NIAA SPECTRUM

Volume 4, Issue 1 | February 2012 | http://www.spectrum.niaaa.nih.gov

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES • National Institutes of Health • National Institute on Alcohol Abuse and Alcoholism

FEATURE

UNDERAGE DRINKING: ONE STEP FORWARD, MANY MORE TO GO

In December 2011, an annual survey of drug use by American youth offered some promising news: Alcohol use by 8th, 10th, and 12th graders is at its lowest point since the survey began collecting data in 1975.

Monitoring the Future, one of three major surveys sponsored by the U.S. Department of Health and Human Services that provide data on substance abuse among youth, shows that 63.5 percent of 12th graders reported drinking alcohol last year, down from a high in 1997 of 74.8 percent. Of those who drank, 21.6 percent engaged in binge drinking, which means they had five or more drinks in a row during the preceding 2 weeks—down from 25.4 percent in 2006. These statistics are a sign of progress, but they nevertheless remain too high.

"On the one hand, we're encouraged by the findings—it shows we're on the right track. We've been on the case for a while now and we know more, so clearly it's paying off somehow," says Vivian Faden, Ph.D., associate director for Behavioral Research and director of the Office of Science Policy and Communications at NIAAA, and a leading expert on underage and college drinking.

"But alcohol is still the drug of choice among adolescents. We still have a lot of work to do to continue to better understand and address underage drinking; the problem is far from solved," Dr. Faden continued.

Dr. Faden and her colleagues believe that understanding underage drinking as a developmental issue holds a key to figuring out how to reduce it. As they move into adolescence and beyond, young people experience dramatic physical, emotional, and lifestyle changes, including important transitions such as starting high school or learning to drive. These changes can factor into an adolescent's decisions about drinking.

"By developmental, we mean that development affects the choices kids make to drink, and then, in turn, those choices affect their development," Dr. Faden explained. For example, research shows that the human brain actually continues to develop through adolescence and into our twenties. Different parts of the brain mature

Continued on page 3

IN THIS ISSUE

FEATURES

1 Underage Drinking: One Step Forward, Many More to Go

2 New Clinician's Guide Simplifies Screening for Underage Drinking

A CLOSER LOOK

2 Kids Drink in the Darndest Ways…Or Do They?

NEWS FROM THE FIELD

4 Early Liver Transplant Can Improve Survival

5 Social Media May Help Identify College Drinking Problems

5 Hospitalizations Increase for Alcohol and Drug Overdoses

7 Doctors May Miss Alcohol Screening Opportunities

BY THE NUMBERS

6 A Younger Start Means Higher Risk for Alcohol Dependence

5 QUESTIONS WITH...

7 Antonio Noronha, Ph.D.

A CLOSER LOOK

KIDS DRINK IN THE DARNDEST WAYS…OR DO THEY?

Jello shots, vodka "eyeballing," and booze-infused gummy bears and tampons—are kids really getting buzzed these ways, or is it just media hype?

When it comes to inventive ways for kids to get alcohol in their bodies, anecdotes abound, but research is limited. It is likely that the more outrageous (and painful) methods reported in local news stories and on the Internet, such as eyeballing and vodka-infused tampons, are rare. It's easier to imagine youth being attracted to sweet (and painless) ways to ingest alcohol, such as those using gelatin. Research bears this out, at least for jello shots if not yet for gummy bears.

Jello shots may be "an important source of youth alcohol intake" according to a pilot study of 108 drinkers aged 16 to 20 (Binakonsky et al., 2010). The study found that in the past month, about 20 percent of the young drinkers used jello shots, typically made by adding cold vodka or other spirits to boiling water and gelatin mix. A proven effective delivery system for alcohol, gelatin masks the taste of liquor better than a beverage mixer (Raleveski et al., 2006).

Almost all of the young jello shot users engaged in more frequent, heavy, higher-risk drinking (Binakonsky et al., 2010). Girls used the jello shots somewhat more frequently than boys (26 percent of girls who drank vs. 17 percent of boys). On average, the young drinkers had 16 jello shots in the past month, equivalent to an estimated 8 standard liquor drinks. This represented an average of 15 percent of their total alcohol intake.

Although vodka-soaked gummy bears have yet to make it into the research literature, any alcohol delivery methods that use familiar food and drink products and mask the taste of alcohol can be a serious matter. Research indicates that alcohol concoctions made with sweet drinks that kids already like may help them make an easy transition to drinking (Stevenson et al., 2007).

Sources:
Binakonsky J, Giga N, Ross C, Siegel M. Jello shot consumption among older adolescents: A pilot study of a newly identified public health problem. *Substance Use & Misuse*;2011;46(6):828-35. Epub 2010 Dec 21.
http://www.ncbi.nlm.nih.gov/pubmed/21174500

Ralevski E, Gueorguieva R, Limoncelli DD, Husain R, Serrita Jane J, Petrakis I. Gelatin "shots" as a new method for alcohol administration in a laboratory setting. *Alcoholism: Clinical & Experimental Research*;2006 Mar;30(3):473-9.
http://www.ncbi.nlm.nih.gov/pubmed/16499488

Stevenson RJ, Copeland J, Gates P. The role of experience in liking "ready-to-drink" alcoholic beverages. *Psychology of Addictive Behaviors®*;2007 Dec;21(4):564-9.
http://www.ncbi.nlm.nih.gov/pubmed/18072839

FEATURE

NEW CLINICIAN'S GUIDE SIMPLIFIES SCREENING FOR UNDERAGE DRINKING

Young people who start drinking during adolescence or as teenagers often develop acute or chronic alcohol problems that prevent them from achieving their full potential. Now, by asking just two questions, health care professionals have a better chance of identifying children and teenagers at risk for alcohol-related problems.

A two-question screening tool is an integral part of *Alcohol Screening and Brief Intervention for Youth: A Practitioner's Guide*, which was released by NIAAA in October 2011. Developed in collaboration with the American Academy of Pediatrics, clinical researchers, and health care practitioners, the guide will help clinicians overcome time constraints and other common barriers to youth alcohol screening.

"We know that alcohol is by far the drug of choice among youth," said NIAAA acting director Kenneth R. Warren, Ph.D. "Underage drinking is also a marker for other unhealthy behaviors, and it often goes undetected. This new tool was designed to allow busy practitioners who manage the health and well-being of children and adolescents to conduct fast, effective alcohol screens and brief interventions. Routine screening and intervention for alcohol use in young people is critical to preventing the constellation of problems associated with adolescent drinking."

NIAAA convened a working group of researchers to analyze what screening questions are most effective. The group found that questions about friends' drinking and personal drinking frequency had the greatest power for predicting current and future alcohol problems in youth. Examples of these questions, which vary slightly for elementary, middle, and high school ages, include:

Continued on page 3

FEATURE: *Underage Drinking: One Step Forward . . .* *Continued from page 1*

at different points in development; understanding this helps explain why adolescents are more likely to take risks, including experimenting with alcohol.

"Underage drinking is one way young people experiment in our culture. If alcohol wasn't available to them, they would still be taking risks, just not with alcohol," said Dr. Faden.

But the risks of underage drinking include a whole range of possible short- and long-term consequences that can change lives. Short-term problems include injuries and even deaths from accidents as well as from homicides and suicides. According to the Centers for Disease Control and Prevention, about 190,000 people under age 21 visited an emergency room for alcohol-related injuries in 2008 alone. Underage drinking can also interfere with school attendance, disrupt concentration, and impact academic performance. In addition, underage drinking can result in aggressive or violent behavior, as well as infections and pregnancies from unplanned and unprotected sex.

"Even the short-term problems can affect a teen's trajectory in life, whether it is having an arrest record or a driving accident or landing in the hospital. That could throw off someone's plans for academic success, or excelling on a sports team, or learning how to develop healthy relationships. You just don't know," said Dr. Faden.

The longer-term problems are also intertwined with development. For some, starting to drink at an early age is associated with alcohol dependence later in life. This association can affect young drinkers across the board, regardless of whether they have a family history of alcohol problems (see Charticle, page 6). In addition, adolescents who drink often may not develop the skills necessary to socialize or deal with stress without drinking alcohol. These skills are a critical part of the maturation process.

There is also new research accumulating about the impact alcohol can have on the brain, including how it grows, develops, and functions. These problems may cause some youth to have difficulty performing tasks requiring memory performance and other critical cognitive skills in the short term and potentially in the long term, too.

"There is still a lot that we just do not know about how the brain responds to alcohol, and more research is needed," said Dr. Faden.

NIAAA is planning a large longitudinal study to investigate alcohol's effects on the developing brain by collecting baseline information on children before they begin drinking and then again afterward. It may also examine the extent to which changes in the brain caused by or associated with alcohol use may resolve if individuals stop or reduce their drinking. Even with this further research, though, it will still be hard to predict what consequences may affect an individual child.

"We can't really know what problems will affect a particular adolescent. But we do know that there are many adolescents out there who drink, and who drink a lot, and who are experiencing a whole range of these problems," said Dr. Faden.

> ***Even the short-term problems can affect your trajectory in life...You just don't know.***
> — Vivian Faden, Ph.D.

Addressing underage drinking and the many problems associated with it requires identifying the adolescents who may be at risk as early as possible. To address this challenge, NIAAA recently released an alcohol screening guide for health care professionals who work with children. The guide helps practitioners screen their young patients for alcohol consumption and intervene with them based on their age and level of risk. (See the article "New Clinician's Guide Simplifies Screening for Underage Drinking" for ordering information.)

"We need to screen children and adolescents on a regular basis, so we can appropriately intervene with as many kids as we can," said Dr. Faden. "That will translate to our ultimate goal—which is to prevent the problems of underage drinking from hurting families, kids, and society as a whole."

FEATURE: *New Clinician's Guide Simplifies Screening . . .* *Continued from page 2*

Friends' drinking: "Do you have any friends who drank beer, wine, or any drink containing alcohol in the past year?"

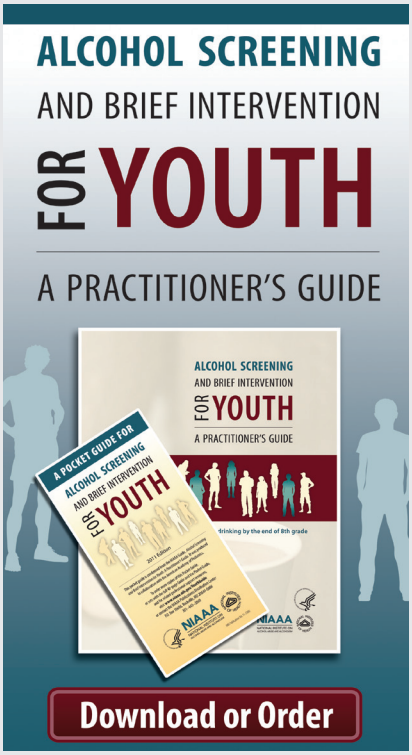
Personal drinking: "How about you—in the past year, on how many days have you had more than a few sips of beer, wine, or any drink containing alcohol?"

Answers to the friends' drinking question can provide an early warning signal that strongly predicts future drinking levels, while the personal drinking question best predicts current risk for alcohol-related harm in adolescents who already are drinking. These questions also are effective because clinicians can ask them quickly—an important factor in ensuring implementation.

Underage drinking is associated with many adverse outcomes, ranging from immediate consequences, such as academic and social problems, injuries, and death, to longer-term consequences, including increased risk for alcohol dependence as well as

Continued on page 4

FEATURE: *New Clinician's Guide Simplifies Screening . . .* *Continued from page 3*



potentially enduring functional and structural changes in the brain.

"Clinicians who care for young people are well aware of the many harms caused by underage drinking," noted Sharon Levy, M.D., M.P.H., chair of the American Academy of Pediatrics' Committee on Substance Abuse and assistant professor of pediatrics at Harvard Medical School in Boston. "The guide takes much of the mystery out of intervening with young patients who are drinking, allowing clinicians to proceed within a clinical framework of low, moderate, or high risk. It will enable pediatricians and other clinicians who care for young people to easily incorporate alcohol screening across the care spectrum, from annual visits to urgent care."

In addition to the new two-question screen, the guide presents the first youth alcohol risk estimator chart, which combines information about a patient's age and drinking frequency to give a clinician a broad indication of the patient's chances for having alcohol-related problems. Coupled with what a clinician already knows about a patient, the risk estimator can help determine the depth and content of the clinician's response. The guide outlines different levels of intervention, with tips for topics to cover. It also presents an overview of brief motivational interviewing, an interactive, youth-friendly intervention that is considered to have the best potential effectiveness for the adolescent population.

Alcohol Screening and Brief Intervention for Youth: A Practitioner's Guide, and its accompanying pocket-sized version, can be downloaded or ordered from the NIAAA Web site at *http://www.niaaa.nih.gov/Publications/EducationTrainingMaterials/YouthGuide*. It can also be ordered from NIAAA by calling 301–443–3860.

NEWS FROM THE FIELD

EARLY LIVER TRANSPLANT CAN IMPROVE SURVIVAL

Some controversy surrounds liver transplants for people with alcoholic liver disease. Doctors may be hesitant to perform the procedure for people with alcohol problems and the public may be reluctant to support this practice because they assume these patients will resume drinking afterwards. That is why people with severe alcoholic hepatitis typically must not drink for 6 months to be considered for a liver transplant. Even after a liver transplant, 6-month survival rates remain low.

But a recent study shows that a liver transplant early on can improve survival in patients suffering from a first episode of severe alcoholic hepatitis.

In this study, published in the November 2011 issue of the *New England Journal of Medicine*, doctors offered a liver transplant to 26 patients with severe alcoholic hepatitis within a month after their disease stopped responding to therapy.

The survival rate for these patients was higher than for a control group that did not receive an early liver transplant. During a 6-month followup period, none of the transplant patients relapsed to alcohol use, although three patients relapsed later. The researchers suspect that this low relapse rate stems from the stringent selection criteria they established. Only patients with supportive family members and no other psychiatric disorders could participate in the study. Recipients also had to agree to abstain from alcohol throughout their lives.

Based on the results of this study, the authors believe that "… early liver transplantation may be an appropriate rescue option for selected patients whose first episode of severe alcoholic hepatitis is not responsive to medical therapy, after careful assessment of their addiction profile."

This article abstract can be found here:

Transplantation for alcoholic hepatitis—Time to rethink the 6-month "rule"

http://www.nejm.org/doi/full/10.1056/NEJMoa1105703

NEWS FROM THE FIELD

SOCIAL MEDIA MAY HELP IDENTIFY COLLEGE DRINKING PROBLEMS

College students who post references to getting drunk, blacking out, or other dangerous drinking behaviors on social networking sites are more likely to have clinically significant alcohol problems than students who do not post such references, according to a study published online in the *Archives of Pediatric and Adolescent Medicine*.

Researchers examined the public Facebook profiles of more than 300 undergraduate students. The researchers divided the profiles into three categories: those who had no alcohol references, those who had alcohol references but no references to intoxication or problem drinking, and those who included references to "being drunk," "getting wasted," or other problem-drinking behaviors. The researchers also invited the profile owners to complete an online version of the Alcohol Use Disorders Identification Test, or AUDIT, a screening tool that clinicians use to measure problem drinking.

"We found that underage college students who referenced dangerous drinking habits, such as intoxication or blacking out, were more likely to have AUDIT scores that indicate problem drinking or alcohol-related injury," says first author Megan A. Moreno, M.D., assistant professor of adolescent medicine at the University of Wisconsin-Madison School of Medicine and Public Health. An AUDIT score of 8 or higher indicates an individual is at risk for problem drinking. The three groups in the study had average AUDIT scores of 4.7, 6.7, and 9.5, respectively.

Dr. Moreno and her colleagues note that because many students do not seek routine or preventive health care at student health centers, innovative approaches are needed to identify college students who are at risk for problem drinking.

The article abstract can be found here:

Associations between displayed alcohol references on Facebook and problem drinking among college students.

http://www.ncbi.nlm.nih.gov/pubmed/21969360

NEWS FROM THE FIELD

HOSPITALIZATIONS INCREASE FOR ALCOHOL AND DRUG OVERDOSES

Hospitalizations for alcohol and drug overdoses—alone or in combination—increased dramatically among 18- to 24-year-olds between 1999 and 2008, according to a study published in the *Journal of Studies on Alcohol and Drugs*. Led by Aaron M. White, Ph.D., and Ralph W. Hingson, Sc.D., director of NIAAA's Division of Epidemiology and Prevention Research, the study examined hospitalization data from the Nationwide Inpatient Sample, a project designed to approximate a 20-percent sample of U.S. community hospitals.

Drs. White and Hingson and their colleagues report that, over the 10-year study period, hospitalizations among 18- to 24-year-olds increased by 25 percent for alcohol overdoses, 56 percent for drug overdoses, and 76 percent for combined alcohol and drug overdoses.

"In 2008, one out of three hospitalizations for overdoses in young adults involved excessive consumption of alcohol," notes Dr. White. "Alcohol overdoses alone caused 29,000 hospitalizations, combined alcohol and other drug overdoses caused 29,000, and drug overdoses alone caused another 114,000. The cost of these hospitalizations now exceeds $1.2 billion per year just for 18- to 24-year-olds," Dr. White said.

The current study also showed an increase of 122 percent in the rate of poisonings from prescription opioid pain medications and related narcotics among 18- to 24-year-olds. An alcohol

NEWS FROM THE FIELD: *Hospitalizations Increase . . . Continued from page 5*

overdose was present in one out of five poisonings from these medications.

The researchers note that the steep rise in combined alcohol and drug overdoses highlights the significant risk and growing threat to public health of combining alcohol with other substances, including prescription medications. The study calls for stronger efforts to educate medical practitioners and the general public about the dangers of excessive alcohol consumption alone or in combination with other drugs.

The article abstract can be found here:

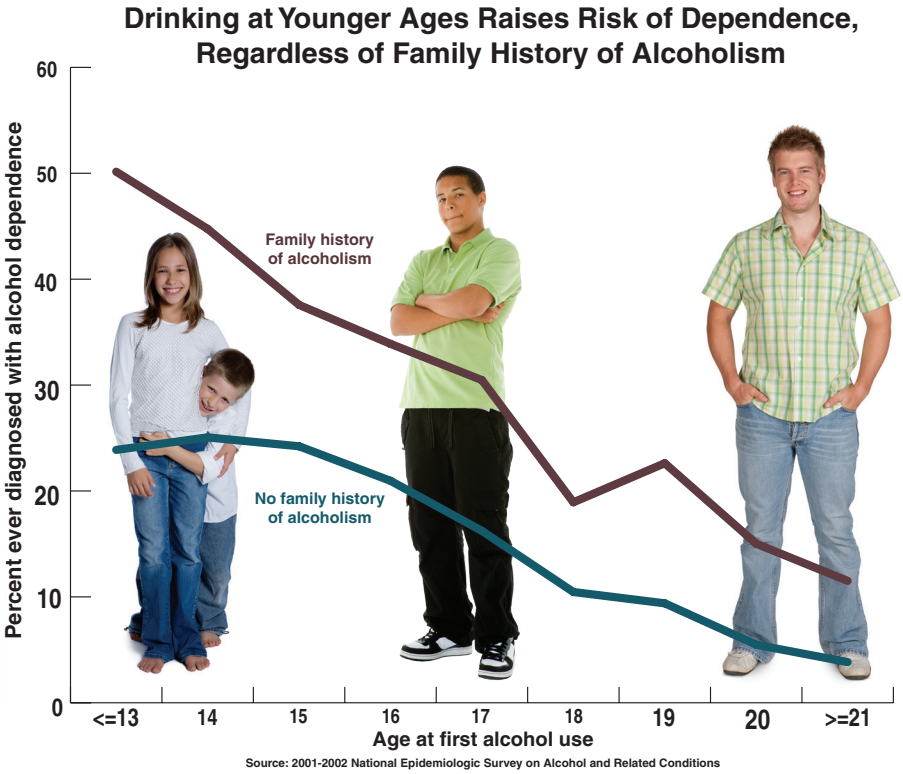
Hospitalizations for alcohol and drug overdoses in young adults ages 18-24 in the United States, 1999-2008: Results from the nationwide inpatient sample.

http://www.ncbi.nlm.nih.gov/pubmed/21906505

BY THE NUMBERS

A YOUNGER START MEANS HIGHER RISK FOR ALCOHOL DEPENDENCE

The younger people are when they start to drink, the more likely they are to develop alcohol dependence later in life. On average, kids who start drinking by age 13 are about five times more likely to develop alcohol dependence at some point, compared with people who start at age 21 or older (Masten et al., 2009; Grant & Dawson, 1997). Those with a family history of dependence carry a greater risk than those without. Regardless of family history, however, the age at which people first drink alcohol influences their chances of becoming dependent (Grant, 1998). In addition, drinkers who start younger are more likely to develop dependence by age 25 and to have chronic, relapsing forms of dependence (Hingson, 2006).



Sources:
Masten AS, Faden VB, Zucker RA, Spear LP. A developmental perspective on alcohol use. *Alcohol Research & Health*;2009;32(1).

Grant BF. The impact of a family history of alcoholism on the relationship between age at onset of alcohol use and DSM-IV alcohol dependence. *Alcohol Health & Research World*,1998;22(2):144-7.

Grant BF, Dawson DA. Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: Results from the National Longitudinal Alcohol Epidemiologic Survey. *Journal of Substance Abuse Treatment*;1997;9:103-10.
http://www.ncbi.nlm.nih.gov/pubmed/9494942

Hingson RW, Heeren T, Winter MR. Age at drinking onset and alcohol dependence: Age at onset, duration, and severity. *Archives of Pediatric & Adolescent Medicine*;2006 Jul;160(7):739-46.
http://www.ncbi.nlm.nih.gov/pubmed/16818840

NEWS FROM THE FIELD

DOCTORS MAY MISS ALCOHOL SCREENING OPPORTUNITIES

Physicians often fail to counsel their young adult patients about excessive alcohol use, according to a study published online in the *Journal of General Internal Medicine*.

In the study, Ralph W. Hingson, Sc.D., director of NIAAA's Division of Epidemiology and Prevention Research, and colleagues at Boston University School of Public Health and Boston Medical Center conducted a random survey of more than 4,000 people in the United States between the ages of 18 and 39. The researchers asked survey participants about their drinking habits and whether they had been seen by a doctor during the past year. Researchers then asked respondents who had seen a doctor if they were asked about their alcohol use or advised about safe drinking practices during the visit.

"Two-thirds of the people we surveyed had been seen by a doctor in the past year," says Dr. Hingson. "However, of individuals whose drinking exceeded NIAAA guidelines, only 49 percent recalled being asked about their drinking, and only 14 percent were counseled about it. Young adults between ages 18 and 25 were the most likely to report drinking in excess of NIAAA guidelines, and only 34 percent of them were asked about drinking by their doctors, compared with 54 percent of adults ages 26 to 39."

Sixteen percent of those surveyed were nondrinkers, 24 percent drank at or below daily or weekly limits, 47 percent exceeded daily or weekly limits, and 13 percent exceeded both.

The limits for low-risk drinking, according to NIAAA guidelines, call for men to drink no more than 4 drinks on any day and no more than 14 drinks per week. For women, the guidelines are three or fewer drinks on any day and no more than seven drinks per week.

Previous studies have shown that screening and brief interventions by health care providers—asking patients about alcohol use and advising them to reduce risky drinking—can promote significant, lasting reductions in drinking levels and alcohol-related problems.

The article abstract can be found here:

Young adults at risk for excess alcohol consumption are often not asked or counseled about drinking alcohol.

http://www.ncbi.nlm.nih.gov/pubmed/21935753

5 QUESTIONS WITH...

ANTONIO NORONHA, PH.D.

Dr. Noronha is the director of the NIAAA Division of Neuroscience and Behavior

1 Why is neuroscience so critical to the study of alcohol use disorders?

A key goal of alcohol research is to understand how the human body is affected by alcohol consumption, and how these effects vary among different individuals. The mission of NIAAA's Division of Neuroscience and Behavior is to understand how our brains and behavior are influenced by a variety of factors, which in turn affect alcohol consumption and alcohol-related problems—including abuse and dependence. Important factors include genes, the environment, and alcohol exposure during different phases of development, as well as the quantity, frequency, and patterns of drinking. Another important goal is to study how alcohol impacts decisionmaking and long-term brain development.

In the area of underage drinking, we are learning more about the neurological processes that encourage kids to begin drinking and the adaptations in the brain that lead to excessive use. We hope to identify these processes in enough detail to develop interventions across the lifespan.

2 What are some risks of alcohol use on the adolescent brain?

The biological changes occurring in the adolescent brain make teens particularly vulnerable to the effects of alcohol, and especially to heavy drinking. Structural and functional changes that occur during this period affect decisionmaking, impulse control, and memory. They also seem to influence how teenagers respond to drinking, which can be different from alcohol's effect on adults. Adolescents are more sensitive to alcohol's effects on social facilitation, but less sensitive to its sedative affects, hangovers, and the loss of coordination. This

combination puts adolescents at greater risk than adults because they are more stimulated by alcohol and can drink for longer periods.

Adolescence is a vulnerable time, and the early initiation and escalation of drinking can lead to increased risk for alcohol addiction and memory problems later in life.

3 What upcoming research studies are you most excited about?

I'm particularly excited about a longitudinal study that will improve our understanding of how child and adolescent alcohol use, especially binge drinking, affects the developing brain. This ambitious study, part of NIAAA's Impact of Adolescent Drinking on the Developing Brain project, will look at the short- and long-term effects of child and adolescent drinking on the developing brain and the varying effects of timing, amount, and duration of this alcohol exposure. It will also examine how the adverse effects of drinking resolve or persist through adolescence and into adulthood. And perhaps most important, it will attempt to identify early brain and behavioral signs that may predict alcohol abuse and dependence in at-risk adolescents.

The new study complements an existing NIAAA initiative, Neurobiology of Adolescent Drinking into Adulthood (NADIA), which uses animal models to examine the brain and behavioral functional changes resulting from adolescent alcohol exposure. NADIA conducts studies not possible with human subjects, and will be able to tease apart environmental vs. developmental vs. genetic factors in susceptibility for hazardous alcohol consumption.

4 What developments in genetics are helping neuroscientists better understand alcohol problems?

The neuroscience field in general has benefitted greatly from NIAAA's Collaborative Study of the Genetics of Alcoholism (COGA). COGA aims to identify the genes affecting alcohol dependence susceptibility. COGA has identified more than 25 genes (including *GABRA2*, *ADH4*, *ADH5*, and *CHRM2*) that influence the development of alcoholism and related neurological issues such as anxiety, depression, and decisionmaking. Currently, COGA is conducting a prospective study of adolescents and young adults to examine how the genetic variation related to alcohol problems is a function of development, as well as gene-environment interplay, and to understand the factors that affect risk at this critical age range. A major advantage of the study is that participants come from families densely affected with alcoholism, putting them at particularly high risk.

5 Besides being an alcohol researcher, you are also the parent of two college-age daughters. What advice did you give them about alcohol, and how would you advise other parents to address this issue with their kids?

My daughters were privileged to have both parents working in scientific fields and alcohol research. Naturally, they were exposed at a young age to the science and the detrimental effects of drinking. They actually wrote quite a few term papers in school on the subject. I am proud that they have a substantial awareness of this subject. And I know they have used it repeatedly to counsel and advise their fellow college students and friends. My advice to parents is to be honest and talk to your kids at a young age about the detrimental effects of drinking in the same way you would talk to them about the dangers of using illicit drugs.

NIAAA

Alcohol Research & Health

Volume 34 Number 2
The Journal of the National Institute on Alcohol Abuse and Alcoholism

Preventing Alcohol Abuse and Alcoholism—An Update

135 The Risks Associated With Alcohol Use and Alcoholism
Jürgen Rehm, Ph.D.
144 Defining Risk Drinking
Deborah A. Dawson, Ph.D.
157 School-Based Programs to Prevent and Reduce Alcohol Use Among Youth
Melissa H. Stigler, Ph.D., M.PH.; Emily Neusel, M.P.H.; and Cheryl L. Perry, Ph.D.
163 A Review of Environmental-Based Community Interventions
Traci L. Toomey, Ph.D., and Kathleen M. Lenk, M.P.H.
167 Engaging Communities to Prevent Underage Drinking
Abigail A. Fagan, Ph.D.; J. David Hawkins, Ph.D.; and Richard F. Catalano, Ph.D.
175 Prevention Interventions of Alcohol Problems in the Workplace: A Review and Guiding Framework
Genevieve M. Ames, Ph.D., and Joel B. Bennett, Ph.D.
180 Prevention in the Military: Early Results of an Environmental Strategy
Genevieve M. Ames, Ph.D., and Christopher Spera, Ph.D.
188 Translating Family-Focused Prevention Science Into Public Health Impact: Illustrations From Partnership-Based Research
Richard L. Spoth, Ph.D.; Lisa M. Schainker, Ph.D., M.P.H.; and Susanne Hiller-Sturmhofel, Ph.D.
204 Environmental Approaches to Prevention in College Settings
Robert F. Saltz, Ph.D.
210 Individual-Focused Approaches to the Prevention of College Student Drinking
Jessica M. Cronce, Ph.D., and Mary E. Larimer, Ph.D.
222 College Prevention: A View of Present (and Future) Web-Based Approaches
Scott T. Walters, Ph.D., and Clayton Neighbors, Ph.D.
225 Preventing Impaired Driving: Opportunities and Problems
Robert B. Voas, Ph.D., and James C. Fell, M.S.
236 The Effects of Prices on Alcohol Use and Its Consequences
Xin Xu, Ph.D., and Frank J. Chaloupka, Ph.D.
246 The Alcohol Policy Information System (APIS) and Policy Research At NIAAA
Gregory Bloss, M.A.
248 Regulating Availability: How Access to Alcohol Affects Drinking and Problems in Youth and Adults
Paul J. Gruenewald, Ph.D.
257 The Road to a World Health Organization Global Strategy for Reducing the Harmful Use of Alcohol
Maristela G. Monteiro, M.D., Ph.D.

U.S. Department of Health and Human Services
National Institutes of Health
Public Health Service

Read, download, or order "Preventing Alcohol Abuse and Alcoholism - An Update," the latest issue of NIAAA's *Alcohol Research & Health*, at *http://www.niaaa.nih.gov/Publications/AlcoholResearch*.

ABOUT US

NIAAA Spectrum is NIAAA's first-ever webzine. With engaging feature articles, short news updates, and colorful graphics, *NIAAA Spectrum* offers accessible and relevant information on NIAAA and the alcohol research field for a wide range of audiences. Each issue includes feature-length stories, news updates from the field, charticles and photo essays, and an interview with an NIAAA staff member or alcohol researcher. *NIAAA Spectrum* is published three times a year.

CONTACT US

National Institute on Alcohol Abuse and Alcoholism (NIAAA)

5635 Fishers Lane, MSC 9304
Bethesda, MD 20892-9304
Communications/Public Info:
301–443–3860
http://www.spectrum.niaaa.nih.gov

NIAAA | NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM
Understanding the impact of alcohol on human health and well-being