# REDUCING ALCOHOL USE AND RELATED PROBLEMS AMONG COLLEGE STUDENTS:

# A GUIDE TO BEST PRACTICES

THIRD EDITION

THE MARYLAND COLLABORATIVE
TO REDUCE COLLEGE DRINKING AND RELATED PROBLEMS

MARYLAND Department of Health

SCHOOL OF PUBLIC HEALTH
CENTER ON YOUNG ADULT HEALTH AND DEVELOPMENT

JOHNS HOPKINS BLOOMBERG SCHOOL of PUBLIC HEALTH

## About the Maryland Collaborative to Reduce College Drinking and Related Problems

The Maryland Collaborative to Reduce College Drinking and Related Problems began in 2012 with funding from the Maryland Department of Health. The purpose of the Maryland Collaborative is to bring together Maryland colleges and universities toward a shared goal—to reduce excessive drinking among college students, by creating environments that support student and community health, safety, and success. Dr. Amelia Arria, Director of the Center on Young Adult Health and Development at the University of Maryland School of Public Health is the Principal Investigator on the project which is supported by a contract from the Maryland Department of Health, Office of Population Health Improvement. Dr. Sara Benjamin-Neelon, Associate Professor in the Department of Health, Behavior, and Society of the Johns Hopkins Bloomberg School of Public Health, provides scientific direction with respect to environmental-level strategies. Dr. David Jernigan (formerly of the Johns Hopkins Bloomberg School of Public Health and currently a Professor at the Boston University School of Public Health) is a senior consultant on the project.

More information about the Maryland Collaborative can be found at www.marylandcollaborative.org.

## Important Note

The purpose of this Guide is to summarize the evidence supporting various strategies that are used to address college drinking and related problems. Simply being listed in this Guide does not denote that the strategy is recommended.

## Suggested Citation

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# EXECUTIVE SUMMARY

## INTRODUCTION

### COLLEGE STUDENT DRINKING IS A SERIOUS PUBLIC HEALTH CONCERN

Excessive drinking and other forms of substance use can threaten a college student's physical health, exacerbate or precipitate mental health problems, and impede academic success. Excessive drinking is defined by the CDC as any underage drinking or binge drinking (defined as having four or more drinks on one occasion for women, or five or more for men) for legal-age persons. During college, a variety of influences can increase the likelihood of excessive drinking, including increased autonomy afforded to many students as they separate geographically from their parents, new peers, perceived expectations related to drinking as an integral part of college life, the widespread availability of alcohol, and risk-taking tendencies of young adults.

The latest data indicate that more than a third of college students (37%) in the U.S. engaged in binge drinking during the past month, and about one in ten met criteria for alcohol abuse or alcohol dependence.[1] Nationwide, in 2014, 1,519 college students between the ages of 18 and 24 died from alcohol-related injuries and 599,000 college students were injured because of their alcohol use.[2,3] College students' health, safety, and academic pursuits can also be compromised by proximity to other students who are drinking excessively. In 2001 (the last year for which estimates are available), 696,000 were hit or assaulted by another drinking college student, and 97,000 experienced a sexual assault or date rape perpetrated by a another college student who had been drinking.[4]

### ADDRESSING THE PROBLEM

One of the earliest federal efforts to systematically address this problem was initiated by the National Institute on Alcohol Abuse and Alcoholism (NIAAA). In 2002, the NIAAA Task Force on College Drinking issued a call to action to address college student alcohol use and to change the culture of college drinking.[5] It advocated for colleges and universities to implement evidence-based strategies simultaneously among "1) individuals, including at-risk or alcohol-dependent drinkers; 2) the student population as a whole; and 3) the college and the surrounding community."

Six years after the NIAAA issued its recommendations, approximately two-thirds of schools offered intervention programs for problem drinkers. However, many colleges still were not implementing recommended evidence-based approaches.[6] Subsequently, in 2015, the NIAAA published the College Alcohol Intervention Matrix (CollegeAIM), providing a range of individual- and environmental-level policy options to help college personnel create unique, comprehensive, campus-specific alcohol intervention strategies.[7] Most recently, the American Council of Trustees and Alumni urged higher education leaders to take responsibility for promoting a healthy and safe environment and address substance use because of its impact on student success.[8]

Fortunately, focusing attention and resources on early detection of problems, making environmental changes that influence students' choices, and supporting college students in recovery can lower the risk for serious acute and long-term consequences.

# The Maryland Collaborative to Reduce College Drinking and Related Problems

## Providing a Forum for Schools in Maryland to Work Together Toward Solutions

In 2012, the state of Maryland identified reducing college drinking and related problems as a priority area. Recognizing that expertise in monitoring, implementation, and assessment of effective strategies exists in Maryland, and under the leadership of Johns Hopkins President Ron Daniels and then-Chancellor of the University System of Maryland Brit Kirwan, expert teams from the University of Maryland School of Public Health and the Johns Hopkins Bloomberg School of Public Health were asked to staff the Maryland Collaborative, a statewide effort to mobilize campuses and community leaders to reduce excessive alcohol use and alcohol-related harms among all colleges in Maryland and strengthen their use of evidence-based practices.[9] One of the initial resources developed as part of the Maryland Collaborative's work was this *Guide to Best Practices*. The Maryland Collaborative has grown from the original nine to 17 current member schools. A unique and important feature of the Maryland Collaborative is the involvement of the college presidents, who comprise the Governance Council of the Maryland Collaborative.

The Maryland Collaborative uses both individual- and environmental-level strategies to address college drinking. An annual survey of students measures progress in reducing college drinking and monitors trends on member campuses. Since the formation of the Maryland Collaborative, binge drinking has declined significantly among the Maryland Collaborative member schools.[9]

## Addressing New Challenges

Although originally established to address excessive drinking, the Maryland Collaborative has broadened its scope of work, interventions, and policy recommendations to align with the concerns of its member schools. These issues include high intensity drinking, alcohol-related sexual assault, and cannabis use. For example, between 2005 and 2015 about one in nine young adults nationally self-reported as high intensity drinkers (i.e., consuming more than eight to ten drinks on a single occasion).[10]

The potency of cannabis has increased considerably during the past several decades and high-potency products are proliferating.[11,12] Recent research studies show clear connections between cannabis use and decreased academic performance and mental health problems.[13] At the same time, there has been a relaxation of cannabis laws in the U.S., and concomitant reductions in young people's perception of cannabis use as a risky behavior. Currently, about one in five college students used cannabis during the past month.[14] Individuals who use cannabis are more likely to drink excessively and use other drugs.[15]

The national opioid crisis has not spared college campuses, but college students are less likely than their non-college attending peers to misuse opioids nonmedically. Prescription drug misuse rarely occurs without other substance use. For example, data from a national survey found that 70% of students who misused prescription stimulants were excessive drinkers, and nearly 70% used cannabis during the past month.[16]

Finally, college students are using digital communication platforms more than ever before. Use of technology and digital media is exposing students to more targeted marketing for items such as e-cigarettes and cannabis products.[17] However, these communication platforms can also be used for public health interventions that are economical and can reach large target audiences. For example, this Guide contains information about two frequently used online interventions to reduce binge drinking among college students: the BASICS program and eCHECKUP TO GO.

## How to Use this Guide

This Guide is designed to be a handy resource for anyone who is interested in reducing excessive drinking on college campuses. It includes a detailed description of various individual- and environmental-level intervention strategies, a summary of the research supporting or refuting their effectiveness, and tips for implementation. Each section can be read independently of the other sections. We hope that by providing this summary of the evidence, college administrators and community stakeholders can more effectively allocate their resources to target excessive alcohol use and related problems on college campuses.

## Summary of Individual-level Interventions

1. *Education*. Educating students about the risks of excessive drinking and other substance use is not an effective strategy to change student behavior. Students should receive information on: a) the campus policies around drinking and other substance use, b) resources to get help for problems they or a peer might be experiencing, c) how to sift through the mass of information about health issues to know what is science-based and what is not, and d) how they can become more involved in prevention and intervention on their campus.

2. *Screening.* Universal screening, or at a minimum screening at first-year orientation, is a crucial first step for identifying students who need some level of assistance. Instruments such as the Alcohol Use Disorders Identification Test (AUDIT)[18] have been tested in multiple settings and populations and can form the basis for effective screening. Encounters with students should be confidentially documented in a systematic way that allows schools to determine whether or not the protocol is working and how it can be improved. Additionally, schools should develop a "roadmap" that describes how and where students are screened, identified, and routed to the necessary places to receive help if needed. This roadmap has two key elements: 1) where identification occurs (for example, campus health centers) and 2) the protocol for identifying and intervening with high-risk students, including follow-up steps to provide them with access to further evaluation.

3. *Clinically-based interventions.* Once a student is identified as needing intervention, it is important that evidence-based clinical approaches are utilized. Motivational Interviewing (MI) and brief motivational interventions (BMI) are two examples of evidence-based approaches for changing behavior and challenging alcohol expectancies. These are among the most effective means of intervening at the individual level, but training in these techniques is often lacking. It is critical that individuals working in campus settings receive both initial and ongoing training to ensure that protocols are instituted in a systematic way. To counter staff turnover, training in these techniques should be regularly offered as part of professional development.

4. *Parent engagement.* From setting expectations about zero tolerance for underage drinking to remaining vigilant to detect the earliest signs of a possible problem, parents have multiple important roles to play in preventing the start of alcohol problems as well as preventing escalation of alcohol problems. For this purpose, we have created a parent website, CollegeParentsMatter.org, which includes tips and discussion points parents can use when talking with their children.

## SUMMARY OF ENVIRONMENTAL-LEVEL INTERVENTIONS

The college environment plays a key role in influencing the health and behavior of students. The alcohol environments on and around campuses influence student drinking behavior. Campuses and local communities can make changes in these environments that reduce college alcohol use and create a safer, healthier college environment for students. These environmental-level interventions often include changing policies or practices with the goal of reducing access to and availability of alcohol.

Campuses and the surrounding communities should institute alcohol policies and laws that adhere to evidence-based strategies. Enforcement is critical; both students and social and commercial providers of alcohol must believe that there will be real consequences when alcohol is sold or served illegally (e.g., selling alcohol to underage purchasers, using false IDs to purchase alcohol, over-serving patrons).

*Effective on-campus evidence-based policies include:*

- Banning alcohol use on campus
- Restricting alcohol use at specific places or events
- Banning alcohol sales at specific places or events
- Providing a medical amnesty policy

*Effective off-campus evidence-based practices include:*

- Underage compliance checks
- Enforcement operations to identify those who possess and/or manufacture false IDs
- Sobriety checkpoints to deter drinking-driving
- Party patrols
- Bar checks to ensure compliance with laws and regulations regarding the promotion and sale of alcohol

*Effective off-campus retail policies include:*

- *Reducing the density of alcohol outlets surrounding or near the campus.* The research is clear: the more alcohol outlets in a geographic area, the higher the levels of alcohol-related problems. Density might be addressed through attrition (not transferring licenses when existing outlets go out of business), identifying and taking action against problem outlets, or using the planning and zoning process to tighten restrictions and increase community input into the practices of existing outlets.

- *Addressing alcohol pricing and other promotional practices.* Alcohol promotions that appeal directly to college populations might include advertising in college publications;

sponsorship of athletic, Panhellenic, or other campus events; and marketing on the radio, social media, and television. Additionally, many bars or restaurants have "happy hour" or other price promotions that discount the cost of alcohol; many are marketed directly towards students with special college nights or additional discounts with a college ID.

*Effective off-campus policies addressing social provision of alcohol include:*

- *Social host ordinances or laws.* An emerging promising practice is minimizing the social availability of alcohol by setting clear standards for acceptable social events and making violations of those standards a civil offense akin to a traffic speeding ticket. Standards could include bans on serving underage persons, prohibiting kegs, noise and nuisance regulations, and limiting parties to a certain number of attendees. These policies can be enacted at the local or state level.

- *Landlord agreements.* Landlords can play a proactive role in reducing large parties and related problems by incorporating noise and nuisance standards into lease agreements.

## NEXT STEPS: WHERE DOES MARYLAND GO FROM HERE?

The Maryland Collaborative will continue to take a multi-level, multi-component approach to addressing excessive drinking and promoting the health and safety of college students. The success of the Maryland Collaborative depends on the partnerships among college administrators, students, faculty, staff, local law enforcement, the local business community, and community leaders.

Alcohol problems that develop early in life are often predictive of later problems. Addressing alcohol problems among Maryland's college students will reduce long-term health care costs, improve workforce productivity, and mitigate risks for unemployment, family dysfunction, and violence, which are all too common among adults with alcohol problems. Successful intervention while students are still in college will not only reduce the chances of adverse acute consequences in the short-term but will also help to safeguard and ensure the long-term safety and success of our students and our workforce.

# IMPLEMENTATION STRATEGIES

## OVERVIEW

This Guide is an example of one of several resources that describe evidence-based practices (EBPs) to address excessive drinking and related problems among college students. What history has told us is that the greatest roadblock in addressing this problem is the implementation of these strategies. In short, we know what to do, but the biggest challenge is **how** do we do it? And, how do we make the utilization of EBPs and the assessment of their effectiveness in our specific college settings a regular part of what we do? In this Guide and in earlier editions, we provide some tips for implementation for each specific EBP. However, this 3rd edition goes further and describes a broader set of "implementation strategies" which we believe might be important to accelerate the adoption of many different types of EBPs on college campuses. We hope colleges can study these implementation strategies on their campus and provide feedback on whether or not they promoted the adoption and regular utilization of EBPs.

This thinking comes out of a relatively new field called implementation science. Slow or irregular implementation of EBPs and interventions is not only a problem in college health—it is widespread in health care settings and across many public health disciplines.[19] While substantial progress has been made in conducting randomized controlled trials (RCTs) that tell us what an evidence-based intervention is, implementation science focuses on how to routinize the utilization of such interventions. The following section describes and summarizes multiple types of implementation strategies. Collectively, we believe these strategies can mobilize individuals across roles and levels, facilitate coordinated action, and distribute leadership and decision-making to disrupt the current factors that hold institutions and the individuals within them to the *status quo*.

## INCLUDE ALCOHOL PREVENTION AND INTERVENTION IN STRATEGIC PLANNING EFFORTS

As part of their overall campus strategic plan, college leadership should develop and include a plan to address underage and excessive drinking. This plan should be evidence-based and data-driven with concrete goals and timelines. For example, the plan should consider methods to determine the nature and extent of the problem, identify quantifiable ways of tracking progress toward goals, and include methods for evaluating outcomes. Colleges should detail how resources will be allocated to achieve these efforts. Two important factors to consider when designing this alcohol prevention and intervention plan are the effectiveness of the intervention and the reach of the intervention. Finally, the strategic plan should be a sustainable and continuous program with both short- and long-term goals to change the culture of drinking on campus.

## Review and Refine Campus Policies

Sensible campus policies that limit access and availability of alcohol to underage students and discourage excessive drinking have been shown to be associated with fewer alcohol-related problems.[20-22] However, frequently these policies are not written in a way that is easily understood by students. This can limit their effectiveness. Regularly evaluating both the clarity and accessibility of these policies can ensure students' understanding of the existing policies. An annual or biannual review of campus policies related to substance use, corresponding sanctions, and how these policies will be enforced is recommended. These reviews can also be helpful in a rapidly changing environment to determine whether or not polices align with EBPs and address current concerns. For example, schools might wish to use models of comprehensive cannabis policies[23] to add or revise their cannabis use policies. The Maryland Collaborative recently described a process of reviewing and evaluating multiple campus policies related to alcohol use.[21]

## Establish a Campus Task Force

Building a campus-based working group or task force can be an effective way for schools to build relationships across the campus around shared goals related to reducing student alcohol use. These groups can serve to create a shared understanding of the factors that might promote excessive or high-risk drinking, and to create momentum to address the problem. Task forces should typically include leaders from a broad range of on-campus constituencies such as administrators, faculty, students, health and counseling services, residence life, athletics, Greek life, and law enforcement. Ideally, the task force can help set standards and recommend the adoption of EBPs to leadership, such as widespread screening, increasing access to services (especially among minority students), and encouraging connections to off-campus health providers if necessary. Task forces can also facilitate the engagement of clinical and non-clinical campus partners and often play a role in increasing campus acceptance of recommendations and policy changes.

Although popular and anecdotally successful, little research has documented how and if task forces achieve their goals or promote the implementation of EBPs to address excessive drinking and related problems. We encourage campuses to track their experiences with task forces and share whether they are useful in promoting EBPs. Some possible items to measure are: a) the number of individuals involved, b) the role of each member, c) regularity of attendance at meetings and engagement in the work, d) the mission and goals of the task force, e) the progress in achieving those goals, and e) student involvement.

## Establish a Campus-Community Coalition

Research has shown that coalitions can be a strong and effective way for communities and colleges to work together to address challenges such as alcohol use.[24-26] Establishing partnerships around the shared goal of making the campus and the surrounding community safer and healthier for students and residents is essential for success. The Community Anti-Drug Coalitions of America recognize the importance of a coalition as a way to formalize collaboration for a "safe, healthy, and drug-free community".[27] Strong coalitions made up of both campus members (college leaders, alcohol specialists, students, administrators) and community stakeholders (parents, landlords, bar owners, neighborhood residents, the faith community, law enforcement, business, and more) ensure the

broad representation necessary to effectively implement the wide range of EBPs needed to address excessive drinking on campuses and in surrounding communities.

These campus-community coalitions can work on a variety of interventions including social norms campaigns, policy revisions, or revisions to town bylaws.[28,29] Campus-community coalitions are particularly helpful for successfully implementing environmental interventions.[20,29,30] Examples of evidence-based environmental interventions that could benefit from a campus -community coalition include the passage of local laws such as social host ordinances, increasing enforcement of underage drinking laws, and offering responsible beverage service training to bartenders in local establishments in the community and on campus.

Although few schools have worked with the community to reduce alcohol use by their students,[31] those who do establish a "town-gown" coalition around the issue have seen success. The strongest evidence in favor of this approach to reduce college drinking comes from projects that have used experimental and comparison schools and communities to document change. Communities Mobilizing for Change on Alcohol used a community organizing approach to reduce alcohol use among 18- to 20-year-olds, arrests, alcohol-related traffic crashes, and illegal sales of alcohol to minors in bars and restaurants.[24,32] Coalitions were used as the vehicle to create change and were vital to the success of the intervention.

Another example of this approach is the Study to Prevent Alcohol Related Consequences (SPARC), a randomized community trial that worked to reduce high-risk drinking among college students.[33] SPARC employed a campus-community organizer who worked directly with both campus and community members to implement a range of strategies—many of which are described in these pages—to reduce high-risk drinking. Each campus-community coalition undertook five steps to address excessive drinking: 1) conduct an assessment, 2) build the coalition and its capacity, 3) develop a strategic plan, 4) implement an action plan, and 5) sustain efforts. As a result of the SPARC intervention, an average of 228 fewer students in each intervention school experienced one or more severe consequences due to their own drinking during the past 30 days, including getting into trouble with police.[25]

In SPARC, the universities were primarily responsible for guiding the overall coalition process by providing oversight and support and demonstrating a strong commitment to the campus-community coalition approach. Often, the community organizer position was filled by a university employee, which strengthened the role of the university in this process. However, it is also important to recognize that the university was only one-half of the equation, and that success was dependent on a collaboration with the community. The positive effects of this collaborative process should be used as a model for future campus-community coalitions.

The Robert Wood Johnson Foundation's A Matter of Degree (AMOD) project produced another scientific evaluation of efforts to reduce excessive drinking and related problems on college campuses.[26,34] With ten experimental and 32 comparison schools, the project emphasized community mobilization and environmental strategies (outlined in the second portion of this Guide). The project resulted in significant declines in alcohol use, alcohol-related harms, and secondhand effects of alcohol. Additionally, there were reductions in driving after drinking, driving after five or more drinks, and riding with a high or drunk driver in the experimental sites. The largest effects occurred in the sites with the highest levels of program implementation and the greatest use of environmental strategies.

A specific example of the AMOD evaluation can be seen in the University of Nebraska-Lincoln's (UNL) NU Directions Coalition.[29] NU Directions was established among top city and campus officials, students, community members, law enforcement, and public health/medical officials. The coalition developed a strategic plan targeting individual, campus, and community factors related to high-risk drinking. Some of the initiatives of the coalition included eliminating alcohol use in Greek housing in order to maintain housing status, social marketing campaigns aimed at first-year students and high-risk populations, a web-based alcohol server training program, and implementation of interventions for high-risk/sanctioned students (e.g., Alcohol Skills Training Program, BASICS, and eCHECKUP).

Data from the AMOD evaluation indicated that the percentage of UNL students who binge drank during the past two weeks decreased from 63% in 1997 to 47% in 2003.[29] Student self-reports of alcohol-related problems (e.g., experiencing hangovers or blackouts, missing a class or getting behind in schoolwork, doing something they regretted, or arguing with friends) also declined.

The NU Directions Coalition also concentrated on aspects related to increased and consistent enforcement on campus and in the community. These included "no-alcohol" policies in campus residences and Greek residences as well as at tailgate parties. Following this increased enforcement, citations for liquor violations increased as well as citations and sanctions for fraternities. Specifically, citations by campus police for liquor violations increased from 54 to 64 (1998 and 2000 respectively); however, after the hiring of a new police chief who also became a coalition member, citations increased to 253 in 2002-2003.[29]

A similar coalition at the University of Massachusetts Amherst implemented a social norms marketing campaign designed to correct misperceptions about alcohol use, an evidence-based program for mandated students (BASICS), a mandatory online alcohol education course for incoming students along with penalties for non-completion, and a revision of campus residence hall policies and town bylaws to prohibit open containers of alcohol and require keg registrations.[28] The number of citations on campus for underage alcohol possession increased from 71 citations in 2003 to 421 in 2009, and the number of students mandated to complete an intervention following an alcohol-related offense went from 650 during the 2004-2005 academic year to 1,149 in 2008-2009. From student surveys, the prevalence of binge drinking decreased from 63.7% in 2005 to 58.1% in 2009.

A working group or task force takes a high degree of commitment and time for the individuals involved. At the start, a commitment should be made toward recognizing the complexity of the problem of college student drinking, using evidence-based approaches, and evaluating the impact of the group's activities. Setting short-term, achievable, and measurable goals is essential, and seeing progress toward those goals can help sustain the group's enthusiasm and momentum. An effective coalition will engage strong senior leadership and goal-oriented members representing a wide variety of campus "voices" as well as key decision-makers, opinion leaders, and other stakeholders from the surrounding community. In particular, members should be assigned specific roles in order to increase empowerment and level of perceived effectiveness.[35] Successful efforts combine goal-oriented planning, evidence-based implementation, and inclusive campus and community coalition-building to build and sustain commitment to the coalition's work. As we suggested for internal campus task forces, we encourage campuses to track their experiences with campus-community coalitions so that we can learn more about how they have been useful in promoting EBPs.

## Partner with Off-campus Clinical Health Care Providers

Some colleges do not have health centers where students can receive assessments or health care services to address alcohol and other drug related problems. Moreover, even when a health center does exist, many colleges do not have the resources to provide care to students with complex and serious substance use disorders, especially when substance use disorders co-exist with psychiatric disorders.[36] In both these cases, it is important to strengthen partnerships with off-campus clinical providers who can provide appropriate clinical services to students. In addition to in-person counseling, more and more providers are offering telepsychiatry and online support services that might be attractive to college students. Rather than simply listing off-campus providers on a website as is often done today, it is necessary to vet the quality of the services in the community and maintain a close relationship with providers so that care can be optimized for students who require resources beyond what the campus can offer.[36] Ultimately, this strategy could decrease wait times, provide the appropriate level of care for students, and enhance efficiency of on-campus providers.

## Create and/or Maintain a Campus Website Regarding Alcohol Prevention and Intervention

A one-stop shop campus website that contains easily accessible information regarding alcohol and drug policies, online risk assessment tools, listings of campus resources to address substance use and mental health problems—including campus-specific or national hotlines—can potentially increase the utilization of these resources. This type of unified website streamlines information and simplifies the help-seeking process for students and/or their families. A prominently placed, straightforward, and complete website could help remove barriers and reduce the stigma that some students might feel or experience when considering whether or not to seek help.

## Offer Training Opportunities to Non-clinical Campus Partners, Clinical Professionals, and Community Partners

Training can be offered to at least three distinct audiences on college campuses to address excessive drinking and related problems. First, this Guide describes how non-clinical campus partners such as faculty, athletic personnel, and resident advisors can be made aware of their role in the "routing process"—that is, to simply identify, approach, and facilitate referrals to appropriate places on campus for further screening and evaluation. Training can be provided to these non-clinical campus partners to empower them and build their self-efficacy to identify and recognize students at risk for substance use problems and encourage help-seeking. Second, training can also be offered to health and counseling center personnel on screening and brief intervention, motivational interviewing, and cognitive behavioral therapy. Because many of the individuals working in these settings do not always have specialized expertise in how to address substance use, training can raise the criticality of using these federally-recommended EBPs. Finally, training can be offered to community partners, law enforcement personnel, and bar owners on environmental-level EBPs that are listed in this Guide, including the importance of social host ordinances, responsible beverage service, and how to effectively identify false ID use.

## Non-clinical Campus Partners: Faculty

Because faculty are in regular contact with students, they are likely to notice changes in behavior that might signal an alcohol problem. A recent study at Miami University found that more than a fifth of faculty and staff had an intoxicated student attend their class and more than a third of faculty had come across intoxicated students on campus.[37] Additionally, faculty might be aware of particular students who are chronically absent or academically struggling that might raise concerns about the possibility of excessive drinking. The evidence linking excessive drinking and other drug use with decreases in academic performance (e.g., GPA) or engagement (e.g., skipping class) is extensive.[38,39] However, faculty might feel unprepared to act on these signs of problems. Increasing faculty's knowledge of the nature and extent of excessive drinking among college students and training them to identify high-risk students and make appropriate referrals would increase the school's ability to reach students in need. This implementation strategy could increase the effectiveness of the referral, intervention, and treatment system.

While few studies have addressed faculty training for alcohol problems, implementing an approach similar to the "gatekeeper training" used by many colleges and universities as a means to identify students at risk for suicidal behaviors could help faculty identify students who might be at high risk for developing alcohol problems. Particular relevant gatekeeper training components include training for detecting students at risk and for referring students to appropriate treatment resources.[40,41] Those who are trained and act as gatekeepers are typically administrators and staff, including those involved with Student Affairs, Residence Life, Health Services, Faculty/Academic Counseling, Peer Education, etc. Evaluations of these types of programs have seen increases in skills, readiness to intervene, and responses to students in need.[42,43]

Multiple opportunities exist for providing support to faculty that might not require additional logistical coordination. For example, there are regularly scheduled departmental meetings for faculty, to which guest speakers could be invited. A key person from the Faculty Senate can serve as a member of the Campus Coalition and disseminate information related to how to address alcohol problems among students and campus alcohol policies. Importantly, the idea is not to turn faculty into therapists or counselors, but rather enable them to facilitate student access to the appropriate resources for help. Faculty should feel empowered to provide such information, and regular exposure to information and training opportunities can help them achieve that goal. Training should be ongoing, rather than a one-time event, and can be facilitated with webinars and other online training resources.

## Non-clinical Campus Partners: Athletic Personnel

Student-athletes are at high risk for problematic alcohol use and related consequences.[44-48] Studies have shown that athletes consume more alcohol and experience a greater number of alcohol-related consequences than their non-athlete peers.[49,50] Apart from the risk for unintentional injury, alcohol use can negatively impact performance and recovery among athletes.[51-54] Norms modeled by athletic personnel and fellow teammates might either discourage or promote drinking; thus, taking actions such as setting team policies around alcohol use is important.[55] According to a study by Mastroleo et. al.,[56] an athletic coach's approval of athletes' alcohol use has a significant impact on drinking behavior among the team. Having a coach who communicates a greater concern about drinking and does not tolerate problematic alcohol use is associated with student-athletes consuming less alcohol.[57]

It is crucial to screen and identify student-athletes for alcohol-related problems as they are at risk for heavy drinking and associated negative outcomes. Identifying these individuals early can help connect them with appropriate services and treatment before substance use problems escalate. Coaches, team leaders, and athletic trainers are highly influential in the lives of athletes, and therefore are key components of any interventions targeting student-athletes.

Athletic personnel are valuable advocates who can identify student-athletes that might be at risk for excessive drinking and refer them to appropriate resources. A review of alcohol-related unintentional injury literature among college athletes states that athletic trainers have the "capacity and responsibility to play active roles as integral members of the health care team," but lack the confidence or self-efficacy to do this.[58] Interventions involving athletic personnel will require further research into how to best develop confidence in recognizing students who are at risk, addressing alcohol problems with the team, and referring students to the appropriate services.[58]

Athletic personnel should be trained to identify at-risk students and provide appropriate referrals. Screening student-athletes annually might identify students who are already having alcohol problems or are at high risk for developing problems. It is important to consider the timing of strategies, as athlete orientation programs generally occur at the beginning of each term, but alcohol use among student-athletes peaks during the off-season when there are not as many athletic performance-related demands.[59] College administrators, in collaboration with athletic personnel, should consider providing screening and intervention programs throughout the academic year in order to provide continuous monitoring of alcohol use and related problems among athletes.

Cimini and colleagues[60] examined the effects of a one-hour session of Motivational Interviewing (MI)-based in-person brief alcohol intervention that was tailored specifically to student-athletes (see Motivational Interviewing). Within this framework, personalized feedback was utilized to illustrate the how alcohol consumption might be in conflict with the student-athlete's athletic, academic, and other goals. After three months, the students who participated in the brief intervention significantly reduced their alcohol use and related consequences, used more protective behavioral strategies, and had more corrected norms perceptions compared with students who did not participate. Training athletic staff in basic MI techniques is a promising method to reduce high-risk drinking and associated harms among student-athletes.

## Non-clinical Campus Partners: Resident Advisors

Responsibilities of RAs include: 1) recognizing and responding to students who might need help and 2) enforcing campus alcohol policies. They also have the capacity to de-stigmatize help-seeking, correct misperceptions around alcohol and substance use, and spread awareness of campus resources. In fact, RAs are typically already trained to identify and approach students with mental health issues. These trainings are often conducted by campus health professionals and likely include educational lectures as well as role-playing activities to confront students who might be attempting to harm themselves. Given the strong connection between mental health issues and substance use, it is beneficial to integrate training on the two topics.

Boosting the quality of the initial and ongoing training of RAs will empower these individuals to take proactive measures to identify students with possible alcohol problems that are in need of more intensive intervention. Because of the high proportion of students living in residence halls on some campuses, training RAs has the potential to reach a large number of students. Moreover, training RAs can facilitate a shared understanding of the problems and risks associated with alcohol use and

help spread a common message about the seriousness of violating campus alcohol policies and underage drinking laws.

RAs are likely to interact with at-risk college students and witness negative consequences of alcohol because living on campus in college is a risk factor for problematic alcohol use. For example, a national study found that prevalence of alcohol dependence was highest among students living on campus compared with students living off campus and noncollege students.[61] The environment of living on campus is conducive to drinking because of the density of young adults living in close quarters.[62]

RAs are in need of substantive training in order to prepare them to address the challenging situations they might encounter in the residence halls. While most RAs at residential college and university campuses are required to participate in pre-supervision trainings, there is a lack of emphasis on substance abuse interventions and referrals.[63] RAs report a number of barriers to intervention, including concern that it would be emotionally burdensome, that other RAs might disapprove, and that students might respond by being defensive or resentful towards the RA following a confrontation.[63-65] Empowering RAs to identify high-risk students and manage alcohol-related incidents more efficiently and effectively is critical to providing at-risk students the help they might need.

One of the few studies of RA training tools evaluates the Peer Hero Training program, an interactive online program.[64] This program presents the RA with video dramatizations depicting residents engaging in substance abuse or experiencing significant distress, and the RA must decide which action to take in each situation. The RA then receives feedback on how helpful the chosen action was in the situation. Five hundred and sixty-six RAs from eight college campuses across the U.S. participated in this study. Those that viewed the Peer Hero Training program were significantly more likely to use first aid efforts to intervene with a student because of their alcohol, other drug, mental health, or academic problems over the course of the academic year.

Because research has demonstrated that it is possible to train individuals to screen and intervene with high-risk drinkers, RAs should receive ongoing training regarding warning signs and symptoms of alcohol and other drug problems. NIAAA recommends keeping RAs involved in planning and implementing campus alcohol policies and programs.[66]

Initial trainings for RAs could include topics such as: 1) tips on how to have discussions with student residents about the risks of underage and excessive drinking, 2) campus alcohol policies and sanctions, 3) identifying at-risk students, and 4) managing alcohol-related incidents. Alcohol-related topics should be incorporated into initial RA training sessions and followed up by ongoing—at least annual—RA training events that keep them abreast of necessary skills and re-educate them about procedures to manage students who exhibit problems related to alcohol. These training programs should focus on increasing their confidence to refer a resident with an alcohol or other drug problem and further enhancing their skills to do so.[63]

***IN CHOOSING INTERVENTIONS, REMEMBER:***

**IMPACT = EFECTIVENESS × REACH**

# Individual-level Interventions

## Overview

### Overall Goal: Develop and Implement a Campus-wide System to Screen, Identify, and Intervene with Students Who are at Risk for Alcohol-related Problems

Research tells us that college students who need services rarely get them.[67] This is due in part to the low self-recognition of problems among students, as well as the lack of campus resources to screen students and to provide services.

Before designing a campus-wide system to ensure that students get the help they need, it is necessary to understand the drinking patterns of the student population. With this knowledge, a plan can be developed to route students with different drinking patterns toward an appropriate level of intervention and monitor their outcomes. How frequently a student with an alcohol problem receives such interventions should be ideally tailored to the severity of their problem, but it is understood that there are constraints on resources that might make the ideal scenario unrealistic. Colleges should, at the very least, form relationships with providers in the community who can offer more intensive services to students with the highest level of problems. Referrals can then be made to these providers as needed.

First, we describe the various approaches that are used to affect individuals' drinking behavior, followed by educational approaches that can be used to increase knowledge about risks.

It is important to note the difference between the goals of interventions and education. While education can increase knowledge or raise awareness, research has shown that it is not effective in changing individual behavior. Behavior change is a much more difficult challenge and requires more intensive efforts like Motivational Interviewing (MI) and Cognitive Behavioral Therapy (CBT).

The various settings and contexts in which students can be identified and screened for high-risk drinking behavior are described. Some students will enter college with high-risk drinking patterns that began during high school, therefore screening of first-year students is necessary to identify the students at highest risk for alcohol problems. However, because high-risk drinking can occur throughout young adulthood, opportunities for screening and interventions for students in all stages of their college career should be provided.

Students might also be identified as potentially high-risk drinkers because they violated a campus alcohol policy. For these students, strategies should be in place to identify the severity of their drinking problem before deciding on a course of action for them. Evaluating their risk for recidivism is an important component in deciding the frequency of monitoring that might be necessary. The NIAAA has useful guidelines for clinicians that can be found here.

Primary health care settings offer additional opportunities for screening and intervention. Students seeking routine care at wellness visits can be screened for high-risk drinking as well as students who present with a problem that is more directly related to excessive drinking (e.g., alcohol-related injuries).

Because of the known relationship between excessive drinking and academic performance,[38,68] students who are mandated to receive services from the academic assistance center or who voluntarily seek services are also candidates for screening.

Athletic programs, fraternities, and sororities offer additional opportunities to screen and identify students with alcohol problems. Colleges vary significantly with respect to the number and types of settings in which students can realistically be identified. For example, many schools do not have a Greek system, and many two-year schools do not have health centers, so therefore the material on these settings might not be applicable to them.

Often, short-term gains do not necessarily translate into long-term changes in behavior, unless the intervention is sustained. This can be frustrating to clinical professionals, but it makes sense if one realizes that excessive drinking is a well-established habit for many students, one that is difficult to change. Just like weight loss involves a change in the way a person identifies with food and requires ongoing vigilance, reductions in drinking behavior will require intensive and long-term monitoring.

These kinds of long-term continuous strategies to monitor alcohol use might be cost-prohibitive for schools to implement, especially if they involve regular meetings with a highly trained professional. Although long-term research studies have not been conducted among college students to determine the effectiveness of recording one's drinking with a drinking diary or calendar, these low-cost methods have shown promise in other populations[69] and therefore should be considered as potential strategies to reduce excessive drinking.

Research-based interventions that are designed to reduce individual behavior cannot be seen as a magic bullet, especially given the modest, albeit statistically significant, reductions that have been observed in research studies. Individually targeted interventions by themselves are unlikely to lead to the kind of sustained changes at the population level that most colleges and communities would define as success. They need to be coupled with effective environmental strategies for multilevel, multicomponent interventions.

## Step 1. Choose a Screening Instrument

To estimate the level of alcohol consumed, standard assessments inquire about both quantity (the amount of alcohol) and frequency (how often one drinks alcohol). An example of a question that assesses quantity is "How many drinks do you consume during a typical weekend day?" An example of a question that assesses frequency is "How many days during the past month did you drink alcohol?" It is preferable to ask questions about how much or how often someone drinks rather than a simple yes or no question such as "Do you drink alcohol?" With yes or no questions, the person might choose to avoid any follow-up conversation by simply saying no. Questions that assume a person drinks, such as the quantity and frequency questions mentioned above, can therefore enhance honesty. Non-drinkers can simply say "I don't drink" or "None." A third dimension of screening focuses on the consequences that one has experienced as a result of their drinking. It is preferable to not label these consequences as "problems," since many students will not necessarily recognize consequences as problems. The federally-sponsored National Survey on Drug Use and Health[70] contains questions that measure alcohol abuse and dependence according to standard psychiatric criteria.[71]

There are a number of scientifically-validated screening instruments that can be easily used in college settings.[72] Winters et al.[72] found that the CAGE questionnaire[73] was the most widely used in college settings. Taylor and colleagues[74] suggest that a modified version of the CAGE detects alcohol abuse and dependency more accurately than the original CAGE, particularly among college populations. Other instruments that might be used among the college population are the AUDIT[18] and the CRAFFT.[75,76] Cook et al.[77] found that the AUDIT, which has ten items, was more effective than the CAGE and the CRAFFT in detecting alcohol use disorder among young adults. DeMartini and Carey[78] found that the shortened form of the AUDIT which contains three items, the AUDIT-C, performed even better than the AUDIT in detecting alcohol use disorder among college students.

It is important for schools to decide on the purposes of screening before choosing a screening tool. Is the screening tool simply used to identify students who need a more comprehensive assessment? In that case, it might be necessary to have a brief screening tool that separates current drinkers from non-drinkers. Although it is understandable that schools would prefer to use a screening instrument with the fewest number of items, obtaining comprehensive information about the student's problem is a critical first step in understanding how best to intervene. Therefore, the value of a longer screening instrument should not be discounted if it will help achieve the goals of screening. Also, screening tools can be made widely available online for self-assessments or for peers to assess a potential problem in a friend.

## Step 2: Implement a System to Screen and Identify Students

It is important for colleges to design a "roadmap" to identify, screen, and refer students for appropriate levels of care that is tailored to their campus's resources and needs. Figure 1 is a comprehensive example of a roadmap, with hypothetical suggestions for how often different types of students would be monitored for follow-up. This Guide describes a number of settings in which screenings can be implemented.

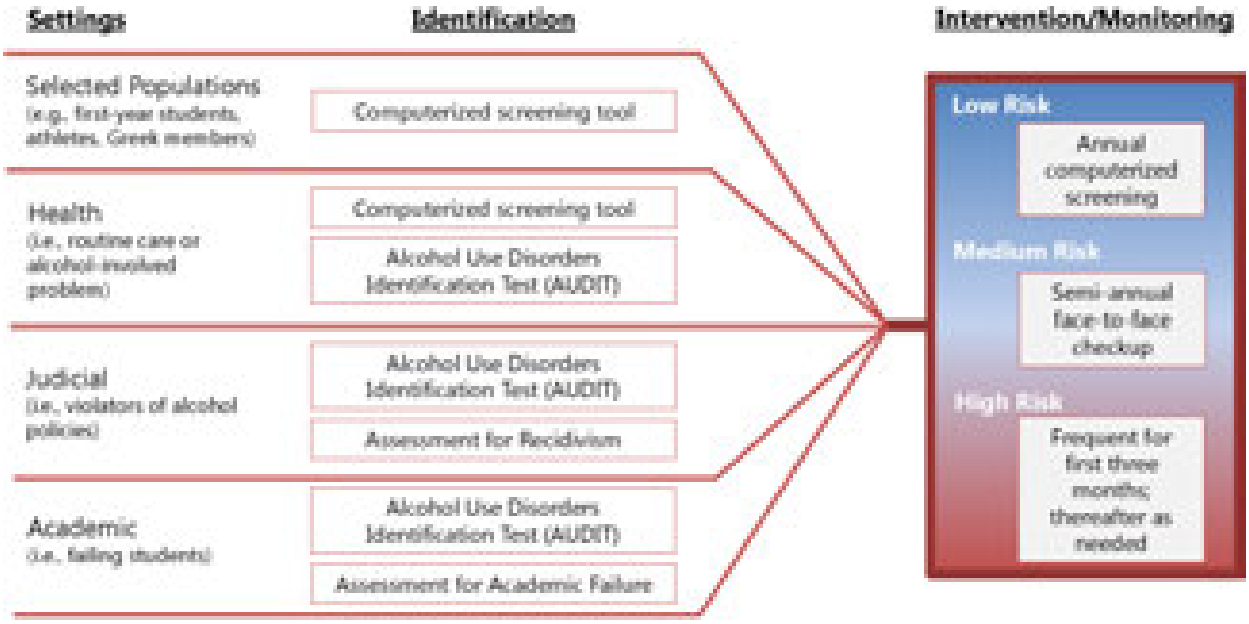
## Step 3: Develop Criteria for Directing Students to Appropriate Resources

As can be seen in the model displayed in Figure 1, students are classified into three categories (low-, medium-, and high-risk) based on the results of their screening. Although the screening instruments themselves provide such guidelines, the number of students falling into a high-risk category might overwhelm the resources for a particular campus. Thus, schools will need to decide what cut-points to use and how to route students with different levels of need to different levels of interventions or how to give referrals to additional resources.

## Step 4: Monitor Student Progress

Ideally, schools should monitor two features of this system. First, it is necessary to monitor the implementation of the system. For example, it is important to know what proportion of students coming through the health center were screened, and what proportion of students who screened positive were given a more extensive assessment and/or referred for an intervention. Studies have shown that performance measurement systems can be very helpful in increasing the effectiveness of interventions over time. It might not be realistic, especially if the system is new, to expect that every student will be tracked through all settings and monitored for progress, but designing a plan for measuring even a subset of students and slowly expanding it over time is essential. Second, monitoring of individual student progress can be accomplished through a variety of mechanisms using technology as appropriate.

**Figure 1. Creating a system to identify and intervene with at-risk students**



# Educational Approaches

Research studies have consistently demonstrated that while education can increase awareness of alcohol problems and knowledge of alcohol-related risks, it generally does not result in changing behavior. **Therefore, universities should not expect that education programs alone will reduce alcohol use or related problems.** Educational approaches can assist in increasing awareness of and supporting other types of strategies, such as policy changes or implementation of screening, brief interventions, and referral to treatment.

## Strategy: Educate Students about the Risks of Excessive Drinking and Related Problems

### Theory Behind the Strategy

The theory behind educational approaches is that students will be less likely to engage in heavy drinking if they are more aware of the risks involved. Unfortunately, this notion has not been borne out by many years of prevention practice and research. Adolescence and young adulthood are developmental periods characterized by high levels of risk taking. This propensity places them at risk for excessive drinking and other forms of substance use. However, to change behavior, much more intensive efforts are needed rather than simply educating them about the adverse consequences they might experience. Below we describe some examples of how educational approaches have yielded somewhat disappointing results.

### Evidence of Effectiveness

Alcohol education has little impact on changing behavior and is not effective as a stand-alone intervention.[79] In fact, alcohol education is often used as a control condition in research studies, further highlighting its ineffectiveness as an alcohol reduction strategy. However, it can be incorporated into interventions that include other elements. One study used a mixed-methods approach to evaluate an alcohol education program for use among fraternity members.[80] The alcohol education program under study, the Alcohol Skills Training Program, did not result in significant differences in high-risk drinking behavior or negative consequences between test and control groups. Brown-Rice et al.[81] explored the effect of education on alcohol consumption among students in sororities and fraternities. Although fraternity members who described the program as helpful significantly decreased their alcohol use, both sorority and fraternity members still participated in high levels of drinking, indicating the need for a more effective approach.

Curriculum Infusion (CI) integrates alcohol education and prevention messages into the context of a college curriculum and can be used by faculty to address alcohol-related issues in an atmosphere that is structured and comfortable. A recent study found that CI was successful in producing both alcohol behavior and perception change in students, especially when service learning was included as part of the intervention.[82]

The Buzz is an alcohol education and prevention program developed at the University of Arizona.[83] The Buzz's interactive, game-oriented approach contrasts with many other education-only interventions, but more formal evaluation is needed to determine if this program is effective at reducing excessive drinking behavior in the long-term.

### Tips on Implementation

Alcohol education can be combined with other intervention strategies that target at-risk students. For example, a BASICS component for students to explore their alcohol use can be implemented with additional education (either online or in-person programs). There is also emerging research regarding the effectiveness of "curriculum infusion," a strategy in which information on alcohol use, decision making, and safety is incorporated into existing academic courses instead of educating about alcohol use on its own.[84] Flynn and Carter[82] found that curriculum infusion successfully corrected alcohol use misperceptions both for students who received a traditional training session and for students who implemented this information into a campus-wide project to prevent alcohol use. The latter group, called the "service-learning group" further reported larger reductions in number of drinks consumed compared with the "information-only" students.

## Strategy: Utilize Computer-facilitated Educational Approaches

## AlcoholEdu

### Description

*AlcoholEdu for College* is a two- to three-hour alcohol prevention program developed to be available online to an entire population of students, such as an entering first-year class. Educational goals include resetting unrealistic expectations about the effects of alcohol and understanding the link between drinking and academic and personal success.

### Evidence of Effectiveness

Five research studies examined alcohol use outcomes among first-time, incoming college freshmen who completed the AlcoholEdu program.[85-89] Both the intervention and control groups experienced increases in drinking behaviors between high school and the transition to college, but students in the intervention groups had smaller increases in drinking compared with students in the control group.[87,89] Hustad et al.[89] found that the AlcoholEdu group had a mean increase of 1.5 drinks per week during the past month versus 6.3 drinks among the control group, and Lovecchio, Wyatt, and Dejong[87] found a mean increase in total number of drinks during the past two weeks of 4.3 among the AlcoholEdu group versus 8.0 among the control group. A smaller increase was found in heavy drinking episodes in the prior two weeks among the intervention group (increase of 0.6 episodes and 19% of students) than among the control groups (increase of 2.3 episodes and 34% of students).[87,89] Additionally, the intervention group in Lovecchio's study reported fewer positive alcohol use expectancies and less acceptance of others' alcohol use.[87]

AlcoholEdu also had a small but statistically significant effect on student's knowledge about alcohol (22.7% score increase for the control condition vs. a 23.4% increase for the intervention condition, $p$=0.04).[87] While one study[86] found no significant differences between the two groups for measures of alcohol consumption, further review showed there were baseline differences in parental discussions, alcohol education during high school, and alcohol-related knowledge. Another study[88] had mixed findings on the mediating effects on students' perceived drinking norms, alcohol expectancies, personal approval of alcohol use, and protective behavioral strategies on the effectiveness of AlcoholEdu. Exposure to AlcoholEdu was inversely related to student perceptions of drinking norms, which could have decreased drinking and related harms indirectly through changing perceptions, but it did not affect any other psychosocial norms that were targeted.[88] Barry et al.[85] conducted a qualitative follow-up survey two to four months post-AlcoholEdu intervention. They found an increase in knowledge about alcohol, but there was no change in alcohol-related behavior.

Limitations, such as skipping through assessments and video segments without reading or listening, were also noted.

In summary, AlcoholEdu can enhance students' alcohol knowledge and use of safe drinking practices (including abstaining). However, increased knowledge does not necessarily translate into behavior change. Administrators should be wary of relying solely on this program, as its effects tend to return to baseline by the next semester.[90]

#### TIPS FOR IMPLEMENTATION

Administrators who implement AlcoholEdu should consider combining this program with other prevention and intervention programs in order to have a higher magnitude of effect in the long-term. If used, AlcoholEdu should be supplemented with other strategies to screen, identify, and intervene with high-risk drinkers using appropriate and evidence-based methods.

## ALCOHOL 101 PLUS

#### DESCRIPTION

Alcohol 101 Plus is a web-based program based off the previous CD-ROM-based version, Alcohol 101. This psychoeducational prevention program consists of an interactive format in a "virtual campus" where the student makes choices about social situations involving alcohol, such as at a party, discusses possible consequences, and considers alternatives. Participants might also visit a "virtual bar" that provides information on their estimated blood alcohol concentration based on number of drinks consumed, weight, and other relevant factors. It can include icons that inform students about alcohol refusal skills, consequences of unsafe sex and underage drinking, comparisons of participant drinking with college norms, multiple choice games relevant to alcohol, and depictions of real-life campus tragedies involving alcohol misuse.

#### EVIDENCE OF EFFECTIVENESS

Four studies compared alcohol-use outcomes among students who drink following completion of the computer-based Alcohol 101 program and other in-person interventions, such as brief motivational interview or intervention (BMI), Cognitive Behavioral Therapy (CBT), and brief alcohol screening and intervention for college students (BASICS).[91-94] Participants varied between studies, categorized as either violators of alcohol policy who were mandated to complete education,[91,93] high-risk drinkers seen at the health clinic,[92] or participants from the general student population who reported having at least one drink during the past 30 days. Results showed very few advantages of Alcohol 101 interventions over other programs. Carey et al.[91] found no effect at a one-month follow-up in mandated female students who completed Alcohol 101, aside from a significant reduction of 0.9 points in the Rutgers Alcohol Problem Index (RAPI; a 23-item screening tool for adolescent problem drinking) score, indicating a small reduction in alcohol-related problems. No reduction was found for males. This reduction was not significantly different from that of individuals in the BMI condition, who also saw a reduction in alcohol quantity, frequency, and BAC. Murphy et al.[92] found an average reduction of three drinks per week, but these results were not significantly different from students who received BASICS. However, there was no assessment-only control, so the reduction might not have been an intervention effect.

Another study also found that when compared with BMI, outcomes were similar between groups; both Alcohol 101 and BMI decreased number of drinking days per month by roughly one at the three-month follow-up (1.3 and 0.5 days, respectively), then increased again by 1.14 and 1.63 drinks,

respectively, at 12 months.[93] The only demonstrated advantage of Alcohol 101, according to Carey et al.,[91] was a decrease in alcohol-related problems, as indicated by the RAPI score. Two of the studies found a general return to baseline drinking after 12 months, despite a brief reduction in drinking at the first follow-up.[91,93]

More recent research explores ways to boost the effectiveness of this online intervention. Braitman and Henson[95] emailed personalized boosters, or follow-up messages meant to reinforce the intervention's material, to students who participated in Alcohol 101 Plus. While boosters did not reduce alcohol-related problems, they did result in significant reductions in drinking frequency, heavy drinking days, and peak BAC. Because the assessments only measured this change in drinking behavior during a four-week period, it is unclear how long the effects would last. A similar study found that boosters significantly reduced alcohol consumption among students 21 years and older, but not among underage students.[96]

#### TIPS FOR IMPLEMENTATION

Little evidence is available that supports the effectiveness of this program to change behavior, although the inclusion of personalized feedback and boosters might augment the intervention's impact.

### ALCOHOL-WISE

#### DESCRIPTION

Alcohol-Wise is an online course designed for first-year students and other high-risk groups on college campuses. The program takes between one and two hours to complete and consists of a pre-test of alcohol knowledge, a baseline survey (modeled from eCHECKUP), educational lessons on alcohol, and a post-test of alcohol knowledge. Alcohol-Wise integrates personalized feedback as students navigate through the program. A follow-up survey is administered approximately one month after course completion.

#### EVIDENCE OF EFFECTIVENESS

Three studies on Alcohol-Wise were identified. A randomized controlled trial of 58 undergraduate students assigned to either Alcohol-Wise or a control group found that after one month, freshmen and sophomore students had significant reductions in alcohol use and BAC, but juniors and seniors did not.[97] No significant changes in alcohol expectancies were observed among the participants. Croom et al.[98] examined the short-term effectiveness of Alcohol-Wise among incoming first-year students at two universities. Individuals who completed Alcohol-Wise showed significant increases in alcohol-related knowledge up to one month after the program. However, effects on drinking behavior were mixed; students at one university saw a significant reduction in alcohol use and high-risk drinking behavior, while students at the other university did not. The substantial variation between the campus types in this study makes it difficult to conclude if Alcohol-Wise would be effective at most universities. In a third study among first-year college students, students who completed Alcohol-Wise during their first semester reported higher GPAs compared with the control group.[99] Completion of Alcohol-Wise did not affect alcohol expectancies or the quantity or frequency of alcohol consumption.

#### TIPS FOR IMPLEMENTATION

There is little evidence that Alcohol-Wise results in significant, sustained reductions in alcohol consumption.

## MyStudentBody

### Description

MyStudentBody is an online prevention program that educates students about the consequences of alcohol, drugs, and sexual violence so that they feel confident and prepared about making informed decisions in risky situations.[100] The Essentials Course targets incoming students and the Student Conduct Course is designated for students who violated campus alcohol policies. Both include a variety of audio, video, and interactive tools. A unique feature of this program are additional components designed specifically for college administrators and parents of students.

### Evidence of Effectiveness

Multiple studies have demonstrated that MyStudentBody is effective at reducing alcohol consumption while also employing risk reduction strategies.[101-103] One study found that individuals who participated in MyStudentBody reduced both the quantity and maximum number of drinks consumed on a single occasion within the past week compared with students who read online educational newsletters only.[101]

### Tips for Implementation

There is evidence that MyStudentBody can be effectively implemented on college campuses. This program should be used as a component of a multifaceted approach to reducing excessive drinking and educating students about the risks of alcohol use. Unlike most alcohol education interventions, MyStudentBody can be accessed throughout the entirety of the semester.

# Settings in which to Screen, Identify, and Intervene with High-risk Students

## First-year Orientation

### Theory Behind the Strategy

Orientation week is an influential time in a college student's life as they acclimate to their new environment and socialize with their peers. During this period, students have minimal academic responsibilities and therefore more time to drink heavily, if they choose to do so.[104] While this heavier level of alcohol use might decline following orientation week, this period has the potential to act as a gateway by setting the norm for drinking throughout the rest of the academic term.[105] A study by Riordan et al.[104] found that male students who drank heavily during orientation week were more likely to continue drinking heavily during the semester, even if they were not heavy drinkers prior to college. Some students might enter college with high-risk drinking patterns that began during high school, so screening first-year students is necessary to identify those at highest risk. Orientation week is a critical time to conduct alcohol-based screenings and interventions to identify risky drinking practices early.[106,107]

### Evidence of Effectiveness

Sullivan and Cosden[108] utilized a sample of college students who had been cited with an alcohol violation to examine if high school alcohol use predicted alcohol use patterns during college. A confidential online questionnaire was distributed to these students and contained variables on age of first alcohol consumption, quantity of alcohol consumed during a month in high school and a month in college, as well as how many times they experienced blackouts during a high school month or a college month. The survey contained questions from the Daily Drinking Questionnaire (DDQ), an index to quantify an individual's alcohol consumption in a typical week.

Researchers used risk criteria to categorize students into three High School Risk (HSR) groups (low-HSR: 41%, moderate-HSR: 23%, and high-HSR: 36%). The risk indicators were 1) age of first alcohol use at age 14 or younger, 2) an average number of drinks per week of more than seven for females and 14 for males, 3) a maximum number of drinks per day of more than three for females and four for males, and 4) drank on three or more days per week. Students in the high-HSR group were six times more likely to participate in heavy episodic drinking during college compared with students in the low-HSR group and almost three times more likely than students in the moderate-HSR group. Students in the high-HSR group were also 2.5 times more likely to experience a blackout during college compared with students in the low-HSR group. These results support screening high school students before they start college in order to identify adolescents at high risk for current or future drinking problems.

Findings from a meta-analysis by Scott-Sheldon et al.[109] indicated that individual and group behavioral interventions for first-year college students significantly reduced both alcohol use and problems related to alcohol use with lasting effects up to four years post-intervention. Another study looked at providing a personalized web-based feedback program (eCHECKUP) for students in a first-year seminar as a means to reduce heavy drinking.[110] The sample consisted of low-risk and high-risk drinkers. It was found that high-risk first-year students in the eCHECKUP group reported a 30% reduction in weekly drinking quantity, a 20% reduction in frequency of drinking to intoxication, and a

30% reduction in occurrence of alcohol-related problems (as compared with 14%, 16%, and 84% increases, respectively, among the control group).[110]

A recent study tested the effectiveness of Ecological Momentary Intervention (EMI) and Ecological Momentary Assessments (EMA) on alcohol use during orientation week and the rest of the year among students from two different colleges.[107] EMA's consisted of text messages asking students to report their recent drinking habits, while EMI's involved text messages disseminating messages on problematic alcohol use to students throughout orientation week. At each school, the students were divided into two groups, one which just received EMAs and the other which received both EMA and EMI. At the first college, students in the EMA-EMI group drank 5.8 fewer standard drinks during orientation week and 2.5 fewer standard drinks in a typical weekend during the academic year compared with the EMA-only group. However, no differences in drinking behavior were observed between the two groups at the second college. This incongruity might be due to significantly higher alcohol use prior to attendance at the second college compared with the first.[107]

### Tips for Implementation

Universal screening for early identification of risky drinking practices can be done in a variety of ways, and while it might be ambitious and costly (depending on campus size), it can help students access the services they might need.[106] Online screening during first-year seminar courses or orientation sessions before both the fall and spring semesters can serve as a basis for identifying potential students who are at risk for alcohol-related problems.

## Students

### Theory Behind the Strategy

Empowering students to recognize high-risk drinking among their peers might help them persuade their peers to be screened more formally for an alcohol problem. Preparing students to recognize signs of alcohol problems and to take positive action will result in increased knowledge and awareness to identify those who need help and minimize the "bystander effect," where persons who witness someone in need choose not to help. For situations in which risk is immediate and acute, students should be trained to assess signs or symptoms of alcohol poisoning and what actions can be taken (i.e., call 911 or the health center on campus). Additionally, as they observe their peers over the long term, students can be trained to recognize signs of alcohol dependence and how to facilitate referral to appropriate care as a way of providing support to their peers in a non-confrontational, non-judgmental manner.

### Evidence of Effectiveness

One study revealed that the majority of students report showing helping behaviors and concern for their peers, especially around alcohol poisoning symptoms.[111] In this study, while the majority of students (57.8%) had identified and helped another individual in need, there were still barriers students faced when choosing whether or not to help another. Of those students who reported not helping another student in an alcohol-related emergency ($n$=43), most did not believe that the student was at risk.[111] This study demonstrates the importance of providing alcohol education for students through a variety of sources, including online resources that contain easily accessible information on symptoms of alcohol poisoning with instructions on when and how to help. A later study confirmed this theory, finding that 65% of students reported that they would help in a hypothetical alcohol-related emergency after seeing an online video detailing the symptoms of alcohol overdose and how to help a student in need.[112] This was an improvement over the 57% of

those in the control comparison group who reported that they would help.[112] However, research reveals that many students struggle to correctly identify symptoms of alcohol poisoning.[113]

One particularly effective bystander intervention training is the Red Watch Band at Northwestern University. It teaches students about symptoms of overdose, how to effectively intervene, and the school's alcohol policies.[114] Six months after the training, 94% of students stated that they would help in an alcohol-related emergency. Moreover, there was a 20% increase in the number of students who felt confident in their ability to intervene. Therefore, the participants' augmented knowledge and self-confidence from this training might encourage them to actively intervene in an alcohol-related emergency. Participants of another bystander program, specifically for first-year college students, demonstrated improved self-efficacy and knowledge on how to intervene.[115] Another study found that the self-efficacy built through intervening in a previous alcohol-related emergency increased undergraduate students' likelihood of stepping in during a future event.[116]

Another study measured student blood or breath alcohol levels after referral for emergency medical evaluation, following implementation of a campus policy in which students exhibiting any signs of intoxication were required to be taken to emergency departments.[117] Admissions to the emergency department increased, which is expected, but the average level of alcohol intoxication among students who were admitted did not change. This suggests that the policy funneled more students who were indeed at risk for alcohol poisoning into the emergency department but who might not have come otherwise. These findings are similar to that of a previous study in which admissions increased but average blood alcohol content did not following the implementation of a college-based medical emergency transport service.[118]

### Tips for Implementation

Training students to identify alcohol problems among their peers can be a strategy that not only protects their peers, but helps students recognize any associated alcohol problems they themselves might be facing. Implementing this type of training about warning signs of an alcohol problem, signs and symptoms of alcohol poisoning, resources to help, etc. during orientation and first-year seminar courses can be a significant way to target students as they matriculate into college. For additional information on strategies to educate students about alcohol see Educational Approaches.

## Fraternity and Sorority Life

### Goals

- To increase fraternity and sorority staff and leadership knowledge of the nature and extent of the problem
- To increase their capacity to identify and screen high-risk students and make appropriate referrals
- To increase their ability to manage alcohol-related incidents

### Theory Behind the Strategy

It is widely known that heavy alcohol use and subsequent problems occur at Greek parties and affiliated housing. Members of Greek fraternities are at higher risk for substance use, binge drinking, and alcohol use disorder compared with their college peers and these alcohol-related issues might not end after graduation.[119] Training key individuals, such as chapter leaders and risk managers, as well as instituting a variety of risk management practices can address these issues. Chapter leaders influence the drinking culture and norms for the rest of the members and risk managers are in charge

of upholding policies during events and promoting responsible behavior.[120] Good server training and management risk training can reduce the prevalence of service to underage people and to intoxicated patrons. These types of trainings can include education about the warning signs and effects of risky behavior and how to respond in these situations.

### Evidence of Effectiveness

While there is little research on specific training for leaders in the Greek system, training for members has the potential to reduce problem drinking and to manage liability. Scott-Sheldon et al.[121] reviewed 21 alcohol interventions among college student members of Greek organizations. The methodology of these studies was weak to moderate. On the whole, interventions targeting members were not successful, and some were even counterproductive—these included moderation strategies, goal setting, and skills-training. However, interventions that addressed alcohol expectancies appeared more promising and the authors recommended that Greek-oriented interventions incorporate this strategy.

A review of several studies found that individual-level interventions are effective among fraternity and sorority members.[122] Larimer et al.[123] found that an intervention incorporating skills that promote moderation of drinking using principles of MI led to significant reductions in alcohol use among pledge class members as compared with the control group.

As one example, the University of Michigan (UM) has had much success in providing risk management training to leaders in their Panhellenic student groups. According to UM's 2010-2011 annual report, various trainings were provided during the school year, including alcohol education and risk management best practices through service as sober monitors at social events.[124] This education was provided through a partnership between Greek Life and the University Health Services. The sober monitor training has been a continued success for the past several years at UM.

O'Brien et al.[125] studied alcohol-related injury among Greek-affiliated students and confirmed previous findings that these individuals are at increased risk for alcohol-related injury. The authors suggest that both pledges and members be screened during routine visits to campus-based health care services in addition to suggesting that campus health and counseling centers conduct targeted outreach to fraternities and sororities.

Faculty advisors can also play a role in monitoring problematic alcohol use among fraternities and sororities. According to Rosenberg and Mosca,[126] faculty advisors should be actively involved in enforcing policies and building lines of open communication and mutual respect between chapter members and staff. These relationships can reduce the risk for substance abuse and create transparency as well as instill a cautious attitude among Greek members.

### Tips for Implementation

Training risk managers and campus staff can be a significant way to reduce heavy drinking and associated consequences among students affiliated with an organization. Providing training to a select group of members from each chapter on campus can be helpful in setting risk management policies within each group, as well as teaching strategies to detect alcohol problems, overconsumption of alcohol, and alcohol-related problems. This type of training can happen throughout the year, especially for groups that have frequent events. Interventions that are briefer, less than one hour, and incorporate alcohol expectancy challenges are more successful at reducing heavy drinking behavior.[121]

## Primary Health Care

### Theory Behind the Strategy

According to the American College Health Association (ACHA), college students visit their university health clinic approximately 1.2 times a year.[127] However, a Centers for Disease Control and Prevention (CDC) report found that only one in six U.S. adults discussed alcohol use with their health providers.[128] Due to their contact with students at risk for alcohol-related problems, training is recommended for physicians and other allied health care professionals who work in university health settings to ask students about their alcohol use patterns as a routine part of care, and intervene when excessive drinking is detected. The U.S. Preventive Services Task Force (USPSTF) recommends that "clinicians screen adults aged 18 years or older for alcohol misuse and provide persons engaged in risky or hazardous drinking with brief behavioral counseling interventions."[129]

Integrating questions about alcohol use into routine health care visits and emphasizing that all students are asked about their alcohol use can help reduce stigma by placing alcohol use on par with other behaviors that affect health, like eating habits and seat belt use. Alcohol use is associated with a wide range of health consequences, such as decreased immunity, sleep problems, depression, anxiety, and other mental health conditions. Research has also shown that individuals who engage in alcohol use early in life (younger than 14 years old) are more likely to report heavy alcohol use and a greater number of alcohol-related problems such as driving under the influence, unintentional injuries, and alcohol dependence.[130-133] Therefore, asking students in a clinical setting the age at which they first began drinking alcohol can be an effective method of quickly identifying high-risk students.

Training should include information on the extent to which alcohol use might be a contributor to the health care complaints of the patient. Physicians and other medical professionals are in a position of professional authority and their messages might be taken more seriously by patients, although this principle might not be as true in the case of young adult college students, who are likely to question authority and feel invincible.

### Evidence of Effectiveness

Physician-delivered advice and brief interventions can be successful in clinical practice settings.[134] Helmkamp et al.[135] demonstrated not only the feasibility of primary care screening, but also found that 96% of participants who screened positively for alcohol dependence after an emergency department visit accepted counseling during their visit. Additionally, participants indicated at follow-up that they found the counseling interventions helpful and displayed significantly lower Alcohol Use Disorders Identification Test (AUDIT) scores on all three domains: alcohol intake, alcohol-related harm, and alcohol dependence.

Angelini and colleagues[136] found that, specifically among college women, prevalence of screening and brief interventions were low in college health centers despite a high prevalence of substance use. Amaro et al.[137] showed that the brief alcohol screening and intervention for college students (BASICS) can be delivered effectively within the university health care center. Among students with problematic substance use, attending two sessions of BASICS at the university health center was associated with reductions in both quantity and frequency of alcohol and other drug use between baseline and six-month follow-up, including a 17% decrease in their weekly heavy episodic drinking during the past month.[137] Similarly, in another study of students who screened positive on the AUDIT and received a basic intervention, drinks per week during the past 30 days were reduced by almost

four, peak drinking during the past 30 days was reduced by more than one drink, and number of heavy episodic drinking occasions during the past two weeks was reduced by almost one.[138] The AUDIT-C is a three-item tool that is often used in primary health care settings. Campbell et al.[139] were the first to study AUDIT-C in a university health care setting and found that it was a useful and effective screening tool. It is recommended that males and females be scored with separate cut-off scores to assess problematic alcohol use.[139]

Schaus et al.[140] found that among students at a university health center who displayed risky drinking behaviors, those who received two brief motivational interview (BMI) sessions displayed significant reductions over time in drinking behavior outcomes as compared with a control group. More specifically, average number of drinks per week fell by an average of 2.2 drinks among the intervention group compared with 0.7 drinks among the control group at six-month follow-up. These studies provide evidence that interventions delivered by providers within a primary care/health center are effective in reducing negative alcohol behaviors and associated harms, especially among those who are high-risk drinkers.

The ASSIST-FC (Alcohol, Smoking, and Substance Involvement Screening Test – Frequency and Concern Items) was developed by the World Health Organization (WHO) and has been adapted from the full-length ASSIST as a means to conduct a brief screening in a clinical setting.[141] Although the ASSIST-FC has not yet been evaluated in a clinical setting, it is expected to be as reliable, valid, and predictive as the full-length ASSIST. It might be advantageous to integrate into primary health care settings when a brief substance use screening tool is required.

### Tips for Implementation

Having students complete computerized self-assessments prior to the appointment saves time and perhaps increases the veracity of the patient's information. The report can then be transmitted to the provider immediately before his/her interaction with the patient.

Creating on-campus opportunities to train physicians and other health center personnel can increase their level of comfort with discussing alcohol use, as few medical schools and residency programs provide comprehensive training on assessment and intervention of substance use. Such trainings should provide research-based information on the connection between alcohol use and several common health complaints of students to help physicians see the value of addressing alcohol use as part of their plan to improve student health.

As mentioned previously, the USPSTF published recommendations in 2013 stipulating that "clinicians screen adults aged 18 years or older for alcohol misuse and provide persons engaged in risky or hazardous drinking with brief behavioral counseling interventions to reduce alcohol misuse," based on sufficient evidence of the benefits of this approach.[129] This web resource can be used to advocate for screening in health centers.

## Counseling Centers

### Theory Behind the Strategy

According to the American College Health Association (ACHA),[142] 71% of college students report feeling very sad, 56% report hopelessness, and 66% feel overwhelming anxiety during the course of a year. Mental illness and alcohol use disorders frequently co-occur, and college students experiencing poor mental health are at a greater risk for alcohol-related harms.[143] Alcohol use has also been shown to exacerbate mental health disorders and lengthen their duration.[144] Counseling

centers are therefore an ideal location to screen students for excessive drinking and other substance use to understand the connection of these behaviors to mental health symptoms.

### Evidence of Effectiveness

Each year, about 10% to 15% of college students seek assistance from university counseling centers.[145] These services are a vital resource for students facing significant life stressors or psychological disturbances. Counseling centers also serve to reduce stigma, offer interventions, encourage student help-seeking, and refer students to other resources. Students who utilize counseling services are more likely to graduate within six years than students who do not.[145]

#### Key Terms

**Motivational interviewing (MI):** A clinical approach that is used for many different types of behavior change.

**Brief motivational interview or intervention (BMI):** A short conversation (15 minutes or less) that is directed at a specific type of behavior change using MI principles, in this case college student drinking.

**Brief alcohol screening and intervention for college students (BASICS):** A program that uses MI approaches to reduce college student drinking behavior.[146]

Students might benefit from counseling focused on alternative skills to handle internal and external stressors. These coping skills can be reinforced during brief interventions at a campus counseling center.

A study by the UCLA Access to Care project[147] used the ASSIST (Alcohol, Smoking, and Substance Involvement Test) to screen for substance use in a college counseling center. Students who scored 11+ points on the alcohol portion of the ASSIST received a brief intervention. The intervention involved MI techniques to encourage help-seeking and student self-efficacy as well as provide feedback on the student's substance use behavior. At six months after the intervention, students who had received the intervention reduced their binge drinking and cannabis use by 5% to 7%.

### Tips for Implementation

The ASSIST pilot study supports routine screening and brief interventions for substance use within campus mental health services. Counselors are in an ideal position to identify and intervene with students at risk for substance use issues because of their access and their ability to meet with students on an ongoing basis.[147]

Due to the frequently co-occurring nature of mental illness and substance use, collaboration between counseling and health centers might be useful in assisting students who could benefit from both levels of care. According to the ACHA,[148] merging mental and physical health services is an important way for colleges to provide more holistic services to students and to improve the overall health and wellbeing of the campus community.

## Student Conduct

### Theory Behind the Strategy

Self-initiated reductions in drinking can be cued among students who are sanctioned for violating campus alcohol policies and referred for intervention. Consistent enforcement of policies and sanctions for students who violate alcohol policies is associated with lower prevalence of excessive drinking.[91] There is general consensus of a "mandate effect"—reductions in drinking occur simply

because the student has been mandated to receive something. Being mandated to receive an intervention after a policy violation should be viewed as a "teachable moment" instead of a punishment.

### Evidence of Effectiveness

Several studies provide strong evidence for the effectiveness of mandated interventions for students sanctioned for alcohol policies.[91,149-152] Studies that utilize a no-intervention control group are not possible for ethical reasons. Usually, a two-group or pre-post design is used. Sometimes a "delayed" control is used, in which the control group receives the treatment or intervention later than the intervention group. A 2016 meta-analysis of alcohol interventions among mandated college students found that BASICS and eCHECKUP were effective in reducing alcohol-related risks in the short term.[153] Terlecki et al.[150] found BASICS to be effective in reducing drinking and related problems at one-year follow-up among both heavy-drinking mandated students as well as undergraduates who volunteered to participate. Another study found significant reductions in alcohol-related consequences from baseline to three months and then again from three months to six months for BMI interventions compared with the usual services for mandated students.[151]

According to Doumas et al.,[149] mandated students who received counselor-delivered personal feedback showed a nearly two-drink reduction per week at an eight-month follow-up compared with the almost three drink increase per week among those who received self-guided written feedback. Although both groups increased their past two-week heavy drinking, the increase in the counselor-delivered personal feedback group was significantly less than those who received self-guided written feedback

The use of technology has also been studied as a booster to face-to-face alcohol interventions. One example is sending text messaging to mandated students asking questions about weekend plans, drinking-limit goal commitment, and alcohol consumption.[154] One study found that a text message program resulted in significant reductions in weekend binge drinking and overall alcohol consumption, with participants responding to 90% of text messages sent by the research team.[154]

### Tips for Implementation

The first step of any mandated program should be a comprehensive assessment of drinking history, current behavior, and problems. Several instruments are available for this purpose. Detailed information about drinking history can flag individuals who are at higher risk than others. Moreover, information should be gathered regarding current problems experienced by the student, such as academic difficulties, health problems, or feelings of depression or lack of motivation. This sort of information related to risk factors and current problems that might be associated with alcohol use can be useful to clinical staff during a brief intervention.

## Academic Assistance Centers

### Theory Behind the Strategy

There is a strong link between excessive drinking and academic performance problems, including lower grades.[68,155-157] Excessive drinking undermines the learning process in at least two major ways. First, simply the time spent drinking detracts from the time spent on more productive activities, such as studying. Second, students who drink excessively are more likely to skip class and might also experience concentration and memory problems associated with heavy drinking.[68,157] Academic assistance centers aim to strengthen skills like time management and study habits. Excessive drinking should be discussed as a potential barrier to academic functioning.

Students who are receiving academic assistance have taken an important step that demonstrates openness to ameliorating the obstacles to their personal academic success—whether they were referred by someone else or themselves. These students are in a uniquely "teachable moment" with potential to stimulate self-reflection and behavior change in multiple domains of their life. Academic counselors should take advantage of this opportunity to identify students whose drinking habits might be having a negative effect on their grades and refer them as needed for a more comprehensive assessment.

### Evidence of Effectiveness

At this time, few schools are implementing screening for excessive drinking within academic assistance centers, and therefore little is known about the effectiveness of this strategy.

### Tips for Implementation

Staff working in academic assistance centers could be trained to administer a simple screening instrument to students at the time of intake. Similar to health care settings, where staff time is valuable, it might be less costly to have students complete computerized self-assessments prior to the appointment. Transmitting the report to the staff member immediately prior to the appointment might alleviate any discomfort with having to directly ask about the student's alcohol use.

Creating on-campus opportunities to train academic assistance personnel about how to discuss alcohol use can increase their self-efficacy in addressing this issue with college students. Training should include research-based information on the connection between alcohol use and academic performance, which will help academic counselors see the importance of addressing alcohol use as part of their plan to help the student improve his/her study habits and overall academic performance.

# Clinically-based Interventions

## Strategy: Utilize Cognitive Behavioral Therapy

### Theory Behind the Strategy

CBT is grounded in the idea that thoughts play a central role in behavior. It is a general clinical strategy that teaches skills to modify one's beliefs. Working with a clinician, a student begins to understand how s/he might be relying too much on assumptions rather than carefully evaluating whether or not something is true. By identifying "automatic thinking errors," the student can begin to change the way they are thinking about something and subsequently change their behavior as a result. For example, a student might be thinking that drinking alcohol is necessary to reduce stress or to feel more socially comfortable. By questioning these sorts of assumptions, a student can change his/her drinking behavior.

### Evidence of Effectiveness

There is a wealth of scientific evidence supporting the use of CBT for a variety of psychiatric disorders, including substance abuse and dependence. If applied with fidelity in a sufficient number of sessions, CBT is considered to be one of the most effective counseling strategies for changing behavior. In a college setting, however, single sessions might be more feasible than multiple sessions. Samson and Tanner-Smith[158] reviewed evidence on various single-session intervention approaches for heavy-drinking college students, including CBT, psychoeducational approaches, MI, and personalized feedback. Effect sizes for interventions using CBT were not significant, and the authors concluded that findings were inconclusive due to a large standard error, possibly because of variation in how CBT was implemented in the individual research studies. CBT appears to be better suited for students with alcohol dependence because of its more intensive multiple-session approach, whereas a single session intervention might be more appropriate for students who are at risk for developing dependence.

Kiluk et al.[159] investigated the efficacy of computer-based CBT for treatment-seeking individuals who were diagnosed with an alcohol use disorder. Participants were divided into three groups: standard treatment as usual, standard treatment plus an online CBT program, and the CBT program with clinical monitoring. The researchers found that CBT resulted in higher treatment retention rates and, when paired with monitoring, lower costs. Furthermore, the participants who received the combination of standard treatment and CBT reported the greatest increase in days abstinent from alcohol.

### Tips for Implementation

As stated previously, CBT is most appropriate for students at the highest level of severity of drinking problems. CBT is best applied in clinical settings with health professionals who have received special training. If resources allow, schools can have a number of staff trained in CBT for the most severe cases but also have a referral mechanism to others in the community who are extensively trained and provide CBT. Interventions utilizing MI, which are described next, can be used for students whose drinking problems are not as severe.

## Strategy: Utilize Motivational Interviewing

### Theory Behind the Strategy

MI in a college setting can be viewed as a "collaborative conversation" between a student and a health professional. The goal is to identify and capitalize on the student's ambivalence about their drinking behavior. By listening very carefully to how a student describes his/her drinking behavior, a clinician can reflect the student's own words to elicit internal motivations to change behavior. The students can express themselves through "change talk," in which they discuss their desire or purpose for change. Alcohol use is assessed with nonjudgmental feedback, and then the clinician provides suggestions for behavioral options without confrontation.[160]

MI is based on three core assumptions: 1) the individual is ambivalent about the need to change their drinking behavior, 2) reduction in the behavior might be more acceptable to the person than abstinence at least in the short-term, and 3) students have the motivation and the skills to use drinking reduction strategies.[161] Among college students, MI is generally used in the context of a brief motivational intervention (BMI). BMIs can be a one-on-one session between the student and a counselor, health professional, or a computer program. They generally last for one hour or less. BMIs often assess the student's drinking patterns to construct a personal drinking profile (e.g., quantity-frequency consumed, peak blood alcohol level, amount of money spent on alcohol, caloric intake), engage the student in a normative comparison exercise (e.g., beliefs about peers' drinking, amount consumed in relation to peers), and use a non-confrontational MI style approach to behavior change.

### Key Principles of Motivational Interviewing

**Express empathy:** This helps establish a rapport between the participant and the counselor. It shows acceptance of the participant, which plays a role in the participant increasing their self-esteem.

**Develop discrepancy:** The counselor should help the participant realize that their present situation does not match up with their values or goals for the future. Recognizing this discrepancy can motivate the participant to change.

**Roll with resistance:** If the participant becomes argumentative or resistant, the counselor should try responding in a different way. The counselor should never argue back.

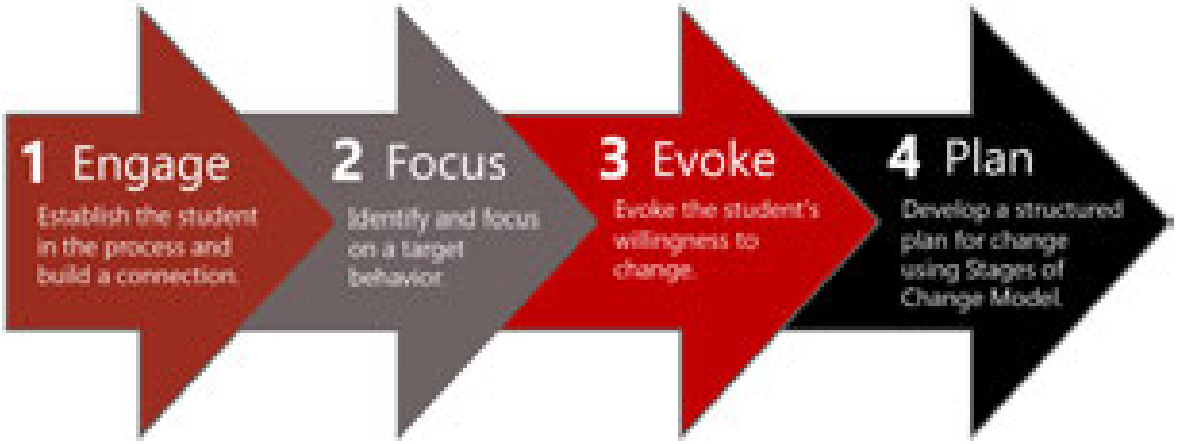
**Support self-efficacy:** The counselor should show the participant that the counselor believes they are capable of change. A participant will not change unless they believe they are able to carry out the change.

### Evidence of Effectiveness

There is a wealth of scientific studies that support using MI to change behavior, many of which have been conducted with college students. MI can effectively reduce both alcohol and drug use,[162] as well as negative consequences such as blackouts.[163] Many factors influence effectiveness, including the number of sessions, the type of training that the interviewer has received, and whether there are follow-ups. Research has shown that face-to-face interventions are more effective when they include personalized feedback, discussion of risks and problems, normative comparisons, moderation strategies, challenging positive alcohol expectancies, and blood alcohol concentration (BAC) education.[164]

Carey et al.[152] examined the demographic, personality, and cognitive factors that influenced how mandated students will respond to a BMI. The study found that being male, having a "fun-seeking" disposition, and having more perceived cost and fewer perceived benefits of change were related to less change in alcohol use after an intervention.[152] These characteristics are important to keep in mind when predicting if a student requires a more tailored BMI. A meta-analysis by Samson and Tanner-Smith[158] found that interventions using MI approaches had the most impact on alcohol use behaviors. Multiple studies show that MI appears to be effective when used alone, compared with other interventions like CBT, or psychoeducational therapy.[158,165]

**Figure 2. Motivational Interviewing Process[161]**




A review by Carey et al.[164] found that face-to-face interventions for college drinkers were more effective at producing long-term changes, whereas the computer-delivered interventions were associated with decreases in alcohol quantity and frequency that were limited to short-term follow-ups. In another study, Yurasek et al.[166] found that students receiving a single session of in-person BMI reported significantly fewer alcohol-related issues compared with students who received only an assessment of their drinking. BMI effectively reduced perceptions of average student drinking, which reaffirms the importance of focusing on typical norms and expectancies.

Brown et al.[167] found that among individuals who engaged in substance abuse and were in psychiatric hospitalization, those who received MI decreased their total substance use and experienced a longer period of abstinence following the sessions compared with individuals receiving standard treatment.

#### TIPS FOR IMPLEMENTATION

It is important for professionals who deliver brief interventions to think creatively about how they can optimally connect with a student in order to motivate them to change the way they view alcohol as a part of their life. Bernstein et al.[168] recommends matching treatment intensity with each student's level of alcohol involvement, such as offering high-risk drinkers individual BMIs while low-risk drinkers could participate in group BMIs. Information gained through brief motivational interviews, starting even before enrollment in college, can help professionals tailor interventions to the student's unique circumstance.[169]

The intervention will be enhanced if the professional can help the student draw connections between his/her behavior and the achievement of a goal with particular salience for that individual. A short-term goal might be to increase the number of abstinent days during the coming month and to monitor one's progress toward that goal with an electronic diary.

Peer counselors might be trained to effectively provide individual skills-based or motivational enhancement interventions to change college students' drinking behaviors although the professionals might be more knowledgeable and have better skills.[106,170]

## Incorporating Affirmations

The effectiveness of MI could be improved by including aspects of self-affirmation theory in which professionals focus on providing complimentary comments that show confidence and support in the student's ability to make change.[171] This theory encourages individuals to focus on beliefs or characteristics that are important to them, and thus reduces the likelihood that individuals become defensive. Self-affirmation exercises are recommended at the start of an intervention to reduce resistance and improve communication. Affirmation is one of the most effective techniques a clinician can use to evoke "change talk" rather than resistance.[172] Use of affirmations is particularly appropriate when the student is feeling ambivalent about making behavior change.

### Evidence of Effectiveness

Apodaca and colleagues[172] examined the types of therapist behaviors that elicit change talk or sustain talk (i.e., expressing desire to continue current behaviors) from their clients during MI sessions. Affirmations were the only method that increased the likelihood of change talk and decreased the likelihood of sustain talk from a client. Only 5% of clients expressed sustain talk directly after self-affirmation strategies were used compared with 20% after open questioning behaviors were used. Self-affirmation not only positively affects intentions to change, but also affects actual modification of behavior. In a study of 45 female university students examining weight loss behavior,[173] after two and a half months, those in the self-affirmation condition had an average weight loss of 3.41lbs compared with an average gain of 2.76lbs among the control group.

## Incorporating Personalized Feedback

Personalized feedback can be generated based on a discussion during an in-person intervention. This technique involves discussing a student's alcohol use risk status as well as comparing a student's drinking behaviors with the norm among their peers. This feedback can then be reviewed with the counselor or given to the student to take home. Alternatively, students can complete an online screening, which then provides a personalized feedback for the student to review. A counselor or physician can then meet with the student to review the personalized feedback, often using the principles of MI.

### Elements to Include in Personalized Feedback

- Comparison of the participant's amount of drinking with peers (e.g., "Percent of female college students who drink less than you in a typical week: 74.5%.")
- BAC information (e.g., "Your typical BAC is 0.12 and your highest BAC is 0.16.")
- Financial costs (e.g., "In a typical month, you spend $281.35 on alcohol.")
- Physical costs (e.g., "Your estimated caloric intake from alcohol during the past month is 7,226 calories. This is equivalent to 21 cheeseburgers or 27 hours on the treadmill.")

#### Evidence of Effectiveness

Doumas et al.[149] found that counselor-guided personalized feedback was more effective than self-reviewed personalized feedback at decreasing the mean number of drinks per week and binge drinking episodes during the past two weeks. For example, mandated students who completed a counselor-guided web-based feedback intervention reduced their weekly drinking quantity by about 17% at follow-up, or an average of two drinks per week. Students who completed a self-guided web-based intervention increased use by about 34%, or three drinks per week. A subsequent study by Doumas et al.[174] found that first-year college students who completed a web-based personalized feedback program had fewer sanctions for campus alcohol policy violations compared with an assessment-only control group. Teeters et al.[175] used personalized feedback in a text messaging-based intervention to reduce college drunk driving. Students who received the intervention reported significantly fewer incidents of driving after drinking and consumed less drinks than students who did not receive the intervention.

Face-to-face personalized feedback significantly reduced weekly drinking quantity and peak blood alcohol concentration in an intervention among high-risk drinking college students.[176] In that study, a computer-delivered personalized feedback intervention with a video interviewer was not associated with significant reductions in drinking. Another study of incoming first-year students found that a computer-delivered personalized feedback-only program was more effective at reducing alcohol use than personalized feedback that included descriptive social norms, although both programs were effective overall.[177]

Researchers are currently investigating new methods to increase the efficacy of personalized feedback. Boyle et al.[178] "gamified" personalized feedback by creating an online game containing the questions and personal feedback slides of a traditional online survey. Individuals who viewed the gamified intervention significantly decreased drinking norms and alcohol consumption in comparison with the control group. These findings illustrate that personalized feedback could be improved by incorporating gamified elements, such as personal icons and points.

## Using Decisional Balance Exercises

Decisional balance exercises require students to write down the pros and cons of changing and not changing their drinking behavior and to evaluate their motivation to change.[179] Decisional balance exercises can be done with or without the assistance of a counselor.

#### Evidence of Effectiveness

Carey et al.[164] found that decisional balance exercises were not effective components of either face-to-face or computer-delivered interventions targeting college students. Specifically, face-to-face interventions that included decisional balance exercises were less effective at reducing quantity of alcohol use than interventions that did not include an exercise, though authors caution that this

finding was based on few studies and future research is needed to determine if the approach is ineffective. Participants who received computer-based interventions using decisional balance exercises were less likely to reduce the amount of alcohol consumed both per week/month and per drinking day. Similarly, Walton et al.[180] found that decisional balance exercises were ineffective for individuals who were ambivalent regarding their problems and need for change. The exercises were associated with students' talking about why they are unable or unwilling to change their harmful mindset or habits ("sustain talk").

Collins et al.[181] examined students engaged in decisional balance exercises around current drinking and movement towards reducing drinking. In this study, students who engaged in weekly heavy episodic drinking completed a decisional balance worksheet. Decisional balance scores reflecting greater movement towards change best predicted reductions in heavy drinking quantity and frequency as well as alcohol-related consequences.[181] While these effects diminished by the 12-month follow-up, the study suggests that decisional balance scores are a valid measure of motivation to reduce drinking and related harms. A related qualitative study found that a worksheet with an open-ended decisional balance exercise might be better suited for college students than worksheets using Likert-scale questions (e.g., using a one to five "Disagree" to "Agree" scale). The open-ended version of the decisional balance exercise is more personalized and a more accurate representation of what college students believe is beneficial or detrimental about changing their drinking habits.[182]

## Strategy: Challenge Expectancies

### Theory Behind the Strategy

Many college students are under the impression that alcohol use has a number of social benefits, including an increased sense of wellbeing and relaxation, being more socially comfortable, and feeling more attractive. However, research shows that there is a strong "placebo effect" for alcohol; individuals who believe they are drinking alcohol but actually receive a non-alcoholic drink will often report the same positive benefits from drinking. Alcohol expectancy challenge (AEC) programs "challenge" these assumptions about drinking (see Bar Lab Experiment).[183-185]

Individuals with stronger expectancies about alcohol might be more at risk for excessive drinking. Stamates et al.[186] examined the relationship between individuals who were first intoxicated earlier in life and alcohol expectancies. More experienced drinkers were found to have stronger beliefs, either positive or negative, related to drinking which was associated with heavier alcohol use and related problems.

### Evidence of Effectiveness

AEC is an important component of effective interventions.[109] One study compared the drinking behavior of college students assigned to an AEC or a control group.[183] Using the Alcohol Expectancy Questionnaire (AEQ) to measure beliefs about outcomes of alcohol use, the researchers showed that the perceived positive effects of alcohol were decreased in the experimental group as compared with controls. Wood et al.[185] found that effects lasted three months post-intervention but diminished by six months. On the other hand, Tanner-Smith and Lipsey[187] found in a recent review that the effectiveness of these interventions could last up to one year.

Another study randomly assigned participants to one of four conditions: BMI, AEC, BMI and AEC combined, and an assessment-only control group.[185] While BMI produced significant decreases in all drinking outcomes, AEC significantly decreased total drinks during the past 30 days and frequency of

heavy episodic drinking during the past 30 days. AEC conditions showed intervention effects after three months, but these gains disappeared completely after six months. This study shows the effectiveness of AEC in the short term but demonstrates the need for it to be accompanied by booster sessions.

### Tips on Implementation

AEC programs can be an effective intervention to reduce alcohol consumption,[188-190] but use of these techniques in the "real world" should be carefully considered. Conducting an AEC program on its own in a social setting like a residence hall could result in 1) students using the opportunity to "pregame" further drinking, 2) students realizing how easy it is to mislead someone about what substance has been given to them and, 3) students internalizing that the organizer of the AEC (e.g., RA) is less honest than previously thought. AEC interventions are most effective when included as a component of a motivational framework. For example, a student's self-efficacy to reduce their alcohol consumption might be bolstered through an AEC if they no longer believe that the positive effects they feel when drinking are unattainable without consuming alcohol.

## Strategy: Challenge Norms

### Theory Behind the Strategy

College students often hold inaccurate beliefs regarding what is "normal" or typical alcohol use. Many individuals overestimate how much alcohol their peers consume in a sitting or how frequently their peers drink.[191] On the other hand, students regularly underestimate the harms of alcohol or how many students abstain from drinking alcohol. These misconceptions contribute to the belief that drinking is a normal, acceptable activity in which most college students participate. A study by Dumas et al.[192] found that when university students overestimated how much their peers drank, they subsequently increased their own drinking. Brie et al.[193] found that individuals who believed their friends approved of alcohol were more likely to exhibit riskier drinking behavior.

### Evidence of Effectiveness

The Challenging College Alcohol Abuse (CCAA) intervention aimed to reduce drinking on the University of Arizona's campus by correcting students' misperceptions of alcohol use on campus.[194] Researchers collected and then publicized university-specific statistics about students' frequency and quantity of alcohol consumption as well as their attitudes. Before and after the intervention was implemented, students living in residence halls and Greek Life-affiliated housing were asked about their perceptions of their peers' alcohol use. The proportion of students who thought that "most college students have five or more drinks when they party" and that "most college students are not interested in alcohol-free events" significantly decreased during the two-year program.

Other research has focused on the efficacy of social norms marketing campaigns. DeJong et al.[195] studied the impact of a campaign correcting misperceptions about college drinking. Students exposed to the campaign drank an average of 0.73 fewer drinks and had a lower average BAC. Mattern and Neighbors[196] implemented a similar social marketing campaign among residence halls. The study showed that the campaign reduced individuals' alcohol use as well as their impressions of how frequently and how much other students drank. Another study showed that Facebook® can also be an effective platform for a social norm intervention among college students.[191]

### Tips for Implementation

Programs should focus on correcting the exaggerated beliefs students hold about their peers' alcohol use and attitudes. Universities should collect accurate and current data from their student populations regarding their use and perceptions. By publicizing this information, colleges could present the discrepancy between perceived and actual frequency of use, severity of alcohol-related consequences, and others' approval of excessive drinking in an effective and engaging way.[197] The use of social media has been shown to be an effective platform for intervention and has potential to reach a wider audience due to college students' strong online presence and use of smartphones.[191]

## Strategy: Utilize the BASICS Program

### Theory Behind the Strategy

The Brief Alcohol Screening and Intervention for College Students (BASICS) program follows a harm reduction approach using MI techniques. BASICS aims to motivate students to reduce alcohol use in order to decrease the negative consequences of drinking.

BASICS is a program that is conducted during a period of two 50- to 60-minute sessions.[146] These sessions include an assessment (or self-report survey) in which the student provides information about his/her current and past alcohol use and attitudes toward alcohol. This assessment information is used to provide personalized feedback around ways to minimize future risk and options for behavior change. The personalized feedback often includes clarifying perceived risks and benefits of alcohol use and comparisons of personal alcohol use to campus- and gender-specific norms. A web program based on BASICS, MyStudentBody.com, has also been developed.

### Evidence of Effectiveness

Several studies have shown that high-risk drinkers participating in BASICS reduce the amount they drink significantly both in the short and intermediate term following intervention.[123,160,198] A study by Borsari and Carey[160] found that compared with the control group, students receiving BASICS drank fewer drinks per week, drank less frequently during the past month, and reduced the frequency of binge drinking during the past month. The number of drinks per week decreased from 17.6 at baseline to 11.4 at follow-up for the intervention group, at the same time that it fell from 18.6 to 15.8 for students in the control group. Drinking occasions per month for the intervention group decreased from 4.4 to 3.8 while the controls remained stable (4.5 to 4.6). Heavy episodic drinking occasions per month decreased for the intervention group from 3.2 to 2.6 and for the controls, from 3.5 to 3.4. A meta-analysis by Carey et al.[153] found that BASICS was effective in reducing alcohol-related risks in the short term among mandated students who violated alcohol policies. Similarly, Linowski et al.[199] investigated the effect of BASICS and a follow-up electronic booster session on mandated students' alcohol consumption. Participants experienced significant reductions in the typical number of drinks consumed per week, typical BAC, and number of binge drinking occasions. However, the electronic booster session at three-months post-intervention was not associated with any further reductions in drinking.

In a randomized trial to assess whether the BASICS program was as effective for heavy-drinking undergraduates who were mandated versus those who volunteered to participate, researchers found BASICS was associated with significantly fewer alcohol-related problems one year post-intervention regardless of why they participated.[150]

## Strategy: Utilize eCHECKUP TO GO

### Theory Behind the Strategy

Based on MI and social norms theory, the eCHECKUP TO GO program (formerly known as "eCHUG") is a personalized, online prevention intervention that has separate curricula to address alcohol and cannabis use as well as other health behaviors. It is designed to motivate individuals to reduce their use using personalized information about their substance use and risk factors associated with use.

### Evidence of Effectiveness

Research studies have compared alcohol outcomes between first-year students receiving eCHECKUP and an assessment-only control group and observed a significant reduction in the mean number of drinks per week for students who received eCHECKUP. One study[89] found a reduction of 1.43 (with an increase of 6.33 for the control group) at one month post-intervention. The second, by Doumas et al.,[200] observed a decrease in mean number of drinks per week of 0.6 at three months post-intervention, compared with an increase of 0.3 for the control group. Murphy et al.[201] found that college students who received either a BMI or eCHECKUP intervention were more likely to decrease their alcohol consumption than the control group. However, those who received BMI maintained the lowest prevalence of use, illustrating the persisting effects associated with in-person interventions.

Another study tested the effectiveness of eCHECKUP among first-year students when added to existing alcohol education programs (Alcohol 101 and CHOICES).[202] The four intervention groups included: 1) Alcohol 101 + eCHECKUP, 2) Alcohol 101 alone, 3) CHOICES + eCHECKUP, and 4) CHOICES alone. Those in the combined eCHECKUP conditions consumed fewer drinks per hour (an average of 0.4 drinks) compared with curriculum conditions without eCHECKUP (an average of 1.3 drinks) at a four-week follow-up. This study did not have a control group, so researchers were unable to conclude that eCHECKUP is effective as a stand-alone intervention for this population; rather, beneficial effects might result when it is used in combination with other education programs.

eCHECKUP has been found to be more effective among heavier drinkers than lighter drinkers in a study that compared eCHECKUP with a control condition among first-year students.[203] Among mandated students, eCHECKUP did not significantly decrease alcohol use when compared with BASICS and CHOICES, but it did significantly decrease alcohol-related harms.[204] Failure to produce reductions in alcohol use might be attributed to the inability to verify that students reviewed the personalized feedback content provided in eCHECKUP. However, the success of eCHECKUP on reducing alcohol harms might be related to the non-judgmental tone of the feedback and provision of safer drinking and driving strategies (e.g., referral information to designated driver programs).

One study compared the drinking behavior of mandated students who received eCHECKUP with either self-guided feedback versus counselor-delivered feedback.[205] Students who received eCHECKUP with self-guided feedback reduced their drinking by about one drink per week. Students who received counselor-guided feedback saw a decrease of about five drinks per week.

### Tips for Implementation

eCHECKUP is self-guided and takes about 20 to 30 minutes to complete. Students can complete a personal check-up on multiple occasions to track changes about their use and risk behaviors. If a counselor wishes to use the program in conjunction with face-to-face contact, the counselor can ask the student to complete the companion Personal Reflections program. This feature requires an additional 15 to 20 minutes and asks students to respond to questions designed to further examine their personal choices and the social norms surrounding and influencing their use of substances.

## Addressing Alcohol as a Contributor to Sexual Assault

### Theory Behind the Strategy

Sexual assault is a serious public health concern, and experiencing a sexual assault can raise the risk for experiencing depression, post-traumatic stress disorder, and academic performance problems.[206,207] It is estimated that 19% of women and 6% of men experience some form of sexual assault during their four years in college although some sources estimate it to be higher.[208] For example, a 2017 study of students at Columbia University and Barnard College found that 28% of females and 13% of males had experienced some form of sexual assault.[209] The highest probability of assault typically occurs during a student's first two years of college. Individuals who are transgender, gender queer, or gender nonconforming are more likely to experience nonconsensual sexual contact than their peers.[209,210]

Reducing excessive drinking as described throughout this Guide should be considered as part of an overall comprehensive sexual assault prevention strategy for college campuses. Alcohol is never a cause of sexual assault, but it can be a major contributing factor. Alcohol use by the perpetrator, victim, or both is estimated to be involved in about half of all campus sexual assaults.[211-215] Students who engage in risky or binge drinking are at higher risk for experiencing sexual assault[209,216] and for perpetrating sexual assaults.[217,218]

Furthermore, a 2019 survey found that 87% of all the reported alcohol-involved sexual assaults were committed by perpetrators who were repeat offenders.[219] Alcohol impairs judgement, dulls senses, slows reflexes, and lowers inhibitions, which has implications not only for victims but also for perpetrators and bystanders;[220-223] this makes a sexual assault more likely to happen and less likely to be stopped. Additionally, alcohol-facilitated sexual assault survivors are less likely to report the assault, possibly due to fears of victim blaming.[224]

The environment and special occasions are also important risk factors for sexual assault because of the high prevalence of excessive drinking. For example, Testa and Cleveland[225] found a higher likelihood of sexual assault among men who had high attendance at bars and parties. Similarly, research by Lindo and colleagues[226] suggests that heavy drinking during home athletic games is temporally associated with an increase in sexual assaults.

It is important to realize that regardless of whether or not alcohol was involved, victims of sexual assault should be provided the services that they need to manage the aftermath of the trauma experienced. Studies suggest that after a sexual assault in which the victim had consumed alcohol prior to the incident, there can be an increased likelihood for heavy alcohol use, thus creating a cyclical relationship, which puts victims at greater risk for unsafe drinking behaviors and other negative consequences.[227,228]

### Evidence of Effectiveness

Senn et al.[229] conducted an intervention designed to provide college women with strategies to reduce sexual assault risk at three Canadian universities. The intervention consisted of four three-hour sessions of lectures, games, facilitated discussion, practice activities, and included specific components on excessive drinking.[222] The control group received pamphlets about sexual assault, which was the existing practice at the participating universities. After one year, the women who received the intervention experienced a completed rape at about half the rate of the control group (5.2% versus 9.8%) and were about half as likely to experience attempted rape (3.4% versus 9.3%). Women in the control group who reported being previously victimized had a risk for completed rape that was nearly four times greater than women who had not been previously victimized.

Senn et al.[230] followed up with the same group two years after the original intervention. The researchers found enduring increases in the effectiveness of participants' self-defense and resistance strategies as well as their ability to detect risk. The difference between the control and intervention groups remained significant at the two-year mark, although effect sizes weakened. Furthermore, the women who participated in the program reported significant reductions in the risk for sexual assault over the entire two-year period compared with their counterparts in the control group.

Gilmore et al.[231] studied the effectiveness of a web-based program that combined sexual assault prevention and alcohol reduction strategies among college women at high-risk for victimization, based on drinking behavior. The combined approach reduced the number of incapacitated rapes, incidence of sexual assault and severity, and frequency of heavy episodic drinking among individuals with a more severe victimization history.

A parent-based intervention focused on mother-daughter communications reduced first-year heavy drinking and alcohol-involved sexual victimization. This randomized, controlled trial enrolled female high school graduates before entering college and their mothers. The mothers shared and discussed information on alcohol or on alcohol and sex with their daughters using a handbook provided by the researchers. Students who received this parent-based intervention had lower incidence of incapacitated rape during their first year of college compared with their peers who received no intervention.[232]

Currently, an experimental intervention on alcohol and sexual violence using health center-based brief interventions focused on harm reduction is underway on college campuses in Pennsylvania and West Virginia.[233] If it is found to be effective, this would provide another pathway for reducing harms related to excessive alcohol and sexual violence.

### Tips for Implementation

The findings of Senn et al.[229,230] and Gilmore et al.[231] are extremely promising, but more research is needed to better understand how to discuss the relationship between alcohol and sexual assault on college campuses. A recent review found that approximately 61% of institutes of higher education had a sexual assault prevention program of some type in place.[234] Increasing prevention programs should be a campus priority. Prevention programs typically include bystander intervention but could be strengthened by adding a focus on consent, resetting social norms and men's sexual expectations around drinking, incorporation of screening, and identifying campus "hot spots" for sexual assaults.[215,235]

Conversations about alcohol use should be factored into sexual assault prevention programs. Moreover, interventions to reduce excessive drinking should be developed and evaluated as a way to prevent perpetration and improve the capacity of bystanders to effectively intervene. Colleges should aim to eliminate stigma related to alcohol-related sexual victimization in order to support victims. Collaboration between Title IX offices and substance use prevention centers on college campuses is recommended in order to present a clear campus message regarding alcohol-facilitated sexual assaults. Prevention efforts should begin upon matriculation since research indicates first-year students are at highest risk for sexual assault,[209] but should continue throughout the college experience.

Colleges should also promote bystander intervention training that includes more alcohol-related scenarios. Preliminary data collected at a large mid-Atlantic university showed that binge drinkers are more likely than non-binge drinkers to witness a risky situation.[236] This suggests that bystander intervention trainings should target higher-risk drinkers.

Although there are few evidence-based prevention programs focusing on the relationship between sexual assault and excessive alcohol use, any campus-wide effort to reduce risky and excessive drinking could be beneficial in reducing the prevalence of sexual assault as well.[237] A focus on making drinking hot spots safer or decreasing excessive drinking at specific events might lead to reductions in alcohol-related sexual assault.[225,238,239]

A 2018 paper on Addressing Alcohol's Role in Campus Sexual Assault[240] includes important recommendations for colleges working to reduce alcohol-involved sexual assaults: 1) establish a clear mission; 2) build relationships and partnerships across campus with faculty, staff, students, and possibly community stakeholders; 3) rectify mixed messaging or missing messaging on campus; and 4) challenge harmful social norms. Additionally, prevention measures that use a social-ecological model, which targets the individual, an individual's relationships, the community, and the larger society are recommended.[241]

# COLLEGIATE RECOVERY PROGRAMS (CRPS)

### THEORY BEHIND THE STRATEGY

Students who arrive on campus with a history of substance use disorder face unique challenges, such as balancing recovery activities with coursework, forming a social life while abstaining from drinking, and living in dormitories. The college environment has been described as "hostile" for recovery.[242-244] An on-campus recovery program enables these individuals to obtain social support and a sense of security from a community of peers who are facing similar challenges.[242] Additionally, on-campus students in recovery can serve as role models for other students who are struggling with substance abuse issues.[245]

CRPs do more than simply refer students to off-campus resources such as Alcoholics Anonymous or Narcotics Anonymous meetings. In successful CRPs, participants receive their key support from the community itself, with individual students both giving and receiving assistance.[242,246] Furthermore, the most successful programs also integrate professional services (counseling) with peer support and help students address academic issues.[246] According to Laudet et al.,[247] typical components of CRPs include 12-step programs based on campus, substance-free housing, and professional counseling by addiction treatment specialists. However, more research is needed on designing developmentally appropriate 12-step programs for young adults.[248]

### EVIDENCE OF EFFECTIVENESS

Participation in CRPs is associated with higher academic achievement and retention. An online survey conducted at the University of North Texas found that individuals who participated in the CRP reported higher GPAs than students in recovery who did not participate in the program and higher GPA than the average GPA of all students at the university.[249] A case study of a recovery program at the University of North Carolina at Greensboro showed higher GPAs and graduation retention rates among recovery participants.[250] The average GPA of recovery program members was 3.52, nearly 0.70 points higher than the university average of 2.85. Moreover, four years of data from the Center for Collegiate Recovery Communities (CCRC) at Texas Tech University show that recovery program members have higher GPAs than the general student population, as well as low relapse rates.[244,251]

Beyond these tangible effects, CRP members often report how central their participation has been to their success, both academically and personally. Laudet et al.[252] surveyed 486 students currently belonging to a CRP. More than one-third of respondents stated that they would not be enrolled in college if they had not found a recovery support program.

### TIPS FOR IMPLEMENTATION

The Association of Recovery in Higher Education (ARHE) is a network of U.S. colleges and universities that have embraced a shared mission of supporting students in recovery.[253] Their website provides several resources for campuses interested in starting a CRP. Additionally, the Center for the Study of Addiction and Recovery (CSAR) at Texas Tech University has developed a curriculum designed to guide other colleges in the process of developing recovery support communities; a full copy can be obtained directly from the CSAR.[246,254]

Another option is to offer recovery housing, which goes beyond "substance-free housing." For example, in 1988, Rutgers University established the Rutgers Recovery House, which is supported by the Alcohol and Other Drug Assistance Program (ADAP).[255] The program offers recovery housing where residents have easy access to recovery counseling, general psychological counseling, medical

services, on-campus 12-step meetings, an advisor for academic and career support, and organized group activities such as sporting events, hikes, and bike trips. Another challenge to implementing a comprehensive CRP is the cost to the student; one study identified financial concerns as a major source of stress for students in recovery.[243] Augsburg University's program, StepUP, is offered at no additional cost to students, and members are eligible for need and merit scholarships.[256] Similarly, Texas Tech University began providing merit-based scholarships to students to their program.[257]

In 2016, Maryland Collaborative staff produced a brief report that describes CRPs and their benefits, and highlights what some colleges are doing to support students who are in recovery from substance use disorders. This resource can be used by students, staff, and faculty to help raise awareness about the need for CRPs and to advocate for their implementation on campus.

## Connecting with Parents as Partners

### Theory Behind the Strategy

Both before and during college parents are a very important source of influence on student drinking patterns. First, during high school, parents exert their influence by setting rules and monitoring the whereabouts, activities, and peer group of their adolescent child, which is a key factor in deterring heavier drinking.[258,259] Second, parents convey messages (both implicitly and explicitly) to their children about their expectations concerning alcohol use. When parents convey consistent disapproval of underage drinking, adolescents tend to have less alcohol involvement than their peers whose parents convey more permissive attitudes.[260] Third, students can be influenced by the drinking behaviors their parents model, whether those drinking patterns are responsible or irresponsible.[261] However, this relationship is complex and strong parental attitudes towards and control of underage alcohol use could still reduce a child's alcohol use despite parents' behaviors.

As students begin college, two important changes occur— their parents monitor their activities less, and they experience increasing peer influences—both of which increase the opportunities for substance use.[262,263] Moving out of a parent's home and into the residence halls or off-campus housing can also increase the opportunities for heavy drinking.[262] Some parents might also express more lenient attitudes towards alcohol use once their child enters college. However, students who perceive their parent to be more tolerant of alcohol use have higher frequency of binge drinking, maximum drinks consumed, and number of adverse alcohol-related consequences.[264,265]

Even though parents might no longer be physically present on a day-to-day basis, their influence persists indirectly through the habits, attitudes, and values that they helped to build throughout childhood and adolescence. Although the frequency and manner of parent-child interactions will change during college, they continue to have the potential to reinforce messages and values that were instilled earlier. College students whose parents continue to discuss rules against alcohol use demonstrate significantly lower levels of alcohol consumption than their peers.[266]

Moreover, by maintaining open lines of communication, parents can monitor their college-attending child for signs that their alcohol use might be escalating into a serious problem. For example, academic struggles, emotional problems, and conflicts with roommates or friends all could be correlated with excessive drinking.

We describe four strategies for involving parents during three crucial time periods in students' college experience: pre-matriculation, the first year, and succeeding years.

## Strategy: Provide Pre-matriculation Educational Materials to Parents

### Theory Behind the Strategy

High school can be an opportune time for parents to have conversations with their children about the consequences of excessive drinking. Individuals who start drinking before 14 years old (generally their first year of high school) and who have a parental history of excessive drinking are at risk for heavier alcohol use and more alcohol-related problems in the future.[130-133,267,268]

It is vital for parents to communicate the adverse effects of unsafe alcohol consumption during adolescence. When students get their college acceptance letters (generally while they are still in high school), administrators could include a brochure to parents urging them to talk to their students about alcohol. The Maryland Collaborative staff developed the parent-focused website CollegeParentsMatter.org, which contains general tips on communication and specific conversation starters for parents to speak with their college-age child about different high-risk drinking situations.

### Evidence of Effectiveness

Parent-based interventions during the transition to college have been repeatedly shown to be effective in reducing students' alcohol use during college,[269-271] cutting daily drinking by almost half (8.1 drinks vs. 4.4 drinks per weekend).[270] Several studies have also looked at the effectiveness of parental interventions to reduce high-risk college drinking. A study by Turrisi et al.[272] examined high-risk college students who were randomized into one of four conditions: a parent intervention, a BASICS intervention (for the student), a combined condition (parent intervention plus BASICS), or an assessment-only control group. The parent intervention, which took place during the summer prior to college matriculation, included a 35-page handbook that discussed student drinking, effective strategies for communicating with teenagers, and how alcohol affects the body. The study found that participants in the combined condition and the BASICS-only condition reported approximately one fewer drink per week, one fewer drink per weekend, and fewer alcohol-related consequences than participants in the control group or the parent-only intervention. Participants in the combined condition reported fewer alcohol-related consequences than the BASICS-only condition. This study suggests that parental intervention delivered before college can enhance the efficacy of BASICS.

Another study by Turrisi et al.[273] examined college freshmen attitudes toward drinking and alternatives to drinking on the weekend. The summer before college matriculation, parents in the intervention group were given the handbook with information about parent-teen communication and college drinking. Eighty-seven percent of the parents returned the handbook with written comments showing that parents actually read the materials. The parent intervention found significant differences between the intervention and control groups. Students whose parents were in the intervention group had more positive attitudes toward alternative activities (e.g., going to a sporting event or a coffee shop) than did individuals in the comparison group. Additionally, those in the comparison group believed that alcohol had greater perceived benefits (e.g., alcohol enhances social behavior and alcohol creates positive transitions) as compared with the intervention group. The results from this study indicate that a parent-based intervention can work to change teens' attitudes and beliefs about drinking and non-drinking alternatives.

A follow-up study by Cleveland et al.[274] had mixed results on the effectiveness of a parent-based intervention administered before entering college, and the authors recommended further research. Similarly, a study by Napper et al.[275] found that a personalized intervention for parents did not result

in any sustained changes in students' alcohol consumption or consequences upon entrance to college. A possible explanation for the lack of effect was that the intervention unintentionally resulted in permissiveness towards drinking rather than zero-tolerance attitudes.

## Strategy: Keep Parents Involved during the First Year of College

### Theory Behind the Strategy

Though going away to college does create some distance, parents can still serve as a protective influence for their college-attending child. Maintaining vigilance about student health-risk behaviors, especially during the first year of college, can encourage protective communication. The effectiveness of these interactions demonstrates that parents who are not only informed about college alcohol use but also frequently communicate with their child, can play a significant role in reducing alcohol use.[276]

Administrators should update parents with facts about alcohol and its consequences, specific alcohol-related campus policies, alcohol-related events in the news, and ways to discuss these matters with their child. The first few weeks that their child is on campus is a critical time for parents to be actively involved. For example, parents might want to know the school's policies around alcohol, make regular contact with their child, and inquire about their child's residence and roommates or suitemates. Parents should also discuss the risks associated with underage drinking, such as sexual aggression or victimization, violence, and academic failure.[277]

### Evidence of Effectiveness

Parents who receive an invitation to an online alcohol education program (MyStudentBody, for example) are more likely to discuss responsible alcohol use with their college-attending child. Additionally, first-year students whose parents received alcohol education reported safer drinking practices.[102] Another study evaluated an intervention targeting parents with children who were incoming first-year college students.[271] The session was divided into two parts; the first focused on correcting common misperceptions of alcohol use, while the second instructed parents on how to successfully discuss drinking with their children. Individuals whose parents participated in the program drank less alcohol and engaged less frequently in heavy episodic drinking.

## Strategy: Parent-child Communication during College

### Theory Behind the Strategy

Communication and setting boundaries are important in both preparing a child for college and staying involved on an ongoing basis. Parents should be encouraged to keep up discussions with their child about the risks associated with excessive drinking, and clearly articulate their expectations about avoiding alcohol if they are underage or drinking responsibly if they are of legal age. According to a study of a web-based parent intervention, parents and teens were more confident in discussing alcohol, drugs, and other related issues after completing the intervention.[102] The parent-focused website, CollegeParentsMatter.org, provides tips and scripts to help parents communicate effectively with their college-aged child about high-risk drinking situations.

Parents' weekend is an ideal time for colleges to involve parents in discussions about alcohol-related issues. For example, colleges can deliver informational presentations and distribute printed material describing which campus resources are available for students who exhibit signs of problematic drinking. These interventions should be designed to stimulate conversations about alcohol between parents and students and to encourage ongoing parent-child communication overall.

### Evidence of Effectiveness

Regular parent-child communication during college has been shown to be a protective factor against excessive drinking. These conversations can include discussions on the negative aspects of drinking (e.g., academic consequences, dangers of drinking and driving, loss of judgement), rules and sanctions, protective behavioral strategies, and correcting misperceptions about the benefits of drinking.[266] On days in which first-year students spoke with their parents for at least 30 minutes, they consumed 20% fewer drinks and were 32% less likely to engage in heavy episodic drinking compared with days that they did not communicate with their parent.[278]

It is important to note it is not only having a conversation that makes a difference, but also the content of that conversation. Menagatos et al.[266] recommends communicating about alcohol use in an authoritative manner and Abar et al.[279] has shown that zero-tolerance messages are the most protective against alcohol use and consequences. If parents are too permissive, students might assume their parents are encouraging alcohol use. When students perceive parental approval of alcohol use, they might be more likely to display risky drinking patterns, such as drinking and driving.[280] Further confirming the influence of parental communication throughout college, Mallett and colleagues[281] recently found that parental permissiveness was positively associated with alcohol use and related consequences among college students in both their first and fourth years of college.

Discussing rules against alcohol use is a more effective communication technique than focusing on the negative aspects of drinking which has actually been shown to be associated with more alcohol consumption and related problems among students.[266] Parents might tend to discuss negative aspects of drinking with their children only after alcohol use is already apparent or children might perceive these conversations as unlikely fear appeals or attempts to manipulate them.

Doumas et al.[282] evaluated a parent-based intervention among first-year students whose parents received either a handbook for parents, or a handbook plus a series of three booster brochures sent to the parents throughout one semester, and a control group. They found no significant differences in student drinking behavior between the handbook-only and control group, but the handbook plus booster brochure group reported significantly less drinking than the handbook-only and control groups. These findings suggest that additional materials that remind or reiterate the message to parents throughout the academic semester might enhance effectiveness of a parent-based intervention.

## Strategy: Parental Notification of Alcohol-related Incidents

### Theory Behind the Strategy

The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records.[283] The law applies to all schools that receive funds from the U.S. Department of Education. FERPA provides parents certain rights with respect to their children's education records; however, these rights are transferred to the student when s/he reaches the age of 18 or attends a school beyond the high school level.[284,285] The 1998 amendment to FERPA (section 952 of the Higher Education Reauthorization Act or HERA) allows, but does not require, parental notification when students under age 21 are in violation of any Federal, State, or local law, or of any rule or policy of the institution, governing the use or possession of alcohol or controlled substance.[283,285,286]

Notifying parents about possible drug or alcohol problems following an early violation might help prevent larger, more dangerous consequences in the future. Parental notification policies help parents remain involved in their students' decisions about alcohol use.[285] More specifically, parental notification policies motivate students to deter alcohol abuse and risky behaviors in order to avoid parent communication with their university regarding substance use. The policies help to increase student safety for those students who have already committed violations/broken school policies through parental involvement in their child's health-related problems.[285]

### Evidence of Effectiveness

Several studies have examined the effect of parental notification on alcohol problems on college campuses. An examination of 349 higher education institutions by Lowery et al.[287] found that of the institutions with parental notification policies, 56% had reduced the overall number of alcohol-related violations and 74% had lowered the rate of repeat on-campus violations.

The effectiveness of parental notification policies is both a function of how they might serve as a deterrent as well as the types of actions taken by parents who are notified. The majority of parents (96%) discussed the arrest or citation as well as alcohol/substance use with their child.[285] Many parents (67%) also noted a positive behavior change from the notification policy, and a very small percentage (2%) reported negative behaviors. Almost half of parents reported giving their child a consequence after notification (44%). Some of the consequences parents cited included paying a fine, losing car access, or losing parental monetary support.

A 2000 survey[288] of 189 public and private schools conducted by Bowling Green State University and the Association for Student Judicial Affairs found that 59% of schools had either a practiced or written parental notification policy. An additional 25% of schools were considering adopting a notification policy, and only 15% said that they did not plan to implement any policy. The study also found wide support for notification policies among parents, of whom 79% were either very or somewhat supportive.

A 2019 assessment of college alcohol policies used an expert panel to rate various alcohol related policies on campus. They rated parental notification as one of the most effective sanctions for alcohol violations.[21]

# ENVIRONMENTAL-LEVEL INTERVENTIONS

## OVERVIEW

College campuses and students are part of their surrounding communities. Alcohol use and related problems that affect students on campus also affect the surrounding community and vice-versa. College administrators have the ability to influence conditions on campus and in the surrounding neighborhoods, towns, and cities. They can also encourage changes in local and state policies as part of a comprehensive effort to reduce alcohol use on campuses.[289]

> *"The first step is simply acknowledging that there are alcohol problems on campus and in the community. The next step is bringing together a core group of people who are willing to look at alcohol problems through new eyes. These two steps effectively launch the process and can lead directly into the assessment and planning phases of the initiative. But things do get more complicated as the nature and extent of the alcohol problem are assessed, other group members are recruited, strategies are selected, and required resources are identified."*
>
> *-Martin et al.*[33]

These changes are often referred to as "environmental strategies" because they influence the settings and conditions in which people make their decisions about alcohol use. Environmental strategies have the potential to reduce excessive alcohol use and related harms among college students whether they are under the minimum legal drinking age (MLDA) of 21 or older. These strategies include alcohol policies and evidence-based interventions implemented either on or off campus.

However, many of these strategies cannot be implemented by campuses working alone—they require communication and collaboration with off-campus constituencies and leadership. The more the on- and off-campus practices and policies are consistent with each other, the easier it is for students to recognize the normative climate as one supporting health and safety and discouraging of excessive drinking. Campus-community coalitions are critical to these efforts.

These strategies should be accompanied by proactive enforcement of alcohol laws in keeping with deterrence theory. Ensuring consistent enforcement of implemented policies will make it clear to students that there are consequences associated with breaking the policy.

Colleges infrequently reported collaborating with communities on effective environmental strategies: 33% reported conducting compliance checks, 7% regulated alcohol outlet density, and only 2% collaborated in increasing alcohol prices.[6] It is evident that more progress needs to be made nationwide in

### Deterrence Theory

Deterrence is a key aspect of many environmental strategies. The enforcement of alcohol policies is part of an effective prevention strategy when it convinces those targeted that they will be apprehended and punished if they violate the law. Deterrence requires the perception that violations will lead to certain, swift, and appropriately severe punishment. Of the three legs of the deterrence theory, colleges and communities should focus on the certainty and swiftness of the punishment, rather than the severity—these are the most important legs of the stool.[290-292]

implementing evidence-based environmental strategies to reduce excessive drinking and related harms among college students. This section describes strategies and policies that, as part of a multi-component strategic plan, can complement and support interventions made at the individual level.

This section of the Guide has two parts. First, we include a discussion of policies and interventions that can be implemented on campus, followed by steps that can be taken off campus. To help college administrators decide which policies are best to implement on their campuses, we have sorted policies into three sections based on evidence of effectiveness: evidence-based, promising but little or mixed evidence of effectiveness, and ineffective if used in isolation.

# On-campus Strategies

The Maryland Collaborative staff recently led and published a review of on-campus alcohol policies, using a Delphi panel technique to assess the effectiveness of both policies and sanctions. That publication is a useful adjunct to this Guide.[21] It also underscores the importance of consistent enforcement and sanctions, which research has been found is highly uneven among campuses.[293]

## Evidence-based Strategies

### Strategy: Prohibit Alcohol Use on Campus

#### Theory Behind the Strategy

College administrators can choose to have "dry" campuses, i.e., prohibiting the use of alcohol anywhere on campus, regardless of age. This strategy decreases alcohol availability, which can subsequently reduce alcohol use and related problems among college students.[294,295]

#### Evidence of Effectiveness

Wechsler et al.[22] compared "dry" four-year schools with four-year schools that allowed alcohol use. This study found that students had lower prevalence of alcohol use and less heavy episodic drinking (i.e., five or more drinks for men and four or more drinks for women, per occasion, during the two weeks prior to the survey) at schools that prohibited the use of alcohol on campus compared with schools that allowed alcohol use. Students were 30% less likely to be heavy episodic drinkers and 80% more likely to be abstainers at schools that prohibited alcohol use. Also, students at "dry" schools reported experiencing fewer adverse secondhand effects of drinking, such as being assaulted, having their property damaged, or experiencing unwanted sexual advances.[22] Similarly, another study found that a "dry" campus was associated with a reduction in drinking, particularly among females.[296]

### Summary of On-campus Strategies

**Evidence-based**
- Prohibit alcohol use on campus
- Restrict alcohol use at specific places or events
- Ban alcohol sales at specific places or events
- Establish a medical amnesty policy

**Promising but Little or Mixed Evidence of Effectiveness**
- Restrict alcohol marketing
- Prohibit open containers
- Mass media campaigns to reduce drinking-driving
- Friday morning classes

**Ineffective if Used in Isolation**
- Ban or require registration of kegs
- Social norms campaigns
- Provide alcohol-free activities

However, campus-wide bans might not solve the problem of students coming to school with existing heavy drinking problems. While fewer students drank at "dry" schools, the students who did drink still engaged in excessive drinking and experienced alcohol-related problems at a prevalence similar to drinkers at non-"dry" schools.[22] Generally, schools had more success reducing moderate drinking than heavy drinking through use of a campus-wide ban on alcohol use.[22]

#### Tips for Implementation

One of the great lessons of national Prohibition in the U.S. is that alcohol policies cannot go too far beyond what the population is willing to support. College administrators wishing to implement a campus-wide ban will need to form partnerships with student organizations, health center staff, student affairs staff, law enforcement, alumni organizations, faculty, and staff—in short, the many diverse constituencies that make up a campus community—and generate broad, community-wide agreement if the ban is to be effectively implemented and enforced.

## Strategy: Restrict Alcohol Use at Specific Places or Events

#### Theory Behind the Strategy

Alcohol use can be banned in specific places or events on campus to reduce the physical availability of alcohol. This strategy is a viable alternative for college administrators who do not want to entirely prohibit alcohol on campus.

#### Evidence of Effectiveness

This strategy has often been implemented in the form of alcohol- or substance-free residence halls. Alcohol-free residence halls can be established with a policy that bans the use of alcohol within residence halls or at residence hall events. Evidence suggests that residences that are only *alcohol*-free might not be effective in reducing alcohol use; however, *substance*-free residences are more promising. One study found that past 30-day alcohol use among students living in alcohol-free residences was not significantly different than among students in residences without restrictions.[296] Another study found that students in alcohol-free housing were just as likely to drink heavily (e.g., consume five or more drinks per occasion for males, or four or more drinks per occasion for females) and experience alcohol-related problems compared with students in unrestricted housing on the same campus.[298]

In contrast, students living in substance-free housing were less likely to drink heavily or experience alcohol-related problems compared with those in unrestricted or alcohol-free housing.[298] Underage college students living in either substance-free residences or off-campus with their parents were less likely to binge drink compared with those in unrestricted housing.[299] Substance-free housing might also prevent students from becoming heavy drinkers.[298]

### Alcohol-free Residence Halls Might Not Stop Those Who Come to College as Drinkers

The Rochester Institute of Technology (RIT) implemented a campus-wide policy to prohibit alcohol use in residence halls in 1998.[297] Among students living in the residence halls, there was an associated reduction in the proportion of students who drank during the past month. However, among drinkers, the prevalence of binge drinking among students living in the residence halls was found to be similar to that of students living in places not covered by the alcohol ban. This was partially a result of students who already had drinking problems before coming to college and were therefore less likely to be influenced by the alcohol ban. The factor with the most influence on binge drinking was whether or not students reported drinking heavily prior to matriculation at RIT.

### Tips for Implementation

Findings from a large national survey suggest that more than 80% of the general public support restrictions of alcohol use in specific places or events[300] and college administrators have a critical role in implementing such restrictions. Substance-free housing appears to be a popular option; the majority of schools do offer substance-free housing.[298] Administrators should work to form partnerships with local public interest groups, campus and city police departments, student health center staff, and student affairs staff to gain support for this approach. Greater enforcement of established drinking rules makes a difference; it is associated with a decrease in alcohol-related violations.[301] Enforcement, in turn, is much easier if residences are substance-free.

## Strategy: Ban Alcohol Sales at Specific Places or Events

### Theory Behind the Strategy

The sale of alcohol can be banned at specific places or events on campus as a means to reduce the physical availability of alcohol. College administrators might choose to implement these bans instead of banning alcohol sales campus-wide. Schools commonly ban sales of alcohol at sporting events[31] but sales can also be prohibited at on-campus social events, such as concerts and festivals.

### Alcohol Restrictions at Sporting Events

Sporting events are notorious for being locations where excessive drinking occurs among college students, so several colleges have banned the use of alcohol during these events; however, they do not commonly evaluate the impact.

### Banned in Boston? BC Tailgating Restrictions

During the 1990s, Boston College (BC) began restricting alcohol use during tailgating such that tailgating is only permitted two hours before and after the game.[302] Officials checked cars upon entering the designated tailgating area to ensure that fans were not bringing in excessive quantities of alcohol, such as kegs. BC also prohibited alcohol use in its stadium. These changes led to a reduction in alcohol-related problems, but it is unclear as to whether the reduction in alcohol-related problems was due to tailgating restrictions or banning alcohol use in the stadium.

### Evidence of Effectiveness

At the University of Colorado Boulder (CU), the administration banned the sale of beer in the stadium for two years starting in the fall of 1996.[303] A subsequent evaluation by the university found that numbers of ejections from the stadium, assaults, arrests, and referrals of students to the university's judicial affairs process all dropped substantially compared with the year prior to the ban. Following the success of this moratorium, the CU chancellor made the ban permanent. Debunking concerns of reduced spectatorship as a result of the ban, CU found no significant reduction in the number of spectators after the ban on alcohol sales and use went into effect. Administrators worked closely with the police department to enforce the ban.[303]

At the other end of the spectrum, some university officials and college athletic departments are increasingly considering and permitting the sale of alcoholic beverages at campus football stadiums, to provide additional revenue streams and sometimes to offset sagging attendance levels. This is potentially a concerning development. According to a recent case study[304] at one major university, over five seasons and 35 home football weekends, an average of 330 total crime incidents occurred annually when alcohol was not sold at the stadium, compared with 475 incidents when stadium sales were permitted. The most commonly cited offenses were liquor law violations (50.2%) and alcohol

## Changing the Alcohol Environment during the University of Arizona's Homecoming

The University of Arizona enacted stricter alcohol policies during the annual homecoming event in 1995, including a ban on the display of large quantities of alcohol and promotion of alcoholic beverages on parade floats, mandating the use of trained bartenders following responsible beverage service guidelines, and restricted alcohol sales to designated tent areas.[305] These changes led to a decline in calls to police related to homecoming activities.

consumption by a minor (7.7%). Nearly a quarter of all crime committed (23.8%) during the study period occurred during game weekends against a traditional football rival at home.

Beyond the evidence cited here for residence halls and sporting events, there is little evidence available on the effects of banning alcohol sales or use at specific places or events on campus.

## Strategy: Establish a Medical Amnesty Policy

### Theory Behind the Policy

Medical Amnesty is a policy that schools can use to encourage students to recognize warning signs of alcohol poisoning and to seek appropriate medical assistance in cases of an alcohol-related emergency. Often, students are afraid to assist a peer or receive individual help in alcohol-related situations because of sanctions and disciplinary processes that might follow. Amnesty policies might contribute to a higher level of helping behavior as students bypass disciplinary actions to get interventional help. Research shows that implementing medical amnesty policies reduces perceived barriers to intervention and increases the likelihood of students helping in case of an emergency.[306]

In many cases, institutions use the terms "Medical Amnesty" and "Good Samaritan" policies interchangeably. However, some schools make the distinction between the two policies. In these cases, Medical Amnesty is a policy that protects students from campus disciplinary action when they consume alcohol to a dangerous level and might need to receive medical assistance.[307] Medical Amnesty policies might also be passed at the state level, providing the same protection. On the other hand, Good Samaritan policies provide students amnesty from campus judicial punishments in alcohol-related situations where a student might call for help for a peer who has over-consumed alcohol.[308] Both the helper and the drinker are provided amnesty from consequences around policy violations in these cases.[112] Typically, amnesty is granted if the individual(s) comply with completing an intervention or alcohol education program.

As such, Medical Amnesty should not be viewed as a way to reduce the overall level of excessive drinking on campus, but rather a possible way to reduce the most severe physical harms associated with alcohol overdose. If implemented correctly, it can save lives by placing an individual who is dangerously intoxicated in the immediate care of a health professional.[309] Additionally, Medical Amnesty can also provide an opportunity for follow-up intervention after the acute crisis has subsided.

### Evidence of Effectiveness

The creation of the Medical Amnesty policy at Cornell University was in accordance with the protocol of dealing with alcohol-related emergencies.[309] A marketing campaign helped inform students of this policy through the display of posters in residence halls, academic buildings, fraternities/sororities, ads in newspapers, table tents in dining halls, etc. These tactics helped to raise knowledge and awareness of the policy among students.

After implementation of the Medical Amnesty policy at Cornell University, the percentage of students who called for help increased. The number of students who reported they did not call for help out of fear of getting in trouble decreased by 61%, and alcohol-related Emergency Medical Services calls increased by 22% in the two years following the Medical Amnesty policy's implementation. The percentage of students who received educational follow-ups after a medical transport more than doubled from 22% to 52%.[309]

> *"Medical amnesty is no get-out-of-jail-free card. Most programs excuse students from punishment only after they meet with a dean or attend a follow-up counseling session."*
>
> The Chronicle of Higher Education[310]

Another study examined the calls made to emergency medical services both before and after the implementation of a medical amnesty policy at Georgetown University.[311] In contrast to the findings at Cornell University, the number of average total calls annually remained unchanged after the policy was established. However, students reporting alcohol-related emergencies called earlier and requested advanced life support resources 60% less frequently. In this case, medical amnesty policies encouraged bystanders to seek help before the situation become more life-threatening.

Oster-Aaland et al.[112] examined the impact of a Medical Amnesty policy and an online alcohol poisoning video on student intentions to seek help during incidents of alcohol poisoning. Students who received both an alcohol-poisoning educational video and information about the school's Medical Amnesty policy were 78% more likely to help in a hypothetical situation, as opposed to 74% who only saw the Medical Amnesty policy, 65% who only watched the video, and 57% who saw neither. The researchers found that particular groups of people, including women, abstainers, and students who had not been exposed to an alcohol poisoning situation during the past, would be more likely to call for help. The study suggested looking for strategies to encourage the tendency to help among less experienced drinkers and targeting heavier drinkers with educational approaches in order to increase this helping behavior.

Medical Amnesty policies can also create the feeling of a more supportive community on campus. In a comparison of two cohorts, one which entered college prior to the implementation of a Medical Amnesty/Good Samaritan policy and one which entered afterwards, the students in the latter cohort reported more positive perceptions of the campus' climate.[312]

### Tips for Implementation

Several conditions are necessary for effective implementation of a Medical Amnesty policy. First, it is crucial to successfully market the policy to raise awareness about the existence of the policy. Administrators should not frame these policies as punishments, but as a means to educate students and create conditions that should be promoted both on and off campus. Students should be made aware that while they will be treated fairly for doing the right thing or helping their peers, they will also be held accountable for their behavior through mandated intervention and follow-up.

Additionally, students can be educated about the signs of overdose as well as who and how to call for help in alcohol-related emergencies. This education can be provided through a variety of methods, such as online videos about recognizing signs and symptoms of overdose, email reminders about helping behaviors, and discussions with RAs. Schools should mandate follow-up assessments and counseling in lieu of punishment as a means of promoting student success.

## Promising but Little or Mixed Evidence of Effectiveness

Policies in this section are promising but 1) do not have a substantial body of evidence of effectiveness in campus settings, or 2) the evidence of effectiveness is mixed.

### Strategy: Restrict Alcohol Marketing

#### Theory Behind the Strategy

Alcohol marketing exposure (i.e., seeing alcohol advertisements or marketing materials) is associated with increased alcohol use among young people.[313] To this end, restricting alcohol marketing on college campuses might lead to reductions in drinking and related harms among college students and surrounding communities.

#### Evidence of Effectiveness

One study examined the effects of bar-sponsored alcohol promotions by designing false advertisements, similar to those that would appear in the campus newspaper. Based on these newspaper ads shown to students in a lab setting, students reported expectations of drinking greater quantities when they saw cheaper alcoholic beverages promoted.[314] However, very few studies have assessed the effects of alcohol marketing restrictions on campus. More research is available in the off-campus strategies section on restricting alcohol marketing.

### Strategy: Prohibit Open Containers

#### Theory Behind the Strategy

Policies against having open alcoholic beverages are often associated with banning alcohol use in specific places and events. It further enforces the lack of social tolerance for intoxication and provides greater opportunities for law enforcement to intervene.[315]

#### Evidence of Effectiveness

Little research has assessed the effectiveness of prohibiting open containers. One study did find that active enforcement of an open container law is even more important than the law itself—states with active enforcement had 17.6% less drinking-driving than other states, whether the enforcing state had a specific open container law or not.[316]

### Strategy: Mass Media Campaigns to Reduce Drinking-Driving

#### Theory Behind the Strategy

Mass media campaigns are "designed to change student knowledge, attitudes, and behavior" in order to promote social good.[317] Media campaigns have frequently been implemented to try to reduce alcohol-impaired driving among college students. They are designed to be persuasive, encouraging people to avoid drinking and driving by instilling feelings of irresponsibility and fear of getting caught.[318]

#### Evidence of Effectiveness

As part of a multi-strategy intervention to prevent alcohol-impaired driving, a college campus in the southwest implemented a mass media campaign (along with a social marketing campaign and sobriety checkpoints). The campaign consisted of news coverage at the roadside checkpoints and stories placed in the school newspaper to increase students' perceived certainty of apprehension. After the campaign, there was a reduction in drinking and driving;[319] however, it is not possible from

the study design to separate the effects of the mass media campaign from the impact of the other intervention components to reduce drinking-driving.

#### Tips for Implementation

If mass media campaigns are used on college campuses to reduce alcohol-impaired driving, they should be designed with the intention of creating a general environment supportive of enhanced enforcement of alcohol-impaired driving deterrence measures,[320] and to increase students' perceptions that they will be likely to be apprehended if they drink and drive.[292] For more discussion of mass media campaigns, see the off-campus strategies section.

### Strategy: Friday Morning Classes

#### Theory Behind the Strategy

Instituting Friday morning classes as a means to deter drinking during the week is a National College Health Improvement Project (NCHIP) strategy to address high-risk drinking.[321] College students with later classes are at a greater risk for increased alcohol use, which in turn can have a strong effect on academic performance.[322]

#### Evidence of Effectiveness

In a study by Wood et al.,[323] Friday class schedule was an effective predictor of heavy Thursday night drinking, where students with no Friday classes and students with classes beginning at 12pm or later drank approximately twice as much on Thursdays compared with students with early Friday classes. This effect was amplified among males and among members of Greek life. Hoeppner et al.[324] examined daily drinking patterns of first-year college students. Thursday drinkers were less engaged academically and were more likely to participate in risky drinking behaviors. Recent research similarly indicates that next-day academic obligations, such as early morning classes, reduce the demand for alcohol.[325]

#### Tips for Implementation

Knowing that students sometimes begin their weekends on Thursday nights (nationally known as "Thirsty Thursdays"), the President's Alcohol Task Force encouraged educators to offer more Friday classes where assignments are due, and quizzes are given. One campus that has implemented this strategy and has been a model in reducing excessive drinking on and off campus is Frostburg State University. According to Frostburg's College of Business, implementation of this strategy has led to students reporting reduced drinking.[326]

## Ineffective if Used in Isolation

Policies in this section are likely to be ineffective, based on the lack of effectiveness reported in the literature, unless they are implemented in conjunction with evidence-based policies.

### Strategy: Ban or Require Registration of Kegs

#### Theory Behind the Strategy

In Maryland, purchasers of kegs (defined as at least four gallons) must give their name and address to the retailer, in accordance with the state keg registration policy. Possession of an unregistered keg or destroying the label on a keg can result in fines or jail time.[327] Keg registration enables law enforcement to trace the kegs at underage drinking parties back to a specific purchaser and hold

responsible those who provide alcohol to underage drinkers. Bans on kegs reduce availability and thus attempt to reduce the overconsumption often associated with kegs.

### Evidence of Effectiveness

Few studies have evaluated the effects of banning kegs on college students' drinking.[295] However, college campuses where the surrounding outlets sold beer in kegs report higher levels of binge drinking.[328] The presence of a keg at Greek, off-campus, and outdoor college parties has been associated with higher odds of drinking to intoxication.[329] The majority of colleges across the country have prohibited the delivery of kegs to Greek-life housing.[31] However, one study evaluated the effects of a university ban on kegs at all fraternity and sorority houses and found, in contrast to expectations, drinks per occasion and drinks per week actually increased among fraternity/sorority members. This can be partially explained by anecdotes from Greek organization members who indicated that students began drinking more liquor rather than beer.[330] Two other studies have also found keg registration laws to be associated with higher rather than lower underage drinking-driving crashes. The studies similarly hypothesize that this might result from greater use of higher alcohol-content beverages in the wake of restrictions on beer availability.[331,332]

The lesson for college administrators might be that keg bans or registration, when used in isolation from other efforts to reduce availability of alcoholic beverages, can result in an unintended consequence of increasing high-risk drinking. Given that a large proportion of students drink at off-campus parties[333] and underage drinkers are most likely to report drinking alcohol at parties rather than at bars,[334] requiring keg registration has theoretical promise but little empirical support.

### Tips for Implementation

If college administrators elect to ban kegs, a state keg registration law can be useful for enforcement by enabling police to identify students who purchase kegs to host an off-campus party. However, evidence suggests that keg registration laws alone are not enough to reduce alcohol use.[335]

## Strategy: Social Norms Campaigns

### Theory Behind the Strategy

Social norms campaigns seek to provide students with accurate information on student drinking patterns to correct misperceptions that might lead to increased pressure to drink and greater alcohol use. College students often overestimate how much their peers drink; when this misperception is corrected, some research suggests that alcohol use decreases.[313,336]

### Evidence of Effectiveness

Evidence of the effectiveness of social norms campaigns around drinking on college campuses is decidedly mixed, in part because of limitations in the research methodologies used in studies of social norms campaigns.[337-339] A large national multi-site study found that social norms campaigns are generally ineffective at reducing alcohol use and related harms,[195] which is consistent with the note of caution about their use based on a review of scientific literature.[295] Wechsler et al.[340] compared 37 U.S. colleges that reported administering social norms campaigns with 61 that did not between 1997 and 2001. The authors found slight increases in any alcohol use at schools implementing social norms campaigns, compared with students at schools without campaigns. However, a more recent 2015 review of 66 studies concluded that the effects of social norms campaigns on reducing excessive drinking are so small that there is no substantive benefit to be derived from them for the prevention of alcohol misuse among college and university students.[341]

An additional challenge for social norms campaigns is the effect of alcohol outlet density surrounding campuses, an important indicator of alcohol availability. Social norms campaigns have been found to be even less effective on campuses in areas with high alcohol outlet density.[342]

### Tips for Implementation

With mixed evidence of effectiveness, college administrators should be cautious about the implementation of social norms campaigns.[295] However, if social norms campaigns related to alcohol use are implemented, it is important to concentrate on changing injunctive norms, or the perceptions of how peers are supposed to behave and whether a specific behavior is approved or disapproved by peers, rather than descriptive norms, which are specific to the actual behavior of others.[343] Implementers should be careful that any photos used in campus social norms campaign ads do not inadvertently contribute to promoting perceived norms approving of drinking to intoxication.[317] Moreover, campaign developers need to consider the individuals who are more proximal and relevant (e.g., close friends, same age, same gender) to the target population and who have the greatest likelihood of spreading the message.[344]

## Strategy: Provide Alcohol-free Activities

### Theory Behind the Strategy

Offering alcohol-free activities might reduce alcohol use by increasing the opportunities to socialize without alcohol being present.

### Evidence of Effectiveness

At one university in the Northeast, alcohol use among students who attended alcohol-free parties was found to be no different than among students who did not attend. Moreover, among students who attended alcohol-free events and events with alcohol, students drank more alcohol prior to attending the alcohol-free event,[345] indicating that alcohol-free activities were not preventing drinking. However, total use was lower after alcohol-free activity nights compared with after attending an event with alcohol.[345]

At another northeastern university, late night alcohol-free programming was associated with a reduction in drinking on the day of the event. However, data were only from two consecutive weekends so it is unclear whether alcohol-free events were consistently associated with less alcohol use.[346] It is also important to recognize that the types of students who attend alcohol-free programming might be different from the types who choose not to attend, i.e., attendees might be more likely to be non-drinkers in the first place. In this context, their attendance at such events does not tend to lead to changes in drinking prevalence or the overall alcohol environment because drinkers are still out drinking.[315] When given the choice between an alcohol-free activity and one with alcohol, drinkers might be more likely to choose the alcohol environment. However, providing alcohol-free programming might help non-drinkers remain abstinent by providing a supportive environment free of alcohol use.

### Tips for Implementation

Because alcohol-free activities do not actually change alcohol availability, they are unlikely to be effective as an environmental intervention when used alone. Efforts to provide alcohol-free activities should not distract college administrators from also implementing strategies to reduce alcohol availability.[315] If used, these activities should be implemented in conjunction with evidence-based strategies described above.

# Off-campus Strategies

There are many ways in which college administrators, faculty, staff, and students can work with their surrounding communities and city and town officials to implement environmental strategies to reduce excessive alcohol use and related harms among college students. Such partnerships are widely recommended[24-26] and can help to build the kind of community-wide consensus needed for effective action.

## Evidence-based Strategies

### Strategies to Reduce Physical Availability

### Strategy: Regulate Alcohol Outlet Density

#### Theory Behind the Strategy

Alcohol outlets are places that sell alcohol for consumers to drink on-premise (e.g., bars or restaurants) or off-premise (e.g., convenience stores or liquor stores). Alcohol outlet density refers to the number of alcohol outlets in a given geographic area. Regulation involves either reducing the density of existing alcohol outlets or limiting numbers of additional outlets given licenses. While alcohol outlet licensing policies can reduce outlet density, recently many communities have been implementing this through local planning and zoning policies and codes.

#### Evidence of Effectiveness

**General Population:** A systematic review sponsored by the CDC found that greater alcohol outlet density was associated with increased alcohol use and related health and social harms among the general population.[347] For instance, greater densities of alcohol outlets were directly related to assaults, violence, alcohol-impaired driving, and motor-vehicle crashes. A recent study of Baltimore-area alcohol outlets found that each additional alcohol outlet was associated with a 2.2% increase in violent crime, adjusting for neighborhood characteristics such as neighborhood disadvantage and drug arrests.[348] In the same city, each additional off-premise alcohol outlet was associated with a 12.3% higher rate of pedestrian injuries in that neighborhood.[349] Another study using county-level data from Kansas between 1977 and 2011 found a 10% increase in on-site drinking outlets was associated with a 4% increase in violent crime.[350] These negative impacts might be felt beyond the locality in which they occur.[351]

Zhang et al.[352] reported their analysis of the effects of reductions in alcohol outlet density in the Buckhead neighborhood of Atlanta from 2003 to 2007. Reductions in outlet density occurred following or coincident with community-led efforts to increase regulation of alcohol retail sales. They also found that a 3% reduction in on-premise alcohol outlet density from 2003 to 2007 as compared with 1993 to 2002 was associated with two times less exposure to violent crime in Buckhead relative to other areas of Atlanta.

In a study of 10,143 adolescent students in Victoria, Australia, each additional alcohol sales outlet per 10,000 people was significantly related to an increased risk for alcohol purchases by adolescents.[353] Similar harmful effects have been seen in the U.S. In a comprehensive review of U.S. laws intended to reduce underage drinking-driving crashes, Romano et al.[354] found that increased alcohol outlet density was associated with increased prevalence of fatal underage drinking-driving car crashes

## Outlet Density and College Drinking Problems

Research study findings consistently demonstrate that greater alcohol outlet density is associated with increased use and related harms.

Weitzman et al.[358] assessed the relationship between alcohol outlet density within a two-mile radius of eight college campuses and college drinking and found the number of alcohol outlets to be positively associated with heavy drinking (five or more drinks at an off-campus party during the past 30 days), frequent drinking (at least ten drinking occasions during the past 30 days), and drinking-related problems (five or more problems due to one's own alcohol use reported that school year).

Williams et al.[296] used survey data from the Harvard School of Public Health's 1993, 1997, and 1999 College Alcohol Survey and reported that the number of alcohol outlets within a one mile radius of campuses was positively associated with the probability of students' past-month alcohol use.

Scribner et al.[359] examined whether the density of alcohol outlets within a three-mile radius of college campuses across the country was associated with drinking patterns, after controlling for individual-level factors (e.g., socio-demographics, participation in Greek or athletic activities, grade point average). Findings suggest that on-premise alcohol outlets are associated with an increase in the average number of drinks consumed while partying and the number of drinking occasions during the past month.

Snowden[360] examined the relationship between alcohol outlets and intimate partner violence (IPV) in a non-metropolitan college town, and found a significant association between total outlet and off-premise outlet density and the density of IPV.

among 15- to 20-year-olds and with increased per capita beer consumption among individuals aged 15 years and older.

**College Population:** Chaloupka and Wechsler[355] reported that greater numbers of alcohol outlets near campus were associated with drinking and binge drinking among college students due to the increased availability of alcohol. High levels of outlet density surrounding a campus can also lead to increased secondhand effects of alcohol use such as noise and disturbances, vandalism, public drunkenness, vomiting, and urination.[356]

### Tips for Implementation

Influencing alcohol outlet density requires active community involvement and engaging with existing or developing new community coalitions. There are numerous models of how communities have done this around the country. Some communities have even been able to establish penalties through the planning and zoning codes, and use funds generated by them to fund enforcement of relevant codes.[357]

The Center on Alcohol Marketing and Youth at the Johns Hopkins Bloomberg School of Public Health and Community Anti-Drug Coalitions of America developed a comprehensive action guide on reducing alcohol outlet density, which can be found here.

## Strategy: Maintain Limits on Days and Hours of Sales

### Theory Behind the Strategy

Limiting the days and hours of alcohol sales reduces the availability of alcohol. In Maryland, the days and hours of sale vary by the class of licensees and from county to county. With few exceptions, these hours are set by the Maryland General Assembly.

### Evidence of Effectiveness

**General Population:** Evidence suggests regulating alcohol trading times can have a potential direct positive effect in the prevention of injuries, alcohol-related hospitalizations, homicides, and crime.[361] Maintaining limits on the days in which alcohol is sold can effectively reduce alcohol use and related harms among the general population.[362] Jurisdictions that banned alcohol sales one day of the week saw a general decline in alcohol use and related harms, whereas places that increased the days of sale saw an increase. There is also evidence that limiting the hours of sales is an effective prevention strategy—a change of more than two hours in any direction is likely to have a measurable effect.[363] In recent years, numerous states and localities have repealed bans on the sale of alcohol on Sundays. An evaluation of the effects of these repeals found they were associated with significant increases in total violent and property crimes committed on Sundays.[364]

**College Population:** To our knowledge, no research has been conducted to specifically assess the effectiveness of limiting the days and hours of alcohol sales on college student alcohol use and problems.

## Strategy: Maintain Limits on Privatization of Alcohol Sales

### Theory Behind the Strategy

Privatization of alcohol sales takes away governmental control of retail sales, which enables more commercial retailing, leading to greater alcohol use and related harms. With privatization comes a greater density of alcohol outlets that compete for lower prices.[365] More outlets often lead to greater marketing, modest government or law enforcement oversight, and less enforcement of laws and regulations.

### Evidence of Effectiveness

**General Population:** There is conclusive evidence from a large systematic review indicating that further privatization leads to increased alcohol use and related harms among the general population.[366]

**College Population:** It can be assumed that privatization of retail alcohol sales similarly affects college students; however, we are not aware of any peer-reviewed studies that have directly assessed the effects on the college population.

### Tips for Implementation

This strategy has limited relevance in Maryland, where alcohol distribution is already in private hands with the exception of Montgomery, Somerset, Wicomico, and Worcester counties, which maintain control over the distribution of distilled spirits within their borders.

## Strategy: Minimum Legal Drinking Age

The Minimum Legal Drinking Age (MLDA) law prohibits persons under the age of 21 from purchasing, possessing, or consuming alcohol in the U.S. In Maryland, persons under 21 may possess and consume alcohol in the presence of members of their immediate family who are of legal age (either a parent/guardian or a spouse) in a private residence.[327]

### Theory Behind the Strategy

The MLDA law is intended to reduce access to alcohol for those under the age of 21, and builds on the basic and well-supported theory that the more difficult it is to obtain alcohol, the less people will drink and the fewer alcohol-related problems they will have.[79]

### Evidence of Effectiveness

The MLDA law has been extensively evaluated, and there is strong evidence that it has contributed towards reductions in alcohol use and related harms among young people.[367,368] In conjunction with other strategies to reduce alcohol-impaired driving, MLDA policies have reduced the proportion of youth involved in fatal motor-vehicle crashes.[368-370]

Although the minimum purchase age for alcohol is effective, enforcement of it is critical to its success. An early study reported low levels of enforcement activity surrounding MLDA in certain jurisdictions,[371] but a systematic review found that enhanced enforcement of the MLDA effectively reduced purchases by underage persons.[372] A recent study at Cornell University found that after several years of increased MLDA enforcement at the school's annual celebration, Slope Day, high-risk drinking was significantly reduced on the day of the event, especially among underage drinkers.[373] Increased MLDA enforcement at Greek and off-campus parties has also been associated with decreased likelihood of drinking to intoxication among college students.[329]

Debate over the effectiveness, fairness, and practicability of 21 as the minimum purchase age for alcohol flares occasionally; however, there is strong and compelling public health evidence to maintain it.[368,370,374-377]

### Tips for Implementation

Commercial sellers of alcohol, such as bars and liquor stores, can assist in enforcing the MLDA by not selling alcohol to minors.[371] Overall, enhanced enforcement of alcohol sales to minors is necessary for the MLDA to be effective.[371] See the sections on regulating alcohol outlet density and compliance checks for additional information about enforcement of the MLDA through commercial alcohol sales.

## Strategy: Compliance Checks for Alcohol Outlets

A compliance check usually involves an underage person attempting to purchase alcohol while under the supervision of law enforcement officials. If the underage patron successfully purchases the alcohol, the server and/or the licensee might be penalized, usually through action by the local board or commission that regulates alcohol licensing.[295] According to one recent survey of college administrators, 83% of college campus enforcement directors said compliance checks had been performed at outlets surrounding their campuses.[378]

### Theory Behind the Strategy

Compliance checks involve sending underage decoys into alcohol retailers to try to purchase alcohol; if retailers sell without checking ID, they are subject to penalties. Retailers can be cited multiple times if they continue to sell without checking identification; this policy requires a combination of certainty, swiftness, and severity to be effective.[379]

## State Experiences in Enforcing Underage Drinking Laws through Compliance Checks

In California, police increased their enforcement efforts to prevent alcohol sales to those under the MLDA of 21 using a multi-step process, which led to a reduction in underage sales.[382]

- Alcohol outlets received warning letters informing them about enhanced enforcement.
- Police had underage patrons try to buy alcohol and then cited those outlets for which underage patrons made successful purchases.
- Additional warning letters were sent regularly reminding retailers about ongoing compliance checks.
- As a result, outlets in communities that increased enforcement efforts were roughly half as likely to sell alcohol to minors compared with outlets in communities that did not increase their enforcement efforts.

In New Orleans, the Louisiana Department of Alcoholic Beverage Control and researchers partnered to conduct compliance checks at nearly 150 alcohol outlets.[383]

- Media coverage of non-compliant outlets brought the compliance checks to the attention of the communities involved.
- Non-compliant outlets received citations.
- Alcohol outlets that did not ask for age verification, enabling the sale to underage persons, failed the compliance check.
- The compliance checks and related media coverage of the citations that were issued to outlet managers led to increased compliance by retailers with laws prohibiting sales to underage patrons.

Twenty cities in the Midwest incorporated both compliance checks and the training of alcohol outlet managers into a Complying with Minimum Drinking Age project. The compliance checks were associated with reductions in alcohol sales to underage patrons in on- and off-premise outlets. However, within three months, these effects disappeared for off-premise establishments, while reductions in on-premises outlets fell by half.[380]

### Evidence of Effectiveness

A systematic review of studies on enforcement of the MLDA among retailers selling alcohol found compliance checks to be effective in reducing alcohol sales to minors.[372]

### Tips for Implementation

Ideally, compliance checks should be administered at all alcohol outlets in the community, as compliance checks done only at selected outlets do not deter illegal alcohol sales by other retailers.[380] Compliance checks should be conducted more frequently than once or twice annually for a sustainable reduction in the chances of sales to underage customers.[295] If there are long periods between compliance checks, they will not function as an effective deterrent.[381] College administrators could gather information on outlets most commonly frequented by their students and share the findings with local law enforcement personnel so that compliance check efforts may be directed accordingly. Comprehensive implementation and enforcement information is available from the federal Office of Juvenile Justice and Delinquency Prevention (OJJDP) in A Practical Guide to Compliance Investigations.

## Strategy: Dram Shop Liability

There is currently no dram shop (commercial host) liability in Maryland.[384]

### Theory Behind the Strategy

Dram shop liability holds commercial hosts (servers or sellers) liable if a patron in their establishment drinks and then causes harm to a third party.[385] This liability increases the potential costs to the seller of serving intoxicated patrons, thus deterring them from doing so.

### Evidence of Effectiveness

**General Population:** Systematic reviews of the literature on the effectiveness of dram shop liability found significant reductions as a result of these laws in several outcomes, including motor-vehicle crash fatalities from all causes and those due to alcohol, alcohol use, and other alcohol-related consequences.[368,385] Another recent evaluation concluded that nine lives could be saved annually if the six states without such laws (including Maryland) were to enact them.[386]

**College Population:** To our knowledge, no research has assessed the effectiveness of dram shop laws in reducing alcohol use and alcohol-related harms specifically among college students. However, there is no reason to think that college populations would be any different than the general populations; it is likely that college students would experience similar reductions in alcohol-related harms resulting from dram shop liability.

### Tips for Implementation

Community Anti-Drug Coalitions of America and the Center on Alcohol Marketing and Youth have produced a useful *Strategizer* on best practices in reducing alcohol-related harms through commercial host liability.[387]

# Strategies to Reduce Economic Availability

## Strategy: Restrict Price Promotions and Discounts

This strategy should apply to both on- and off-campus outlets, including on-campus pubs, cash bar events, or sales at sporting events if those exist, and should include banning happy hours, ladies' nights, bulk discounts, etc.

### Theory Behind the Strategy

Alcohol pricing specials and other promotions are common in outlets surrounding college campuses.[328] The price of alcoholic beverages affects the quantity consumed.[388] Because less expensive alcohol drinks are associated with people consuming a greater number of beverages,[389] restricting price specials is one way to reduce alcohol consumption.

### Evidence of Effectiveness

**General Population:** A study of persons ages 15 and older in British Columbia, Canada found that a 10% increase in minimum pricing standards for a specific type of alcohol led to about a 16% reduction in the use of that beverage type compared with others.[390] Similarly, a New Zealand study[391] found that consumption increased among drinkers ages 16 to 19 as price per drink decreased, with binge drinkers concentrating on the lowest cost beverages. If minimum unit prices can be imposed (as is done in the U.S. in most of the state-run alcohol monopolies), and if taxes were

based on the alcohol content of the beverage (which is not the case in much of the U.S.), the resulting changes in consumption will also reduce health inequities.[392]

## Drink Specials Around Campus Influence Alcohol Use

One study[393] examined bar-sponsored drink specials in an area around a college campus and their impact on students' alcohol use. A greater proportion of females reported taking advantage of drink specials compared with males. However, those who did not take advantage of drink specials reported drinking more before going to the bar. "All you can drink" specials were associated with a greater prevalence of drinking to intoxication, regardless of gender.

**College Population:** Several studies have looked at the influence of alcohol pricing on drinking among college students. A national study found that college students were less likely to shift from alcohol abstainer to moderate drinker (males who drink less than five drinks and females who drink less than four drinks, per occasion) and from moderate drinker to heavy drinker (above the five/four-drink threshold by gender) in localities with higher prices of alcohol. Based on statistical models, a one-dollar increase in the price per drink reduced the chances of transitioning into a more risky drinking category by about 33%.[394] It is unknown how long these predicted effects hold.

Multiple studies have found similar results, recognizing that restrictions at the state and local levels are associated with reductions in alcohol use by college students.[296] One study used data from a nationally-representative sample of 5,472 underage students and found alcohol marketing and price promotions strongly associated with underage drinking—more so than alcohol education, social norms, or other alcohol policies.[395]

An observational study of 2,514 alcohol outlets surrounding 118 college campuses spread across the U.S. found pricing specials or beer discounts in nearly half of on-premise and more than 60% of off-premise establishments. College campuses near these outlets were more likely to report higher binge drinking prevalence. Further, nearly two-thirds of the on-premise establishments offered drink specials on weekends. Again, there was a high correlation between weekend beer specials and college student binge drinking.[328]

Baldwin et al.[396] used data collected from bar-going college students to assess the effect of happy hour pricing on drinking behavior. Women, underage students, non-athletes, Greek-affiliated students, more affluent students, and students living on campus and in Greek housing were more likely to increase their drinking in response to happy hour specials. This corroborates findings from other research that female college students might be more sensitive than males to the effects of increasing the price of alcohol,[355] but this has not been consistently reported across studies. Baldwin et al.[396] also observed increased drinking due to happy hour pricing was a strong predictor of negative outcomes such as drinking-driving and having unprotected sex, even after controlling for an additional 11 demographic and drinking-related factors.

A study conducted in the bar district surrounding a college campus in the Southeast found that a 10-cent increase in the cost per gram of alcohol was associated with a 30% reduced likelihood of drinking to intoxication (defined as a BAC of 0.08%).[397] Another study found that students were more likely to start binge drinking when alcohol was cheap or discounted.[328] Additionally, students who paid one dollar or less for an alcoholic beverage were more likely to start binge drinking compared with those who paid more than one dollar.[398]

Kuo et al.[328] analyzed data from the 2001 College Alcohol Study and conducted observations in alcohol establishments around college campuses. They found that "college campuses with more on-premise establishments offering weekend beer specials or special promotions had higher binge drinking rates."

### Tips for Implementation

Pricing specials can increase the likelihood of excessive drinking[399] and should be restricted around college campuses. Some students drink before going to bars,[393] in a practice known as "pre-loading" or "pre-gaming," which has been associated with higher levels of drinking, intoxication, and at-risk alcohol behaviors among U.S. college students.[400] This points to the importance of restricting pricing specials at both on- and off-premise alcohol outlets. Furthermore, not only pricing specials but also advertisements for pricing specials should be restricted.[328] In practice, these kinds of policy changes will require close collaboration between campus representatives and community coalitions.

## Strategy: Increase Alcohol Pricing through Taxation

Cheap alcohol is prevalent across types and brands.[401] This is concerning, given that the lower the price is for alcohol, the more people will drink.[389] Alcohol taxation is effective at increasing alcohol prices and is a useful and highly cost-effective public health strategy in reducing alcohol-related mortality and morbidity.[402,403]

Most alcohol taxes are excise taxes, which are based on the volume of the beverage. Because of this, the tax rates do not keep up with inflation—alcohol producers, wholesalers, and retailers in essence receive a tax cut every year that these taxes do not increase. A national study of trends in state alcohol taxes from 1991 to 2015 found that, on average, taxes fell by 30% for beer, 32% for distilled spirits, and 27% for wine over that period.[404]

Alcohol taxes may only be increased at the state level in Maryland; local authorities are explicitly pre-empted from doing so.[405] The state of Maryland implemented a new 3% sales tax on alcohol in 2011; however, the excise taxes on liquor have not increased since 1955, and on beer and wine since 1972. In the 18 months following its implementation, the new sales tax led to a reduction in alcohol sales (a proxy for use) of 3.8%,[406] and a reduction in gonorrhea cases of 24%.[407]

### Theory Behind the Strategy

Basic economic theory predicts that when prices of a commodity increase, people will consume less of it. Numerous studies have confirmed that this is the case with alcohol, even for heavy drinkers.

### Evidence of Effectiveness

**General Population:** Increasing the price of alcohol or alcohol taxes is one of the most effective and well-documented strategies to reduce alcohol use and related harms among the general population and college students. A systematic review of more than 100 studies found that increased prices and taxes of alcoholic beverages was associated with reduced alcohol use, across the spectrum of light to heavy drinkers.[408] Another systematic review of 50 studies found that increased prices and taxes of alcoholic beverages were associated with decreased alcohol-related harms, including violence, suicide, motor-vehicle crashes, sexually-transmitted diseases, drug use, and crime.[402] Consistent with other systematic reviews, a review of more than 70 studies, some of which included adults and minors, also concluded that increases in alcohol prices and taxes were associated with decreases in both use and related harms.[409]

**College Population:** Among 16- to 21-year-olds across the nation, higher beer taxes have been associated with less frequent use[410,411] and with reductions in motor-vehicle crash fatalities.[411] Furthermore, research among college students has found higher beer taxes to be associated with reductions in several indicators of violence, including getting into trouble with legal or campus authorities, damaging property, getting into a fight or argument, and sexually being taken advantage of or taking advantage of someone else.[412]

### Tips for Implementation

The Center for Science in the Public Interest and the Community Anti-Drug Coalitions of America offer tips on Increasing Alcohol Taxes to Fund Programs to Prevent and Treat Youth-Related Alcohol Problems.

## Strategy: Restrict Alcohol Marketing

### Theory Behind the Strategy

Exposure to alcohol marketing influences the likelihood of whether or not young people will use alcohol and how much they will drink.[313,413] Restricting alcohol marketing to certain audiences and in specific places or jurisdictions might lead to reductions in alcohol use among youth, young adults, and among the general population.

### Alcohol Marketing and College Drinking Environments

One study[328] evaluated the alcohol environment of off-premise establishments (e.g., liquor and convenience stores) surrounding college campuses based on several factors, such as interior and exterior advertisements and price promotions, and found that attending schools in areas with more alcohol marketing was associated with consuming more drinks during the past month.

### Evidence of Effectiveness

The alcohol industry uses its resources strategically and has a strong influence on the youth alcohol market.[414] Findings from two recent reviews of the research literature agree that adolescents (aged 18 or younger) who are exposed to alcohol media and commercial communications about alcohol were more likely to start drinking or consume greater quantities if they already drink.[313,415]

According to the Center on Alcohol Marketing and Youth,[416] when compared with adults, youth ages 12 to 20 are disproportionately exposed to a substantial portion of alcohol marketing on television, and youth exposure via television grew by 71% from 2001 to 2009, faster than the exposure of young adults or adults in general.

A study of college students in a lab setting found that exposure to beer commercials on television was subsequently associated with more positive beliefs about factors that are predictors for alcohol use, such as social benefits.[417] Those exposed to beer commercials also showed greater acceptance of risky drinking behaviors, such as alcohol-impaired driving.

Young people's exposure to alcohol marketing is not limited to television. Underage persons are also exposed through the radio,[418] popular music,[419,420] and the Internet,[421] as well as other forms of electronic communication that are popular among young people, such as social networking sites and mobile phones.[422] Functional magnetic resonance imaging research has found that viewing alcohol advertisements activates reward systems in the college students' brains that might motivate drinking behavior.[423] Furthermore, experimental research has found that affiliating beer brands with

a students' university increases the motivational significance of that brand for underage students, which has implications for their alcohol involvement.[424]

Social media are of increasing importance. A summary of research literature available since 2000[425] found extensive alcohol promotion on digital media by leading brands, and that exposure to these promotions was associated with increased consumption, risky behaviors, and binge drinking. College students' receptivity to alcohol marketing, measured in part by engagement with social media promotions, has been found to be associated with drinking behavior, at roughly the same level as peer influences.[426] One study found that students' use of alcohol-related social media predicted their problem drinking behaviors.[427]

Another U.S. study has found that alcohol-related social media use is associated with problem drinking behavior among college students.[428] Another study using a survey of 18- to 25-year-olds in the U.K., found that digital marketing was more successful at reaching young adults and that it had a stronger, significant association with greater reported frequency of binge drinking compared with ads in traditional media such as television and print.[428,429] Additionally, a summary of research literature available since 2000 found extensive alcohol promotion on digital media by leading brands, associated with increased consumption, risky behaviors, and binge drinking.[425] Some evidence indicated that alcohol marketing via digital media allowed underage purchases to be delivered directly to users.

Findings from a study of underage students identified exposure to alcohol marketing as a leading risk factor for underage drinking, suggesting that reducing marketing exposure might be an effective intervention among underage drinkers.[395] However, there are very few studies of the effectiveness of doing so; a recent review[430] only found four,[431-434] which together provided low support for the effectiveness of such restrictions. However, a limitation of this review was the inclusion of small, outdated studies of mixed design.[428]

Modeling based on data from published studies has estimated that a ban on all alcohol advertising would lead to a 16% reduction in years of life lost due to alcohol among young people; a partial ban would produce a 4% reduction.[435] Although these studies were not specific to college students, it can be assumed that college students respond similarly to exposure to alcohol marketing compared with other young people ages 20 and younger.

### Tips for Implementation

Jurisdiction over advertising lies primarily with the federal government. However, states have substantially more power in this arena than they have exercised.[436] For instance, states (and in some cases localities) can limit retail signage for alcohol, outdoor advertising, advertising on publicly-owned property (including at public post-secondary educational institutions), giveaways, and samplings. Colleges and communities can work together to explore and implement these policies at the state and local level. For instance, college administrators can ban alcohol advertising in campus-sponsored publications and signage and prohibit alcohol marketing in residential housing.

## Strategy: Multi-component Interventions with Community Mobilization

### Theory Behind the Strategy

Communities can participate in efforts to reduce alcohol use and related problems. They have the potential to influence community policies and law enforcement practices. Communities can also

influence alcohol retailers, adults, parents, and youth. Based on citizen politics, community organizing, and public action theories, community mobilization might lead to effective multi-component interventions that reduce excessive drinking among college students.[437,438]

## Study to Prevent Alcohol-Related Consequences (SPARC)

Campus-community organizers worked with selected universities throughout North Carolina to implement environmental strategies on campuses and in surrounding communities.[25,33]

**Intervention**

Organizers formed campus-community coalitions. From a menu of choices, these coalitions decided which environmental strategies to try to implement in their area. Categories for environmental strategies included availability, price/marketing, social norms, and harm minimization.

**Evidence of Effectiveness**

- Compared with control areas, students in intervention areas reported greater reductions in severe consequences due to their own drinking and in causing alcohol-related injuries to others.
- Greater levels of implementation were related to reductions in interpersonal consequences due to others' drinking and alcohol-related injuries caused to others, such that an estimated 107 fewer students experienced injuries due to others' drinking.

The NIAAA's CollegeAIM states that, "Some of the most effective strategies are carried out in the communities and states surrounding the campuses…Campus leaders can be influential in bringing about off-campus environmental changes that protect students."[7] This parallels the Surgeon General's 2007 Call to Action to Prevent and Reduce Underage Drinking, which invokes campus-community partnerships as a method for changing campus culture "to address underage drinking as a community problem as well as a college problem and to forge collaborative efforts that can achieve a solution."[439]

### Evidence of Effectiveness

Several well-designed and evaluated multi-component interventions have involved community mobilization, including the Communities Mobilizing for Change on Alcohol (CMCA),[24,437,440,441] the Study to Prevent Alcohol Related Consequences (SPARC),[25] the Safer California Universities study,[442] and the National Effort to Reduce High-Risk Drinking Among College Students.[26,34] These have all been associated with reductions in underage drinking.

Overall, a recent review of environmental-based community interventions concluded that multi-component changes in community environments can reduce alcohol use and related harms among youth and adults.[443]

### Tips for Implementation

Each community is unique, so there are not specific implementation guidelines.[7,443] Community members can be key stakeholders in college alcohol issues, and working with them can lead to reductions in excessive alcohol use among college students. Mobilizing communities to form partnerships with law enforcement agencies can help increase the effectiveness of enforcement efforts.[444] More information on this strategy is available in an intervention manual on Using a Community Organizing Approach to Implement Environmental Strategies in and around the College Campus.[33]

## Drinking-Driving Reduction Strategies

A range of drinking-driving reduction strategies have been found to be effective; however, it is also important to note that drinking-oriented policies, such as tax and price increases, can also reduce drinking-driving.[445] Situating drinking-driving reduction efforts within a larger, multi-level, and multi-component strategy to reduce college drinking and related problems will be the most effective approach.

## Strategy: 0.08 g/dL BAC Laws

### Theory Behind the Strategy

Blood alcohol concentration (BAC) laws are legal standards by which individuals are deemed impaired or unable to operate a vehicle. The existence of the laws allows law enforcement to objectively measure impairment. These laws are intended to encourage people not to drive after heavy alcohol use in order to protect themselves and others.

### Evidence of Effectiveness

**General Population:** Two systematic reviews have found a vast literature supporting BAC limits for drivers of motor vehicles with the overall conclusion that they are effective.[446,447] For instance, with the implementation of 0.08 g/dL BAC laws across the U.S., the proportion of fatal crashes involving one of the drivers with a BAC of 0.08 g/dL or above decreased from 45% in 1982 to about 20% in 1997, remaining relatively constant at that level ever since.[448]

As demonstrated by Tung et al.,[449] action by Congress in 2000 tying eligibility for federal highway construction funds to adoption of 0.08 g/dL BAC laws resulted in a ten-fold increase in states passing such laws. Incentive grants and other voluntary measures did not have a statistically significantly effect.

On May 14, 2013 the National Transportation Safety Board recommended that states lower the driving BAC limit from 0.08 g/dl to 0.05 g/dl.[450] Because the risk for a crash increases significantly at and above 0.05 g/dl BAC, lowering the driving BAC limit from 0.08 g/dl to 0.05 g/dl could substantially reduce the number of drinking-driving-related fatalities in the U.S.[451] However, as of July 1, 2019, only one U.S. state (Utah) has moved to reduce the permissible BAC level from 0.08 to 0.05.[452,453]

**College Population:** Studies specific to college students and BAC limits have largely focused on zero-tolerance policies, which are discussed next.

### Communities Mobilizing for Change on Alcohol (CMCA)

To reduce alcohol use among youth in Minnesota and Wisconsin, this study targeted entire communities.[441] They followed seven steps in the community organizing process:

1. *Assessing the community*: assessing community wants, needs, and resources.
2. *Creating a core leadership group*: identifying key supporters to plan and implement the campaign.
3. *Developing a plan of action*: creating a workplan and timeline for implementing activities and accomplishing goals.
4. *Building a mass base of support*: attracting new supporters and building community awareness and involvement in the campaign.
5. *Implementing the action plan*: implementing activities identified by the campaign leadership that were designed to achieve the goals.
6. *Maintaining the organization and institutionalizing change*: initiating activities to sustain the campaign and its accomplishments.
7. *Evaluating changes*: evaluating campaign activities and outcomes.

**Intervention**

Community organizers worked with communities for 2.5 years to change local policies regarding youth access to alcohol. They worked with public officials, enforcement personnel, alcohol retailers, merchant associations, the media, schools, and other community groups. Community organization led to changes in retail policies and practices, increased media coverage, and improved law enforcement practices.[440]

**Evidence of Effectiveness**

- 18- to 20-year-olds were less likely to provide younger youth alcohol, attempt to purchase alcohol, drink in a bar, or consume alcohol.
- Alcohol retailers increased their practice of verifying patron's age and reduced the likelihood of selling to underage patrons.[24]
- Arrests and traffic crashes declined among those ages 15 to 17 and 18 to 20.
- Alcohol-impaired driving arrests fell among 18- to 20-year-olds.[440]

## Strategy: Zero Tolerance Laws

In Maryland, the allowable BAC is 0.00 g/dL for drivers under the age of 21.[327]

### Theory Behind the Strategy

Persons under the MLDA of 21 are young and relatively inexperienced drivers, putting them at a greater risk for involvement in crashes compared with sober males ages 21 to 35.[454] In this context, all states have established lower BAC limits for people under 21, compared with the standard BAC limit of 0.08 g/dL for drivers 21 years of age and older.

### Evidence of Effectiveness

**General Population:** Along with other alcohol-impaired driving deterrence policies, implementation of zero tolerance policies contributed to a reduction in the proportion of all drivers who had a BAC of 0.08 or higher and of 0.01 or higher who were involved in fatal motor-vehicle crashes between 1982 and 1997.[448]

**Underage Youth and College Students:** Studies of youth drivers have found zero tolerance policies effective in reducing the prevalence of drinking involvement in motor-vehicle crashes, both nationwide[368,369] and in Maryland.[455]

### Tips for Implementation

College administrators can work with local law enforcement officials to assure that existing deterrence policies are well-publicized and strongly enforced.[456] College police departments or public safety offices can collaborate with community police on enforcement efforts. Such efforts are reportedly common; in a 2013 survey of college administrators, 79% of college campus enforcement directors said drinking-driving patrols were performed by campus and/or local police.[378] Younger college students might not be aware of the stricter BAC limit for their age group, and building awareness of this might be protective. College students ages 21 and over might perceive fewer consequences associated with alcohol-impaired driving since they are not subject to the zero-tolerance policy[456]; however, they are by no means immune to the associated harms.

## Strategy: Graduated Driver's Licensing

In Maryland, people can obtain their learner's permit starting at the age of 15 years, 9 months. Then at 16 years, 6 months, a provisional driver's license with restrictions on hours of driving and number of passengers can be obtained. The minimum age to receive a full driver's license is 18 years.[457]

### Theory Behind the Strategy

Novice drivers are more at risk for being involved in crashes due to inexperience.[458] Young drivers have the opportunity to gain more experience during a required provisional period. Because alcohol-related crashes are most likely to occur at night,[459] restrictions on nighttime driving as well as the number of passengers are indirectly designed to reduce alcohol-related crashes.[460]

### Evidence of Effectiveness

An international systematic review of 34 studies on the effectiveness of graduated driver's licensing (GDL) found that such policies are associated with significant reductions in motor-vehicle crashes as well as related injuries and fatalities.[461] Other published reviews of the literature have consistently found GDL policies effective in reducing motor-vehicle crashes and related consequences.[460,462,463] Moreover, compliance is high. An analysis of 2013 New Jersey data showed 92.7% compliance with passenger restrictions and 96.9% compliance with restrictions on night-time driving.[464] Although the majority of studies usually did not specifically study college students and alcohol-related crashes, it can be assumed that the protective effects of GDL policies extend to them.

## Strategy: Sobriety Checkpoint Programs

### Theory Behind the Strategy

Sobriety checkpoint programs consist of law enforcement officials systematically stopping drivers on the road to test them for alcohol use during periods when a high prevalence of drivers on the road might be under the influence of alcohol as a strategy to reduce alcohol-impaired driving by increasing drivers' likelihood of being apprehended.[318] This includes weekend nights after bars close and during holidays or sporting events.

### Evidence of Effectiveness

**General Population:** A systematic review of the literature on sobriety checkpoints concluded there was strong evidence of effectiveness for random breath testing and selective breath testing for reducing injuries and fatalities associated with alcohol-related crashes.[447]

A nationwide assessment of sobriety checkpoints revealed that 58% of law enforcement agencies conduct some level of sobriety checkpoints, but only 14% of them do so monthly or more frequently.[465] Another recent national study[316] showed that states with a sobriety checkpoint law had 18.2% lower drinking-driving than states without such a law; for states conducting checks at least monthly, the figure was 40.6%.

**College Population:** At two universities near the U.S.-Mexico border, sobriety checkpoints were part of a multi-strategy study to reduce alcohol-impaired driving among college students. The intervention was supported by a social marketing campaign and media coverage at the checkpoints. Following the intervention, there was a significant drop in self-reported alcohol-impaired driving.[319] A high-visibility enforcement (HVE) campaign involving police-supervised sobriety checkpoints in two mid-Atlantic college communities was immediately and sustainably associated with reduced underage drinking after driving, reduced driver BAC levels, and increased perceived risk of being stopped by the police while drunk.[466] However, it is important to realize that the effectiveness of sobriety checkpoints is contingent upon their frequency and visibility.[79]

### Tips for Implementation

Unfortunately, there has been a general decline in sobriety checkpoint use in the U.S. since the 1980s and 1990s, which is limiting their effectiveness.[467] Some schools might have their own law enforcement officials with authority to work at sobriety checkpoints, while others will need to rely on community officials.[319] For those agencies that do not have the resources to implement full-scale sobriety checkpoints, it should also be noted that "low-staffing sobriety checkpoints" can be implemented instead. These low-staffed sobriety checkpoints are a law enforcement strategy that preliminary studies[468] have suggested can have as great an impact as more labor-intensive approaches ("high-staffing"), if combined with sufficient publicity. Furthermore, this approach might be more feasible for local law enforcement because it is less resource-intensive and could reduce barriers to adoption of policies to conduct such checkpoints on a regular basis.[468]

## Strategy: Ignition Interlocks

As of 2016, Maryland law requires anyone convicted of drunk driving in the state to accept installation of an ignition interlock in their car or face an unlimited driver's license suspension.[469]

### Theory Behind the Strategy

Ignition interlocks can be installed to prevent a driver who has a BAC above an established level (typically 0.02% to 0.04%) from operating a motor vehicle.

### Evidence of Effectiveness

**General Population:** A recent systematic review of the effectiveness of ignition interlocks found that they were effective in reducing re-arrest rates during the time period when they were installed in offenders' cars.[470] McGinty et al.[471] found that the rate of >0.08 BAC fatal motor vehicle crashes reduced by 7% in the U.S. when all drunk driving offenders were required to install interlocks. Carter et al.[472] project that 85% of crash fatalities (more than 59,000), and 84% to 88% of nonfatal injuries (more than 1.25 million), attributed to drinking drivers would be prevented if ignition interlock

systems were mandatorily installed in all U.S. vehicles. The authors estimate that this would save approximately $342 billion in injury-related costs.

**College Population:** To our knowledge, no research has been conducted to assess the effectiveness of ignition interlocks among college students.

#### Tips for Implementation

Ignition interlocks might only prevent re-arrests for alcohol-impaired driving as long as the device remains installed in the vehicle. Ignition interlocks could also be incorporated into treatment programs for those diagnosed with alcohol dependence. In this context, the presence of an interlock device could force a decision between drinking or driving, which could ultimately lead to a reduction in alcohol use.[470]

## Promising but Little or Mixed Evidence of Effectiveness

Policies in this section are promising, but 1) there is not a substantial body of evidence of effectiveness for them in campus settings or 2) the evidence of effectiveness is mixed.

### Strategy: Regulate Free Alcohol, Samplings, and Tastings

#### Theory Behind the Strategy

Access to free alcohol, including samplings and tastings, increases the availability of alcohol, which contributes to increased use and related harms.

#### Evidence of Effectiveness

To our knowledge, no studies have assessed the impact of providing free alcohol, alcohol samplings, or tastings on alcohol use.

### Strategy: Enforcement of Laws Prohibiting the Possession and/or Manufacturing of False IDs

For persons under the MLDA of 21 in Maryland, the use of false identification (ID) to obtain alcohol is a criminal offense. Penalties may include a driver's license suspension through a judicial procedure.[327]

#### Theory Behind the Strategy

Owning a false ID is associated with the likelihood of heavy drinking.[473,474] False IDs are obtained by tampering with one's own ID, using the ID from someone of legal drinking age, or ordering false IDs through multiple internet sites and/or friends and peers. Penalties for using false IDs are intended to prevent people under the MLDA from being able to access alcohol from commercial sources.

The use of false IDs is common among underage college students[475] and the probability of having one increases over the course of freshman and sophomore year.[473] The ability to successfully purchase alcohol with a false ID might vary across cities and even at the neighborhood-level.[476] Because false ID use can facilitate more frequent drinking, longitudinal research has found that it can increase the risk for developing an alcohol use disorder.[477]

#### Evidence of Effectiveness

The first known study to assess the effects of false ID laws on underage alcohol use found that false ID laws that incentivize bar owners and retailers to use electronic scanners to verify patron age

significantly reduce underage drinking by as much as 0.22 drinks per day on average.[478] Another recent study found that false ID laws that prohibit the manufacturing or selling of fake identification to underage youth were associated with significant decreases in underage drinking-driving crash fatalities.[479]

### Tips for Implementation

In a national survey, more than half of college students supported stricter penalties for using false IDs to buy alcohol[480] while another survey found less than 18% reported using a false ID.[299] However, in a survey of more than 1,000 underage college students who had used false IDs, fewer than 30% reported getting caught.[481] It can be assumed that the majority of false ID owners have used it more than one time so the chance of getting caught is substantially less than one in three. To this end, rather than making the penalties more severe, a more effective way to deter underage persons from using false IDs would be to increase their perceptions of the certainty of getting caught.

OJJDP offers further enforcement tips in the Law Enforcement Guide to False Identification and Illegal ID Use.

## Strategy: Shoulder Tapping Campaigns

### Theory Behind the Strategy

Shoulder tapping is a law enforcement campaign where underage individuals (under the supervision of law enforcement) ask patrons who are of legal age at off-premise alcohol outlets to purchase alcohol for them from grocery, convenience, or liquor stores. The adults who purchase for the youth are then cited for providing alcohol to a minor.

### Evidence of Effectiveness

Student focus groups at the University of Minnesota suggested that shoulder tapping is not very common.[475] A recent survey of local U.S. law enforcement found that fewer than half (42%) of local agencies conduct enforcement strategies that target adults who provide alcohol to underage youth.[482] In addition, at least one small study suggested that the majority of people who receive a request to buy alcohol for an underage stranger will not do so.[483] Another survey of current or recent college students ages 22 to 26 who were approached at least once since turning 21 by minors seeking alcohol found that few young adults provide alcohol to acquaintances or strangers (21% and 4%, respectively).[484]

### Tips for Implementation

Given the relatively small likelihood of underage college students obtaining alcohol through shoulder tapping, these campaigns, as an isolated strategy, have limited potential to effectively address underage access to alcohol.

## Strategy: Require Responsible Beverage Service Programs

### Theory Behind the Strategy

Responsible Beverage Service (RBS) training programs are intended to teach owners, managers, and other servers at alcohol establishments how to serve responsibly and abide by legal codes, such as not selling to obviously intoxicated patrons or those under the MLDA, to reduce alcohol-related harms.

Maryland law requires a licensee or an employee designated by the licensee to be trained in a certified alcohol awareness class that includes RBS training. In a half-dozen counties, the licensee or a designated employee in a supervisory position must receive the training and be on premises when alcohol is being served. This training teaches servers to check for IDs in order to not sell to underage youth as well as not serve obviously intoxicated patrons. Serving alcohol to a minor is a misdemeanor offense and punishable by fines up to $1,000 and imprisonment of up to two years. It is up to the local law enforcement agency, often in consultation with the state's attorney, to determine whether to charge the individual server, the licensee, or the manager for service to a minor.

### Evidence of Effectiveness

Research has found that RBS programs do not consistently contribute to reductions in alcohol use and related harms; however, they might play an important role in the effectiveness of enforcement of other strategies to prevent excessive drinking.[381,485,486]

There is great variation across RBS programs, with some aimed at servers and bartenders and others designed for managers and owners. A web-based server training program showed promise in addressing over-service in New Mexico. However, there are no established standards for RBS, and programs differ substantially in quality and likely impact.[487] High turnover in alcohol service staff, combined with the challenges of scheduling regular training means service staff are often not trained, even in states that require training or incentivize training through insurance discounts.

Server and manager training might have some effect if it is not used as an isolated strategy. The potential for lack of enforcement of RBS training (e.g., managers might not actually require the training) offers an explanation for the lack of evidence of effectiveness.

### Tips for Implementation

Servers can be required to have a license to serve alcohol. Being licensed, as well as completing training, should be combined with other strategies. Compliance checks by law enforcement officials can help to enforce more responsible alcohol service practices by both servers and managers. Servers, managers, and alcohol outlet license holders should be subject to fines and penalties for facilitating illegal alcohol sales.[294]

For further tips on implementation, OJJDP has made available a Guide to Responsible Alcohol Sales.

## Strategy: Minimum Age of Sellers

The minimum age of sellers differs across states and localities for on- and off-premise locations and by beverage type, ranging from age 18 for beer and wine to age 21 for spirits (off premise and bartenders) and 18 for on-premise servers of spirits. Maryland explicitly allows for exceptions by specific localities for more or less restrictive laws on the age to sell or serve alcoholic beverages.[327]

### Theory Behind the Strategy

Research has found younger servers are more likely to sell to underage or already intoxicated patrons, due either to their inexperience or their propensity to sell to people of similar age.[488,489] Sellers and servers of alcohol are often under the MLDA. One study in the Midwest found that underage patrons are more successful at purchasing alcohol when the server looks young (e.g., under the age of 30).[489] Similarly, servers who appeared young served pseudo-intoxicated patrons more frequently.[490]

### Evidence of Effectiveness

To our knowledge, there are no published studies evaluating the impact of a minimum age of sellers' law.

### Tips for Implementation

As part of a more comprehensive RBS training, strategies can be developed to train sellers and servers about the risks of providing underage or intoxicated patrons with alcohol. However, such trainings are subject to the same limitations as RBS training in general, chiefly that the quality and depth of such training might vary widely.

More specific tips for implementation are available through the University of Minnesota Alcohol Epidemiology Program.

## Strategy: Restrict Alcohol Use in Public Places and at Public Events

### Theory Behind the Strategy

Restrictions on alcohol use in public would reduce the availability of alcohol and thus reduce alcohol use.

### Evidence of Effectiveness

**Public Places:** No studies were identified that evaluated the evidence of effectiveness on alcohol restrictions in public places. However, these public settings might be associated with underage drinking that results in vandalism, violence, and littering,[491] and it can be assumed that alcohol restrictions will reduce access to alcohol.

**Public Events:** Restrictions on alcohol use at public events can prevent alcohol from becoming the main focus of the event.[295] For instance, prevalence of sales to underage youth are high at community festivals,[492] so making alcohol available only in enclosed areas might reduce the prevalence of underage drinking. Toomey et al.[493] examined the effectiveness of enclosed alcohol areas at community festivals on reducing alcohol sales to minors. In combination with other strategies to reduce drinking at community festivals, they did not report an observed reduction in underage sales; however, the effect of an enclosed alcohol area was not assessed in isolation.

### Tips for Implementation

Alcohol use can be prohibited through local ordinances banning alcohol use in public places, such as beaches and parks. Policies prohibiting the possession of open alcoholic beverage containers might also help to enforce restrictions of alcohol in public places.[315]

At public events, alcohol service and use could be restricted to designated areas. Adults ages 21 or older could receive wristbands upon entrance to the event so that they are clearly distinguishable from those under the MLDA. More research is needed to determine whether this strategy has greater potential to be effective if used in conjunction with other strategies to prevent underage drinking (e.g., compliance checks and regulating alcohol outlet density) and with increased support from law enforcement officials.[493]

## Strategy: Social Hosting Laws and Ordinances

Social host policies aim to minimize the social availability of alcohol by targeting the environments in which underage youth drink, focusing primarily on parties. These policies can be enacted at the local level (social host *ordinances*) or at the state level (hosting *laws*). Additionally, these policies can hold civil or criminal penalties, ranging from administrative fines to jail time.

Hundreds of local governments across the U.S. have adopted local ordinances related to social host civil liability. Typically, the ordinances of these cities and counties will provide for both criminal and civil remedies that include possible jail time, fines, fees, and the costs of response (law enforcement and any emergency medical and/or fire services). Under the provisions for fee recovery, the locality will usually establish in its policy that the use of alcoholic beverages by underage persons is an immediate threat to the general public safety and welfare that diverts critical and essential law enforcement, fire, and other emergency responses from other service calls in the community. Consequently, the locality may impose fees sufficient to recoup the costs of dispatching resources to the site of the illegal activity.

Maryland has host party laws that make it a crime to allow underage guests to drink alcohol in one's home. Hosts who know underage people unrelated to them are possessing or consuming alcohol in their home can be charged and fined.[327] Although there is no social host civil liability at the state-level in Maryland for serving alcohol to a minor or obviously intoxicated person,[327] three local social host ordinances have been enacted (Baltimore City in 2015, Baltimore County in 2016, and the Town of Princess Anne in 2016). These ordinances establish civil penalties and fines for hosts of "loud and unruly" parties, including those that involve the illegal provision of alcohol to underage youth as well as public disturbances such as excessive noise and traffic, violence, and public displays of drunkenness. The ordinances also provide the option of civil penalties and fines for property owners of residences where those parties occur. Information on each of these social host ordinances can be found on the Maryland Collaborative website.

### Theory Behind the Strategy

Social host ordinances make adults who provide alcohol in private settings to people under the MLDA or to those who are obviously intoxicated liable for the provision of alcohol as well as for subsequent alcohol-related harms, such as injury or death. There does not have to be an alcohol-related harm or event for hosts to be cited under social host policies—hosting the party is grounds for citation. Social host liability might deter adults from providing alcohol to underage youth.

At the state level, college student binge drinking prevalence is correlated with adult binge drinking prevalence. The correlation is substantially explained by the strictness and enforcement of the state's alcohol policies.[494] Underage people might be able to purchase alcohol themselves at alcohol outlets[495] or they might be able to obtain it from social sources, such as adults. Underage college students have indicated that getting alcohol from friends or acquaintances who are at least 21 years of age is one of the easiest ways to obtain alcohol.[299,475]

### Evidence of Effectiveness

There is mixed evidence regarding the effectiveness of social host ordinances to reduce underage alcohol use. Wagoner et al.[496] evaluated the impact of social host policies on drinking on 14- to 20-year-olds by comparing data collected in 2004, 2006, and 2007. They compared communities (not specific to college settings) in five states that passed the policies before the intervention and during the intervention with communities that did not have the policies. The findings indicated that the

presence of social host policies was not associated with where young people drank, how much they engaged in heavy drinking, or non-violent consequences of that drinking. However, the policies did make it less likely that young people would drink in large peer groups.

Dills[497] examined the relationship between changes in state-level social host ordinances and traffic fatalities among 18- to 20-year-olds in the general public using data from the 1975 to 2005 Fatality Analysis Reporting System. In 1975, seven states had social host laws, and by 2005, 32 states had such laws. Dills found that state social host laws were associated with a 9% reduction in alcohol-impaired driving deaths among 18- to 20-year-olds, most likely due to a decline in drinking-driving rather than a drop in alcohol use.

Paschall et al.[498] evaluated the effects of social host laws in 50 California cities in 2009 on past-year alcohol use, heavy drinking, and drinking at parties among a cohort of adolescents ages 13 to 16. The authors found that social host liability laws with stricter liability and civil penalties might be associated with less frequent underage drinking in private settings.

Since lenient state alcohol policies are associated with higher prevalence of binge drinking among college students and adults, and stronger state alcohol policies (even those not aimed at youth) are associated with reduced youth alcohol use, it can be assumed that greater restrictions on adults supplying alcohol to those under the MLDA would lead to reductions in college drinking.[499] However, no studies were identified that specifically assessed this.

#### Tips for Implementation

If social host ordinances are enacted, media coverage of civil and criminal cases might help to clarify that it is illegal to provide alcohol to underage youth and that adults are liable, as well as increase the perceived risks associated with allowing or providing alcohol to youth under the MLDA.[294] Based on the increased perception of likelihood of consequences, adults might be dissuaded from actions that increase the social availability of alcohol to minors. Growing numbers of community coalitions across the country have been able to put in place new social host ordinances. These ordinances might offer an early "win" for these coalitions as they seek to bring about changes in alcohol environments.

## Strategy: Restrict Adults from Supplying Alcohol to Underage Persons

Maryland's law "allows furnishing of alcohol to minors by members of their immediate family when the alcoholic beverage is furnished and consumed in a private residence or within the curtilage of [land immediately around] the residence," where immediate family is in reference to a parent, guardian, or spouse.[327] Parents of other students, or other adults, are not allowed to provide alcohol to underage persons.

#### Theory Behind the Strategy

Adults who supply alcohol to underage persons increase its availability, thus increasing the risks for excessive use and related harms. Since lenient state alcohol policies are associated with higher prevalence of binge drinking among college students and adults, it can be assumed that greater restrictions on adults supplying alcohol to those under the MLDA would lead to reductions in college drinking. However, no studies were identified that specifically assessed this.

### Evidence of Effectiveness

Nelson et al.[494] assessed the relationship between college student drinking, adult drinking, and state-level alcohol control policies. In their study, they included the following alcohol policies: keg registration, illegal to drive with a BAC of 0.08% or greater, "and restrictions on happy hours, open containers, beer sold in pitchers, and billboards and other advertising." The researchers separated states into two categories based on the number of alcohol policies (those with four or more and those with fewer than four) to examine the effects of alcohol policies on college student and adult drinking. In the study, they also took into account the level of enforcement, using grading criteria from Mothers Against Drunk Driving. They found that at the state level, college student binge drinking prevalence is correlated with adult binge drinking prevalence (see Figure 3). The correlation is substantially explained by the strictness and enforcement of the state's alcohol policies.[494]

Underage youth might be able to purchase alcohol themselves at alcohol outlets[495] or they might be able to obtain it from social sources, such as adults. Underage college students have indicated that getting alcohol from friends or acquaintances who are at least 21 years of age is one of the easiest ways to obtain alcohol,[475] suggesting the potential effectiveness of restricting adults from supplying to minors as a strategy to reduce college drinking.

**Figure 3. Correlation between binge drinking prevalence among college students and adults in the general population, by state (*r*=0.43; *n*=40 states).**

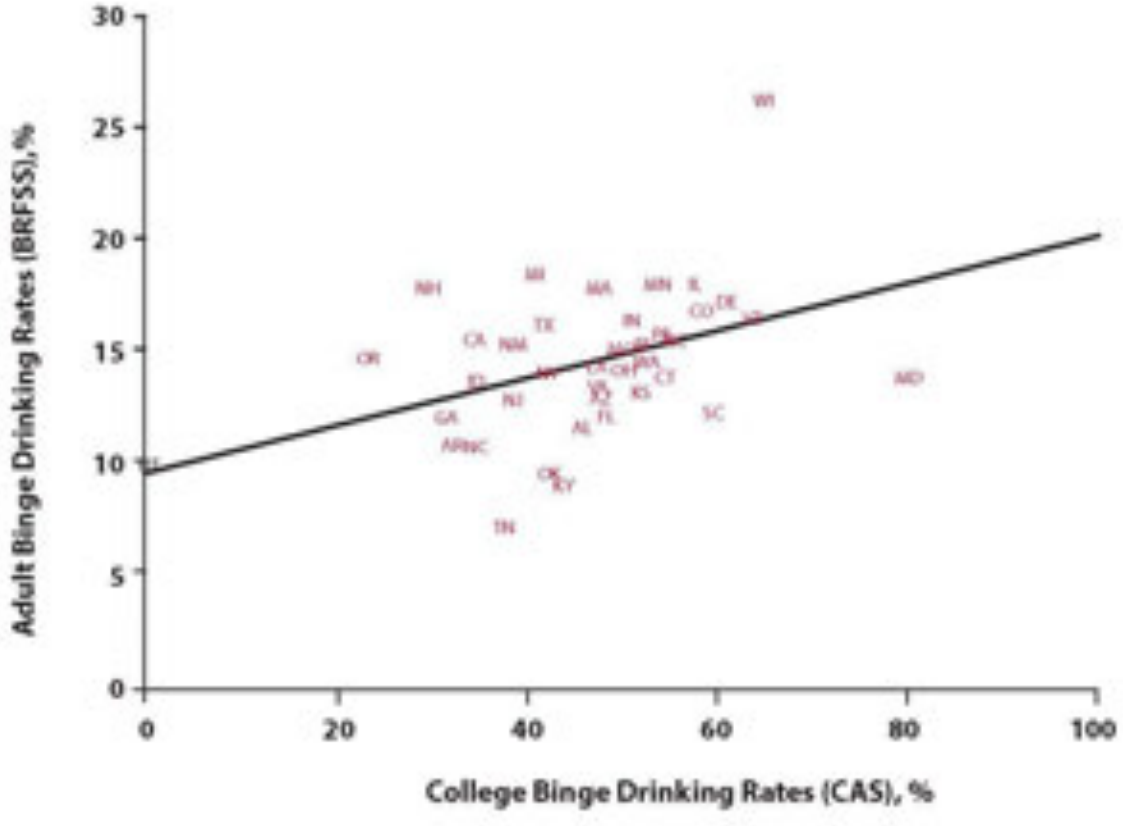



*Figure borrowed with permission from Nelson et al.*[494]

### Tips for Implementation

Ordinances can be passed to help ensure that adults do not supply alcohol to people under the MLDA. For instance, the University of Minnesota Alcohol Epidemiology Program developed a model ordinance holding adults responsible for underage drinking at parties on their property or on premises under their control. The ordinance is available here. Increased enforcement of such ordinances to prevent adults from supplying alcohol to underage persons would reduce their access to alcohol.[299,371]

## Strategy: Noise/Nuisance Conditions in Landlord Leases

### Theory Behind the Strategy

The presence of noise ordinances can assist police in legally entering parties in homes where they suspect underage drinking is occurring. Parties involving alcohol are often loud, so noise ordinances provide police with a reason to enter the party without first seeing underage people consuming alcohol. Then, once inside, police have the authority to issue citations for underage drinking.

### Evidence of Effectiveness

To our knowledge, no research has been conducted to assess the effectiveness of noise ordinances.

### Tips for Implementation

Noise conditions can be built into leases with landlords or passed as a local ordinance. For example, the Safer California Universities project has used leases with landlords as a strategy. Noise conditions might also be an element of social host ordinances, such as those passed in Maryland in Baltimore City, Baltimore County, and the Town of Princess Anne. Fact sheets about each of these ordinances can be found here. The University of Minnesota Alcohol Epidemiology Program has a proposed noisy assembly ordinance. Details are available here.

## Strategy: Restrict Home Deliveries

### Theory Behind the Strategy

Direct sales/shipments of alcohol from producers to consumers are not permitted in Maryland;[327] however, home deliveries from retailers increase the physical availability of alcohol to underage people, and mobile-based apps are proliferating to make this easier. These deliveries might provide underage people the ability to order and accept delivery without showing necessary identification. Restrictions on alcohol deliveries to homes by local retailers might prevent underage people from readily obtaining alcohol.

### Evidence of Effectiveness

People younger than the MLDA can sometimes obtain alcohol from outlets through home delivery systems, suggesting that restricting home deliveries would reduce the availability of alcohol to underage college students. A study found that among 18- to 20-year-olds, high-risk drinking and more recent drinking were positively associated with purchasing alcohol for delivery. However, this method of obtaining alcohol is not used extensively and was practiced by less than 10% of the approximately 1,700 young adults.[500]

Researchers in another study had one hundred 18- to 20-year-olds attempt home deliveries; 45% were successful at receiving alcohol delivered to their home. More than half of the vendors had minimal to no age verification process,[501] suggesting that restrictions on home deliveries would reduce sales to minors.

**TIPS FOR IMPLEMENTATION**

Prohibiting home deliveries of alcohol is a strategy to reduce access to alcohol; this can be accomplished through ordinances, such as the example provided here by the University of Minnesota Alcohol Epidemiology Program. In short, restrictions could include banning alcohol deliveries to residential addresses or requiring the delivery person to record the transaction at a licensed liquor outlet.

## Noise/Nuisance Conditions in Lease Agreements

**Example 1: Sample lease from a property management agency in Santa Barbara, CA[502]**

NUISANCE: Lessee agrees to use the Premises for residential purposes only. Lessee and/or his or her guests and invitees shall not disturb, annoy, endanger, or interfere with other residents of the building or occupants of neighboring buildings ("create a nuisance"). Should Lessor determine the Lessee and/or his or her guests or invitees have created a nuisance the following will apply: 1st offense Lessee will receive a written warning; 2nd offense Lessee will be charged a $25.00 fine; 3rd offense Lessee will be charged a $50.00 fine. Notwithstanding the above, nothing in this Lease Agreement shall prohibit Lessor from exercising Lessor's rights to serve a Three (3) Day Notice to Conform or Quit pursuant to Civil Code of Procedure Section 1161(a). Lessee may not use the Premises for any unlawful purpose, or commit waste or create a nuisance on the Premises. Lessee shall comply with all ordinances (Local, State and Federal) as they relate to underage drinking. Lessee may not create a nuisance by causing undue noise by the loud playing of television, stereo, radio or any other amplified electrical device. Lessee also agrees not to allow live bands or programmed music to play or kegs on the Premises without the prior written consent of the Lessor. Lessee agrees to a $500.00 penalty should a live band, programmed music or kegs be permitted on the Premises without prior written consent of Lessor. Lessee shall also be responsible for all clean-up costs associated with said event.

**Example 2: Example from a property rental agency in Goleta, CA[503]**

Each of the following nuisances shall constitute a violation of this Rental Agreement, and each Lessee shall assure that each Lessee, member of Lessee's household, guest, as well as persons under Lessee's control refrains from:

a. Use or possession of illegal drugs in, upon, or about the apartment or the complex of which it is a part;

b. Creating or allowing the creation of live music involving electronic amplification from or about the apartment or the complex of which it is part, unless advance permission has been obtained in writing from the Lessor per Item 6 below;

c. The operation of TV, CD player, VCR, and/or other sound emitting devise in a manner that results in sound being projected beyond the walls of the apartment;

d. Loud, unruly, or disturbing partying or other activity.

## Strategy: Mass Media Campaigns to Reduce Drinking-Driving

### Theory Behind the Strategy

Mass media campaigns to reduce drinking-driving help publicize enforcement activities, thereby increasing the perceived importance of the dangers and risks of drinking-driving as well as public support for actions to address it.[318]

### Evidence of Effectiveness

Maryland conducted an anti-drinking and driving campaign, Checkpoint Strikeforce, in six-month increments, for three years, starting in 2002.[504] The campaign's focus was to publicize sobriety checkpoints with the goal of reducing alcohol-related motor-vehicle crashes. There were no improvements in alcohol-related crashes or fatalities, nor was there evidence of increased enforcement against alcohol-impaired driving. Additionally, public perceptions of being stopped by the police for alcohol-impaired driving actually declined.

The failure of the Checkpoint Strikeforce campaign is a cautionary tale; if such campaigns are to be effective, they need to occur at the same time as actual increased enforcement, and they need sufficient funding to break through a cluttered media environment.[504]

While one systematic review found that mass media campaigns can be effective in reducing alcohol-impaired driving, if well executed and aligned with other prevention and enforcement efforts.[318] A larger, more recent systematic review of an additional decade of evidence found inconsistent support for the effectiveness of mass media campaigns in reducing alcohol-impaired driving and related crashes.[505]

### Tips for Implementation

To execute an effective mass media campaign to reduce drinking-driving, implementers should consider the following. First, it is important to consider the message content, including how the motivation for preventing alcohol-impaired driving is instilled and how the optimal level of fear of apprehension is produced. Second, the delivery of the message needs to reach the target audience, which can be achieved through paid campaigns. Campaigns should be of high quality or the target audience might dismiss them. Third, implementers should pre-test the campaign message and make revisions to improve its effectiveness if necessary.[318] Finally, such campaigns need to occur at the same time as actual, visible enforcement efforts are taking place.

# Ineffective if Used in Isolation

Policies in this section are likely to be ineffective, based on the lack of evidence of effectiveness reported in the literature, unless they are implemented in conjunction with evidence-based policies.

## Strategy: Mass Media Campaigns to Educate Potential Drinkers about the Risks of Drinking

### Theory Behind the Strategy

General mass media campaigns to reduce excessive drinking are designed to be persuasive, most often encouraging people to avoid drinking by instilling feelings of fear for potential consequences.[318]

### Evidence of Effectiveness

Several mass media campaigns have been implemented in communities with the intent to spread information about potential negative consequences related to excessive alcohol use. Informational campaigns are not likely to be effective in reducing drinking among college students because excessive drinkers are usually already aware of the associated short-term risks and are not concerned with the long-term outcomes.[317]

In their 2003 report *Reducing Underage Drinking: A Collective Responsibility*, the National Research Council and Institute of Medicine concluded that adult-oriented campaigns, which focus on discouraging adults from providing alcohol to youth, were more promising than youth-oriented campaigns, which focus on changing youth consumption, to reduce underage drinking. While they noted that there is limited evidence of effectiveness to support the notion that an adult-oriented campaign would do more than disseminate facts about underage drinking, they postulated that it could reduce youth drinking if it convinced adults to take specific actions to reduce underage drinking and change adult behaviors that facilitate underage drinking.[506]

### Tips for Implementation

Mass media campaigns to spread the message about support for a new alcohol policy initiative or newly enacted policy might be a way to more effectively use this strategy.[317] There is some evidence that media campaigns can help build support for more effective policies.[507] In general, mass media campaigns should not be used in isolation due to lack of evidence of effectiveness.[79] Instead, careful steps should be taken to execute the campaign so that it supports and occurs in conjunction with other more effective prevention and enforcement efforts.[317,318]

## Strategy: Designated Driver Programs

### Theory Behind the Strategy

Designated driver programs seek to replace drinking-drivers with designated non-drinking drivers, in order to reduce alcohol-impaired driving and related consequences.

### Evidence of Effectiveness

**General Population:** These programs have not been sufficiently studied to draw definitive conclusions; however, the available evidence is mixed enough to suggest that they might not reduce alcohol-related crashes. Though these policies might decrease the number of impaired drivers, there is the potential for passengers to actually consume greater amounts of alcohol once the responsibility of driving has been removed.[79]

These programs have the potential to create a carload of designated drinkers—for instance, a study of 21- to 34-year-olds found that more than half consumed more than usual when using a designated driver. Further, drivers themselves still might consume alcohol. Almost one-fourth of designated drivers reported that they did not drink less than their usual amount.[508] A recently published evaluation of data from the 2007 Roadside National Survey found that 30% of nighttime drivers reported being designated drivers, and that 20% of the passengers of designated drivers reported drinking more than five drinks that day.[509]

**College Population:** More than half of college students reported that passengers drink more on occasions when they use a designated driver,[510] contributing to the frequency of excessive drinking occasions. However, a recent field investigation of college students' transportation plans after leaving drinking establishments near a large southeastern U.S. university used breathalyzers instead

of self-reports to assess how much students had been drinking.[511] Although this study found that individuals with a designated driver did not have higher BACs than others, it also found the average BAC among drinkers was 0.0979 g/dL; among students planning to drive the average was 0.061 g/dL, with more than half over 0.05 g/dL and a quarter above 0.08 g/dL.

#### TIPS FOR IMPLEMENTATION

Designated driver programs are popular among schools,[512] despite the lack of evidence to suggest their effectiveness at reducing alcohol-related harms.[79,513,514] College administrators should focus efforts to reduce excessive alcohol use and related harms on environmental and deterrent strategies that have more evidence of effectiveness.

## Summary of Off-campus Strategies

### Evidence-based

- Regulate alcohol outlet density
- Maintain limits on days and hours of sales
- Maintain limits on privatization of alcohol sales
- Minimum legal drinking age (MLDA)
- Compliance checks for alcohol outlets
- Dram shop liability
- Restrict price promotions and discounts
- Increase alcohol pricing through taxation
- Restrict alcohol marketing
- Multi-component interventions with community mobilization
- Drinking-driving reduction strategies
    - 0.08 g/dL BAC laws
    - Zero tolerance laws
    - Graduated driver's licensing (GDL)
    - Sobriety checkpoint programs
    - Ignition interlocks

### Promising but Little or Mixed Evidence of Effectiveness

- Regulate free alcohol, samplings, and tastings
- Enforcement of laws prohibiting the possession and/or manufacturing of false IDs
- Shoulder tapping campaigns
- Require Responsible Beverage Service (RBS) programs
- Minimum age of sellers
- Restrict alcohol use in public places and at public events
- Social hosting laws and ordinances
- Restrict adults from supplying alcohol to underage persons
- Noise/nuisance conditions in landlord leases
- Restrict home deliveries
- Mass media campaigns to reduce drinking-driving

### Ineffective if Used in Isolation

- Mass media campaigns to educate potential drinkers about the risks of drinking
- Designated driver programs

## SUMMARY: BEST PRACTICE GENERAL RECOMMENDATIONS

Current strategies available to schools to address excessive alcohol use and related harms include a mix of not effective, somewhat effective, and many that fall into the "promising but unproven" category.[515] This Guide can help college administrators decide which strategies might work best on their campus and in the surrounding community. College students' alcohol use is strongly influenced by the alcohol environment off-campus, so it is important to include strategies to influence both on- and off-campus environments when planning an effective campaign.

To reduce excessive alcohol use and related harms among college students, including those younger than 21 and those of the legal purchase age, college administrators should keep the following tips in mind:

- Assess the level of readiness on your campus and in your community to make changes, and develop a mix of strategies that mix effectiveness, feasibility, and enforceability.
- Partner with community members and law enforcement officials. Community buy-in is important to support the implementation and enforcement of new alcohol policies.
- Put policies in place to prohibit alcohol marketing in school-sponsored communications and events. This includes alcohol advertisements, promotion of drinking events, price promotions, discounted alcohol, etc. If possible, work towards alcohol marketing restrictions in surrounding communities.
- Be transparent with students and involve them in the process of changing alcohol policies. Students do not want to feel that administrators are using power to take away their freedoms and this can be avoided by including them in the planning and dialogues.

## RECOMMENDED RESOURCES

- NIAAA's Call to Action: Changing the Culture of Drinking at U.S. Colleges
- NIAAA College Alcohol Intervention Matrix
- Preventing and Dispersing Underage Drinking Parties (OJJDP)
- NIAAA's Alcohol Policy Information System (APIS)
- National College Health Improvement Program: Learning Collaborative on High-Risk Drinking
- Nelson TF, Winters KC, Hyman V. *Preventing binge drinking on college campuses: A guide to best practices*. Center City, MN: Hazelden; 2012.
- Surgeon General's Call to Action to Prevent and Reduce Underage Drinking
- SPARC Manual
- The Maryland Collaborative to Reduce Underage Drinking and Related Problems
- College Parents Matter: Have the Conversation

# ADDRESSING COLLEGE STUDENT CANNABIS USE

## INTRODUCTION

Changes in cannabis use policies, including relaxation of sanctions related to use, allowing legal sales for personal and medicinal use, and a loose regulatory environment regarding promotion and advertising, have caused major shifts in public opinion in recent years regarding the risks and benefits of cannabis use. At the same time, a growing number of scientific research studies underscore the negative impacts of cannabis use. Cannabis use can negatively impact the brain which is now known to continue developing into the mid- to late-20s, and/or exacerbate serious mental health problems,[516] and impede academic achievement.[517,518] Cannabis has been used by college students for several decades to varying degrees, but increases in THC concentration,[11] new routes of administration and the ongoing proliferation of misinformation through contemporary information channels (e.g., social media)[519] have raised the level of concern about the impacts of cannabis use on college students.[520] College students are bombarded with mixed messages about cannabis and tend to have an attitude of invincibility regarding any negative impacts. For these reasons, addressing cannabis use in higher education settings can be particularly challenging.

Unfortunately, unlike the wealth of evidence on strategies to address excessive drinking, research on how to reduce cannabis use among college students is still emerging and there are no definitive preventive intervention strategies that have been rigorously evaluated. Given the known harms associated with cannabis use, the goals of such strategies are to delay onset, limit passive exposure and opportunity to use, limit exposure to contexts in which use is occurring, decrease the frequency of use, and facilitate quitting. The sections below discuss possible starting points for activities and strategies that are evidence-informed at best. We hope that evaluation of the implementation and effectiveness of these approaches will be forthcoming as the research base is broadened and strengthened.

## RECENT TRENDS

Several recent trends are particularly notable regarding cannabis use among young adults. First, the perception of risk associated with cannabis use has dramatically decreased nationally from 44% of 19- to 22-year-olds in 1980 perceiving a risk associated with regular cannabis use to 22% in 2018.[521] This trend appears to be continuing, with a 2018 national survey finding a mere 15% of 18- to 25-year-olds perceiving great risk from smoking marijuana once or twice a week.[14,522] Second, the prevalence of cannabis use among young adults is at its highest point in 30 years.[521] The most recent national data indicate that 25% of college students have used cannabis during the last month and 42% have used during the past year.[521] Furthermore, because more than one-third of high school seniors and increasing proportions of 8$^{th}$ and 10$^{th}$ graders have used marijuana during the past year,[521] colleges must prepare for an increased influx of entering first-year students with marijuana use experience. Third, there have been corresponding increases in cannabis use disorder, with approximately 6% of 18- to 25-year-olds in 2018 reporting symptoms that qualify for the diagnosis during the past year.[14] An earlier study focused on college students found that among first-year college students who used cannabis at least once during the last year, almost 25% met screening criteria for cannabis abuse or dependence.[523] Lastly, the concentration of THC, the constituent of cannabis that is responsible for its psychoactive effects, has risen dramatically since the early 1990s. Analyses of cannabis samples seized by the DEA reveal that the average THC concentration was

3.75% in 1995 and increased to 14.75% in 2017.[11,12,524] Increases in THC potency are most likely associated with a faster transition to cannabis dependence and are thought to account for the emergence of more serious neurological deficits and mental health problems than what was observed in the past.[516,525-527]

## Key Research Findings Relevant to Higher Education

Cannabis use, especially when begun early in life and done regularly, can have adverse acute and longer-term effects on cognitive functioning, including learning and memory deficits.[528-530] Importantly, much of the research on the neuropsychological impacts of cannabis use that we rely on today was conducted before average THC concentrations began to rise. Therefore, given that higher potency THC products are now common and new routes of administration (e.g., edible products, vaping, and dabbing) can deliver potent doses, it is likely that the effects on cognitive development could be even greater today. The reversibility of these deficits is a topic of much research and it appears that reversibility is possible with abstinence. A study of adolescents found that users who quit after periods of daily use continued to experience cognitive deficits for periods up to almost a month after cessation.[531] Other researchers found that deficits in verbal learning took two weeks to return to pre-cannabis use levels, deficits in verbal working memory took three weeks, and attention deficits were still present at three week.[532] For college students, these impacts on neurocognitive function are very relevant because of the challenging information task demands during college and the need to think clearly and absorb complex information. It is not difficult to understand how cannabis use during college can lead to academic disengagement in and outside of class and could have negative impacts on completing assignments and projects.[13]

In addition to effects on learning and memory, it is important to note that cannabis use might interfere with academics in another way. Any kind of psychoactive substance, including cannabis, exerts an immediate, albeit short-lived, pleasurable sensation. The result of regular and compulsive use can reinforce this immediate reward.[533] As cannabis use becomes more and more regular, other activities and interests, and relationships that were once rewarding, can lose their value. Rather, a person becomes focused on getting and using the drug. In contrast, academic pursuits are challenging and require sustained focus, but carry longer-term rewards. After a while, it is understandable that the immediate gratification from drug use can overtake one's motivation to achieve academically. Research studies have shown that cannabis use among college students is associated with skipping classes, decreases in grades,[534] and greater chances of "stopping out".[13,535] Cannabis abuse and cannabis use disorder are associated with failure to graduate from college.[536]

## Campus-Level Interventions to Discourage Cannabis Use

### Policies and Sanctions

With the variation in state cannabis laws and the confusion students might have with the interpretation of these laws, colleges and universities are encouraged to revisit and revise their drug policy language. Additionally, regardless of whether or not a state has decriminalized cannabis, colleges are still bound by the Drug-Free Workplace Act and the Drug-Free Schools and Communities Act Amendments. If colleges fail to comply with these federal laws, they could lose their federal funding and financial aid programs.[537,538] Since many students might believe cannabis is not illegal, it is important to be explicit and clear in policies related to cannabis. An informal examination by our team of available online cannabis policies for 45 colleges and universities in

Maryland found that most relied on language such as "illegal drugs" in their drug policies. Students might assume this language does not pertain to cannabis. Additionally, of these 45 schools examined, only eleven (24%) mentioned the potential loss of federal funding in their drug policies.

### Training of On-campus Partners

A good starting point for addressing student cannabis use is to educate individuals who regularly interact with students about the scientific evidence regarding the risk for addiction, and the negative impacts of cannabis on neurocognitive functioning and academic achievement. These groups include residence life staff, conduct professionals, athletic personnel, academic advisors, and campus health and counseling center staff. The Maryland Collaborative staff has developed relevant training modules for use with its campus member institutions.

Another important aspect of such training can be focused on identifying students at particularly high risk for cannabis use and related problems. For example, students who began using cannabis prior to college,[539] with a low distress tolerance,[540,541] emotion regulation difficulties,[542] negative emotionality,[543,544] high-risk drinking patterns, mental health problems (e.g., depression, anxiety)[15] sleep difficulties,[545] and students who are academically struggling[13] are considered to be at elevated risk for cannabis use. Students might present to campus health and counseling centers or academic assistance centers with these issues and not report cannabis use as an underlying problem. It behooves campus health professionals to comprehensively assess substance use patterns to understand the degree to which substance use (and in particular cannabis) might be giving rise to these student concerns. Comprehensive training of campus partners can serve to "get everyone on the same page" regarding our scientific understanding of cannabis use and its potential impacts rather than relying on information channels that might not be scientifically sound.

### Student Educational Approaches

Although education about the risks of substance use does little to change behavior, there is still value in providing education to raise students' awareness about the scientific understanding of the addictive potential of cannabis use, how withdrawal symptoms might perpetuate use, and cannabis' impact on health and functioning. It is important to highlight how our scientific understanding is at odds with much of the information students are exposed to in social media, Internet websites, and commercial advertising for cannabis products.

### Explicit Challenges to Misinformation

The digital age has unleashed an explosion of new ways to access information quickly. Unfortunately, many sources of information about cannabis are not vetted by scientific experts but rather originate from personal opinions, or from individuals and organizations with vested commercial interests.[546,547] As a result of the proliferation of misinformation it is difficult for young adults to separate fact from fiction about the health risks of cannabis use. A recent national survey found approximately 22% of U.S. adults believe cannabis is not addictive and 29% believe it can prevent health problems illustrating the magnitude of knowledge gaps about cannabis among the general public.[548]

Young people are exposed to a barrage of misinformation about cannabis from social media with advertisements about the benefits of personal cannabis use. This exposure is in turn positively related to use.[549,550] To counteract this trend, infusing discussions into the college curriculum about the value of scientific inquiry regarding the impacts of cannabis use might be a helpful way to engage college students. Topics that could be discussed include the increased potency of cannabis;

the effects on the brain, mental health, human development and sleep; signs of cannabis withdrawal; and more generally, what we know about the neurobiological basis of addiction. It would additionally be prudent to engage students in discussions about confirmation bias and how to determine the reliability and neutrality of information sources. Incorporating such discussions into the biological sciences, public policy, journalism, history, or other curricula might be feasible.

### Explicit Challenges regarding Prevalence of Cannabis Use among Students

Research indicates that a student's perception of how much their friends use cannabis strongly influences a student's own cannabis use.[551] Students who believe other students use cannabis are significantly more likely to use cannabis themselves than students who do not hold this opinion.[552] As with estimates of peers' alcohol use, a vast majority of college students often overestimate how frequently other students use cannabis.[553] Interventions can challenge and target these perceived norms. Two studies[554,555] have evaluated the online program Cannabis eCHECKUP TO GO (formerly known as "eTOKE"), a brief program that encourages students to think critically about the decision to use cannabis, the pros and cons of use, and the perceived norms of use. Both studies found this program significantly corrected perceived norms about other students' cannabis use. However, there was no impact on actual cannabis use,[555,556] cannabis dependence symptoms, or cannabis abuse.[556] It appears that the Cannabis eCHECKUP is more effective at correcting perceptions of peers' cannabis use and attitudes than modifying behavior.

More studies are needed to evaluate the variety of platforms programs use to challenge cannabis norms, including in-person interventions. The current research shows that web-based interventions are effective at adjusting incorrect perceptions of peer cannabis use, but might not be effective at altering participants' behaviors.[554,555]

### Explicit Challenges to Cannabis Expectancies

Similar to alcohol expectancies, a large number of college students have positive expectancies of cannabis use, such as expecting that cannabis use will result in increased relaxation and stress reduction, improved social interactions with peers, and heightened cognitive function.[557] Students who use cannabis regularly are more likely to perceive positive benefits.[558] However, these students are also more likely to experience adverse consequences of cannabis use, such as missing class and lower grades.[559] Few rigorous evaluations exist of programs aimed at challenging cannabis expectancies. However, several studies show having negative expectancies about substance use is associated with decreased use because these negative perceptions deter use.[560,561] Interventions that target expectancies of cannabis might have results similar to other substance use interventions.

The Cannabis Initiative Campaign by the Office of National Drug Control Policy successfully challenged cannabis expectancies via television and radio advertisements that emphasized the detrimental effects of cannabis use. Palmgreen et al.[562] conducted a quasi-experimental design study consisting of online interviews with adolescent participants to measure their cannabis use and attitudes over four years. After this study, individuals who were considered at risk for cannabis use (i.e., had several known risk factors for cannabis use) reported fewer positive attitudes about cannabis' effects. An internet-based intervention program that targeted adolescent girls was also successful in challenging cannabis expectancies.[563] This randomized, control trial included a that program instructed girls on general drug prevention strategies, including setting goals, handling peer pressure, and dealing with sources of stress. Participants who received this intervention reported lower prevalence of cannabis use at a six-month follow up, as well as other substance use, compared with their peers who did not receive any intervention.

These studies illustrate that online interventions challenging cannabis expectancies can reduce cannabis use as well as beliefs and attitudes about cannabis, especially when the program relies on intense imagery or messages to portray the adverse effects of cannabis use.[562,563] However, since the longest follow-up was six months, it is not clear if this impact would last longer. When developing interventions, it is important to consider both age and frequency of use. Individuals with a higher frequency of use and younger individuals who use cannabis typically have more positive expectancies about cannabis use.[561]

### Promoting the Availability of Campus Resources

Few students will seek help on their own to reduce their use of cannabis. Research studies have documented the rarity of self-initiated treatment-seeking for cannabis use among undergraduates.[67,534] Self-initiated treatment-seeking is potentially more problematic for cannabis given the high levels of social approval and the proliferation of messages regarding benefits of use that might not be based on sound scientific evidence. Some of the most common reasons for not seeking help include denial that use is causing the individual or people around them any harm, and the assumption that they can handle any issues they are experiencing without assistance from others.[534,564,565] Another major reason for not seeking help is a lack of any desire to reduce or quit using. Finally, some individuals who use cannabis regularly believe that it is alleviating anxiety or irritability or is aiding their sleep. It is possible that these individuals are self-treating or managing withdrawal symptoms by continuing to use.[566,567] Understanding the reasons for reluctance to seek help is important and can aid the development of messaging strategies that promote clinical and web-based resources related to cannabis use interventions.

Pedersen et al.[568] have described a different framing for help-seeking regarding cannabis use. They suggest promoting "check-ups", where a student might come in for an assessment of their use patterns and the symptoms they might be experiencing as a result of their use. This kind of framing is in line with a MI approach where students are "met where they are" and where the goal is to encourage self-reflection and gauge readiness for change.[161] During such a check-up, students can discuss the "good" and "not-so-good" things related to their cannabis use. This can serve as a platform for more meaningful reflective conversations about how cannabis use might be interfering with a student's academic or personal trajectory. Informing students that they can refer a friend or a peer to these sorts of check-ups and explaining exactly how to have such a conversation might be helpful for those who are concerned about another student's use.

### Enlist the Assistance of Students in Recovery from Addiction

Students in recovery from drug use might be a valuable resource because they can share stories of their pathway through addiction, which might have involved using cannabis. They can discuss their experiences, how they achieved recovery, what their recovery means for their outlook on life, how their recovery helps them cope with everyday stressors more effectively, and their motivation to succeed both personally and professionally and achieve their goals.

# INDIVIDUAL-LEVEL INTERVENTIONS

### GENERAL EVIDENCE-BASED PRINCIPLES

Young adults often have an inherent sense of invincibility and less focus on long-term consequences than short-term rewards. Cannabis use is particularly challenging because of the prevailing myth that cannabis is not harmful. Clinical experts report that individuals who use cannabis tend to minimize, ignore, and completely deny consequences related to their use. Like the guidance given in Utilize Motivational Interviewing, it is critical to tap into young adults' own thinking about their reasons to make changes with respect to their substance use patterns. Rather than be prescriptive, the principles of MI rest on a non-confrontational attitude to encourage self-reflection. Attempting to understand both the good and "not-so-good" experiences with using cannabis is preferable to a conversation that is "preachy" and focuses on only the risks and dangers of use. Identifying motivators for change or "hooks" is critical, and in the case of young adults, these hooks might be the ways in which cannabis interferes with academic pursuits, productivity, and/or meaningful friendships, and decreases the likelihood of desired employment prospects.

Assessing students' motives for using cannabis is important during clinical sessions. Many students use cannabis to decrease social anxiety, relax, and improve sleep.[545,569,570] When some individuals quit or cut down their use, they might experience mild to moderate withdrawal symptoms, including sleep difficulties, anxiety, and irritability. Interestingly, continued use might ensue to relieve withdrawal symptoms.[564,571,572] The goal of MI strategies with cannabis users is to help them gain self-efficacy for change, learn how to deal with crisis, and improve cognitive skills. Once behaviors are changed, they are encouraged to reinforce healthy behaviors with rewards.

### SCREENING AND BRIEF INTERVENTIONS TO REDUCE CANNABIS USE

Several assessment tools are available to measure cannabis use, associated problems, and risk for cannabis use disorder. These tools can be administered quickly and in a variety of settings to provide valuable information about patterns of cannabis use and severity of involvement. Some of the most frequently used tools include the Severity of Dependence Scale (SDS), the Cannabis Abuse Screening Test (CAST), the Cannabis Use Disorders Identification Test-Revised (CUDIT-R), the Marijuana Screening Inventory (MSI), and the Cannabis Use Problems Identification Test (CUPIT) for screening, and the Rutgers Marijuana Problem Index (RMPI) and the Cannabis Problems Questionnaire (CPQ) for assessment. The Alcohol and Drug Abuse Institute at the University of Washington has compiled a detailed list of cannabis screening and assessment tools that can be found here.

If a screening instrument is administered in person, a brief encounter with a counselor or other professional might follow to review results. There might be some value for brief intervention sessions to at least encourage self-reflection about change. The goals of a brief intervention, as discussed in Counseling Centers, are to engage the individual in self-reflection about their use patterns and consequences, raise awareness of risks, place the individual's use in context of normative use patterns for individuals similar to them, and encourage a follow-up appointment to explore readiness for change. While brief interventions have demonstrated efficacy for changing drinking patterns, especially in primary care settings, research studies indicate that cannabis use is much more resistant to change in single session encounters. A recent review by Li and colleagues[573] examined the results of five randomized controlled trials testing the effectiveness of brief interventions to reduce cannabis use among college students. Although some of these interventions documented positive changes, they were not sustained over the long term, suggesting more

intensive, longer-term behavior change therapies are perhaps necessary to meaningfully reduce cannabis use. An earlier review[574] of studies with individuals other than college students found similar results, illustrating a resistance to change among the majority of individuals whose cannabis use has become regular.

### Motivational Enhancement Therapy and Cognitive Behavioral Therapy

Given that brief interventions might not produce behavior change among individuals who use cannabis, longer-term intervention strategies involving multiple sessions of CBT might be needed and have been found to be helpful in reducing cannabis use.[575,576] Motivational Enhancement Therapy is aimed at developing rapport with an individual and strengthening a therapeutic alliance between the individual and their counselor/health professional. CBT is focused on learning to acquire skills that will increase the chances of achieving and maintaining abstinence. One of the central components of CBT is to help the individual identify "automatic thought patterns" that lead to drug use behaviors. By becoming aware of these reflexive patterns, one can begin to strategize how to interrupt the pattern by distracting oneself or engaging in a healthy substitute. During CBT, the individual learns that social and environmental cues (friends, places, and even paraphernalia) can be triggers for use, and thus, strategies must be developed to avoid such high-risk situations and contexts.[576] Other strategies that can be used include constructing a formal list of personal reasons for quitting, and things that can be used as rewards as one achieves abstinence goals. Because of the close connection between negative emotional states and drug use, understanding one's typical coping strategies and learning new healthy coping strategies to manage day-to-day stressors and anxiety-provoking situations can be helpful.

### Computerized Interventions

Although research is emerging on the feasibility and effectiveness of computerized interventions, the evidence base is still in its infancy. Most research lacks the methodological rigor necessary to draw strong conclusions regarding efficacy. Mobile apps and web-based interventions have been developed and evaluated to a limited extent.[577-580] Both types of interventions aim to provide the users with a convenient way of tracking the frequency and quantity of use and the consequences experienced. They typically compare use patterns to an appropriate reference population and assess the contexts of use (e.g., where and who was present). Some apps provide personalized feedback via text messaging and encourage self-reflection and motivation for change. Scientifically rigorous evaluation studies of mobile apps to reduce cannabis use are scarce, but preliminary studies that have investigated user satisfaction and feasibility indicate that this delivery platform has promise.[577] Web-based interventions offer a promising alternative to face-to-face counseling sessions, but longer-term use might be required to observe meaningful changes in use patterns. Any interventions that assess and facilitate readiness for change could be valuable because research studies have demonstrated that increased readiness for change is associated with motivation to sustain intervention involvement, and ultimately might be related to better outcomes.

## Engaging Parents

Because parents are a critical influence on adolescent substance use, it makes sense for colleges to include parental engagement as part of their overall substance use prevention strategy. The relationship between college students and their parents changes as students develop into emerging adults, and thus setting rules and boundaries on drug use might seem much more difficult and unrealistic. Research has shown, however, that zero-tolerance attitudes for underage drinking among parents of college students translates into less drinking and safer outcomes for

students.[279,581] Furthermore, because many students will be separated from their parents geographically during college, it might seem as if what parents think, say, and allow will have less influence than when students were in high school. That might be true, but in our digital world, conversations do not stop and interaction does not abate. Therefore, encouraging parents to maintain constructive conversations about healthy coping strategies, ask questions about academic engagement, and facilitate appropriate help-seeking is appropriate and could be helpful in preventing substance use during college.

Specific to cannabis, parent attitudes might be shaped by their family history, exposure to information in the media, past experiences, and perhaps their own current use patterns. Just like educating students, providing parents with the most up-to-date and scientifically valid information is important. Cannabis-related risks to mental health are important for parents to understand, especially if their child is reporting issues with anxiety, depression, sleep, or other signs of psychiatric illnesses. Parents are likely to be involved with obtaining needed care for their child under those circumstances. A comprehensive assessment of substance use patterns is necessary to understand all the possible contributors to mental health problems. Given the time, energy, and financial investment that parents often provide for their child's college education, the connection between cannabis use and academic performance problems might raise concerns. Parents might underestimate the impact of their attitudes and role-modeling on their grown child's behavior. The parent-focused website created for the Maryland Collaborative, CollegeParentsMatter.org, contains valuable guidance for parents regarding their influence and tips for communication.

Because parents are still involved in the lives of their grown children, colleges should make their campus substance use policies accessible to parents. Even in states where personal or medicinal use is legal, parents might not be aware that federal law still prevails on college campuses and that use on college campuses is illegal and subject to sanctions. Communications with parents about substance use policies in general and cannabis in particular can be focused on how preventing substance use and intervening early is part of a broader campus strategy to promote and protect the health of college students and remove barriers to their successful development and academic achievement.

That broader campus strategy should also encompass the larger environment on and around the campus. Monitoring campus bulletin boards and discouraging cannabis-promoting clothing and signage on campus can send a clear message in support of campus substance use policies. Some colleges have also been able to engage proactively with nearby retailers and discourage the sale of cannabis-related paraphernalia. If these actions arouse debate on campus, this can be another platform for dissemination of accurate, science-based information about cannabis use and its possible implications for college students and young adults living in the community.

Beyond the confines of the campus and its surrounding community, state-level policies do and will affect the degree to which cannabis use and its related harms occur on campus. Research on alcohol policies has shown clearly that more restrictive policies at the state level are protective for the general population, in terms of prevalence of binge[582] and underage drinking,[499] cirrhosis mortality,[583] alcohol-related motor vehicle crash fatalities,[584,585] and alcohol-related violence and other harms from others' drinking.[586,587] Whether and how to permit nonmedical use of cannabis is under debate in state legislatures across the country. It behooves college leadership to be part of those debates, highlighting the potential impact on their student populations.

## FURTHER READING AND SUGGESTED RESOURCES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# APPENDIX:
# FREQUENTLY ASKED QUESTIONS BY PARENTS

*The Maryland Collaborative developed a parent-focused website called College Parents Matter in 2015. It contains general tips on communication and how to have conversations with your college-aged child about different high-risk drinking and substance use situations. Please visit CollegeParentsMatter.org.*

*Remember that not all college students are engaging in alcohol use and abstinence behavior should be encouraged.[588] If you know that your child is not drinking, make it clear that you are proud of them for making that decision. In fact, the number of young adults that are choosing to abstain from alcohol, tobacco, cannabis, or other drugs is increasing. Parents should make sure that their child feels comfortable discussing any questions or concerns they might have about alcohol or other drug use and that their child knows that the expectation is that they remain abstinent.*

## Why should I be concerned about underage drinking in my college-aged child?

You might be tempted to turn a blind eye to your college-aged child's underage drinking, especially after s/he leaves home for college. You might even want to rationalize underage drinking as a normal "rite of passage" that is simply part of the college experience. However, the truth is that underage drinking is a dangerous, and potentially life-changing, behavior. It is true that most students who drink will not develop a serious alcohol problem, but many of them do, and it is impossible to tell in advance who will and will not develop these problems. Alcohol poisoning is a very serious and potentially lethal consequence—and one that can happen to anyone on a bad night, regardless of their usual drinking habits. Physical and sexual assaults, unwanted pregnancy, academic failure, and alcohol-impaired driving can all result from binge drinking.

Drinking is also likely to undermine your college-aged child's academic performance.[589] There are also a host of other problems that go along with underage drinking, even if the drinking itself is not chronically out of control. For example, underage drinkers are at increased risk for becoming victims of violent crime, being involved in alcohol-related motor-vehicle crashes, and having unprotected sex. Each year, alcohol is implicated in an estimated 599,000 unintentional injuries, 97,000 cases of sexual assault or date rape, and 1,519 deaths among U.S. college students.[2,3]

## Can I teach my child to drink responsibly?

Research has shown that parents are one of the biggest sources of influence on their college-aged child's drinking habits. Parents who model responsible drinking behaviors—such as having a glass of beer or wine with dinner—are likely to transmit those good habits to their children. However, research also suggests that well-intentioned parents who try to give their adolescent child opportunities to "practice" drinking responsibly before they go off to college are actually setting them up for more problems.

It turns out that the best predictor of how much a student will drink during college is how much they drank during high school, and that goes for non-drinkers as well. Unfortunately, this evidence flies in the face of the popular misconception that turning alcohol into a "forbidden fruit" only heightens a student's appetite for it. Everyone seems to know someone whose drinking "exploded" when they got to college and escaped their parents' strict controls—but those cases are largely inaccurate. Condoning or encouraging underage drinking—even in the safety of your own home—only increases

the likelihood that a student will drink that much more when they are away from their parents. On average, and over time, students who do not drink during high school will have a lower chance of drinking excessively or developing problems during college.[590-592]

## What messages should I communicate regarding underage and excessive drinking?

Zero-tolerance messages are the most protective against alcohol use and related consequences, even if students are already using alcohol. In a study that assessed parental alcohol-related messages and alcohol use among 585 students at a U.S. university, it was found that parental communication of zero tolerance, or complete disapproval, of alcohol use was associated with the safest student behaviors regarding both weekend drinking and experienced consequences.[279] Conversely, parents teaching their college-aged child how to reduce the likelihood of harm if drinking occurs was found to be associated with the highest levels of risk behaviors. Be firm about your stance. Set clear rules about no alcohol use and emphasize the harmful consequences of underage drinking.

## How can I reduce the chances that my child will develop a problem associated with drinking alcohol during college?

As part of preparing their child to leave for college, parents should initiate conversations about alcohol use and the consequences of excessive drinking. Parents can take the initiative to find out about the school's alcohol policies and penalties for alcohol violations and discuss these with their college-aged child. Once the student has settled in at college, parents should check in frequently about how things are going with roommate(s), friends, and their living situation in general, as well as their classes. Keeping the lines of communication open throughout the school year will help parents be able to pick up on any warning signs that a problematic pattern of drinking might be developing. The first six weeks of the freshman year are an especially important time during which a successful transition to college life can be derailed by excessive drinking, difficulty managing academic pressures, or adjusting socially.

## How should I get involved prior to sending my child to college?

As college-bound students and parents work together to research schools and prioritize their preferred choices, they should pay attention to the drinking culture at those schools. Parents should look for schools that have solid alcohol policies and are enforcing laws on underage drinking. Students should have access to a diverse range of activities and social outlets that do not involve alcohol. Also, take time to read campus newspapers and other local media. Pay attention to what the news stories, editorials, and advertisements reflect about each school's drinking culture.

## I've never spoken to my college-aged child about alcohol—is it too late?

Better late than never. The transition to college can provide a natural impetus to raise the topic of drinking and drug use if you've never discussed it before. In college, your child will most likely be exposed to frequent opportunities to drink, as well as opportunities to try various drugs. Even if you suspect or know that s/he is already drinking, it is important to prepare college students for these experiences so that they know what to do when the opportunity presents itself.

## As a parent, what *exactly* should I be telling my college-aged child about alcohol?

As you prepare your child for all the changes that will occur when they start college, send a clear message that you expect him/her to avoid drinking and drug use during college. This does not make you naïve—this makes you a good parent. Research has consistently shown that parents' beliefs, values, and norms about alcohol have the biggest influence on reducing their child's risk for drinking and alcohol-related problems—even during late adolescence.[593]

By all means, talk about the serious harms to self and others that can result from excessive drinking (i.e., DUI, blacking out, injury, victimization, alcohol poisoning, and even death), but also recognize that these consequences might not deter your college-aged child from drinking because young people tend to think that they are "invincible" and cannot picture such serious things ever happening to them. Therefore, you should also talk about the less severe, but much more common, consequences of drinking, such as doing stupid things while they are drunk that lead to humiliation, painful misunderstandings, social rejection, or a bad reputation. Another strategy is to engage your college-aged child in an honest dialogue about their goals and expectations for what they want to accomplish while they are in college. Many students look back on their college years with regret and recognize that excessive drinking was a bad influence that interfered with their ability to achieve their goals.

Thinking about long-term success, your college-aged child might also be interested in knowing that research has shown the deck is stacked against college students who engage in excessive drinking. Research has shown that they tend to have 1) lower GPAs; 2) lower likelihood of graduating; 3) less prestigious jobs after college; and 4) lower lifetime earnings

As you prepare your child for college, be confident about the strength of your influence. Research suggests that parents maintain a strong influence on their children even after they have moved away to college.[594] In particular, parents are the primary source of health information for college students.

## What if my child is already drinking or has had some previous alcohol issues during high school—what treatment/resources are available going into college?

You are not alone. The 2017 Youth Risk Behavior Survey found that among high school students, during the past 30 days, 30% drank some amount of alcohol, 14% binge drank, and 6% drove after drinking alcohol.[595] If your student is already drinking or has had a drinking problem before college, it is important to realize that college is a high-risk environment where drinking might be common. As part of the research you do when trying to select a college, pay attention to campus resources that are available to students in recovery, such as counseling services, 12-step meetings, and recovery houses and groups. It is also crucial to pay attention to the environment surrounding the campus. This includes how many alcohol outlets are clustered near the campus, the advertisements and promotions targeted directly towards college students, and the role of alcohol in the lives of the school's athletes and Panhellenic organizations. As your child prepares to move on campus, educate yourself about the campus's health services and alcohol policies. Also, familiarize yourself with the types of resources that exist in the surrounding community (i.e., substance abuse and mental health clinics and trained professionals), especially if your child will be attending college far from home.

While the transition to college can be challenging, it can also be viewed as an opportunity for a "fresh start", where students meet new friends who do not drink, and get involved in activities that do not center around alcohol. It is important to maintain communication with your college-aged child about their classes, friends, living situation, and overall adjustment to college life—these conversations will help you pick up on changes that could signal the beginnings of a relapse of an earlier drinking problem. Emphasize that you are willing to provide support through their transition to college, and that you will be there to help them access professional help if necessary to deal with a relapse. If an alcohol problem does occur during college, make sure your child follows through on any referrals to on-campus or off-campus counseling services. Maintain constructive communication with your child. Reactive emotions and judgmental thoughts surface easily when parents are faced with a child's alcohol problem and can be counterproductive.[285] A skilled counselor with training in substance abuse treatment can help you deal with your own feelings during this process.

## What is FERPA? How does FERPA impact my "right to know"?

The Family Educational Rights and Privacy Act, or FERPA, (formerly the Buckley Amendment, passed in 1974) is a federal law that keeps student education records confidential. Parents have certain rights regarding student records, but once a student turns 18, these rights belong to the students.[285,286] The 1998 amendment to FERPA (section 952 of the Higher Education Reauthorization Act or HERA) allows, but does not require, notification to parents if their child (who is under 21) is responsible for any substance violations.[596] The amendment encourages interaction and discussion between universities/colleges and parents.[285]

Because FERPA/HERA does not require schools to notify parents about an alcohol or drug violation, schools have different policies about parental notification. Educate yourself about the specific policy in place at your child's school, as well as their attitudes about substance use on campus and parental notification. It is not uncommon for college administrators to believe (mistakenly) that FERPA prohibits parental notification. According to the U.S. Department of Education, "schools may inform parents if the student, if s/he is under age 21, has violated any law or policy concerning the use or possession of alcohol or a controlled substance."[286] Keep in mind that you are your child's best advocate, so it is important to keep a working relationship with not only your child, but the institution that is educating your child.

## What can I do following a parental notification?

No parent looks forward to finding out that their child has violated an alcohol or drug policy on campus. Yet this can be an opportunity for increasing communication with your child about their alcohol use and the problems that ensued from violation. Realize that the violation can be an important learning opportunity for your child. In fact, parents often report that this situation results in a positive behavior change for the student. Aside from the penalties imposed by the school, many parents impose additional consequences on their child, such as requiring the child to come up with the money to pay the fines and fees associated with the violation, suspending privileges like access to a car, or removing certain types of financial support. Parental notification can also lead to greater communication between parents and the school.[285]

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