# Traditional Prevention Strategies and the Social Norms Approach to Reducing Substance Abuse 

H. Wesley Perkins, Ph.D.

Professor of Sociology
Hobart and William Smith Colleges
Geneva, New York
www.AlcoholEducationProject.org


## Prevention Today Requires Science Based Strategies

## 1. Good Theoretical Reasoning

2. Good Data (Evidence Based)

## Current Theoretical Models for Substance Abuse Prevention

- Health Education
- Health Terrorism
- Social Control
- Social Norms


## Starting Point for Social Norms Approach

## Humans are group oriented.

We are largely influenced by and conform to peer norms.

## Long Tradition of Theory and <br> Research on Peer Influence and Conformity to Peer Norms

What about Perceptions of Peer Norms?

## First came observations

Personal Attitudes and Perceived Norms about Alcohol Use among College Students (Source: Perkins and Berkowitz, 1986)
Personal Perceived

Items

1) One should not drink,
2) never get drunk, or 3) never drink to an intoxicating level that interferes with academics or other responsibilities.
3) Occasional drunkenness interfering with academics or responsibilities is OK, or
4) a frequent drunk is okay.

Personal
Attitudes


Norm


63
\%

Then came theory

## Peer Influence on Substance Use



Then came more observations

# College Student AOD Norms in NY State (Core Survey Data, 1996) 

## $\underline{\text { ALCOHOL }}$

- Actual Norm - Drinking Twice/Month or Less Often (60\%) ; only 5\% drinking daily
- Perceived Norm - 89\% Believe the Typical Student Drinks at least Weekly. 25\% Believe Daily Drinking is the Norm.


# College Student AOD Norms in NY State (Core Survey Data, 1996) 

## TOBACCO

- Actual Norm - No Use (54\%) with only 26\% using daily
- Perceived Norm - 94\% Believe the Typical Student is a User. 69\% Believe Daily Use is the Norm.


# College Student AOD Norms in NY State (Core Survey Data, 1996) 

## MARIJUANA

- Actual Norm - No Use (66\%) with only 13\% using weekly
- Perceived Norm - 92\% Believe the Typical Student is a User. 65\% Believe Weekly Use is the Norm.


# College Student AOD Norms in NY State (Core Survey Data, 1996) 

## HALLUCINOGENS

- Actual Norm - No Use (91\%)
- Perceived Norm - 61\% Believe the Typical Student is a User . 15\% Believe Weekly Use is the Norm.


# College Student AOD Norms in NY State (Core Survey Data, 1996) 

## COCAINE

- Actual Norm - No Use (95\%)
- Perceived Norm - 61\% Believe the Typical Student is a User . 16\% Believe Weekly Use is the Norm.


# College Student AOD Norms in NY State (Core Survey Data, 1996) 

## STEROIDS

- Actual Norm - No Use (99\%)
- Perceived Norm - 56\% Believe the Typical Student is a User. 17\% Believe Weekly Use is the Norm.

Students' Misperceptions of the Norm for the Number of Drinks Consumed the Last Time Other Students "Partied"/Socialized at Their School
(NCHA Nationwide Data from 72,719 Students Attending 130 Schools, 2000-03)
Source: HW Perkins, M Haines, and R Rice, Journal of Studies on Alcohol, 2005.

| Accuracy of Perceived Drinking Norm |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Under- <br> estimate by <br> 3+ Drinks | Under- <br> estimate by <br> 1-2 Drinks | Accurate <br> Estimate | Over- <br> estimate by <br> $1-2$ Drinks | Over- <br> estimate by <br> 3+ Drinks |  |
| $3 \%$ | $12 \%$ | $14 \%$ | $32 \%$ | $39 \%$ |  |
|  |  |  |  |  |  |
| 71\% Overestimate |  |  |  |  |  |
| Peer Drinking! |  |  |  |  |  |

## Actual Gender Norms vs. Young Adult Perceptions of Gender Norms



Source: JW Linkenbach \& HW Perkins, 2003

## Comparison of Perception of Behavior of Self with Perception of Behavior of Others N=2471 (9 NH Higher Ed. Inst.,2001)



Behavior

## Web Surveys Online

## Social Norms Surveys Online

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Social Norm Surveys Online
Hobart and William Smith Colleges, Geneva, NY 14456
http://www. socialnormsurveys.org

## Survey of Student Norms

## Español

Please login.

## Drinking Norm and Perceived Norms Among 9th Graders in a Secondary School in Central New York State

7. How many alcoholic drinks, if any, do you think each of the following students on average typically consume at parties or social occasions? Just give your best estimate of what is most typical for each category (a through h).
a. Yourself
b. Your Friends
c. Students in your Grade
d. Males
e. Females
f. Juniors and Seniors
g. Drop Outs
h. High School AthletesMedian Response

## Myth and Reality at Midwest High School:

Results from a Fall 2005 Survey of Student Norms
Conducted at a Midwestern School
http://alcohol.hws.edu

## Who Participated?

## Almost Everyone!

1,116 students took the survey $96 \%$ of the entire student body

## Quantity of Alcohol Typically Consumed at Parties and Social Gatherings



## Sample Secondary School Data

119 School Cohorts Surveyed
Grade (Year) Levels Ranged from 6-12
12 States across the USA
52,462 Respondents

$\square$ actual norm $\square$ accurately perceived norm

## Grades 9-12 <br> Personal Tobacco Use and Perceived Norm




## Grades 6-8 <br> Personal Alcohol Use and Perceived Norm



## Grades 9-12 <br> Personal Alcohol Use and Perceived Norm



Source: HW Perkins and DW Craig, Alcohol Education Project, 2008.

## Two indisputable findings in the research literature:

1. The peer norm is one of the strongest predictors of personal behavior.
2. Peer norms about substance use and other risk behaviors are grossly misperceived in the direction of overestimated behavior and permissiveness in attitudes.

## Research Shows <br> Misperceived ATOD Norms Exist

- In All Types of Colleges (Regions, Size, Programs, Actual Norms)
- In Primary and Secondary Schools
- Across Subpopulations of Youth
- In a State-wide Population of Young Adults
- For Attitudes, Use, Policy Support, and Protective Behaviors
- For All Types of Drugs


## Back to Theory

## Cause of Misperceptions

- Psychological - mental attribution processes
- Social psychological - memory and conversation patterns
- Cultural - entertainment, advertising, news and health advocacy media

Source: HW Perkins, "Social Norms and the Prevention of Alcohol Misuse in Collegiate Contexts," Journal of Studies on Alcohol, 2002.



Illinois Attorney General Jim Ryan \& Illinois Association of Park Districts


## Consequences of Misperceptions

- Definition of the situation produces a "Reign of Error"
- Actual Use and Abuse Increases
- Layers of Misperceptions Compound
- Opposition is Discouraged from Speaking
- Intervention by Others Declines
- "Carriers" of Misperception Contribute to the Problem

Source: H. W. Perkins, "Designing Alcohol and Other Drug Prevention Programs...," 1997

# Translating Social Norms Theory into Prevention Strategies 

## The Social Norms Model



## A HEALTHY Dose of Reality...



## A HEALTHY Dose of Reality...



## Examples of Strategies to Reduce Misperceptions and Strengthen Positive Norms

- Print media campaigns


## $67 \%$ of all students consume alcohol

## once per week

or less often
or do not drink at all．

0 （1）：Spring 2011 Survey of all HWS students with 836 respondents， conducted by BIDS 295

## wuwl．hus．edu／u／JISfFacts

This message is part of a program presenting facts about HWS students．These facts which may be personally surprising，affirming or disturbing， are intended to challenge commonly held misperceptions and generate conversation about actual characteristics of the HWS community． are intended to chalienge commonly held misperceptions and generate conversation about actual characteristics of the HWS community． the most accurate information available based on representative data about HWS students is provided here．For more information about this fact the most accurate information avaliable based on representative data about HWS studen
and the survey from which it was drawn see＂BIDS Survey＂at：www．hws．edu／JustFacts．

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## The majority of HWS students (54\%) typically consume four or fewer drinks or no drinks with alcohol when partying.



## 01 (1) all HWS students with 836 respondents, conducted by BIDS 295

## www.lws.edil/dusifircls

This message is part of a program presenting facts about HWS students. These facts which may be personally surprising, affirming or disturbing, are intended to challenge commonly held misperceptions and generate conversation about actual characteristics of the HWS community. Research demonstrates that people frequently misperceive peer attitudes and behaviors and may be influenced by these misperceptions. Only the most accurate information available based on representative data about HWS students is provided here. For more information about this fact and the survey from which it was drawn see "BIDS Survey" at: www.hws.edu/JustFacts.


## HWS student－athletes

## 90\％of HWS student－

 athletes believe that students should not drink to an intoxicating level that affects academic work or other responsibilities．SOURCE：Spring 2010 web survey of 334 HWS student－athletes．


## What is your protective strategy? <br> JInHICUI



## SOURCE

Fall 2010 National College Health Assessment Survey
conducted anonymously online with 389 HWS respondents.
www.hws.edu/JustFacts
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What is your protective strategy?

## गIחHICUI


of HWS students always use a DESIGNATED DRIVER when they have been drinking at a
or they do not drink at all.

## SOURCE

Fall 2010 National College Health Assessment Survey conducted anonymously online with 389 HWS respondents.
www.hws.edu/JustFacts
Tib meseage b pert of a progam preserting tats about TMS staberks. Thene foxts whict
 mbpesseptions and genemith corvosation about actuel charecterbibla of the HWS commanity.







Most
students avoid problems of alcohol misuse:

92\% of HWS students NEVER submit late papers or exams as a result of drinking during the academic year.
$87 \%$ of HWS students NEVER cause property damage as a result of drinking during the academic year.
$81 \%$ of students NEVER cause damage to relationships as a result of drinking during the academic year.

## www.hws.rdu/ulusifacis

ich may be personally


SOURCE836 respondents, conducted by BIDS 295


## 88\%

## of HWS students NEVER submit

 late papers or exams as a result of drinking during the academic year.Data drawn from a Spring 2005 survey of a representative cross-section of HWS students with 272 respondents.


Source: Data drawn from all intercollegiate athletes ( $\mathrm{N}=99$ ) participating in a Spring $\mathbf{2 0 0 0}$ mail survey of a representative cross-section of HWS students.

## Did you know that...



## 7 out of 10 HWS student-athletes ( $\mathbf{7 0 \%}$ ) believe one should never use tobacce



Source: Fall $\mathbf{2 0 0 5}$ Web survey of all HWS student-athletes with $\mathbf{3 6 9}$ respondents ( $\mathbf{7 9 \%}$ of all student-athletes on eampus).


Source: Data collected from 194 randomly selected student-athletes returning to residence halls late at night between 11 pm and 3 am 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 Gianniny (WS05),
Andrew Stem (H05), Adam Bordonaro (H06), John Bowic (H06), Patrick O'Brien-Gorman (H06), Sam Breier (H06), Alana Braren (WS06), and Lia Blue (WS06)
$82 \%$ of HWS student-athletes never injure themselves or others as a result of alcohol consumption during the academic term.


Source: Data drawn from a November 2001 survey of 414 HWS student-athletes ( $86 \%$ of all athletes on campus).

## Most HWS Student-Athletes



Source: November 2006 web survey of 345 HWS student-athletes ( $71 \%$ of all intercollegiate athletes on campus).


## Most of Us

$$
4 \text { out of } 6
$$

Dekal b \& sycamore study, DCP/SAFE, ( $\mathrm{N}=1172,2001$ )
Haven't used alcohol during the past 30 days


## UMOTED

Most of Us
Most of Us Are Healthy Most of Us Don't Drink Most of Us


DeKalb \& Sycamore Study, DCP/SAFE, (N=1172, 2001)


## 8 out of 10 don't Imoke!



Health tools to share:

1. Leave places where people are smoking
2. Say "No thanks" if someone offers you tobacco
3. Avoid places where people are smoking

DeKalb \& Sycamore Study, DCP/SAFE, ( $\mathrm{N}=654,2000$ )


- 83 \% choose not to


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## Sample Print Media - Summit, CO



## MOST Summit High School

 students are healthy and active.
## 7 out of 10

 DON'T DRINK in an average week.*

## strength in Numbers Just the Facts:

When Grand Canyon High School South students were asked about their last 30 days in a Fall 2006 survey, the majority-
...had NOT used tobacco (84\%)
...had NOT used alcohol (67\%)
...had NOT used marijuana (87\%).


Source: Based on a Spring 2007 survey of 411Colorado Central High School students in all grades.

## High School Teens in the City of Rochester Did You Know?

87\% of high school teens do not smoke cigarettes.
3 out of 4 do not use marijuana.
Two-thirds (66\%) do not drink alcohol.
4 out of 5 do not ride with a driver who has been drinking alcohol.
8 out of 10 teens know their parents think it is wrong for them to drink alcohol.

9 out of 10 teens know their parents think it is wrong for them to smoke cigarettes.






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 24 surwjed reportd notdrixingater consuming $2+$ drinks witin ore hour in the matit before the surwy

## Illost Cascade County Young fidults [82\%] Don't Drink [82\%] Don't Drink and Drive

MOST of Us ${ }^{\text {TN }}$ prevent drinking fidriuing.





# Examples of Strategies to Reduce Misperceptions and Strengthen Positive Norms 

- Print media campaigns
- PSA campaigns
- Peer education programs and workshops for targeted risk groups http://www.alcoholeducationproiect.org/mvp/peer.html
- New student orientation presentations
- Counseling interventions
- Curriculum infusion
- Electronic multimedia


## Data Testing the Theory

## Research on Effects of Perceived Norms and Social Norms Intervention Programs

- Multi-site cross-sectional studies
- Longitudinal panel studies
- Brief intervention experiments using random assignment
- Longitudinal pre/post case studies of school populations
- Experiments with experimental and control counties
- Experiments with experimental and control classroom interventions
- Longitudinal experiments randomly assigning institutions to experimental and control conditions


## Evaluation of Program Effects of First 18 Months at HWS

 (Rates of Change)- Frequent Heavy Drinking:
- 21\%
- Consequences of Drinking
- property damage
- 36\%
- missing class
- 31\%
- inefficient in work
- 25\%
- unprotected sex
- 40\%
- memory loss
- 25\%


## Similar Initial Effects in Rates of Heavy Drinking Reduction at Different Schools Over 2 Years

- Hobart \& Wm. Smith Colleges, NY -21\%
- University of Arizona
-21\%
- Western Washington University -20\%
- Rowan University, NJ
-20\%
- Northern Illinois University
-18\%

Source: H. W. Perkins (ed.), The Social Norms Approach to Preventing School and College Age Substance Abuse, 2003.

## Results of HWS "MVP" Project: A Social Norms Intervention to Reduce High-Risk Drinking among Student-Athletes

- $46 \%$ reduction in the proportion of student-athletes drinking more than once per week
- 30\% reduction in the proportion of student-athletes reaching an estimated BAC of $\mathbf{. 0 8 \%}$ or greater when drinking at parties and bars
- $34 \%$ reduction in the proportion of student-athletes experiencing frequent negative consequences due to drinking during the academic term

Source: Perkins and Craig, J. of Studies on Alcohol, 2006

- $\mathbf{3 8 \%}$ reduction in the proportion of student-athletes using tobacco weekly
- a 2.5 hours per week increase in time spent in academic activities, on average, for each student-athlete

Table 14.2 Self-Reported Alcohol and Cigarette Use by 10 th Grade Students

|  | Year | Percent | N |  |
| :---: | :---: | :---: | :---: | :--- |
| More than a few sips of alcohol <br> in the last 30 days | 1999 | $45 \%$ | 317 |  |
| Five or more drinks in a row in | 1999 | $27 \%$ | 318 | $*$ |
| the last two weeks | 2001 | $33 \%$ | 379 |  |
| Got drunk | 1999 | $32 \%$ | 319 | $*$ |
| in the last 30 days | 2001 | $26 \%$ | 382 |  |
| Smoked cigarettes | 1999 | $27 \%$ | 319 | $*$ |
| in the last 30 days | 2001 | $19 \%$ | 380 |  |

Note: An asterisk denotes a significant decrease ( $p<.05$ ) from the 1999 survey year.

Source: Haines, Barker, and Rice in H. W. Perkins (ed.), The Social Norms
Approach to Preventing School and College Age Substance Abuse, 2003.

## Montana Youth Trying Smoking For the First Time between 2000 and 2001


*Significant difference between intervention and control groups at p < . 05
Source: Linkenbach and Perkins, 2003.

## "MOST OF US DO NOT DRINK AND DRIVE" Norm Message Recall Associated w/ Lower DUI Risk



None Norm Other
Message recalled
Source: Linkenbach, J. and H. W. Perkins. 2005.


Linkenbach, Jeff and H. Wesley Perkins. 2005. Montana’s MOST of Us® Don’t Drink and Drive Campaign: A Social Norms Strategy to Reduce Impaired Driving Among 21-to-34Year-Olds. National Highway Traffic Safety Administration (Report No. DOT HS 809 869), Washington, DC.

Percent Recalling Social Norms Message about Drinking as the Main Message From Media (compared to recalling other or no message)


Survey Time Points

## Results of Montana Young Adult Experiment on Drinking and Driving

- The campaign successfully reduced the misperceptions (overestimates) of impaired driving among peers in intervention counties.
- Intervention counties had a $14 \%$ relative decrease in reported driving after drinking and a $15 \%$ relative increase in using nondrinking designated drivers compared to the control counties


## Multi-Year Assessments of Social Norms Campaign Impact

## Heavier drinking, norm misperceptions, and injuries among NIU students, 1988-1998



Note: During survey years 1992-1994, comparable injury questions were not included.

Source: M. Haines and G. Barker, "The Northern Illinois University Experiment: A Longitudinal Case Study of the Social Norms Approach." In Perkins (ed.), The Social Norms Approach to School and College Age Substance Abuse, 2003.

## Multi-Year Assessment of Campaign Impact at HWS



Source: H.W. Perkins and D. Craig. A Multifaceted Social Norms Approach to Reduce High-Risk Drinking: Lessons from Hobart and William Smit Colleges. Newton, MA: The Higher Education Center for Alcohol and Other Drug Prevention and the U.S. Department of Education, 2002.

## Multi-Year Intervention Impact at HWS on Liquor Law Arrests



Source: H.W. Perkins and D. Craig. A Multifaceted Social Norms Approach to Reduce High-Risk Drinking: Lessons from Hobart and William Smit Colleges. Newton, MA: The Higher Education Center for Alcohol and Other Drug Prevention and the U.S. Department of Education, 2002.

## Social Norms Marketing Programs at the University of Virginia



[^0]
# Six Years of Declining Negative Consequences <br> Related to Alcohol Misuse Among Students Exposed to a Social Norms Intervention at U of Virginia 

Source: J Turner, H W Perkins, J Bauerle, Journal of American College Health, 2008

|  | $\underline{2001}$ | $\underline{2002}$ | $\underline{2003}$ | $\underline{2004}$ | $\underline{2005}$ | $\underline{2006}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| \% No Consequences | 33 | 38 | 44 | 46 | 48 | 51 |
| \% Multiple Consequences | 44 | 40 | 36 | 34 | 31 | 26 |

[^1]Personal Attitudes and Perceived Norms about Alcohol Use among College Students (Source: Perkins and Berkowitz, 1986)
Personal Perceived

Items

1) One should not drink,
2) never get drunk, or 3) never drink to an intoxicating level that interferes with academics or other responsibilities.
3) Occasional drunkenness interfering with academics or responsibilities is OK, or
4) a frequent drunk is okay.

Personal
Attitudes


Norm


63
\%

Personal Attitudes and Perceived Norms about Alcohol Use among College Students (Source: Perkins and Berkowitz, 1986)
Personal Perceived

Items

1) One should not drink,
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Personal
Attitudes


Students' Misperceptions of the Norm for the Number of Drinks Consumed the Last Time Other Students "Partied"/Socialized at Their School
(NCHA Nationwide Data from 72,719 Students Attending 130 Schools, 2000-03)
Source: HW Perkins, M Haines, and R Rice, Journal of Studies on Alcohol, 2005.

| Accuracy of Perceived Drinking Norm |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Under- <br> estimate by <br> 3+ Drinks | Under- <br> estimate by <br> 1-2 Drinks | Accurate <br> Estimate | Over- <br> estimate by <br> $1-2$ Drinks | Over- <br> estimate by <br> 3+ Drinks |  |
| $3 \%$ | $12 \%$ | $14 \%$ | $32 \%$ | $39 \%$ |  |
|  |  |  |  |  |  |
| 71\% Overestimate |  |  |  |  |  |
| Peer Drinking! |  |  |  |  |  |

Students' Misperceptions of the Norm for the Number of Drinks Consumed at Parties and Social Occasions - 2011 HWS Survey

> Actual Norm = 4-5 drinks

| Accuracy of Perceived Drinking Norm |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Under- <br> estimate by <br> 3+ Drinks | Under- <br> estimate by <br> 1-2 Drinks | Accurate <br> Estimate | Over- <br> estimate by <br> $1-2$ | Over- <br> estimate by <br> 3+ Drinks |
| $.4 \%$ | $14 \%$ | $38 \%$ | $25 \%$ | $22 \%$ |

# When is the Social Norms Approach Most Effective? 

- Clear positive norm messages
- Credible data
- Absence of competing scare messages
- Dosage is high (ongoing and intense social marketing of actual norms)
- Synergistic strategies
- Broad student population receives message in addition to any high-risk target groups



## Campus Survey Data Demonstrating the Norm for Student Alcohol Consumption

(spreadsheet data revealing the skewed distribution of student drinking patterns supporting the " $2 / 3=1 / 4$ " campaign in 2003)



Source: Alcohol Education Project, Hobart and William Smith Colleges, 2003 survey data presented in lecture on social norms for course on Alcohol Use and Abuse (Professors H.W. Perkins and D.W. Craig)

## " $2 / 3=1 / 4$ " in 2013

The 2013 results on drinks per week at HWS show the same consistent skew as found in previous years and at other schools.

Most HWS students consume a relatively small portion of the overall consumption and a minority consume most of the drinks consumed per week.


| Average Drinks Per Week | Number of Students | Total Drinks | Cumulative Students |
| :---: | :---: | :---: | :---: |
| 0 | 44 | 0 | 44 |
| 1 | 59 | 59 | 103 |
| 2 | 44 | 88 | 147 |
| 3 | 49 | 147 | 196 |
| 4 | 50 | 200 | 246 |
| 5 | 37 | 185 | 283 |
| 6 | 38 | 228 | 321 |
| 7 | 20 | 140 | 341 |
| 8 | 40 | 320 | 381 |
| 9 | 7 | 63 | 388 |
| 10 | 65 | 650 | 453 |
| 11 | 2 | 22 | 455 |
| 12 | 26 | 312 | 481 |
| 13 | 1 | 13 | 482 |
| 14 | 12 | 168 | 494 |
| 15 | 31 | 465 | 525 |
| 16 | 6 | 96 | 531 |
| 17 | 2 | 34 | 533 |
| 18 | 11 | 198 | 544 |
| 20 | 25 | 500 | 569 |
| 21 | 1 | 21 | 570 |
| 22 | 1 | 22 | 571 |
| 23 | 1 | 23 | 572 |
| 24 | 4 | 96 | 576 |
| 25 | 9 | 225 | 585 |
| 27 | 2 | 54 | 587 |
| 28 | 1 | 28 | 588 |
| 30 | 17 | 510 | 605 |
| 31 | 1 | 31 | 606 |
| 35 | 2 | 70 | 608 |
| 36 | 1 | 36 | 609 |
| 40 | 7 | 280 | 616 |
| 45 | 2 | 90 | 618 |
| 50 | 3 | 150 | 621 |
| 54 | 1 | 54 | 622 |
| 60 | 1 | 60 | 623 |
| 70 | 2 | 140 | 625 |


| Average Drinks Per Week | Number of Students | Total Drinks | Cumulative Students | Cumulative Drinks |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 44 | 0 | 44 | 0 |  |
| 1 | 59 | 59 | 103 | 59 |  |
| 2 | 44 | 88 | 147 | 147 |  |
| 3 | 49 | 147 | 196 | 294 |  |
| 4 | 50 | 200 | 246 | 494 |  |
| 5 | 37 | 185 | 283 | 679 |  |
| 6 | 38 | 228 | 321 | 907 |  |
| 7 | 20 | 140 | 341 | 1047 |  |
| 8 | 40 | 320 | 381 | 1367 |  |
| 9 | 7 | 63 | 388 | 1430 |  |
| 10 | 65 | 650 | 453 | 2080 |  |
| 11 | 2 | 22 | 455 | 2102 |  |
| 12 | 26 | 312 | 481 | 2414 |  |
| 13 | 1 | 13 | 482 | 2427 |  |
| 14 | 12 | 168 | 494 | 2595 |  |
| 15 | 31 | 465 | 525 | 3060 |  |
| 16 | 6 | 96 | 531 | 3156 |  |
| 17 | 2 | 34 | 533 | 3190 |  |
| 18 | 11 | 198 | 544 | 3388 |  |
| 20 | 25 | 500 | 569 | 3888 |  |
| 21 | 1 | 21 | 570 | 3909 |  |
| 22 | 1 | 22 | 571 | 3931 |  |
| 23 | 1 | 23 | 572 | 3954 |  |
| 24 | 4 | 96 | 576 | 4050 |  |
| 25 | 9 | 225 | 585 | 4275 |  |
| 27 | 2 | 54 | 587 | 4329 |  |
| 28 | 1 | 28 | 588 | 4357 |  |
| 30 | 17 | 510 | 605 | 4867 |  |
| 31 | 1 | 31 | 606 | 4898 |  |
| 35 | 2 | 70 | 608 | 4968 |  |
| 36 | 1 | 36 | 609 | 5004 |  |
| 40 | 7 | 280 | 616 | 5284 |  |
| 45 | 2 | 90 | 618 | 5374 |  |
| 50 | 3 | 150 | 621 | 5524 |  |
| 54 | 1 | 54 | 622 | 5578 |  |
| 60 | 1 | 60 | 623 | 5638 |  |
| 70 | 2 | 140 | 625 | 5778 |  |


| Average Drinks Per Week | Number of Students | Total Drinks | Cumulative Students | Cumulative Drinks | $\begin{aligned} & \text { Cumulative \% } \\ & \text { of Students } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 44 | 0 | 44 | 0 | 7.0\% |
| 1 | 59 | 59 | 103 | 59 | 16.5\% |
| 2 | 44 | 88 | 147 | 147 | 23.5\% |
| 3 | 49 | 147 | 196 | 294 | 31.4\% |
| 4 | 50 | 200 | 246 | 494 | 39.4\% |
| 5 | 37 | 185 | 283 | 679 | 45.3\% |
| 6 | 38 | 228 | 321 | 907 | 51.4\% |
| 7 | 20 | 140 | 341 | 1047 | 54.6\% |
| 8 | 40 | 320 | 381 | 1367 | 61.0\% |
| 9 | 7 | 63 | 388 | 1430 | 62.1\% |
| 10 | 65 | 650 | 453 | 2080 | 72.5\% |
| 11 | 2 | 22 | 455 | 2102 | 72.8\% |
| 12 | 26 | 312 | 481 | 2414 | 77.0\% |
| 13 | 1 | 13 | 482 | 2427 | 77.1\% |
| 14 | 12 | 168 | 494 | 2595 | 79.0\% |
| 15 | 31 | 465 | 525 | 3060 | 84.0\% |
| 16 | 6 | 96 | 531 | 3156 | 85.0\% |
| 17 | 2 | 34 | 533 | 3190 | 85.3\% |
| 18 | 11 | 198 | 544 | 3388 | 87.0\% |
| 20 | 25 | 500 | 569 | 3888 | 91.0\% |
| 21 | 1 | 21 | 570 | 3909 | 91.2\% |
| 22 | 1 | 22 | 571 | 3931 | 91.4\% |
| 23 | 1 | 23 | 572 | 3954 | 91.5\% |
| 24 | 4 | 96 | 576 | 4050 | 92.2\% |
| 25 | 9 | 225 | 585 | 4275 | 93.6\% |
| 27 | 2 | 54 | 587 | 4329 | 93.9\% |
| 28 | 1 | 28 | 588 | 4357 | 94.1\% |
| 30 | 17 | 510 | 605 | 4867 | 96.8\% |
| 31 | 1 | 31 | 606 | 4898 | 97.0\% |
| 35 | 2 | 70 | 608 | 4968 | 97.3\% |
| 36 | 1 | 36 | 609 | 5004 | 97.4\% |
| 40 | 7 | 280 | 616 | 5284 | 98.6\% |
| 45 | 2 | 90 | 618 | 5374 | 98.9\% |
| 50 | 3 | 150 | 621 | 5524 | 99.4\% |
| 54 | 1 | 54 | 622 | 5578 | 99.5\% |
| 60 | 1 | 60 | 623 | 5638 | 99.7\% |
| 70 | 2 | 140 | 625 | 5778 | 100.0\% |


| Average Drinks Per Week | Number of Students | Total Drinks | Cumulative Students | Cumulative Drinks | Cumulative \% of Students | $\begin{aligned} & \text { Cumulative \% } \\ & \text { of Drinks } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 44 | 0 | 44 | 0 | 7.0\% | 0.0\% |
| 1 | 59 | 59 | 103 | 59 | 16.5\% | 1.0\% |
| 2 | 44 | 88 | 147 | 147 | 23.5\% | 2.5\% |
| 3 | 49 | 147 | 196 | 294 | 31.4\% | 5.1\% |
| 4 | 50 | 200 | 246 | 494 | 39.4\% | 8.5\% |
| 5 | 37 | 185 | 283 | 679 | 45.3\% | 11.8\% |
| 6 | 38 | 228 | 321 | 907 | 51.4\% | 15.7\% |
| 7 | 20 | 140 | 341 | 1047 | 54.6\% | 18.1\% |
| 8 | 40 | 320 | 381 | 1367 | 61.0\% | 23.7\% |
| 9 | 7 | 63 | 388 | 1430 | 62.1\% | 24.7\% |
| 10 | 65 | 650 | 453 | 2080 | 72.5\% | 36.0\% |
| 11 | 2 | 22 | 455 | 2102 | 72.8\% | 36.4\% |
| 12 | 26 | 312 | 481 | 2414 | 77.0\% | 41.8\% |
| 13 | 1 | 13 | 482 | 2427 | 77.1\% | 42.0\% |
| 14 | 12 | 168 | 494 | 2595 | 79.0\% | 44.9\% |
| 15 | 31 | 465 | 525 | 3060 | 84.0\% | 53.0\% |
| 16 | 6 | 96 | 531 | 3156 | 85.0\% | 54.6\% |
| 17 | 2 | 34 | 533 | 3190 | 85.3\% | 55.2\% |
| 18 | 11 | 198 | 544 | 3388 | 87.0\% | 58.6\% |
| 20 | 25 | 500 | 569 | 3888 | 91.0\% | 67.3\% |
| 21 | 1 | 21 | 570 | 3909 | 91.2\% | 67.7\% |
| 22 | 1 | 22 | 571 | 3931 | 91.4\% | 68.0\% |
| 23 | 1 | 23 | 572 | 3954 | 91.5\% | 68.4\% |
| 24 | 4 | 96 | 576 | 4050 | 92.2\% | 70.1\% |
| 25 | 9 | 225 | 585 | 4275 | 93.6\% | 74.0\% |
| 27 | 2 | 54 | 587 | 4329 | 93.9\% | 74.9\% |
| 28 | 1 | 28 | 588 | 4357 | 94.1\% | 75.4\% |
| 30 | 17 | 510 | 605 | 4867 | 96.8\% | 84.2\% |
| 31 | 1 | 31 | 606 | 4898 | 97.0\% | 84.8\% |
| 35 | 2 | 70 | 608 | 4968 | 97.3\% | 86.0\% |
| 36 | 1 | 36 | 609 | 5004 | 97.4\% | 86.6\% |
| 40 | 7 | 280 | 616 | 5284 | 98.6\% | 91.5\% |
| 45 | 2 | 90 | 618 | 5374 | 98.9\% | 93.0\% |
| 50 | 3 | 150 | 621 | 5524 | 99.4\% | 95.6\% |
| 54 | 1 | 54 | 622 | 5578 | 99.5\% | 96.5\% |
| 60 | 1 | 60 | 623 | 5638 | 99.7\% | 97.6\% |
| 70 | 2 | 140 | 625 | 5778 | 100.0\% | 100.0\% |


| Average Drinks Per Week | Number of Students | Total Drinks | Cumulative Students | Cumulative Drinks | Cumulative \% of Students | $\begin{aligned} & \text { Cumulative \% } \\ & \text { of Drinks } \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0 | 44 | 0 | 44 | 0 | 7.0\% | 0.0\% |
| 1 | 59 | 59 | 103 | 59 | 16.5\% | 1.0\% |
| 2 | 44 | 88 | 147 | 147 | 23.5\% | 2.5\% |
| 3 | 49 | 147 | 196 | 294 | 31.4\% | 5.1\% |
| 4 | 50 | 200 | 246 | 494 | 39.4\% | 8.5\% |
| 5 | 37 | 185 | 283 | 679 | 45.3\% | 11.8\% |
| 6 | 38 | 228 | 321 | 907 | 51.4\% | 15.7\% |
| 7 | 20 | 140 | 341 | 1047 | 54.6\% | 18.1\% |
| 8 | 40 | 320 | 381 | 1367 | 61.0\% | 23.7\% |
| 9 | 7 | 63 | 388 | 1430 | 62.1\% | 24.7\% |
| 10 | 65 | 650 | 453 | 2080 | 72.5\% | 36.0\% |
| 11 | 2 | 22 | 455 | 2102 | 72.8\% | 36.4\% |
| 12 | 26 | 312 | 481 | 2414 | 77.0\% | 41.8\% |
| 13 | 1 | 13 | 482 | 2427 | 77.1\% | 42.0\% |
| 14 | 12 | 168 | 494 | 2595 | 79.0\% | 44.9\% |
| 15 | 31 | 465 | 525 | 3060 | 84.0\% | 53.0\% |
| 16 | 6 | 96 | 531 | 3156 | 85.0\% | 54.6\% |
| 17 | 2 | 34 | 533 | 3190 | 85.3\% | 55.2\% |
| 18 | 11 | 198 | 544 | 3388 | 87.0\% | 58.6\% |
| 20 | 25 | 500 | 569 | 3888 | 91.0\% | 67.3\% |
| 21 | 1 | 21 | 570 | 3909 | 91.2\% | 67.7\% |
| 22 | 1 | 22 | 571 | 3931 | 91.4\% | 68.0\% |
| 23 | 1 | 23 | 572 | 3954 | 91.5\% | 68.4\% |
| 24 | 4 | 96 | 576 | 4050 | 92.2\% | 70.1\% |
| 25 | 9 | 225 | 585 | 4275 | 93.6\% | 74.0\% |
| 27 | 2 | 54 | 587 | 4329 | 93.9\% | 74.9\% |
| 28 | 1 | 28 | 588 | 4357 | 94.1\% | 75.4\% |
| 30 | 17 | 510 | 605 | 4867 | 96.8\% | 84.2\% |
| 31 | 1 | 31 | 606 | 4898 | 97.0\% | 84.8\% |
| 35 | 2 | 70 | 608 | 4968 | 97.3\% | 86.0\% |
| 36 | 1 | 36 | 609 | 5004 | 97.4\% | 86.6\% |
| 40 | 7 | 280 | 616 | 5284 | 98.6\% | 91.5\% |
| 45 | 2 | 90 | 618 | 5374 | 98.9\% | 93.0\% |
| 50 | 3 | 150 | 621 | 5524 | 99.4\% | 95.6\% |
| 54 | 1 | 54 | 622 | 5578 | 99.5\% | 96.5\% |
| 60 | 1 | 60 | 623 | 5638 | 99.7\% | 97.6\% |
| 70 | 2 | 140 | 625 | 5778 | 100.0\% | 100.0\% |


[^0]:    Source: James Turner, H. Wesley Perkins, and Jennifer Bauerle, "Declining Negative Consequences Related to Alcohol Misuse Among Students Exposed to a Social Norms Marketing Intervention on a College Campus," Journal of American College Health 2008.

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