

South Dakota 24/7 Sobriety Program Evaluation Supplemental Findings Report

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Data Period
24/7 Sobriety Program participation 2005 through December 2010
and Recidivism data through December 31, 2011

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Introduction

The South Dakota 24/7 Sobriety Program was developed in direct response to an overwhelming need to address repeat impaired driving offenses in South Dakota. The 24/7 Sobriety Program addresses the problem in a nontraditional manner by requiring impaired driving offenders to completely abstain from alcohol and provide breath tests twice daily at approximately 12 hour intervals. An external evaluation firm was engaged to evaluate the effectiveness of the program and an initial evaluation report was released in December 2011, which included data from 2005 thru December 2010. Since the release of the initial report, an additional year of recidivism data is available in order to evaluate the trends demonstrated in the initial report. This updated report evaluates and updates the South Dakota 24/7 Sobriety Program's overall effectiveness in reducing DUI recidivism among PBTx2 participants through data review and statistical analysis. The report is prepared in conjunction with the South Dakota Attorney General's Office and the South Dakota Department of Public Safety.

This report utilizes participant data maintained on the Attorney General's Office 24/7 Sobriety Program web based database (24/7 Database) and offender data maintained by the Unified Judicial System (UJS). Initial sections of the report provide a general description of the 24/7 Sobriety Program, participants, and a summary of test results for twice a day PBT testing (PBTx2). Later sections of the report focus on recidivism analysis of DUI offenders participating in PBTx2. In those later sections, DUI recidivism rates for program participants are compared to nonparticipants using three approaches.

Driving under the influence of alcohol and drugs is a serious public health and safety problem in the United States. In 2007, impaired drivers with a BAC (blood alcohol content) of .08 or above were responsible for 32% of all traffic fatalities.¹ National statistics reported by the National Highway Traffic Safety Administration (NHTSA) indicate that approximately one-third of all first-time DUI offenders will have a second DUI offense.² In addition, DUI offenders are more likely to be involved in future fatal car crashes than non-DUI offenders.²

Felony DUI offenses (a third or subsequent DUI offense within ten years of a DUI conviction), vehicular homicide and vehicular battery cases account for approximately 35% of all felony convictions in South Dakota.³ Between 1996 and 2007, felony DUI offenses and felony drug offenses accounted for approximately 60% of the total felony convictions in South Dakota.³ Analysis of South Dakota Department of Corrections data indicates that 12.56% of the state prison population is incarcerated for a DUI offense⁴. In FY2011, 90% of men and 95% of women sentenced to the South Dakota Penitentiary had an alcohol or illegal drug dependency⁵.

To date, traditional DUI offense intervention efforts that include a combination of education and sanctions report only a modest 7% - 9% reduction in recidivism rates for future impaired driving offenses.⁶⁻⁹ While generic alcohol ignition interlock devices are effective while physically installed within an individual's vehicle, recidivism rates are not sustained after removal of the device.¹⁰ More effective strategies to reduce repeat impaired driving offenses are necessary. In 2011, Administrative Rule 2:06 was updated to include the use of ignition interlock devices.

With an additional year of data, South Dakota's effort to address DUI recidivism through the 24/7 Sobriety Program continues to show results. The PBTx2 test result data examined in this evaluation reveals that individuals are maintaining a very high level of sobriety while on the 24/7 Sobriety Program. With a sample size of just over 1 million recorded PBTx2 test results, only .6% was recorded as a Failure. Over 53% of the 4,680 24/7 Sobriety Program *participants*

in the sample did not fail a PBTx2 test, and only 9.4% had four or more Failures during a testing period that averaged approximately 120 days.

An analysis of PBTx2 participants compared to control groups shows a continued pattern of lower recidivism rates by participants, and suggests that the program clearly has a sustained effect on recidivism rates after program completion. PBTx2 participants generally had lower recidivism rates at one, two, three, and four years when compared to controls. Notably, 12.7% of DUI 2nd offenders *not* on the program committed another DUI offense within three years, while only 5.9% of the 24/7 Sobriety Program participants committed another DUI within a three-year period. The lower recidivism rate for participating DUI 2nd offenders *is* statistically significant. The analysis also suggests the 24/7 Sobriety Program is statistically significant in lowering recidivism for DUI offenders who remain on the program for 30 or more consecutive days.

Background

The South Dakota 24/7 Sobriety Program began as a pilot project in January 2005 under the leadership of former Attorney General Larry Long, who currently serves as a Circuit Court Judge in South Dakota's Second Judicial Circuit. In 2007, the South Dakota Legislature authorized the creation of a statewide 24/7 Sobriety Program. Attorney General Marty J. Jackley has continued to advance the program with the hiring of a full time 24/7 Sobriety Program Coordinator and the introduction of a very specific ignition interlock device. The 24/7 Sobriety Program is currently available in the vast majority of South Dakota counties.

The 24/7 Sobriety Program provides a nontraditional approach in reducing recidivism. The program emphasizes offender sobriety through intensive testing and monitoring of drug and alcohol consumption, combined with swift and certain punishment for infractions. In counties where the program is available, placement on the 24/7 Sobriety Program is a prerequisite for issuance of work permits to repeat DUI offenders and to first-time offenders with BAC of .17% or greater. Placement on the program may also be required as a condition of bond, sentence, probation, parole, and child custody or visitation orders. The 24/7 Sobriety Program allows offenders to remain in the community free from incarceration if they totally abstain from alcohol and drugs. In most cases, offenders are able to drive, continue employment, and remain with their family.

The 24/7 Sobriety Program currently monitors total abstinence from alcohol and drugs through one or more of the following tests:

- Twice a day breath testing (PBTx2)
- Electronic alcohol monitoring through the use of ankle bracelet testing
- Drug patch testing
- Urinalysis testing
- Ignition interlock device testing.

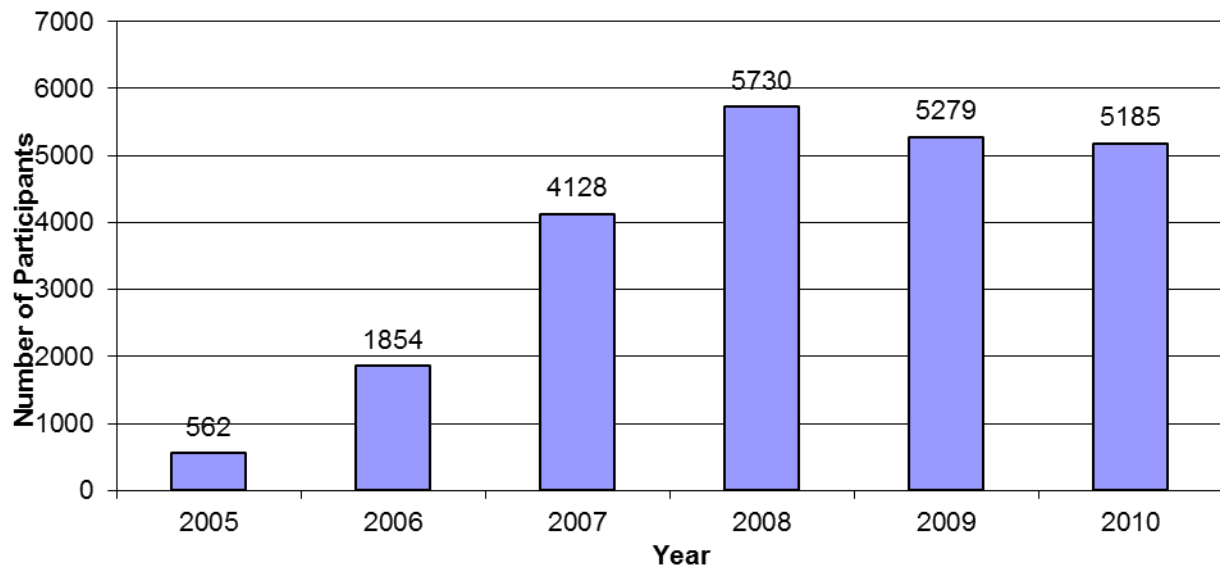
Most program participants are required to demonstrate alcohol sobriety by submitting to PBTx2, a breath test twice daily at a twelve-hour interval in the presence of a law enforcement officer; generally between the hours of 7 to 9 a.m. and 7 to 9 p.m. at the local sheriff's office or other approved testing site. A participant's bond, parole or probation may be immediately revoked if the participant fails to show up for a scheduled test or if the test demonstrates that the participant consumed *any* amount of alcohol. In many cases the infraction will result in

immediate incarceration. A smaller proportion of program participants are placed on electronic ankle bracelets. This testing method is primarily used for participants who have a difficult time testing with the PBTx2 method due to work conflicts or distance to the test site. The bracelets provide continuous monitoring for alcohol consumption and provide electronic reporting to law enforcement. Participants may also be required to provide random urinalysis samples or wear patches for drug monitoring. Similar sanctions are imposed for participant infractions while placed on these test types. Ignition interlock device testing was piloted in Lincoln County from October 2011 through April 2012. Besides testing each time a participant starts their vehicle, participants on ignition interlock device testing are required to test twice daily at approximately 12 hour intervals. The ignition interlock device provides real-time reporting of failed tests. Ignition interlock device testing is being implemented state-wide in South Dakota.

Program Participants by Year

The 24/7 Database data exported for this report consisted of 22,738 participant records (23 additional records exist, but were not analyzed because they included invalid start year dates). The data includes all participant records from the 24/7 Database's inception through the end of December 2010. The following tables and charts are based on those participant records. It is possible for a participant to have multiple participant records included in the 24/7 Database, because an individual may go back on the program after being removed, due to court sanctions, moving between jurisdictions or as a result of future offenses. The recidivism evaluation presented later in this paper is not affected by multiple participant records because the records are linked to unique individuals based upon their UJS records. The following descriptive tables and figures utilize the start date on the participant's record to provide a summary of program participation.

Figure 1: Number of Participant Records by Calendar Year of Start Date



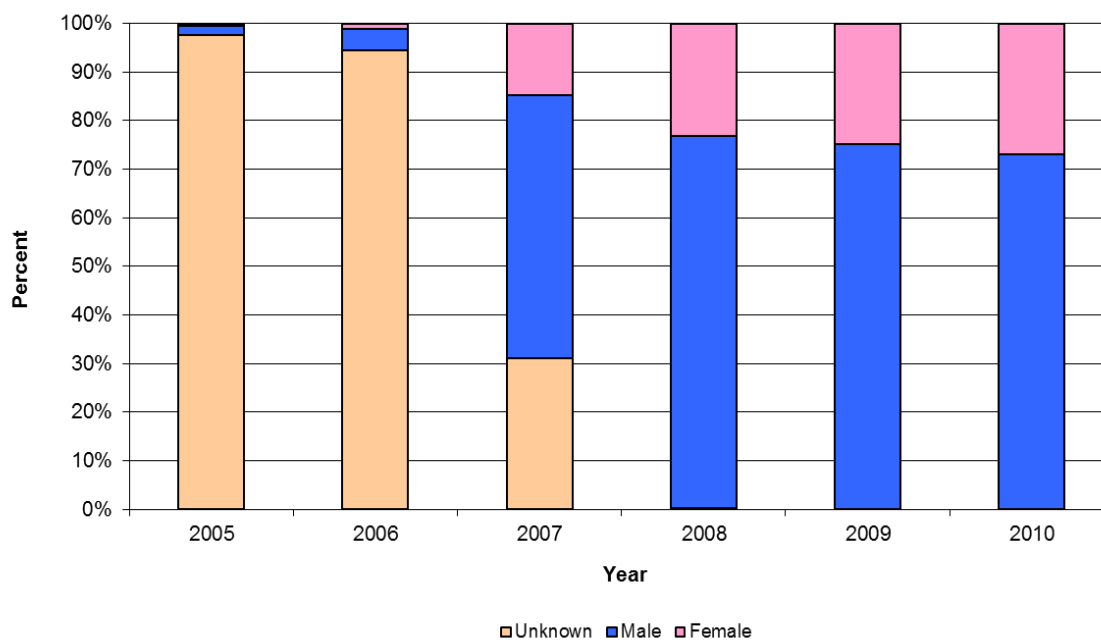
Program Participants by Gender

During the 24/7 Sobriety Program's initial years, data on gender was not routinely captured on the 24/7 Database. For the time period in which complete gender data is available, approximately 75% of program participants are male.

Table 1: Number of Participant Records by Gender and Calendar Year of Start Date

Gender	2005	2006	2007	2008	2009	2010
Female	3	22	611	1,326	1,316	1,398
% Female	1%	1%	15%	23%	25%	27%
Male	11	79	2,237	4,386	3,960	3,785
% Male	2%	4%	54%	77%	75%	73%
Not Available	548	1,753	1,280	18	3	2
% Not Available	98%	95%	31%	0%	0%	0%
Total	562	1,854	4,128	5,730	5,279	5,185

Figure 2: Percent of Participant Records by Gender and Calendar Year of Start Date



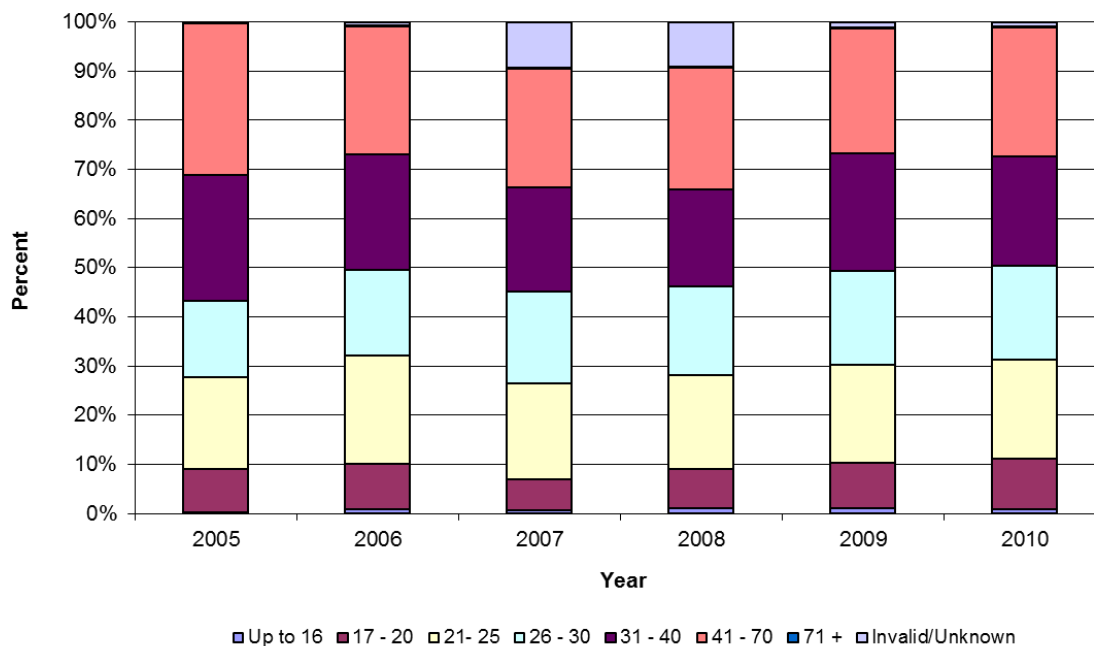
Program Participants by Age

The distribution of program participants by age group has remained remarkably similar since the beginning of the program, as shown in Figure 3. Approximately half of the 24/7 Sobriety Program participants are 30 or younger, and half are 31 and over.

Table 2: Percent of Participant Records by Age Group and Calendar Year of Start Date

Age Group	2005	2006	2007	2008	2009	2010
Up to 16	0%	1%	1%	1%	1%	1%
17 - 20	9%	9%	6%	8%	9%	10%
21- 25	19%	22%	19%	19%	20%	20%
26 - 30	15%	17%	19%	18%	19%	19%
31 - 40	26%	24%	21%	20%	24%	22%
41 - 70	31%	26%	24%	25%	25%	26%
71 +	0%	0%	0%	0%	0%	0%
Invalid/Unknown	0%	1%	9%	9%	1%	1%
Total	100%	100%	100%	100%	100%	100%

Figure 3: Percent of Participant Records by Age Group and Calendar Year of Start Date



Participants by Offense

The 24/7 Sobriety Program was originally initiated as an alternative to incarceration for DUI offenders. As the program grew, judicial and corrections personnel began placing offenders on the program for whom alcohol or drugs was a contributing cause to their illegal behavior. During calendar year 2010, DUI offenses comprised 55% of participants that began participation in the 24/7 Sobriety Program. Figure 5 shows the trend in program participants and offenses from 2006 through 2010. Tables included in Appendix B provide a summary of all offenses by calendar year of program operation.

Figure 4: Percent of Participant Records by Offense for 2010 Calendar Year

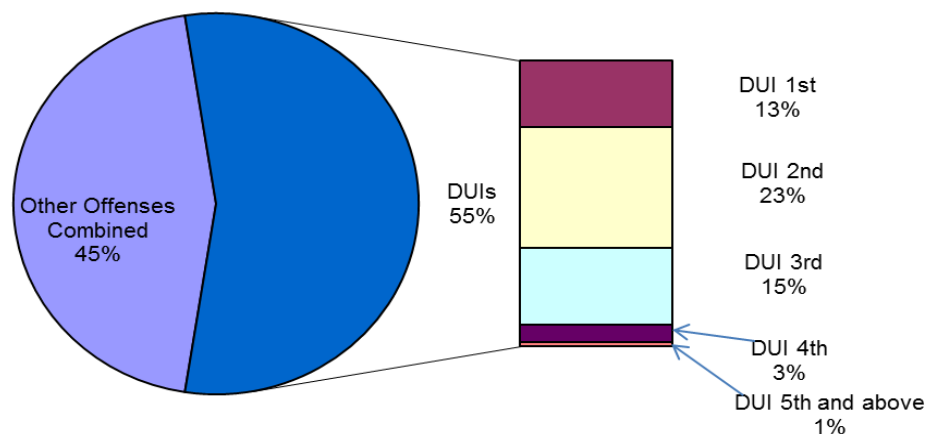
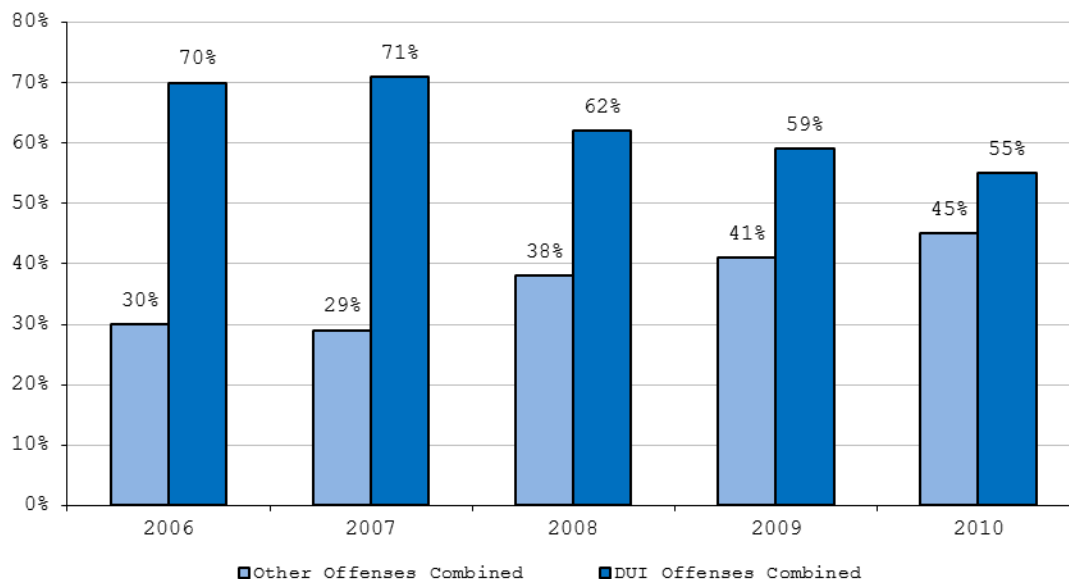


Figure 5: Percent of Participant Records by Offense Group and Calendar Year of Start Date



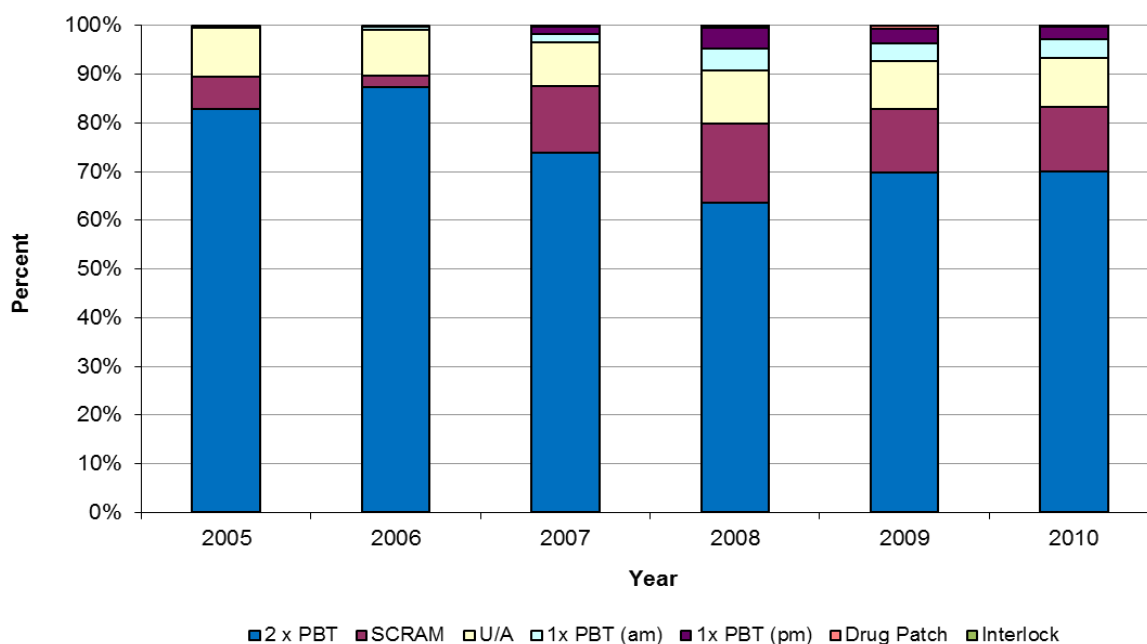
Participants by Test Type

The table and chart below summarize participants by the five types of testing authorized under the 24/7 Sobriety Program. A participant may be placed on one or more test types at the same time. For example, an individual could be required to participate in PBTx2 and be required to submit random urine testing. As documented below, the most common test type is PBTx2.

Table 3: Number of Test Types Ordered for Participants by Calendar Year of Start Date

Test Type	2005	2006	2007	2008	2009	2010
PBTx2	525	1,660	3,561	4,963	5,097	4,768
% PBTx2	83%	87%	74%	64%	70%	70%
SCRAM	43	43	670	1,268	944	894
% SCRAM	7%	2%	14%	16%	13%	13%
U/A	63	182	427	863	721	692
% U/A	10%	10%	9%	11%	10%	10%
1 x Day PBT (am)	2	11	81	345	268	255
% 1 x Day PBT (am)	0%	1%	2%	4%	4%	4%
1 x Day PBT (pm)	1	4	79	335	212	177
% 1 x Day PBT (pm)	0%	0%	2%	4%	3%	3%
Drug Patch	0	0	8	37	49	18
% Drug Patch	0%	0%	0%	0%	1%	0%
Interlock	0	0	1	1	1	1
% Interlock	0%	0%	0%	0%	0%	0%
	634	1,900	4,827	7,812	7,292	6,805

Figure 6: Percent of Test Types Ordered for Participants by Calendar Year of Start Date



Evaluation of Findings for DUI Offenders Participating in Twice a Day Breath Testing (PBTx2)

Because maintaining and assuring DUI offender sobriety has been predominately implemented through twice a day PBT testing, the following analyses focusses on the core subset of the 24/7 program participants who are DUI Offenders participating in PBTx2.

The testing sample to evaluate PBTx2 consists of 4,680 individuals that met the following criteria:

- One test ordered record
- At least one test log record exists in the test log table
- All test log records are PBTx2 tests
- A DUI offense on the 24/7 participant record
- Matched with a corresponding record in the UJS DUI data
- The UJS docket has an arrest date equal to or before the earliest test log record date

Complete documentation and rationale for the selection of the records can be found in the attached Appendix A.

DUI Level

The table below summarizes the sample of participants by DUI level documented on the 24/7 Database and the corresponding UJS court docket records. Comparisons and analysis used in the remainder of the report utilize the DUI level found on the UJS court docket for consistency. The largest proportion of 24/7 Sobriety Program participants had either a DUI 1st (27% & 32%) or a DUI 2nd (47% & 41%) offense.

Table 4: Number of Participants by DUI Level on the 24/7 Sobriety Program Participant Record and the Corresponding UJS Docket

DUI Level	24/7 Record		UJS Record	
	n	%	n	%
DUI 1	1,242	27%	1,498	32%
DUI 2	2,208	47%	1,915	41%
DUI 3	930	20%	953	20%
DUI 4	230	5%	245	5%
DUI 5+	70	1%	69	1%
Total	4,680	100%	4,680	100%

Days of Testing

The following bar graph notes the frequency distribution of the length of time participants in the sample spent on the program calculated from the first test date to the last test date. The largest percentage of participants were in the program for a period of 91-180 days (n = 1,041), followed by 31-60 days (n = 795).

Figure 7: Number of Days from First Test Date to Last Test Date (n = 4,680)

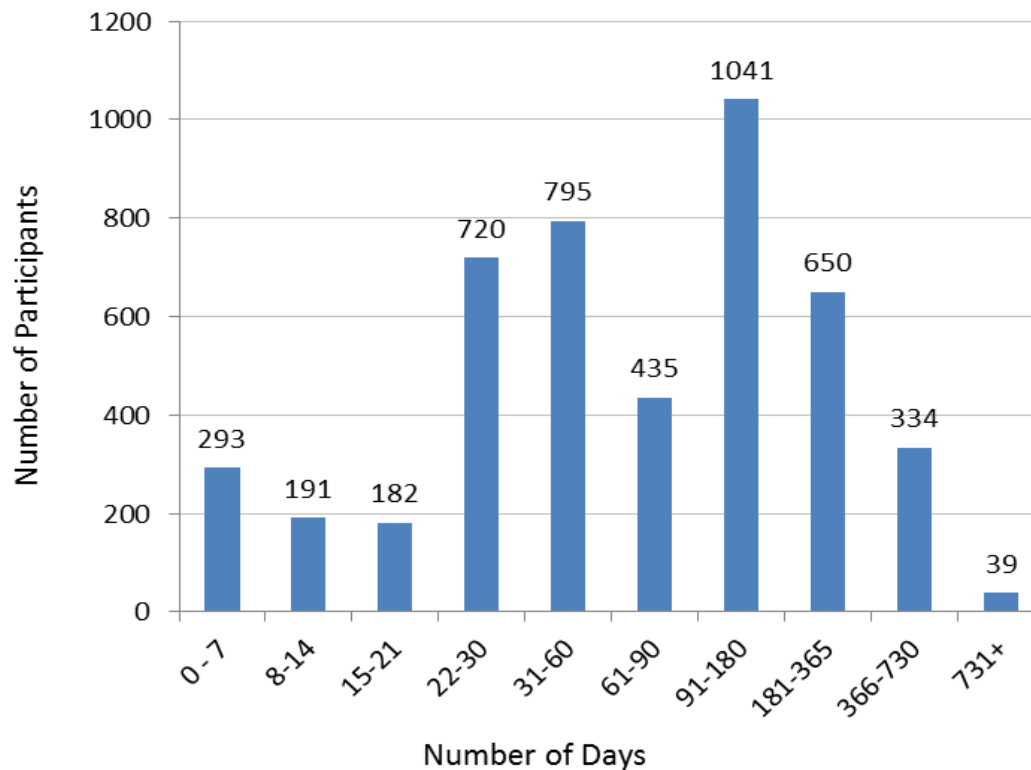


Table 5: Number of Days from First Test Date to last Test Date (n = 4,680)

First Test Date to Last Test Date	n	%	Cumulative %
0-7 days	293	6.3%	6.3%
8-14 days	191	4.1%	10.3%
15-21 days	182	3.9%	14.2%
22-30 days	720	15.4%	29.6%
31-60 days	795	17.0%	46.6%
61-90 days	435	9.3%	55.9%
91-180 days	1,041	22.2%	78.1%
181-365 days	650	13.9%	92.0%
366-730 days	334	7.1%	99.2%
731+ days	39	0.8%	100.0%
Total	4,680	100%	

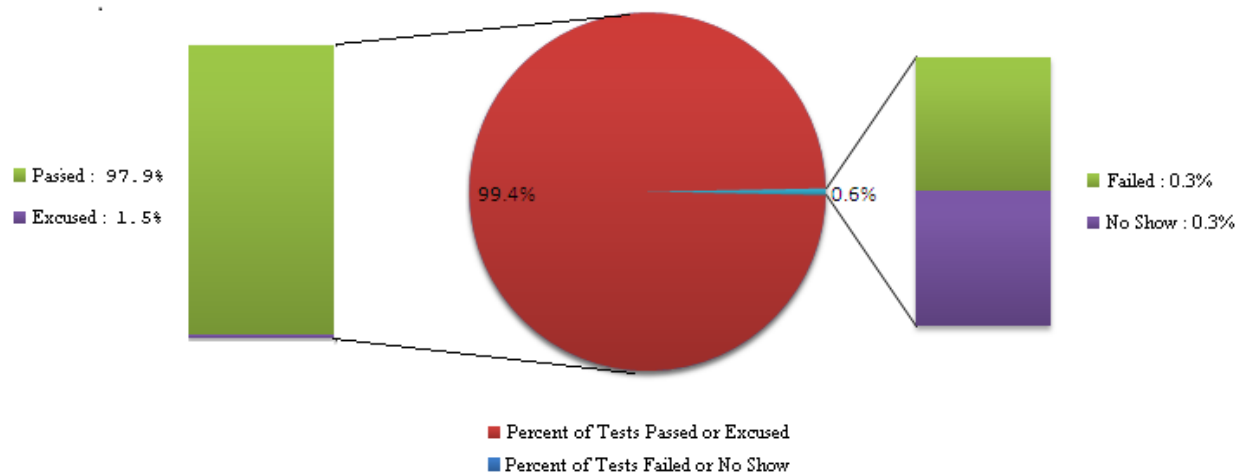
Test Results

Each PBTx2 test result is recorded in the 24/7 Database as a “passed,” “excused,” “failed” or “no show.” For purpose of this report “Passed” is a test recorded as passed or excused and “Failure” is a test recorded as failed or no show. There are 1,018,975 test result records for the 4,680 sample program participants for analysis (data cut as of 12/31/2010). Of the total, 99.4% of the PBTx2 tests were recorded as “Passed.” The table and figure below summarize the results as recorded and the percent in each category.

Table 6: Summary of 24/7 Database Recording of Test Results (n = 4,680 participants and 1,018,975 test records)

Test Result	Possible Reasons and Coding
Passed (99.4% of tests – 1,012,747 test records)	Showed up and “Passed” test successfully (97.9% of tests – 997,184 test records)
	Participant was “Excused” from showing up and taking test on that occasion (1.5% of tests – 15,563 test records)
Failure (0.6% of tests – 6,228 test records)	Participant Showed up and “Failed” the test (0.3% of test – 3,226 test records)
	Participant did not show up and was noted as a “No Show” (0.3% of tests – 3,002 test records)

Figure 8: Summary of 24/7 Database Recording of Test Results (n = 4,680 participants and 1,018,975 test records)



The 1,012,747 PBTx2 test result records where the participant showed up and passed the test represent approximately 506,000 days in which individuals passed two breath tests a day. Further, of the 4,680 sample, 2,499 participants (53.4%) Passed all of their tests and only 440 participants (9.4%) had 4 or more tests recorded as Failures. These test result records strongly suggest that the 24/7 Sobriety Program is effective in maintaining participant alcohol sobriety while they are on the program.

Table 7: Summary of Number of Participants who have Passed and Failed At Least One Test (n = 4,680 participants)

Test Result						
Passed (53.4% of the participants have all test records marked as Passed (passed or excused) – 2,499 participants)						
Failure (46.6% of the sample have at least one test record marked as Failure (failed or no show) – 2,181 participants)						
	% of all participants	N	% of 2,181	all failed tests	all no show tests	at least one of each
Number of Failures						
Exactly one failure	19.4%	908	41.6%	566	342	-
Exactly two failures	12.2%	571	26.2%	360	121	90
Exactly three failures	5.6%	262	12.0%	124	39	99
Four or more failures	9.4%	440	20.2%	130	107	203

Figure 9: Summary of Number of Participants who have Passed and Failed At Least One Test (n = 4,680 participants)

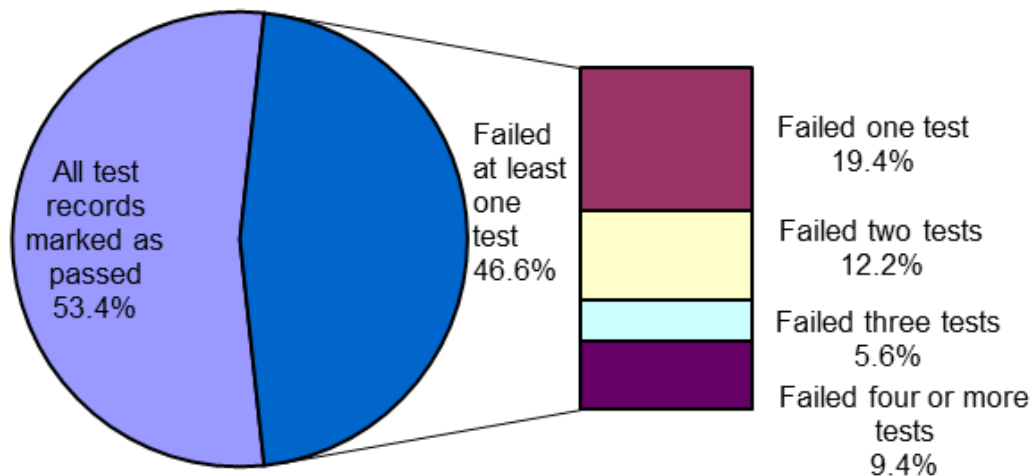


Table 8 below summarizes the number of days a participant was on the program to their first test Failure. Of the participants that failed at least one test (n = 2,181), 30.8% had their first Failure within the first two weeks of program participation. As shown in Table 9, of the individuals that fail a test, approximately 79.8% failed 3 or less tests.

Table 8: Summary of Number of Days to First Failure (n = 2,181 participants)

Number of Days to First Failure Test	<u>N</u>	<u>%</u>	Cumulative %
1-7 days	396	18.2%	18.2%
8-14 days	275	12.6%	30.8%
15-21 days	207	9.5%	40.3%
22-30 days	239	11.0%	51.2%
31-60 days	445	20.4%	71.6%
61-90 days	206	9.4%	81.1%
91-180 days	276	12.7%	93.7%
181-365 days	111	5.1%	98.8%
365-730 days	25	1.1%	100.0%
730-792 days	1	0.0%	100.0%
Total	2,181	100%	

Table 9: Summary of Failures by Participant (n = 2,181 participants)

Number of Failures	<u>n</u>	<u>%</u>	Cumulative %
1	908	41.6%	41.6%
2	571	26.2%	67.8%
3	262	12.0%	79.8%
4	237	10.9%	90.7%
5	99	4.5%	95.2%
6	64	2.9%	98.2%
7+	40	1.8%	100.0%
Total	2,181	100%	

Analysis of DUI Recidivism

While the number of tests taken, passed and failed are important program components to be considered in reviewing the effectiveness of the 24/7 Sobriety Program, an additional measure of success of the program is its effect on DUI recidivism. To measure and assess the 24/7 Sobriety Program's effects on DUI recidivism, the following three quasi-experimental analyses were conducted:

1. Comparison of PBTx2 24/7 Sobriety Program participant recidivism rates to non-program participant rates at one, two, three, and four years and DUI level
2. Survival Analysis of 24/7 Sobriety Program participants to non-program participants
3. Survival Analysis of matched comparison of 24/7 Sobriety Program participants to non-program participants

In order to accomplish these analyses, the 24/7 Database participant records of the sample are matched with the Unified Judicial System data. This approach provides for comparison of recidivism rates by year and DUI level. In an effort to draw a "true" comparison, a "Case" and "Control" were strictly defined using the following definitions.

A case is defined as follows:

- One test ordered record
- At least one test log record exists in the test log table
- All test log records are 2 x PBT tests
- A DUI offense on the 24/7 participant record
- Matched with a corresponding record in the UJS DUI data
- The UJS docket has an arrest date equal to or before the earliest test log record date

A control is defined as follows:

- Did not participate in the 24/7 Sobriety Program – (was not matched to a 24/7 participant record)
- South Dakota Address

Recidivism is defined as the occurrence of another or future arrest as recorded in the UJS database between 2003 and the data cutoff date of 12/31/2011 (latest UJS data available for analysis).

Findings - Analysis 1: Recidivism rate comparison of 24/7 Sobriety Program Participants who participated in PBTx2 to nonparticipants.

- The comparison analysis is presented on the following three levels
 - Any 24/7 Sobriety Program PBTx2 participation
 - 24/7 Sobriety Program PBTx2 participants with at least 30 days of consecutive testing on the program
 - 24/7 Sobriety Program PBTx2 participants with at least 90 days of consecutive testing on the program
- Recidivism comparisons are made based on arrest to future arrest at 1, 2, 3, and 4 years
- All control cases fitting the criteria are included.

The 24/7 Database data is drawn from the 4,680 sample described earlier. It should be noted that not all 4,680 participants have had two or three years of time lapse from their qualifying arrest until the 12/31/2011 analysis cut-off date.

Figures 10-14 below summarizes the comparison findings by DUI level on the participant's qualifying arrest (arrest preceding participation in the 24/7 program). Table 10 provides a complete summary of the data shown in Figures 10-14. Any clarification of data on Figures 10-14 can be found in Table 10.

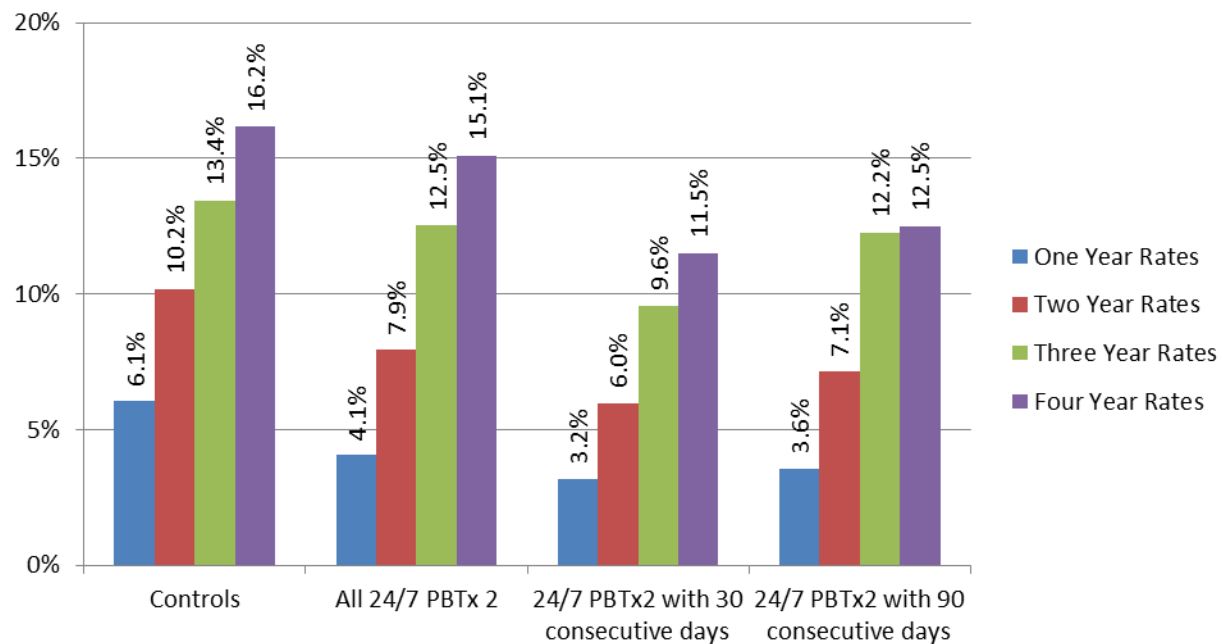
Substantial reductions in the rate of recidivism between the controls and repeat offender PBTx2 participants are documented when comparing time of arrest to future arrest in 1, 2, 3, and 4 years. Statistically significant lower rates of future offenses were found for DUI 2nd and DUI 3rd 24/7 Sobriety Program participants when compared to controls at 1, 2, 3, and 4 years (p-value < 0.01). Larger statistically significant differences in recidivism were found for participants with at least 30 consecutive days of testing. For instance, 24/7 Sobriety Program participants with at least 30 consecutive days of testing when compared to controls documented the following differences in future DUI arrest rates after *three* years of the arrest that resulted in placement in the program:

- DUI 2nd – 65% reduction in recidivism (12.7% to 4.4%)
- DUI 3rd – 58% reduction in recidivism (14.6% to 6.1%)
- DUI 4th – 42% reduction in recidivism (15.4% to 9.0%)

24/7 Sobriety Program participants with at least 30 consecutive days of testing when compared to controls documented the following differences in future DUI arrest rates after *four* years of the arrest that resulted in placement in the program:

- DUI 2nd – 62% reduction in recidivism (14.6% to 5.5%)
- DUI 3rd – 43% reduction in recidivism (16.5% to 9.3%)
- DUI 4th – 47% reduction in recidivism (20.9% to 11.1%)

Figure 10: 24/7 Program Participants Compared to Controls – DUI 1st to next DUI Offense



* Note sample size drops below 50 participants for 90 consecutive days of testing at year 3 and 4.

Figure 11: 24/7 Participants Compared to Controls – DUI 2nd to next DUI Offense

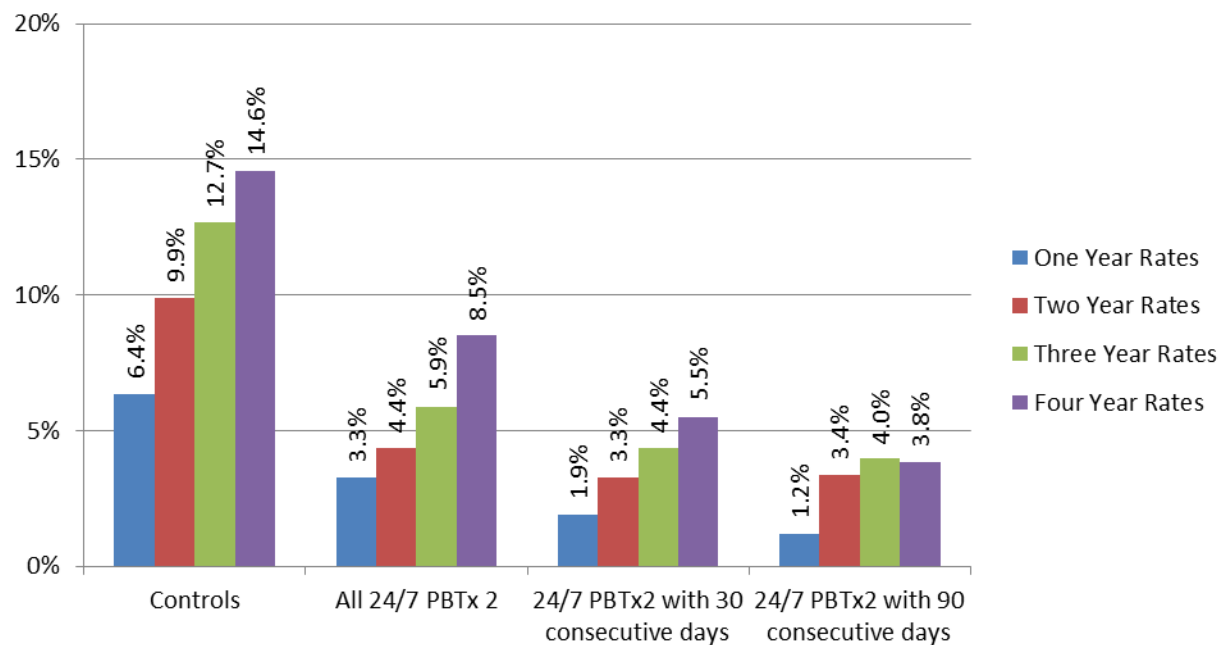


Figure 12: 24/7 Participants Compared to Controls – DUI 3rd to next DUI Offense

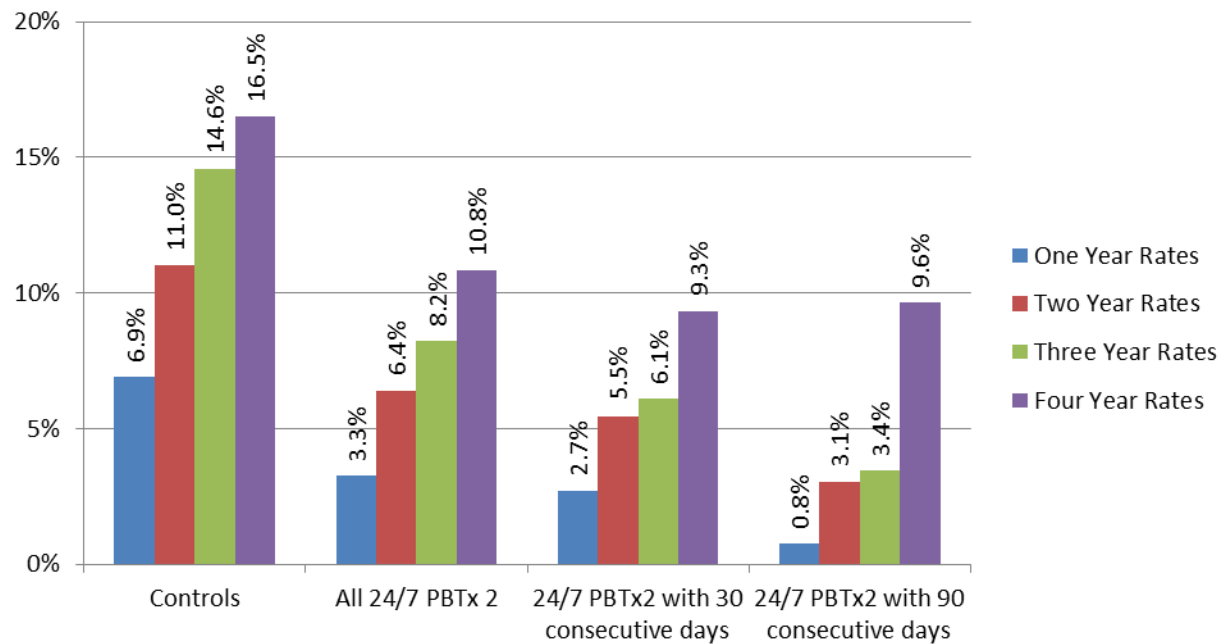
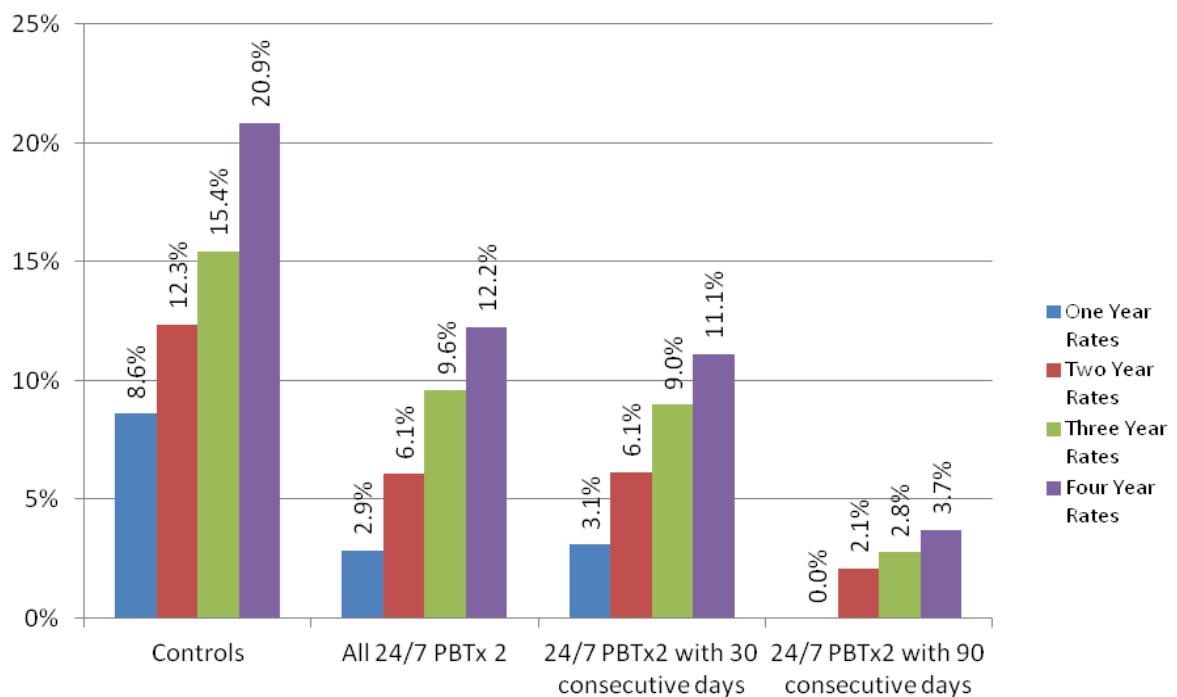
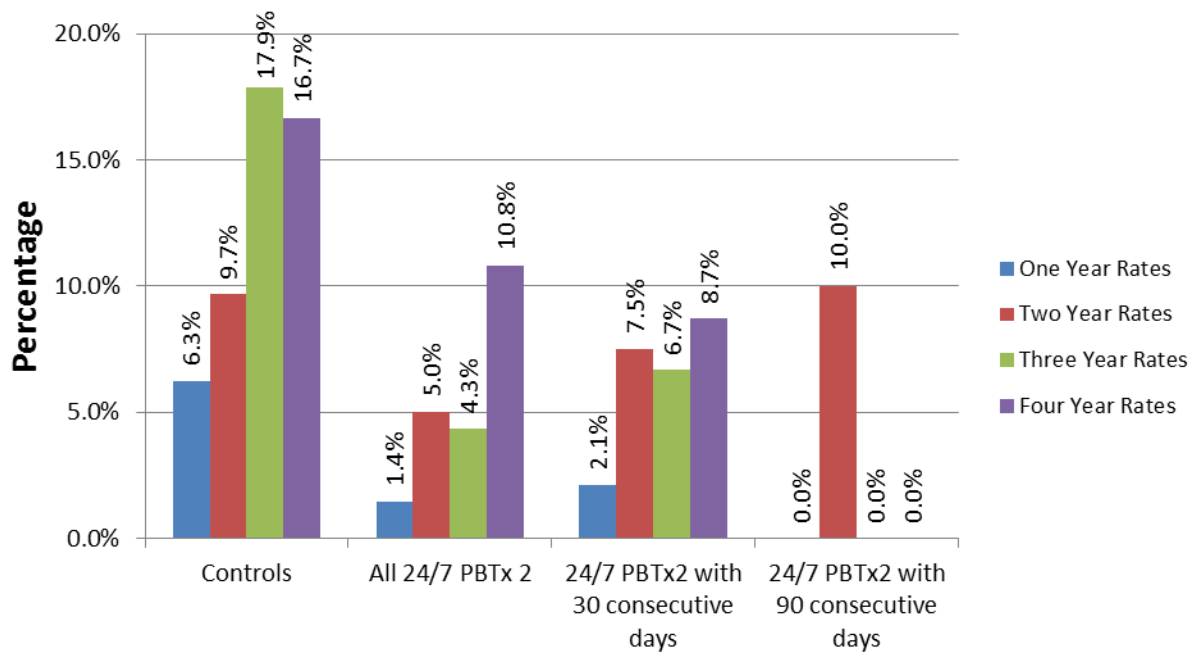


Figure13: 24/7 Participants Compared to Controls – DUI 4th to next DUI Offense



* Note sample size drops below 50 participants for 90 consecutive days of testing at year 2, 3 and 4.

Figure 14: 24/7 Participants Compared to Controls – DUI 5th to next DUI Offense



* Note sample size drops below 50 participants for 30 and 90 consecutive days of testing at years 1, 2, 3 and 4.

Table 10: 24/7 Sobriety Program Participants Compared to Controls at One, Two, Three, and Four Years and DUI Level

				All PBTx2 Participants					PBTx2 with at least 30 consecutive days of tests					PBTx2 with at least 90 consecutive days of tests			
One Year	Controls																
DUI Level	n	n recid	% recid	n	n recid	% recid	p-value		n	n recid	% recid	p-value		n	n recid	% recid	p-value
1	31397	1902	6.1%	1498	61	4.1%	<0.001		880	28	3.2%	<0.001		84	3	3.6%	0.234
2	4329	275	6.4%	1915	63	3.3%	<0.001		1045	20	1.9%	<0.001		415	5	1.2%	<0.001
3	1361	94	6.9%	953	31	3.3%	<0.001		587	16	2.7%	<0.001		263	2	0.8%	<0.001
4	418	36	8.6%	245	7	2.9%	0.003		130	4	3.1%	0.027		60	0	0.0%	0.018
5	32	2	6.3%	69	1	1.4%	0.244		47	1	2.1%	0.366		11	0	0.0%	0.492
Two Year	Controls																
DUI Level	n	n recid	% recid	n	n recid	% recid	p-value		n	n recid	% recid	p-value		n	n recid	% recid	p-value
1	27962	2846	10.2%	1185	94	7.9%	0.007		702	42	6.0%	<0.001		70	5	7.1%	0.261
2	4138	410	9.9%	1536	67	4.4%	<0.001		822	27	3.3%	<0.001		325	11	3.4%	<0.001
3	1345	148	11.0%	797	51	6.4%	<0.001		494	27	5.5%	<0.001		229	7	3.1%	<0.001
4	413	51	12.3%	214	13	6.1%	0.010		114	7	6.1%	0.044		48	1	2.1%	0.030
5	31	3	9.7%	60	3	5.0%	0.342		40	3	7.5%	0.500		10	1	10.0%	0.500
Three Year	Controls																
DUI Level	n	n recid	% recid	n	n recid	% recid	p-value		n	n recid	% recid	p-value		n	n recid	% recid	p-value
1	24455	3288	13.4%	783	98	12.5%	0.243		449	43	9.6%	0.010		49	6	12.2%	0.485
2	3934	498	12.7%	1089	64	5.9%	<0.001		571	25	4.4%	<0.001		227	9	4.0%	<0.001
3	1323	193	14.6%	621	51	8.2%	<0.001		377	23	6.1%	<0.001		174	6	3.4%	<0.001
4	408	63	15.4%	177	17	9.6%	0.040		89	8	9.0%	0.079		36	1	2.8%	0.034
5	28	5	17.9%	46	2	4.3%	0.065		30	2	6.7%	0.183		7	0	0.0%	0.273
Four Year	Controls																
DUI Level	n	n recid	% recid	n	n recid	% recid	p-value		n	n recid	% recid	p-value		n	n recid	% recid	p-value
1	20775	3357	16.2%	378	57	15.1%	0.310		191	22	11.5%	0.051		24	3	12.5%	0.417
2	3648	532	14.6%	682	58	8.5%	<0.001		345	19	5.5%	<0.001		130	5	3.8%	<0.001
3	1298	214	16.5%	453	49	10.8%	0.2%		257	24	9.3%	0.002		114	11	9.6%	0.038
4	398	83	20.9%	147	18	12.2%	0.015		72	8	11.1%	0.039		27	1	3.7%	0.028
5	24	4	16.7%	37	4	10.8%	0.392		23	2	8.7%	0.351		4	0	0.0%	0.456

*chi-squared approximation should be interpreted with caution due to small sample size of n=50 or less.

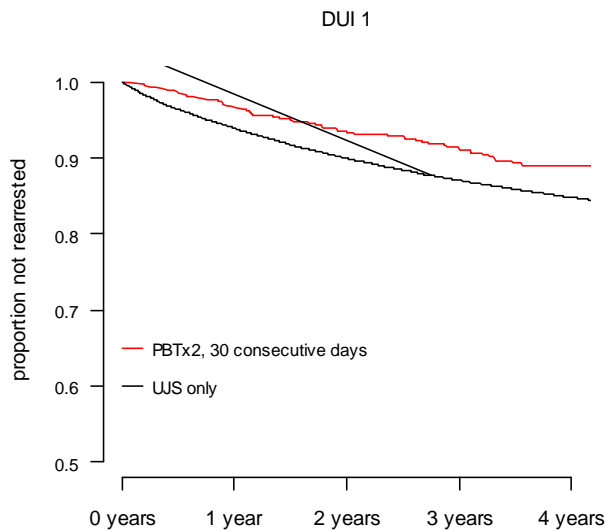
Findings of Analysis 2: Survival Analysis of 24/7 Sobriety Program participants to non-program participants by DUI level:

The second analysis was undertaken to assess long-term impact of the 24/7 Sobriety Program for individuals who participated in the program. Since “multiple” DUIs or recidivism is a relatively rare event, one approach to examining the recidivism rate is the use of a Survival Function. This analysis compares individuals by the length of time they “survive.” Here the survival analysis compares the length of time from the qualifying DUI arrest to future DUI arrests for 24/7 Sobriety Program participants and non-program participants by DUI level.

The Kaplan-Meier estimated survival curves in Figure 15 illustrate that participants in the 24/7 Sobriety Program who participate in the program for at least 30 consecutive days have less future offenses compared to controls. Statistically significant lower rates of future offenses were found for DUI 2nd 24/7 Sobriety Program participants with at least 30 consecutive days (p-value < 0.001, df=1) and for DUI 3rd 24/7 Sobriety Program participants with at least 30 consecutive days (p-value < 0.011, df=1). Greater reductions were found for participants with at least 90 consecutive days of testing in most cases. The survival curves in Figure 15 support the findings discussed previously (see Analysis 1) in which 24/7 Sobriety Program participants have lower rates of recidivism when participating in the program for at least 30 consecutive days.

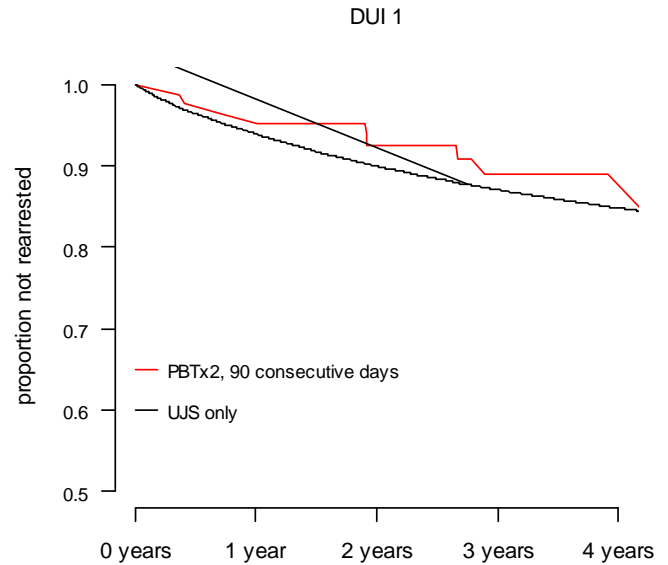
Figure 15: Survival Function Probability Curves for 24/7 Participants Compared to UJS Controls

PBTx2 with at least 30 consecutive days of tests compared to UJS Controls

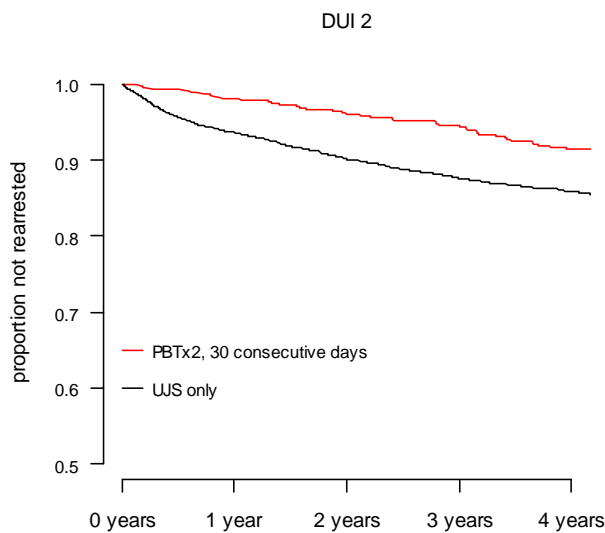


PBTx2, at least 30 consecutive days to UJS controls
log-rank p-value = 0.001

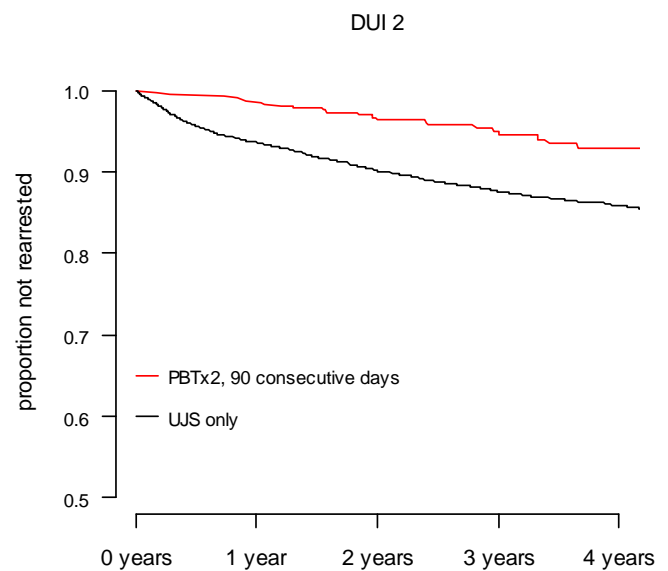
PBTx2 with at least 90 consecutive days of tests compared to UJS Controls



PBTx2, at least 90 consecutive days to UJS controls
log-rank p-value = 0.448



PB PBTx2, at least 30 consecutive days to UJS controls
log-rank p-value < 0.001



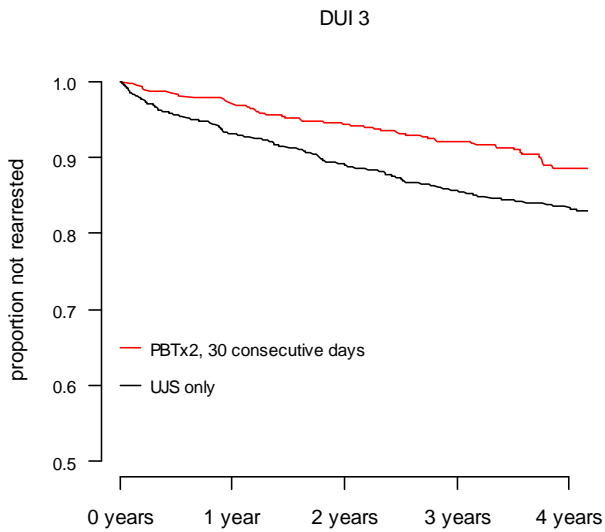
PBTx2, at least 90 consecutive days to UJS controls
log-rank p-value < 0.001

Time is arrest date to future arrest date

* After 3 years estimates should be interpreted with caution due to small sample size.

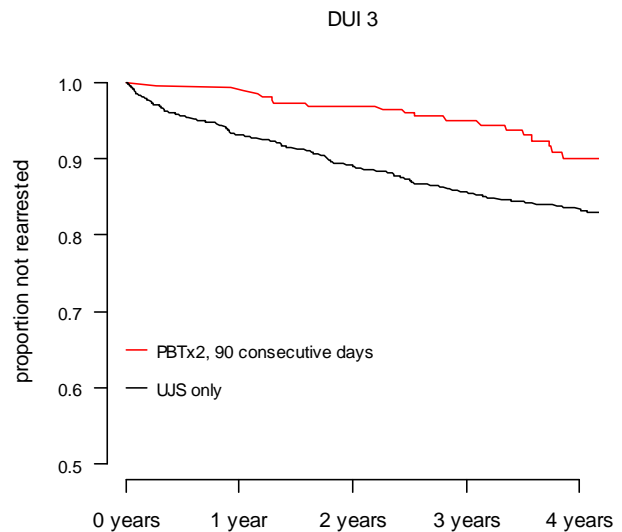
Figure 15: Survival Function Probability Curves for 24/7 Participants Compared to UJS Controls (continued)

PBTx2 with at least 30 consecutive days of tests compared to UJS Controls

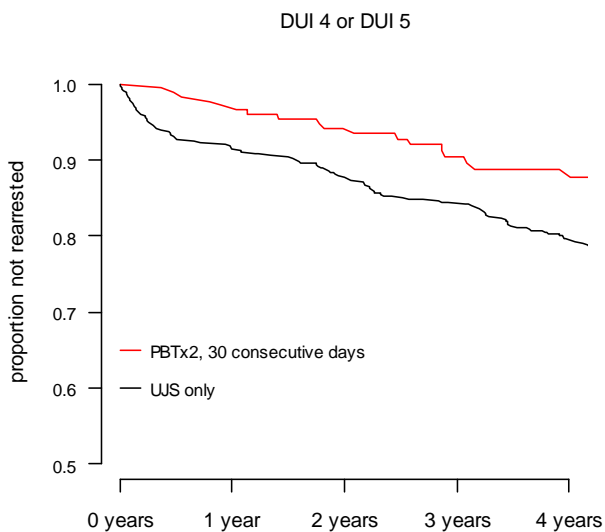


PB PBTx2, at least 30 consecutive days to UJS controls
log-rank p-value = 0.011

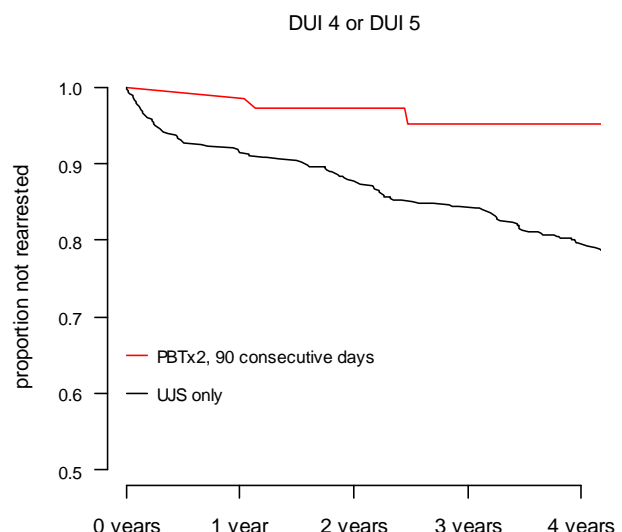
PBTx2 with at least 90 consecutive days of tests compared to UJS Controls



PBTx2, at least 90 consecutive days to UJS controls
log-rank p-value = 0.004



PBTx2, at least 30 consecutive days to UJS controls
log-rank p-value = 0.121



PBTx2, at least 90 consecutive days to UJS controls
log-rank p-value = 0.035

Time is arrest date to future arrest date

* After 3 years estimates should be interpreted with caution due to small sample size.

Findings Analysis 3: Survival Analysis of matched comparison of 24/7 Sobriety Program Participants to non-program participants

To expand upon and increase the rigor of the analysis, a matched comparison analysis for 24/7 Sobriety Program participants to UJS controls was conducted. The 24/7 Sobriety Program participants were randomly matched to controls from the UJS data based on the following criteria:

- 24/7 Sobriety Program Participants records were matched with non-program participants who were arrested in 2003, 2004, or 2005 and who did not participate in the 24/7 Sobriety Program for the DUI offense on the docket.
- 24/7 Sobriety Program participants were matched with the controls on:
 - DUI level on UJS arrest record
 - Circuit on UJS arrest record
 - Gender
 - Age group (18-20, 21-29, 30-39, 40-49, 50-59, 60+)
 - Month of Arrest date

Matched controls were identified for 2,084 participants with at least 30 consecutive day tests of the 4,680 participants in the 24/7 Sobriety Program described previously in this report. Of the 2,084, there were 573 participants with at least 90 consecutive days of tests that were matched with controls.

Figure 16 provides the Kaplan-Meier estimated survival curves for the comparison of the 24/7 Sobriety Program participants compared with matched controls. Figure 16 illustrates that 24/7 Sobriety Program participants with at least 30 consecutive days of tests have statistically significant lower rates of future offenses compared to their matched controls (p-value < 0.001).

Figure 16: Survival Function Probability Curves for 24/7 Sobriety Program Participants Matched to Controls with at least One year of Exposure

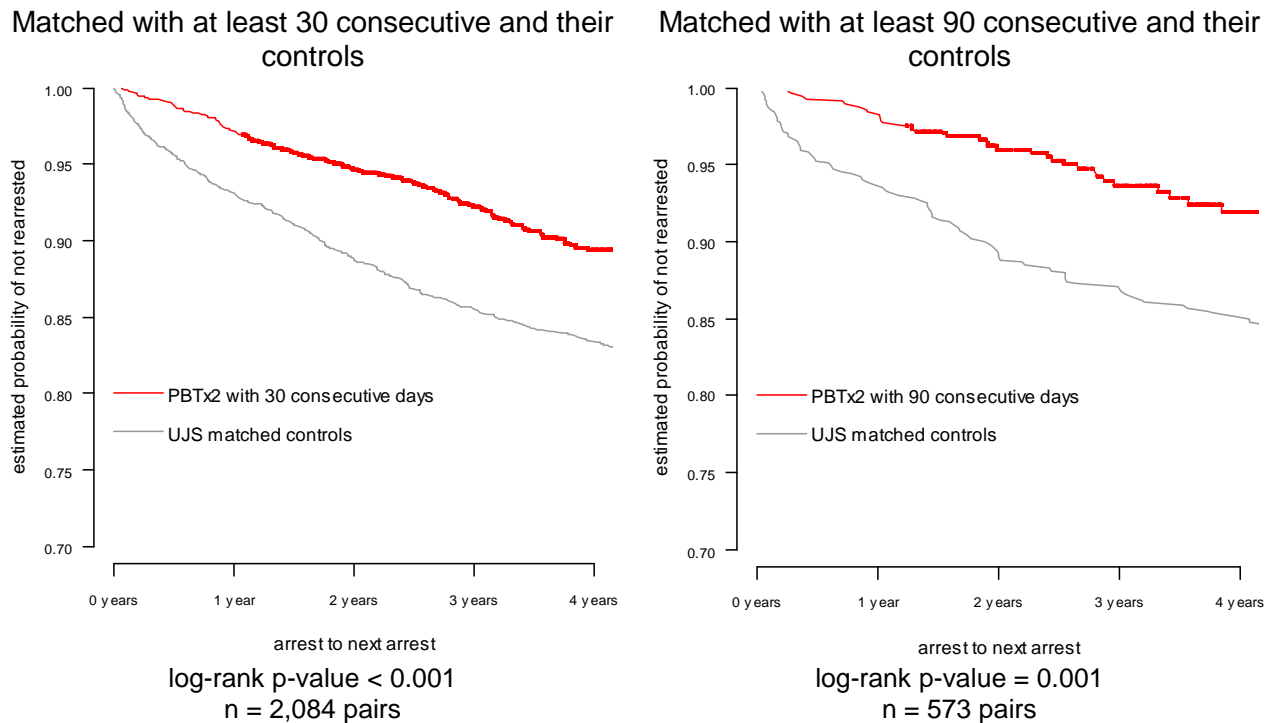


Table 11: Percent Survive for 24/7 Sobriety Program Participants Matched to Controls with at least One year of Exposure by Year

	At Least 30 consecutive days of testing	UJS Matched Controls
Time	% Not Recid	% Not Recid
0 days	100.0%	100.0%
365 days	97.3%	93.1%
730 days	94.7%	88.9%
1,095 days	92.2%	85.6%
1,460 days	89.4%	83.4%

	At Least 90 consecutive days of testing	UJS Matched Controls
Time	% Not Recid	% Not Recid
0 days	100.0%	100.0%
365 days	98.4%	93.7%
730 days	96.0%	89.4%
1,095 days	93.6%	87.1%
1,460 days	91.9%	85.2%

Conclusion

Based upon this additional year of data, the long-term effects of the 24/7 Sobriety Program upon DUI offense recidivism is well supported. Although it is important to continue to study future data, the findings demonstrate that the program is very successful in addressing DUI offender sobriety while individuals are on the program. These findings demonstrate that 24/7 Sobriety Program PBTx2 participants have lower recidivism rates when compared to individuals who do not participate in the 24/7 Sobriety Program. For repeat offenders, even minimal days of participation in the 24/7 Sobriety Program positively impact recidivism rates. Individuals with at least 30 days of program participation demonstrate an even greater reduction in recidivism. These reductions in recidivism far exceed the rates reported in the literature for traditional approaches to DUI offenders, including education and sanctions. Initial findings also demonstrate that unlike traditional use of generic Ignition interlock devices, the 24/7 Sobriety Program has a sustained effect on recidivism rates. This author, along with the South Dakota Attorney General and the South Dakota Department of Public Safety, will continue to monitor the longitudinal recidivism data of the 24/7 Sobriety Program in order to fully understand the nature and magnitude of sustained program effects for program participants.

The 24/7 Sobriety Program provides judges, parole officers and court service personnel with a useful tool to utilize when dealing with individuals whose root cause of criminal behavior is alcohol. PBTx2 allows the participant's alcohol consumption to be monitored on a daily basis, permitting the participant to remain in the community, yet authorizes swift action in response to a failed test or failure to show up for testing. The 24/7 Sobriety Program, like other sanctions and DUI amelioration efforts, does not provide a guarantee that individuals will remain sober and not drink and drive.

Appendix A: Documentation and Participant Record Counts of Selection Methodology for
2 x Day PBT participants and DUI Offense

24,024 participant records (participant IDs)
17,994 clusters or unique participants based on matching routine with UJS DUI data
 17,835 have at least one tests_ordered record
 11,066 have exactly one tests_ordered record
 6,769 have more than one tests_ordered record
 159 have no tests_ordered record

Of the 11,066 with exactly one tests_ordered record
 10,545 have at least one test_log record
 9,824 have at least one test_log record during 1/1/2005 to 12/31/2010
 8,946 have test_log records only during 1/1/2005 to 12/31/2010
 878 have test_log records during 1/1/2005 to 12/31/2010 and before 1/1/2005
 or after 12/31/2010
 751 have test_log records before 1/1/2005 or after 12/31/2010 only
 521 have no test_log records

Of the 9,824 with exactly one tests_ordered record and at least one test_log record
during 1/1/2005 to 12/31/2010
 9,033 PBTx2
 412 UA
 124 SCRAM
 123 PBT AM
 92 PBT PM
 40 Patch
 0 Interlock

Of the 9,033 with exactly one tests_ordered record and at least one test_log record
during 1/1/2005 to 12/31/2010 and PBTx2
 5,276 have a DUI offense on the 24/7 participant record
 1,353 DUI 1st
 2,518 DUI 2nd
 1,062 DUI 3rd
 264 DUI 4th
 79 DUI 5th or above
 3,757 do not have a DUI offense on the 24/7 participant record

Of the 5,276 with exactly one tests_ordered record and at least one test_log record
during 1/1/2005 to 12/31/2010 and PBTx2 and with a DUI offense on the 24/7 participant
record
 4,713 have been matched to a UJS ID in the UJS dataset

Of the 4,713 with exactly one tests_ordered record and at least one test_log record
during 1/1/2005 to 12/31/2010, PBTx2, a DUI offense on the 24/7 participant record and
have been matched to a UJS ID
 4,680 have a docket with arrest date equal to or before the earliest test_log
record date

APPENDIX B
SUPPORTING DATA TABLES

Table B1: Number of Participant Records by Offense and Calendar Year of Start Date

<u>offense</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>Total</u>
DUI 2nd	138	632	1270	1204	1320	1202	5766
DUI 3rd	110	454	796	890	797	763	3810
DUI 1st	43	80	603	1210	748	665	3349
Other	144	239	390	371	442	542	2128
DUI 4th	45	114	230	226	190	172	977
Assault - Simple/Domestic	0	35	79	140	243	223	720
Poss. of Cont. Substance	11	42	59	169	147	272	700
Parole	5	4	70	154	176	173	582
Assault - Simple	4	47	98	119	127	139	534
Abuse and Neglect	0	2	17	228	94	79	420
Probation Violation	9	25	68	115	90	85	392
Parole Violation	2	6	56	78	91	103	336
Assault - Aggravated	9	32	48	93	66	71	319
Probation	2	3	22	67	81	93	268
Domestic Violence	4	18	27	60	62	74	245
Possession	2	4	18	54	43	64	185
DUI 5th and above	5	20	33	36	43	46	183
Work Permit	0	0	14	83	50	26	173
Disorderly Conduct	3	3	9	39	46	55	155
Grand Theft	3	5	27	43	34	30	142
Assault	0	4	22	24	40	28	118
Poss. of illegal substance	1	15	17	29	24	20	106
Burglary 3rd Degree	1	7	15	25	31	27	106
Forgery	6	5	11	23	25	21	91
Burglary 1st Degree	3	6	17	15	26	14	81
Assault-Agg./Domestic	0	2	6	24	24	25	81
Non Support of a Child	0	3	18	27	15	4	67
Burglary 2nd Degree	0	2	0	22	14	16	54
Parole Detainer	4	6	10	8	10	14	52
Ingesting	0	0	1	14	17	14	46
Bond Violation	0	1	7	13	13	7	41
Intentional Damage	1	2	5	9	13	10	40
Reckless Driving	0	1	4	11	9	15	40
Resisting Arrest	0	3	5	6	12	13	39
Probation Detainer	3	4	5	10	7	6	35
Escape	0	4	9	8	11	1	33
Ingestion	0	2	7	7	7	8	31
Vehicular Battery	0	4	3	8	10	3	28
Petty Theft	0	3	2	5	9	7	26
Vandalism	0	2	2	7	10	4	25
Assault - Sexual	0	1	0	7	6	8	22
Child Neglect	0	0	2	7	5	7	21
Hit and Run	0	2	2	5	9	2	20
Burglary 4th Degree	0	0	4	6	4	4	18
Violation of a Prot. Order	0	1	2	4	4	6	17
Poss. of Stolen Property	0	1	4	0	5	7	17
Assault - Felony	0	1	1	5	5	4	16
Child Abuse	0	2	7	3	4	0	16

Table B1 (Continued)	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>Total</u>
Grand Theft - Auto	0	0	1	7	5	1	14
Driving Suspended	0	0	1	4	3	5	13
Rape 1st Degree	3	4	1	0	2	1	11
Rape 3rd Degree	0	0	2	3	2	2	9
Vehicular Homicide	1	0	1	3	2	1	8
Rape 2nd Degree	0	1	0	2	2	1	6
Rape 4th Degree	0	0	0	0	4	2	6
All	562	1,854	4,128	5,730	5,279	5,185	22,738

Table B2: Number of Participant Records by County, UJS Circuit 1 and Calendar Year of Start Date

Circuit	County	2005	2006	2007	2008	2009	2010	Total
Circuit 1	Yankton	2	63	171	244	237	205	922
	Davison	0	0	78	209	214	224	725
	Charles Mix	0	2	73	156	159	216	606
	Clay	0	9	33	39	35	46	162
	Turner	0	0	21	33	37	25	116
	Union	0	1	16	41	35	36	129
	Brule	0	0	0	18	48	40	106
	Bon Homme	0	0	3	8	10	12	33
	Douglas	0	0	0	11	7	9	27
	McCook	0	0	1	4	12	11	28
	Hutchinson	0	0	2	6	5	5	18
	Aurora	0	0	4	2	4	3	13
	Hanson	0	0	0	2	1	2	5
	Buffalo	0	0	0	1	2	4	7
Circuit 1 Total		2	75	402	774	806	838	2,897

Table B3: Number of Participant Records by County, UJS Circuit 2 and Calendar Year of Start Date

Circuit	County	2005	2006	2007	2008	2009	2010	Total
Circuit 2	Minnehaha	242	570	828	971	1,142	1,198	4,951
	Lincoln	0	4	11	126	192	141	474
Circuit 2 Total		242	574	839	1,097	1,334	1,339	5,425

Table B4: Number of Participant Records by County, UJS Circuit 3 and Calendar Year of Start Date

Circuit	County	2005	2006	2007	2008	2009	2010	Total
Circuit 3	Codington	0	0	105	194	213	205	682
	Brookings	0	36	140	167	113	224	585
	Beadle	0	0	99	104	85	216	415
	Lake	0	2	34	47	37	46	182
	Moody	0	0	12	35	39	36	116
	Grant	0	0	10	28	12	25	72
	Hand	0	0	0	6	17	11	29
	Kingsbury	0	0	0	6	15	12	35
	Deuel	0	0	2	9	9	40	35
	Miner	0	0	0	7	12	9	27
	Clark	0	0	2	8	7	5	19
	Sanborn	0	0	2	3	6	3	13
	Hamlin	0	0	1	0	7	4	12
	Jerauld	0	0	0	3	0	2	4
Circuit 3 Total		0	38	407	617	572	592	2,226

Table B5: Number of Participant Records by County, UJS Circuit 4 and Calendar Year of Start Date

Circuit	County	2005	2006	2007	2008	2009	2010	Total
Circuit 4	Meade	2	6	36	48	52	60	204
	Butte	0	0	6	34	29	32	101
	Lawrence	1	1	1	8	10	39	60
	Corson	1	2	3	2	2	2	12
	Dewey	2	0	4	2	1	1	10
	Ziebach	0	0	0	3	2	1	6
	Perkins	0	0	1	3	1	0	5
	Harding	0	0	0	0	0	2	2
Circuit 4 Total		6	9	51	100	97	137	400

Table B6: Number of Participant Records by County, UJS Circuit 5 and Calendar Year of Start Date

Circuit	County	2005	2006	2007	2008	2009	2010	Total
Circuit 5	Brown	116	231	413	398	337	347	1,842
	Roberts	0	2	74	120	112	112	420
	Walworth	0	20	62	52	53	55	242
	Spink	1	18	25	30	37	42	153
	Day	0	0	1	12	21	10	44
	Edmunds	0	0	2	2	15	7	26
	Marshall	0	0	1	2	13	11	27
	Faulk	0	0	1	3	5	2	11
	Campbell	0	0	0	2	1	0	3
	McPherson	0	0	1	2	0	1	4
Circuit 5 Total		117	271	580	623	594	587	2,772

Table B7: Number of Participant Records by County, UJS Circuit 6 and Calendar Year of Start Date

Circuit	County	2005	2006	2007	2008	2009	2010	Total
Circuit 6	Hughes	1	127	132	179	242	193	874
	Tripp	44	45	104	69	59	56	377
	Bennett	7	63	40	74	99	103	386
	Mellette	1	82	30	20	2	22	157
	Stanley	0	22	31	38	28	34	153
	Gregory	0	0	2	5	46	39	92
	Lyman	0	0	1	6	12	20	39
	Jackson	0	0	1	4	8	4	17
	Hyde	0	0	2	5	4	2	13
	Todd	2	0	1	3	0	0	6
	Haakon	0	0	0	2	2	3	7
	Potter	0	0	0	2	1	1	4
	Sully	0	0	0	1	1	6	8
	Jones	0	0	0	0	0	0	0
Circuit 6 Total		55	339	344	408	504	483	2,133

Table B8: Number of Participant Records by County, UJS Circuit 7 and Calendar Year of Start Date

Circuit	County	2005	2006	2007	2008	2009	2010	Total
Circuit 7	Pennington	139	535	1,078	1,416	1,117	987	5,272
	Fall River	0	1	10	77	90	87	265
	Custer	0	2	25	36	27	41	131
	Shannon	1	1	1	1	4	1	9
Circuit 7 Total		140	539	1,114	1,530	1,238	1,116	5,677

Table B9: Number of Participant Records by County, UJS Circuit Unknown and Calendar Year of Start Date

Circuit	County	2005	2006	2007	2008	2009	2010	Total
Unknown	Unknown	0	9	391	581	134	93	1,208

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Source Report

UJS data cutoff: 31 December 2011
24/7 data cutoff: 31 December 2010

All files below are located @ M:\24-7 Program\24-7 Report\2012-August Report

The following Figures & Tables are located @
<M:\24-7 Program\24-7 Report\2012-August Report\combined tables and graphs.xls>

Figure 1: *participants_by_start_year_tables.xls*, sheet: year
The "N year" column contains the totals.
Use 2005 through 2010.

Table 1: *participants_by_start_year_tables.xls*, sheet: gender

Figure 2: *participants_by_start_year_tables.xls*, sheet: gender

Table 2: *participants_by_start_year_tables.xls*, sheet: age

Figure 3: *participants_by_start_year_tables.xls*, sheet: age

Figure 4: *participants_by_start_year_tables.xls*, sheet: dui_off

Figure 5: *participants_by_start_year_tables.xls*, sheet: dui_off

Table 3: *participants_by_start_year_tables.xls*, sheet: test_type

Figure 6: *participants_by_start_year_tables.xls*, sheet: test_type

Table 4: *pbt2_tables.txt*, table: DUI Level
column level: DUI level (0 = total)
column n247: n 24/7 record
column p247: pct 24/7 record
column nujs: n UJS record
column pujs: pct UJS record

Figure 7: *pbt2_tables.txt*, table: Days first date to last date
column days: counts

Table 5: *pbt2_tables.txt*, table: Days first date to last date
column days: counts
column pct : pcts
column cpct: cumulative pct

Table 6: *pbt2_tables.txt*, TEST LOG RECORDS

Figure 8: *pbt2_tables.txt*, TEST LOG RECORDS

Table 7: *pbt2_tables.txt*, two tables labeled: Individual with at least one failed test

Figure 9: *pbt2_tables.txt*, two tables labeled: Individual with at least one failed test

Table 8: *pbt2_tables.txt*, table: Days to first failure

Table 9: *pbt2_tables.txt*, table: Number of failures

The following Figures are located in tab “data”, column Q @

[M:\24-7 Program\24-7 Report\2012-August Report\24-7 1,2,3 Year Recid Comparison Inclusive of Recid data through December 2011 Update for Report.xls](#)

DUI 2 65% reduction (12.7% to 4.4%)

DUI 3 58% reduction (14.6% to 6.1%)

DUI 4 42% reduction (15.4% to 9.0%)

The following graphs are located in tab “graphs” @

[M:\24-7 Program\24-7 Report\2012-August Report\24-7 1,2,3 Year Recid Comparison Inclusive of Recid data through December 2011 Update for Report.xls](#)

Figure 10 &

Figure 11 &

Figure 12 &

Figure 13 &

Figure 14 &

The following Figures are located in tab “data sheet with p value” @ [M:\24-7 Program\24-7 Report\2012-August Report\24-7 1,2,3 Year Recid Comparison Inclusive of Recid data through December 2011 Update for Report.xls](#)

The data for this spreadsheet comes from the following spreadsheets:

[M:\24-7 Program\24-7 Report\2012-August Report\year1_no_limit.csv](#)

[M:\24-7 Program\24-7 Report\2012-August Report\year2_no_limit.csv](#)

[M:\24-7 Program\24-7 Report\2012-August Report\year3_no_limit.csv](#)

[M:\24-7 Program\24-7 Report\2012-August Report\year4_no_limit.csv](#)

Table 10 : *recid_1_2_3_year_no_limit.xls*,

The following Figures & Tables are located @

[M:\24-7 Program\24-7 Report\2012-August Report\dui1_30.emf](#)

[M:\24-7 Program\24-7 Report\2012-August Report\dui1_90.emf](#)

[M:\24-7 Program\24-7 Report\2012-August Report\dui2_30.emf](#)

[M:\24-7 Program\24-7 Report\2012-August Report\dui2_90.emf](#)

[M:\24-7 Program\24-7 Report\2012-August Report\dui3_30.emf](#)

[M:\24-7 Program\24-7 Report\2012-August Report\dui3_90.emf](#)

[M:\24-7 Program\24-7 Report\2012-August Report\dui45_30.emf](#)

[M:\24-7 Program\24-7 Report\2012-August Report\dui45_90.emf](#)

Figure 15: *dui1_30.emf* *dui1_90.emf*
dui2_30.emf *dui2_90.emf*
dui3_30.emf *dui3_90.emf*
dui45_30.emf *dui45_90.emf*

p-values @

[M:\24-7 Program\24-7 Report\2012-August Report\logrank_and_summarys.doc](#)

The following Figures & Tables are located @

M:\24-7 Program\24-7 Report\2012-August Report\matched_30_consec_1year.emf

M:\24-7 Program\24-7 Report\2012-August Report\matched_90_consec_1year.emf

Figure 16: *matched_30_consec_1year.emf* *matched_90_consec_1year.emf*

N pairs and p values found @ M:\24-7 Program\24-7 Report\2012-August Report\matched_30_90_consec_1year.doc

The following Figures & Tables are located @ M:\24-7 Program\24-7 Report\2012-August Report\matched_30_90_consec_1year.doc

Table 11: *matched_30_90_consec_1year.txt*

column: time is number of days

column: surv is proportion (100*proportion = percent) round percentages

First table is for those with at least 30 consecutive days of testing, second control

Third table is for those with at least 90 consecutive days of testing, forth control

Entered into tab "Table 11" of <M:\24-7 Program\24-7 Report\2012-August Report\combined tables and graphs.xls>

The following Appendixes and Tables are located @

<M:\24-7 Program\24-7 Report\2012-August Report\combined tables and graphs.xls>

Appendix A: *countdown.doc*

Appendix B:

Table B1: *participants_by_start_year_tables.xls*, sheet: offense

Table B2: *participants_by_start_year_tables.xls*, sheet: circuit_county