NIAAA Initiatives for Prevention of Underage and College Drinking Problems

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National Institute on Alcohol Abuse and Alcoholism

What We Know about Impaired Driving Meeting

NHTSA Headquarters

Washington, DC
March 22, 2006
Underage Drinking and Prevention U.S.A.
Alcohol is the Drug of Choice Among Adolescents

Source: Monitoring the Future, 2004
Adolescents Drink Less Frequently Than Adults, But Drink More Per Occasion

Source: SAMHSA National Survey on Drug Use and Health 2003
Prevalence of Past-year DSM-IV Alcohol Dependence by Age – United States

<table>
<thead>
<tr>
<th>Age</th>
<th>% Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-17</td>
<td>0%</td>
</tr>
<tr>
<td>18-20</td>
<td>2%</td>
</tr>
<tr>
<td>21-24</td>
<td>4%</td>
</tr>
<tr>
<td>25-29</td>
<td>6%</td>
</tr>
<tr>
<td>30-34</td>
<td>8%</td>
</tr>
<tr>
<td>35-39</td>
<td>10%</td>
</tr>
<tr>
<td>40-44</td>
<td>12%</td>
</tr>
<tr>
<td>45-49</td>
<td>14%</td>
</tr>
<tr>
<td>50-54</td>
<td>12%</td>
</tr>
<tr>
<td>55-59</td>
<td>10%</td>
</tr>
<tr>
<td>60-64</td>
<td>8%</td>
</tr>
<tr>
<td>65-69</td>
<td>6%</td>
</tr>
</tbody>
</table>

Prevalence of a DSM-IV Alcohol Dependence in 2001-2002 was 3.8% (age 18+)

12-17 yrs - U.S. Substance Abuse and Mental Health Services Administration 2003 National Survey on Drug Use and Health (NSDUH)
CDC Youth Risk Behavior Survey 2003

N= 15,240
School Response 81%, Student Response 83%

U.S. Student Pop. Grades 9-12 15,267,000

- 28% of high school students start to drink before age 13
- By age 17 they are 7 times more likely to binge frequently (5 or more drinks/ 6 or more times per month)
- There are over 1 million frequent bingers in high school
- Over 2 million age 12-20 are frequent binge drinkers (NHSDUH 2003)
Youth Risk Behavior Survey 2003

Frequent binge drinkers compared to abstainers in high school were much more likely in the past 30 days to:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequent binge drinkers</th>
<th>Abstainers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ride with a drinking driver</td>
<td>80% vs. 13%</td>
<td></td>
</tr>
<tr>
<td>Drive after Drinking</td>
<td>61% vs. 0%</td>
<td></td>
</tr>
<tr>
<td>Never wear safety belts</td>
<td>18% vs. 5%</td>
<td></td>
</tr>
<tr>
<td>Carry weapon</td>
<td>45% vs. 10%</td>
<td></td>
</tr>
<tr>
<td>Carry gun</td>
<td>24% vs. 3%</td>
<td></td>
</tr>
<tr>
<td>Be injured in a fight</td>
<td>17% vs. 2%</td>
<td></td>
</tr>
<tr>
<td>Be injured in a suicidal attempt</td>
<td>10% vs. 1%</td>
<td></td>
</tr>
</tbody>
</table>
Youth Risk Behavior Survey 2003

Frequent binge drinkers compared to abstainers in high school were much more likely to

- Be forced to have sex: 22% vs. 5%
- Had sex with 6 or more partners: 32% vs. 3%
- Use condoms last time had sex: 56% vs. 65%
- Been or gotten someone pregnant: 13% vs. 2%
Frequent binge drinkers compared to abstainers in high school were much more likely to have in the past month

- Used marijuana: 71% vs. 6%
- Used cocaine: 26% vs. <1%
- Ever injected drugs: 15% vs. <1%
Youth Risk Behavior Survey 2003

Frequent binge drinkers compared to abstainers in high school were much more likely in the past month to:

- Drink at school: 31% vs. 0%
- Use marijuana at school: 29% vs. 1%
- Earned mostly D’s and F’s in school within the past year: 13% vs. 4%
Two 20-year-old women take a memory test. One of them abused alcohol. The MRI scan on the left is of her brain, the lack of color indicating a sluggish mind. In contrast, the scan on the right is of the woman who doesn’t have a drinking problem. The colors show less brain activity. Not surprisingly, she does better on the test.

**Teen drinking, thinking don’t mix**

Alcohol appears to damage young brains, early research finds

By Kathleen Sacks

Teens who drink heavily face a dose of hazards, ranging from accidental injuries to death by alcohol poisoning. If early research is verified, scientists might find another danger that has scared parents.

Preliminary scans indicate that heavy, regular drinking can damage the developing brains of teens and young adults and perhaps destroy brain centers involved in motivation.

Changing youths’ drinking habits, E3

call for teens to do well in school or at work.

Critics say it’s too easy to blame brain damage on alcohol abuse. They say that many teens who drink heavily also abuse other drugs and have other risk factors that could hurt the brain.

But researchers say that though the work is at the early stages, the evidence points toward a link between drinking and damage to young brains.
United States 2002

Underage Drinking Related Injury Deaths
Persons Under 21

1735 Traffic crash deaths*
  1,143 drinking drivers under 21
  592 other persons under 21
  483 persons older than 21

1921 Other unintentional injury deaths**

1900 alcohol related homicides/suicides

5,555 * NHTSA

** CDC 33% alcohol related

*** Percentage Reported by Levy et al. Cost of Underage Drinking OJJ DP, 1999

___ 35% of homicides  11% of suicides***
Magnitude of Alcohol Problems on U.S. College Campuses

Hingson et al. (2002) *J. Studies on Alcohol*

Dr. Margaret Moore
Jonathan Levy
Travis Stedman
MAGNITUDE OF ALCOHOL-RELATED MORTALITY
AND MORBIDITY AMONG U.S. COLLEGE
STUDENTS AGES 18–24: Changes
from 1998 to 2001

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and Henry Wechsler2

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Key Words injury, prevention, enforcement, screening, counseling

Abstract Integrating data from the National Highway Traffic Safety Administration,
the Centers for Disease Control and Prevention, national cohort studies, crams
and college enrollment data for 18–24-year-olds, the National Household Survey
on Drug Abuse, and the Harvard College Alcohol Survey, we calculated the alcohol-
related unintentional injury deaths and other health problems among college students
alcohol-related unintentional injury deaths increased from nearly 1600 to more than
1700, an increase of 6% per college population. The proportion of 18–24-year-old col-
lege students who reported driving under the influence of alcohol increased from 26.5%
to 31.4%, an increase from 2.3 million students to 2.8 million. During both years more
than 500,000 students were unintentionally injured because of drinking and more than
600,000 were hit/assaulted by another drinking student. Greater enforcement of the
legal drinking age of 21 and zero tolerance laws, increases in alcohol taxes, and wider
implementation of screening and counseling programs and comprehensive community
interventions can reduce college drinking and associated harm to students and others.
Data Sources Examined

- Fatality Analysis Reporting System (FARS, NHTSA)
- Mortality Statistics (CDC)
- US Census Bureau Population Statistics
- College Enrollment Data US Department of Education
- National Household Survey on Drug Abuse 1999, 2002
- Harvard School of Public Health College Alcohol Survey (CAS) 1999, 2001
### Numbers of College Students 18-24 Experiencing Alcohol Problems 2001-2002

<table>
<thead>
<tr>
<th>Activity</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binge 5+ Drinks</td>
<td>43%</td>
</tr>
<tr>
<td></td>
<td>3.8 million</td>
</tr>
<tr>
<td>Drove under influence</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td>2.8 million</td>
</tr>
<tr>
<td>Injured under influence of alcohol</td>
<td></td>
</tr>
<tr>
<td></td>
<td>599,000</td>
</tr>
<tr>
<td>Assaulted by another college student</td>
<td></td>
</tr>
<tr>
<td></td>
<td>690,000</td>
</tr>
<tr>
<td>Sex assault/date rape</td>
<td></td>
</tr>
<tr>
<td></td>
<td>97,000</td>
</tr>
<tr>
<td>Full time 4 year college students</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.4 million</td>
</tr>
</tbody>
</table>

Sources: College Alcohol Survey, National Household Survey on Drug Use and Health
# Changes in Alcohol Related Injury Deaths college and non-college 18-24 year olds 1998-2001

<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>2001</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Per Pop.</td>
<td>Total</td>
</tr>
<tr>
<td>All Alcohol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Related Injury</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deaths</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College</td>
<td>1,550</td>
<td>1,700</td>
<td>+ 9%</td>
</tr>
</tbody>
</table>

Source: FARS, CDC, Smith et al. 1995
## Alcohol Related Behaviors and Consequences of 18-24 Year Olds in the U.S. 2001

<table>
<thead>
<tr>
<th>Category</th>
<th>College</th>
<th>Non College</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drank 5+ on an occasion past month</td>
<td>3.8 million</td>
<td>7.6 million</td>
<td>11.4 million</td>
</tr>
<tr>
<td>Past year drove under the influence of alcohol</td>
<td>2.8 million</td>
<td>4.5 million</td>
<td>7.3 million</td>
</tr>
<tr>
<td>Died of alcohol-related unintentional injury</td>
<td>1,700</td>
<td>3,700</td>
<td>5,400</td>
</tr>
</tbody>
</table>
College Alcohol Study

The younger college students were when first drunk, the more likely they will experience in college:

- Alcohol Dependence
- Drive after drinking
- Alcohol related injury
- Unplanned and unprotected sex after drinking

Prevalence of Lifetime Alcohol Dependence According to Age of Drinking Onset

Source: Grant and Dawson J. Substance Abuse (1997)
Figure 1. In a Motor Vehicle Crash Because of Drinking According to Age of Drinking Onset

Percent

<table>
<thead>
<tr>
<th>Age of Drinking Onset</th>
<th>Ever</th>
<th>Past Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;14</td>
<td>14.0</td>
<td>0.7</td>
</tr>
<tr>
<td>14</td>
<td>14.0</td>
<td>1.8</td>
</tr>
<tr>
<td>15</td>
<td>13.0</td>
<td>0.8</td>
</tr>
<tr>
<td>16</td>
<td>9.0</td>
<td>0.6</td>
</tr>
<tr>
<td>17</td>
<td>7.0</td>
<td>0.3</td>
</tr>
<tr>
<td>18</td>
<td>4.0</td>
<td>0.3</td>
</tr>
<tr>
<td>19</td>
<td>4.0</td>
<td>0.3</td>
</tr>
<tr>
<td>20</td>
<td>3.0</td>
<td>0.2</td>
</tr>
<tr>
<td>21+</td>
<td>2.0</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Source: Hingson et al., Accident Analysis and Prevention, 2002

N = 1131 844 1507 3161 2866 5699 2213 2082 7324

P < .001
Figure 2. Injured Under the Influence of Alcohol According to Age of Drinking Onset

Source: Hingson et al., Journal of the American Medical Association, 2000
Figure 3. In a Physical Fight While or After Drinking According to Age Started Drinking, National Longitudinal Alcohol Epidemiologic Study

Source: Hingson et al., Pediatrics, 2001

P < .001
Ever in a Physical Fight While or After Drinking According to Age of Drinking Onset, National Longitudinal Alcohol Epidemiologic Survey

Controlling for age, gender, black, non hispanic, Hispanic, other, education, marital status, current, past, never smoke current, past, never use drugs, family history of alcoholism, current, past, never alcohol dependent, frequency drank 5+ during respondent’s period of heaviest drinking
Why Are These Findings Important?

Injuries are the leading cause of death among youth 1-44

- Unintentional injuries #1 1-44
- Intentional injuries #2 8-34

Source: Centers for Disease Control and Prevention
Why Are These Findings Important?

Alcohol is involved over 50,000 injury deaths annually*

- 40% unintended injury deaths 39,000
- 47% Homicides 8,000
- 29% Suicides 8,500

Source G. Smith et. al 1999

* Over half under age 44
Conclusion

In the U.S. there is an urgent need to expand and improve prevention, screening and treatment programs and policies to reduce alcohol related harm

- Persons under 21
- Among college students
- Persons of similar ages not in college
Interventions

- Individually oriented
- Family
- School
- Environmental
- Comprehensive Community Interventions
Brief Motivational Alcohol Intervention in a Trauma Center

- 46% of injured trauma center patients age 18 and older screened positive for alcohol problems.
- Half (N=336) randomly allocated to receive 30 minute brief intervention to reduce risky drinking and offers links to alcohol treatment

Source: Gentilello *Annals of Surgery*, 1999
Brief Motivational Alcohol Intervention in a Trauma Center

Results:

- Reduced alcohol consumption by an average of 21 drinks per week at 1 year follow-up.
- 47% reduction in new injuries requiring treatment in ED.
- 48% reduction in hospital admissions for injury over 3 years.
- 23% fewer drunk driving arrests.

Source: Gentilello *Annals of Surgery*, 1999
Brief Alcohol Intervention for Older Adolescents

- 94 ED patients, mean age 18.4, injured after drinking
- Half randomly allocated to a 35-40 minute motivational intervention to reduce drinking and related risky behaviors such as DWI

Results at six months:
- Brief intervention group had
  - ¼ drinking and driving occasions
  - Fewer moving violations 3% vs. 23%
  - ¼ alcohol related injuries

Fifteen Studies Provide Strong Support for the Efficacy of This Approach Among College Students

- Marlatt, 1998
- Anderson et. Al., 1998
- Larimer, 2000
- D’Amico & Fromme 2000
- Dimeff, 1997
- Aubrey, 1998
- Monti, 1999
- Baer, 2001
- Barnett et al. 2004
- Borsari and Carey (in press)
- Labrie 2002
- Gregory 2001
- LaChance 2004
- Murphy et al. 2001
- Murphy et al. 2004

Source: Larimer and Cronce (2002, 2005 In Review)
Implementation Gap

- Fewer than
  - ½ of pediatricians screen all adolescents for use of alcohol and drugs
  - ¼ screen for drinking and driving.
- Pediatric Medical Care Providers considerably underdiagnose alcohol use, abuse, and dependence among patients ages 14-18.
- 1.5 million 12-17 year olds need alcohol treatment
- Only 216,000 14% received treatment

19% of College Students 18-24 met DSM IV Alcohol Abuse or Dependence Criteria
5% of them sought treatment in the past year
3% thought they should seek help but did not

Source: National Epidemiologic Study of Alcohol Related Conditions 2002
Insurers’ Liability for Losses Due to Intoxication

As of January 1, 2004

28 States and DC allow with holding of medical reimbursement if injured under the influence
NIAAA Academic Emergency Medicine Alcohol Screening Collaboration

- Purpose: Test the efficacy of brief interventions in emergency care settings
- Training Curriculum developed by Boston University Medical Center
- 390 Emergency Department Health Professionals
- Pre/Post 3, 6, 12 month Assessment Randomized Trial
Academic Emergency Medicine Alcohol Screening Collaboration

- Charles Drew Univ.
- Univ. of Southern California
- Univ. of California
- Denver Health Medical
- Univ. of Michigan
- Rhode Island Hospital
- Yale Univ.
- Cooper Health
- Univ. of Virginia
- Univ. of New Mexico
- Howard Univ.
- Emory University
- New England Med.
- Boston Medical
Environmental Interventions
Examples

- Minimum Legal Drinking Age
- Zero Tolerance Laws
- DWI Laws
- Price/ Tax
- Outlet Density
- Hours of Sale
Alcohol Policy Information System

The Alcohol Policy Information System (APIS) is an online resource that provides detailed information on a wide variety of alcohol-related policies in the United States at both State and Federal levels. It features compilations and analyses of alcohol-related statutes and regulations. Designed primarily as a tool for researchers, APIS simplifies the process of ascertaining the state of the law for studies on the effects and effectiveness of alcohol-related policies.

The principal research tools on this Web site are 35 sets of comparison tables and supporting materials for selected alcohol policies. The items listed below are available for each of these APIS policy topics.

Resources for APIS Policy Topics

- Cross-State comparisons of key policy variables
- Maps and charts
- Policy descriptions
- Federal law
- Policy changes over time
- Downloadable data tables
- Excerpts of relevant statutes and regulations

In addition to these primary resources, the APIS Web site also contains a variety of other materials on alcohol policy.

Additional API S Resources

About alcohol policy

http://alcoholpolicy.niaaa.nih.gov/
APIS Policy Topics

- Alcohol Beverage Control
- Taxation and Pricing
- Transportation, Crime, and Public Safety
  - Blood Alcohol Concentration
  - Underage Drinking
- Health Care Services and Financing
- Alcohol and Pregnancy
Exceptions to Minimum Age of 21 for Consumption of Alcohol as of January 1, 2005

Legend
- Consumption Not Prohibited
- Family Exception(s)
- Location Exception(s)
- Both Types of Exceptions
- Exception for Both Together
- Neither Type of Exception
Number of States with Family and Location Exceptions to Minimum Age of 21 for Consumption of Alcohol, January 1, 1998 through January 1, 2005
Comprehensive Community Interventions

- Involve multiple departments of city government and private citizens
- Use multiple program strategies
  - Education
  - Media advocacy
  - Community organizing and mobilization
  - Environment policy change
  - Heightened enforcement
  - Expanded alcohol treatment
Successful Comprehensive Community Interventions

- Project Northland Perry (1996)
- Communities Mobilizing for Change Wagenaar (2002)
- Community Trials Holder (2000)
- Fighting Back Hingson (2005)
- Saving Lives Program Hingson (1996)
- Clapp et al. (2005)
Communities Mobilizing for Change

- **Interventions to Reduce Availability:**
  - Merchants record underage buy attempts
  - Beer kegs prohibited at University Homecoming
  - Policies to discourage motels from permitting underage drinking parties
  - Security at high school dances
  - Model local ordinances to restrict underage access to alcohol
  - Compliance checks

Source: Wagenaar et al., *J. Studies on Alcohol*, 2000
Communities Mobilizing for Change

Results:

- 17% increase in outlets checking age ID
- 24% decline in bar and restaurant sales
- 25% decrease in the proportion of 18-20 year olds attempting alcohol purchase
- 17% decline in the proportion of older teens providing alcohol to younger teens
- 7% decrease in the percent under 21 who drank
- 14% decline in alcohol traffic injuries, drivers 18-20

Source: Wagenaar et al., J. Studies on Alcohol, 2000
OJJDP Enforcement of Underage Drinking Laws (EUDL)

- Grants to
  - Pennsylvania
  - Illinois
  - Nevada
  - New Mexico
  - California
  - Oregon
  - Washington
Process Evaluation (EUDL)

- Underage Sales Compliance Checks
- Shoulder top operations
- Warnings/citations for sales or provision to minors
- Party Patrol activities
- Citations for Minor Possession and Consumption
- DWI Arrests
- Media Advocacy Activism
Outcome Evaluation (EUDL)

- Past month alcohol use, binges
- Prevalence of alcohol related problems - DWI
- Alcohol related motor vehicle crashes
- Intentional/ Unintentional injuries
- Other eg. vandalism, property damage
A Matter of Degree

- Intervention Components:
  - College/Community Partnerships
  - Environmental strategies to reduce drinking problems:
    - Keg registration
    - Mandatory responsible beverage service
    - Police wild party enforcement
    - Substance free residence halls
    - Advertising bans

A Matter of Degree

Results:

- Achieved reductions among college students in
  - Binge drinking
  - Driving after drinking
  - Alcohol related injuries
  - Being assaulted by other drinking college students

Fighting Back Program

First Community Program to combine:

- Environmental interventions to limit alcohol availability
- Efforts to increase substance abuse treatment

Fighting Back Program
Selected Interventions

Limit Alcohol Availability
- Youth access compliance check surveys
- Responsible beverage service training
- Monitoring and closing problem liquor outlets
- Bill board restrictions

Expand Treatment
- Sales tax increase for expanded treatment
- New treatment programs- courts, jails, health care agencies, public housing
- Emergency department screening/brief interventions
- New inpatient, outpatient and recovery programs

Source: Hingson et al. 2005
Fighting Back - Results
Greater Relative Reduction in Alcohol-Related Fatal Crashes VS Fatal Crashes with Zero BAC

Pooled Effects
Drivers: All Ages 16-20

5 FB sites vs controls
- BAC .01%+ vs Zero BAC
  - 22% vs 26%
  - P = .01 vs P = .08

Communities: Kansas City, MO, Milwaukee, WI, San Antonio, TX, Santa Barbara, CA, and Vallejo, CA

Courtney Birch
NIAAA Rapid Response to College Drinking Problems

- Clemson University
- Fordham University
- Loyola Marymount University
- Minnesota State University
- Northeastern University
- North Dakota State University
- Ohio State University
- SUNY Albany
- University of Central Florida
- University of Michigan
- University of Rhode Island
- University of San Diego
- University of Virginia
- University of Wisconsin-Milwaukee
- Western Washington University
Projects cover a wide variety of strategies

- Projective influence of Residential Learning Communities
- Peer-facilitated alcohol interventions
- Campus-community coalitions
- Peer-led motivational enhancement with freshman women
- Freshman parent-students initiative
- Fraternity and Sorority interventions
- Alcohol screening and intervention in a college clinic
- Reducing high-risk drinking among first-year students
- University Assistance Program
- Interventions for freshman violators
- Social norms
- Reducing high-risk drinking among students celebrating their 21st birthday
Underage Drinking Initiative
Underage Drinking Initiative

Underage Drinking Team: Alcohol Dependence and Abuse as developmental disorders

Projects Initiated: RFAs

- Underage Drinking: Building Health Care System Responses (issued Fall 2005) – 18 applications received
- Consequences of Drug Abuse & Alcohol Exposure on Brain and Behavior (co-sponsored with NIDA) – funded one project
Other ongoing projects:

- Center to Prevent Alcohol-Related Problems Among Young People (BU)
- Office of Juvenile Justice Program (OJJDP)/NIAAA Collaboration on Evaluation of Enforcing Underage Drinking Laws
- College Rapid Response
Underage Drinking Research Priorities

- Alcohol’s effects on the developing brain.
- Understand how the interplay between puberty and other developmental pathways influences drinking onset and trajectories.
- Ascertain risk factors for very early drinking behavior.
Underage Drinking Research

- Processes/mechanisms of adolescent decision-making about drinking
- Integrate and apply the best knowledge about multiple aspects of development to foster developmentally tailored prevention and treatment interventions.
- Research to expand screening and brief intervention in a wider variety of adolescent settings and community intervention programs