Transdermal Alcohol Monitoring (TAM) in compliance with abstinence: Records from 250,000 offenders in the United States

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Abstract

Heavy drinking is associated with a number of public health and criminal problems including driving-under-the influence (DUI), suicide, domestic violence, and other violent crimes. Offenders with a history of alcohol-related offenses entering probation programs are likely to meet the criteria for alcohol abuse or dependence. Consequently, many probation programs in the United States (U.S.) require abstinence from alcohol for these chronic offenders. The development of technology that detects and quantifies alcohol eliminated through the skin (transdermal alcohol monitoring [TAM]) has recently provided the capability for courts to enforce abstinence at a relatively low cost. The Secure Continuous Remote Alcohol Monitoring (SCRAM™) ankle bracelet device is the most widely used TAM unit on the market. The records of approximately 250,000 alcohol offenders in the United States are currently being analysed. Eighty percent of the offenders on the SCRAM™ have been males and 5% have been younger than age 21. Approximately 172,500 of the offenders placed on the SCRAM™ units have been DUI offenders. Rates of drinking violations and tampering with the device are highest for males (25%), offenders aged 35 to 54 (27%) and for African Americans (31%). The SCRAM™ unit is an innovative technological device which makes possible the management of a behavioural change program that has received wide acceptance by the U.S. criminal justice system. However, this has been achieved without an independent evaluation of its effectiveness in producing a change in drinking behaviour that persists beyond the termination of the program. TAM devices, such as the SCRAM™ unit, have the potential to (a) help judges, court and probation officials monitor the abstinence requirement of various offenders and impose swift sanctions for non-compliance; (b) help offenders with alcohol abuse and addiction issues to remain abstinent while they are receiving professional treatment for their alcohol problem; (c) reduce DUI recidivism and improve public safety; and (d) provide a cost effective alternative to incarceration for many alcohol offenders.

Introduction

Heavy drinking is associated with a number of public health and criminal problems. Driving after even moderate use of alcohol increases crash risk (Blomberg, Peck, Moskowitz, Burns, & Fiorentino, 2005), and alcohol intoxication is associated with several other health problems, including suicide, domestic violence, and other violent crimes (Bouchery, Harwood, Sacks, Simon, & Brewer, 2011). Thus, offenders with a history of alcohol-related problems entering probation programs are likely to meet the criteria for alcohol abuse or dependence and are at substantial risk of noncompliance or recidivist offenses if they continue to drink heavily. For example, the convicted DUI offenders probability of becoming an impaired driver who causes a fatal crash is approximately four times greater than the average driver (Fell, 1992). A recent study estimated that 785 traffic crash fatalities in the United States could have been avoided in 2010 if all drivers with DUI convictions were prevented from drinking and driving (Lund, McCartt, & Farmer, 2012). Consequently, most probation/parole programs require abstinence from alcohol for these chronic offenders; however, enforcing that requirement presents a significant problem. In the past, courts have attempted to control drinking by requiring the administration of Antabuse™ (disulfiram), which can make users very sick, or expensive intensive supervised probation programs (Wiliszowski, Fell, McKnight, Tippetts, & Ciccel, 2010) involving random, surprise breath-alcohol tests.

Thus, a practical method for remote continuous monitoring of blood alcohol concentrations (BACs) can provide a major benefit to the effectiveness of court probation programs for offenders with alcohol-related problems. Several devices are now available that can continuously monitor offenders as they go about their normal lives in the community. Offenders pay for these devices, thereby minimizing the cost to the court. The most widely used system in the US is the Secure Continuous Remote Alcohol Monitoring system (SCRAM™); it attaches to the ankle of the offender and monitors drinking on a 24/7 basis. The rapid growth in the use of that device by the criminal justice system in the United States is shown in Figure 1. This opens a new dimension in the control of nonviolent offenders convicted of alcohol-related crimes. Expensive jail time can be minimized (Voas, DuPont, Talpins, & Shea, 2011), and offenders can more easily participate in recovery programs while maintaining their occupations.

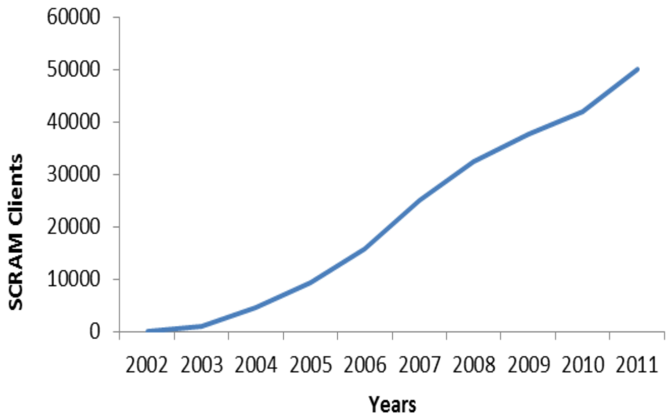

Figure 1. Number of SCRAM™ clients in each year from 2002 to 2011

To date, the evaluation of remote alcohol monitoring systems has been sparse. Though SCRAM™ has received initial highly controlled laboratory trials demonstrating its validity and reliability for measuring BAC, its success in enforcing abstinence and reducing recidivism in the criminal justice system has received little research attention despite its use with a quarter of a million offenders over the past decade. The Pacific Institute for Research and Evaluation (PIRE) has been given an opportunity to study the use of SCRAM™ monitoring of offender abstinence through the courtesy of Alcohol Monitoring Systems (AMS), Inc., the manufacturer and distributer of the SCRAM™ system. AMS has provided PIRE with a complete record of the installation of SCRAM™ devices in the United States beginning in 2002. These records allow us to trace the growth of SCRAM™ and analyze the types of offenses for which it is being used and the characteristics of the offenders being monitored. This paper will provide preliminary information for addressing some key issues concerning the transdermal monitoring of alcohol consumption during pretrial, probation, and parole programs where the utility and effectiveness of these devices has yet to be determined.

Measuring Transdermal Alcohol

When alcohol is consumed, about 1% leaves the body through the skin. This alcohol can be detected and measured. Measurements of transdermal alcohol concentration (TAC) correlate with BACs, though it takes longer for alcohol to reach the skin than the blood or breath. Several methods have been used to estimate alcohol consumption by measurement of ethanol in sweat. These include the sweat patch that accumulates alcohol over several days (Phillips, Greenberg, & Andrzejewski, 1995), the ethanol "band-aid" that uses colorimetric technology (Roizen, Lichtor, & Lane, 1990), and the electrochemical methods that convert alcohol into an electrical current proportional to the alcohol concentration. Two electrochemical devices that measure TAC are Giner WrisTAS™ and AMS SCRAM™. Swift (2003), using WrisTAS, reported that the area under the curve for TAC and BAC correlate with r=.8. Sakai et al., (2006) in a brief wear study of the SCRAM™ device, reported that no detectable false positives were found and that it discriminated social drinkers and alcohol-dependent drinkers. PIRE completed a validation study of the SCRAM™ device for the National Highway Traffic Safety Administration (NHTSA) to determine its precision and accuracy (Marques & McKnight, 2007). The breath alcohol concentration (BrAC) results were generally well correlated with the transdermal results from the SCRAM™ device. None of these studies determined the effectiveness of SCRAM™ in enforcing abstinence over longer periods.

AMS, Inc. manufactures and distributes the SCRAM™ device, the most widely used TAM unit on the market. AMS has provided PIRE with a full copy of its record system on all SCRAM™ devices that it has distributed to courts over the last decade. In total, this database includes the records of approximately 250,000 alcohol offenders in 48 states and the District of Columbia (DC). We are in the process of analysing that data set to determine how extensively the transdermal monitoring technology is being used in the United States. More significantly, we plan to study the length of time that offenders are being monitored and the extent to which the monitoring is preventing drinking.

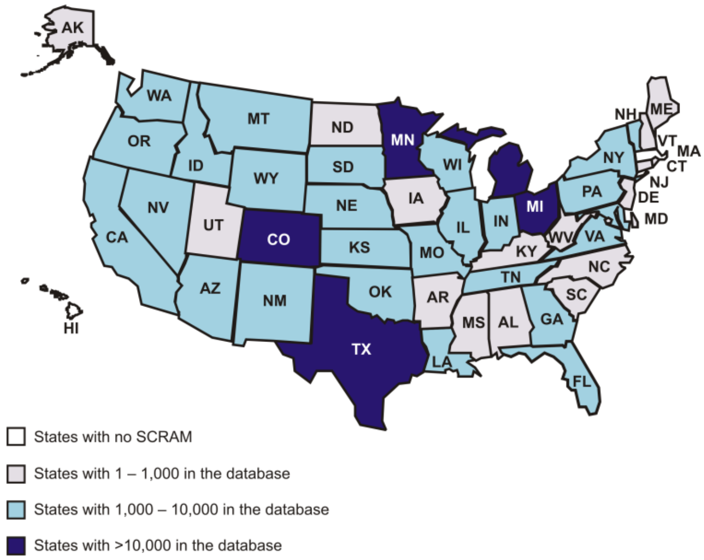

Figure 2. Map showing the number of SCRAM™ monitoring devices in the United States

Introduced about 10 years ago, the SCRAM™ device is currently being used in 48 states and the District of Columbia (DC) (excluding Hawaii and Massachusetts) in the United States (see Figure 2). AMS reports that it works with more than 200 service providers in more than 1,800 courts and agencies around the United States and that close to 250,000 offenders have been monitored to date. Thirty-four states have had more than 1,000 offenders on SCRAM™ and eight states have had more than 10,000 offenders using SCRAM over the years (see Figure 2).

Figure 3. The original SCRAM™ ankle unit

Figure 4. The SCRAM2™ device

The SCRAM™ bracelet is locked onto the ankle and secured by a strap. Aside from measuring TAC, SCRAM™ has sensors that measure temperature and conductance at the skin that make it very difficult for an offender to remove it without detection. If removed or tampered with, the security features send an alert to the monitoring provider. The device samples the ethanol vapor in the space between the skin and the fuel-cell sensor every 30 minutes. The SCRAM™ ankle bracelet has changed over time. The original SCRAM™ device contained alcohol sensing, data storage, communication, and battery power in two cup-like modules, one on each side of the ankle (Figure 3). The second-generation SCRAM2 device preserves the functionality of the original in a smaller, lighter bracelet with a single module (Figure 4).

Since its development, the SCRAM2 device has been updated to include radio frequency (RF) technology that allows it to function as a house arrest monitor capable of tracking the times when the offender is within a given distance of the home. This version of the bracelet is referred to as "SCRAMx."

The SCRAM™ system transfers the information stored on the ankle bracelet to a secure Web server either daily via a modem or directly into a computer during office visits with monitoring officials. Once data arrive at AMS servers, computer algorithms identify potential drinking and tamper violations. AMS officials review all potential violations to identify confirmable violations. Reports of violations are sent to officials charged with monitoring offenders. Court and law enforcement officials can also logon to AMS servers to view reports online.

Methods

The AMS-SCRAM™ database contains key information on each offender who has been placed on the SCRAM™ device: name, date of birth, gender, and ethnicity of the offender; the offense (e.g., DWI, domestic violence); date placed on SCRAM™ and the date removed; number of days monitored; date of any confirmed drinking or tampering event; the highest TAC recorded for a drinking event; and an internal identification number. AMS has agreed to provide PIRE with complete freedom to analyze and publish data from the SCRAM™ database without prior approval by AMS.

Table 1. Offense types assigned to SCRAM™ alcohol monitoring

Offense	Frequency	Percent of all cases	Percent of known offenses
Driving Related Offenses			
DUI (unspecified)	70,817	44.9	50.4
DUI 2+	30,591	19.4	21.8
DUI 1	6,920	4.4	4.9
DUI court	122	.1	.1
Aggravated DUI/Vehicular. Homicide	266	.2	.2
24/7 Sobriety Program	176	.1	.1
Reckless driving	70	.0	.0
Condition of drivers' license reinstatement	459	.3	.3
Total Driving Offenses	**109,421**	**69.4**	**77.8**
Other Alcohol Offenses			
Domestic violence	4,840	3.1	3.4
Assault	4,192	2.7	3.0
Narcotics	3,814	2.4	2.7
Larceny/robbery/burglary	2,922	1.9	2.1
Minor in possession	1,972	1.3	1.4
Volunteer	1,320	.8	.9
Family services	1,156	.7	.8
Treatment	856	.5	.6
Destruction of property	732	.5	.5
Criminal sexual conduct	635	.4	.5
Weapons	608	.4	.4
Homicide	321	.2	.2
Public Intoxication	315	.2	.2
Probation/parole violation	6,973	4.4	5.0
Fraud	246	.2	.2
Arson	124	.1	.1
Bond release condition	44	.0	.0
Resisting/obstructing arrest	43	.0	.0
Missing	17,050	10.8	0
Total of Other Offenses	**48,163**	**30.6**	**22.2**
Grand Total on SCRAM	**157,584**	**100.0**	**100.0**

We currently have a partial database provided by AMS that contains information on all SCRAM™ users since 2009 when the SCRAM2 device went into the field. Eventually, we will have data on all users since the SCRAM™ database began containing information on approximately 250,000 offenders.

Results

The preliminary analyses in Tables 1, 2, and 3 are from a database on 157,584 offenders to which we currently have access and are included to provide a sense of the nature of offenders in the database.

Table 1 shows the types of offenses that have resulted in assignment to the SCRAM™ device with driving related alcohol offenses at the top. Tables 2 and 3 show gender and age breakdowns for SCRAM™ users in the database.

Table 2. Gender of SCRAM™ offenders

Gender	Frequency	Percent of all cases	Percent of cases in which gender is known
Male	120,360	76.4	79.2
Female	31,624	20.1	20.8
Missing	5,600	3.6	
Total	157,584	100.0	

Table 3. Ages of SCRAM™ offenders

Age	Frequency	Percent of all cases	Percent of cases in which gender is known
15-20	7,603	4.8	5.0
21-34	67,496	42.8	44.6
35-54	64,606	41.0	42.7
55+	11,709	7.4	7.7
Missing	6,170	3.9	
Total	157,584	100.0	

Close to 80% of the offenders on the SCRAM™ have been males and 5% have been younger than age 21. Approximately 172,500 of the offenders placed on the SCRAM™ units have been DUI offenders.

Rates of drinking violations and tampering with the device are highest for males (25%), offenders aged 35 to 54 (27%) and for African Americans (31%). See Tables 4, 5 and 6 in the Appendix. Male offenders are assigned on average to the SCRAM device for a significantly longer period of time (89 days) compared to females (77 days). See Table 8 in the Appendix. Hispanic offenders are also assigned to SCRAM for a longer period (93 days) than other ethnicities (Table 8).

Future Research

In the future, when the full database is obtained and quality controlled, we plan to: (a) explore the mandated length of time on SCRAM™ in relation to the type of offense and the characteristics of the offender; and (b) to explore the effectiveness of SCRAM™ in terms of the rate of confirmed drinking events and tampering events.

Specifically, we plan to provide an overview of the history and status of the use of SCRAM™ by courts in the United States. This will include tracing the development and use of the three versions of the SCRAM™ device and the number of each type of device (SCRAM, SCRAM2, and SCRAMx) used and currently in use. To our knowledge, the SCRAM™ device is the first technological abstinence monitoring system attached to the offender's body, operating 24/7, to be applied widely in the criminal justice system. Though the court system has traditionally been receptive to programs that monitor abstinence, the rapid adoption of such a relatively noninvasive system is of special interest to the public health community, particularly because the use of the unit has spread without federal support for its application (funding was provided by NIAAA for the first prototype [Roizen, et al., 1990]). We plan to examine the characteristics of the early adopter states (population, per capita income [because of the cost to the offender] urban/rural status, annual DWI arrests per fatal crash and per licensed driver, use of sobriety checkpoints) and trace the growth to the current broad application of SCRAM^{TM} devices. Tracing the development of the use of SCRAM^{TM} will provide information on how such biological control methods grow through the judicial system. Are they first applied to the most serious offenders, to males rather than females, to older rather than younger offenders? Are they initially applied for shorter periods with longer periods following initial successes with the device? We will examine the current distribution of SCRAM^{TM} units across the states identifying those states and courts that are most likely to adopt SCRAM^{TM} or similar monitoring systems in the future. Our analyses will display SCRAM^{TM} use by age, gender, type of offender, and state and locality (county or city) of the court. This effort should produce a relatively detailed picture of the current implementation of SCRAM^{TM} in the United States. Though our data are limited to a single example of current electronic abstinence monitoring systems, we expect that the information will be relevant to the competing systems that are beginning to penetrate the judicial system (e.g. SmartStart's IN-HOM breath tester).

Once this SCRAM^{TM} profile is completed, we plan to explore the severity of the SCRAM^{TM} sanction (as measured by the mandated length of time on the device) to the type of offense and the characteristics of the offender. To what extent is the length of the SCRAM^{TM} sentence keyed to the type of offense (DUI, domestic violence, assault, etc.), the seriousness of the offense (first or multiple offenses) and characteristics of the offender (gender, age, and ethnicity)? Given that SCRAM^{TM} is being used as a sanction for a variety of alcohol-related offenses (see Table 1), the relationship of offense type to the length of time on SCRAM^{TM} will be important to developing an understanding of the significance of abstinence monitoring within the judicial system. Is the sanction applied for the same length of time with all offenders or do courts use enforced abstinence differently for different offenses? For example, do domestic violence offenders receive longer SCRAM^{TM} sentences than do DWI offenders? Is there a difference in this sentencing practice based upon race or ethnicity? Do males receive longer sentences on SCRAM^{TM} than females? Anecdotal evidence suggests that the use of this sanction has focused on 90 days as the most effective period for its use. We plan to determine the extent to which that standardization occurs and for what types of offenders and offenses vary from that norm.

Finally, we plan to explore the effectiveness of the SCRAM^{TM} sanction in enforcing abstinence as a function of the type of offense and characteristics of the offender. Effectiveness will be defined in two outcome measures: (1) the rate of positive drinking episodes or attempts at circumvention per 30 days on the SCRAM^{TM} device, and (2) the time to the first positive drinking event or attempt to circumvent SCRAM^{TM}. We hypothesize that both measures represent drinking occasions; however, we will examine them separately and together to determine whether they represent significantly different behaviours. The first performance criterion, rates per 30 days, will provide an outcome measure for regression analyses exploring the relationship of offender characteristics and offense type to the abstinence level achieved by SCRAM^{TM}. We will use regression analyses to determine the extent to which the monthly failure rate varies between individuals convicted of DWI, domestic violence, burglary, etc., with age, gender, and ethnicity as covariate controls. We will also examine the three versions of SCRAM^{TM} that have been used to determine whether there are differences in drinking or circumvention rates. Though this effectiveness measure will only apply to the period during which SCRAM^{TM} is on the offender, these analyses will be similar to the studies of the frequencies of lockout events for offenders sentenced to install alcohol ignition interlocks on their vehicles where the performance while the interlock was in place predicted future recidivism (Marques, Tippetts, & Voas, 2003). We hypothesize that this measure of the experience on SCRAM^{TM} will provide an initial indication of the extent to which the unit is reducing recidivism.

A limitation in the use of the drinking detection rate for evaluating the SCRAM^{TM} device is that the judge may remove the offender from the program and apply other penalties (e.g., jail) at the first indication of drinking or attempting to circumvent, as abstinence is the objective of the sentence. To better capture this type of application, we will use the second type of measure: the time to first drinking/ circumvention event, and use survival analysis to compare different types of offenders and offenses.

SCRAM™ Usage by U.S. courts

Our analyses of the AMS SCRAM™ database will initially include the frequency and percentage of SCRAM™ usage by the following offender groups:

- DWI offenders versus all other offenders and first DWI offenders (no prior DWI convictions) versus repeat DWI offenders (at least one prior DWI conviction)
- Male offenders versus female offenders and young offenders (aged 16-20, 21-34, 35-54) versus older offenders (55-64; 65+) by gender
- White offenders versus Black, Hispanic, and other ethnicities by age and gender
- Pretrial offenders versus probation, parole and supervised released offenders
- All of the above for the 34 states with 1,000 or more SCRAM™ offenders and for the three versions of SCRAM™ (SCRAM™, SCRAM2, SCRAMx)

These analyses will provide an overview of SCRAM usage in the United States.

SCRAM™ Sentence Severity

According to AMS, each offender is on the SCRAM™ program an average of 91 days. For fully compliant offenders, the average number is 80 days, and for noncompliant offenders, 128 days. We will examine the hypothesized relationship between the length of time on SCRAM™ by the type of offense and the characteristics of the offender. We will use a two-level mixed-model regression analysis to examine this hypothesis, with the state in which the court resides at level 2 (random effect) and the offender at level 1 (fixed effects). Rationale for this approach is based on the expectation that offenders within a specific state will show similar outcomes. State-based differences in per capita income (the cost of SCRAM™ is borne by the offender), the severity of the state's penalties for the offense, and the strength of the enforcement effort (represented by the number of DWI arrests and use of special enforcement methods such a sobriety checkpoints) may be important factors in the use of the device. Urban/rural status may also be a factor as the alternative to travel to the court for random testing may affect the use of SCRAM™ in rural areas.

SCRAM™ Noncompliance

We will define noncompliance as the monthly rate of confirmed drinking and/or tampering episodes and time to first drinking/tampering episode. We will use logistic regression with survival analyses of the noncompliance rates of the various groups of offenders as described in Table 1.

Survival analyses. There are two important aspects involved in measuring noncompliance outcomes: incidence (a drinking or tampering event happened/did not happen) and exposure (length of time in which possible incidence was observable). Incidence is measured as frequency of events occurring within this period; the rarity of these types of events generally produces dichotomous (or nearly so) variables. It is advantageous to know more about the dynamics of time until the event occurs. For example, do relatively more offenders in one group drink or tamper very early, whereas the other group's noncompliance events occur at a slower, later or more constant rate? Because such questions contrast functions of noncompliance across time, rather than just a single rate at a given point in time, survival analysis approaches reveal additional insight beyond that given by the basic regression/ANOVA analysis.

For offenders who drink/tamper, the length of time until this occurs will vary. For offenders who have remained violation-free continuously (over the length of time on SCRAM™), those who were sentenced on SCRAM™ longer will obviously have longer exposure. This issue of varying exposure lengths is taken into account by survival analysis, thereby making optimal use of all data from all cases. Two survival analysis techniques will be used: Cox regression (based upon proportional hazard models) and the Kaplan-Meier method (for nonproportional hazards) to analyze these outcome measures. Our model will be based upon the principle of likelihood ratios, so it will be straightforward to report effect sizes of different factors (e.g., by age, gender, prior convictions) in terms of relative risk ratios. In performing Cox Regression, we will use covariates (prior DWI convictions, demographics, etc.) to improve the sensitivity and power of the statistical test. The sample sizes and relative power to be computed apply for the special case in which the group (e.g., type of offender) is the only factor included in the statistical model. Many other factors known to significantly predict noncompliance will also be included in the model, not only to adjust for any random (or selection) differences between groups, but also to help reduce the statistical error within groups.

Discussion

Effective monitoring of the drinking of offenders guilty of alcohol-related crimes to ensure compliance with abstinence is an important method for protecting the public. It can also aid offenders in recovery from dependent or problem drinking and reduce the risk of recidivism. Consequently, many courts and probation programs require abstinence for chronic alcohol offenders. Abstinence is difficult to enforce because the amount of time alcohol remains in the body is too short to be monitored effectively by scheduled tests. But new technologies are providing methods for continuous monitoring of alcohol consumption that appear to be effective in detecting drinking. A convicted driving-while-intoxicated (DWI) offender's probability of becoming an impaired driver that causes a fatal crash is approximately four times greater than the average driver (Fell, 1992). One study estimated that 785 traffic crash fatalities in the United States could have been avoided in 2010 if all drivers with DWI convictions were prevented from drinking and driving (Lund, et al., 2012). Three methods can control this risk: prevent driving, prevent drinking and driving, or prevent drinking. U.S. Government policies have favored the prevention of driving through the suspension of the driver's license. Alcohol-ignition-interlock devices installed on convicted offenders' vehicles prevent drivers with a specified amount of alcohol in their system from starting their vehicles (usually set at BACs between .02 and .04 g/dL). Recently, the third method—prevent drinking—has become a major method for controlling alcohol-related offenders. This method is not new to the judicial system as judges have been sanctioning offenders not to drink for many years. New technologies, however, are making the monitoring of abstinence relatively effective and low cost.

Historically, because alcohol disappears from the bloodstream within a few hours of drinking, frequent breath testing based on random calls to report to the court or surprise home visits have been required to monitor abstinence. Over the last decade, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) has provided funds for the development of TAM systems that detect the small amount of alcohol eliminated through the vapor of sweat on the skin. This technology has been engineered into devices that can be placed on the ankle of offenders to monitor drinking. TAM units detect, measure, and record levels of alcohol as it is eliminated through the skin, starting about 1½ to 2 hours after the start of consumption. The measured level of alcohol in insensible perspiration is referred to as TAC and is highly correlated with the BAC measured in breath or blood. The instruments developed for application with criminal offenders have been equipped with monitoring systems that detect, via changes in the electrical continuity through the device, infrared reflectivity of the skin surface, and temperature, attempts to circumvent the device.

The SCRAM[TM] unit is the most frequently used TAM device in the United States. By exploring this database, we will learn much about the offenders using it, their compliance, and indications of the effectiveness. These monitoring devices have the potential to (a) help judges, court and probation officials monitor the abstinence requirement of various offenders and impose swift sanctions for non-compliance; (b) help offenders with alcohol abuse and addiction issues to remain abstinent while they are receiving professional treatment for their alcohol problem; (c) reduce DUI recidivism and improve public safety; and (d) provide a cost effective alternative to incarceration for many alcohol offenders.

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1 Appendix

Table 4. Percent of offenders violating and tampering by age group

Age group	violated	tampered
15-20	07.9	13.8
21-34	07.2	14.5
35-54	07.7	19.5
55+	06.3	17.8
All Ages	07.4	16.8

Table 5. Percent of offenders violating and tampering by gender

Gender	Violated	tampered
Female	08.1	15.5
Male	07.4	17.4
Both Genders	07.4	17.1

Table 6. Percent of offenders violating and tampering by ethnicity

Ethnicity	violated	tampered
African American	11.6	19.1
Asian or Pacific Islander	06.8	13.7
Caucasian	06.6	16.4
Hispanic	08.3	18.0
Native American	09.5	18.0
Other	06.5	14.1
Missing/unknown	08.5	17.5
All Ethnicities	07.5	16.9

Table 7. Mean days on SCRAM^{TM} by offense type

Offense	Mean	N	Std. Deviation
Homicide	152.3110	373	203.85868
24/7 Sobriety Program	145.2119	335	137.79595
Aggravated DUI/Vehicular Homicide	122.5484	248	155.22330
Criminal Sexual Conduct	102.9055	762	113.05805
Other	95.9000	30	59.85174
Treatment	94.6924	1681	112.30198
DUI - unspecified	92.2896	113209	98.40414
Bond Release Condition	91.5556	63	87.34540
DUI 2+	88.7363	31811	79.41469
Family Services	87.1362	1711	88.41569
Assault	86.3378	5577	88.57410
Reckless Driving	85.3623	69	35.01511
DUI Court	84.9840	125	46.84118
Probation/Parole Violation	80.5118	10099	79.19241
Weapons	79.6917	772	80.73248
Arson	77.9872	156	99.38858
Resisting / Obstructing Arrest	77.7778	45	36.32673
Larceny/Robbery/Burglary	75.3572	3550	68.82268
Narcotics	73.3655	5176	67.81313
Condition of Reinstatement	72.3254	710	100.51715
Domestic Violence	71.8254	7131	65.69951
Missing	71.7106	26046	73.00273
Destruction of Property	70.5449	947	67.50232
DUI 1	66.4827	7245	63.26574
Public Intoxication	64.6799	303	64.82912
Fraud	62.0345	261	55.04770
Alcohol Assessment	52.6667	3	57.81292
Minor in possession	47.8180	2439	45.91269
Volunteer	42.6327	1808	66.11753
All Offenses	85.5337	222690	89.30795

Table 8. Mean days on SCRAM^{TM} by age, gender and ethnicity

Age Group	N	Mean	Median	Std. Deviation
15-20	14795	64.3686	46.0000	66.23302
21-34	94488	81.4405	59.0000	83.81526
35-54	89220	93.0132	66.0000	96.22455
55+	14277	95.9875	68.0000	100.61317
All Ages	212780	86.0821	61.0000	89.75076

Gender	N	Mean	Median	Std. Deviation
Female	44087	76.5010	58.0000	79.26729
Male	172730	88.8531	63.0000	92.28564
Both Genders	216817	86.3415	61.0000	89.92888

Ethnicity	N	Mean	Median	Std. Deviation
African American	14950	81.3213	61.0000	80.19589
Asian or Pacific Islander	1656	85.0918	60.0000	90.58871
Caucasian	134148	86.6433	61.0000	88.63908
Hispanic	21561	93.0191	67.0000	98.68696
Native American	3955	80.3209	60.0000	79.94948
Other	1848	86.2267	62.0000	87.25439
Missing/unknown	44359	80.8388	59.0000	90.74263
All Ethnicities	222468	85.6190	61.0000	89.47235