



HOW TO REDUCE HIGH-RISK COLLEGE DRINKING:

Use Proven Strategies, Fill Research Gaps

Final Report of the Panel on Prevention and Treatment

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

National Institutes of Health
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How To Reduce High-Risk College Drinking:
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National Institute on Alcohol Abuse and Alcoholism
National Advisory Council
Task Force on College Drinking
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EXECUTIVE SUMMARY

“Underage drinking to excess has a negative effect on everything we’re trying to do as a university. It compromises the educational environment, the safety of our students (both high-risk drinkers themselves and other students hurt by their actions), the quality of life on campus, town/gown relationships, and our reputation.”

Dr. Judith Ramaley, Former President, University of Vermont

“Class scheduling, class attendance, student attrition, student academic performance and the civility of campus life are all negatively affected by excessive student drinking.”

Dr. Susan Resneck Pierce, President, University of Puget Sound

“Student safety is of paramount importance, and if we save one life, our [alcohol prevention] program is working.”

Dr. William Jenkins, President, Louisiana State University System

“Universities are often afraid to reveal that they have a problem with alcohol, although everyone knows it anyway. But we’ve seen important benefits from focusing on the problem and taking a tough stand. Applications are up, student quality is up, more students are participating in activities like drama and music, and alumni giving has increased, for example. I know that support for me personally has grown with my reputation for taking strong ethical positions and sticking with them.”

Dr. Robert L. Carothers, President, University of Rhode Island

College student drinking to excess is a widespread national problem with serious consequences—and it has been for a long time. Although the factors that have made the problem so intractable are complex, today—based on scientific research results—we have the potential to make real progress in controlling excessive drinking. In fact, a substantial body of research studies now offers direction on how to reduce excessive, underage, and high-risk college drinking. On the basis of this information, colleges and universities, communities, and other interested organizations can take steps toward positive change more confidently. Although significant information gaps remain, the science-based guidance now available means campuses and communities no longer have to “reinvent the wheel” when they try to address the problem. It also enables us to avoid inadvertently perpetuating ineffective programs and approaches.

The availability of science-based guidance is a significant step forward because lack of information about what works and what does not has been a major obstacle to progress. On the research side, high-quality research has addressed only some of the issues of concern to college administrators and the practical implications of research results have not been widely disseminated. On the institutional side, most campus alcohol efforts have not been evaluated, which has hindered the effectiveness of individual campus efforts and slowed the growth of the knowledge base from which all could learn.

Although the research base on college alcohol problems is limited, the panel of college presidents, students, and alcohol research specialists that contributed to this report identified a number of effective strategies that colleges and universities could confidently use today. These include strategies for changing the environment to discourage high-risk drinking, affecting the behavior of individuals and groups, creating comprehensive college-community efforts to combat the problem, and adopting effective approaches for managing program implementation. It is

encouraging that many of these strategies require no new resources, are modest in costs, and can be accomplished by existing staff.

From its review of the scientific literature, the Panel on Prevention and Treatment believes that adopting approaches with demonstrated effectiveness can begin to reduce high-risk college drinking and continue to advance knowledge by filling critical research gaps. The Panel recommends that the action steps and research needs described below receive priority attention from colleges and universities, researchers, the National Institute on Alcohol Abuse and Alcoholism (NIAAA), and other potential funders, communities, and interested organizations.

The Panel recommended more action steps in some areas than in others. This is primarily due to the amount of research available. Except as noted, approaches that have not been included in the recommendations are not necessarily ineffective. Often simply less is known about them. Among the “key research gaps” identified by the Panel is the need for rigorous testing of strategies now considered “promising” based on face value or common sense. As researchers rise to this challenge, the effectiveness of many of these approaches will become known.

What Colleges and Universities Can Do Now

The Panel suggested that colleges and universities take the following steps to create a healthy environment on campus, promote healthy behaviors, develop comprehensive college-community interventions, and implement effective programs.

Creating a Healthy Environment

- Pay careful attention to environmental factors on campus and in the community. They are extremely important in influencing college drinking behaviors both positively and negatively.
- Actively enforce existing age 21 laws on campus; they help decrease alcohol consumption.
- Use social norms interventions to correct misperceptions and change drinking practices. When discussing college drinking problems, do not inadvertently reinforce the notion that hazardous drinking is the norm. Help students understand that they have the right **not** to drink and to have negative feelings about the consequences they experience due to other students’ excessive drinking.
- Communicate the institution’s, the community’s, and the State’s alcohol policies to students and parents before and after students arrive on campus.
- Be cautious about making alcohol available on campus. In the general population, increased availability is associated with increased consumption.

Promoting Healthy Behaviors Through Individual- and Group-Focused Approaches

- Use brief motivational interventions, such as giving feedback on students’ personal drinking behavior and negative consequences, comparing individual drinking habits to actual campus norms, and teaching drinking reduction skills. Strong evidence of effectiveness supports these relatively low-cost interventions.
- Increase screening and outreach programs to identify students who could benefit from alcohol-related services.
- Train those who regularly interact with students, such as resident advisors, coaches, peers, and faculty, to identify problems and link students with intervention services and/or provide

brief motivational interventions. This allows colleges and universities to improve services without adding new staff.

- Use educational interventions that provide **new** information such as describing alcohol-related programs and policies, informing students about drinking-and-driving laws, and explaining how to care for peers who show signs of alcohol poisoning. Use alcohol education in concert with other approaches, such as skills training or social norms.
- Avoid using educational efforts focused primarily on facts about alcohol and associated harm as a sole programmatic response to student drinking. They have proven to be ineffective.
- Be inclusive of varied student subpopulations. Determine and address the special needs of groups such as racial/ethnic minorities, women, athletes, “Greeks,” students of different ages, and gay and lesbian students.

Creating Comprehensive College-Community Interventions

- Create and/or participate in joint college-community interventions to reduce student drinking problems. Community coalitions have been effective in addressing alcohol and other health issues, although there has been no research on campus-community activities to reduce high-risk drinking and related problems.
- Create a task force or coalition representing relevant constituencies on campus (including students) and in the community (including local businesses) to develop and monitor college drinking initiatives.
- Plan coalition activities strategically, including setting measurable objectives, establishing target timelines, clearly defining member responsibilities, and collecting and evaluating data on both the process of working together and the results of the interaction.

Managing Program Implementation Effectively

- Be critical consumers of alcohol prevention strategies. Use programs with demonstrated effectiveness, such as those recommended in this report.
- Take a strategic, outcome-driven approach to planning that reflects the campus situation and recognizes the need for the alignment of alcohol programs and policies with other aspects of institutional policy. Evaluate policies and programs and share the results with other colleges and universities.
- Recognize that college student drinking prevention programs require a long-term (10- to 15-year) commitment. Set realistic objectives for change that are based on institutional assessment and national experience.
- Establish a system for collecting data regularly on alcohol consumption and related problems. Report information objectively on campus and in the community, and update progress regularly.
- Adopt and integrate complementary approaches, rather than focusing only on one. For example, when combined, social norms and policy enforcement efforts can enhance each other.
- Involve students in developing and implementing activities to reduce high-risk drinking.
- Involve a broad base of campus and community groups in prevention efforts, and reward students and others for supporting these programs.
- Use social marketing approaches to create and market programs to students.

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- Encourage presidents, administrators, and other campus leaders to communicate the message that reducing harmful alcohol use is an institutional priority.
 - Have alcohol prevention interventions in place before the freshmen arrive in the fall and sponsor related activities frequently during the first weeks of the academic year. Train those who conduct prospective student tours and interviews to explain the institution's alcohol policies and desired norms.
 - Help move the field forward. Be willing to participate in alcohol-related research programs, for example, or to become a State or national policy advocate on college drinking issues.

Recommendations to Researchers: Key Research Gaps

The Panel developed recommendations for researchers in the form of study questions to address gaps in the same four action areas suggested above for colleges and universities.

Creating a Healthy Environment

- What is the effect of banning or stringently regulating alcohol on campus? Do problems simply move off campus? How are on- and off-campus cultures affected?
- Are parental notification policies effective? If so, what are the characteristics of effective parental notification programs? At what point should parents be notified for optimal results?
- What is the most effective type of campus disciplinary system for alcohol offenses? Should campus alcohol disciplinary systems and standards be extended to students who live off campus and in what circumstances? Should infractions be handled differently for those under 21 years of age?
- How does the academic environment affect student drinking patterns? For example, would high-risk drinking be reduced if more classes were scheduled on Fridays or academic expectations were increased (e.g., reducing grade inflation, increasing difficulty of classes and requirements)?
- What is the impact of substance-free housing on alcohol problems?
- What approaches effectively reduce alcohol problems within the Greek system? Does the presence of a live-in resident advisor reduce drinking? Does delaying rush reduce alcohol problems? Do risk management efforts make a positive difference?
- What are the key environmental characteristics that influence drinking? How should environmental characteristics and environmental change be measured?
- Do alcohol-free activities and venues reduce college alcohol problems? What factors (e.g., frequency, timing, type, planning) influence effectiveness?
- How are social norms campaigns most effectively used (e.g., in combination with other activities; to set the stage for more comprehensive initiatives)?

Promoting Healthy Behaviors Through Individual- and Group-Focused Approaches

- What are the campuswide effects of implementing individual- and group-focused interventions?
- How well do these interventions work with different campus populations, including Greeks, incoming students, mandated students, adult children of alcoholics, athletes, students at various risk levels based on current alcohol practices, students living on and off campus, and members of different ethnic, religious, and cultural groups?

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- How effective are student-to-student interventions?
 - What are the most effective uses of computer-based technologies in college alcohol initiatives?
 - Should approaches be tailored to the needs and situations of underage students versus those age 21 and older?
 - What are the most effective and cost-effective ways to conduct outreach for alcohol services?
 - What criteria are appropriate for diagnosing college student alcohol problems? Do they differ from the general population criteria used in currently available instruments?
 - How well do pilot programs work when taken to scale on different campuses?

Creating Comprehensive College-Community Interventions

- Are comprehensive college-community interventions to reduce high-risk college drinking effective? What is the most effective mix of policy and program elements? What are the assets and liabilities for colleges and communities?
- Is it more effective to focus such efforts on drinking practices or on the health and social problems high-risk drinkers cause for themselves and others?
- Where should decision-making responsibility be focused: in city government, the college and university, another group or institution, or a combination of players?
- What are the best strategies for mobilizing and optimizing the effectiveness of campus-community coalitions?
- Do effects of college-focused programs extend to others in the community?
- What is the best way to enforce community alcohol-related ordinances?
- How can the results of alcohol research be effectively disseminated to community audiences such as chiefs of police, parents, and legislators?
- How effective are State-level coalitions that support individual campus-community collaborations?

Managing Program Implementation Effectively

- What planning structure or process is most effective in developing campus alcohol policies and programs?
- What is the relative effectiveness of different accountability structures for managing college alcohol programs?
- What are the costs and effects of alcohol prevention interventions including campus-based and comprehensive campus-community efforts? How can programs be made more cost-effective?
- Which alcohol policies and programs most benefit the college and university in terms of student recruitment, student quality and academic performance, student diversity, student retention, faculty behaviors, fundraising, and alumni relations?
- What are the most effective strategies for involving presidents, administrators, faculty, students, other staff, and boards of directors in alcohol prevention programs?
- Is it effective to make prospective students aware of alcohol policies during the marketing or admissions process?

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- What are the most effective ways of engaging, optimizing, and maintaining the involvement of different student subgroups, including ethnic and racial minorities?
 - How can higher education and secondary education work together on alcohol issues, including the transition from high school to college?

Recommendations to NIAAA and Other Potential Program Funders

The Panel offered the following recommendations to NIAAA and other program funders:

- Provide direction for the research field through initiatives and publications.
- Consider new initiatives, mechanisms, and procedures to encourage and support needed research that may not conform to a typical National Institutes of Health investigator-initiated research format.
- Provide technical assistance, remove barriers, and offer incentives to facilitate college and university participation in alcohol research studies.
- Increase collaboration with other Federal agencies for joint funding in this field.
- Invest resources in developing a model alcohol-related data collection system for campuses nationwide. Maintain a permanent database of this information.
- Work with the National Highway Traffic Safety Administration to include data indicators needed to quantify college alcohol problems in accident reports. Indicators include whether subjects are enrolled in college, where, and at what level.
- Conduct an annual press briefing to highlight progress made and resources needed to continue addressing college alcohol issues.
- Open dialogue and seek partnerships with national organizations to fulfill the recommendations of this report. Such groups include other Federal agencies, States, the national Interfraternity Council and Pan-Hellenic Council, boards of individual Greek organizations, national student organizations, industry, athletic conferences, high schools, and groups representing college and university presidents, boards of trustees, and administrators. Give such a coalition a reason to interact, such as working together to develop the model for national data collection.
- Create and disseminate short publications to various campus audiences (including students) that synthesize current research findings and identify what the college community can do about the problem.

Recommendations to Other Interested National Organizations

The Panel offered the following recommendations to other national organizations:

- Provide venues (e.g., at annual meetings) for researchers to share information on this issue.
- Encourage colleges and universities to enact policies and programs that research deems effective.
- Help educate the press about campus alcohol issues, including actual levels of college drinking and the progress being made in reducing high-risk behaviors and their consequences.
- Consider ways in which existing jobs and organizational elements could be reconceptualized to include a focus on college alcohol issues.

WHAT IS NEW ABOUT HIGH-RISK COLLEGE DRINKING?

“Most colleges visited saw alcohol abuse as a serious problem on the campus in terms of student drunkenness and the social, physical, and property damage or injury that resulted. Approximately 15% of the schools visited had already become involved in alcohol education or abuse prevention activities but the vast majority were looking for ideas and guidance....Antisocial behavior, which if committed by a sober person would never be tolerated, is readily accepted if the person is drunk. Probably the greatest impediment to action on many campuses is that drunkenness is looked upon as normal.”

The Whole College Catalog About Drinking, 1976

College student drunkenness is far from new, and neither are college and university efforts to control it. What **is** new, however, is the potential to make real progress on this age-old problem, based on scientific research results. New, research-based information about the consequences of high-risk college drinking and how to reduce it can empower colleges and universities, communities, and other interested organizations to take effective action. Although significant information gaps remain, the availability of solid, science-based guidance means we no longer have to reinvent the wheel each time we address the problem—or inadvertently perpetuate programs and approaches that do not make any difference.

Research-Based Rationale for Action: A Widespread Problem With Harmful Consequences

Hazardous drinking among college students is a widespread problem that occurs on campuses of all sizes and geographic locations. A recent survey of college students conducted by the Harvard University School of Public Health reported that 44 percent of respondents had drunk more than five drinks (four for women) consecutively in the previous 2 weeks. About 23 percent had had three or more such episodes during that time (Wechsler et al., 2002).

The reverse implications of these statistics are also important to note. Contrary to the popular misconception that “everybody drinks heavily” in college, the majority of students either abstain or drink moderately. Moreover, alcohol consumption varies by ethnicity. For example, a greater percentage of White and Native American students drink more frequently and more heavily than those from other ethnic backgrounds (Presley et al., 1995, 1996). Black students at predominantly Black or predominantly White colleges consume less alcohol than White students (Meilman et al., 1995). As college and university populations increasingly reflect the significant demographic changes now taking place in the United States, targets and strategies for alcohol efforts may also need modification.

Although high-risk drinkers are a minority in all ethnic groups, their behavior is far from a harmless “rite of passage.” In fact, it has pervasive consequences that compel our attention.

The most serious consequence of high-risk college drinking is death. The U.S. Department of Education has evidence that at least 84 college students have died since 1996 because of alcohol poisoning or related injury—and they believe the actual total is higher because of incomplete reporting. When alcohol-related traffic crashes and off-campus injuries are taken into consideration, it is estimated that over 1,400 college students die each year from alcohol-related unintentional injuries. Additionally, over 500,000 full-time students sustain nonfatal unintentional injuries and 600,000 are hit or assaulted by another student who has been drinking (Hingson et al., 2002). Administrators are well aware of the burden alcohol presents to the campus environment. For example, in a recent survey of 330 colleges and

universities (Anderson and Gadaletto, 2001), 60 percent of administrators thought that alcohol played a significant role in violent behavior and damage to residence halls. Fifty-five percent believed it was implicated in damage to other campus property; 40 percent in physical injury; 54 percent in campus policy violations; 36 percent in lack of academic success; and 30 percent in student attrition.

In addition, the 1997, 1999, and 2001 Harvard surveys found that the majority of students living in dorms and Greek residences who do not drink excessively still experience day-to-day problems as a result of other students' misuse of alcohol (Wechsler et al., 1998, 2000, 2002). The prevalence of these "secondhand effects" varies across campuses according to how many students on the campus engage in high-risk drinking. Effects include:

- Interrupted study or sleep (43 to 70 percent);
- Need to care for a drunken student (37 to 57 percent);
- Insults or humiliation (20 to 36 percent);
- Serious arguments or quarrels (14 to 23 percent);
- Unwanted sexual advances (15 to 23 percent);
- Property damage (7 to 16 percent);
- Personal attacks such as pushing, hitting, or assault (6 to 11 percent); and
- Sexual assault or date rape (1 percent).

"When you get down to it," says Dr. Judith Ramaley, former president of the University of Vermont, "underage drinking to excess has a negative effect on everything we're trying to do as a university. It compromises the educational environment, the safety of our students (both high-risk drinkers themselves and other students hurt by their actions), the quality of life on campus, town/gown relationships, and our reputation."

Other college and university presidents on the Panel voice similar concerns. As University of Notre Dame President Edward A. Malloy reflects, "I've lived in college dormitories for much of my adult life, so I know firsthand the impact irresponsible drinking has on the quality of residential life... reducing alcohol-related harm is clearly central to our mission." Dr. Susan Resneck Pierce, president of the University of Puget Sound, mentions alcohol's negative effects on "the civility of campus life," as well as its subversive impact on educational outcomes. "Nationally, excessive student drinking has led to missed classes, poor academic performance, and student attrition. Unfortunately, some campuses have responded to this by no longer scheduling early morning and Friday classes. I believe that these accommodations—along with grade inflation and the failure of some faculty to hold their students accountable for poor academic performance—have contributed to excessive student drinking."

President James E. Lyons, Sr., of California State University at Dominguez Hills, notes that, for his predominantly commuter student population, quality of life is not the issue. "If our students are having problems with alcohol, they go home and punch their own walls, not ours. But we need to identify and refer such students to counseling or treatment, because drinking problems can have an impact on our educational mission." Dr. William Jenkins, former chancellor and current president of the Louisiana State University System, once received that phone call in the middle of the night that every president dreads, telling him that a student had died from an alcohol overdose at a party. He emphasizes, "Student safety is of paramount importance, and if we save one life, our [alcohol prevention] program is working."

“Universities are often afraid to reveal that they have a problem with alcohol, although everyone knows it anyway,” says Dr. Robert L. Carothers, president of the University of Rhode Island (URI). “People are also afraid of legal liability issues, which emerging case law suggests are not a problem, and of angering key constituencies. But we’ve seen important benefits from focusing on the problem [at URI] and taking a tough stand. Applications are up, student quality is up, more students are participating in activities like drama and music, and alumni giving has increased, for example. It’s become clear to me that people are hungry for strong statements about values. I know that support for me personally has grown with my reputation for taking strong ethical positions and sticking with them.”

Current State of Practice

Prevention work in public health is often guided by a social ecological framework. This approach recognizes that any health-related behavior, including college student drinking, is affected by multiple levels of influence such as intrapersonal (individual) factors, interpersonal (group) processes, institutional factors, community factors, and public policies (DeJong and Langford, 2002; Stokols, 1996). Health promotion research shows that a strategically planned approach with a range of interventions directed at multiple levels of influence increases the likelihood of success. Appendix 2, “Typology: A Theoretical Framework for Alcohol Prevention Initiatives,” provides an example of the varied types of strategies and activities that can be combined to provide multiple sources of support for reducing high-risk drinking.

Absence of a Comprehensive Approach

On most campuses, however, prevention efforts have concentrated on affecting the individual and group levels, with some attention paid to the institutional level. Less attention has been paid to factors in the local community that affect student alcohol use, and calls by campus officials for changes in State or Federal policy remain rare (DeJong and Langford, 2002).

Institutions have most often employed interventions intended to change knowledge, attitudes, and behavioral intentions; few take a comprehensive approach (Larimer and Cronce, 2002). A recent survey of college and university administrators found that most institutions have not yet put in place the basic infrastructure needed to develop, implement, or evaluate a comprehensive approach (DeJong and Langford, 2002). For example, almost all respondents (97.6 percent) to the Higher Education Center Survey of College Administrators reported that their school’s orientation program for new students presents information about alcohol and other drug policies and programs. However, educating students by infusing alcohol-related topics into the general curriculum was much less in evidence (Higher Education Center, 1998); and, apart from some special focus on freshmen, Greek-affiliated students, and athletes, most schools did not usually tailor efforts for different student groups (Anderson and Gadaletto, 2001). Although some schools ban alcohol advertising from the school newspaper, the 1997 College Alcohol Survey found that 75 percent of responding institutions allow newspaper alcohol ads, as do 40 percent of campus radio stations (Anderson and Gadaletto, 2001). Very few schools have changed their academic calendars in an effort to change the alcohol culture by scheduling more early morning classes, regularly scheduling exams on Fridays to reduce the Thursday “party night” mentality, shortening the time between final exams and graduation, or eliminating Spring Break (Higher Education Center, 1998).

Controls on Alcohol Availability

Surveys differ on the extent of control institutions say they exercise over alcohol availability. For example, over half of responding institutions in the Higher Education Center survey reported offering substance-free social events, and 83 percent said they had student housing where alcohol use is banned at all times. Nearly three-fourths said they had programs in place to control alcohol availability (Higher Education Center, 1998). In contrast, the 1997 College Alcohol Survey found that less than one-third of schools had some or all alcohol-free residence halls. Nearly half said there were places on campus where

individuals can purchase alcohol by the drink, and drinking beer and hard liquor is permitted on two-thirds or more campuses (Anderson and Gadaletto, 2001).

Program Evaluation

In the 1997 College Alcohol Survey more than half of respondents reported having a task force or partnership with the surrounding community to address alcohol-related concerns, but only 39 percent had conducted a formal assessment of the effectiveness of their alcohol effort (Anderson and Gadaletto, 2001). In the Higher Education Center survey only 19.8 percent reported formal evaluations (Higher Education Center, 1998).

Overall, the extent of alcohol-related initiatives on campus does not appear to have changed through the mid-1990s. In a 1998 Survey of College Administrators conducted by the Higher Education Center, fully 81.1 percent of the respondents reported that “hard money” (non-grant) funding for their school’s alcohol and other drug prevention programs had remained the same during the past 3 years (Higher Education Center, 1998; DeJong and Langford, 2002). In a separate survey of administrators conducted in 2000, 89 percent reported “great or some increase” in the “extent of alcohol education and prevention efforts on their campus compared with several years ago,” but increased funding did not appear to accompany the reported increase in level of effort (Anderson and Gadaletto, 2001). Although surveys over time have found some modest progress at some institutions, overall, the outlook has changed little since 1975.

Identifying Research-Based Opportunities for Progress

In reviewing the literature to develop this report, the Panel found a significant number of individual- and group-focused, environmental, comprehensive college-community, and program implementation strategies that college presidents and administrators could use confidently today. Many of them require no new resources and only modest costs.

The Panel also identified a number of gaps in both information and the research infrastructure. Lack of information about what works has been a major obstacle to progress. On the research side, high-quality work has addressed relatively few of the issues that concern college administrators, and results have not been widely disseminated. On the institutional side, campus alcohol efforts are rarely subject to rigorous evaluation. This has hindered the effectiveness of individual campus efforts and limited the knowledge available from which to learn.

This report is designed to help colleges and universities and researchers apply the knowledge that currently exists and to advance understanding about effective strategies for intervening with alcohol problems on campus. It provides background on the theoretical framework of college drinking interventions and the current state of practice today. It offers recommendations to colleges and universities about steps to take now and synthesizes the research that led to these recommendations. A section on key research gaps identifies the most salient research questions that alcohol investigators need to address. Appendix 1 lists additional research recommendations as well as the Panel’s recommendations to NIAAA and other organizations interested in supporting alcohol research.

Developing This Report: The Panel and the Process

In 1998, the National Advisory Council to the National Institute on Alcohol Abuse and Alcoholism (NIAAA) established the Task Force on College Drinking to contribute to the development of a national plan for college drinking research at NIAAA. The Task Force created two working panels: the Panel on Contexts and Consequences and the Panel on Prevention and Treatment. College and university presidents, students, and experts on college drinking research participated in both panels. Each panel commissioned a series of background papers that reviewed the literature in their areas of focus. A number of those papers are being published in a supplement to the *Journal of Studies on Alcohol*. A full list of the authors and papers commissioned by the Panel on Prevention and Treatment appears in the References section of this report.

The Task Force has also issued a report, *A Call to Action: Changing the Culture of Drinking at U.S. Colleges*, that synthesizes the two panels' documents and their recommendations. Other products include a series of booklets for college presidents, peer educators, parents, high school guidance counselors, and community leaders, highlighting information of special importance to them, and a handbook for college administrators on implementing effective prevention programs on campus. For more information, contact: National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health, 6000 Executive Boulevard, Willco Building, Bethesda, MD 20892-7003; www.niaaa.nih.gov.

Task Force on College Drinking

Co-Chairs

Mark S. Goldman, Ph.D.
Distinguished Research Professor
Department of Psychology
University of South Florida

Rev. Edward A. Malloy, C.S.C.
President
University of Notre Dame

The Panel on Prevention and Treatment

Co-Chairs

Ralph Hingson, Sc.D.
Professor
Social and Behavioral Sciences
Department
Associate Dean for Research
School of Public Health
Boston University

Judith Ramaley, Ph.D.
Former President
University of Vermont

Members

David Anderson, Ph.D.
Director, Center for the
Advancement of Public Health
George Mason University

Robert L. Carothers, Ph.D.
President
University of Rhode Island

Michael Fleming, M.D.
Department of Family Medicine
University of Wisconsin, Madison

William L. Jenkins, Ph.D.
President
Louisiana State University System

Michaela Keegan
Student
University of Rhode Island

Stacie Lambert
Student
Louisiana State University

G. Alan Marlatt, Ph.D.
Professor and Director
Addictive Behaviors Research Center
University of Washington

Susan Resneck Pierce, Ph.D.
President
University of Puget Sound

Marcus A. Rothschild, M.D.
Consultant
Nuclear Medicine
Veterans Administration Medical
Center

Consultants

Elaine Arkin
Health Communications Consultant

NIAAA Staff

Gayle Boyd, Ph.D.
Staff Liaison
National Institute on Alcohol
Abuse and Alcoholism

Marilyn Aguirre-Molina, Ed.D.
The Joseph L. Mailman School of
Public Health
Division of Population and Family
Health
Columbia University

William DeJong, Ph.D.
Center Director
The Higher Education Center for
Alcohol and Other Drug Prevention
Education Development Center, Inc.
Professor, Boston University
School of Public Health

Donald S. Kenkel, Ph.D.
Office of Policy Analysis and
Management
Cornell University

Chris Linder
Student
University of Nebraska

Robert Saltz, Ph.D.
Associate Director and Senior
Research Scientist
Prevention Research Center
Pacific Institute for Research
and Evaluation

David Odell
Student
University of Puget Sound

Joy Roff Mara, M.A.
Science Writer
Health Communications Consultant
Joy R Mara Communications

RESEARCH-BASED RECOMMENDATIONS: WHAT COLLEGES CAN DO NOW; FILLING KEY RESEARCH GAPS

The reviews of existing research commissioned by the Panel found a substantial number of approaches with moderate to significant evidence of effectiveness. They also found a few strategies that were clearly ineffective. For the most part, the approaches identified targeted:

- The environment,
- Students as individuals or by specific group (e.g., women, members of sororities or fraternities, athletes),
- Colleges and their surrounding communities as a whole, and
- Issues affecting the implementation of prevention programs aimed at reducing high-risk drinking and its consequences.

Methodology and Caveats

The Panel considered several issues related to the quantity and quality of studies used in evaluating the research literature. They provide an important context for the results reported here and include:

- **Number of available studies.** The quantity of studies available—and deemed of sufficient quality for inclusion—differed substantially among topics. For example, many more studies have been conducted on individual-focused interventions and the minimum drinking age laws than on most environmental activities, policies, and comprehensive community interventions. When interpreting the recommendations that follow, it is important to understand that approaches with fewer proven strategies are not necessarily less effective overall; there simply may be less known about them.
- **Research design.** Authors of commissioned papers adopted different criteria for including studies in their literature reviews depending on the research base available in their topic areas. All looked for high-quality, controlled trials with randomized, representative samples that were not based solely on self-report. However, this type of research design was not always available—and, in some cases, almost never available. Individual papers describe the research consulted and criteria for inclusion in detail. Some reviews included unpublished material to capture recent trends because that information can be slow to appear in the traditional literature. Where feasible, authors weighted studies based on methodological strength in developing their conclusions. The confidence level from one methodologically sound trial could outweigh the findings and conclusions from several weaker studies.
- **Lack of college-specific studies.** In many cases, only general population studies or research on college-age individuals was available. As a result, effectiveness in campus situations was unknown. Where appropriate, approaches proven effective in a broader population including college students are included in the recommendations. In the absence of more specific studies, they may provide useful direction to program planners and suggest areas where more focused research is needed.
- **Lack of setting-specific studies.** Colleges and universities differ substantially in parameters such as size, average age, composition of the student body, geographic location, and whether they are public or private institutions, offer 2- or 4-year programs, and provide extensive on-campus student housing. Although such differences may be highly pertinent to the effectiveness of specific alcohol

interventions, virtually no existing research addresses the impact of setting-specific factors on program outcomes.

The following section of the report presents the Panel’s top recommendations for colleges and universities and researchers in four major areas: environmental intervention approaches; individual- and group-focused approaches; comprehensive campus and community approaches; and program implementation. A summary of relevant research findings introduces and provides the context for each set of recommendations. For more detailed information on these approaches and the literature reviewed, please refer to the original papers listed in the References section of this report.

Creating an Environment That Discourages High-Risk Drinking

Many of the following approaches have proven effective with college-age youth and young adults who may or may not have been students. They are included here because results from numerous carefully conducted studies and community trials suggest their potential value in reducing high-risk drinking among college students.

Summary of Relevant Research

Interventions that change the broader environment increase the likelihood of long-term reductions in alcohol use and alcohol-related problems (Bangert-Drowns, 1988; Moskowitz, 1989; Perry and Kelder, 1992; Rundall and Bruvold, 1988; Tobler, 1992; Toomey and Wagenaar, 2002). Individual drinking behavior is influenced by myriad environmental factors such as public and institutional policies and practices, economic factors, messages in the media, and social norms (Wagenaar and Perry, 1995). Reductions in alcohol use and related problems may be achieved by changing such environmental factors (Edwards et al., 1994; NIAAA, 1997; Toomey et al., 1993; Toomey and Wagenaar, 2002).

The Panel found strong to moderate evidence supporting the effectiveness of the following environmental approaches.

Public Policy

Laws designed to decrease alcohol-related harm in the general population have had considerable success. Public policies designed to reduce the commercial availability of alcohol have also shown promise in some areas.

Laws Affecting Consumption and Consequences

Laws affecting consumption and related problems include minimum legal drinking age laws, lowered blood alcohol concentration limits, and administrative license revocation.

Minimum Legal Drinking Age: In 1984, the Federal Government enacted the Uniform Drinking Age Act, which withheld Federal highway funds from States that failed to increase their minimum legal drinking age (MLDA) to age 21 (King, 1987). By 1988, all States had established an MLDA of 21. Because the MLDA had been at younger ages in many States, researchers had access to “natural” experiments to assess the effect of these policy changes on alcohol consumption and related problems among youth. As a result, the MLDA is the most well-studied alcohol control policy.

The Panel reviewed 48 published studies that assessed the effects of changes in the MLDA on indicators of alcohol consumption (Wagenaar and Toomey, 2002). Together the 48 studies analyzed a total of 78 alcohol consumption outcome measures (e.g., sales figures, self-reported drinking). The preponderance of evidence suggests that higher legal drinking ages reduce alcohol consumption.

In addition, the Panel reviewed 57 published studies that assessed the effects of changes in the MLDA on indicators of drunk driving and traffic crashes (Wagenaar and Toomey, 2002). These studies analyzed a total of 102 crash outcome measures including fatal crashes, drunk-driving crashes, and self-reported driving after drinking. Over half the studies found that a higher legal drinking age is associated with decreased rates of traffic crashes. There is also some evidence that higher drinking ages are associated with lower rates of other health and social problems such as suicide, homicide, and vandalism. The research also suggests that these results have been achieved with minimal enforcement of the law overall. As might be expected, the studies showed that increased enforcement produces greater results (Wagenaar and Toomey, 2002).

It is important to note that almost all the studies reviewed were conducted among general youth and adult populations; very few high-quality, college-specific studies exist. The review commissioned by the Panel compiled all identified published studies on drinking age from 1960 to 1999, a total of 132 documents (Wagenaar and Toomey, 2002). It also includes an indepth discussion of methodological issues and a table that presents the results of each study, coded for a range of variables. Appendix 3 of this report contains a summary of the review authors' responses to arguments to lower the MLDA, which may be useful to college presidents and administrators who hear these sentiments from students, alumni, and others.

Lowered Blood Alcohol Concentration Limits: Studies also attest to the effectiveness in the general population of laws designed to reduce alcohol-related traffic crashes. For example, States that lowered legal blood alcohol concentration limits from 0.10 percent to 0.08 percent experienced a 6 percent greater post-law decline in alcohol-related fatal crashes in which drivers had blood alcohol levels of 0.10 percent or higher than States that retained the 0.10 percent standard. Estimates suggest that when all States adopt these laws, 400 to 500 fewer traffic fatalities will occur annually (Hingson et al., 2000; Shults et al., 2001; Voas et al., 2000). Laws making it illegal for drivers under 21 to drive after any drinking also have produced 9 to 24 percent declines in alcohol-related deaths and driving while intoxicated (DWI) (Hingson et al., 1994; Schults et al., 2001; Wagenaar et al., 2001).

Administrative License Revocation: In addition, legally mandated administrative license revocation for drinking-and-driving offenses and mandatory seat belt use have resulted in decreases in alcohol-related fatalities (Voas et al., 2000; Zador et al., 1989).

Restrictions on the Availability of Alcohol

A number of environmental strategies are available to reduce the social and commercial availability of alcohol to college students. The Panel's review describes these options in detail, but most have not been studied, and evidence is limited or nonexistent regarding their effectiveness for college populations (Wagenaar and Toomey, 2002). Nevertheless, a few strategies for reducing commercial availability show some evidence of success. These include increasing the price, restricting the density of retail outlets, and limiting the hours and/or days of sale.

Increasing the Price of Alcohol: With the exception of MLDA, alcohol control policies affecting price of alcohol are the next most-studied alcohol policies (Toomey and Wagenaar, 2002; Wagenaar and Toomey, 1998). Studies of price in the general population indicate that as the price of alcohol increases, consumption rates decline (Clements and Selvanathan, 1991; Gao et al., 1995; Leung and Phelps, 1993; Österberg, 1995). However, the effect on consumption varies by culture, drinking level, age group, and type of alcohol (Coate and Grossman, 1988; Cook and Tauchen, 1982; Manning et al., 1995). For example, all types of drinkers appear to be affected by price, but the heaviest drinkers may be less affected by variations in price than other consumers (Manning et al., 1995). An exception to this trend occurs among young heavy drinkers. This group, which includes college students, may be more affected

by price than heavy drinkers in the general population (Chaloupka and Wechsler, 1996; Godfrey, 1997; Kenkel, 1993; Sutton and Godfrey, 1995). Inverse relationships also exist between price of alcohol and several types of alcohol-related problems, including motor vehicle fatalities, robberies, rapes, and liver cirrhosis mortality (Cook and Moore, 1993; Cook and Tauchen, 1982; Ruhm, 1996).

Two major types of policies affect alcohol pricing: restrictions on happy hours or price promotions and placing excise taxes on alcohol. Evaluation of the impact of these policies on college populations is limited. One study of college students found that an increase in beer excise taxes had little effect on male college students' consumption (Chaloupka and Wechsler, 1996). However, the authors noted that local excise tax may be a poor proxy for price differences among campuses.

Restricting Licenses for Retail Sales of Alcohol: Studies of the density or the number of alcohol licenses per population size have found statistically significant relationships among density of alcohol outlets, consumption, and related issues such as violence, other crime, and health problems. It is important to note that many of these studies use cross-sectional designs, which are weaker than randomized, controlled trials (Gliksman and Rush, 1986; Gruenewald et al., 1993; Ornstein and Hanssens, 1985; Scribner et al., 1995; Stitt and Giacomassi, 1992). Researchers who specifically studied college students found higher levels of drinking, drinking participation, and excessive drinking among underage and older college students when a larger number of businesses were selling alcohol within one mile of campus (Chaloupka and Wechsler, 1996). Numbers of outlets may be restricted directly or indirectly through policies that make licenses more difficult to obtain, such as increasing their cost.

Limiting Hours/Days of Sale: Evaluations of the effect of restricting hours and days of sale are mixed. A few studies suggest that changes in hours may decrease rates of problem drinking, cirrhosis mortality, and some types of alcohol-related problems such as traffic crashes and violence in the general population (Duffy and Pinot de Moira, 1996; Smith, 1986). Other studies indicate no changes in problems or a shift in the timing of problems from the original closing time to the new closing hour (De Moira and Duffy, 1995). Some (but not all) studies have found that an inverse relationship may exist between the number of days of sale and alcohol use and alcohol-related problems (Ligon and Thyer, 1993; Ornstein and Hanssens, 1985; Northridge et al., 1986; Smith, 1988).

Other Approaches to Limiting Availability

Underage youth do not always have to purchase alcohol themselves in order to drink. It is readily available from other youth and young adults in party situations, and it may also be provided by older adults who condone underage drinking.

A number of policy strategies have been developed to reduce social availability. Some address locations where alcohol can be consumed legally and include community bans on drinking in public places where large numbers of youth are likely to congregate. Colleges interested in limiting social availability can employ a variety of policy options ranging from campuswide bans on any alcohol use to designating sites and occasions where alcohol can and cannot be used. When alcohol is allowed, restrictions on how it is provided can reduce the likelihood that underage persons will be served. Restrictions include keg bans or keg registration, server training, and limitations on server practices such as prohibiting self-service and limiting the number of drinks served at one time. Education and enforcement are key to all these policies and to the effectiveness of existing laws that prohibit serving alcohol to persons under age 21 (Toomey and Wagenaar, 2002).

Media Approaches

The media are another important element of the environment that can influence college student drinking. Research addresses the effects of media on drinking from two perspectives: combating the negative impact of advertising from the alcohol industry and using the media constructively to create positive change.

Alcohol Advertising Bans

A recent report by the Federal Trade Commission (Evans and Kelly, 1999) concluded that underage individuals experience significant exposure to alcohol advertising. Researchers have also found that alcohol advertising increases awareness, which affects intentions to drink (Grube, 1993; Parker, 1998). This has led some public health groups to conclude that there is a link between advertising and alcohol consumption. The Robert Wood Johnson Foundation (1999), for example, identified alcohol advertising and marketing as environmental factors that help create problems of underage and high-risk college student drinking. Although there is limited evidence indicating that alcohol advertising has an effect on consumption (Goel and Morey, 1995) and related consequences such as highway fatalities (Saffer, 1997), methodological factors explain why more such evidence has not been found (Saffer, 2002).

Some advocates have pushed for reform of advertising practices or other restrictions on alcohol advertising (DeJong and Russell, 1995). Research and experience with advertising bans are limited (Saffer, 2002), but available evidence from the general population suggests that banning alcohol advertising appears to reduce alcohol abuse in some circumstances (Ornstein and Hanssens, 1985; Saffer, 1991). Partial bans on advertising in one or two media, however, are not effective and result in increased advertising in other media (Saffer, 2002).

Counteradvertising

Evidence from tobacco advertising suggests that counteradvertising that casts doubt on the credibility of an industry and its messages can be effective (Flay, 1987; Goldman and Glantz, 1998; Hu et al., 1995; Warner, 1981).

Media Campaigns

The public health community frequently uses media campaigns to convey information to the public. However, media initiatives can also support a range of other strategic objectives, including creating a climate of support for environmental change (DeJong, 2002). Most media campaigns to prevent or reduce college student drinking have been campus-based and have used a mix of posters, flyers, e-mail, and college newspaper advertisements. Recently some regional, State, and national organizations have implemented information, social norms, and advocacy campaigns to reduce hazardous college student drinking (DeJong, 2002).

Although evaluation data on individual campaigns are limited, the body of evidence supports the following general guidelines for using the mass media effectively to address college student drinking (DeJong, 2002).

- Conduct a strategic planning process, with strategic objectives that complement an institution's larger goals and objectives. To select program goals and objectives, analyze the student drinking problems that the institution or town faces and consider a range of communication options. The typology in Appendix 2 offers some suggested options.
- Select the target audience, and define it in terms of its geographic, demographic, psychological, and problem-relevant characteristics to help create appropriately focused messages and materials. Conduct formative research with the audience to determine perceptions and message appeal.

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- Develop a staged approach that recognizes the need to build toward behavior, norm, or policy change. For example, to promote personal behavior change, an audience may need to be led through a series of steps that include awareness, knowledge and beliefs, behavioral skills, self-efficacy (i.e., the conviction that individuals can master or maintain a behavior), and supports for sustaining change.
 - Include a specific “call to action”; ask the audience to take a particular step.
 - Select a message source or sponsor that is credible to the particular audience; be wary of choosing celebrity spokespeople, whose appeal or credibility may be fleeting.
 - Choose a mix of media channels, including online resources, and provide a clear and consistent message.
 - Conduct process and outcome evaluations.

Social Norms Approaches

Norms are social “facts” of life that help frame perceptions and influence behavioral choices (Festinger, 1954; Newcomb and Wilson, 1966; Sherif, 1972). Within the disciplines of social science, the term norm is used in two different but related ways. One refers to widely shared attitudes or expectations about how people in general or members of a social group ought to behave; that is, what constitutes acceptable behavior. The term also refers to the most common behavior actually exhibited in a social group; that is, the statistical average or most typical behavior of group members. The Panel considered approaches for affecting both types of norms.

Research shows that peers have the greatest influence on student norms. When peer norms appear to encourage immoderate drinking, consumption goes up (Lo, 1995; Perkins, 1986; Robinson et al., 1993). Regardless of gender, ethnic group, residential circumstance, and Greek affiliation, most students believe that their peers hold more permissive attitudes about drinking than they actually do. Likewise, they believe that their peers drink more heavily than they do (Baer and Carney, 1993; Baer et al., 1991; Perkins and Berkowitz, 1986, 1991; Perkins et al., 1999).

The strategy of communicating actual student norms to dispel myths, referred to as the “social norms approach,” is receiving increased attention due to its simplicity, cost efficiency, and effects. The basic idea is to convey the truth about what the majority of students actually think and do concerning alcohol consumption. This approach gives students a positive message. It says that the norms are safety, responsibility, and moderation because these are the thoughts and behaviors of most students on virtually every campus.

Social norms interventions can publicize data about actual drinking norms in orientation programs, student newspaper ads and articles, radio programs, lectures, campus poster campaigns, and other public venues (social norms marketing). These activities can clarify the misperceptions of the general student body and of those students at high risk for alcohol-related problems (Berkowitz, 1997; Haines and Spear, 1996; Johannessen et al., 1999; Perkins, 1997, 2002). Programs can also target the most problem-prone groups (e.g., first-year students, fraternity or sorority members, athletes) for special attention. Workshops can help these students confront their own misperceptions of peer use and can facilitate discussion about student norms as identified in group assessments and campuswide studies (Barnett et al., 1996). One university, for example, targeted social norms interventions to entire fraternities and sororities (Marlatt et al., 1995).

Initial results from programs adopting an intensive social norms approach are promising. Several institutions that persistently communicated accurate norms have experienced reductions of up to 20 percent in high-risk drinking over a relatively short time (Berkowitz, 1997; DeJong and Linkenbach,

1999; Haines, 1996, 1998; Haines and Spear, 1996; Johannessen et al., 1999). Together these findings provide strong support for the potential impact of the social norms approach. Although any case report in this literature could be challenged methodologically, the results of each study are remarkably consistent.

Panel Recommendations: What Colleges and Universities Can Do Now

The Panel recommends that colleges and universities:

- Pay careful attention to environmental factors on campus and in the community. They are extremely important in influencing college drinking behaviors both positively and negatively.
- Actively enforce existing age 21 laws on campus; they help decrease alcohol consumption.
- Use social norms interventions to correct misperceptions and change drinking practices. When discussing college drinking problems, do not inadvertently reinforce the notion that hazardous drinking is the norm. Help students understand that they have the right **not** to drink and to have negative feelings about the consequences they experience due to other students' excessive drinking.
- Communicate the institution's, the community's, and the State's alcohol policies to students and parents before and after students arrive on campus.
- Be cautious about making alcohol available on campus. In the general population, increased availability is associated with increased consumption.

Panel Recommendations: What Researchers Can Do To Address Gaps in Knowledge

The Panel recommends that researchers address the following questions to fill key gaps in knowledge:

- What is the effect of banning or stringently regulating alcohol on campus? Do problems simply move off campus? How are on- and off-campus cultures affected?
- Are parental notification policies effective? If so, what are the characteristics of effective parental notification programs? At what point should parents be notified for optimal results?
- What is the most effective type of campus disciplinary system for alcohol offenses? Should campus alcohol disciplinary systems and standards be extended to students who live off campus and in what circumstances? Should infractions be handled differently for those under 21 years of age?
- How does the academic environment affect student drinking patterns? For example, would high-risk drinking be reduced if more classes were scheduled on Fridays or academic expectations were increased (e.g., reducing grade inflation, increasing difficulty of classes and requirements)?
- What is the impact of substance-free housing on alcohol problems?
- What approaches effectively reduce alcohol problems within the Greek system? Does the presence of a live-in resident advisor reduce drinking? Does delaying rush reduce alcohol problems? Do risk management efforts make a positive difference?
- What are the key environmental characteristics that influence drinking? How should environmental characteristics and environmental change be measured?
- Do alcohol-free activities and venues reduce college alcohol problems? What factors (e.g., frequency, timing, type, planning) influence effectiveness?
- How are social norms campaigns most effectively used (e.g., in combination with other activities; to set the stage for more comprehensive initiatives)?

Promoting Healthy Behaviors Through Individual- and Group-Focused Approaches

Individual- and group-focused prevention and treatment approaches include a number of tested strategies. Prevention-oriented strategies include motivational enhancement techniques, cognitive-behavioral interventions, including expectancy challenges, and educational/awareness programs. Treatment-oriented strategies also include brief intervention, in addition to more intensive traditional treatment approaches. Accessible screening and recruitment programs are essential for service delivery. Hybrid approaches may combine elements of both prevention and treatment strategies to respond to the special needs of campus-based college students.

Summary of Relevant Research

There is a larger body of research on individual- and group-focused approaches in college populations than there is for environmental strategies. Collectively, individual- and group-focused interventions have proven valuable in both preventing and treating alcohol problems.

Prevention

Effective college drinking prevention programs frequently employ a multicomponent approach. For example, one study randomly assigned 348 high-risk freshman students to receive or not receive a 45-minute, in-person session that included feedback on students' personal drinking behavior and negative consequences; accurate information about alcohol-related norms on campus and comparison of their personal drinking habits to actual campus norms; and advice or information regarding drinking reduction techniques (Marlatt et al., 1998). This approach combined brief motivational enhancement with normative reeducation, skills training, and information.

Brief Motivational Enhancement

The Panel reviewed a series of related studies that provide strong support for the efficacy of brief motivational enhancement (Anderson et al., 1998; Aubrey, 1998; D'Amico and Fromme, 2000; Dimeff et al., 2000; Marlatt et al., 1998; Monti et al., 1999). Motivational enhancement is based on the theory that individuals alone are responsible for changing their drinking behavior and complying with that decision (Miller et al., 1992). Interviewers assess student alcohol consumption using a formal screening instrument. Results are scored, and students receive nonjudgmental feedback on their drinking behavior and its negative consequences. Students also receive suggestions to support their decision to change (Miller et al., 1992). Studies on motivational enhancement report significant reductions in alcohol consumption and negative consequences such as driving after drinking, riding with an intoxicated driver, traffic violations, and injuries. In addition, brief motivational enhancement techniques work in a variety of contexts, including emergency rooms, outpatient counseling centers, fraternity organizations, and with randomly selected high-risk college freshmen. Brief interventions are described in more detail below under "Treatment."

The research also suggests that in-person feedback and interpersonal interaction may not be essential to the success of brief motivational enhancement. One researcher provided computerized self-assessment and feedback with good results (Dimeff et al., 2000), and three other studies (Agostinelli et al., 1995; Walters, 2000; Walters et al., 1999) showed positive results with mailed feedback, although larger-scale studies of this approach are warranted.

Cognitive-Behavioral Skills Training

Cognitive-behavioral skills-training programs are a relatively new addition to the college drinking prevention repertoire. These programs teach skills to modify beliefs or behaviors associated with high-risk drinking, although many also incorporate information, values clarification, and/or normative reeducation components within the skills-teaching context (Garvin et al., 1990; Marcello et al., 1989). Cognitive-behavioral programs range from specific alcohol-focused skills training (including expectancy challenge procedures, blood alcohol discrimination training, or self-monitoring/self-assessment of alcohol use or problems) to general life skills training with little or no direct relationship to alcohol (such as stress-management training, time-management training, or general assertiveness skills) (Garvin et al., 1990; Murphy et al., 1986; Rohsenow et al., 1985).

Expectancy challenge programs show students that their expectations about how they and their peers will behave after drinking alcohol can affect that behavior. This strategy may include either direct experience, including the use of placebo beverages that students believe contain alcohol, or education on and discussion of expectancy issues.

One study randomly assigned heavy-drinking male students to consume beverages in a social setting and participate in activities including a social or sexual component (Darkes and Goldman, 1993). The students then attempted to guess which participants (including themselves) had consumed alcohol based on their behavior. Performance on the task was no better than chance. In addition, participants received information about how expectations of alcohol's effects can influence behavior and monitored expectancy-relevant events in their environment throughout the course of the 4-week study. The intervention comprised three 45-minute sessions.

The Panel reviewed three studies, including the one just summarized (Darkes and Goldman, 1993, 1998; Jones et al., 1995), that indicated that this technique may have considerable utility for decreasing alcohol use among college males. Of particular note is the finding that the greatest effects occurred among those who drank more heavily. Evidence suggests that the direct experience component may be important to success, but more research is needed to confirm it. More studies are also needed to replicate these findings on a larger scale and evaluate the utility of this approach with women.

Another fairly simple cognitive-behavioral intervention asks students to document their current or anticipated alcohol consumption in writing or on the computer. In one study, students recorded their daily alcohol consumption for 7 weeks (Garvin et al., 1990), while another asked students to complete a diary anticipating alcohol consumption and problems for an upcoming spring break week (Cronin, 1996). The third asked students to assess their drinking via computer three times during their freshman year (Miller, 1999). All three studies support the potential of this approach for controlling consumption and reducing negative consequences (Cronin, 1996; Garvin et al., 1990; Miller, 1999). However, due to methodological limitations, additional research is needed to confirm findings.

Ineffective Approaches Used in Isolation

For the past two decades, educational approaches have been most commonly used to combat high-risk college student drinking (Moskowitz, 1989; Ziemelis, 1998). These traditional approaches are based on the assumption that students primarily abuse alcohol because they are unaware of its health risks. The theory is that increasing knowledge about negative effects will lead to decreased use. However, there is very little evidence to suggest that knowledge deficits are related to high-risk alcohol use in this population or that a change in knowledge leads to a change in behavior (Moskowitz, 1989).

Several outcome studies evaluating traditional informational programs with college students have been conducted in the past 15 years. Most found no effect on either alcohol use or negative consequences.

Appendix 1
Additional Panel Recommendations

Appendix 2
Typology: A Theoretical Framework
for Alcohol Prevention Initiatives

Appendix 3
Responses to Arguments
Against the Minimum Legal Drinking Age

