



Comparative Study and Evaluation of SCRAM Use, Recidivism Rates, and Characteristics

Introduction and Overview

Impaired driving continues to cause hundreds of thousands of alcohol-related crashes each year, many resulting in serious injury or death. Arrest, conviction, and sanction remain the first building blocks of our efforts to control impaired driving offenders. Many offenders are repeat offenders despite sanctions and court processes that attempt to dissuade offenders from reoffending. A continuous alcohol monitoring (CAM) device may have a role to play when a repeat offender is court-ordered to maintain a state of sobriety.

A CAM device typically consists of an ankle bracelet that conducts alcohol readings by sampling perspiration on the skin. Transdermal alcohol concentration (TAC) data is stored in the device and transmitted at least once a day to a service provider.

Secure continuous remote alcohol monitoring (SCRAM) refers to a device commercially available from Alcohol Monitoring Systems, Inc. (AMS), which spun off its Denver-based products into SCRAM Systems in 2013. While there are other CAM devices, SCRAM is currently the most widely used.

How It Works

When ingested, alcohol first passes through the gastrointestinal system and then enters the blood stream where about 95 percent is processed by the liver. The remaining alcohol is eliminated through the kidneys, lungs, and skin and is thus detectable in urine, breath, and perspiration.

CAM devices detect alcohol concentration in otherwise undetectable vapors passed through the skin or insensible perspiration. A transdermal detection device does not require active participation by the offender and alcohol consumption can be monitored continuously with a minimal degree of invasiveness. This device also monitors for tampering attempts. Stored readings are transmitted via a modem placed in the offender's home or workplace. Transmission requires that the wearer be physically near the modem at pre-determined times. Transmitted data is encrypted and stored in a Web-based system referred to as SCRAMNet, also administered by SCRAM Systems.

The objectives of this study were to investigate recidivism rates among a large population of SCRAM- and non-SCRAM-assigned offenders, describe characteristics of current SCRAM

users, and document characteristics of the monitoring systems using SCRAM devices. It is important to know whether someone convicted of DWI continues to consume alcohol, both in terms of the success of the sanctioning process and to protect the public. DWI offenders are often required to remain alcohol-free as a condition of probation. Self-reports of drinking behavior are inadequate for monitoring consumption. Incarceration will help to ensure sobriety but at considerable expense, and jail is overall not an effective countermeasure in preventing future problems with alcohol.

Methods

Department of Motor Vehicles (DMV) records were examined for all alcohol-related arrests from 2002 to 2011 from programs in Nebraska and Wisconsin. The Wisconsin data was limited to Milwaukee and Waukesha Counties. The data prior to 2007 was used to establish the number of prior alcohol-related arrests. Rates of recidivism were established by looking at re-arrests occurring after the first eligible arrest from January 1, 2007, and December 31, 2009. This first eligible arrest is the "target offense." A fixed two-year "look forward" interval was used to determine if a subject recidivated. That is, if an additional drinking and driving offense occurred within 2 years of the target offense, it was considered an instance of recidivism.

Data included all SCRAM participants in Nebraska and Wisconsin from 2007 to 2011. (Prior to 2007, SCRAM was relatively new and had limited use in these jurisdictions.) This data included the dates that offenders started using SCRAM devices, the dates they were taken off the devices, the total number of days on SCRAM; the date, time, and type of each alert (tamper or alcohol); and, in the event of an alcohol alert, the TAC associated with that alert. Any one person may have had multiple instances of using SCRAM devices (i.e., they could have worn the devices over separate, distinct periods). The AMS data was used to identify which offenders in the DMV dataset were users of SCRAM devices. The DMV and SCRAM data were merged, allowing offender data linkage to arrest date, subsequent arrests, and to particular assignments to SCRAM. Some offenders were assigned to a comparison group (i.e., non-SCRAM) if they had arrests from 2007 to 2009, and were not assigned to SCRAM. SCRAM status ("on-SCRAM" versus non-SCRAM) was determined slightly differently in the two States.

Wisconsin is a pre-trial SCRAM State. As such, offenders were considered on-SCRAM if they were equipped with the devices between dates of arrest and date of adjudications. Offenders in Nebraska may be equipped with SCRAM after adjudication. Comparison group offenders were usually subject to the same monitoring or supervision as SCRAM offenders, which may have included regular visits to a probation or county supervision officers, drug testing, community service, and alcohol education or treatment, if ordered. The main difference between SCRAM and non-SCRAM offenders is use of SCRAM devices. The comparison group and SCRAM offenders were matched based on sex, age, county of conviction, race/ethnicity, and number of priors. Only arrests occurring in the 5 years prior to the target arrests were considered when determining number of priors and number of days since last prior.

Results

Wisconsin

SCRAM offenders were found to recidivate at a slightly higher, though not statistically significant, rate than those who did not wear the devices: 7.6 percent for those assigned the devices versus 6.2 percent for those without. However, among recidivists, those wearing SCRAM took significantly longer to recidivate. A survival analysis of recidivists indicated that SCRAM was the only variable to significantly predict time to recidivate and, as such, was the greatest contributor. Less than 2 percent of SCRAM users (14 out of 837) recidivated while wearing the devices.

Nebraska

Offenders with SCRAM were found to recidivate at a slightly higher, though not statistically significant, rate than those who did not wear the devices: 9.8 percent for those assigned devices versus 7.7 percent without. However, among recidivists, those wearing SCRAM took longer to recidivate. A survival analysis of recidivists indicated that the use of SCRAM and the county variables significantly predicted time to recidivate, with SCRAM being the greatest contributor. Less than 1 percent of SCRAM users (1 out of 672) recidivated while wearing the devices.

Discussion

Data from more than 3,000 drinking-and-driving offenders in two States were explored to evaluate the impact of SCRAM on rates and speed of recidivism. Some similarities were apparent between the two States. Offenders using SCRAM showed higher percentages of recidivism than the control offenders in both States, though the difference was not statistically significant. Despite the higher percentage of recidivism in SCRAM offenders, recidivists using SCRAM tended to take more days to recidivate than the comparison group recidivists. This was true in both States.

The two States also differ in the criteria used for assignment to SCRAM and it may be worth revisiting those conditions. Despite differences in the administration of the SCRAM program, both States showed that SCRAM can have a positive impact, if not regarding the occurrence of recidivism, at least regarding the number of days to recidivate.

A limitation of the study is that offenders were not randomly assigned to SCRAM. As such, there exists the possibility that some of the differences uncovered may be a function of the offenders, and not due to the use of CAM devices. A related difference may be that under the criteria used by the courts, SCRAM devices may tend to be assigned to offenders who are more likely to recidivate. If this is indeed the case, the finding that these high-risk individuals recidivate in higher numbers than those not assigned to SCRAM is not unexpected. The finding that, among recidivists, SCRAM users take more days to recidivate than non-SCRAM users is important and suggests that CAM devices do have a beneficial effect. Still, further research using a longitudinal design that includes random assignment to CAM is necessary to precisely isolate the impact of the device on recidivism.

How to Order

Download a copy of the full report, *Comparative Study and Evaluation of SCRAM Use, Recidivism Rates, and Characteristics*, (DOT HS 812 143) prepared by the Preusser Research Group, Inc., from www.nhtsa.gov. J. De Carlo Ciccel was the task order manager for this project.

Suggested APA Format citation for this document:

National Highway Traffic Safety Administration. (2015, April). *Comparative study and evaluation of SCRAM use, recidivism rates, and characteristics*. (Traffic Tech Technology Transfer Series. DOT HS 812 144). Washington, DC: Author.



U.S. Department of Transportation
**National Highway Traffic Safety
Administration**

1200 New Jersey Avenue SE., NTI-132
Washington, DC 20590

TRAFFIC TECH is a publication to disseminate information about traffic safety programs, including evaluations, innovative programs, and new publications. Feel free to copy it as you wish. If you would like to be added to an e-mail list, contact TrafficTech@dot.gov.