



PACIFIC INSTITUTE FOR RESEARCH AND EVALUATION

Washington State Roadside Survey

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Purpose

In 2012, voters in the State of Washington approved a ballot initiative to legalize the sale and recreational use of marijuana. In July 2014, sales and use of marijuana legally began in the state. One question for public health and safety officials is the impact legalized marijuana use may have on traffic safety, particularly on impaired driving. To address this question, a series of roadside surveys are being conducted to assess the effects of legalization of sales and use of marijuana on the prevalence of marijuana positive drivers on Washington's roadways. The roadside surveys will not only obtain objective, accurate estimates of the prevalence of drivers with active marijuana on board but prevalence estimates of drivers with alcohol and other drugs too.

This report summarizes some of the results of the initial roadside survey conducted in the State of Washington by the Pacific Institute for Research and Evaluation (PIRE) for the Washington Traffic Safety Commission (WTSC). The initial Washington State Roadside Survey (WSRS) was conducted during the first three weekends of June 2014 (prior to the July 2014 legal start date for sales of recreational marijuana). This state-wide roadside survey estimates the prevalence of the following on Washington's roads:

- Drivers at various breath alcohol concentrations (BrACs)¹
- Drivers with the presence of various (over-the-counter, prescription, and illegal) drugs in their system
- Drivers with alcohol and other drugs in their system, and
- Examine changes in alcohol and drug use, especially marijuana, before and after the implementation of Washington's law legalizing the recreational use of marijuana
- Perceptions of drivers about marijuana use and driving

This report focuses on the responses to questions prior to the implementation of retail sales. Subsequent reports will compare response patterns over time.

Project Scope

In this state-wide study, PIRE conducted a roadside survey that recruited over 900 drivers on roadways from across Washington and collected data (self-report, breath, oral fluid, and blood) from those drivers, as well as self-report data from some of their passengers. This included oral fluid samples from approximately 150 drivers at each of six jurisdictions across the state. Sites were recruited based on a statistical formula including motor vehicle crash rates and population. The combination of these sites provides a representative sample of Washington, allowing PIRE to estimate the prevalence of alcohol- and drug-impaired driving for the state. The six sites chosen for the survey include King, Snohomish, Spokane, Whatcom, Yakima, and Kitsap Counties.

¹ Note that in this report "BrAC" denotes breath alcohol concentration from breath only, and "AC" denotes alcohol concentration coming from any matrix, that is, breath, oral fluid, and/or blood.

Vehicles were randomly selected from the traffic stream and drivers were asked to participate in the survey. Participation was voluntary, all data were anonymous, and drivers had the opportunity to earn money for their involvement. Participation in the survey consisted of (1) collection of breath, oral fluid, and blood samples, and (2) questions on use of alcohol and drugs. Drivers did not have to participate in all aspects of the survey, and could choose which parts to voluntarily participate in. This report focuses on the responses of drivers to questions relating to marijuana, the law, and traffic safety. Data on prevalence rates for alcohol and marijuana will be presented in a separate report.

The roadside surveys were conducted at each site in five 2-hour sessions on:

- Friday daytime, either at 9:30 am – 11:30 am *or* 1:30 pm – 3:30 pm
- Friday nights from 10:00 pm – midnight *and* 1:00 am – 3:00 am
- Saturday nights from 10:00 pm – midnight *and* 1:00 am – 3:00 am

The roadside surveys were conducted over the first three weekends in June 2014. It is anticipated that another survey wave will be completed approximately six months later. If the WTSC, with the concurrence of NHTSA, desires additional survey waves, occurring approximately every six months, PIRE is willing to conduct additional waves.

Results

As indicated in Table 1, participation rates in the survey were extremely high. A total of 955 vehicles were selected to participate in the survey; of these, 943 entered the data collection site, and were determined to be eligible for survey participation (commercial vehicles, drivers under the age of 16, and drivers who could not communicate in English or Spanish were not eligible to participate). A high percentage (98%) of eligible drivers participated in the survey. Among eligible drivers, 97.2% provided a breath sample, 95.7% provided an oral fluid sample, 75.4% provided a blood sample, and 94.7% completed a marijuana questionnaire.

Table 1. Participating Drivers (Percentages in Parentheses)

	Wave 1		
	Daytime	Nighttime	Total
Stopped and entered site	282	673	955
Eligible	276	667	943
Entered site and interviewed	274 (99.3)*	652 (97.8)*	926 (98.2)*
Valid breath sample	271 (98.2)*	646 (96.9)*	917 (97.2)*
Oral fluid sample	270 (97.8)*	632 (94.8)*	902 (95.7)*
Blood sample	219 (79.3)*	492 (73.8)*	711 (75.4)*
THC Questionnaire	266 (96.4)*	627 (94.0)*	893 (94.7)*

* Percent of eligible

Table 2 compares the demographics of drivers who participated in the survey with Washington's 2010 Census Bureau data. Drivers who participated in the survey were largely male, white, and between the ages of 20 to 34 years. Although the percentage of whites participating in the survey is comparable to the 2010 Census data, the percent of African-Americans (6.6% survey

participation vs. 3.6% Census), Native Americans (4.8% vs. 1.5%), and Hispanics/Latinos (18% vs. 11.2%) was higher than the demographics for that group in the 2010 Census data. Asians were underrepresented in this survey (2% of survey participants vs. 7.2% Census).

Male participation in the survey was 62% even though males make up half (49.8%) of the population in Washington based on the 2010 Census data. As stated earlier, drivers between the ages of 20 and 34 nearly made up half (45.5%) of the participants, which is much higher than the numbers for the age group based on the 2010 census data (20.7%). The participation percentage for all other age groups was comparable to the 2010 census data except for those 65 years and older. This age group was underrepresented (4.7% of survey participants vs. 12.3% Census data).

Table 2. Comparison between WSRS Washington and Census Data

	NRS Washington	Census 2010 Washington
Male	62.0%	49.8%
White	79.5%	77.3%
Black or African American	6.6%	3.6%
Asian	2.0%	7.2%
Native American or Alaska Native	4.8%	1.5%
Hispanic or Latino	18.0%	11.2%
White alone, not Hispanic or Latino	65.7%	72.5%
Age 15 to 19 years	8.2%	6.9%
Age 20 to 34 years	45.5%	20.7%
Age 35 to 44 years	16.7%	13.5%
Age 45 to 64 years	25.0%	27.1%
Age 65 years and over	4.7%	12.3%

THC Survey Questions

As indicated in Table 1, 893 eligible drivers (94.7%) participated in a THC questionnaire. Of those, 888 drivers responded to the first question which asked if the driver had ever used marijuana. Table 3 shows that almost 70% of respondents indicated that they had used marijuana at least once in their lifetime.

Table 3. Response to Question, “Have you ever, even once, used marijuana?”

Ever used Marijuana	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	273	30.7	273	30.7
Yes	615	69.3	888	100.0

Table 4 shows the response to the question of whether the driver, in the past year, had used marijuana within two hours before driving. Of the 220 drivers who stated that they had used marijuana in the past year, 44% stated that they had used marijuana within two hours prior to driving.

Table 4. Response to Question, “In the past year, have you used any marijuana within two hours before driving?”

Marijuana Two Hours before Driving	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No	123	55.9	123	55.9
Yes	97	44.1	220	100.0

Divers who reported “yes” to having used marijuana within two hours of driving were also asked whether the driver felt that their driving ability was affected when they used marijuana and drove a vehicle. Table 5 shows that nearly 62% of this subset of drivers felt that their recent marijuana use did not make any difference in their driving, 25% of drivers felt that recent marijuana use made their driving better, and 3% of drivers felt that recent marijuana use made their driving worse.

Table 5. Response to Question, “When you used marijuana and drove, how do you think it affected your driving?”

Marijuana Affect Driving	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Did not make any difference in my driving	60	61.9	60	61.9
I do not know	10	10.3	70	72.2
Made my driving better	24	24.7	94	96.9
Made my driving worse	3	3.1	97	100.0

Drivers were also asked their opinion on how likely it was that marijuana impairs a person’s ability to drive safely if marijuana was used within two hours of driving. Table 6 shows that, of the 877 drivers who responded to the question, nearly 47% said “very likely” and 18% said “likely.” About 12% of drivers said not at all likely, while 22% said “somewhat likely.”

Table 6. Response to Question, “How likely do you think it is that marijuana impairs a person’s ability to drive safely if used within two hours of driving?”

How Likely Impairs	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Not at all likely	109	12.4	271	30.9
Somewhat likely	197	22.5	468	53.4
Likely	162	18.5	630	71.9
Very likely	409	46.6	877	100.0

When asked (Table 7) how likely it is that a person could be arrested for impaired driving after using marijuana within two hours of driving, nearly 41% of eligible drivers said “very likely” while 23% said “likely.” Nearly 25% of drivers responded “somewhat likely” and 11% said “not at all likely.”

Table 7. Response to Question, “How likely do you think it is that a person could be arrested for impaired driving after using marijuana within two hours of driving?”

How Likely Arrested	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Not at all likely	98	11.1	302	34.3
Somewhat likely	219	24.96	521	59.1
Likely	204	23.2	204	23.2
Very likely	360	40.9	881	100.0