

NIAAA Initiatives for Prevention of Underage and College Drinking Problems

Ralph Hingson, ScD
National Institute on Alcohol Abuse and Alcoholism

What We Know about Impaired Driving Meeting

NHTSA Headquarters

Washington, DC

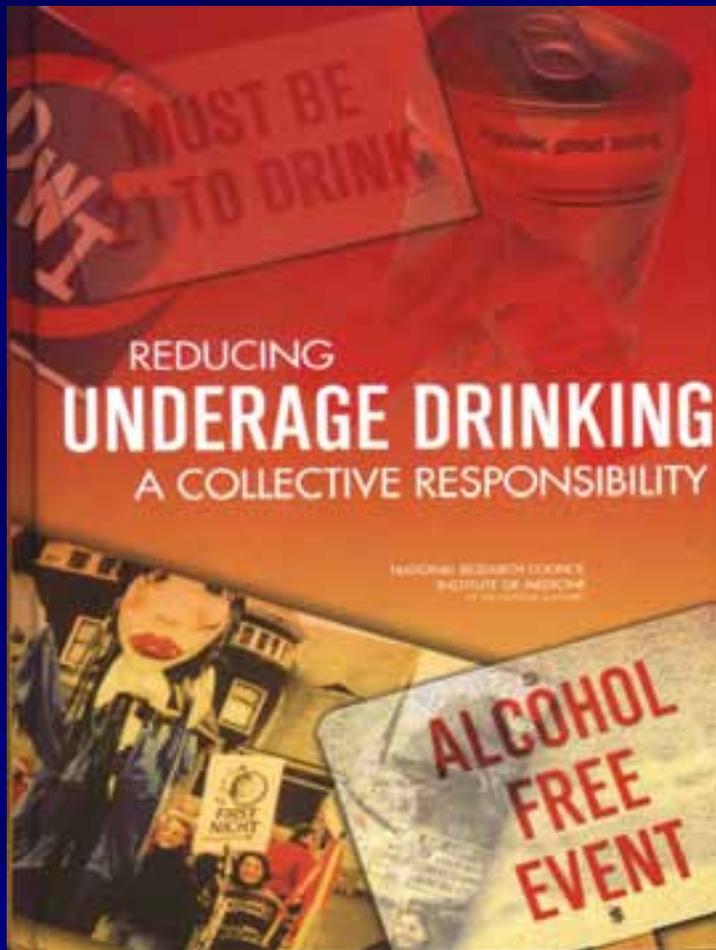
March 22, 2006





National Institute on Alcohol Abuse and Alcoholism

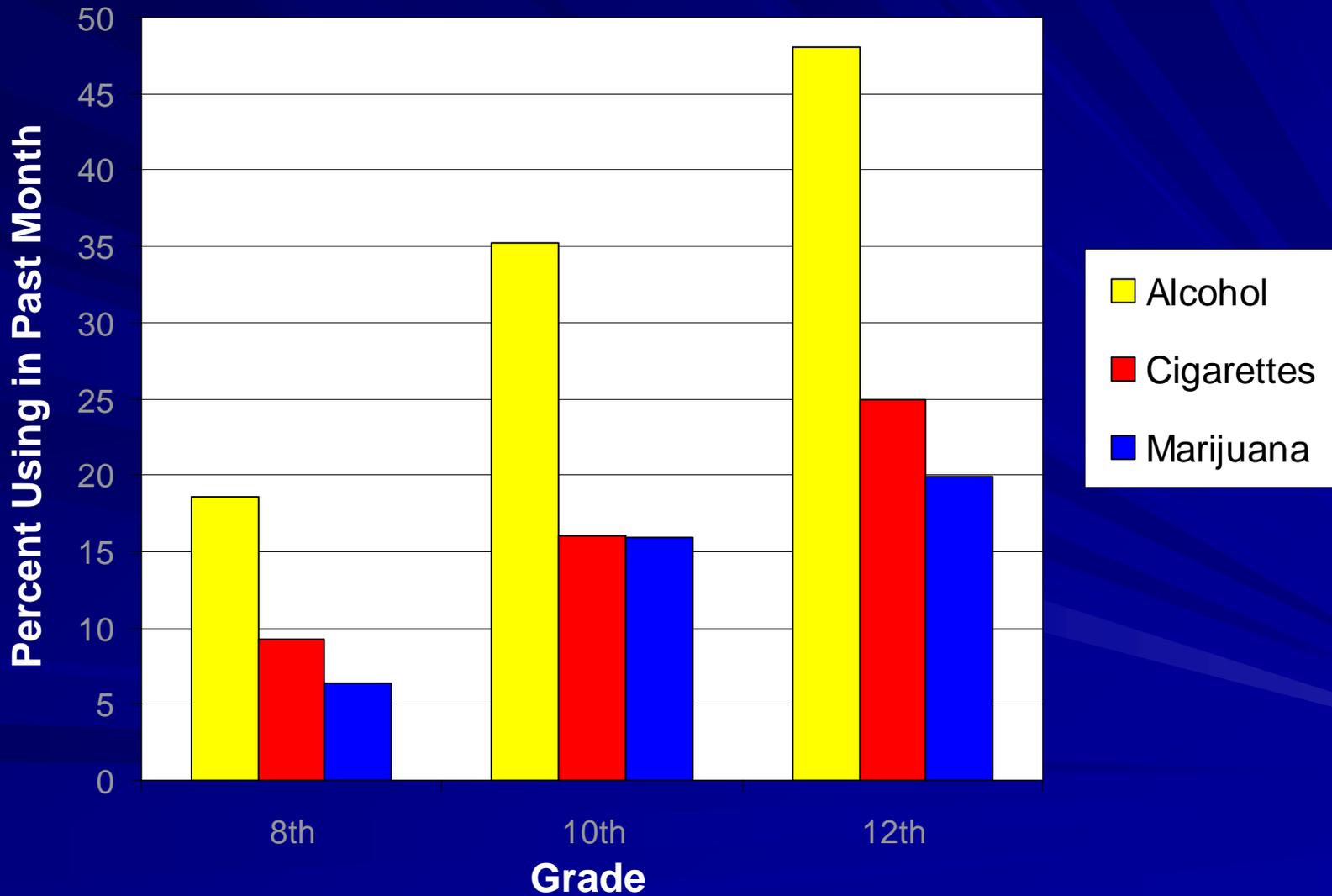
Underage Drinking and Prevention U.S.A.





Alcohol is the Drug of Choice Among Adolescents

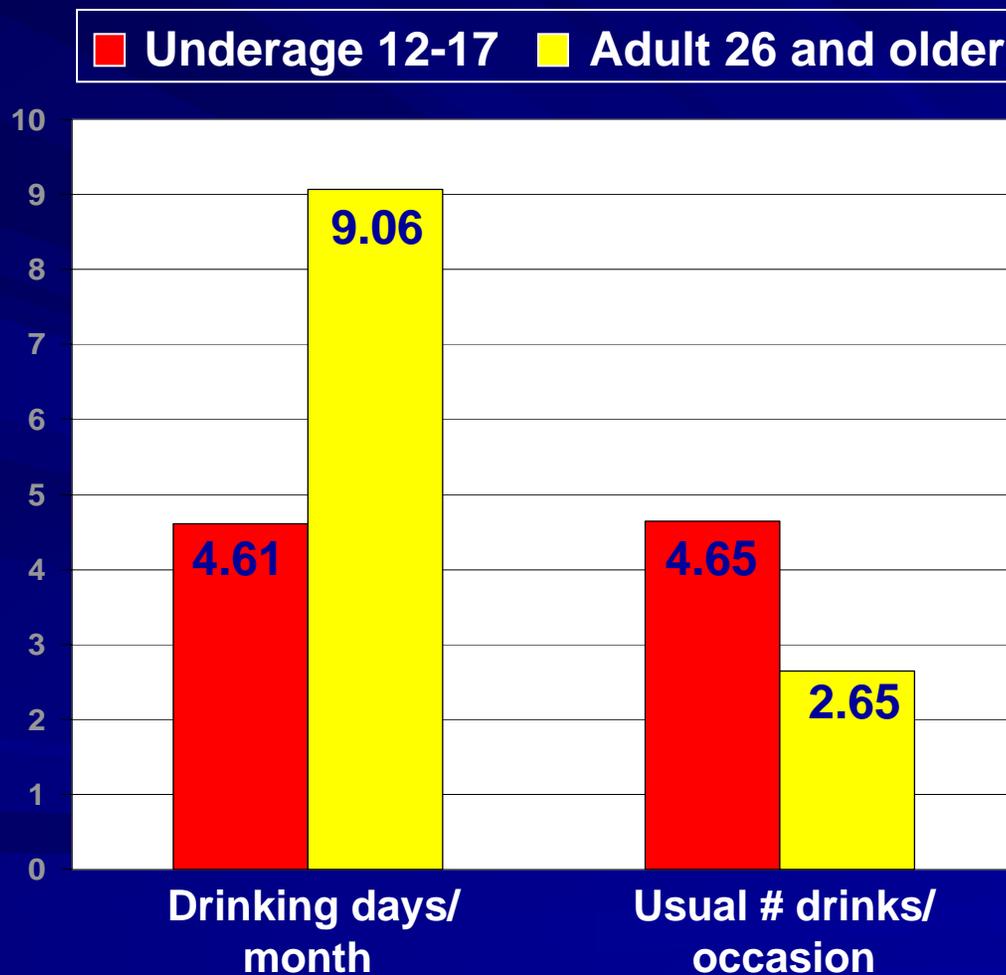
National Institute on Alcohol Abuse and Alcoholism



Source: Monitoring the Future, 2004



Adolescents Drink Less Frequently Than Adults, But Drink More Per Occasion

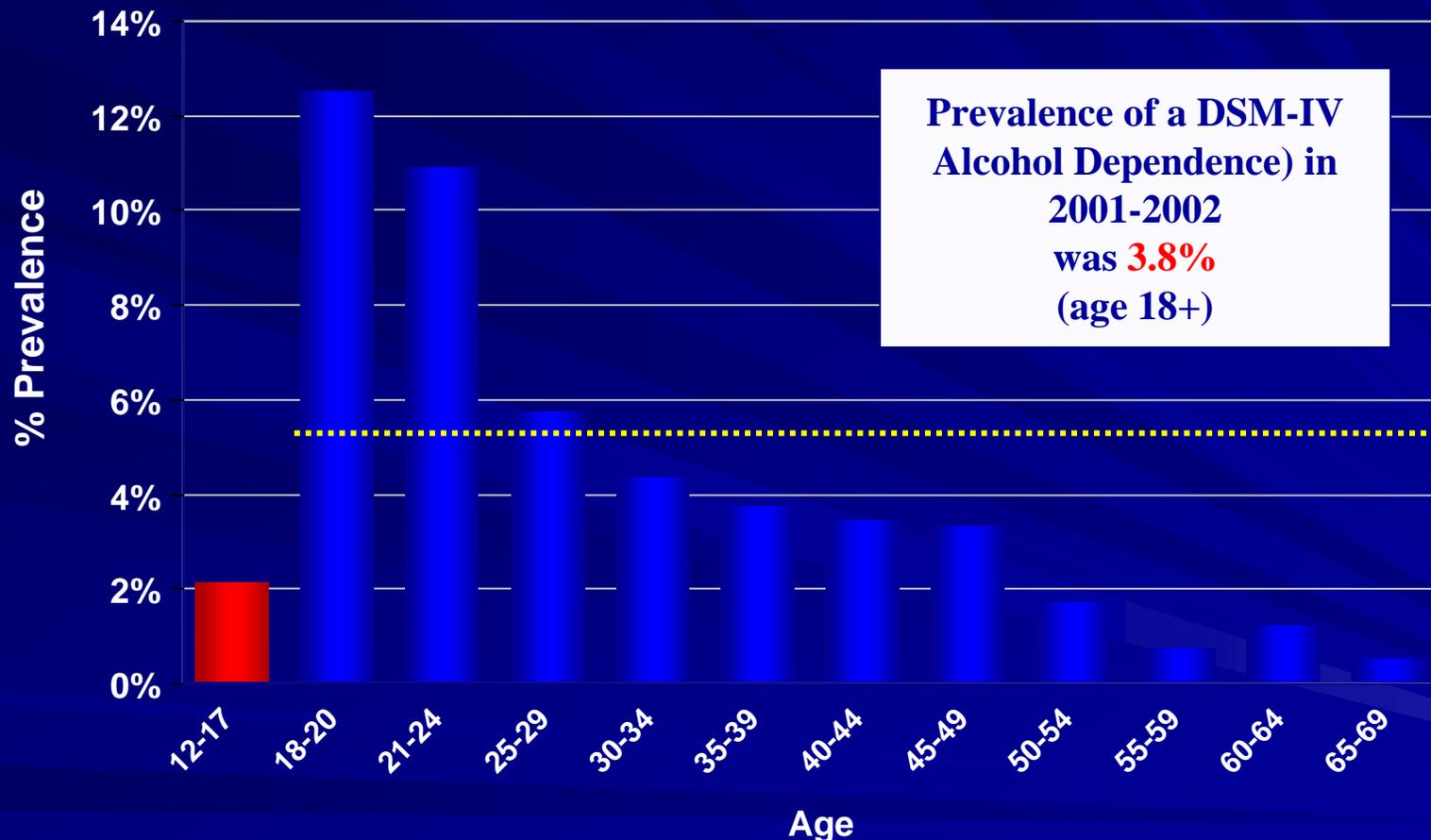


Source: SAMHSA National Survey on Drug Use and Health 2003



Prevalence of Past-year DSM-IV Alcohol Dependence by Age – United States

National Institute on Alcohol Abuse and Alcoholism



18 + yrs. - NIAAA NESARC (Grant, et al., (2004) Drug and Alcohol Dependence, 74:223-234)

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

Ride with a drinking driver	80% vs. 13%
Drive after Drinking	61% vs. 0%
Never wear safety belts	18% vs. 5%
Carry weapon	45% vs. 10%
Carry gun	24% vs. 3%
Be injured in a fight	17% vs. 2%
Be injured in a suicidal attempt	10% vs. 1%



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%



Youth Risk Behavior Survey 2003

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%

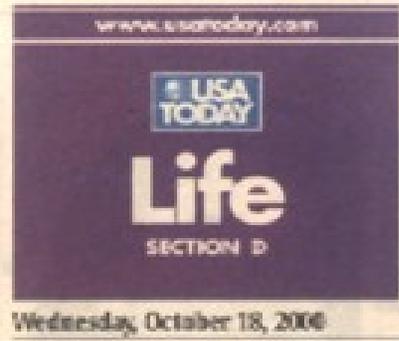
Ever injected drugs 15% vs. <1%



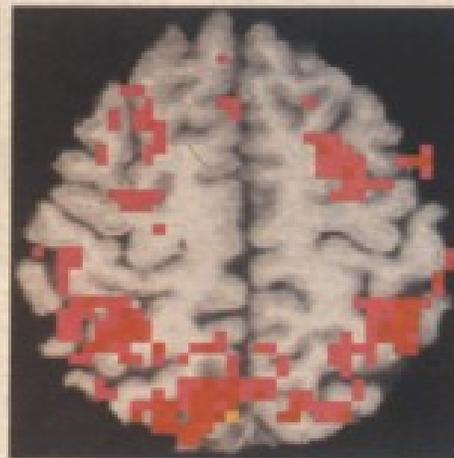
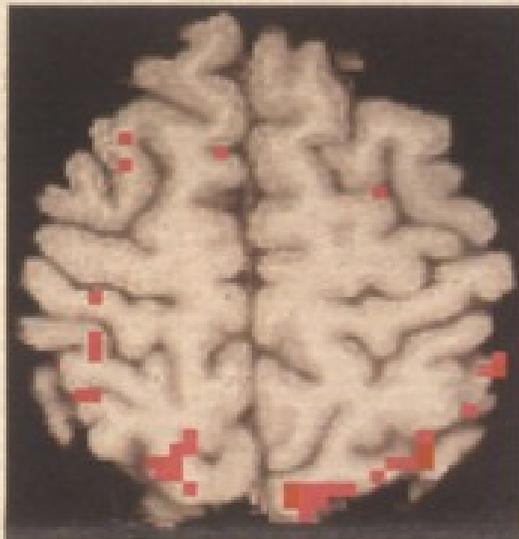
Youth Risk Behavior Survey 2003

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 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 lots of brain activity. Not surprisingly, she does better on the test.



Cover story

Teen drinking, thinking don't mix

Alcohol appears to damage young brains, early research finds

By Kathleen Schwabauer
USA TODAY

Teens who drink heavily face a slew of hazards, ranging from accidental injuries to death by alcohol poisoning. If early research is verified, scientists might add another danger to that list soon: brain damage.

Preliminary studies indicate that heavy, regular drinking can damage the developing brains of teens and young adults and perhaps destroy neural pathways in memory and learning.



Changing youths' drinking habits, 80

could be them to do well in school or at work. Critics say it's too early to blame brain damage on alcohol alone. 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 in the early stages, the evidence just shows a link between alcohol 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

_____ 35% of homicides 11% of suicides***

5,555

* NHTSA

** CDC 33% alcohol related

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



National Institute on Alcohol Abuse and Alcoholism

A CALL TO ACTION:

CHANGING THE CULTURE OF DRINKING AT U.S. COLLEGES



COLLEGE

Task Force of the National Advisory Council
on Alcohol Abuse and Alcoholism

National Institutes of Health
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

www.collegedrinkingprevention.gov



Magnitude of Alcohol Problems on U.S. College Campuses



Dr. Margaret
Moore



Jonathan
Levy



Travis
Stedman

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



Annual Review of Public Health



Brad McCue

www.brad21.org



Data Sources Examined

- Fatality Analysis Reporting System (FARS, NHTSA)
- Mortality Statistics (CDC)
- US Census Bureau Population Statistics
- College Enrollment Data US Department of Education
- Smith, et al. Fatal Non-Traffic Injuries Involving Alcohol: Meta Analysis, Annals of Emergency Medicine 1999, 33:29 19-25
- 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

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

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

	1998	2001	Percent Change	
			Total	Per Pop.
All Alcohol Related Injury Deaths				
College	1,550	1,700	+ 9%	+ 6%

Source: FARS, CDC, Smith et al. 1995



Alcohol Related Behaviors and Consequences of 18-24 Year Olds in the U.S. 2001

National Institute on Alcohol Abuse and Alcoholism

	College	Non College	Total
■ Drank 5+ on an occasion past month	3.8 million	7.6 million	11.4 million
■ Past year drove under the influence of alcohol	2.8 million	4.5 million	7.3 million
■ Died of alcohol-related unintentional injury	1,700	3,700	5,400



College Alcohol Study

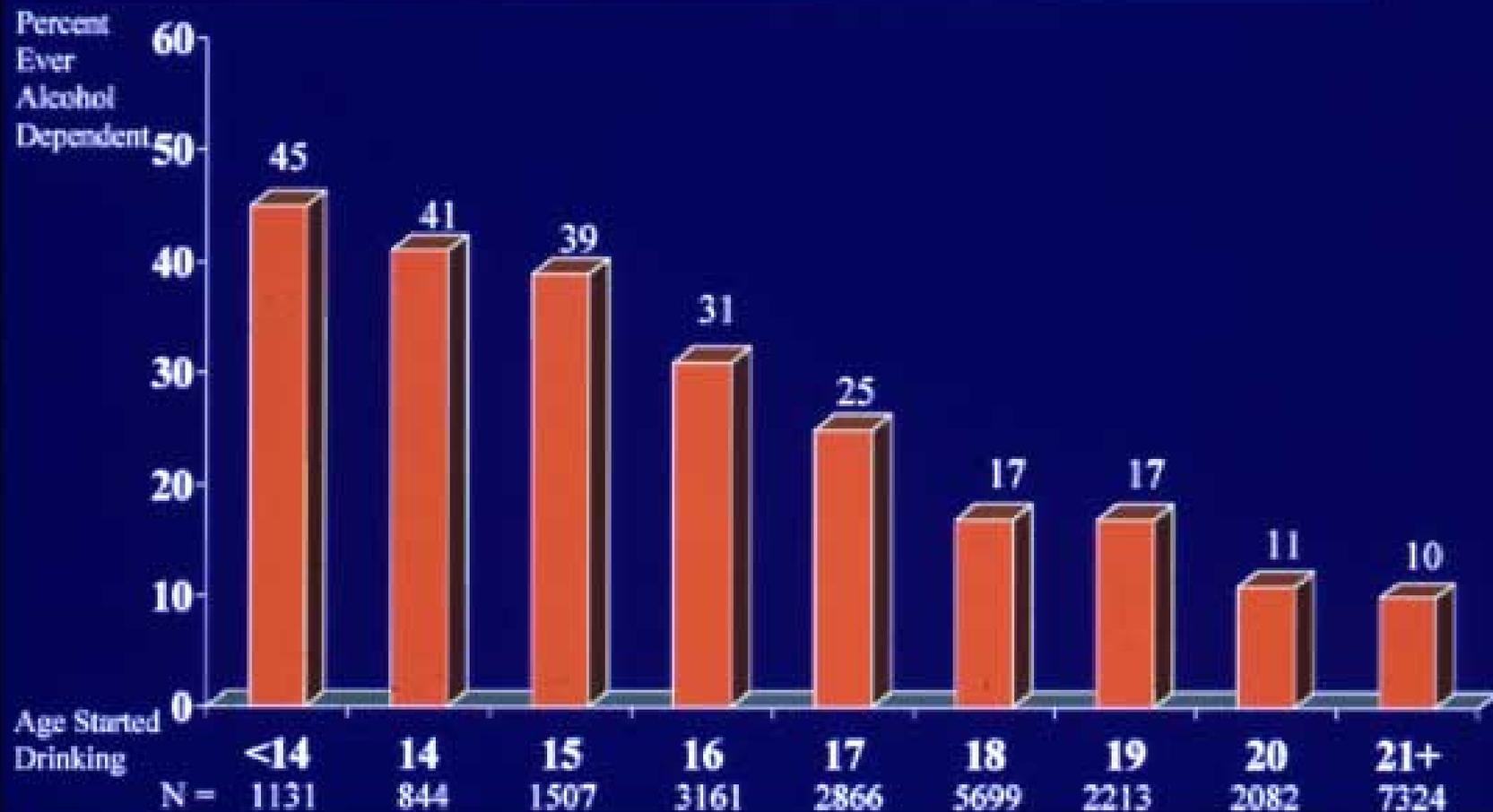
The younger college students were when first drunk, the more likely they will experience in college:

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

Source: Hingson, Heeren, Winter. J. Studies on Alcohol 2003, Pediatrics 2003



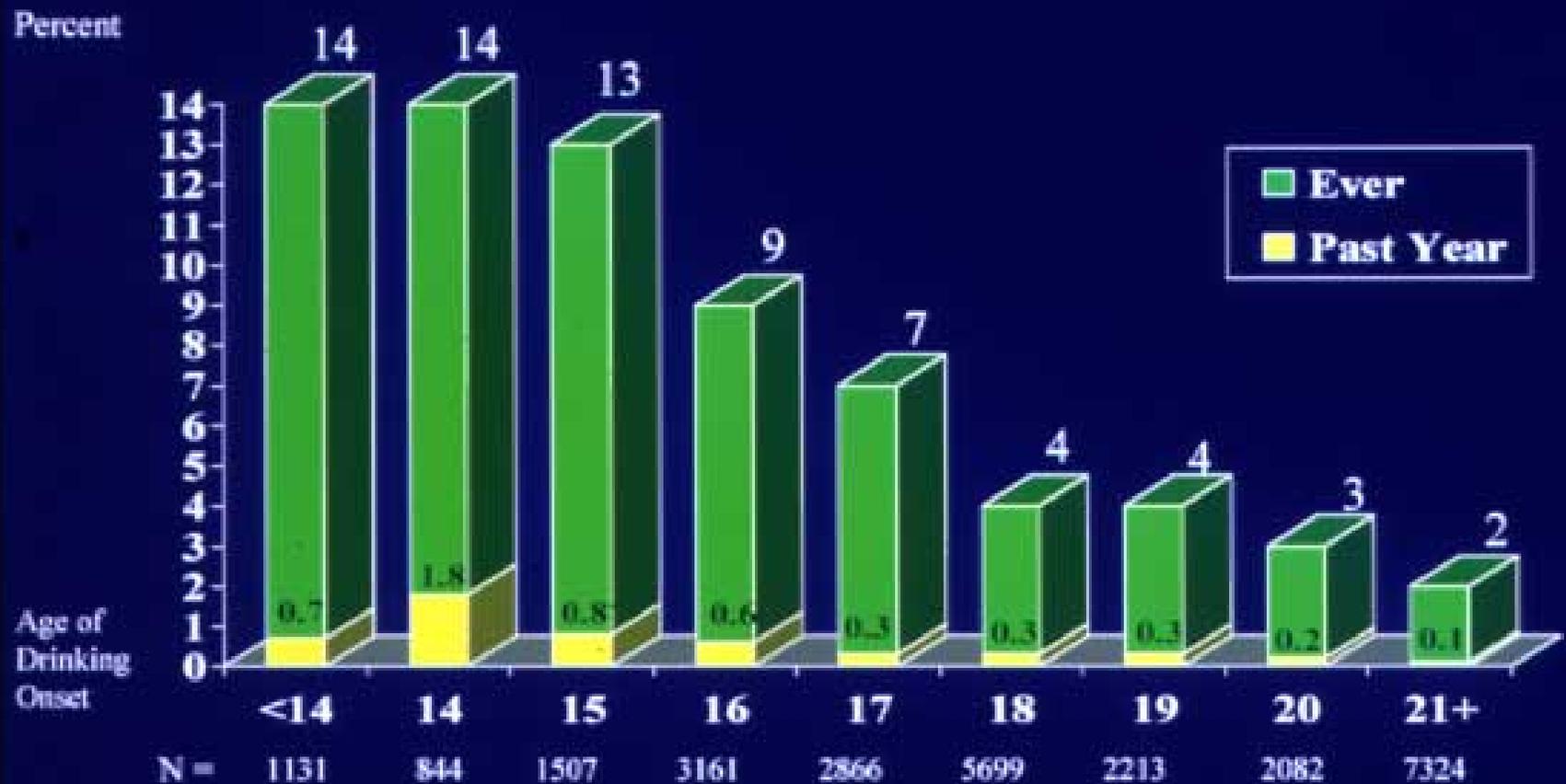
Prevalence of Lifetime Alcohol Dependence According to Age of Drinking Onset



Source: Grant and Dawson *J. Substance Abuse* (1997)



Figure 1. In a Motor Vehicle Crash Because of Drinking According to Age of Drinking Onset



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

P < .001



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

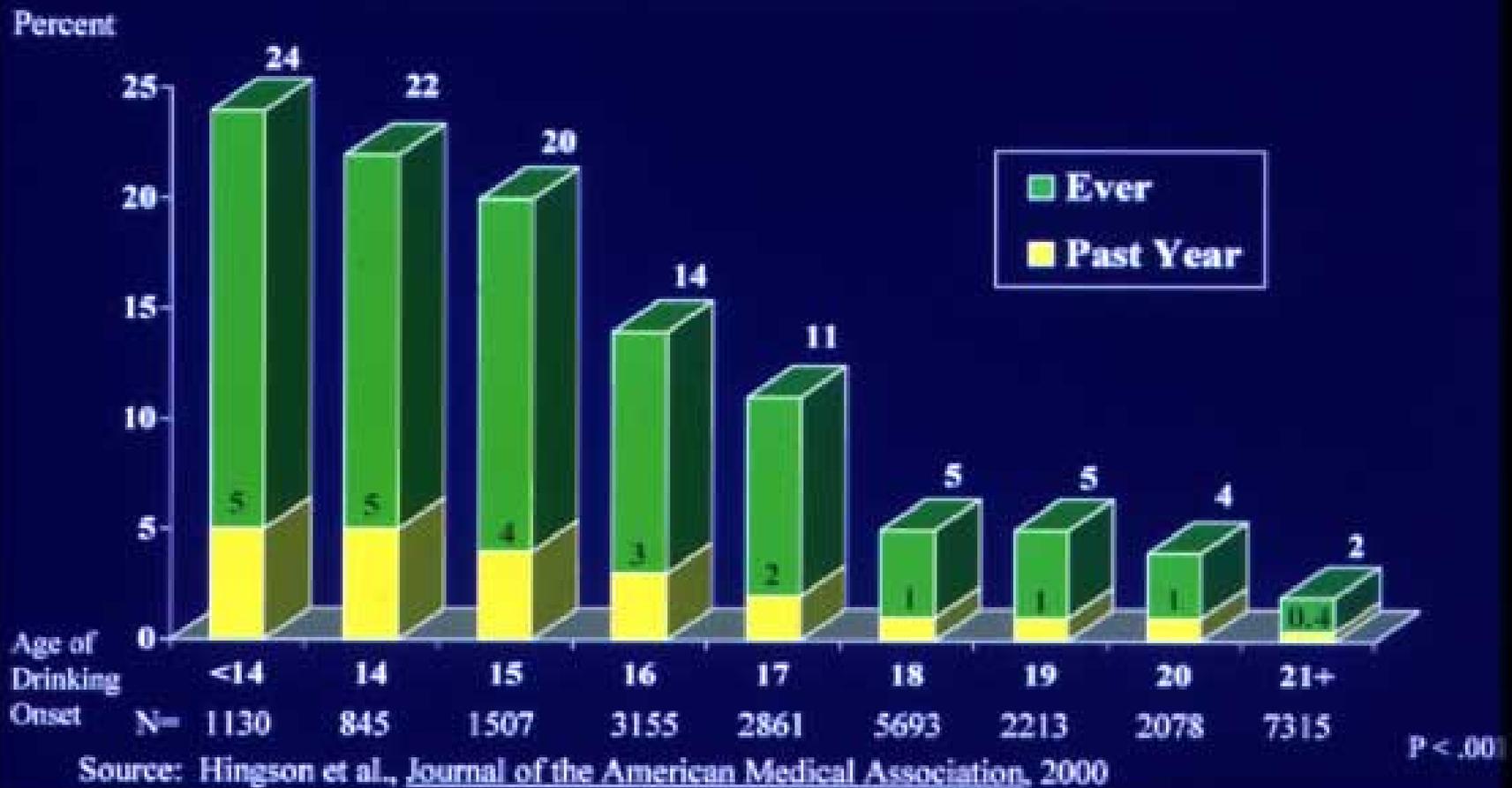
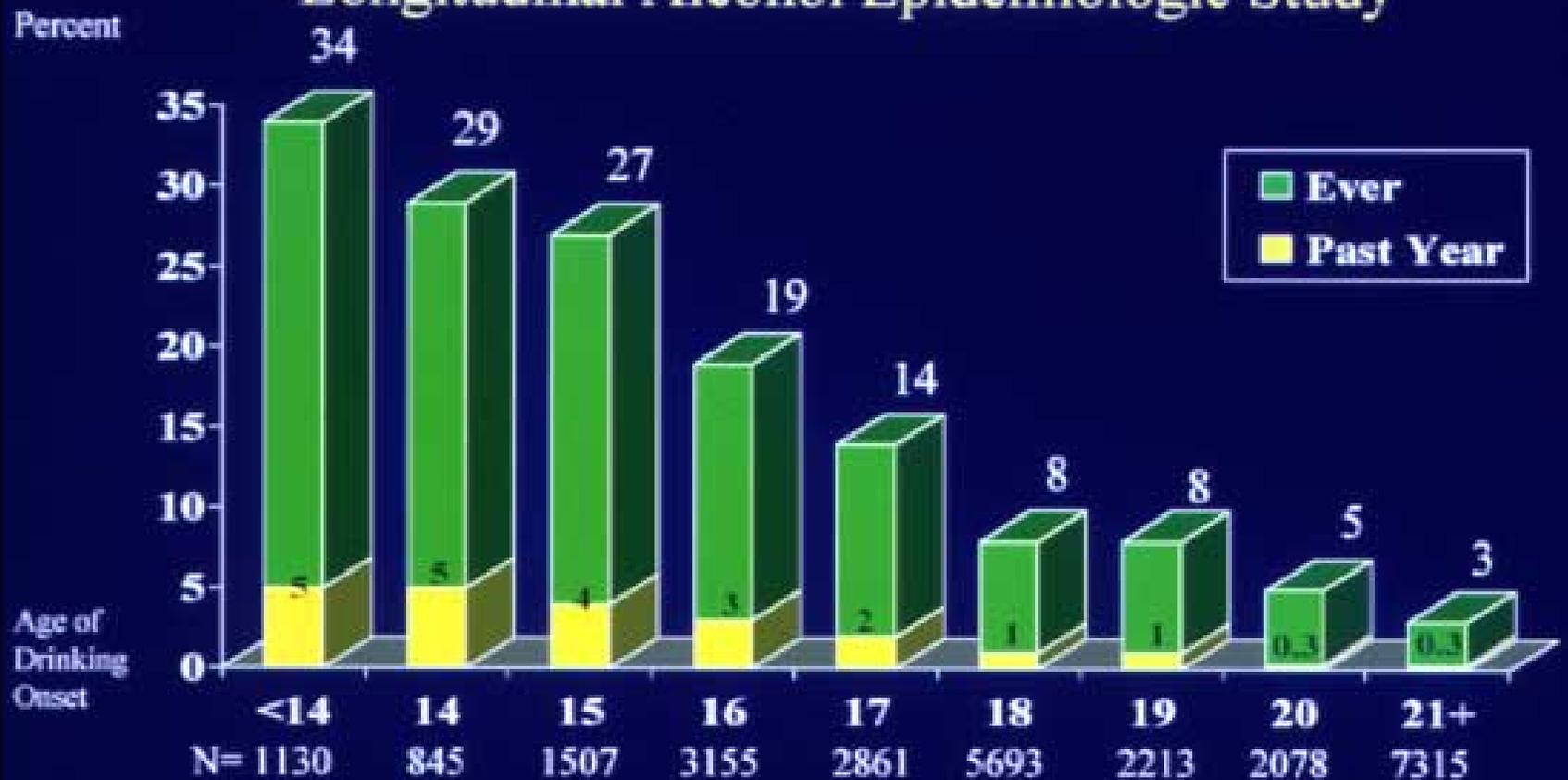




Figure 3. In a Physical Fight While or After Drinking According to Age Started Drinking, National Longitudinal Alcohol Epidemiologic Study



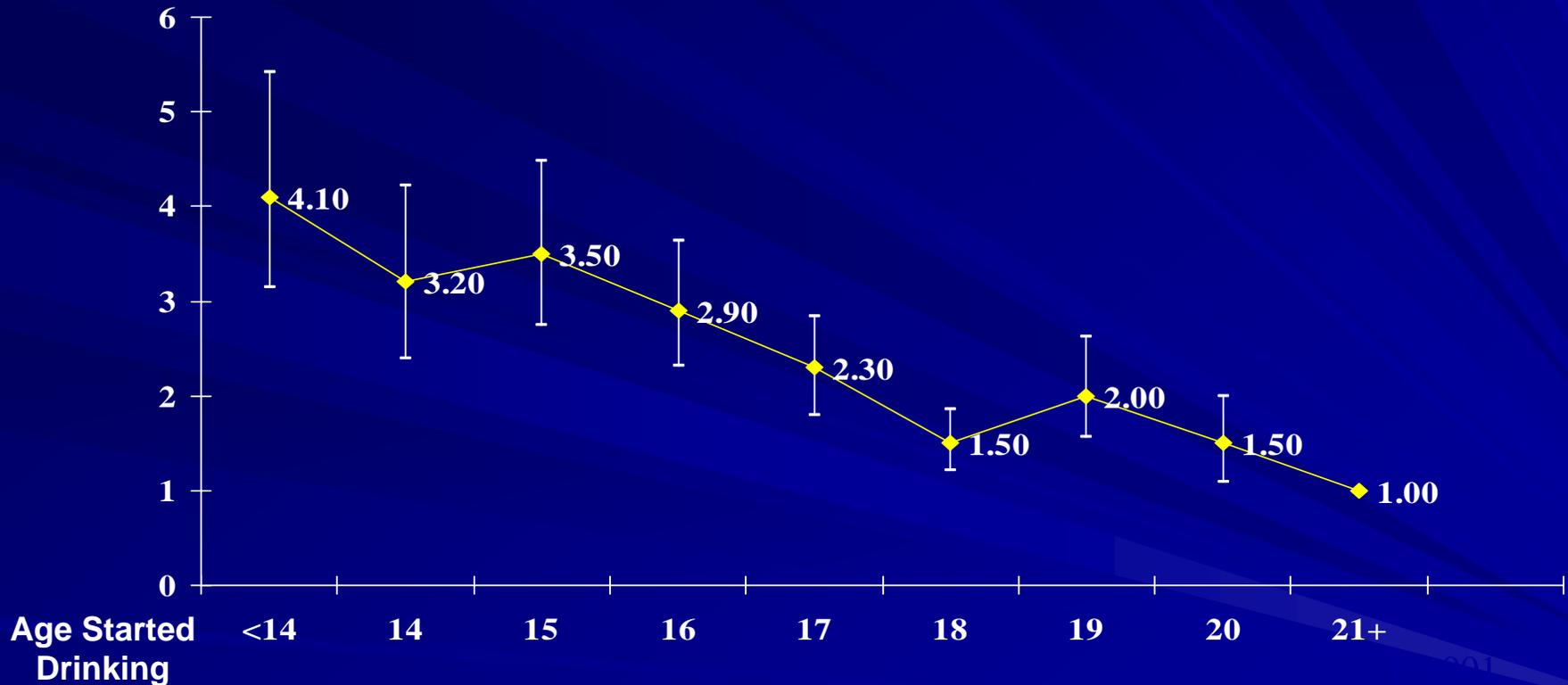
Source: Hingson et al., *Pediatrics*, 2001

P < .001



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

Odds Ratio and Confidence Intervals



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 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
 - $\frac{1}{4}$ drinking and driving occasions
 - Fewer moving violations 3% vs. 23%
 - $\frac{1}{4}$ alcohol related injuries

Source: Monti et al. *J. Consulting and Clinical Psychology* (1999)



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 Cronic (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

Sources: American Academy of Pediatrics, 1997; Wilson, Sheritt, Gates, Knight *Pediatrics*, 2004; National Household Survey on Drug Use and Health, 2003



19% of College Students 18-24 met DSM IV
Alcohol Abuse or Dependence Criteria

5% of them sought treatment in the past
year

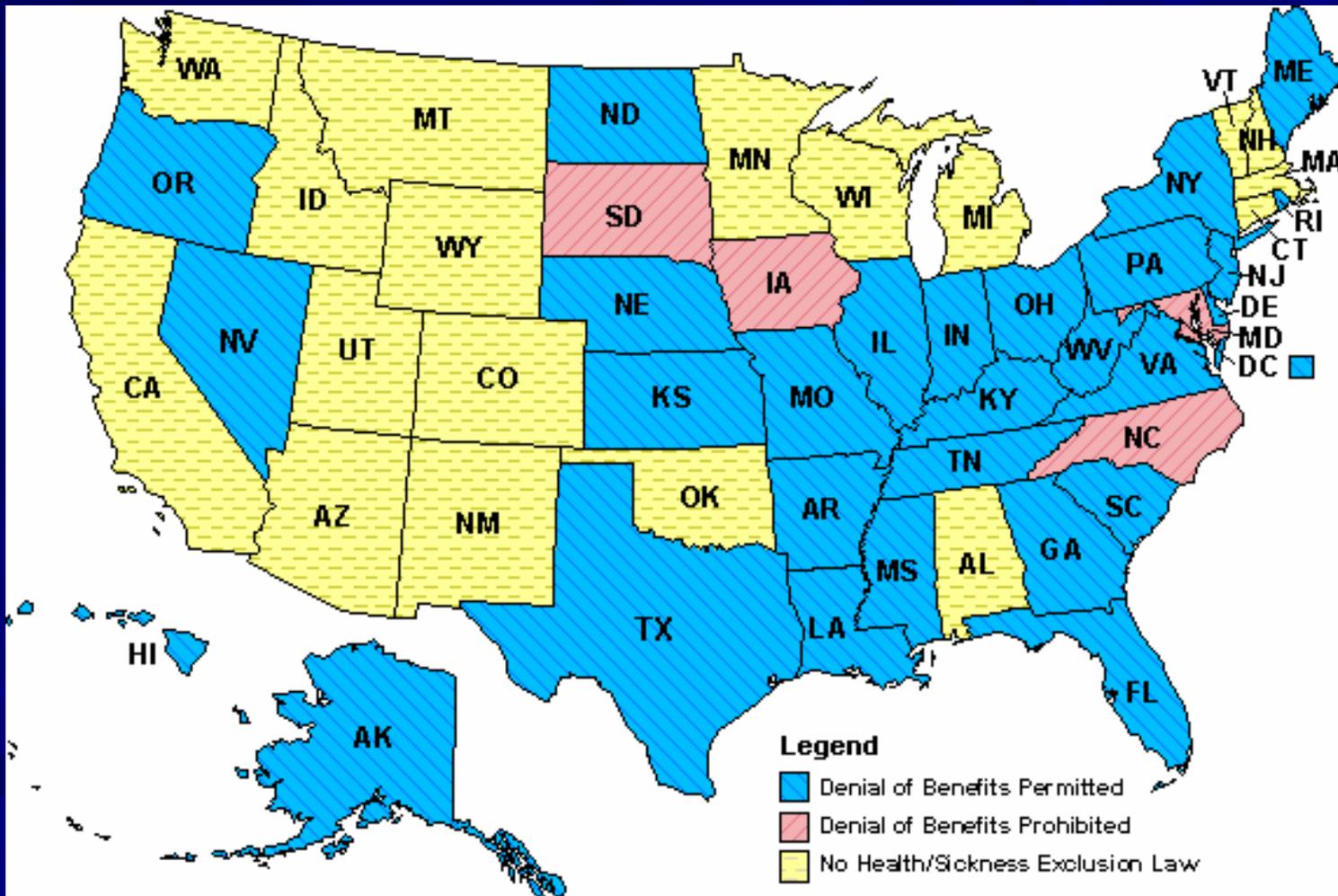
3% thought they should seek help but did
not

**Source: National Epidemiologic Study of Alcohol
Related Conditions 2002**



Insurers' Liability for Losses Due to Intoxication

As of January 1, 2004



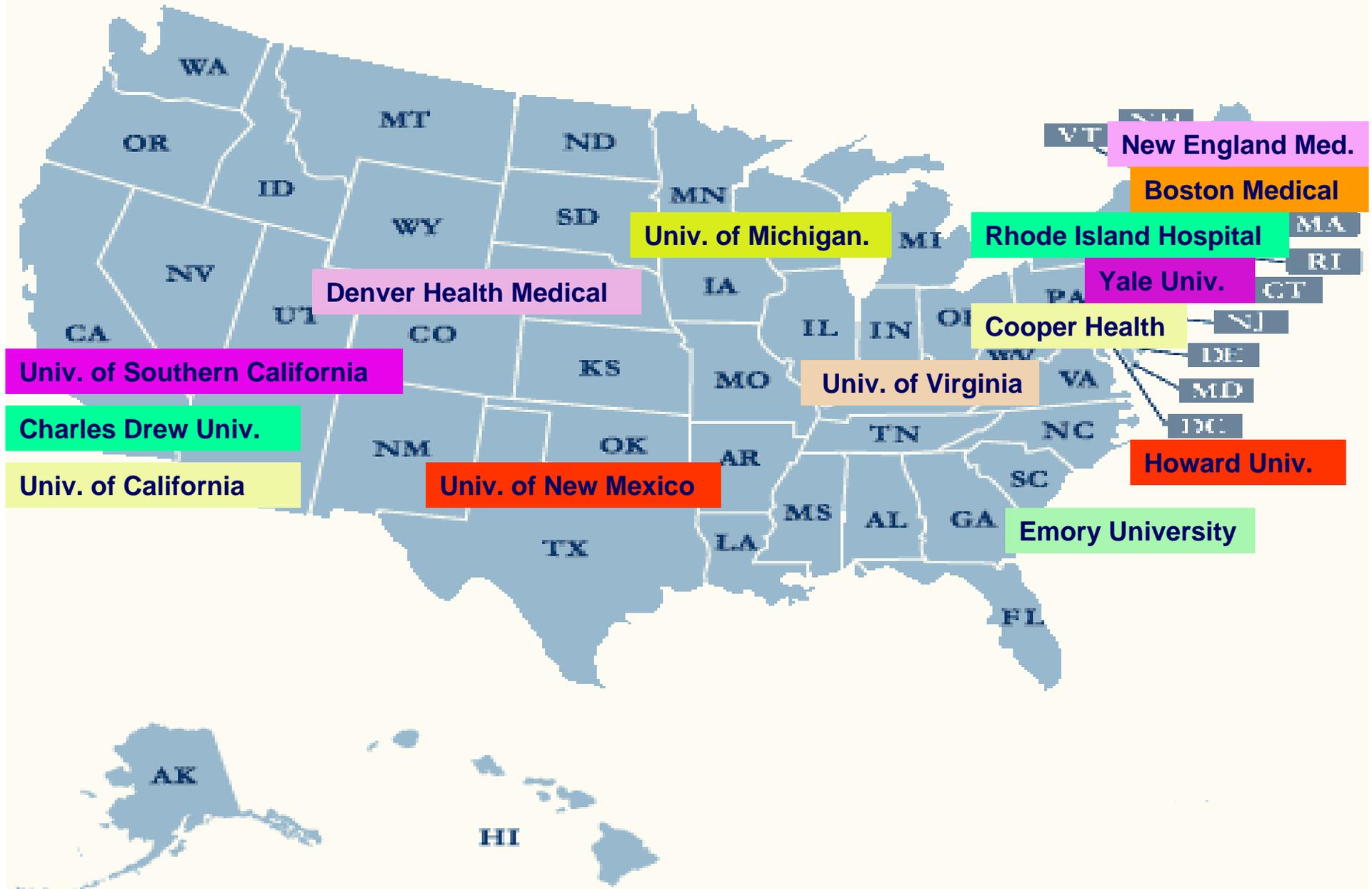
**28 States and DC allow with holding of medical reimbursement if injured
under the influence**



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

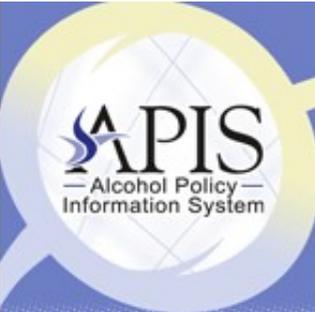
Academic Emergency Medicine Alcohol Screening Collaboration





Environmental Interventions Examples

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

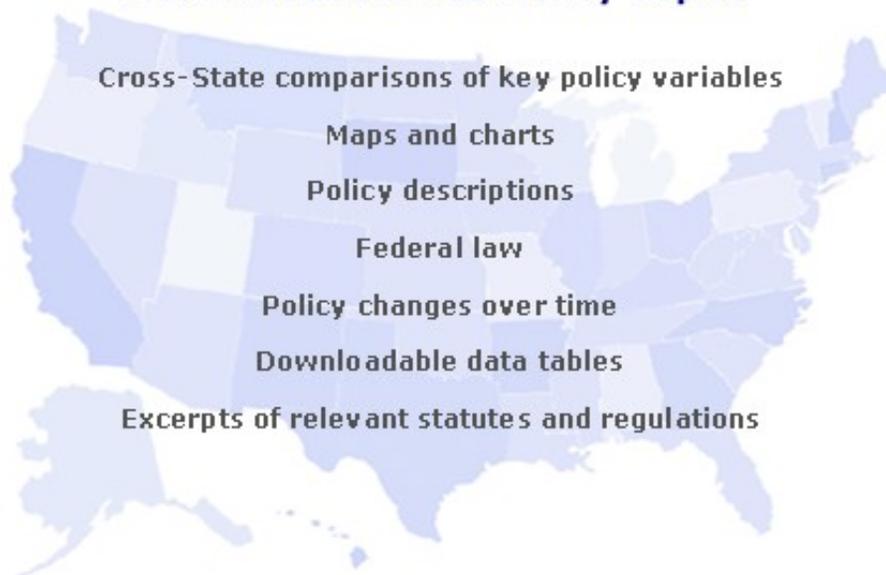


Alcohol Policy Information System

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



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

Additional APIS Resources

About alcohol policy

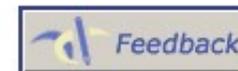
<http://alcoholpolicy.niaaa.nih.gov/>

New on the Site

On February 2, a new policy topic was added: [Open Containers of Alcohol in Motor Vehicles](#). The [Insurers' Liability for Losses Due to Intoxication \("UPPL"\)](#) policy topic was updated to 7/1/2005. For more information, see [Latest Changes](#).

Underage Drinking

Eleven APIS policy topics are collected in a special [Highlight on Underage Drinking](#) section.



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[Alcohol Policy Classification System](#)
[Enforcement and Compliance](#)
[NHTSA Alcohol-](#)

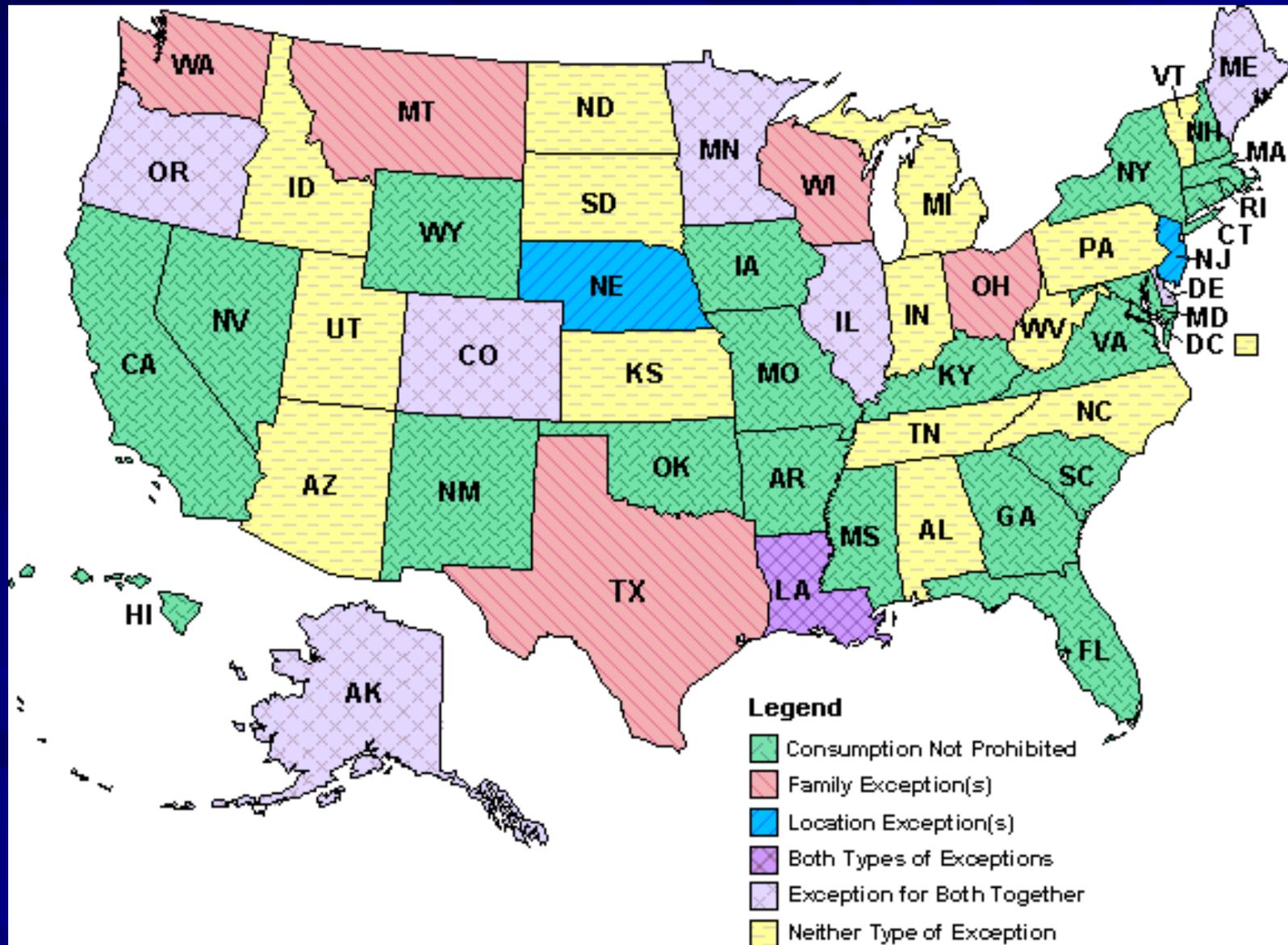


APIS Policy Topics

- Alcohol Beverage Control
- Taxation and Pricing
- Transportation, Crime, and Public Safety
 - Blood Alcohol Concentration
 - Underage Drinking
- Health Care Services and Financing
- Alcohol and Pregnancy

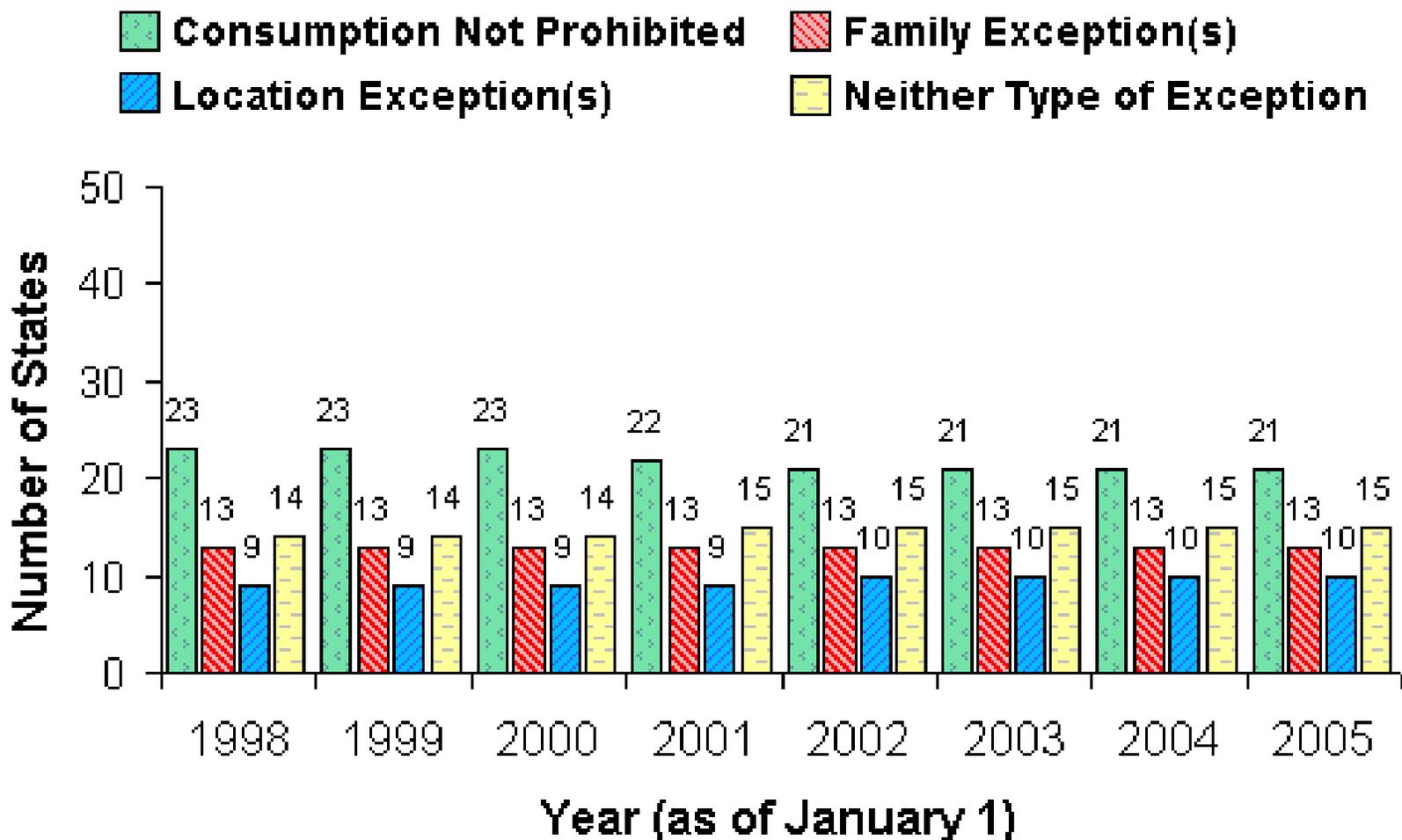


Exceptions to Minimum Age of 21 for Consumption of Alcohol as of January 1, 2005





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)
- A Matter of Degree Weitzman (2004)
- 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

Source: Weitzman et al. [American Journal of Preventive Medicine](#) 2004



Fighting Back Program

First Community Program to combine:

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

Source: Hingson et al. *Injury Prevention* (2005)



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

BAC .01%+
vs Zero BAC

Drivers

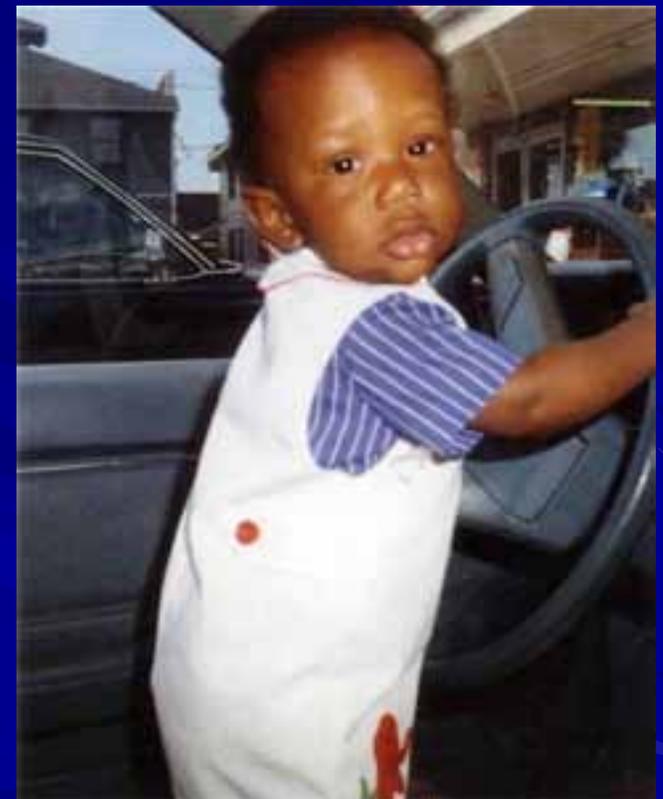
All Ages

16-20

5 FB sites
vs controls

↓ **22%**
P=.01

↓ **26%**
P=.08



Courtney Birch

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



NIAAA Rapid Response to College Drinking Problems

National Institute on Alcohol Abuse and Alcoholism

- 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



National Institute on Alcohol Abuse and Alcoholism

ALCOHOL Research & Health

The Journal of the National Institute on Alcohol Abuse and Alcoholism

Volume 28, Number 3, 2004/2005



Alcohol and Development in Youth:
A Multidisciplinary Overview



Public Health Service



National Institutes of Health



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