

Creating New Data for Social Norms: Results from Late Night Breathalyzer Testing

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1. Abstract

More than 1,800 random late-night blood alcohol tests with matched surveys have been conducted every night of the week spanning every month of the school year. 60% of students sampled had a BAC level of 0.00% and 76% were at 0.05% or less. Very strong social norms messages can be developed from these data to bolster the credibility of self-report based media campaigns. Protocols for data collection, safety and liability provisions, assessment of the agreement of measured BAC levels with estimated BAC levels from self report survey data, and sample BAC distributions are presented. A relationship between Friday class enrollments and Thursday night drinking is explored as well as an assessment of the credibility and perceptions of BAC distributions among student populations.

2. Motivation for an Alcohol Research Program in a Chemistry Department

- ◆ Damage due to alcohol abuse is high and of great concern for students, faculty, and administration.
- ◆ Recent research has shown that students misperceive alcohol use to be much greater than it actually is. Programs that correct this misperception actually result in reduced levels of abuse.
- ◆ Biochemical information of the levels on alcohol use among students, and the impairment they experience can contribute to reductions in misperceptions of heavy use and therefore strengthen prevention programming on campus.
- ◆ Chemistry can provide an important service to campus community and give a unique research opportunity to students at the same time (primarily biochemistry majors and students in pre-health program).

3. Protocol for Conducting a BAC Survey

- ◆ Data collection times were selected when the perceived greatest amount of drinking was taking place -- 11pm – 3am
- ◆ Measurement stations were established just inside a randomly selected residence hall each night of the week. Subjects were randomly selected.
- ◆ Subjects were provided with an explanation of the goals of the project, the anonymity of the data collected, and their voluntary participation.
- ◆ Subjects agreeing to participate submitted a breath sample for analysis on an instrument that only reported a sample number and completed a short two page survey.
- ◆ Subjects were provided with a card with their sample number and told that they could call to get their BAC the next day.

4. Data Collection Station



Breathalyzer and Calibration Simulator

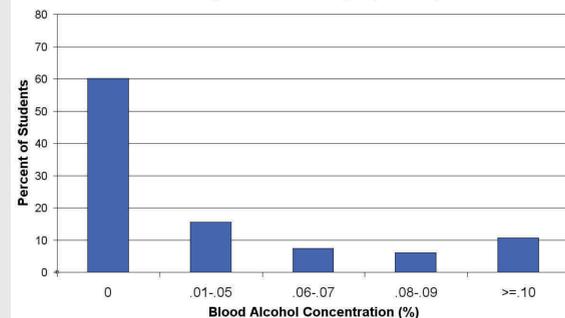


5. Sample Characteristics

- ◆ 1837 Participants through Fall 2006
- ◆ 85% participation of those randomly selected
- ◆ 54% males, 46% females
- ◆ 18% over 21, 82% under 21
- ◆ 65% from school nights and 35% from weekend nights
- ◆ Class rank: 45% 1st yr, 26% 2nd yr, 17% 3rd yr, and 12% 4th yr

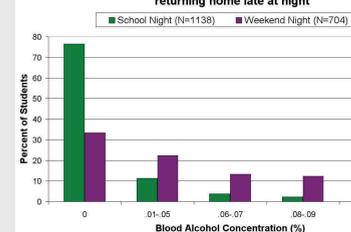
7. BAC Distributions

Distribution of BAC levels of HWS students returning home late at night (N=1837)

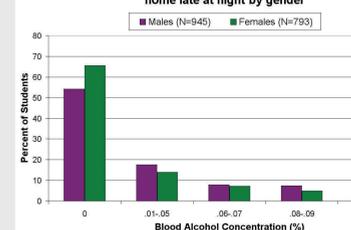


60% are returning home with 0.0% blood alcohol concentration.
76% are returning home at 0.05% or lower blood alcohol concentration

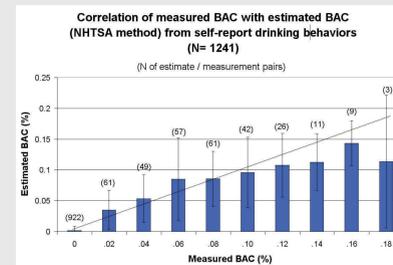
Distribution of BAC levels of HWS students returning home late at night by gender



Distribution of BAC levels of HWS students returning home late at night by class year



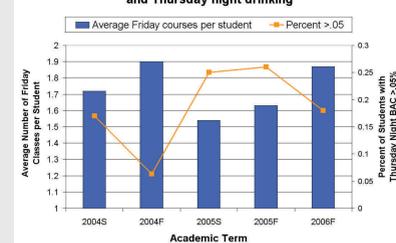
6. Correlation of NHTSA-Estimated BAC to Measured BAC



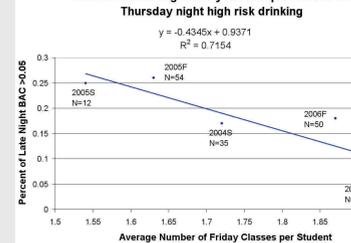
Standard Error of Estimate: 0.027%
Regression Coefficient: 0.979% +/- .021

8. Correlation of Friday Class Enrollments on Thursday Night Drinking

Changing Friday enrollment patterns and Thursday night drinking



Influence of average Friday classes per student on Thursday night high risk drinking



Linear regression results for average number of Friday classes predicting Thursday night blood alcohol level risk category* (N=214) controlling for gender and underage/age differences.

Dependent Variable	Unstandardized Coeff.	Standardized Coeff.	Significance
Avg. Friday Courses per Student	-1.66	-0.162	0.018
Gender	0.292	0.116	0.088
Of age	0.095	0.029	0.667

*BAC risk categories: 0.0%, 0.01 - 0.05%, 0.06 - 0.07%, 0.08 - 0.09%, >=0.10%

9. Implications for social norms

An assessment of BAC misperceptions among student-athletes

	School Nights	Weekend Nights
Actual percent with 0.05% BAC or less	83	49
Percent erroneously perceiving fewer student-athletes with 0.05% BAC or less than is actually the case*	56	67

*Data supplied by HWS MVP project.

10. Effect of norm message exposure during a single 30 minute session in residence halls on perceptions of alcohol consumption frequency and BAC distributions (N = 134)*

Norm Message	Percent believing the norm prior to media exposure	Percent believing the norm after media exposure
Most HWS student consume alcohol one night a week or do not drink at all.	40	40
88% of HWS students return home late at night with a BAC of 0.05 or less on a school night	62	70

*Data collected using remote response devices ("clickers") in evening residence hall floor meetings conducted by students in FSEM 060.

What's Your BAC?
Blood Alcohol Concentration (g/dL)

75% of HWS Students Blew a 0.05 or lower BAC Returning Home Late at Night

Data collected from 1,261 randomly selected students returning to residence halls late at night between 11pm and 3am during Spring '03, Fall '03, Spring '04, Fall '04, and Spring '05

Distribution of BAC levels of HWS students returning home late at night

BAC measurements were collected every night of the week (59% of sample from school nights, 41% from weekend nights). Men are 53% of the sample and women are 47% of the sample.

These results were obtained from chemistry department independent study and honors students advised by Professor David W. Craig: David Heron (H03), Maranda Bliss (WS03), Zachary Schneider (H04), Matthew Yarger (H04), Jeffrey Quinto (H05), Adam Bordonaro (H05), Lauren Giannini (WS05), and Andrew Stern (H05).

See <http://people.hws.edu/craig/bac> for more information

What's Your BAC?
Blood Alcohol Concentration (g/dL)

72% of Males and 78% of Females Blew a 0.05 or lower BAC Returning Home Late at Night

Data collected from 1,261 randomly selected students returning to residence halls late at night between 11pm and 3am during Spring '03, Fall '03, Spring '04, Fall '04, and Spring '05

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What's Your BAC?
Blood Alcohol Concentration (g/dL)

88% on School Nights and 56% on Weekend Nights Blew a 0.05 or lower BAC Returning Home Late at Night

Data collected from 1,261 randomly selected students returning to residence halls late at night between 11pm and 3am during Spring '03, Fall '03, Spring '04, Fall '04, and Spring '05

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82% of HWS student-athletes blew a 0.05 or lower BAC returning home late at night

Distribution of BAC levels of HWS student-athletes returning home late at night

BAC Level (%)	Percent of Students
0	68.4
.01-.05	13.5
.06-.07	5.6
.08-.09	6.8
>=1.0	5.6

Source: Data collected from 194 randomly selected student-athletes returning to residence halls late at night between 11pm and 3am every night of the week during Fall '04, Spring '05, and Fall '05.

These results were obtained from chemistry department independent study and honors students advised by Professor David W. Craig: Jeffrey Quinto (H05), Lauren Giannini (WS05), Andrew Stern (H05), Adam Bordonaro (H06), John Bowie (H06), Patrick O'Brien-Gorman (H06), Sam Brewer (H06), Alana Braten (WS06), and Lia Blue (WS06).