

Statewide Summary of Breath Alcohol Data For Year 2010

The following report summarizes the breath alcohol data obtained from BAC Datamaster breath test instruments in association with DUI arrests performed in Washington State during the year 2010. Only breath alcohol results of 0.01 g/210L or greater are included in this summary. This summary should be considered an approximation since the accuracy, in several respects, depends on the reliability of the data entered and the successful collection by the host computer.

The following table shows the average breath alcohol concentration for each age group

Mean Breath Alcohol Concentration by Age Group

alc1

| Age Group | Mean | N | Std. Deviation |
|-------------|-------|-------|----------------|
| 13 to 19 | .1016 | 1724 | .05202 |
| 20 to 29 | .1362 | 12246 | .04907 |
| 30 to 39 | .1452 | 6039 | .05268 |
| 40 to 49 | .1503 | 4771 | .05727 |
| 50 to 59 | .1491 | 2746 | .05764 |
| 60 to 69 | .1451 | 796 | .05428 |
| 70 and Over | .1253 | 198 | .04525 |
| Total | .1398 | 28520 | .05365 |

The following table shows the percent of male and female found within each age category

Age by Gender Crosstabulation

| | | Gender | | Total |
|-------|-------------|--------|-------|--------|
| | | Female | Male | |
| Age | 13 to 19 | 571 | 1360 | 1931 |
| | | 29.6% | 70.4% | 100.0% |
| | 20 to 29 | 3842 | 10631 | 14473 |
| | | 26.5% | 73.5% | 100.0% |
| | 30 to 39 | 1879 | 5942 | 7821 |
| | | 24.0% | 76.0% | 100.0% |
| | 40 to 49 | 1706 | 4596 | 6302 |
| | | 27.1% | 72.9% | 100.0% |
| | 50 to 59 | 870 | 2764 | 3634 |
| | | 23.9% | 76.1% | 100.0% |
| | 60 to 69 | 202 | 789 | 991 |
| | | 20.4% | 79.6% | 100.0% |
| | 70 and Over | 39 | 204 | 243 |
| | | 16.0% | 84.0% | 100.0% |
| Total | | 9109 | 26286 | 35395 |
| | | 25.7% | 74.3% | 100.0% |

The following table shows the mean breath alcohol concentrations for males and females:

Mean Breath Alcohol by Gender

alc1

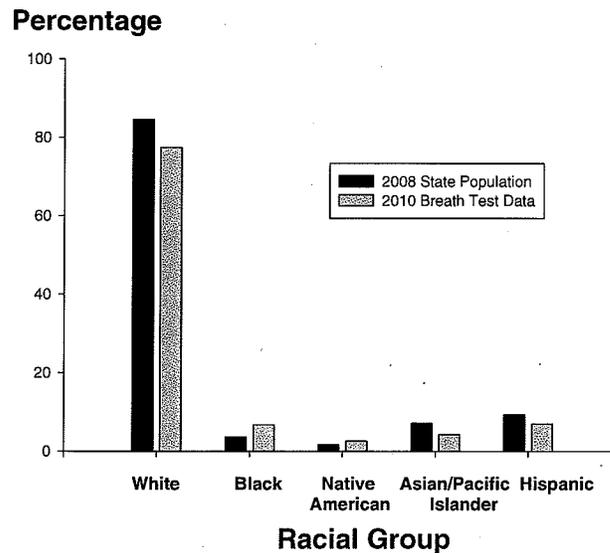
| Gender | Mean | N | Std. Deviation |
|--------|-------|-------|----------------|
| Female | .1398 | 7514 | .05376 |
| Male | .1398 | 21025 | .05362 |
| Total | .1398 | 28539 | .05365 |

The following table shows the distribution of those arrested for DUI by race:

Frequency by Racial Group

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-----------------|-----------|---------|---------------|--------------------|
| Asian | 1399 | 4.0 | 4.0 | 4.0 |
| Black | 2357 | 6.7 | 6.7 | 10.7 |
| East Indian | 32 | .1 | .1 | 10.7 |
| Hispanic | 2481 | 7.0 | 7.0 | 17.8 |
| Native American | 928 | 2.6 | 2.6 | 20.4 |
| Pacific Island | 100 | .3 | .3 | 20.7 |
| Uknown | 666 | 1.9 | 1.9 | 22.6 |
| White | 27282 | 77.4 | 77.4 | 100.0 |
| Total | 35245 | 100.0 | 100.0 | |

The following plot compares each racial group as a percent of the state population to the percent of those administered breath tests. The state population data comes from 2008 estimates and sums to over 100% because Hispanics are represented both in the Hispanic category and in another racial category:



The following table shows the mean alcohol concentrations by racial category:

Mean Breath Alcohol by Racial Group

alc1

| race | Mean | N | Std. Deviation |
|-----------------|-------|-------|----------------|
| Asian | .1244 | 1144 | .04679 |
| Black | .1312 | 1755 | .05345 |
| East Indian | .1182 | 25 | .05196 |
| Hispanic | .1380 | 2037 | .05159 |
| Native American | .1544 | 663 | .05605 |
| Pacific Island | .1341 | 84 | .05298 |
| Unknown | .1376 | 535 | .05407 |
| White | .1411 | 22165 | .05388 |
| Total | .1398 | 28408 | .05367 |

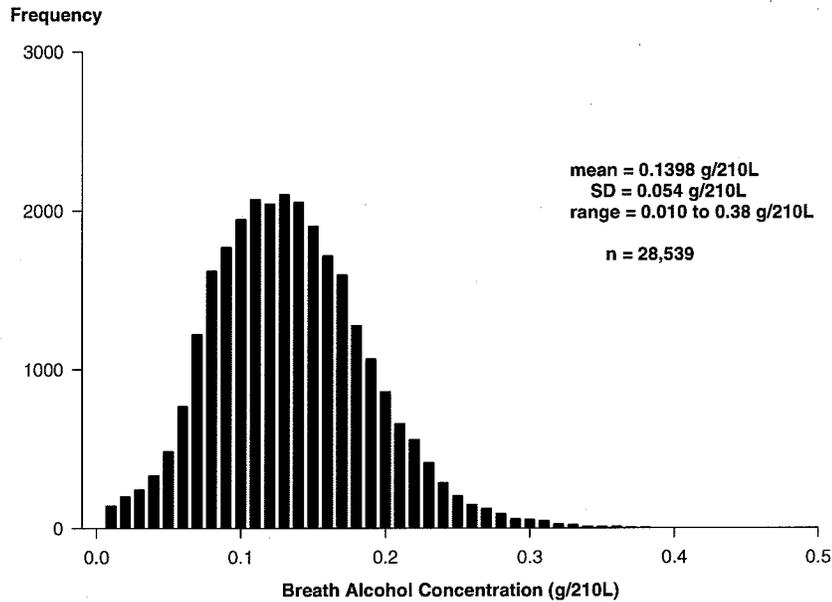
The following table shows the distribution of gender according to the different racial groups:

Race by Gender Crosstabulation

| | | Gender | | Total |
|-------|-----------------|--------|-------|--------|
| | | Female | Male | |
| Race | Asian | 359 | 1040 | 1399 |
| | | 25.7% | 74.3% | 100.0% |
| | Black | 462 | 1895 | 2357 |
| | | 19.6% | 80.4% | 100.0% |
| | East Indian | 4 | 28 | 32 |
| | | 12.5% | 87.5% | 100.0% |
| | Hispanic | 249 | 2232 | 2481 |
| | | 10.0% | 90.0% | 100.0% |
| | Native American | 345 | 583 | 928 |
| | | 37.2% | 62.8% | 100.0% |
| | Pacific Island | 21 | 79 | 100 |
| | | 21.0% | 79.0% | 100.0% |
| | Unknown | 101 | 565 | 666 |
| | | 15.2% | 84.8% | 100.0% |
| | White | 7535 | 19747 | 27282 |
| | | 27.6% | 72.4% | 100.0% |
| Total | | 9076 | 26169 | 35245 |
| | | 25.8% | 74.2% | 100.0% |

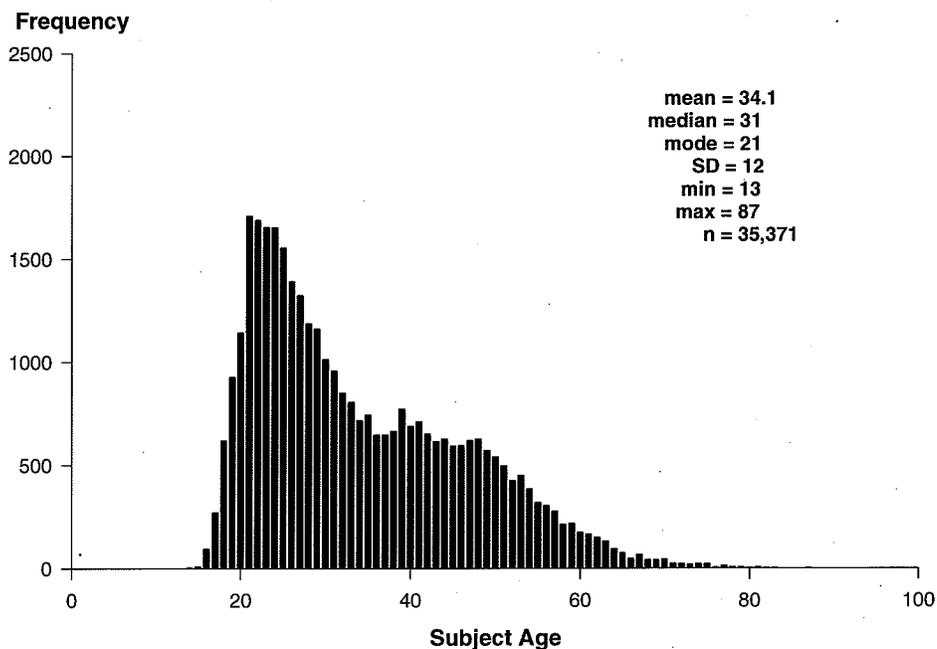
The following is the distribution of all breath alcohol results for all subjects arrested for DUI during 2010 who provided a breath sample. 88% of the subjects were 0.080 g/210L or greater.

**Distribution of Breath Alcohol Concentration For The First Sample
Statewide Data 2010**

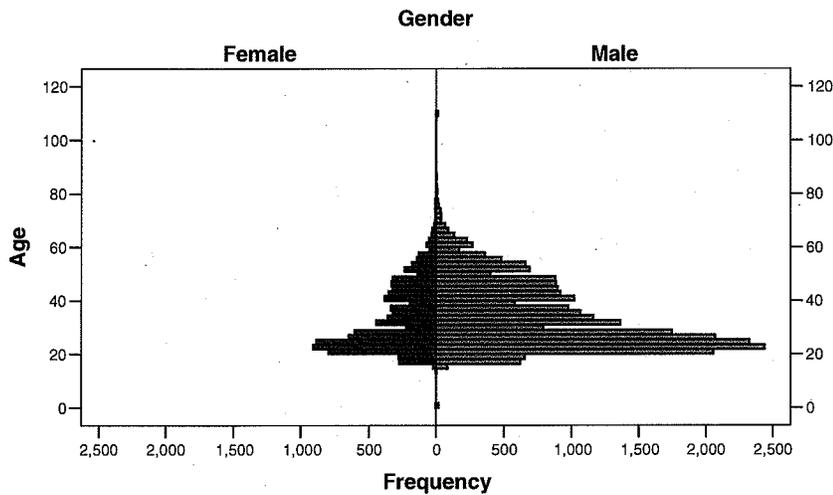


The following plot shows the distribution of subject age for statewide DUI arrests during 2010:

Distribution of Age for Subjects Arrested For DUI Statewide During 2010



The following shows a population pyramid which compares the age distribution for females and males side by side. From this the two distributions can be better compared. We see for the males there are more subjects at the higher ages than for females. Also, there appears to be a larger proportion of males in the 20 to 30 year age group compared to the females. The large majority of males compared to females are clearly seen in comparing the two figures.



The following table shows the mean alcohol concentration for subjects arrested by the Washington State Patrol (WSP) compared to other agencies:

Mean Breath Alcohol Concentration by Agency

alc1

| Agency | Mean | N | Std. Deviation |
|----------------|-------|-------|----------------|
| WSP | .1316 | 14048 | .05025 |
| Seattle PD | .1513 | 945 | .05470 |
| King County SO | .1483 | 587 | .05698 |
| Spokane PD | .1639 | 307 | .05273 |
| Tacoma PD | .1552 | 581 | .05122 |
| Other Agencies | .1466 | 12071 | .05582 |
| Total | .1398 | 28539 | .05365 |

The following table shows the refusal rates by gender:

Gender by Test Refusal Rates

| | | Test Refusal Status | | Total |
|--------|--------|---------------------|-----------------|-----------------|
| | | Refused Test | Provided Sample | |
| Gender | Female | 1351 14.8% | 7762 85.2% | 9113 100.0% |
| | Male | 4841 18.4% | 21465 81.6% | 26306 100.0% |
| Total | | 6192 17.5% | 29227 82.5% | 35419 100.0% |

The following table shows the refusal rate for WSP compared to Other Agencies:

Agency by Refusal Rate

| | | Test Refusal Status | | Total |
|--------|----------------|---------------------|-----------------|-----------------|
| | | Refused Test | Provided Sample | |
| Agency | WSP | 2518 15.0% | 14262 85.0% | 16780 100.0% |
| | Seattle PD | 260 20.7% | 999 79.3% | 1259 100.0% |
| | King County SO | 168 21.5% | 612 78.5% | 780 100.0% |
| | Spokane PD | 120 27.4% | 318 72.6% | 438 100.0% |
| | Tacoma PD | 181 23.3% | 596 76.7% | 777 100.0% |
| | Other Agencies | 2945 19.1% | 12440 80.9% | 15385 100.0% |
| | Total | | 6192 17.5% | 29227 82.5% |

The following table shows refusal rates by racial group:

Refusal Rates by Racial Groups

| | | REF | | Total |
|-------|-----------------|---------------|-----------------|-----------------|
| | | Refused Test | Provided Sample | |
| Race | Asian | 211 15.1% | 1188 84.9% | 1399 100.0% |
| | Black | 551 23.4% | 1806 76.6% | 2357 100.0% |
| | East Indian | 7 21.9% | 25 78.1% | 32 100.0% |
| | Hispanic | 399 16.1% | 2082 83.9% | 2481 100.0% |
| | Native American | 243 26.2% | 685 73.8% | 928 100.0% |
| | Pacific Island | 14 14.0% | 86 86.0% | 100 100.0% |
| | Unknown | 114 17.1% | 552 82.9% | 666 100.0% |
| | White | 4614 16.9% | 22668 83.1% | 27282 100.0% |
| Total | | 6153 17.5% | 29092 82.5% | 35245 100.0% |

The following table illustrates the breath test refusal rates by age group.

Refusal Rate by Age Group

| | | Test Refusal Status | | Total |
|-------|-------------|---------------------|-----------------|-----------------|
| | | Refused Test | Provided Sample | |
| Age | 13 to 19 | 185 9.6% | 1746 90.4% | 1931 100.0% |
| | 20 to 29 | 1980 13.7% | 12493 86.3% | 14473 100.0% |
| | 30 to 39 | 1642 21.0% | 6179 79.0% | 7821 100.0% |
| | 40 to 49 | 1389 22.0% | 4913 78.0% | 6302 100.0% |
| | 50 to 59 | 791 21.8% | 2843 78.2% | 3634 100.0% |
| | 60 to 69 | 162 16.3% | 829 83.7% | 991 100.0% |
| | 70 and Over | 39 16.0% | 204 84.0% | 243 100.0% |
| Total | | 6188 17.5% | 29207 82.5% | 35395 100.0% |

The following table illustrates the breath test refusal rates by each of the Washington State Patrol Districts:

Breath Test Refusal Rates by WSP District

| | Test Refusal Status | | Total |
|------------|---------------------|-----------------|-----------------|
| | Refused Test | Provided Sample | |
| District 1 | 365 13.9% | 2264 86.1% | 2629 100.0% |
| 2 | 678 18.3% | 3017 81.7% | 3695 100.0% |
| 3 | 220 15.6% | 1189 84.4% | 1409 100.0% |
| 4 | 175 14.3% | 1052 85.7% | 1227 100.0% |
| 5 | 177 11.2% | 1401 88.8% | 1578 100.0% |
| 6 | 116 13.8% | 724 86.2% | 840 100.0% |
| 7 | 561 13.7% | 3527 86.3% | 4088 100.0% |
| 8 | 202 16.4% | 1028 83.6% | 1230 100.0% |
| Total | 2494 14.9% | 14202 85.1% | 16696 100.0% |

The following table illustrates the mean breath alcohol concentration obtained in Washington State Patrol DUI arrests by District:

Mean Breath Alcohol Concentration by WSP District

alc1

| Distri | Mean | N | Std. Deviation |
|--------|-------|-------|----------------|
| 1 | .1339 | 2254 | .05041 |
| 2 | .1254 | 2960 | .04781 |
| 3 | .1328 | 1171 | .04999 |
| 4 | .1412 | 1037 | .05352 |
| 5 | .1365 | 1381 | .05098 |
| 6 | .1382 | 714 | .05342 |
| 7 | .1281 | 3466 | .04810 |
| 8 | .1347 | 1008 | .05392 |
| Total | .1316 | 13991 | .05023 |

The following table illustrates the number and percent of Washington State Patrol DUI arrests coming from accident investigations within each District:

Percent of DUI Arrests Coming From Accidents by WSP District

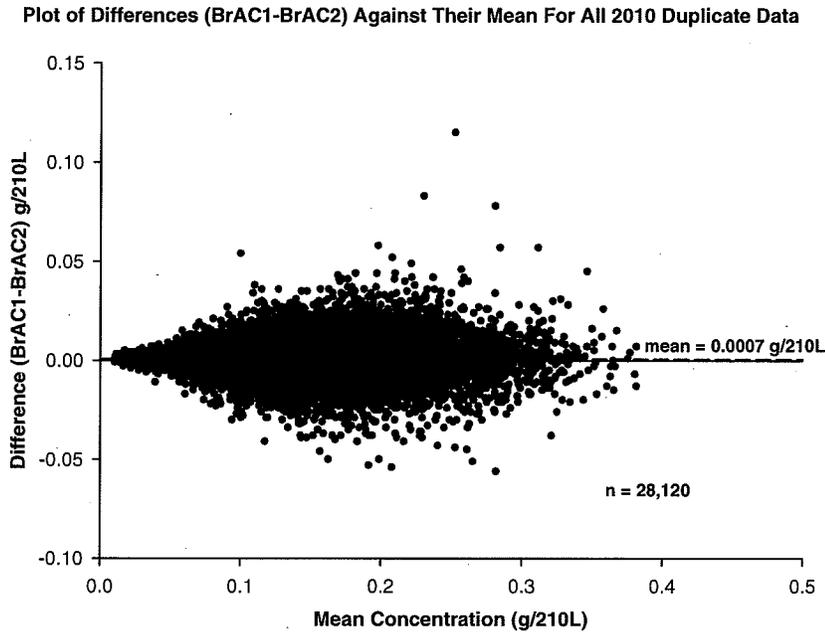
| | Accident | | Total |
|------------|----------------|---------------|-----------------|
| | No Accident | Accident | |
| District 1 | 2234 85.0% | 395 15.0% | 2629 100.0% |
| 2 | 3310 89.6% | 385 10.4% | 3695 100.0% |
| 3 | 1270 90.1% | 139 9.9% | 1409 100.0% |
| 4 | 1040 84.8% | 187 15.2% | 1227 100.0% |
| 5 | 1364 86.4% | 214 13.6% | 1578 100.0% |
| 6 | 759 90.4% | 81 9.6% | 840 100.0% |
| 7 | 3795 92.8% | 293 7.2% | 4088 100.0% |
| 8 | 1051 85.4% | 179 14.6% | 1230 100.0% |
| Total | 14823 88.8% | 1873 11.2% | 16696 100.0% |

The following table illustrates the number and percent of DUI arrests coming from accident investigations for different agencies within the state:

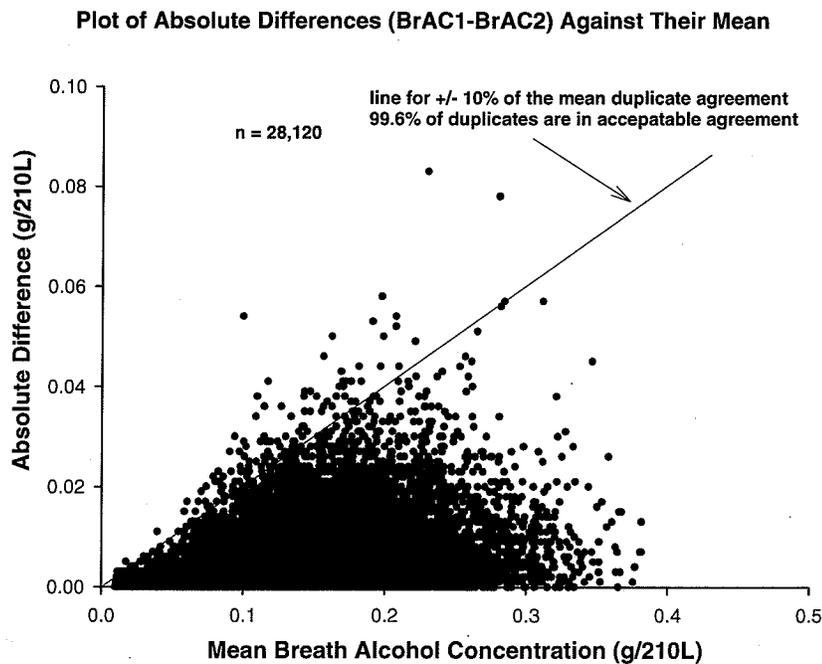
Percent of DUI Arrests Coming From Accidents for Different Agencies

| | Accident | | Total |
|----------------|----------------|---------------|-----------------|
| | No Accident | Accident | |
| Agency WSP | 14901 88.8% | 1879 11.2% | 16780 100.0% |
| Seattle PD | 855 67.9% | 404 32.1% | 1259 100.0% |
| King County SO | 562 72.1% | 218 27.9% | 780 100.0% |
| Spokane PD | 261 59.6% | 177 40.4% | 438 100.0% |
| Tacoma PD | 619 79.7% | 158 20.3% | 777 100.0% |
| Other Agencies | 12636 82.1% | 2749 17.9% | 15385 100.0% |
| Total | 29834 84.2% | 5585 15.8% | 35419 100.0% |

The following figure is a Bland-Altman plot of the duplicate breath test differences against their mean. The mean difference is very close to zero indicating that neither test is systematically higher. The increasing variability with concentration is common.

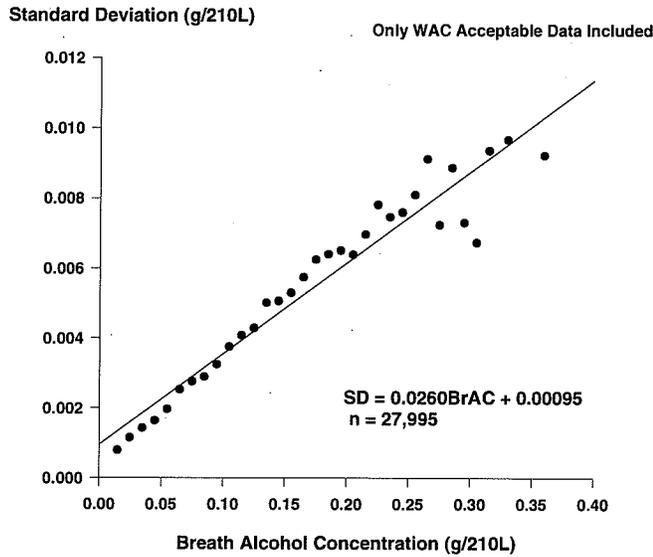


The following figure plots the absolute difference for the duplicate breath tests against their mean. The variability is seen to increase with concentration and illustrates the importance of a relative agreement standard. 99.6% of the duplicates are within the acceptable $\pm 10\%$ of the mean WAC requirement.



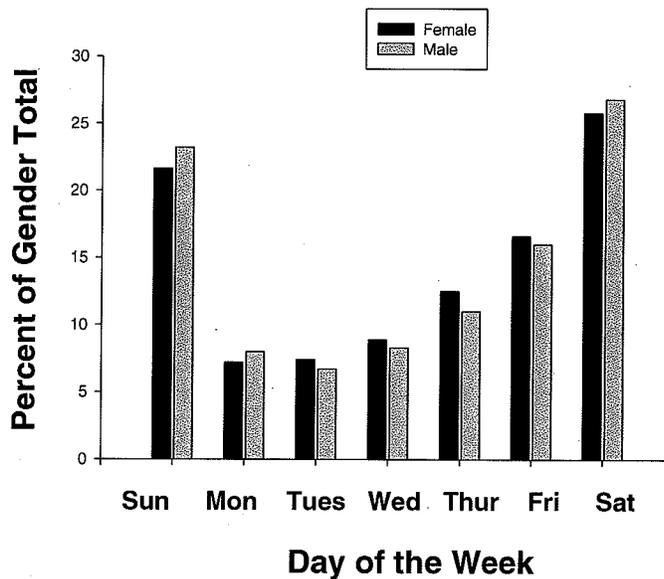
The following is an uncertainty function for breath alcohol analysis. It plots the standard deviation against concentration and is relevant for estimating confidence intervals in breath alcohol measurement.

Plot of Single Determination Standard Deviations Against Breath Alcohol Concentration for Washington 2010 Data



The following plots the percent of the gender total breath tests by day of the week. Both genders track fairly closely for each day of the week. Most testing is done on the weekends.

Percent of Total Breath Tests Administered by Day of the Week for Each Gender



Summarizing Figures:

2.1% of the first breath sample attempts results in "Invalid Sample"

56 (0.2%) of the first breath sample attempts resulted in "Interference Detected"

23.4% of the DUI arrests statewide were done in King County for 2010.

67% of the tests performed in 2009 had a generic code entered for the Liquor Board License Number. 21% had an actual Liquor Board License Number entered as the place where the subject was last drinking. 12% refused to answer.

55% of the subjects were administered PBT tests.

99.6% of the duplicate breath tests agreed within the required $\pm 10\%$ of the mean.

The following shows the top twenty-six liquor licensed establishments identified most frequently in the breath test database during 2010:

| Rank | Name | Location | License Number | |
|------|--|------------|----------------|-----|
| 1 | J.R.'s | Marysville | 359777 | 118 |
| 2 | Tulalip Casino | Marysville | 85216 | 107 |
| 3 | The Jet Bar and Grill | Mill Creek | 368641 | 91 |
| 4 | Lady Luck Cowgirl Up Steakhouse | Tacoma | 357687 | 83 |
| 5 | Wayne's Inn | Puyallup | 357372 | 65 |
| 6 | Snoqualmie Casino | Snoqualmie | 402435 | 53 |
| 7 | Joker's Casino | Richland | 357267 | 48 |
| 8 | O Finnigan's Pub | Everett | 351609 | 40 |
| 9 | Emerald Queen Casino | Fife | 366407 | 39 |
| 10 | Rumors Caberet | Bellingham | 80743 | 36 |
| 11 | Schotze's | Everett | 77604 | 34 |
| 12 | Yella Beak Saloon | Enumclaw | 353633 | 34 |
| 13 | Mukelshoot Casino | Auburn | 79098 | 32 |
| 14 | McClouds | Bremerton | 86908 | 32 |
| 15 | Times Out | Kirkland | 351434 | 31 |
| 16 | Susie's Bourbon Street Bistro and Bar | Yakima | 76027 | 30 |
| 17 | MASA | Tacoma | 353112 | 29 |
| 18 | Kelvin G's Tropic Blast and Tiki Bar | Bremerton | 363803 | 29 |
| 19 | Charlie's Bar and Grill | Vancouver | 76348 | 28 |
| 20 | The Parlor, Bellevue's Billiards and Spirits | Bellevue | 88472 | 28 |
| 21 | Dodge City Bar and Grill | Vancouver | 365465 | 28 |
| 22 | The Royal | Olympia | 400636 | 28 |
| 23 | The Royal Inn | Bellingham | 353649 | 27 |
| 24 | Club Lava | Oak Harbor | 351800 | 26 |
| 25 | Safeco Field | Seattle | 356942 | 26 |
| 26 | Daverthumps Too | Lynnwood | 357903 | 26 |

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