Breath Test Refusals & Their Effect on DWI Prosecution

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

NHTSA
www.nhtsa.gov

Suggested APA Format for This reference:

Jones, R. K., & Nichols, J. L. (2012, June). *Breath test refusals and their effect on DWI prosecution*. (Report No. DOT HS 811 551). Washington, DC: National Highway Traffic Safety Administration.

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
DOT HS 811 551		

4. Title and Subtitle	5. Report Date
Breath Test Refusals and Their Effect on DWI Prosecutions	June 2012
	6. Performing Organization Code

7. Author(s)	8. Performing Organization Report No.
Ralph K. Jones and James L. Nichols	

9. Performing Organization Name and Address	10. Work Unit No. (TRAIS)
Mid-America Research Institute, Inc. 350 North Street Boston, MA 02113-2114	
	11. Contract or Grant No. DTNH22-02-D-75121

12. Sponsoring Agency Name and Address	13. Type of Report and Period Covered
National Highway Traffic Safety Administration Office of Behavioral Safety Research 1200 New Jersey Avenue SE. Washington, DC 20590	Final Report
	14. Sponsoring Agency Code

15. Supplementary Notes

Amy Berning was the NHTSA Contract Officer's Technical Representative for this project.

16. Abstract

This report describes the design and results of a project aimed at estimating the rate that drivers refuse to submit to a legally-requested breath alcohol concentration test, and the effect of such refusals on the prosecution of DWI cases. The study found the mean refusal rate to be 21% in 39 jurisdictions providing data, a very small change from that found in prior studies. The study did not indicate a clear relationship between refusing a BAC test and the probability of conviction for DWI/DUI across five local study sites. Generally, the case studies suggested that the difference in conviction rate between refusers and compliers was quite small. Refusers who were convicted, however, consistently received greater penalties than non-refusers who were convicted.

17. Key Words	18. Distribution Statement
Breath alcohol test refusal, chemical test refusal, DWI prosecution, DUI, OUI, impaired driving, refusal rate, DUI prosecution, OUI prosecution	This report is available from the National Technical Information Service www.ntis.gov

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22
Unclassified	Unclassified	60	

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

CONTENTS

TABLES

FIGURES

EXECUTIVE SUMMARY

The primary purpose of a breath test of a driver suspected of DWI[1] is to confirm an officer's suspicion for use in prosecuting a DWI case. However, the percentage of suspects refusing to submit to breath testing is far from negligible. Data from two prior studies indicate that the average percentage of non-compliant drivers has remained constant, at about 20%, since 1987.

Impaired-driving offenders can be charged with offenses based either for driving above the per se limit (e.g., a blood alcohol concentration of .08 grams per deciliter in every State) or for driving while impaired (based on evidence proving impairment). In some States, an offender can be charged based on a breath test refusal; in some States, a refusal can be admitted into evidence to show impairment.

This report seeks to determine whether breath test refusals and the resulting lack of evidence regarding blood alcohol concentration (BAC) reduce the likelihood of conviction for driving while intoxicated. This could occur in a failure to charge for the DWI offense or in a failure to convict, given such a charge. This question has not been studied extensively.

This study provides a follow up examination of the prevalence of breath test refusals and an initial look at the impact of such refusals on the prosecution and adjudication of DWI cases and on the imposition of appropriate sanctions. In addition to updating refusal rates, the study involved a more in-depth case-study approach in five States. In each of these study States, we selected a local jurisdiction where we compared the outcomes of suspects who refused breath tests with the outcomes of those who complied with breath test requests. Where data were available, offender characteristics and variables describing the circumstances of the arrest were also examined. The study jurisdictions were selected to provide a range of factors believed to affect prosecution, rather than to be *representative* of jurisdictions as a whole. They were distributed across the Nation and they involved States with low, medium, and high refusal rates. The study jurisdictions were large enough to generate a sufficient number of refusals to support an analysis of the differential effect of *refusal* and *compliance* on the various dependent variables of interest (decision to prosecute, conviction rate, sanction severity, etc.).

The study found relatively little change in refusal rates in the Nation as a whole since 2001 and indeed since 1987. The mean rate of refusals in the current study (21%) was only 4 percentage points lower than the rate found using 2001 data in a study by Zwicker, Hedlund, and Northrup (2005), and it was two points higher than the rate using 1987 data in a study by Jones, Joksch, and Wiliszowski (1991).

Further, it appears that the distribution of refusal rates (i.e., from lowest to highest) has changed little since 1987. Despite this stability in terms of change and distribution, nationally, there have been notable changes in some individual States since 2001. A few States, for example, had at least a 10% reduction in their refusal rates, and several had at least 10% increases.

The two in-depth study sites with the highest DWI conviction rates for both refusers and non-refusers were Ramsey County, Minnesota, and Omaha, Nebraska. These sites also had the lowest statewide refusal rates. It is interesting to note that, in both cases, State law had criminalized refusal and made the consequences of a refusal the same as those of DWI conviction. Also of interest was the fact that both sites prosecuted very high percentages of those arrested for DWI.

[1] DWI (driving while intoxicated) is used in this report for the criminal offense of alcohol-impaired driving; some States use other terms, such as DUI (driving under the influence).

In one of those sites (Ramsey County), an offender could receive a shorter period of suspension by pleading guilty to DWI after being convicted of refusal, thus removing the refusal conviction.

In two sites with data regarding first offenders and multiple offenders, offenders with prior DWIs were significantly more likely to be convicted of DWI than first offenders. Findings regarding the effect of offender characteristics (age, sex, and ethnicity) on conviction rates were inconsistent among sites. In one site (King County), younger offenders had higher refusal rates; in one site (Bernalillo County), older offenders had higher rates; and in one site (Ramsey), there was no significant effect of age on refusal rates. Male offenders in two sites had higher rates, but females in one site had the higher rates. Only one site had any results for ethnicity, and those data suggested that African-American offenders had higher conviction rates than other offenders.

Jail sentences for DWI in three of the reporting sites were on the order of a month or two, but were about five months in the site with probation before judgment (and the lowest conviction rate). Average fines were generally $500 to $1,000 in two sites with such data but only $50 to $75 in one other site with such data.

Many States across the United States have established harsher penalties for offenders who refuse to submit to breath tests. This has been encouraged by Federal impaired-driving incentive grant programs, in an effort to discourage offenders from refusing. Both fine and jail penalties were consistently harsher in the five study sites for refusers than for non-refusers.

The relationship between statewide refusal rates and conviction rates is complex.

Within study sites, there was not a clear relationship between refusing a BAC test and the probability of conviction for DWI. In one site (Ramsey County), refusers had a substantially higher conviction rate than non-refusers; in three sites (Montgomery County, Omaha, and Bernalillo County) conviction rates among refusers and non-refusers were more similar, and in the remaining site (King County) there was a substantially lower conviction rate among refusers. However, there appeared to be a reasonably strong and negative relationship between the overall conviction rate at each site and the statewide refusal rate for that State. As statewide refusal rates increased, overall conviction rates (as measured in the individual sites) decreased linearly. For example, Montgomery County had a relatively low conviction rate and it is in Maryland, which has a relatively high statewide refusal rate. Omaha, on the other hand, had a relatively high overall conviction rate and it is in Nebraska, which has a relatively low statewide refusal rate.

ACKNOWLEDGEMENTS

This study was entirely dependent on data captured by state and local government agencies in the course of enforcing drinking-driving laws. These agencies include staff involved in their operation, including law enforcement officers, prosecutors, criminal court judges, administrative hearing officers, and a range of support staff. Also included are agencies housing the data management staff that store, interpret, and analyze the quantitative data.

Our study was composed of two parts (see page v):

1. Updating the breath alcohol test refusal rate in each State; and
2. Estimating the effect of refusal on prosecution of DWI cases in five jurisdictions.

The first part sought data from all 50 States, the District of Columbia, and Puerto Rico. We attempted to contact sources in driver licensing agencies, law enforcement agencies, and highway safety agencies, among others, and ultimately obtained sufficiently usable data from 37 States, plus Puerto Rico and DC. All the many people we contacted were extremely helpful, but the lack of available useable (refusal) data in some States made it impossible for them to provide such data. We appreciate the efforts of all, successful or not, but because of their sheer number, we cannot list them here.

The second part required data from only five jurisdictions, but because of the complexity of the study design, it required more data sources from more agencies in each location than the first part. Key people contributing data and information for each jurisdiction are listed below.

Ramsey County, Minnesota

- Alan Rodgers and Jean M. Ryan, Minnesota Office of Traffic Safety
- Tami Bartholomew, Operations Support, Minnesota Department of Public Safety
- Deb Dailey and Sarah Welter, Minnesota State Court Administrator's Office
- Gary Larson, Office of Technology and Support Services, Department of Public Safety
- Jessica McConaughey, prosecutor, City of St. Paul
- Nancy Nystuen**,** Ramsey County Court Services Division
- Frank Zawislak, Driver and Vehicle Services, Department of Public Safety
- Keri Zehm, Ramsey County Courts

Bernalillo County, New Mexico

- Michael R. Sandoval, New Mexico Department of Transportation
- Keith Smith, Division of Government Research, University of New Mexico

Omaha, Nebraska

- Martin Conboy III, prosecutor, City of Omaha
- Fred E. Zwonechek, administrator, Nebraska Office of Highway Safety

Montgomery County, Maryland

- Carl A. Soderstrom, M.D., chief, Medical Advisory Board, Maryland Motor Vehicle Administration
- Jack Joyce, chief, Driver Safety Research, Maryland Motor Vehicle Administration
- Timothy Kerns and Cynthia Burch, University of Maryland
- Vernon Betkey, Maryland Highway Safety Office

King County, Washington

- Lowell Porter, director, Washington Traffic Safety Commission (WTSC)
- Phillip Salzberg, Ph.D., Shelly Baldwin, Dick Doane, and Angie Ward, Washington Traffic Safety Commission
- Rod Gullberg, Washington State Patrol
- Robert Barnoski, Washington State Institute for Public Policy
- Sgt. Rob Sharpe, Breath Test Program supervisor, Impaired Driving Section, Forensic Laboratory Services Bureau, Washington State Patrol
- Douglas Haake, Administrative Office of the Court
- Pam Loginsky, Washington Association of Prosecuting Attorneys

We greatly appreciate the help we received from these people (and others whom we may have missed) and thank them for their efforts. Of course, the authors are solely responsible for the analyses and interpretations of the data appearing in this report.

1 - INTRODUCTION

This report describes the design and results of a project[2] aimed at estimating the rate that drivers refuse to submit to a legally law enforcement-requested BAC test, and the effect of such refusals on the prosecution of DWI cases. Specific objectives of the study were to:

- Obtain the most recent data available on each State's breath-test refusal rate and compare these rates with previously published rates;
- Identify a jurisdiction in each of five States in which to test the effect of breath-test refusal on the prosecution of DWI cases;
- Compare the prosecution and the prosecution outcome of up to 1,000 breath-test refusers with those of up to 1,000 breath-test non-refusers; and
- Prepare a report documenting the design and results of the statewide refusal rate portion of the study and the results of the case studies portion of the study

BACKGOUND

In a prior study for NHTSA, Mid-America examined the breath-test refusal problem as it existed in 1987, finding that, nationwide, an average of about 19% of drivers requested to take a breath test refused to do so (Jones, Joksch, & Wiliszowski, 1991). Researchers from the Preusser Research Group updated some of the findings of this earlier study, and their results showed a slight increase in the mean raw refusal rate to about 25% nationwide in 2001 (Zwicker, Hedlund, & Northrup, 2005).

These data, collected over a 14-year period, indicate a fairly stable breath-test refusal rate in the U.S, with variable results from only a modest proportion of States. That this rate has remained essentially constant (or increased slightly) at a value of 20-25% has a number of potential implications for the effectiveness of the traffic law system in dealing with the alcohol-crash problem. First, since breath-test results are important evidence in DWI cases, it follows that, depending on the provisions of the State law, the lack of such evidence could reduce conviction rates, both as a result of failure to charge and as a failure to convict given a charge. Further, useful information (i.e., a BAC) is not available to judges and sanctioning agencies such as probation departments in the process of sanctioning convicted refusers. Finally, information on the nature of the DWI threat and countermeasures for reducing it is lost to legislators in their efforts to enact effective anti-DWI laws and to provide funding for research and operations to reduce alcohol-crash losses. Thus, while many aspects of DWI Enforcement System operation have improved over the years, failure to reduce the breath-test refusal problem may have prevented the achievement of even greater improvement. Unfortunately, the magnitude of these possible negative effects is not known. (Note that there may not be a refusal "problem" in some jurisdictions where blood can be drawn after search warrants are obtained, where the offender can be charged based on the refusal or where the refusal can be introduced as evidence to prove impairment.)

[2] The study was sponsored by the National Highway Traffic Safety Administration through contract number DTNH22-02-D-75121, Task Order 0001.

APPROACH

This study was concerned with the effects of breath-test refusal on the successful prosecution and outcome of DWI-related cases. The term "successful" is taken to mean conviction of the DWI charge, and imposition of appropriate sanctions. In addition to updating refusal rates in each State, this study involved an in-depth examination of a local jurisdiction in each of five States. In each of these sites, we compared the outcome of arrests where suspects refused a breath test with those of arrested drivers who did not refuse a breath test. Where data were available, offender characteristics and variables regarding the circumstances of the arrest were taken into account when comparing the outcomes of refusers and non-refusers.

A complicating factor in the in-depth study component of this study was the very small percentage of DWI arrests for which guilt is determined in a full criminal proceeding involving a court trial. By far the majority of accused offenders simply self-adjudicate at arraignment or later in the pre-trial process by entering a guilty plea, and the effect of having or not having BAC data on conviction probability is determined by the offenders themselves in deciding whether to plea. Thus, careful accounting of those who "plead out" and those who proceeded through the full court-adjudication process had to be performed. Also, it should be mentioned that each case study jurisdiction was selected with the objective that a sufficiently large number of cases would be available to determine the effect of refusal for the small percentage of arrestees whose guilt was determined after trial.

Selecting the in-depth study States presented some other challenges. For one thing, we had to consider whether a candidate jurisdiction had a high or a low refusal rate and had characteristics or procedures that might influence refusal or compliance. For example, factors that have been found to decrease refusals include:

- A DWI arrest procedure where stopped drivers are dealt with firmly and where the implications of refusal are clearly described;
- Requiring "hard" driver license suspensions or revocations, without a provision for a restricted license except under the most extenuating of circumstances;
- Having suspensions or revocations for refusal that are substantially greater than for DWI;
- Prosecuting for DWI, as well as for refusal, when the evidence merits such prosecution; and
- Imposing criminal sanctions (including jail terms) for refusal for refusers with a past history of DWI, test refusal, or other serious traffic offenses.

Other considerations for site selection stemmed from the legal environment in the candidate jurisdiction (e.g., the existence of ALR laws and efficient procedures for operationalizing those laws); court procedures that resulted in charge reduction (including delayed judgment); and police procedures for post-arrest processing (e.g., forcing blood testing for alcohol after obtaining a warrant).

In some contrast to the case study portion of this effort, obtaining the latest statewide refusal rates presented relatively straightforward methodological considerations. Refusal rates and their components (number of test refusals and a measure of number of test requests) were obtained telephonically from people in the States known to have access to such data. These included staff of State labs responsible for performing tests and maintaining test equipment, Departments of motor vehicles (DMV) staff, and staff from various other State agencies engaged in traffic safety.

Analytic considerations involved relatively straightforward techniques. For the case studies, where data were available, refusers and compliers were matched on several offender characteristics to account for possible confounding effects on a prosecutor's decision to prosecute and on the adjudication and sanctioning of accused DWI offenders. In addition to this matching

effort, we accounted for such effects by controlling for pertinent variables in a General Linear Model in which the effects of both numeric and categorical variables are determined. Logistic regression was also used, for example, to determine the odds of DWI convictions for BAC test refusers relative to the odds of DWI convictions for test non-refusers.

REPORT ORGANIZATION

The report is organized to reflect its two major areas of inquiry:

1. The latest available Statewide refusal rates; and
2. The effect of refusal rate on the prosecution of DWI cases in five jurisdictions.

Chapter 2 covers the first area, and Chapter 3 covers the details of each of the five local case studies. A comparison of the prosecutorial impact of refusal across all of the case studies is presented in Chapter 4, and our major conclusions flowing from the overall study are contained in Chapter 5.

2 – STATEWIDE REFUSAL RATES

METHOD

Data on statewide refusal rates were obtained from an initial list of contacts from the Preusser Research Group, which had collected refusal-rate data for the period 2000-2001 and for earlier years in some States (Zwicker et al., 2005). This contact list was extremely useful in identifying several initial contacts, even though it required extensive updating because many of the contacts were no longer in their previous positions. We were seeking annual data covering the years 2002 to 2005, and because of different organizational structures and definitions in the States, we were prepared to deal with different types of data. Subsequently, we found that the most common *estimates of refusals* (the numerator in the rate calculation) were based on:

1. The number of *administrative license suspensions* recorded for failure to submit to a BAC test;
2. The number of *refusals* recorded by enforcement officers and reported to a central State lab or criminal justice information system; and
3. The number of *case filings for refusals* in States with criminal or quasi-criminal procedures for adjudicating implied consent violations.

Estimates of the *number of breath test requests* (the denominator in these calculations) were generally based on:

1. Police-reported requests for a BAC test.
2. The total number of DWI arrests (surprisingly, some States tracked refusals but did not track number of DWI arrests).
3. The number of suspensions for refusal plus the number of suspensions for an illegal BAC.
4. The total number of alcohol-related administrative suspensions; and
5. The number of DWI cases with refusal entered plus the number of cases with BAC entered.

As indicated in the introduction, data were obtained from a variety of sources, including driver licensing agencies, law enforcement agencies, safety agencies, and various components of these agencies.

Attempts were made to contact all State agencies by telephone. We attempted to contact all 50 States, DC, and Puerto Rico and ultimately obtained sufficiently usable data from 37 States, Puerto Rico, and DC.

RESULTS

The most recent rates from the 39 jurisdictions that provided data are shown in Figure 1 below. These rates (R1) varied from 1% in Puerto Rico to 81% in New Hampshire, with all but New Hampshire having a rate of 41% or less). Relevant statistics are shown in Table 1, including the *mean* rate of 20.9% and the *median* rate of 16.4%, along with 95% confidence limits of 16.0% to 25.7%. The weighted mean of the rates (based on State populations in 2005) was 20.1%.

Table 1: Selected Statistics for Breath-test Refusal Rates in 39 States, Using 2005 Data

			Statistic	Std. Error
R1	Mean		20.8718	2.3973
	95% Confidence Interval for Mean	Lower Bound	16.0188	
		Upper Bound	25.7248	
	5% Trimmed Mean		19.6746	
	Median		16.4000	
	Variance		224.132	
	Std. Deviation		14.9710	
	Minimum		1.00	
	Maximum		81.00	
	Range		80.00	
	Interquartile Range		18.1000	
	Skewness		1.814	.378
	Kurtosis		5.539	.741

Figure 1: 2005 BAC Test Refusal Rates in 39 Jurisdictions

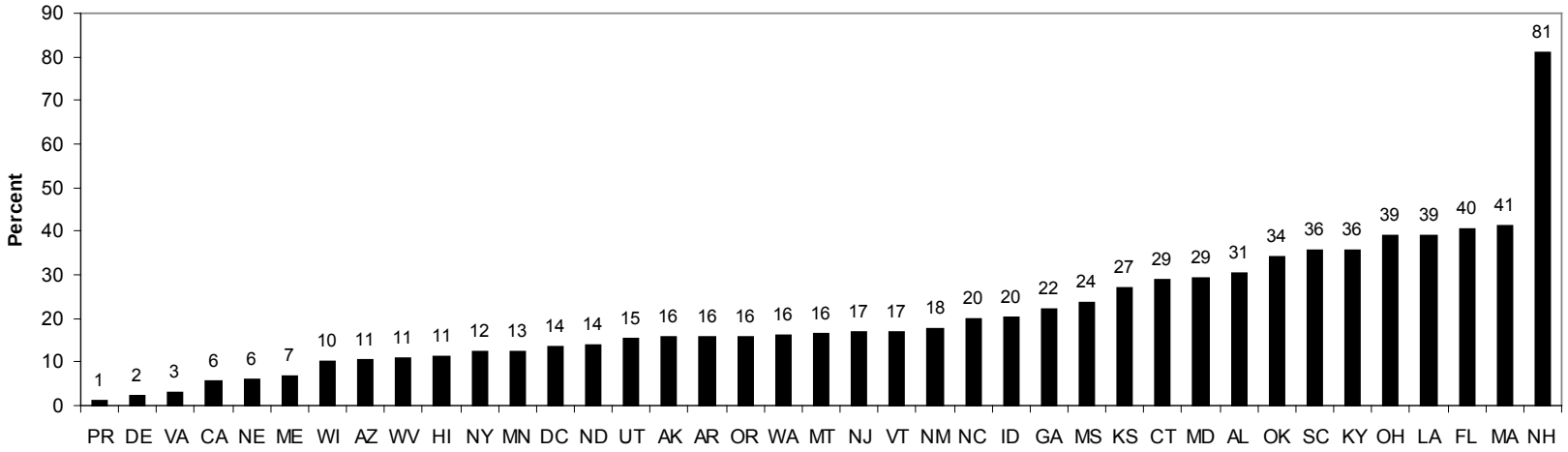


Table 2 and Figure 2 illustrate how the rates from this study compare with the rates reported in the Zwicker et al. study. Zwicker's rates were based primarily on 2001 data. All of the States that provided data for the current study are shown in Figure 2. Some States did not provide 2001 data; some States did not provide 2005 data, and some States did not provide data in either year. As Figure 2 indicates, the rates of most of the States did not change much from 2001 to 2005. Nationwide, the statistics from the current study suggest a mean refusal rate of 21%, compared with a mean rate of 25% in the earlier study

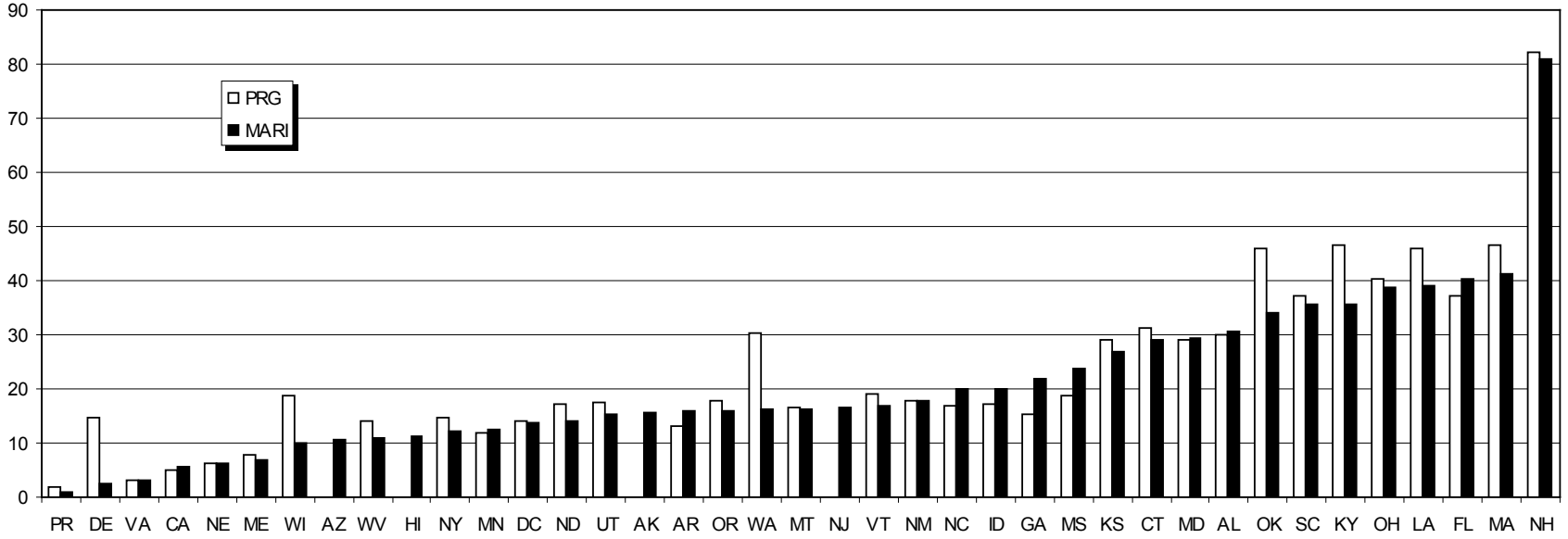
Table 2: Comparison of Refusal Rates (Percentage Refusing) From the Zwicker et al. Study (Rates Circa 2001) to 2005 Rates From This Study

STATE	2001	2005
Puerto Rico	1.9	1.0
Delaware	14.7	2.4
Virginia	-	3.0
California	5.3	5.5
Nebraska	6.2	6.1
Maine	7.8	6.7
Wisconsin	18.9	10.0
Arizona	-	10.6
West Virginia	14.0	11.0
Hawaii	9.4	11.1
New York	-	12.3
Minnesota	14.8	12.5
District of Columbia	12.0	13.6
North Dakota	14.2	14.0
Utah	17.3	15.2
Alaska	17.4	15.7
Arkansas	21.2	15.9
Oregon	13.0	15.9
Washington	17.9	16.2
Montana	30.3	16.4
New Jersey	(16.7)*	16.7
Vermont	-	17.0
New Mexico	19.0	17.8
North Carolina	17.8	20.0
Idaho	31.6	20.1
Georgia	17.0	22.0
Mississippi	17.3	23.7
Kansas	15.2	26.9
Connecticut	18.7	29.0
Maryland	29.1	29.2
Alabama	31.1	30.5
Oklahoma	38.3	34.2
South Carolina	29.9	35.6

STATE	2001	2005
Kentucky	10.2	35.6
Ohio	40.4	38.9
Louisiana	45.9	39.1
Florida	37.1	40.4
Massachusetts	(46.5)*	41.2
New Hampshire	82.3	81.0
The States below did not provide 2005 data and are not in Figure 1		
Pennsylvania	10.2	-
Michigan	12.8	-
Iowa	17.0	-
Indiana	22.5	-
Tennessee	35.5	-
Illinois	38.3	-
Texas	40.6	-
Rhode Island	84.9	-

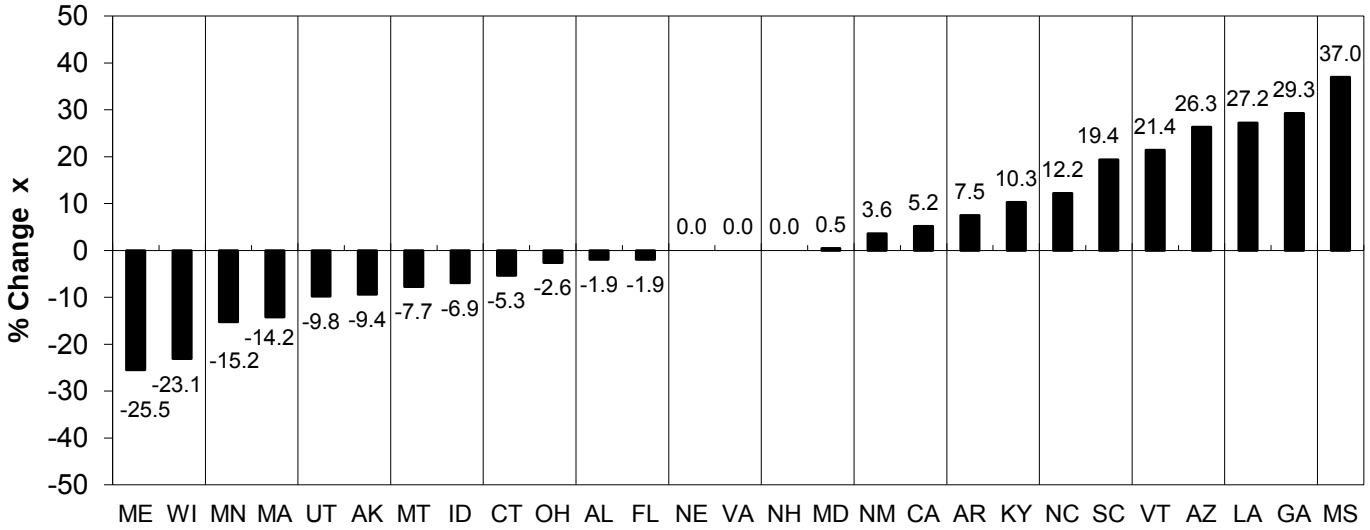
* Zwicker was not able to obtain 2001 rates from all States. For New Jersey and Massachusetts he was able to obtain 2000 rates.

Figure 2: A Graphic Comparison of 2005 Refusal Rates (Percentage Refusing) From This Study With Rates From the Zwicker Study (Rates Circa 2001)



We were also able to obtain 2002 refusal rates from a subgroup of 27 States, and compared these to their 2005 rates. The percentage changes for these States are shown in Figure 3. They ranged from a 26% decline in Maine to a 37% increase in Mississippi. Averaged across all States, however, the overall change was less than 3%, suggesting some rate stability from one time period to another. In order to understand more about potential sources of variation, we also examined changes from 2001 (using data obtained by Zwicker et al.) to 2005 rates from our study. The changes from 2001 to 2005 were generally consistent with those from 2002 to 2005[3] with regard to directionality but there were some deviations, particularly in Minnesota, Idaho, South Carolina, Vermont, and Louisiana. This suggests that at least *some* of the differences obtained by comparing the results of the two studies (shown in Figure 2) may have resulted from different data sources or different rate calculation approaches.

Figure 3: Percentage Change in Refusal Rates From 2002 to 2005 as Measured in This Study



[3] This report is presenting data both from previous NHTSA reports (i.e., Jones et al. 1991, and Zwicker et al. 2005), and new data collected under this study. Each set of researchers attempted to obtain data from all States, across several years. Unfortunately, not all States have been able to provide information, or may have had data for some years but not others. And as noted, States may not have had consistent approaches (both within a State, and across States) for computing or reporting their rates. NHTSA acknowledges that this can lead to confusion in attempting to understand differences between States and across years.

3 - PROSECUTORIAL IMPACT

This chapter addresses the second part of this study of breath-test refusal. It involved:

1. Selecting the five study jurisdictions;
2. Collecting and analyzing the information to estimate the impact of breath-test refusals on the outcome of DWI cases; and
3. Estimating or describing the resulting impact.

As indicated in Chapter 1, the term "outcome" is taken to mean the prosecution, court decisions, and court actions taken in a study jurisdiction, with regard to charging and adjudicating drivers accused of violating a DWI law, and in sentencing convicted drivers. In this chapter, both the method and the study results in each of the five study sites are presented.

METHOD

Site Selection

Requirements

In the introduction we indicated that there were several considerations that entered into the selection of a study site. They included size of the jurisdiction; likely cooperation of the jurisdiction in terms of obtaining pertinent data; (apparent) quantity, quality, and accessibility of the data sought; characteristics and attributes of the data and the environment; estimated refusal rate; and geographical location of the jurisdiction. We wanted the study sites to include a range of refusal rates (i.e., low, medium, and higher rates) and we wanted geographic dispersion across the United States. The following provides information sought in each potential site:

Size - The study jurisdiction had to be large enough to generate enough refusals to support an analysis of the differential effect of *refusal* and *compliance* on the various dependent variables of interest (decision to prosecute, conviction rate, sanction severity, etc.). At the outset of the study, NHTSA indicated a desire to obtain information from approximately 2,000 arrestees at each study location. Ideally, half of these would be refusers and half would be compliers.

Cooperation – One of the most important considerations was that there were contacts within the jurisdiction that demonstrated a willingness to cooperate with us in obtaining the relevant data, either by helping us gain access to the data files or by directing us to other contacts within the system that could do so (e.g., Court Clerk or Administrator, a trial judge, DMV system contacts, and prosecution or law enforcement officials).

Data – The ability to provide access to needed data presumes of course that such data exist in a useful and accessible form. This is especially true for court data which was necessary for tracking defendants though the major functional areas of adjudication and sanctioning. In addition, it was highly desirable that records were computerized for the trial courts that handle DWI cases or at least that hard copy records were available that could be used to follow individual defendants through the trial process.

Range of Attributes

We selected sites to provide a *range* of values on two important attributes - *refusal rate* and *geographical l*ocation -- as follows:

Refusal rate – Inclusion of States with rates ranging from a low of less than 10% to a high of more than 35%.

Location – Initially, we sought to include jurisdictions from the Northeast, Southeast, Midwest, Southwest, and Northwest. Following initial calls, however, we obtained States from the mid-Atlantic region (Maryland); the upper and central Midwest (Minnesota and Nebraska, respectively); the southwest (New Mexico); and the northwest (Washington). These selections were dictated primarily by the expressed cooperation of contacts within the selected States and the prospect of data availability.

Environmental Factors

Two types of site environmental attributes also were of concern in site selection:

(1) The existence of laws that could affect a prosecutor's perception of the likelihood of obtaining a conviction, the actual probability of conviction, and the sanctions imposed given a conviction; and
(2) Non-statutory stipulated operational practices.

Site Selection Process

Our site selection process started with our preparing a list of promising candidate jurisdictions determined from information provided by the State-level personnel that we came into contact with (in some cases, while updating the refusal rates data) and from information obtained from NHTSA headquarters and regional offices, professional colleagues, and alcohol impaired driving practitioners. Initial telephone and e-mail contacts with individuals in these candidate jurisdictions were then made. Detailed data requirements and other site-selection considerations were described in these discussions (starting with the primary prosecutorial contact), and contacts were queried on their jurisdiction's ability to meet those requirements. Each contact was asked if there were other contacts in the State that could provide pertinent information.

The candidate jurisdictions were then ranked on their scores in meeting the site selection criteria and the five sites with the highest scores were then visited or called again by the principal investigator to confirm availability of essential data. A final list of recommended sites was then given to NHTSA for approval.

Impact Analysis

Ultimately, the following sites were selected for analysis:

- Ramsey County, Minnesota;
- Bernalillo County, New Mexico;
- Omaha, Nebraska;
- Montgomery County, Maryland; and
- King County, Washington.

Detailed planning of the collection and analysis of the impact data occurred after the sites were selected. This was necessary in order to prepare a practical working plan tailored to the organization and capabilities of each jurisdiction. The plan required interaction with site personnel, particularly those from the prosecutorial agency, but also those from law enforcement, judicial, and data management organizations. Primary analyses to be performed for each jurisdiction included the following:

- Prosecution (yes/no), as a function of BAC test refusal (yes/no), as a function of relevant demographics (yes/no);
- DWI conviction (yes/no) as a function of BAC test refusal (yes/no) as a function of relevant demographics (yes/no);
- Sanctions (type 1, type 2, … type N) as a function of BAC test refusal (yes/no) as a function of relevant demographics; and
- Sanction Severity (1, 2, … N) as a function of BAC test refusal (yes/no), as a function of demographics.

Wherever possible, significance tests for each of these analyses were performed. In addition to these primary analyses, we performed a series of secondary analyses for each jurisdiction (where data were available). For each of the above outcome variables, we developed models with BAC test refusal (yes/no) as the primary independent variable and variables representing offender characteristics and situational factors (listed above) introduced as covariates. This allowed the effects of variables such as arrestee sex and age to be determined for any combination of values of all the other variables, including whether or not a test was taken or refused. General linear models and logistic regression models were selected for these quantitative analyses.

We also performed a series of analyses across the study jurisdictions, including the effect of high-BAC laws on the four above outcome variables. Finally, we added the covariate "jurisdiction" to our models to see if it had any significant effect on the outcome variables.

Data analysis results were possibly affected by the nature of a jurisdiction's DWI enforcement operations and the environment of those operations (e.g., the level of enforcement in these jurisdictions) but a detailed description of DWI enforcement operations, operational environment, and other possible confounding factors was beyond the scope of this study. In this regard, however, relevant factors were involved in selecting study jurisdictions. They included: (1) the existence of laws that could affect a prosecutor's perception of the likelihood of obtaining a conviction, the actual probability of conviction if available, and the sanctions imposed given a conviction; and (2) statutory and non-statutory stipulated operational practices.

The remainder of this chapter provides a discussion of the results of the five case studies that were selected. Each site study is discussed separately with respect to its operating environment and the effect of breath-test refusal on criminal DWI convictions and jail sentences.

CASE STUDY 1 – RAMSEY COUNTY, MINNESOTA

Operating Environment

Ramsey County, Minnesota is located in the southeast corner of the State next to the Mississippi river. It includes the city of St. Paul, which is the capital of Minnesota and is separated from Minneapolis (in Hennepin County) by the Mississippi River. The population of Ramsey County in 2006 was estimated at 493,215 by the Census Bureau. St. Paul makes up approximately 57% of the county population.

In Minnesota, the criminal penalties for a first-time conviction of DWI or refusal were 24 hours to 90 days in jail, up to a $1,000 fine (plus license reinstatement fee); and a 90-day license withdrawal (reducible to 30 days for a first time offender). Multiple offenders can receive up to 7 years imprisonment (on a 4th offense) and up to a $14,000 fine (on a 4th offense). Second offenders can receive up to one year in jail and a $3,000 fine, plus a minimum 180 days license withdrawal. For third-time offenders, there is a minimum of one year in jail and up to a $3,000 fine, plus a minimum 1-year license withdrawal (with no allowance for a work permit). Administrative penalties also apply as well as additional penalties for aggravating conditions such as high BACs (.20 or greater), being under age 21, and the presence of a child under 16.

Minnesota had a BAC test refusal rate of 13% in 2005, compared with an average of 20% for the country as a whole. FARS[4] data show that 31% of Minnesota's fatal crashes in 2005 involved drivers with a BACs of .08 or higher and that 20% of drivers in fatal crashes had BACs of .08 or higher.

In Minnesota, refusal to submit to a BAC test is a criminal offense with the same legal consequences as the criminal offense of DWI, including sanctions and entry of a criminal conviction into the driver's Driver and Vehicle Safety (DVS) record. A driver may be convicted of *both* the criminal offense of DWI and the criminal offense of test refusal emanating from the same incident. Further, under the State's Administrative License Revocation (ALR) law, a Minnesota driver is guilty of an administrative law violation if it can be shown that (1) his or her BAC was .08 g/dL or higher (illegal per se law); *or* (2) the driver refused to submit to a BAC test (implied consent law).

DWI enforcement in Ramsey County is performed by municipal, county, and State law enforcement agencies. State-provided data indicated that these agencies made 31,966 DWI arrests in Ramsey County over the years from 1995 through 2006, or about 3,000 per year. These data also indicated that those violations were committed by 28,223 people who had a total of 59,935 impaired driving arrests on their State records. Just over half of all of these arrests were made in Ramsey County.

The Ramsey County Attorney's Office is responsible for prosecuting all adult DWI felonies in the county. DWI misdemeanors in St. Paul are prosecuted by the City Attorney's Office. A *Trial-Unit* Team of the City Attorney's Office charges and prosecutes non-domestic misdemeanor and gross misdemeanor level offenses, including DWI cases, which occur within the City of St. Paul.

Refusal and DWI cases are adjudicated and sanctions are imposed by the Second Judicial District Court (Ramsey County) of the Minnesota State Court System. The Ramsey County District Court is a unified trial court with general jurisdiction to hear all types of civil and criminal cases. The Court has a total of 29 judges, four referees and two magistrates. Judges can hear any criminal or civil matter brought before them, so they are assigned to various calendars as

[4] NHTSA's Fatality Analysis Reporting System (FARS) is a census of traffic crashes within the 50 States, the District of Columba, and Puerto Rico. To be included in FARS, a crash must involve a motor vehicle traveling on a trafficway customarily open to the public, and result in the death of a person (occupant of a vehicle or a non-occupant) within 30 days.

determined by the Chief Judge who has the authority to assign judges and referees. The main courthouse is located in downtown St. Paul and a suburban court site is located in Maplewood. The Criminal and Traffic Division handles the processing of all criminal citations, including those for DWI and BAC test refusal.

Convictions

Some of the most complete information regarding refusals, convictions, and outcomes were available from this site. According to the prosecutors interviewed, if the conditions surrounding the suspected violation are the same (*except for test refusal or non-refusal)* the decision regarding whether to *prosecute* (for either impaired driving or for test refusal) is virtually always independent of the driver's refusing or not refusing a BAC test. Refusals are prosecuted for the refusal, and also may be prosecuted for the DWI.

The State's DWI law allows a *first-time offender* who has been convicted of refusal to "turn around" an administrative revocation of 90 days to 30 days for a criminal conviction of DWI. The offender does this by pleading guilty to DWI *after* being convicted of refusal.

Since the legal consequences of conviction of a criminal refusal are the same as those of a criminal conviction of DWI, the following analysis of DWI convictions re-defines a conviction of DWI as a criminal conviction of impaired driving *or* as a conviction of test refusal, or both.

To obtain a sufficient number of cases, three years of driver records data were obtained from the Minnesota Department of Vehicle Services. The records indicated the outcomes of all impaired driving stops and arrests in Ramsey County for the years 2003, 2004, and 2005. We were aware of no significant changes in the pertinent legal environment that might confound the outcome of concern that occurred during those years. The outcome of concern was criminal convictions of DWI (or refusal) as defined above as influenced by test refusal and non-refusal and several other factors.

All in all, there were 7,366 arrests for impaired driving in Ramsey County during these three years, and 1,371 of these arrests resulted in a conviction for criminal test refusal. Refusers had a criminal conviction rate of 86.3%, compared to 80.3% for non-refusers. This difference was highly significant ($p<0.0001$[5]).

The higher conviction rate for refusers than for compliers may reflect the fact that the criminal law permits an administrative license withdrawal to be reduced for pleading guilty to a DWI charge. For this reason, some prosecutors indicated the law may encourage some violators to refuse the test; be charged and convicted for the refusal; and then, if necessary, plead guilty to DWI in order to receive the reduced license revocation. However, as will be shown, refusers consistently received more severe sanctions than non-refusers.

As shown in Table 3, the refusers were slightly older (34 versus 32), slightly more frequently male (81% versus 78%), and much more likely to have a prior DWI (54% versus 35%). All of these characteristics were statistically significant.

[5]. This indicates that the probability that the finding occurred by chance is less than 1 in a 1,000.

Table 3: Characteristics of Convicted Test Refusers and Non-Refusers in Ramsey County

	Refusers	Non-Refusers	P
All Arrestees	1,371	5,995	--
Mean Age	34	32	0.0001
Sex			
Female	19%	22%	0.0200
Male	81%	78%	
Priors			
Yes	54%	35%	0.0001
No	46%	65%	

Conviction Rates

We examined the effect of these three characteristics (age, sex, and number of priors) on conviction rate. Using a binary logistic regression model with criminal conviction ("yes" or "no") as the dependant variable, we included "refusal" ("yes" or "no") as a fourth covariate. Table 4 shows the odds ratio for conviction, along with 95% confidence intervals, for each covariate in the presence of the other three covariates. It indicates that having a refusal, having a prior, or being a male all increase the odds of conviction.

Using refusers as an example, the odds ratio shown in Table 4 is 1.433. It represents the odds of conviction for refusers (i.e., the number of convictions/the number of non-convictions) divided by the odds of conviction for non-refusers. Thus, in Ramsey County, the odds of conviction are 43% greater for refusers than for non-refusers (with a 95% confidence interval of 31% to 57%).

The odds ratio for offenders with prior offenses, compared with first offenders, is 1.505, even greater than that for refusers versus non-refusers. The male/female ratio is 1.22 and the younger/older offender ratio for age is 1.016, suggesting that the odds of being convicted of DWI increases by 1.6% for every year of age. Each of these outcomes was highly significant.

We also compared these results with those obtained by matching refusers and non-refusers on age, sex, and priors using a Propensity Score Matching method (Rosenbaum & Rubin, 1983) and obtained essentially the same result.

Table 4: Effect of Covariates on the Odds of DWI Conviction in Ramsey County

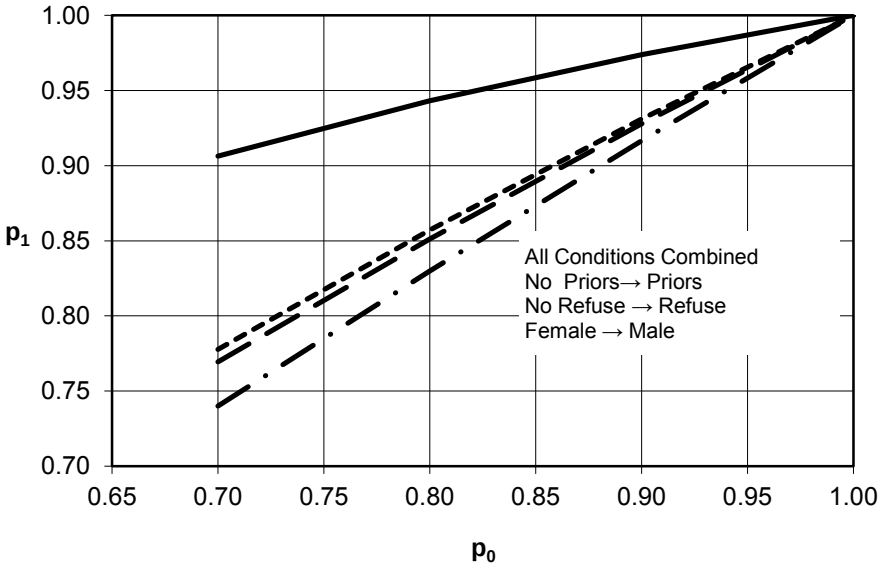
Covariate	Odds Ratio	Odds Ratio Definition	95% C.I.	
			Lower	Upper
Refusal	1.433	Refusal / No Refusal	1.306	1.572
Priors	1.503	Priors / No Priors	1.391	1.628
Sex	1.222	Male / Female	1.066	1.402
Age	1.016	N+1 years / N years	1.011	1.021

Figure 4 shows the effect of (binary) change in each of three covariates on the probability of conviction. Each line in Figure 4 shows the (resulting) P_1 value on the Y-axis for a (baseline) P_0 value on the X-axis, following the change of a variable from the "non-aggravated" condition (for example, non-refusal) to the aggravated condition (i.e., refusal). Thus, the difference between the two probabilities (P_0 and P_1 represents the *change in probability of conviction* associated with the change in that covariate from one condition (i.e. "non-aggravated") to its alternative condition (i.e., "aggravated").

Here again, we use the *refusal* covariate to explain this figure. The probability of conviction associated with compliance (P_0), which is the "*baseline*" or "*unaggravated*" condition, is arrayed from left to right along the X-axis and the probability of conviction associated with a refusal (P_1), which is the *"aggravated"* condition, is arrayed from bottom to top along the Y-axis. If the conviction probability for a test-compliant offender (P_0) is 0.80, then the probability of a conviction for a refuser (P_1) is 0.85, as represented by the value of the "*No Refuse → Refuse*" line at $P_0 = 0.80$. Thus, based on this difference, the probability of a conviction for a refuser is 0.05 greater than the probability for a non-refuser. If the conviction probability for a *compliant* offender is 0.90, the probability of conviction for a refuser is about 0.95, again representing an absolute increase of about 0.05.

Similarly a change in the status of the *prior conviction* covariate from "no priors" to "priors" increases the conviction probability from p_0= 0.80 to p_1=0.86, an increase of 0.06. Finally, if the probability of a conviction for a female offender (P_0) is 0.80, the probability for a male offender (P_1) is 0.83. Smaller increases in conviction probability occur at higher initial conviction rates, and larger increases occur at lower rates.

Figure 4: Effect of Changes in Three Bi-Variate Covariates on DWI Conviction Probability, in Ramsey County



None of these covariates has a really large effect on its own on the changed DWI conviction rate, with each increasing conviction probability by just a few percentage points from its *unaggravated* state. However, the impact of all three covariates together (top line) is substantial. This line represents the (P_1) probability of conviction when the *aggravated* state of all three covariates is in play (i.e., when a male offender with a prior alcohol-related driving conviction refuses a breath test). Here, if the *unaggravated* conviction probability (P_0) is 0.80, the probability increases to about 0.94 under the *aggravated* condition (P_1), an absolute increase of 0.14 and a relative increase of 18%.

Sentences

Records of sanctions imposed on convicted arrestees were obtained from the State Court Administrator's Office, which keeps a computerized database of these sentences.[6] Records regarding the original alcohol-related charge and any reduced charge were available for Ramsey County. Types of charges included DWI, refusal, careless driving[7], and other (e.g., including disturbing the peace).

First we examined the relationship between refusal and sanctions imposed (i.e., jail and fine) in the presence of other variables. In order to control for differences in offender characteristics, we constructed a multivariate general linear model of jail and fine versus offender age, sex, and charge (DWI and refusal). Overall, this model estimated that offenders received an average of 31 days of jail[8] and an average fine of $758.[9] The average age of offenders was 33.6 years (Table 5). The jail sentences were higher than might be expected because the analysis included the sentences for both refusers and non-refusers (see Table 6)

Table 5: Mean Jail Sentences and Fines (Multivariate), Ramsey County

			95% Confidence Interval	
Dependent Variable	Mean	Std. Error	Lower Bound	Upper Bound
JAIL	31.183[a]	1.508	28.227	34.138
FINE	758.011[a]	33.001	693.320	822.701

a. Evaluated at covariates appeared in the model: AGE = 33.61.

Table 6 provides additional results from this multivariate model. It shows that both jail and fines were more severe for those charged with test refusal than for those charged with DWI. In addition, sentences were more severe for males than for females and for older offenders than for younger offenders ($p < 0.0001$ in all cases).

[6] The Minnesota Court Information System is replacing the existing statewide Total Court Information System, originally designed in the early 1980s.
[7] Reckless driving is included here in the careless driving category.
[8] Minnesota law stipulates up to 90 days for first and second offenders and 1 year for third time offenders.
[9] Minnesota law stipulates up to $1,000 fine for first offenders and up to a $14,000 fine for multiple offenders.

Table 6: Multivariate Parameter Estimates for Sentences in Ramsey County

Dependent Variable	Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
JAIL	[CHARGE=DWI]	9.131	1.728	5.284	.000	5.743	12.519
	[CHARGE=REF]	41.888	2.522	16.607	.000	36.944	46.833
	[SEX=F]	-6.496	1.265	-5.135	.000	-8.976	-4.016
	[SEX=M]	0[a]	.	.	.	.	.
	AGE	.396	.048	8.190	.000	.301	.491
FINE	[CHARGE=DWI]	633.538	37.784	16.768	.000	559.472	707.605
	[CHARGE=REF]	896.215	55.147	16.251	.000	788.113	1004.317
	[SEX=F]	-151.951	27.657	-5.494	.000	-206.166	-97.736
	[SEX=M]	0[a]	.	.	.	.	.
	AGE	6.232	1.057	5.893	.000	4.159	8.305

a. This parameter is set to zero because it is redundant.

Table 7 provides a summary of raw data regarding jail and fine parameters for several charge categories.[10] It shows how the mean jail sentence (in days) and mean fine (in dollars) varied among these various categories. Of particular interest are the averages for DWI charges and for BAC refusal charges. These data indicate that offenders charged with refusal received 160% longer mean jail sentences and 38% larger mean fines than those charged with DWI, even though the law specifies the same sentencing (limits) for both offenses. A one-way analysis of variance showed that differences in the jail and fine means were significant with respect to charge at the 0.0001 level (Table 8).

In summary of the Ramsey County findings, test refusers had a higher probability of being convicted than test compliers. Convictions among refusers were for refusal, DWI, or both. Sources interviewed felt that the ability of refusers to reduce the administrative license withdrawal period by pleading guilty to DWI *after being convicted on the refusal c*harge was an incentive for both the refusal itself and for pleading guilty after refusing. All of the factors involved in this process which resulted in a higher conviction rate for refusers are not known, at least not from the information and data provided to us. However, it is clear that refusal, as well as number of prior offenses and gender, were positively associated with conviction rates and that, based upon the data provided to us, refusers received significantly more severe jail and fine sanctions than non-refusers.

[10] These results are not from the multivariate model.

Table 7: Characteristics of Jail and Fine Sentences, Ramsey County, Raw Data

CHARGE		JAIL	FINE
CARELESS DRIVING	Mean	1.64	156.82
	N	254	262
	Std. Deviation	4.51	176.89
	Minimum	0	0
	Maximum	30	950
	Range	30	950
	Median	1.00	150.00
DWI	Mean	20.57	793.51
	N	7213	7349
	Std. Deviation	40.31	987.80
	Minimum	0	0
	Maximum	365	4800
	Range	365	4800
	Median	2.00	250.00
OTHER	Mean	8.98	446.35
	N	54	54
	Std. Deviation	16.70	830.70
	Minimum	0	0
	Maximum	90	2965
	Range	90	2965
	Median	1.00	125.00
REFUSAL	Mean	54.99	1098.74
	N	659	670
	Std. Deviation	85.81	1136.51
	Minimum	0	0
	Maximum	365	3200
	Range	365	3200
	Median	30.00	800.00
Total	Mean	22.67	795.66
	N	8185	8340
	Std. Deviation	46.15	995.30
	Minimum	0	0
	Maximum	365	4800
	Range	365	4800
	Median	2.00	250.00

Table 8: Analysis of Variance Results, Ramsey County

			Sum of Squares	df	Mean Square	F	Sig.
JAIL*CHARGE	Between Groups	(Combined)	843657.7	4	210914.428	104.023	.000
	Within Groups		16585599	8180	2027.579		
	Total		17429256	8184			
FINE * CHARGE	Between Groups	(Combined)	1.75E+08	4	43828116.18	45.180	.000
	Within Groups		8.09E+09	8335	970072.851		
	Total		8.26E+09	8339			

CASE STUDY 2 – BERNALILLO COUNTY, NEW MEXICO

Operating Environment

Bernalillo County, New Mexico, includes Albuquerque. The population of the county in 2006 was estimated at 615,099 by the Census Bureau. It contains 31% of the population of New Mexico, and Albuquerque makes up approximately 77% of the population of the county. Forty-four percent of county's residents are of Hispanic or Latino origin, and 5% are Native American. New Mexico had a BAC test refusal rate of 18% in 2005, slightly lower than the 20% rate for the country as a whole. FARS data show that 21% of New Mexico's fatal crashes in 2005 involved drivers with BACs of .08 or higher and that 31% of drivers killed in fatal crashes had BACs of .08 or higher.

DWI is a criminal violation in New Mexico but BAC test refusal is an administrative matter handled under the implied consent law. A New Mexico driver is guilty of an *administrative law violation* if can be shown that (1) his or her BAC was .08 or higher while in control of a motor vehicle (administrative license revocation law) or (2) he or she refused to submit to a BAC test (implied consent law).

At the time of this study, the court-imposed penalties in New Mexico for a first-time conviction on a DWI charge include a maximum fine of $500, up to 90 days jail, and a 1-year license revocation. Other penalties, including administrative license revocation, community service, ignition interlock license, screening and treatment, may also apply (at all levels). For a second offense, New Mexico statutes provide for a fine of $500 to $1,000 (minimum/maximum), from 96 hours to 364 days in jail (minimum/maximum), and a 2-year license revocation. Additional administrative and criminal sanctions and options may apply as well, including screening, treatment, community service, interlock license and the possibility of an extra 7 days in jail if an offender fails to comply with his sentence). For a third offense, the statute calls for a fine of $750 to $1,000 (minimum/maximum), from 30 to 364 days in jail (minimum/maximum), and a 3-year license revocation. Again, this and all subsequent levels of offense may also include additional requirements/options, including alcohol screening and assessment, participation in treatment programs, installation of an ignition interlock, and community service.

As with other large U.S. counties, DWI enforcement in Bernalillo County is performed by a combination of municipal, county, and State law enforcement agencies. State data indicate that these agencies made 12,522 arrests in Bernalillo County from 2003 through 2005, or roughly 4,174 per year. The District Attorney for the Second Judicial District is the prosecuting attorney for felony DWIs in Bernalillo County. Misdemeanor DWIs are prosecuted by the Albuquerque City Attorney.

DWI cases are adjudicated and sanctions are imposed by two court systems within the County. The *Metropolitan Court* handles most DWI cases and is said to be the busiest court in the State. It operates as a combined magistrate and municipal court and is the only *Metropolitan Court* in the State. DWI cases and other criminal cases are heard by a total of 13 judges. Aggravated DWI cases and cases involving drivers with two or more priors are frequently filed in *Second District State Court,* as are DWI appeals from the Metropolitan Court.

Conviction Rates

New Mexico reported having a DWI tracking system for drivers arrested for the criminal offense of DWI or for an ALR violation. The system is maintained by the University of New Mexico (UNM) under a contract with the New Mexico Traffic Safety Bureau. It tracks arrested drivers until case disposition, recording charged offenses, convictions, and sanctions. UNM

provided us with records for the 12,522 drivers arrested in Bernalillo County in the years 2003, 2004, and 2005 for our analysis. Conviction data for the 10,099 drivers whose cases were disposed by a court are shown in Table 9. Looking at the "Convict/Yes" column of Table 9, DWI conviction rates were essentially the same for non-refusers (see "Refuse/No/% within Refuse" row) and refusers (see "Refuse/Yes/% within Refuse" row). The percentages were 66.1% and 64.5%, respectively. This difference was not significant [(X^2 (1, N = 10,099) = 1.392; p=0.238)].

Table 9: Raw Conviction Rates, Bernalillo County

			CONVICT		
			NO	YES	Total
REFUSE	NO	Count	3025	5498	8523
		% within REFUSE	35.5%	64.5%	100.0%
		% within CONVICT	85.0%	84.1%	84.4%
	YES	Count	535	1041	1576
		% within REFUSE	33.9%	66.1%	100.0%
		% within CONVICT	15.0%	15.9%	15.6%
Total		Count	3560	6539	10099
		% within REFUSE	35.3%	64.7%	100.0%
		% within CONVICT	100.0%	100.0%	100.0%

The data and percentages in Table 9 indicate that:

- Looking at row percentages, 35.5% of offenders who *did not refuse* a breath test *were not convicted* (i.e., 35.5% of the "% within REFUSE" row under the "NO REFUSE" category), while 33.9% of those who *refused* a breath test were *not convicted,* and
- As described above, the (Convict/Yes) column percentages show that 64.5% of offenders who complied (i.e., *did not refuse* a breath test) were *convicted and* 66.1% of *offenders who did not comply (i.e. refused a breath test)* were *convicted.*

Looked at another way:

- Eighty-five percent of 3,560 offenders who were *not convicted* were *compliers and* 15.0% were *refusers (see "Convict/No" column);* 84.1% of 6,539 offenders who *were convicted* were *compliers and* 15.9% were *refusers (see "Convict/Yes" column).*

As in Ramsey County, we had sufficient data to compute the effect of driver age, sex, having a prior DWI, and test refusal on the conviction rate in Bernalillo County. To do this, we used a binary logistic regression model with the dependent variable equal to either "convicted" or "not convicted."

Table 10 shows the odds ratio of being convicted for each covariate, in the presence of the other three covariates. Also shown is the 95% confidence interval for each odds ratio. The *odds ratio* of conviction for the covariate "*Priors"* is calculated as the *odds* of conviction for drivers with priors divided by the *odds* of conviction for drivers with no priors (i.e., first offenders). Likewise, the odds ratio of conviction for the "*Sex"* covariate is calculated as the odds of conviction for males divided by the odds of conviction for females, etc.[11] The effects of "*priors*" and of "*age*"

[11] Here again, the *odds* represent the probability (p) of conviction for a particular group (e.g., refusers) divided by the probability of no conviction (1-p) for that group (i.e., odds = $p_{conviction}/(1-p_{conviction})$). The

on conviction are positive and statistically significant at the 0.001 level; the effect of "*sex*" on convictions is also positive and significant at the 0.004 level. The effect of "*test refusal*" is not significant (p=0.611).

Table 10: Effect of Selected Covariates on the Odds Ratio of DWI Conviction, Bernalillo County

Covariate	Odds Ratio	Odds Ratio Definition	95% C.I.	
			Lower	Upper
Priors	1.217	Priors / No Priors	1.115	1.328
Sex	1.129	Male / Female	1.039	1.217
Age	1.012	N+1 Years / N Years	1.010	1.129
Refusal	1.031	Refusal / No Refusal	0.918	1.157

Sentences

In Bernalillo County, we also had sufficient data to examine the characteristics of fines and jail sentences received by refusers and non-refusers. Table 11 shows the raw data for this comparison, indicating that offenders as a whole received a mean 26-day jail sentence and a mean $55 fine. A comparison of raw data for refusers and compliers showed that refusers received higher fines than compliers ($74 versus $52) and longer jail sentences (42 days versus 21 days). A multivariate model, using jail and fine as dependent variables, indicated slightly more severe jail sentences and higher fines for the subjects as a whole. Table 12 contains the results of the multivariate analysis. It shows an average jail sentence of nearly 30 days and an average fine of $57, compared with the average of 26 days and $55 shown in Table 11 (from the raw data analysis).

conviction-related *odds ratio* represents the *odds* of conviction for one group (e.g. refusers) divided by the *odds* for a dichotomous group (e.g., non-refusers or compliers). Thus the *conviction-related* odds ratio for refusers and compliers would be $odds_{refusers}/odds_{compliers} = (p_{refusers}/(1-p_{refusers}))/ (p_{compliers}/(1-p_{compliers}))$. The *odds ratio* (1.031) shown for this comparison means that conviction is only slightly more likely among refusers than among non-refusers, a non-significant difference in this case. The odds ratio of 1.29 for the male/female comparison indicates a significantly greater likelihood of conviction among males than among females.

Table 11: Raw DWI Sentence Data in Bernalillo County

REFUSE		Jail Sentence	Fine
No	Mean	23.24	$51.6062
	N	10414	10414
	Std. Deviation	78.28	$187.9931
	Minimum	0	$.00
	Maximum	2042	$5,000.00
	Range	2042	$5,000.00
	Median	.00	$.0000
Yes	Mean	41.58	$73.8786
	N	2108	2108
	Std. Deviation	136.83	$260.3962
	Minimum	0	$.00
	Maximum	3285	$5,000.00
	Range	3285	$5,000.00
	Median	.00	$.0000
Total	Mean	26.33	$55.3556
	N	12522	12522
	Std. Deviation	91.07	$202.1660
	Minimum	0	$.00
	Maximum	3285	$5,000.00
	Range	3285	$5,000.00
	Median	.00	$.0000

Table 12: Modeled DWI Sentences in Bernalillo County for All Subjects

			95% Confidence Interval	
Sentence	Mean	Std. Error	Lower Bound	Upper Bound
JAIL	29.668[a]	1.198	27.320	32.016
FINE	57.034[a]	2.666	51.809	62.259

Just as in the comparison of raw data, the inclusion of refusal/non-refusal as an independent variable in this multivariate model resulted in *longer mean jail sentences and higher mean fines for refusers* ($p < 0.001$ in both cases). Table 13 shows that a refusal results in average jail time increasing from about 22 days for compliers to about 37 days (rounded) for refusers. The average fine increases from about $49 for compliers to about $65 for refusers.

Table 13: Modeled DWI Sentences in Bernalillo County for Refusers and Non-Refusers

Sentence	REFUSE	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
JAIL	No	21.855[a]	1.001	19.894	23.817
	Yes	37.480[a]	2.064	33.434	41.527
FINE	No	48.644[a]	2.227	44.278	53.009
	Yes	65.425[a]	4.594	56.420	74.430

a. Evaluated at covariates appeared in the model: AGE = 31.93.

The average jail sentence for the overall group was well within the limits prescribed by the statutes (i.e., up to 90 days for first offenders; mandatory 96 consecutive hours and up to 364 days for second offenders; and mandatory 30 days and up to 364 days for third offenders).

However, the average fine was low when compared with the limits prescribed by the law (i.e., up to $500 for a first offense; up to $1,000 for second offense (mandatory $500); and up to $1,000 for third offense (mandatory $750). Admittedly, the majority of cases would be expected to involve first time offenders and only maximum fines were prescribed. Economic factors related to this group of offenders' ability to pay is another possibility for the lower than expected fines.

Crash Involvement

The data provided to us for Bernalillo County included information on whether refusal or non-refusal occurred after a crash, as opposed to after a traffic stop. Table 14 provides a cross-tabulation of that data indicating that a refusal was more likely than a non-refusal after a crash (21% vs. 16%, $p < 0.0001$). These results can be found in the 6th data row in Table 14

Table 14: Drivers by Test Refusal and Crash Involvement in Bernalillo County

			CRASH			
			Missing	No	Yes	Total
REFUSE	No	Count	163	8849	1402	10414
		% within REFUSE	1.6%	85.0%	13.5%	100.0%
		% within CRASH	87.6%	83.7%	79.3%	83.2%
	Yes	Count	23	1718	367	2108
		% within REFUSE	1.1%	81.5%	17.4%	100.0%
		% within CRASH	12.4%	16.3%	20.7%	16.8%
Total		Count	186	10567	1769	12522
		% within REFUSE	1.5%	84.4%	14.1%	100.0%
		% within CRASH	100.0%	100.0%	100.0%	100.0%

Table 14 summarizes refusals and compliance with breath-test requests in no-crash and crash situations. With missing data included in denominators, the following statements describe the relationship between no-crash and crash situations and refusal to comply with breath tests.

- Overall, 1,769 arrests (14.1%) resulted from crash-involved situations (1,769 arrests out of 12,522 total arrests made) and 10,567 arrests (84%) resulted from situations when no crash was involved (10,567 arrests in no crash situations out of 12,522 total arrests).

- When no crash was involved, 16.3% of all arrests involved a refusal (1,718 refusals out of 10,567 arrests).
- When a crash was involved, 20.7% of all arrests involved a refusal (367 refusals in conjunction with 1,769 arrests).
- Alternatively, when no crash was involved, 83.7% of offenders complied with a request to take a chemical test and, when a crash was involved, about 79.3% complied.

In summary, New Mexico had a refusal rate of about 18% and conviction rates for refusers and compliers were very similar (66% and 64%, respectively). Refusals were more common in crash situations (21%) than in non-crash situations (16%) and this difference was highly significant ($X^2 = 21.73$; $p < 0.0001$; $df = 2$). As in Ramsey County, refusers received harsher penalties than compliers. Jail sentences averaged about 37 days for refusers, compared with 22 days for compliers; and fines averaged $65 for refusers, compared with $47 for compliers. While the jail sentences are well within the statutory guidelines, the fines, as calculated from our database, appear quite low.

CASE STUDY 3 – OMAHA, NEBRASKA

Operating Environment

Omaha, Nebraska, constitutes a major part of the Omaha/Council Bluffs (Iowa) metropolitan area. The population of Omaha in 2006 was estimated to be 404,267 (Census Bureau), accounting for 23% of the population of the State and 82% of the population of Douglas County. Nine percent of county population is of Hispanic or Latino origin; less than 1% is Native American.

In Nebraska, the mandatory penalties for a first offense *Driving Under the Influence* (DUI) offense include 7 to 60 days in jail (minimum to maximum); a fine of $400 to $500 (minimum to maximum); and a 6-month license revocation. The license revocation period and fine can be reduced to 60 days and $400 (respectively) if the offender is placed on probation. For a second offense, Nebraska statutes provide for 30-90 days in jail (minimum/maximum), a fine of $500, and a 1-year license suspension. Jail time can be reduced to 10 days or 240 hours of community service, if the offender is placed on probation. For a third DUI offense, Nebraska law calls for 90 days to 1 year in jail (minimum/maximum), a $600 fine, and a 15-year license revocation. Jail time and license revocation can be reduced (to 30 days and 2 years, respectively), if the offender is placed on probation. Further enhanced penalties are provided for subsequent offenses. Nebraska law (article 60.16, 197.03) provides for virtually identical penalties for conviction on DUI or refusal.

Overall, Nebraska had a BAC test refusal rate of 6% in 2005, among the lowest of any the States from which we received data. FARS data indicated that 19% of Nebraska's 2005 fatal crashes involved drivers with BACs ≥ .08 and that 25% of drivers killed had BACs ≥ .08.

In Omaha, DWI laws are enforced by the Omaha Police Department (OPD), by the Douglas County Sheriff's Department, and by the Nebraska State Patrol. The OPD makes the most DUI arrests, and the city prosecutor's office prosecutes all of the cases. DUI cases are designated as felonies and are heard in the Fourth Judicial District Court of Nebraska, a trial court of general jurisdiction serving Douglas County, which includes Omaha, in eastern Douglas County. As a district court in Nebraska, the Fourth Judicial District Court has general, original and appellate jurisdiction in all matters, both civil and criminal, including all felony criminal matters. Sixteen judges are assigned to the court. The court also functions as an appellate court in deciding appeals from certain county court case types and various administrative agencies.

Convictions

Under State DUI law, in Omaha a driver is guilty of a criminal law violation if it can be shown that (1) his/her *BAC was .08 or higher or* (2) the *driver refused to submit to a BAC test*. Information provided to us indicated that the city prosecutor virtually always charges a refuser for both DWI *and* test refusal, both of which are felonies and carry the same penalties. Omaha has a computerized State system for drivers arrested for DUI or for a refusal. The system measures the outcome of each arrest and is used by the city prosecutor to track cases until case disposition. We were given only summary data for the years 2004 – 2006, covering 1,202 filed DUI and refusal charges. We do not know exactly how these filings were selected, but about half were for DUI and half were for refusal (see Table 15). To our knowledge, charging practices remained essentially the same over this period.

Table 15: DUI and Refusal Charges Filed in Omaha in 2004-2006

			Charge		
			DUI	REF	Total
Year	2004	Count	189	201	390
		% within 2004	48.5%	51.5%	100.0%
		% within Charge	32.1%	32.8%	32.4%
		% of 3-yr Total	15.7%	16.7%	32.4%
	2005	Count	236	246	482
		% within 2005	49.0%	51.0%	100.0%
		% within Charge	40.1%	40.1%	40.1%
		% of 3-yr Total	19.6%	20.5%	40.1%
	2006	Count	164	166	330
		% within 2006	49.7%	50.3%	100.0%
		% within Charge	27.8%	27.1%	27.5%
		% of 3-yr Total	13.6%	13.8%	27.5%
Total		Count	589	613	1202
		% over 3 Years	49.0%	51.0%	100.0%
		% within Charge	100.0%	100.0%	100.0%
		% of 3-yr Total	49.0%	51.0%	100.0%

The summary data received from the prosecutor's office indicated that the refusal rate in Omaha was roughly equivalent to the statewide rate and that there was a conviction on either the DUI charge or the refusal charge in about 98% of the cases brought before the court. Because DUI and refusal both carry the same sentence, one or the other case is dismissed by the prosecutor as a standard plea bargain in cases where both charges are made.

According to the information provided to us, prosecutors normally drop the refusal charge in lieu of a guilty plea to DUI. In a few cases, where an officer does not appear, the case is dismissed. Even fewer cases were dismissed by the judge at trial. During the period from 2004 to 2006, 90% of the guilty dispositions were for a DUI charge, and 91% the dismissals were for a refusal charge.

Sentences

The city prosecutor's office indicated that the statutory stipulation of equal sentences for both refusers and non-refusers is being followed. Again, only summary information was available to us for our examination. This prevented us from conducting a more in-depth analysis of conviction and sanctioning parameters. However, the data that we did receive suggested a high conviction

rate for both refusers and compliers, with very little difference between the two categories in terms of conviction rate. Those familiar with the system suggested that because the conviction rate on both DUI and refusal charges was very high, there was little room for any major differences between the two groups. They also indicated that more severe offenders (multiple offenders, those with high BACs, etc.) may have been more likely to retain legal representation and that could affect the conviction rate in two ways. First, it would suggest greater difficulty in getting a conviction (on the original charge). On the other hand, as these are more severe offenders, it could provide upward pressure on the conviction rate. In any case, the summary data suggested similar conviction rates between the two groups.

CASE STUDY 4 – MONTGOMERY COUNTY, MARYLAND

Operating Environment

Montgomery County, Maryland, had an estimated population of 932,131 in 2006, accounting for 16% of the total population of the State. Fourteen percent of the county's residents were Hispanic or Latino; less than 1% were Native American.

Maryland had a BAC test refusal rate of 29% in 2005. This was the ninth highest rate among the 39 jurisdictions providing data for this study. FARS data indicated that, in 2005, 17% of Maryland's fatal crashes involved drivers with BACs of .08 or higher and that 26% of drivers killed in fatal crashes had BACs of .08 or higher.

DWI laws are enforced primarily by the Montgomery County Police Department (MCPD). The department's field operations are performed by six divisions and a special operations division, with each division headed by a captain. The divisions are grouped together in a field services bureau headed by an assistant chief reporting to directly the chief. Special traffic services (e.g., crash reconstruction) are provided to all districts by the traffic division, headed by a captain who reports directly to the chief.

DWI cases are prosecuted by prosecutors from the State's Attorney Office. Adjudication and sanctioning for a DWI case can occur at either the trial court or the district court level. Both have the same criminal jurisdiction, the major difference being that only the circuit court can hear cases calling for a jury trial. Also, the more serious cases (e.g., felonies with more than 3 years incarceration) are heard in the circuit court. The district court handles by far the largest number of cases; it operates in 34 locations with 107 judges.

Maryland statutes provide for two alcohol-related driving offenses: DUI and DWI. The penalty for a first-time DUI offense (which involves a BAC of .08 or higher) is up to 1 year in jail (2 years if transporting a minor); up to a $1,000 fine ($2,000 if transporting a minor); and a minimum 45-day license suspension; the penalty for a first-time DWI offense (involving a BAC = .07) is up to 2 months in jail; up to a $500 fine, and up to a 60-day license suspension.

Penalties for a second DUI offense include up to 2 years in jail (3 years if transporting a minor), a fine of up to $2,000 ($3,000 if transporting a minor), and a 1-year license suspension (minimum). The penalties for a second DWI offense include up to a $500 fine and/or one year in jail, and a 60-day license suspension (minimum).

A third DUI offense calls for up to three years imprisonment (4 years if transporting a minor), a fine of up to $3,000 ($4,000 if transporting a minor), and an 18-month license suspension (minimum). A third DWI offense could result in one year in jail and/or up to a $500 fine, and a 60-day license suspension (minimum).

Convictions

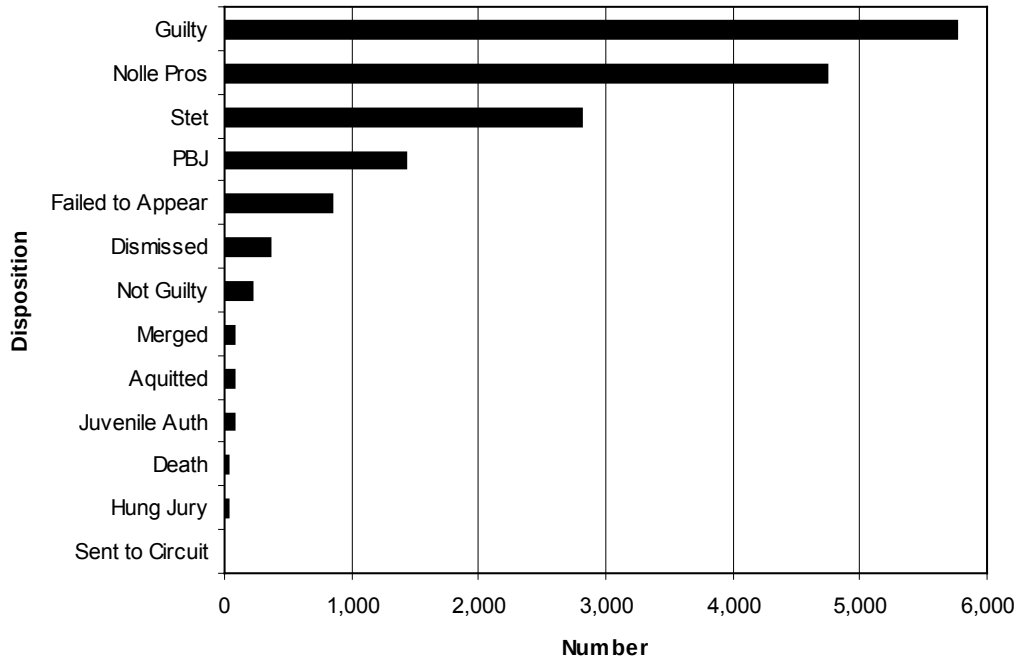
A total of 16,686 cases involving an arrest for DWI in Montgomery County were filed in a Montgomery County court from 2004 through 2006. Table 16 shows the dispositions of these cases. Of these, 51% reportedly had refused breath tests and 48% had taken the tests (see bottom three rows of Table 16). A nearly equal percentage of refusers and non-refusers were female (17% and 18%, respectively; a similar percentage of refusers and non-refusers were classified as "White" (57% and 55%, respectively) or "African-American" (20% for both groups); and the mean age of refusers (30.9) and non-refusers (31.5) also did not differ significantly. Including age, race, and sex in a logistic regression model with "refuse" as the dependent variable, our analysis did not show any of these three characteristics to be a significant predictor of a driver's decision to refuse a test. Twenty-eight percent of the 16,686 arrests were never prosecuted at all

(i.e., nolle prosequi); and for various reasons including death, failure to appear; and some deferrals, another 15% never completed adjudication in a Montgomery County court

Table 16: Dispositions of Criminal Cases Filed Against BAC Test Refusers and Non-Refusers in Montgomery County – 2004, 2005, and 2006

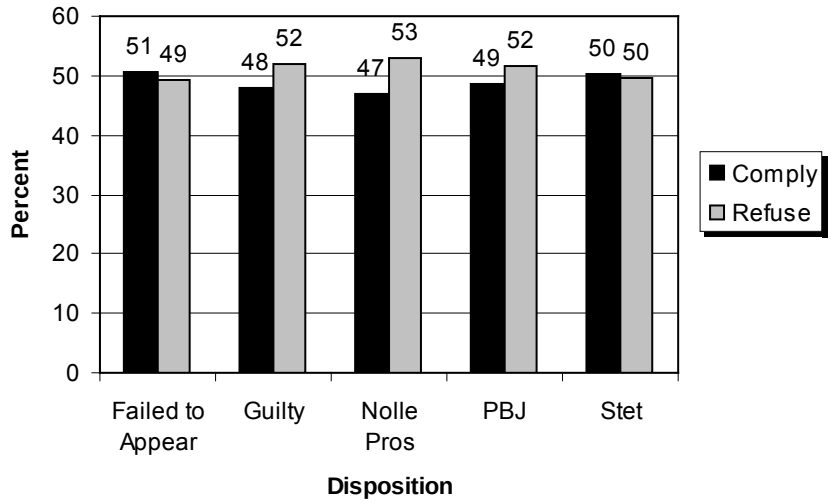
			Refuse			
				No	Yes	Total
Disposition		Count	195	0	0	195
		% within Disposition	100.0%	.0%	.0%	100.0%
		% within Refuse	100.0%	.0%	.0%	1.2%
	Abated by Death	Count	0	13	21	34
		% within Disposition	.0%	38.2%	61.8%	100.0%
		% within Refuse	.0%	.2%	.2%	.2%
	Dismissed	Count	0	186	173	359
		% within Disposition	.0%	51.8%	48.2%	100.0%
		% within Refuse	.0%	2.3%	2.0%	2.2%
	Sent to Cirduit Court	Count	0	9	4	13
		% within Disposition	.0%	69.2%	30.8%	100.0%
		% within Refuse	.0%	.1%	.0%	.1%
	Forwarded to Juvenile Authorities	Count	0	36	43	79
		% within Disposition	.0%	45.6%	54.4%	100.0%
		% within Refuse	.0%	.5%	.5%	.5%
	Failure to Appear	Count	0	426	415	841
		% within Disposition	.0%	50.7%	49.3%	100.0%
		% within Refuse	.0%	5.3%	4.9%	5.0%
	Guilty	Count	0	2772	2994	5766
		% within Disposition	.0%	48.1%	51.9%	100.0%
		% within Refuse	.0%	34.7%	35.2%	34.6%
	Aquittal	Count	0	44	36	80
		% within Disposition	.0%	55.0%	45.0%	100.0%
		% within Refuse	.0%	.6%	.4%	.5%
	Hung Jury	Count	0	16	15	31
		% within Disposition	.0%	51.6%	48.4%	100.0%
		% within Refuse	.0%	.2%	.2%	.2%
	Merged with Another Charge	Count	0	40	45	85
		% within Disposition	.0%	47.1%	52.9%	100.0%
		% within Refuse	.0%	.5%	.5%	.5%
	Not Guilty	Count	0	107	116	223
		% within Disposition	.0%	48.0%	52.0%	100.0%
		% within Refuse	.0%	1.3%	1.4%	1.3%
	Nolle Prosequi	Count	0	2230	2511	4741
		% within Disposition	.0%	47.0%	53.0%	100.0%
		% within Refuse	.0%	27.9%	29.5%	28.4%
	PBJ	Count	0	693	737	1430
		% within Disposition	.0%	48.5%	51.5%	100.0%
		% within Refuse	.0%	8.7%	8.7%	8.6%
	Stet	Count	0	1417	1392	2809
		% within Disposition	.0%	50.4%	49.6%	100.0%
		% within Refuse	.0%	17.7%	16.4%	16.8%
Total		Count	195	7989	8502	16686
		% within Disposition	1.2%	47.9%	51.0%	100.0%
		% within Refuse	100.0%	100.0%	100.0%	100.0%

Figure 5: Disposition of Criminal Cases Filed Against Test Refusers and Non-Refusers in Montgomery County (2004 to 2006)



Based on the data from Table 16 and Figure 5 the largest categories of dispositions were: *guilty* (5,766 or 34.6%); n*olle* p*rosequi* (4,741 or 28.4%); *probation without judgment* (PBJ) (1,430 or 8.6%); *failure to appear* (841 or 5.0%); and *"stet"* (2,809 or 16.8). "Stet" refers to a decision by the prosecutor to postpone prosecution or to hold it in abeyance (for up to 180 days). Together, these five categories of dispositions accounted for just over 93% of all dispositions (15,587/16,686).

Figure 6: Five Most Common Dispositions in Montgomery County, by Breath Test Status (Compliance or Refusal), From 2004 to 2006



As Figure 6 shows, there was very little difference in the frequency of any one of these most common dispositions relative to *compliance* with or *refusal* of a breath test. The largest difference was for *nolle prosecute* (47% of compliers and 53% of refusers). Thus, according to these data, there was a slightly (but significantly) higher likelihood of a *refuser* than a *complier* being not prosecuted, versus all other possible categories ($p = 0.022$). None of the other differences was significant.

We received data on a subset of dispositions for 1,845 cases that were adjudicated in Montgomery County court (from 2004 through 2006) and for which some sentencing information was available. The dispositions for this subset are shown in Table 17. The large percentage of dispositions (55%) was accounted for by *PBJ*; only 39% of the outcomes were classified as "guilty." The percentage of those convicted of DWI *after* completing PBJ is not known. Important from the standpoint of this study, however, the relationship between disposition and "refusal" (yes or no) in the table was not statistically significant (p=0.462). In other words, whether a person complied or refused appeared to have no bearing on the likelihood of being found *guilty* (51% of compliers and 49% of refusers received this disposition); *found not guilty* (3.6% of both compliers and refusers); *being acquitted* (2.8% of compliers and refusers); or *given PBJ* (53% of compliers and 56.4% of refusers).

Table 17: Dispositions of a Subset of 1,845 Criminal DWI Cases Adjudicated in Montgomery County – 2004, 2005, and 2006

			Refuse		
			No	Yes	Total
Disposition	Guilty	Count	369	355	724
		% within Disposition	51.0%	49.0%	100.0%
		% within Refuse	40.6%	37.9%	39.2%
	Aquittal	Count	25	20	45
		% within Disposition	55.6%	44.4%	100.0%
		% within Refuse	2.8%	2.1%	2.4%
	Not Guilty	Count	33	34	67
		% within Disposition	49.3%	50.7%	100.0%
		% within Refuse	3.6%	3.6%	3.6%
	Probation Before Judgement	Count	481	528	1009
		% within Disposition	47.7%	52.3%	100.0%
		% within Refuse	53.0%	56.4%	54.7%
Total		Count	908	937	1845
		% within Disposition	49.2%	50.8%	100.0%
		% within Refuse	100.0%	100.0%	100.0%

Sentences

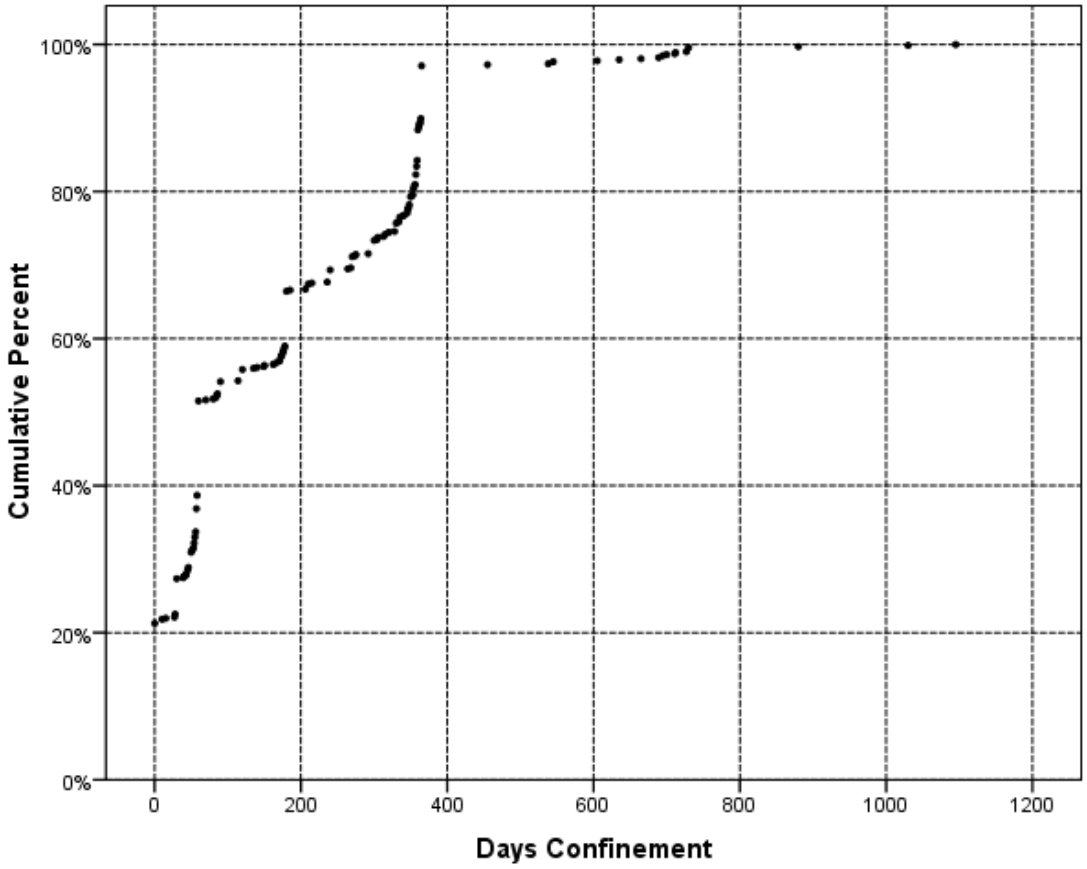
The above court data that we received included information on jail or prison sentences for those found guilty of a criminal DWI violation. Fines were imposed administratively for the various categories of DWI, according to the schedules set forth in the statutes and regulations. The cumulative distribution of days sentenced to confinement is shown in Figure 7. The 724 guilty drivers for which we were provided data (355 refusers and 369 non-refusers from Table 17) were sentenced to an average of 161 days of confinement, with a median of 60 days. This was on the low end of the distribution of sentences which ranged from no confinement to 1,095 days.

The average confinement sentence was slightly higher for men than for women (165 days and 137 days, respectively), but this difference was not statistically significant (p=0.087). More important for this study, the average confinement did not differ significantly for refusers and compliers (163 days and 160 days, respectively) (p=0.655).

Fines permitted by statute ranged from $500 or less, for a first offense DWI, to $3,000 or less, for a third-time DUI or subsequent offense. In addition, a driver's license suspension or revocation and/or requiring the use of an ignition interlock for up to 3 years are also permitted as a condition of probation (including PBJ). Unfortunately, a representative database of fines, license actions, and/or the lengths of interlock usage imposed on these convicted offenders was not available for this study.

Figure 7 shows the *cumulative* distribution of jail time sentences among the 724 drivers convicted of DWI in this sub-sample. Just over 20% received no jail time; about 55% received 100 days or less; slightly more than 65% received 200 days or less; nearly 75% received 300 days or less; and about 97% received 400 days or less. Again, the median sentence was about 60 days. This graph represents only the distribution among those judged guilty in this sub-sample.

Figure 7: Cumulative Frequency Distribution of Days of Confinement Sentenced to Drivers Convicted of Criminal DWI in Montgomery County – 2004, 2005, and 2006



In summary, Maryland had a relatively high refusal rate of about 29% among all offenders and it appears to have low conviction rates for both refusers (38%) and compliers (41%). However, the difference in conviction rates for these two groups was not statistically different. Traffic safety personnel from the State who worked with us on this case study pointed out that Montgomery County is quite affluent and that a high percentage of offenders have benefit of legal counsel. Still, because judges are very aware of the reasons for refusal, the practical effect of that action is not known. No sentencing data, other than that described regarding confinement, were available from this County for refusers. Thus, we could not conduct odds ratio analyses as we did in Ramsey and Bernalillo counties.

CASE STUDY 5 – KING COUNTY, WASHINGTON

Operating Environment

King County had an estimated population of 1,826,732 in 2006, accounting for 29% of the population of the State. Seven percent of population was of Hispanic or Latino origin; about 1% was Native American.

Washington had a BAC test refusal rate of 16% in 2005, below the 21.6% average for the 39 States providing data for this study. FARS data showed that 25% of Washington's fatal crashes in 2005 involved drivers with BACs of .08 or higher and that 37% of drivers killed in fatal crashes had BACs of .08 or higher.

The information provided for this study indicated that DUI laws in King County were enforced primarily by the Washington State Police (WSP) and by the King County Sheriff's Department (KCS). DUI cases were prosecuted by prosecutors from the States Attorney's Office. The information also indicated that adjudication and sanctioning for DUI cases occurred in the King County District Court, which is geographically-organized into three Divisions and employs a total of 24 judges. A court-based information system (DISCIS) was the source of the data we used in this study.

Sentencing guidelines for Washington stipulate jail time ranging from 24 consecutive hours to 365 days, a fine from $865 to $5,000, and a 90-day license suspension for a first- time DUI conviction. Penalties for a second conviction include 30 to 365 days confinement, a fine from $1,120 to $5,000, and a 2-year license revocation. For a third conviction, Washington guidelines call for 90 to 365 days of jail, a fine from $1,970 to $5,000, and a 3-year license revocation. Other penalties/options apply including screening and alcohol/drug treatment, and alcohol ignition interlocks. Penalties are enhanced for convictions that involve BACs of .15 or greater.

Convictions

Offenders included in this study were identified from data maintained by the Washington State Police (WSP) in its *Datamaster* file. This file contains the results of BAC test requests made by local law enforcement agencies statewide, as well as those made by the WSP. The sample included 7,935 people arrested for DUI in King County by the WSP and the King County Sheriff's Department (KSD) in 2006. Data collected on these 7,935 individuals included date of arrest, age, sex, and BAC (for compliers). A separate variable identified subjects who refused to be tested. Some of the subjects (947) were arrested for DUI more than once during the study year, resulting in a total 8,882 test requests in the WSP BAC file. Our objective was to determine the outcomes of as many of these cases as possible.

Conviction information was obtained from the King County District Court. This file contained information regarding prosecutions for DUI in the King County District Court. Cases from this file were matched with cases from the WSP BAC file, based on driver license numbers. Of the 8,882 cases in the WSP file, 6,271 matches (71%) were found in the Court disposition file. However, not all of the matched cases were prosecuted for DUI and some were not prosecuted at all, usually for technical reasons or insufficient evidence. Altogether, 4,229 cases or about 67% of the 6,271 matches were prosecuted for DUI. Of greatest relevance to this study, test refusers and non-refusers did not differ significantly with respect to their rate of prosecution for DUI; 69% of the refusers and 67% of the non-refusers were ultimately prosecuted ($p=0.098$).

The data indicated that females were slightly less likely to refuse a test than males (15% and 18%, respectively; $p=0.045$). However, refusers and non-refusers did not differ significantly with respect to age (means were 34 years and 32 years, respectively; $p=0.108$). While "whites"

accounted for 72% of these cases, white and non-white subjects did not differ significantly with respect to refusal rate (approximately 17% refused a test in both groups).

The mean BAC of those who took the test was .127 and the median was .124. The BACs of roughly 15% of the test takers were below .08 and not in violation of the State's illegal per se law, but still in violation of Washington's DUI law, if impairment could be proven.

Of the 4,229 cases prosecuted for DUI, 2,258 (53%) were convicted of DUI, and *refusers were significantly less likely to be convicted than non-refusers* – 46% versus 55%, (p=0.0001). Because of the relatively strong relationship between refusal rate and DUI conviction rate suggested in the prior paragraph, we examined the effect of refusal in a binary regression model with refusal (no/yes), ethnicity (white/non-white), sex (female/male) and age as independent variables, and conviction (yes/no) as the dependant variable. We found that all of the independent variables had a statistically significant effect ($p<0.003$) on the odds of conviction. Table 18 shows the odds ratio associated with each independent variable. The table indicates that:

- Violators at any given age (e.g., 30) had 1.5% higher odds of DUI conviction than violators who were one year older (e.g., 31).
- Females had 45.3% higher odds of conviction than males.
- Non-refusers had 29.2% higher odds of conviction than refusers.
- Whites had 16% lower odds of conviction than non-whites.

Table 18: Odds Ratios of DUI Conviction in King County Associated With Age, Sex, BAC Test Refusal, and Ethnicity - 2006 Case Study

Independent Variable	Odds Ratio Definition	Adds Ratio Value
Age	Age=n/Age=(n+1)	1.015
Sex	Female/Male	1.453
Refuse	Non-Refuser/Refuser	1.292
Ethnicity	White/Non-White	0.840

Sentences

Unfortunately, quantitative data on the sentences actually imposed by the court following a DUI conviction could not be provided by the District Court for this case study. Statutorily, suggested or mandated sanctions depended upon the circumstances surrounding the violation. For example, the Washington guidelines required 24 consecutive hours of jail or 15 days of home electronic monitoring if the BAC was < .15, or two consecutive days of jail or 30 days of home electronic monitoring if the BAC was ≥ .15. The mandatory (minimum) sanction increased to as much as 45 days of jail *and* 90 days of electronic home monitoring, *if* there was a prior offense within the past 7 years and if the offender's BAC was ≥.15, *or if* there was a refusal to submit to a BAC test. A mandatory (minimum) fine of up to $1,545 and an ignition interlock could also be imposed by the court, along with an administratively-imposed license suspension or revocation. Finally, the statutes allowed for (but did not mandate) vehicle impoundment for offenders with a prior DUI offense within seven years. Unfortunately, the impact of these variations on refusal or conviction rates could not be estimated given the data made available to us for this study.

In summary for King County, statewide data indicate that Washington State has a modest overall refusal rate of 16%. Of 6,271 matched cases, where both arrest and court data were available, about two thirds were prosecuted. While a similar percentage of refusers and compliers

were prosecuted (69% and 67%, respectively), refusers were 18% less likely to be convicted of DUI (46%) than compliers (55%). No data were available to us to determine why convictions were less frequent among refusers than among compliers but information from our contacts within the State suggested that refusers *may* be more likely than compliers to hire an attorney and to contest the case.

4 – SUMMARY OF PROSECUTORIAL IMPACT IN THE STUDY SITES

Some key features of the DWI and test refusal case processing in the five study sites are compared in Table 19 below. All sites except Ramsey County require an arrest to be made before a BAC test may be required, and an officer may use a PBT[12] device to help decide whether to make an arrest in all of the sites.

Test refusal constitutes a separate criminal offense in two sites (Ramsey and Omaha), but only an administrative violation in the other three sites. Only one site (Omaha) did not allow any form of pre-trial diversion. Both sites that designated refusal as a criminal offense (Ramsey and Omaha) allowed refusal as evidence of DWI. Maryland, which did not designate refusal a criminal offence, also allowed refusal as evidence of DWI. Ramsey and Omaha both permitted conviction of DWI and refusal for the same incident.

Table 19: Key Features of DWI and Refusal Case-Processing Laws by Site

Feature	Ramsey	Bernalillo	Omaha	Montgomery	King
BAC Testing					
Arrest Required?	No	Yes	Yes	Yes	Yes
PBT Permitted?	Yes	Yes	Yes	Yes	Yes
Adjudication and Prosecution					
Refusal Separate Criminal Offense?	Yes	No	Yes	No	No
Pre-Trial Diversion Allowed?	Yes	Yes	No	Yes	Yes
Refusal Evidence of DWI?	Yes	No	Yes	Yes	No
Conviction of Both DWI & Refusal?	Yes	No	Yes	No	No
Sanctions					
Criminal Sanctions for Refusal	= DWI	None	= DWI	< DWI	< DWI[1]
Vehicle Sanctions?	Yes	Yes	Yes	Yes	Yes
Admin. License Sanctions for Refusal	Yes	Yes	Yes	Yes	Yes

[1] Conditional on priors

Case outcomes, based on the data available to us, are summarized in Table 20. Omaha had the highest DWI conviction rate for cases that were prosecuted. This was the case for refusers and for compliers and the conviction rate did not differ significantly between these two groups (98%). Montgomery County appeared to have the lowest conviction rate, whether calculated as the proportion of 16,686 arrests resulting in a "guilty" outcome (35%) or as the proportion of convictions among a group of 1,845 adjudicated cases in the county for which specific data were provided (39.2% convicted).

Refusers had a substantially higher conviction rate than *non-refusers* in Ramsey County (86% versus 80%); slightly higher rates in Bernalillo County (66% versus 64%); about the same rate as non-refusers in Omaha (98%); a slightly lower rate in Montgomery County (38% versus 41%); and a substantially lower rate in King County (45% versus 55%).

Wherever data were available, our analyses suggested that refusers received substantially more severe sanctions (both fines and jail time) than non-refusers and that offenders with a prior DWI offense were significantly more likely to be convicted of DWI than first offenders.

Finally, as Figure 8 shows, within study sites, there was not a clear relationship between refusing a BAC test and the probability of conviction for DWI. In one site (Ramsey County), refusers had a substantially higher conviction rate than non-refusers; in three sites (Montgomery

[12] A PBT is a preliminary breath testing device.

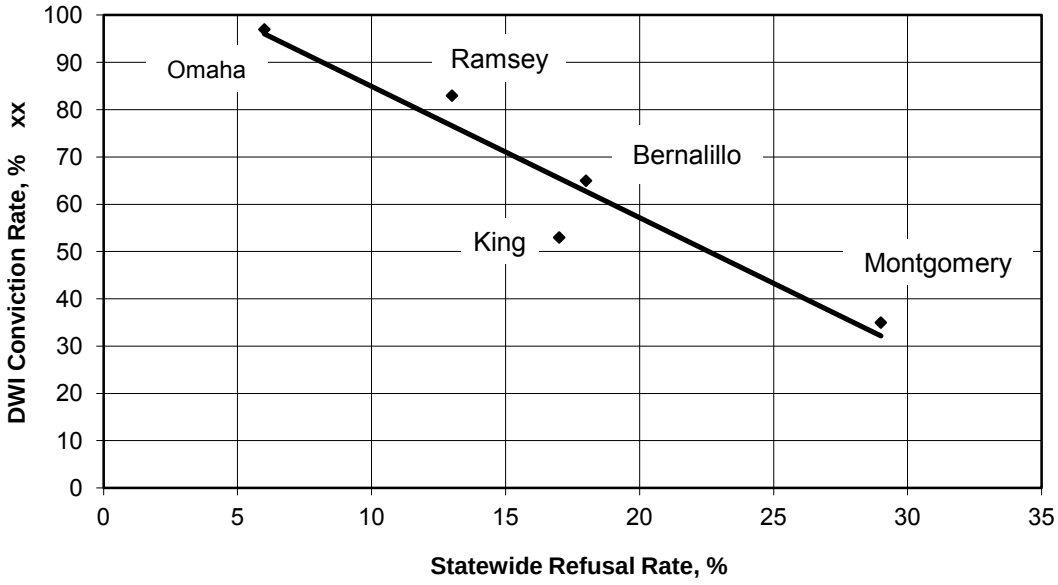
County, Omaha, and Bernalillo County) conviction rates among refusers and non-refusers were more similar, and in the remaining site (King County) there was a substantially lower conviction rate among refusers. However, there appeared to be a reasonably strong and negative relationship between the overall conviction rate at each site and statewide refusal rate for that State. As statewide refusal rates increased, overall conviction rates (as measured in the individual sites) decreased linearly. For example, Montgomery County had a relatively low conviction rate and it is within Maryland, which has a relatively high statewide refusal rate. Omaha, on the other hand, had a relatively high overall conviction rate and it is within Nebraska which has a relatively low statewide refusal rate.

Table 20: Key Outcomes of DWI Prosecutions by Site

	Ramsey	Bernalillo	Omaha	Montgomery**	King
State Refusal Rate*	13%	18%	6%	29%	16%
DWI Conviction Rate					
Refusers	86%	66%	98%	38%	45%
Compliers	80%	64%	98%	41%	55%
Mean Fine, $					
Refusers	1,099	74	720	n/a	n/a
Compliers	794	51	502	n/a	n/a
Mean Jail, Days					
Refusers	55	42	27	163	n/a
Compliers	21	23	19	160	n/a

* Refusal rate is for the entire State; all other measures are site-specific; ** PBJ not considered a conviction, fines may be imposed administratively

Figure 8: DWI Conviction Rate Versus Statewide Refusal Rate in Five Study Sites[13]



[13] The conviction rate (y-axis) is based on the rate in the case study counties. The refusal rated (x-axis) is based on statewide data. Note that the procedures for calculation conviction rates differed from county to county. In Montgomery and King counties, these calculations generally reflected percentages of prosecutions; in Ramsey and Bernalillo counties, they reflected percentages of arrests.

5 – CONCLUSIONS

STATEWIDE REFUSAL RATES

One finding in this update of statewide refusal rates was the relatively small change in the refusal rate in the Nation as a whole since 2001 and indeed since 1987. The mean rate (21%) in the current study, using data from 2005, is 4 percentage points lower than that in the Zwicker et al., study using 2001 data, and 2 percentage points higher than Jones et al. study using 1987 data. Further, the distribution of rates also has changed very little since 1987 as suggested by the following data:

Statistic	Year of Data		
	1987	2001	2005
Range	1% - 72%	5% - 85%	1% - 81%
Mean (Average)	19%	25%	21%
Median	14%	18%	16%
1st Quartile	11%	14%	11%
3rd Quartile	22%	32%	29%

Despite this stability of the distribution rates nationwide, there have been notable changes in the refusal rates of some individual States since 2002. Four States had reductions of at least 10 percentage points in their refusal rate, and 8 had increases of at least 10 percentage points in their rates (see Figure 3).

.

EFFECT OF REFUSAL ON DWI PROSECUTION

Five case studies of the effect of refusal on DWI prosecution were conducted for this project. We chose the jurisdictions to provide a broad range of factors believed to affect prosecution. A nationally representative sample analysis was not possible under this approach, but some insights regarding the relationship between BAC test refusal and DWI prosecution were obtained and several were consistent. Still, the effects found in this study cannot be regarded as *representative* of effects in the United States as a whole. Three major questions were explored, *viz.*:

1. Do BAC test refusals reduce DWI conviction rates?
2. What offender characteristics affect DWI conviction rates?
3. Do BAC test refusals reduce imposition of legally authorized sanctions?

1. Do BAC test refusals reduce DWI conviction rates?

Based upon the data available to us for these five case studies, our results do not indicate a clear relationship between refusing a BAC test and the probability of conviction for DWI/DUI. It is likely that many factors, in addition to refusal, affect this rate, including the specific laws of the State; combinations of criminal and administrative sanctions; the offender's sex, age, prior offenses, and aggravating factors of the case; and differential representation by legal counsel).

In three of the five sites (Omaha, Bernalillo County, and Montgomery County), we found only small differences in conviction rates between BAC test refusers and compliers. These States varied substantially in terms of their overall refusal rates (6% in Nebraska, 18% in New Mexico, and 29% in Maryland) and the jurisdictions in terms of their overall conviction rates (98% in Omaha, 65% in Bernalillo County, and 38% Montgomery County).

It is worth noting that in the two study sites with the highest conviction rates (Ramsey and Omaha), the State had criminalized refusal, and both sites prosecuted a very high percentage of those arrested for DWI. In addition, there was a provision in the law that rewarded refusers who ultimately pleaded guilty to the DWI charge (with a reduction in license suspension).

In order to better understand the refusal rate and conviction issue, we were able to ask contacts in some of the jurisdictions about their perceptions on this relationship. While their responses focused more on what influenced refusal rates than on the impact that refusals had on convictions, the information may provide some additional insight relative to factors that may be in play.

With regard to factors affecting refusal/non-refusal, one suggestion from a commentor in Nebraska (which has a very low rate of refusals) was that most people in the State don't refuse because (administrative) loss of license is longer for refusal (1 year) than for DWI (90 days). In addition, this commenter suggested that, compared with compliers, refusers are more often people who are seriously intoxicated or repeat offenders. This could imply greater experience or knowledge of "how to work the system" and it could imply greater likelihood of conviction due to aggravating circumstances. Another Nebraska commenter pointed out a recent statute that is designed to close the loophole on people who refuse in order to avoid a repeat conviction for DUI. It states that "if such person has had one prior conviction and, as part of the current violation... or refused to submit to a test as required under section 60-6,197, such person shall be guilty of a Class I misdemeanor"

A commenter from Maryland, which has a substantially higher refusal rate than Nebraska, suggested that people who refuse to submit to chemical tests are generally more familiar with the system and more likely to be represented by lawyers. He also pointed out that Montgomery County was a relatively affluent county and that this may affect prosecution rates (presumable as a result of offenders refusing to take BAC tests and from offenders seeking legal representation). In both Nebraska and in Montgomery County there was a suggestion that refusal to avoid conviction could have both advantageous effects (e.g., providing less evidence for conviction) and disadvantageous effects (e.g., judges that are well aware of the reasons for refusal and take note of such). Thus, refusal may have counterbalancing effects.

In Ramsey County, the conviction rate was higher among refusers than among non-refusers Several contacts mentioned the fact that a refuser (first-time offender) can plead guilty to DWI and have his or her license withdrawal period reduced from one year to 30 days. Because of this "loophole," a person might be encouraged to refuse at the time of arrest (providing less evidence for any conviction) but, upon a conviction for refusal, that same person would be encouraged to plead guilty to DWI in order to reduce the license withdrawal period. In addition, there was evidence that, similar to the situation in Nebraska, there is an emphasis on aggressively prosecuting, convicting, and sanctioning both refusers and non-refusers in Minnesota.

In King County, the conviction rate for refusers was significantly lower than for compliers. This results in critical (BAC) information not being available for the prosecutor. Similar to comments from Nebraska and Maryland, one commenter from Washington suggested that refusers may be more likely to hire attorneys to avoid conviction.

We reiterate that the apparent impact of refusal on conviction rates varied substantially from site to site, likely as a result of other competing factors and determinants. The two sites with the highest DWI conviction rates and the lowest refusal rates had criminalized refusal and made the consequences of a refusal the same as those for a DWI conviction. These steps likely were factors in reducing the refusal rate. Interestingly, in one site, where there were no apparent "loopholes,"

there was a uniformly high conviction rate among both refusers and non-refusers. In the other site, where a convicted refuser was able to reduce his/her period of license revocation by pleading guilty to DWI, the conviction rate for refusers was higher than for non-refusers. Both sites prosecuted (for DWI) a high percentage of those arrested for DWI.

2. What offender characteristics affect DWI conviction rates?

Findings regarding the effect of offender characteristics (e.g., age, sex, and ethnicity) on conviction rates were also inconsistent across the sites (where such data were available). Younger offenders had higher refusal rates in one site (King County); older offenders had a higher rate in one site (Bernalillo County); and there was no significant effect of age on conviction in one site (Ramsey County).

Similarly variable results were found with regard to gender. Male offenders had higher rates in two sites (Ramsey and Bernalillo counties) but females had a higher rate of conviction in one site (King County).

Only one site (King County) provided data related to ethnicity and these data suggested that non-white offenders had a higher conviction rate than white offenders.

In sum, there were no consistent effects of age or gender on conviction rates and there was only limited data with regard to race.

3. Do BAC test refusals reduce imposition of legally authorized sanctions?

There was more consistency of results with regard to this question. Refusers in sites where data were available received more severe sanctions than non-refusers. Average jail sentences and average fines were consistently higher for refusers than for non-refusers in all four sites for which such data were available (i.e., Ramsey, Bernalillo, and Montgomery counties and in Omaha).

The relationship between statewide refusal rates and conviction rates is complex. Within study sites, there was not a clear relationship between refusing a BAC test and the probability of conviction for DWI. In one site (Ramsey County), refusers had a substantially higher conviction rate than non-refusers; in three sites (Montgomery and Bernalillo counties, and Omaha) conviction rates among refusers and non-refusers were more similar, and in the remaining site (King County) there was a substantially lower conviction rate among refusers. However, there appeared to be a reasonably strong and negative relationship between the overall conviction rates at each site the statewide refusal rate for that State. As statewide refusal rates increased, overall conviction rates (as measured in the individual sites) decreased linearly. For example, Montgomery County had a relatively low conviction rate and it is within Maryland, which has a relatively high statewide refusal rate. Omaha, on the other hand, had a relatively high overall conviction rate and it is within Nebraska which has a relatively low statewide refusal rate.

From this study's data, it is not known whether conviction rates decreased because of the high rate of refusals, or whether refusals declined because of the high rate of convictions. Perhaps future research will provide more data to clarify the relationship between test refusal and conviction rates.

5 - REFERENCES

Jones, R. K., Joksch, H. C., & Wiliszowski, C. H. (1991). *Implied consent refusal impact. Final report.* (Report No. DOT HS 807 765). Washington, DC: National Highway Traffic Safety Administration.

Ross, H. L., Simon, S., Cleary, J., Lewis, R., & Storkamp, D. (1995). Causes and consequences of implied consent test refusal. *Alcohol. Drugs and Driving* 11(1): 57-72.

Wiliszowski, C. H., Jones, R. K., & Lacey, J. H. (1999). *Conviction rate procedures*. (Report No. DOT HS 089 970). Washington, DC: National Highway Traffic Safety Administration.

Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, 70(1): 41-55.

Standish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston: Houghton-Mifflin.

Zwicker, T. J., Hedlund, J., & Northrup, V. S. (2005). *Breath test refusals in DWI enforcement: An interim report*. (Report No. DOT HS 809 876). Washington, DC: National Highway Traffic Safety Administration.

DOT HS 811 551
June 2012

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

www.nhtsa.gov

8269-060612-v3