

New Research Since the Surgeon General's Call to Action to Prevent and Reduce Underage Drinking

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**Lifesavers:
National Conference on Highway Safety Priorities**

**Chicago, IL
March 17, 2015**



Alcohol Attributable Deaths in the United States, Annual Average, 2006-2010

National Institute on Alcohol Abuse and Alcoholism

- 87,798
- 3rd leading cause of preventable deaths
- Injury (including poisoning): 49,544
- Chronic disease: 38,253
- 7th leading risk factor for DALYs

Sources: CDC, ARDI, 2014; U.S. Burden of Disease Collaborators, JAMA, 2013

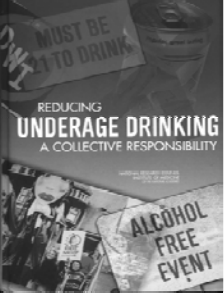
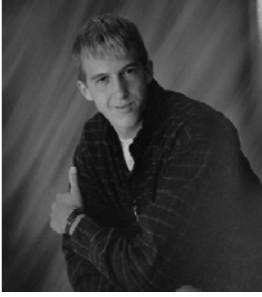
Economic Costs of Underage Alcohol Misuse

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- In 2006, alcohol misuse cost the U.S. \$224 billion (\$750 per person)
 - 12%/\$27 billion resulted from underage drinking
 - More than half the costs born by the state, local, and federal government or persons other than the drinkers

Source: Bouchery et al., *Am J Prev Med*, 2011

Underage Drinking and Prevention U.S.A.





Terry Sterling

STOP Underage Drinking

H. R. 864
AN ACT
To provide for programs and activities with respect to the prevention of underage drinking.

The Surgeon General's Call to Action To Prevent and Reduce Underage Drinking 2007



U.S. Department of Health and Human Services

Need to test all injury deaths under age 21 for alcohol

Consequences of Underage Drinking: United States

- Nearly 5,000 unintentional injury deaths
- 1,527 alcohol-related traffic crash deaths
- Poor academic performance
- Potential cognitive deficits
- Unplanned and unprotected sex after drinking
- Physical and sexual assaults
- Higher tobacco and drug use
- Hangovers
- Poisoning/overdoses
- Second-hand effects to others


Source: Surgeon General's Call to Action, 2007

Alcohol-Attributable Deaths, Annual Average 2001-2005, 2006-2010

		2001-2005	2006-2010	Percent Change
Age < 21	Motor Vehicle	2,075	1,580	↓ 23%
	Poisoning	276	400	↑ 45%
Age 21+	Motor Vehicle	11,744	10,880	↓ 7%
	Poisoning	5,534	9,561	↑ 72%

Source: Alcohol-Related Disease Impact (ARDI), 2015

Hospitalizations for drug and alcohol overdoses on the rise: 1999-2008



Overdose Hospitalizations, 1999-2008	Ages 18-24	Ages 18-20
Alcohol only	↑25%	↑6%
Drug only	↑56%	↑19%
Combined alcohol and drugs	↑76%	↑41%
Percent involving alcohol	33%	30%

In 2008: 1.6 million overdose hospitalizations cost \$15.5 billion, up 40% since 1999
 -115,177 aged 12-20
 2001-2005, 231 alcohol poisoning deaths/year

Overdose defined as excessive consumption and/or poisoning based on ICD-9-CM codes

White, Hingson, et al., JSAD, 2011

Adolescents Drink Less Often but More Per Occasion Than Adults (2010 NSDUH)

Age	drinking days/month	usual number of drinks/occasion
12-20	4.85	5.73
21-25	5.73	4.76
26+	5.49	3.58

Underage Drinking Patterns

- Underage drinkers consume an average of 6 drinks per occasion 5 times per month (SAMHSA, 2011)
- 12% of underage drinkers consume 9 or more drinks on their last drinking occasion

Source: SAMHSA, 2011

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Youth Risk Behavior Survey 2009

- Nearly 1 million high school students and nearly 2 million 12-20 year olds consume 5 or more drinks 6 or more times per month. They are much more likely to
 - Ride with a drinking driver
 - Drive after Drinking
 - Never wear safety belts
 - Carry weapons/guns
 - Be bullied
 - Be injured in a fight
 - Be injured in a suicide attempt
 - Be forced to have sex
 - Had sex with 6 or more partner
 - Have unprotected sex
 - Use Marijuana/cocaine
 - Ever injected drugs

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Youth Risk Behavior Survey 2009

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

Drink at school	32% vs. 0%
Use marijuana at school	24% vs. 1%
Earned mostly D's and F's in school within the past year	14% vs. 4%

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Sources: Zeigler et al, Prev Med, 2005; Squeglia et al, Clin EEG Neurosci, 2009; Squeglia et al, J Stud Alcohol Drugs, 2012; Norman, Drug & Alcohol Depend, 2011

Winward et al. Adolescent Heavy Episodic Drinking: Neurocognitive Functioning During Early Abstinence, J Int Neuropsychol Soc, 2014

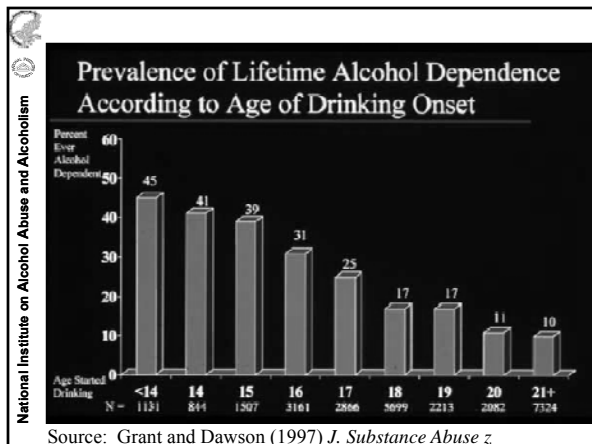
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- **Methods**
 - Studied adolescents ages 16-18
 - Heavy episodic drinkers (HED), N= 39
 - Non drinkers, N=26
 - 5th grade California standards
 - Test in language arts and mathematics comparable in both groups

Winward et al. (cont)

National Institute on Alcohol Abuse and Alcoholism


- **Results**
 - Compared to non drinkers, HED performed worse, even after 4 weeks of sustained abstinence on:
 - Prospective memory
 - Cognitive switching
 - Inhibition task accuracy
 - Verbal memory
 - Visuospatial abilities
 - Language and achievement
 - This “may affect adolescents’ daily experiences in academic and occupational settings.”



Early Drinking Onset and Alcohol Dependence: Twin Study Results


- Early age of starting to drink is significantly associated with the development of alcohol dependence comparing twins when one began to drink earlier than the other (even among monozygotic "identical" twins, thus fully controlling for genetics)

J. Grant et al. *Psychological Medicine*, 2006; Argawal et al., *ACER*, 2009



Early onset of drinking is related to: (Observations in the Surgeon General's Call to Action, 2007)


- Other substance use problems in adolescence (Hawkins et al, 1997; Schweinsburg, 1996)
- Risky sexual behavior (Grunbaum)
- Car crashes after drinking
- Physical fights after drinking
- Unintentional injuries after drinking (Hingson et al., 2000, 2001)



Michael Timothy Wilder

Earlier Age Drinking Onset Also Related to:

- More rapid development of dependence
- Dependence by age 25
 - Of ever dependent
 - 47% before age 21
 - 2/3 before age 25
- Chronic Relapsing Dependence
 - Longer episodes
 - Multiple episodes
 - Past year dependence
 - More symptoms
 - Early dependents less likely to seek help



Brian Paul McKevey

Hingson, Heeren and Winter 2006 *Archives Pediatric and Adol Med*
Hingson, Heeren and Winter 2006 *Pediatrics*

Early Age of Drinking Onset also Associated with:

- Suicide
 - Swahn et al., *Pediatrics*, 2008; Bossarte & Swahn, *Addict Behav*, 2011
- Violent behavior, including predatory violence
 - Blitstein et al., *Health Educ Behav*, 2005; Ellickson, et al., *Pediatrics*, 2003
- Dating violence/victimization
 - Ramisetty-Mikler et al., *J Sch Health*, 2006
- Criminal behavior
 - Eaton, J. *Interpers Violence*, 2007; Allan et al., *S. Afr Med J*, 2007.
- Prescription drug misuse
 - Hermos et al., *J. Addict Med.*, 2008
- Unplanned and unprotected sex after drinking
 - Hingson et al., *Pediatrics*, 2003
- Adults injuring oneself and others after drinking
 - Hingson & Zha, *Pediatrics*, 2009

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
- Alcohol is the leading contributor
- 49,000 injury deaths annually attributable to alcohol misuse

Sources: Centers for Disease Control and Prevention, 2014; Smith et. al 1999

Family Influences on Youth Drinking 12-20

- Children of parents who binge, compared with abstainers, are twice as likely to
 - Binge (20% vs. 10%)
 - Meet alcohol dependence/abuse criteria (10% vs. 5%)

Source: SAMHSA, Findings From the 2002-2006 National Surveys on Drug Use and Health, 2008

Kaynak et al., Providing Alcohol for Underage Youth: What messages Should We Be Sending Parents, *J Stud Alcohol Drugs*, 2014

- **Methodology**
 - Reviewed 22 studies (cross-sectional and longitudinal) that examined the association between parental provision of alcohol to children and adolescent drinking outcomes
- **Results:**
 - Parental provision was generally associated with increased:
 - Adolescent alcohol use
 - Increased heavy episodic drinking
 - Higher rates of alcohol problems
 - Data were “equivocal” that parental provision is protective in the face of other risk factors

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Interventions


- Individually oriented
- Family
- School
- Web-Based
- Environmental
- Comprehensive Community Interventions

New Research Findings Since the 2007 Surgeon General's Call to Action to Prevent and Reduce Underage Drinking: A Review
KALYAN SINGH, et al., 2014, www.NIAAA.nih.gov

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Systematic Review of Randomized Trials of Brief Interventions from 1992-2004
(Solberg et al., *Am. J. Prev. Med.*, 2008)


- “Results make alcohol screening and counseling one of the highest ranking preventive services among 25 effective services.”
- Similar score as screening for
 - hypertension
 - colorectal cancer
 - vision for adults age 65 and older
- 2012: U.S. Preventive Services Task Force: Strong evidence for adults in primary care (See Moyer, *Annals Intern Med*, 2013)


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Tripodi et al. Interventions for Reducing Adolescent Alcohol Abuse. *Arch Pediatr Adolesc Med*, 2010

▪ **Methods:**


- Meta-analysis reviewed scientific literature from 1960-2008 (11 different research article data bases)
- 16 studies of interventions to reduce alcohol use targeted adolescents ages 12-19 (published 1994-2008)
- Outcomes (alcohol abstinence, frequency and quantity of drinking, alcohol problems) compared to control group, wait list, other treatment


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Tripodi et al. (cont.)

▪ **Results:**

- Large benefits
- Brief interventions with adolescents, adolescents and parents, and after care
- Large effects found for:
 - Brief motivational interventions active with after care
 - Brief intervention with adolescent and parent
 - Brief intervention with adolescent
 - Cognitive behavioral therapy with 12-step approach
 - Multi-Dimensional family therapy


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Patton et al. Alcohol Screening and Brief Interventions for Adolescents, *Alcohol and Alcoholism*, 2013

▪ **Review of 12 reviews from 2003-2013 and 5 other trials**

- Craft and Audit tolls recommended for screening adolescents
- Tools specifically for young adolescents need to be tested
- Motivational interventions delivered over one or more sessions and based in health care or educational settings are effective.

Scott-Sheldon et al. Efficacy of Alcohol Interventions for First-Year College Students, *J Clin Consult Psych*, 2014

Methods

- Reviewed 41 studies with 62 individual or group interventions

Results: Compared to control subjects

- Recipients of interventions reduced alcohol consumption and related problems up to 4 years past intervention
- Individual and group interventions yielded comparable results on most outcomes
- Individual reduced heavy drinking more than group interventions
- Computer and face-to-face were equally effective
- Effective interventions components:
 - Personalized feedback
 - Protective strategies to moderate drinking
 - Setting alcohol related goals
 - Challenging alcohol expectancies
- Interventions with 4 or more components were most effective
- Recommend routine screening all incoming college students

Steinka-Fry et al., Effects of Brief Alcohol Interventions on Drinking and Driving among Youth: Meta-Analysis, *J Addict Prev*, 2015

Method

- The authors reviewed:
 - 17 experimental studies, 75% conducted in the U.S. (N=5,664; average age 17)
 - Motivational interviewing/motivational enhancement was studies in 44% and cognitive behaviors and motivational enhancement in 25%
 - Nearly half (44%) were delivered individually and 1/3 in groups

Results

- Compared with controls, intervention recipients exhibited:
 - Reduced driving while intoxicated
 - Reduce heavy episodic drinking

Young Adults at Risk for Excess Alcohol Consumption are Often Not Asked or Counseled About Drinking

- 2/3 of 18-39 year olds nationwide saw a physician in the past year
- Only 14% of them (12% 18-20 year olds):
 - Were asked about their alcohol consumption and
 - Given advice about what drinking patterns pose risk to health
- Persons 18-25:
 - Were most likely to exceed low-risk drinking guidelines (68% vs. 56%)
 - Were least likely to have been asked about their drinking (34% vs. 54%), especially those under age 21 (26%)

Helen Marie Witty

Source: Hingson et al., *J Gen Intern Med*, 2012

Next Generation Health Study, Wave 1, National Survey (N=2,519 10th graders average age 16)

- 82% saw a doctor in the past year
- At their last MD visit:

All Respondents	Drinking alcohol	Smoking	Other Drug use
Doctor asked about	54%	57%	55%
Advised about related health risks	40	42	40
Advised to reduce or stop	17	17	17



Frequent Substance Users	Drunk	Smoking	Other Drug use
Doctor asked about	60%	58%	56%
Advised about related health risks	52	46	54
Advised to reduce or stop	24	36	42

- Drunk, smoking 6+ times past month: 7%, 9%
- Drugs 6+ times past year: 5%

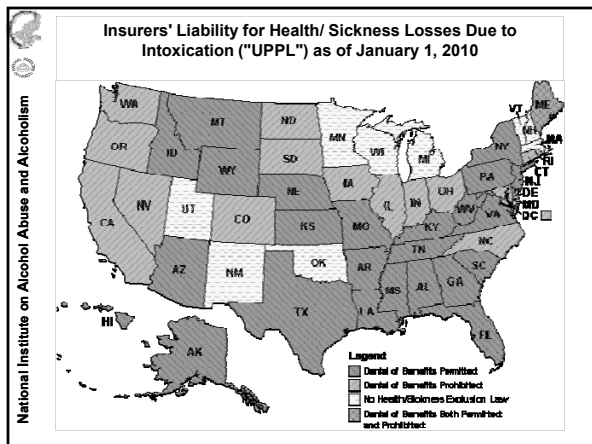
Source: Hingson et al., *Pediatrics*, 2013

Barriers to Screening

- Time to ask questions
- Time to respond to questions
- Lack of training

- Lack of treatment centers for referral
- Reimbursement issues



Foxcroft et al., Social Norms for Alcohol Misuse in University and College Students (Review), *Cochrane Collaboration*, 2015

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- **Methods**
 - They reviewed 66 randomized trial studies (N=43,125) and did a meta-analysis of 59 studies conducted before May 2014 (N=40,951)
 - Studies had to have a follow-up period of at least 4 months
 - Of the studies, 52 were conducted in the United States
 - Of the trials, 39 targeted high risk or mandated children and 26 included all students regardless of risk

Foxcroft et al. (cont.)

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- **Results**
 - At 4 or more months follow-up, they observed:
 - Small significant reductions for web and face-to-face feedback on:
 - Alcohol-Related problems
 - Binge drinking or quantity consumed
 - Frequency of consumption
 - Peak BAC
 - No reductions for
 - Mailed feedback
 - Group face-to-face
 - Social norms marketing
- **Conclusion**
 - "The strength of the effects is small and unlikely to provide any advantages in practice."


Carey et al. Computer-Delivered Interventions to Reduce College Student Drinking: A Meta-Analysis, *Addiction*, 2009

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Methods: Reviewed 35 studies of 43 separate interventions


Results: Computer delivered interventions compared to assessment only controls

- Reduced short-term (≤ 5 months) drinking on drinking days and maximum quantity consumed
- No difference in frequency of heavy drinking and drinking days
- Reduced long-term (≥ 6 weeks):
 - Quantity of alcohol consumed
 - Frequency of drinking days
 - Alcohol-Related problems

 **Paschall et al. Effects of AlcoholEdu, J Stud Alcohol Drugs & Am J Prev Med, 2011**


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- 32 colleges randomized to AlcoholEdu or comparison
- AlcoholEdu: 2-3 hours summer before and Fall of Freshman year:
 - Standard drink size
 - Effects of alcohol on brain and body
 - Challenge misperceptions of college drinking norms
 - Discuss blood alcohol concentrations (BAC)
 - Information about alcohol policies in their state
 - Harm reduction approaches (e.g., setting drinking limits, plan safe transportation)
 - Ways to deal with alcohol poisoning, drinking and driving, etc.
- Student online surveys about drinking (summer, fall, and spring semesters of freshman year)

 **Paschall et al. (cont)**

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- Results:
 - Fall Semester: Significant reductions (1/4- 1/3)
 - Past 30-day alcohol use
 - Binge drinking
 - Alcohol problems:
 - Physiological (hangover, vomiting, passing out, etc.)
 - Social (trouble with police or school authorities)
 - Victimization (crime, sexual)
 - Differences not significant during spring semester
- Implications:
 - Fall semester of freshman year is a high-risk time for college alcohol problems
 - Need to test booster sessions and strengthen intervention
 - Need to integrate program into a comprehensive set of interventions

 **School Based Programs**

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- Programs that rely primarily on increasing knowledge about consequences of drinking are not effective.
- School only program effects are generally small
- Most Effective Programs :
 - Address social pressures to drink and teach resistance skills
 - Include developmentally appropriate information
 - Include peer-led components
 - Provide teacher training
 - Are interactive
 - Include community and family components (e.g. Pentz, 1989; Pery et al., 1996, 2002; Spoth et al., 2001, 2004)

Sources: NIAAA, Alcohol and Development in Youth: A Multidisciplinary Overview, 2005; Spoth et al., *Pediatrics*, 2008

Family Interventions
Iowa Strengthening Families Program

Goals:

- Improve parent/child relations
- Strengthen family communication skills
- Increase child coping skills

Implementation:

- 7 sessions at school
- 13 hours total
- Parent and child separately and together

Spoth et al., *J Consulting Clinical Psychology* (2001, 2004)

Family Interventions

A randomized controlled trial with families of 6th graders:

- Iowa Strengthening Families Program (ISFP) (206 families)
- Preparing for Drug Free Years Program (PDFYP) (221 families)
- Control (221 families)

Lifetime Drunkenness Through 6 Years Past Baseline:
 Logistic Growth Curve

Results Persist at age 21 (Spoth, 2009)

Source: Spoth, Redmond, Shin *J Consulting Clinical Psychology* (2001, 2004, 2009)

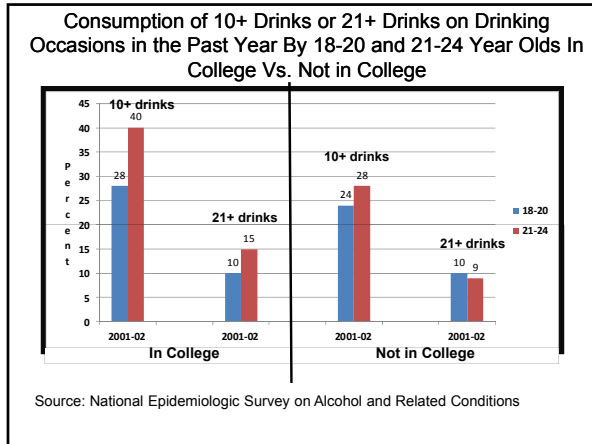
Environmental Policy Interventions

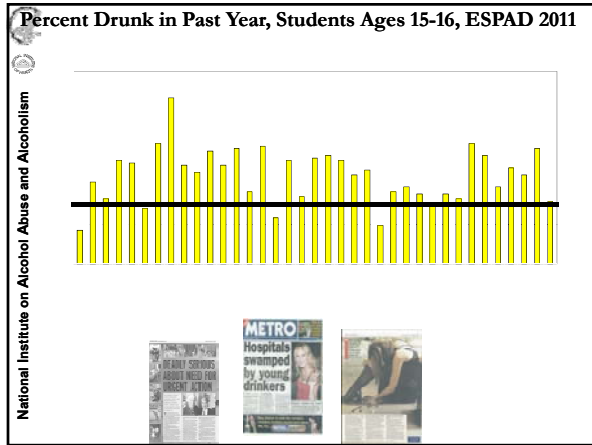
- Legislation to reduce drinking & driving
 - Criminal per se laws
 - Administrative license revocation laws
 - Mandatory assessment & treatment laws
 - Primary safety belt laws
 - Ignition interlock for first offenders
 - Lower legal blood alcohol limits for convicted offenders
 - 0.08% criminal per se BAC level laws
 - Zero tolerance laws
 - Use/lose laws
 - Graduated licensing
- Enhanced enforcement- publicized sobriety checkpoints

Environmental Policy Interventions

- Legislation to reduce availability of alcohol
 - Minimum legal drinking age
(Shults et al., *Am. J. Prev. Med.*, 2001; Wagenaar & Toomey, *J. Stud Alcohol Drugs*, 2002; Institute of Medicine, 2004)
 - Reduce alcohol outlet density
(Gruenwald & Remer, *Alcohol: Clin. Exp. Res.*, 2006; Campbell et al., *Am J Prev Med*, 2009)
 - Increase price
(Wagenaar et al., *Addiction*, 2009; Wagenaar et al., *Am J Pub Health*, 2010; Institute of Medicine, 2004; Elder et al., *Am J Prev Med*, 2010; WHO, 2009)
 - Legislation to reduce drinking and driving

Environmental Approaches



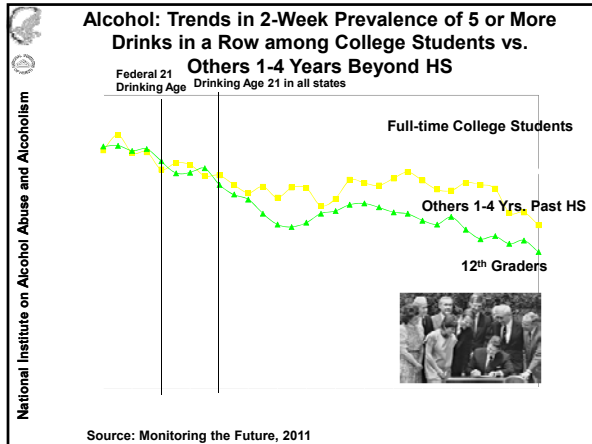


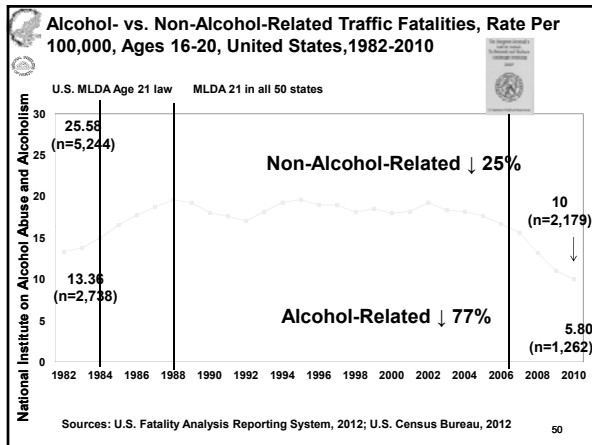
Compared to Other Regions of the World

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- Europe has the highest:
 - Per capita alcohol consumption: 11.9 liters pure alcohol vs. 6.2 liters worldwide
 - Percent of deaths that are attributable to alcohol : 6.5% vs. 3.2% worldwide
 - Alcohol-Attributable burden of disease (measured in disability-adjusted life years (DALYs)): 11.6% vs. 4% worldwide
 - Past year prevalence of alcohol use disorders:
 - 5.5% Western Europe
 - 10.9% Eastern Europe
 - 3.6% worldwide

Source: Rehm J et al., Alcohol and Global Health, *Lancet* 373, 2223-2233, 2009. 48





Legal Drinking Age Changes

- CDC reviewed 49 studies published in scientific journals
- Alcohol-Related Traffic Crashes:
 - Increased 10% when the drinking age was lowered
 - Decreased 16% when the drinking age was raised

Source: Shults et al., *American Journal of Preventive Medicine*, 2001

James Fell et al.
The Impact of Underage Drinking Laws on Alcohol-Related Fatal Crashes of Young Drivers
Alcohol Clin Exp Res, 2009

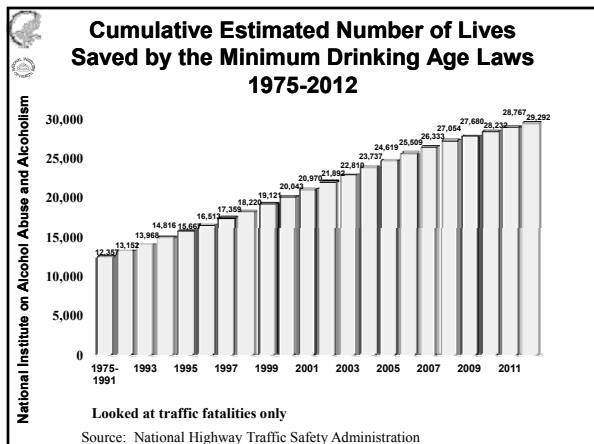
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- **Methods**
 - Analysis of the Fatality Analysis Reporting System from 1982-2004
 - Examined the effects of the minimum legal drinking age of 21 on the ratio of drinking to non-drinking drivers under age 21 in fatal crashes
 - Controlled for:
 - Zero Tolerance Laws
 - Graduated License Night Restrictions
 - Use/Lose laws
 - Administrative License Revocation
 - .10, .08 BAC per se
 - Mandatory seat belt laws
 - Per capita beer consumption
 - Unemployment rate
 - Vehicle miles traveled
 - Frequency of sobriety checkpoints
 - Number of licensed drivers
 - Ratio of drinking to non-drinking drivers
 - Age 26+ in fatal crashes
 - Ratio of drinking to non-drinking drivers age 26+ in fatal crashes

Fell et al., *Alcohol Clin Exp Res, 2009* (cont)

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- **Results**
 - Minimum legal drinking age was independently associated with a 16% decline in the ratio of drinking to non-drinking drivers in fatal crashes under age 21
 - Other laws that independently predicted lower involvement of drinking drivers under age 21 in fatal crashes:
 - Use/Lose laws ↓5%
 - Zero tolerance laws ↓5%
 - 0.08% BAC limit ↓8%
 - 0.10% BAC limit ↓7%
 - Administrative license revocation (ALR) ↓5%
 - Seat belt laws ↓3%



10 Reasons for Legal Drinking Age of 21

- Alcohol-related traffic fatalities and injuries
- Other unintentional injuries (falls, drownings, burns)
- Homicide and assault
- Sexual assault
- Suicide
- STDs, HIV/AIDS
- Unplanned pregnancy
- Alcohol dependence
- Teen drug use
- Poor academic performance

Norberg et al. Long-Term Effects of Minimum Drinking Age Laws on Past-Year Alcohol and Drug Use Disorders, *Alcohol Clin Exp Res*, 2009

- Examined 2 national surveys: 1992 & 2002 (N=33,869)
- Compared persons who grew up in states with legal drinking ages below 21 and 21
- **Results:**
 - Adults allowed to purchase before age 21 had higher odds of past-year:
 - Alcohol use disorder 1.31(1.15, 1.46)
 - Drug use disorder 1.70 (1.19, 2.44) (even in 30s and 40s)

Key Unanswered Questions
Explore Effects of:

- 1) Removing loopholes and exceptions in age 21 MLDA laws
- 2) Keg registration laws
- 3) Social host liability laws
- 4) Raising age youth can serve alcohol
- 5) Impact of such changes on teen drug use
- 6) How to reduce extreme binge drinkers?

Extreme Binge Drinking
Monitoring the Future, 2005-2011

- 20% drank 5+ drinks in the past 2 weeks (declined 2005-2011)
- 5% drank 15+ drinks in the past 2 weeks (no change)
- 15+ drinks in 4 hours—BAC
 - No food: .30% men, .45% women
 - Full Stomach: .20% men, .30% women
- 50/50 chance of blackout at .22%
- 500 increased odds fatal crash among 16-20 year old driver .15%+
- .30%-.35% suppress brain stem, reflexes, gagging, and breathing
- 15+ drinkers 3-times more likely than non-bingers to use other drugs (64% vs. 22%)
- Implications:
 - Parents discuss alcohol with children early, often, set and enforce rules
 - MDs routinely screen and counsel
 - Add extreme binge questions to surveys and prevention studies
 - Test all injury and poisoning deaths

Sources: Patrick et al. and Hingson et al., *JAMA Pediatrics*, 2013

Dills. Effects of Social Host Liability Laws,
J Health Economics, 2010

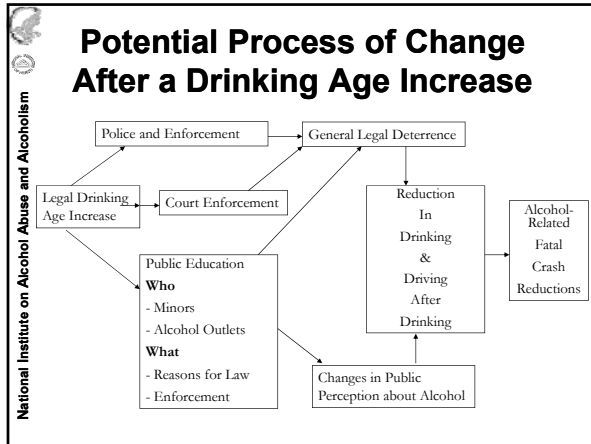
- Fatal crash methods
 - Examined state-level traffic fatality data from FARS, 1975-2005.
 - Examined fatalities ages 18-20 where alcohol was involved and where no alcohol was present
 - Compared 33 states that adopted social host liability laws between 1975 and 2005
- Controlled for:
 - Minimum legal drinking age
 - State beer taxes
 - 0.08% BAC limits
 - Vehicle miles traveled
 - Zero Tolerance laws
 - State unemployment rate
 - Seat belt laws
 - Average per capita income
 - Graduated licensing
- Results:
 - Social Host Liability laws reduced drunk driving fatalities between 5% and 9%

Is Passing Laws Enough?

STATUS REPORT


Underage Youths Easily Buy Beer and Their Traffic Deaths Go Up

Underage youths are still able to buy alcohol in many states, even those with strict laws. A new study by researchers at the University of Michigan shows that 15% of 18- to 20-year-olds can buy alcohol in their state. This is a significant increase from 10% in 2002. The researchers also found that 15% of 18- to 20-year-olds can buy alcohol in their state, even though 15 states have strict laws. This is a significant increase from 10% in 2002. The researchers also found that 15% of 18- to 20-year-olds can buy alcohol in their state, even though 15 states have strict laws. This is a significant increase from 10% in 2002.




- Comprehensive community interventions address college age and underage drinking at multiple levels**
- Coordinate multiple city departments
 - Clear measurable Objectives and Strategic Plans
 - Combine Education and Law Enforcement
 - Include screening and early interventions
 - Use Data to Plan and Evaluate
 - Involve Private Citizens – Be Inclusive
 - Involve Youth
-

- Successful Comprehensive Community Interventions**
- Saving Lives Program, Hingson (1996)
 - Project Northland, Perry (1996)
 - Communities Mobilizing for Change, Wagenaar (2002)
 - Community Trials, Holder (2000)
 - A Matter of Degree, Weitzman (2004)
 - Fighting Back, Hingson (2005)
 - Sacramento Neighborhood Prevention, Treno, (2007)
 - State Coalitions to Reduce Underage Drinking, Wagenaar (2007)
 - Neighborhoods Engaging with Students (NEST), Saltz (2009)
 - College community program, McCart et al. (2009)
 - Communities That Care, Hawkins et al. (2009)
 - Safer California Universities, Saltz et al. (2010)
 - Study to Prevent Alcohol Related Consequences (SPARC), Wolfson et al. (2011)

 **McCartt et al., *Injury Prevention*, 2009**


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- Intervention
 - Marshall University, Huntington (WV)
 - West Virginia University, Morgantown (comparison)
 - Sobriety checkpoints
 - Saturation patrols
 - DUI patrols
 - Multi-media campaign
 - Increased enforcement
 - DUI laws
 - Zero tolerance laws
 - MLDA 21
 - Fake ID
- Results:
 - Reduced %s with illegal BACs (college students and others)

 **Conclusions**

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- Research indicates reductions in underage and college age drinking and related problems can be achieved with interventions that focus on
 - Individuals
 - Families
 - Schools
 - Environmental Changes/Legislation
 - Community
- Interventions targeting multiple levels are more effective

 **Key Unanswered Questions:
Comprehensive Community Interventions to
Reduce Youth Alcohol Problems**

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- 1) Will a combination of
 - environmental interventions to reduce alcohol availability and enforce alcohol policy, e.g. DWI and drinking age laws
 - increased alcohol screening and early intervention achieve greater problem reduction than either alone?
- 2) Are programs that target both underage youth and young adults more effective in reducing youth alcohol problems than underage oriented programs only?

**Key Unanswered Questions:
Comprehensive Community Interventions to
Reduce Youth Alcohol Problems**

3) Will programs that reduce youth consumption produce carry over alcohol problem reduction in adult life?

4) Will programs that reduce youth alcohol misuse also reduce drug use?

5) How can effective comprehensive community interventions be sustained over time?

6) What types of community interventions are most effective in reducing youth alcohol problems with the least cost?

