that whatever limits were established can be monitored and enforced. It also provides an advantage to the offender by giving him or her the opportunity to use the vehicle for vocational purposes while preventing its use in conjunction with recreational drinking and driving.

Phase I of the small business grant was devoted to the design and construction of an initial "Mark 1" Autotimer device. The Autotimer circuit is contained in a metal box housing a battery pack which provides sufficient power to operate the unit without re-charging for up to 60 days. Motion is detected by a vibration detector which is built into a 5-volt switcher circuit. The unit incorporates a micro-circuit allowing for the recording of each individual trip against a date/time base and the storage of this information for transfer to a desktop microcomputer. Trips which involve times outside of the pre-established limits are highlighted with an asterisk so that the court monitor's attention is immediately drawn to potential violations of the driving limits. The Phase II field study was conducted using 130 Autotimer units.

With funding from the National Institute for Alcohol Abuse and Alcoholism, field tests were established in New Philadelphia and Circleville, Ohio, where cooperating judges agreed to require the installation of an Autotimer in the vehicles of convicted drinking drivers who would otherwise drive fully suspended. The Autotimer has been in use for two years in New Philadelphia, Ohio; and eighteen months in Circleville, Ohio. In these two communities, units have been placed in the cars of over 200 offenders for periods running from six to eighteen months. Funding under the NIAAA grant came to an end August 30, 1991.

Selection of Offenders for Programs
In order to enter the Autotimer program, it was necessary both for the court to determine that the individual offender was eligible and for the offender himself to accept the installation of the Autotimer in his/her vehicle. During this research
project, there was no charge to the offender for participating in the Autotimer program. A special study was made of the participation of clients in Circleville, Ohio, between June 12, 1990 and June 12, 1991. Over this period, 106 clients were qualified for the program by the court, however, 52 did not enter the program. The reasons for failure to enter appeared to be related to fiscal and administrative problems encountered by the client, rather than to motivational issues. Among the problems which account for the 52 non-participants were (1) failure to obtain insurance, full suspension of driving privileges by the Ohio Department of Motor Vehicles (because of a high point count on the individual's driving record) and (3) because an automobile was no longer available to the offender. Some offenders also failed to participate because they were unemployed or because they moved out of the State. In one case, a minor was removed from the program when the parents refused to provide for an insurance bond. Overall, in only 2 out of 141 cases did the individual request removal from the program once the Autotimer had been installed.

Installing the Autotimer

Two major objectives of this research were to demonstrate that the unit could be secured to the vehicle in such a way that it could not be removed without revealing the tampering and that, once installed, it would accurately record the offender's driving for a period of at least 30 days. In this field test program, a method for securing the unit in the trunk of the offender's vehicle was developed which employed Velcro strips attached by adhesive to the metal of the trunk surface. Once the unit was in place with Velcro, tamper-proof tape was placed over the attachment point so that the unit could not be removed without the tampering being detected. Over the course of field tests, attempts to remove the unit were not detected. While it is not possible to assure that no offender was successful in removing and replacing the unit without detection, this did not appear to be a significant problem. Had a unit been removed and placed on a shelf, no driving would have been indicated during the month. This would have raised considerable question when the record was reviewed by the probation officer.

Clients in the program were required to maintain logs of their driving. These logs could then be compared with the Autotimer recording. In the first or second month of Autotimer installation, considerable discrepancies between the individual’s log and the Autotimer record were frequently encountered. However, the client generally admitted that his/her log was incomplete or in error. Once the client had been admonished to be more careful in keeping his/her driving log, the offender's record generally matched that of the Autotimer. Thus, it was clear that the Autotimer was maintaining an accurate record of the offender’s driving over the 30 days between monthly checks.

Monthly Checks

The monthly Autotimer unit servicing takes approximately 15 minutes. When the client reports for the appointment, he or she is escorted to his or her vehicle where the integrity of the unit is checked, the unit is removed, and the odometer mileage is recorded. The unit is brought into the office, opened, and the battery replaced.
Both the removed battery and the replacement battery are checked for voltage readings. The printer is attached to the unit and then the power supply is connected. Two copies of the print-out are run, one for the counselor and one for the client. The print-out lists the allowable operation periods and for each trip, lists the day-of-week, date, trip start and ending (in military time) and a 3-asterisk notation if the trip was outside of the allowable period.

**Interpretation of the Autotimer Records**

Generally speaking, an *Autotimer* participant’s driving record is easily read. This is because a relatively simple driving pattern is established by the court from home to work and return; from home to community service and return; and from home to alcohol treatment and return. Very few other trips are permitted and the scheduled times and dates of these trips are known. In short, clients are forced into a driving pattern. Establishment of a specific driving pattern, even if it does not correspond exactly to the limits initially established by the court, is a key to client success in the *Autotimer* program.

The work habits of many people vary — they go in early, work overtime, have their work schedules rearranged at the last minute — all sorts of deviations can occur, but the main criteria still exist: Did they drive to work? Did they drive home from work? Did they drive to community service? Did they drive home from community service? Did they drive to alcohol counseling? Did they drive home from alcohol counseling? Did they avoid all other driving? These patterns are established and regardless of the hours of driving, they are recognizable and the counselor can easily detect significant variations. Each client is required to complete a daily driving log in which he or she must list each time they drive. This log should coincide with the *Autotimer* print-out. If it does not, questions arise and answers are obtained. Obviously, when deviations exist, they must be resolved by determining the reason for the unauthorized trip.

**Program Strengths**

The performance of the *Autotimer* has exceeded expectations. At first glance, the unit appears to be easy prey for deception, tampering, or outright violation. This has not materialized. Although no program is fail-safe, the procedures and cross-checks make deception, tampering, or violations difficult. In addition, an element not considered in the beginning has emerged as a key factor in reducing circumvention of the program controls. The *Autotimer* forces the offender into a living as well as a driving pattern. This pattern is apparent after the first month. After the first month, the court monitors have success in identifying those few drivers that appear to be trying to subvert the program.

The program is further strengthened by the accountability imposed by the *Autotimer*. Clients are accountable for each driving period. When clients return for their first reading, they quickly recognize the need for maintaining good records. They are also made aware of the accuracy of the unit and the efficiency of the staff in reading and detecting variations in the approved driving schedule. The fact that "they", not the monitor, must be able to verify each and every driving time is
impressed on them. The effect of the accountability soon puts in motion a circular reinforcer. Most clients maintain more thorough records. This reinforces the development of an appropriate driving pattern which, in turn, allows more accurate records.

Another strength is the simplicity of the unit and operation of the program. The non-obtrusive nature of the unit is a plus. Many clients believe the unit will be attached mechanically to their vehicle. They think it will be connected to some part of the electrical system. When they see how it is fastened they are relieved. The benefit of ease of operation is also seen when clients return each month. The brevity of these meetings support the understanding that the program is not designed to harass them but rather to provide an unobtrusive means of verifying compliance.

The ease of operation is a significant benefit to program administration. Assignment to the Autotimer required little extra work of the two probation staffs. Once the forms and procedures were established for a jurisdiction, assignment took only minutes. This allowed for the gathering of more in-depth background data on a client enhancing the dialogue and quality of the session. There is little question that any experience that improves the client/court/probation relationship is a positive factor in court operations.

Perhaps the most significant strength of the Autotimer program reported by the court monitoring staff is what appears to be a change of attitude expressed by most clients. The clients indicated to their monitors a realization that they were the ones whose behavior resulted in their present status. These expressions of responsibility appeared genuine. They were often made in casual conversation at moments of sincere expression of the client's feelings. Even many of those who did not express an acceptance of their actions show some modification of their views on drinking and driving.

The monitors expressed concern at their inability to provide counseling to the clients. When describing "reasons" for unapproved driving, clients gave information which provided insight into personal, family, or work problems that appeared to be influencing their behavior. This information was usually given in moments when their defenses were down and they were seeking support. Whether it is the dynamics of the program, the rapport between staff and client, or the clients themselves that lead to these disclosures is not known. What is obvious is that much of this insightful information is given as a result of contacts produced by the Autotimer program. Such information could be valuable for a trained counselor. If a counselor were present at the session on a regular basis, they would be able to capitalize on these opportunities. They could then recommend appropriate strategies for helping the client.

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Wells-Parker, E. and Crosby, P.J. *Impact of driver's license suspension on employment stability of drunken drivers* (Social Research Report Series 87-3): Mississippi State University, Social Science Research Center.