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Clinical Approaches to Improving Alcohol Education and Counseling in Adolescents and Young Adults

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Abstract

Clinical prevention trials (approaches to educating and counseling) of adolescents (teens and young adults ages 12 to 25 years old) about risks related to alcohol use indicate that reduction in adolescent alcohol use is possible with nonphysicians as interventionists and physicians as interventionists supported by patient counseling guides and resources. Opportunities for personalized, interactive adolescent education with goal setting appears key to intervention success. Physicians might also be more effective if they are aware of emerging alcohol problems among youth, systems-level resources for counseling adolescents about prevention, and appropriate guidance for parents. Recommendations and resources for clinicians working with adolescents regarding alcohol misuse are provided.

Call for Clinician Action to Address Alcohol Prevention among Adolescents

In 2007, the Surgeon General published a “Call to Action to Prevent and Reduce Underage Drinking.” The report indicated that nearly 10.8 million youth aged 12 to 20 years are drinkers whose alcohol use may risk their health and well-being, as well as the health and well-being of those around them. This call to action provides many recommendations for parents, communities, parents, and health-care providers.¹

The majority of adolescents who misuse alcohol lack proper screening, referral, and treatment by health-care providers. It is recommended that even those adolescents who do not meet formal diagnostic criteria for addiction be provided with appropriate interventions from their health-care providers to prevent alcohol misuse and disorders.¹

Prevention of adolescent alcohol misuse by the health-care provider is also addressed in the new Department of Health and Human Services Healthy People 2020 (HP2020) objectives for the nation. The objectives relate to increasing the proportion of at-risk adolescents who refrain from using alcohol, disapprove of consuming alcohol, and perceive great risk associated with binge drinking, as well as reducing the proportion of adolescents and young adults engaging in binge drinking. Another objective relates to increasing the number of primary care settings that implement evidence-based alcohol screening and brief intervention. There are specific clinical recommendations for screening and behavioral counseling interventions in primary care settings to reduce alcohol misuse among adolescents within HP2020. These recommendations include utilizing reliable and valid screening tools. Effective interventions include an initial 15-minute counseling session and/

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or multiple contacts with appropriate screening and referral by physicians or nonphysician practitioners.²

Clinical alcohol prevention guidelines for teens and young adults (ages 12 to 25 years old) by physician professional associations have been developed. The American Medical Association's Guidelines for Adolescent Preventive Services (GAPS) recommends to clinicians that all adolescents receive, on an annual basis, assessment and guidance regarding alcohol use.³

The American Academy of Pediatrics (AAP) suggests that all pediatricians regularly discuss alcohol refusal skills, problem drinking, and alcohol-free activities with adolescents.⁴ Furthermore, the AAP has as its policy that pediatricians should recognize risk factors for alcohol use, screen for use, provide brief interventions, and refer as necessary for treatment.⁵

The United States Preventive Services (USPS) Task Force recommends screening all adolescent patients to detect problem drinking with a careful history of alcohol use and/or a standard screening questionnaire. The Task Force also suggests that primary care screening of alcohol use be frequent and followed up by appropriate education, referral, and follow-up. Furthermore, the Task Force supports research that states even brief (up to 5 minutes) interventions can be incorporated into primary care visits without substantial changes to policy, resources, or usual care visit schedules.⁶

Rates of Adolescent Alcohol Use

Alcohol use and abuse is not limited to those of legal drinking age. Alcohol use is problematic even among American minors. According to recent Youth Risk Behavioral Surveillance System (YRBSS) data, 72.5% of all high school students surveyed had drunk at least 1 drink of alcohol on at least 1 day in their lifetime and 41.8% had drunk at least 1 drink in the prior 30 days. More alarming is that 21.1% of those students had drunk alcohol for the first time before the age of 13 years.⁷ The 22nd annual Partnership Attitude Tracking Study (PATS), sponsored by MetLife Foundation, affirms a disturbing trend that has emerged among American teens since 2008. Of those teens who reported alcohol use, a majority (62%) said they had their first full alcoholic drink by age 15, not including sipping or tasting alcohol. Of those teens who reported alcohol use, 1 in 4 (25%), said they drank a full alcoholic drink for the first time by age 12 or younger. Furthermore, among teens who reported drinking alcohol, the average age of first alcohol use was 14 years.⁸

When looking at binge (drinking 5 or more drinks in a row within a couple of hours) drinking, 24.2% of the high school students had binged at least once in the prior 30 days.⁷ Other data obtained from high school students approximate the following with regards to the percentage of students who reported having at least 1 drink of alcohol within the prior 30 days: 14% of 8th graders, 29% of 10th graders, and 41% of 12th graders.⁹ In 2003, about 75% of high school students from across the nation reported consuming at least 1 drink of alcohol at least once in their lifetime.¹⁰

According to the most recent (2010) data from the American College Health Association National College Health Assessment, 59.8% of college students had drunk within the prior 30 days, and 32.7% had reported at least 1 binge episode within the prior 2 weeks.¹¹ What may be even more alarming is a dangerous trend among some college students who purposely drink to get drunk. This phenomenon was reported by 76.9% of incoming freshmen students who reported alcohol use surveyed at a large Mid-Atlantic public university.¹²

With the rates of underage alcohol use so high and the multitude of negative consequences that may result from alcohol use, it is critical that multiple prevention strategies be employed to address this problem. Nonphysicians and physicians alike should take advantage of their unique opportunities to communicate and influence youth's behavioral decisions regarding alcohol.

Problems Associated with Adolescent Alcohol Use

The Department of Health and Human Services (DHHS) reported that alcohol abuse costs the United States approximately \$167 billion in 1995.¹³ Alcohol use is associated with the leading causes of death among adolescents: motor vehicle accidents, homicides, suicides, and drowning.¹³ It was reported that 12% of students had driven a vehicle after drinking alcohol, and 30% of students had ridden in a vehicle with a driver who had been drinking.¹⁰ Alcohol use among adolescents is also associated with physical fights, academic and occupational problems, illegal behavior, and risky sexual behaviors; as well as psychiatric and social problems, and cognitive development and sound decision making abilities.^{10,14}

High rates of underage drinking cause many problems for others, not just the drinkers themselves. For example, college drinking can lead to health, safety, and academic problems, as well as social problems with peers, family, sexual partners, and the community.¹⁵⁻¹⁷ The negative effects of alcohol use imparted by the drinker on others have been termed "secondhand effects."¹⁸ Secondhand effects are associated with exposure to heavy drinkers.¹⁵⁻²² Examples of secondhand effects include interruptions to sleep and study, having to take care of the drunk person, being inconvenienced by noise or vomit, being insulted or humiliated, having property damaged, or being a victim of assault or other crimes.¹⁵⁻²³ Serious secondhand effects are reflected in alarming statistics among 18- to 24-year-old students indicating physical and/or sexual assault by others who are under the influence of alcohol.²⁴ Secondhand effects may contribute to decreased student well-being and school performance.²⁵

The AAP has also stated that early alcohol use can interfere with adolescent brain development, and that early alcohol use is associated with alcohol-related problems later in life.²⁶ Underage drinkers are at risk for heavy drinking later in life. The Surgeon General's report states that "adults who report first using alcohol before age 15 are 5 times more likely to also report abuse of or dependence on alcohol than are adults who first used alcohol at age 21 or older."¹⁴ Furthermore, 40% of adults who first drank before the age of 15 report symptoms consistent with that of alcohol dependence.¹⁴

Rates of Clinician Prevention of Adolescent Alcohol Misuse

A national survey of 907 pediatricians indicated that 24.3% counseled adolescents aged 6 to 12 years and 69.7% of pediatricians counseled adolescents aged 13 to 18 years about their use of alcohol and drugs.²⁷ In another national survey, pediatricians reported screening significantly more 15 to 17 year olds (Mean = 76.8%) than 11 to 14 year olds (Mean = 53.0%).²⁸ Barriers to physician screening and educating patients about alcohol use include poor provider training, lack of alcohol screening tools, lack of referral options for adolescents, lack of physician confidence in the effectiveness of intervention and treatment, perceived lack of time, not perceiving this as part of their jobs or reimbursable activity, difficulty in dealing with adolescent patients, and personal concerns about counseling adolescents about alcohol.²⁹⁻³¹

Intervention trials are needed to demonstrate the best ways to increase physician screening and counseling behaviors. One trial involved 13 physicians in 5 primary care practices in New England. Personal digital assistant (PDA) devices were utilized by adolescents aged 11

to 19 with the results of the PDA screenings and follow-up questions forwarded to the physicians before the visit with the adolescent. Based on exit surveys conducted by the adolescents, physician discussions (53.9% vs. 38.0%) related to alcohol use were significantly greater among those adolescents who completed the PDA screening before the visit.³² Another trial included 76 physicians at 4 outpatient HMO pediatric clinics. This trial also focused on increasing screening and counseling of adolescent patients at well visits. The experimental physicians attended training to learn skills to increase screening and counseling and then implemented those skills along with charting forms during adolescent well visits. Those experimental physicians demonstrated significantly greater increases in screening (58% to 83%) and counseling (52% to 78%) rates, whereas those physicians in the control clinics demonstrated no significant increases.³³

Another randomized controlled trial examined the screening and counseling behaviors of 26 primary care providers with 444 adolescents aged 12 to 17. The 2 experimental conditions included (1) adolescent priming with alcohol self-assessment and education before a usual care visit (group 1) and (2) adolescent priming and provider prompting with the adolescent self-assessment (group 2), and both experimental groups were compared to traditional usual care. Those adolescents in experimental group 2 reported being asked about alcohol and talking with their provider about alcohol significantly more than usual care adolescents.³⁴

Clinician Recognition of Risk Factors for Alcohol and Other Substance Abuse among Youth

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) categorized adolescent risk factors for alcohol use into multiple categories, including genetic, biological, behavioral, and psychosocial. Specific behavioral risk factors include aggressiveness and antisocial behaviors during childhood. Specific psychosocial risk factors include parental, family, and peer influences; alcohol-related expectancies; trauma; and media.³⁵

The AAP also identifies many risk factors that may contribute to alcohol use among adolescents including “having friends who use alcohol, tobacco, or other substances; patterns of use in communities in which alcohol and other drugs are less expensive and easily attainable; and exposure to alcohol advertising.”²⁶ Additional risk factors for adolescent alcohol use include family history of substance abuse or mood disorders, poor parental supervision and household disruption, low academic achievement and/or academic aspirations, untreated ADD and/or ADHD, perceived peer acceptance of substance use, and substance use in peers.³⁶

Clinician Screening for Adolescent Alcohol Use

Health-care providers should use informal screening methods such as simply asking open-ended questions about alcohol and substance use in the home and by peers before asking about personal use, and recognize the importance of providing a place where the adolescent can speak confidentially. The Bright Futures document purports that the CRAFFT (mnemonic acronym of first letters of key words in the six screening questions) screener has high sensitivity and specificity for identifying substance use, abuse, or dependence. This screening instrument asks 6 questions related to alcohol and substance-use related behaviors and motivations. Specifically, the instrument asks if the individual has driven or ridden in a car with someone under the influence, used alcohol to relax, used alcohol when alone, forgot things as a result of using alcohol, had family or friends express concern over use, and gotten in trouble while using alcohol. It is recommended that those adolescents identified with problematic use receive a brief intervention consisting of feedback, education,

recommendations for abstinence, negotiations for limiting or abstaining from use, an agreement for behavior change, and follow-up. If the screening indicates dependence, it is recommended that treatment options be explored and made available to the adolescent.³⁶

The USPS Task Force recommends screening all adolescent patients to detect problem drinking with a careful history of alcohol use and/or a standard screening questionnaire such as the Alcohol Use Disorders Identification Test (AUDIT).⁶ HP2020 recommendations include utilizing reliable and valid screening tools such as the AUDIT or CAGE (mnemonic acronym of first letters of key words in the four screening questions) instruments.² Other recommendations for alcohol problem screening tools for adolescents are provided by the AAP⁵ and the NIAAA.³⁷ The AAP highlights the usability of the 6-item CRAFFT instrument as well as the AUDIT instrument. The AAP also suggests use of the Problem Oriented Screening Instrument for Teenagers (POSIT)⁵; however, the POSIT includes 139 items and may not be feasible in a health-care setting. The NIAAA identifies numerous assessment instruments for use with adolescents in clinical and research contexts. The instruments have a range of applications from use with those referred for emotional or behavioral disorders to those suspected of alcohol use problems.³⁷ An instrument that may be used to quickly screen adolescents for alcohol use problems is the Rutgers Alcohol Problem Index (RAPI). The RAPI instrument is free, includes 23 items, takes no more than 10 minutes to complete, does not require any training for those administering the instrument, and has good reliability and validity.³⁷

Clinician Guidance for Parents

According to the PATS, as underage drinking becomes more normalized among adolescents, parents feel unable to respond to the negative shifts in teen drug and alcohol use. The PATS reported that parents feel unprepared to respond to underage drinking by their children. Almost a third of parents (28%) feel “there is very little parents can do to prevent their kids from trying alcohol.” One in 3 teens (32%) thinks their parents would be OK if they drank beer once in a while; yet only 1 in 10 parents agrees with teens drinking beer at a party.⁸

Providers should help parents recognize that primary care providers and educators alone cannot address the issue of adolescent alcohol use and that the parents themselves play a pivotal role in adolescent alcohol problem prevention. A recent review of longitudinal studies examined 12 parenting variables in association with adolescent alcohol use, including parental modeling, provision of alcohol, alcohol-specific communication, disapproval of adolescent drinking, general discipline, rules about alcohol, parental monitoring, parent-child relationship quality, family conflict, parental support, parental involvement, and general communication. It was determined based on the literature review that delayed alcohol initiation and/or reduced alcohol use was predicted by parental modeling, limiting availability of alcohol to the child, parental monitoring, disapproval of adolescent drinking, general discipline, parent-child relationship quality, parental support and involvement, and general parent communication.³⁸

Federal government research has led to recommendations for parents. It is recommended that parents always model responsible alcohol consumption, talk early and often with children and adolescents about alcohol, establish policies and expectations and enforce them early on, work with other parents and the community to monitor and address alcohol use, know and understand state laws, and never provide alcohol to someone else’s child.³⁹ It is important that parents understand adolescents’ natural tendencies to resist parental influence and intervention, but parents must also understand the protective influence they can have when they communicate boundaries and expectations about alcohol with their adolescent.³⁹

Clinician Provision of Appropriate Brief Interventions and Referral for Prevention

Evaluations of Clinical Alcohol Prevention Trials for Adolescent Outpatients

The USPS stated that there is insufficient evidence to determine whether alcohol behavior counseling interventions for adolescents should be recommended in all primary care offices.⁶ Controlled clinical trials eliminate many threats to internal validity present in many uncontrolled studies and thereby allow inference in regard to whether the observed effects are caused by the intervention.^{40–41} A search for peer-reviewed, published clinical trials of physician interventions to improve outpatient alcohol assessment, education, risk reduction counseling, and referral among adolescents was conducted and is updated in this chapter.⁴² Computer searches were limited to publications in English involving clinical trials addressing practicing physician provision of alcohol assessment, education, prevention, and referral; patient populations younger than 25 years old or with an average age no older than 25 years old or including subgroup analyses of patients younger than 25 years old; and outpatient settings in the United States or other highly developed country.

The search resulted in 11 publications that met the search criteria. Those trials were then reviewed and the following aspects of the trials were retrieved: setting and target population, study sample, study design and conditions, intervention characteristics, physician behavior change or fidelity to the intervention (when physicians were the experimental interventionists), adolescent outcomes, and authors' observed limitations of the trial. On review of the 11 publications that met the search criteria, it was discovered that they could be examined in an additional way. Four of the trials utilized physicians in both the experimental and control conditions. The remaining 7 trials only utilized nonphysicians (nurses, research staff) as the experimental interventionists and utilized physicians for the control condition. An analysis of trials using physicians as the experimental interventionists was reported previously⁴² and is updated in Table 1. The previous report on the trials with nonphysicians as interventionists is not updated here because no new trials of this type could be identified.⁴²

Physician-Only Interventions—No trial measured changes in adolescent knowledge or attitudes. None of the trials included or reported any referral outcomes for problem drinkers. However, all trials reported some measure of adolescent behavior change. All 4 of the trials included a measure of alcohol quantity and frequency. One of the 4 trials that reported differences in alcohol use reported that, when compared to the usual care group, those in the experimental group were twice as likely to refuse alcohol at follow-up.⁴³ One trial reported that those in the experimental group, when compared to the usual care group, consumed less alcohol and binged less at follow-up.⁴⁴ Of particular note, this same trial also reported that those in the experimental group, when compared to the usual care group, were also less likely to have emergency department visits, nonfatal motor vehicle accidents, and liquor violations at follow-up.⁴⁴ A trial with similar results indicated that at 12-month follow-up, those in the experimental group who were at risk for high-risk drinking consumed less alcohol over a 28-day period and also reported less negative consequences.⁴⁵ Two trials reported that the experimental intervention increased self-reported alcohol use at follow-up.^{43,46}

Physician Interventions with Assistance of Nonphysicians—No trial measured changes in adolescent knowledge or attitudes. None of the trials included or reported any referral outcomes for problem drinkers. However, all trials reported some measure of adolescent behavior change due to the intervention effect. Of the 6 trials that included alcohol use outcomes, 3 trials reported that those in the experimental group, when compared

to the usual care group, consumed less alcohol,⁴⁷⁻⁴⁹ and 2 of these trials reported that those in the experimental group, when compared to the usual care group, were less likely to binge.⁴⁷⁻⁴⁸ Two trials reported no significant changes in adolescent behavior when comparing the experimental and control groups.⁵⁰⁻⁵¹ Of the 2 trials including a drinking and driving outcome, only 1 trial reported that those in the experimental group, when compared to those in the usual care group, were less likely to drive after drinking and less likely to suffer alcohol-related injuries.⁵²

Overall Discussion and Conclusions Regarding Clinical Alcohol Prevention

Trials—Do trials show that physicians can improve their effectiveness in reducing alcohol use among adolescents? This examination identified only 4 trials that evaluate physician interventions to reduce alcohol use in adolescent outpatients. Only 2 trials show that brief physician intervention, in this case with a subset of adolescents that are moderate alcohol users and a subset of college students at risk for high-risk drinking, decreases alcohol consumption.⁴⁴⁻⁴⁵ These trials together also suggest that measures of emergency department visits, nonfatal motor accidents, other liquor violations, and other negative consequences may all be reduced with the intervention.⁴⁴⁻⁴⁵ Although the physician intervention in these trials was brief, it included interactive behavioral strategies, including a contract with the adolescents about treatment plans and cognitive behavioral exercises. These findings are very encouraging in that they suggest physicians can reduce adolescent alcohol use and alcohol problems among drinkers. Other trials that repeat these findings would help to confirm the benefits of this approach. Also, research is needed to determine whether such brief intervention with adolescent non- and infrequent-drinkers reduces future heavy drinking and drinking problems.

Two of the 4 trials actually show that brief physician interventions increase adolescent self-reported alcohol use.^{43, 46} The adolescents in these trials are all adolescents receiving general health examinations, and this repeated finding is certainly worrisome. The finding may, however, be an artifact of adolescent self-report. In general, adolescent self-reported alcohol use in surveys is believed to be reliable and valid and is therefore a common method of measurement in adolescent research.¹⁰ The reliability of self-reported measures has been found to be variable, however and a source of concern in longitudinal and biomarker verification studies.⁵³⁻⁵⁴ Perhaps adolescents that receive focused discussion about alcohol as part of their health care are more open about their alcohol use in research surveys. Alternatively, perhaps such physician intervention with both alcohol users and nonusers has a helpful impact on current users but not current nonusers.

Clinical settings may be inclined to use ancillary staff to provide alcohol prevention to adolescents. Seven identified trials use physicians only in the usual care control condition, not in the experimental condition as interventionists. These trials include clinical staff or research assistants as the study interventionists, and they tend to address samples of adolescents with high likelihood of alcohol problems, such as those being seen for injuries in emergency departments. In general, the results are encouraging and show that nonphysician interventionists can decrease alcohol use and problems using personalized education and counseling and goal setting.^{47-49,52} The results are variable, however, and suggest the need for further examination of the impact of this behaviorally focused type of intervention with noninjury patients, infrequent alcohol users, younger versus older adolescents, and over various follow-up time points to assess short- and long-term adolescent behavior change.

Overall, trials that report success in reducing adolescent alcohol use tend to share some common elements. Most importantly, they include interactive educational opportunities for adolescents to assess their risks and develop personalized, realistic plans for self-protection that address barriers to change. Motivational interviewing with some component of skill-

building or goal setting has been a successful framework in some of the alcohol risk reduction trials among adolescent outpatients. These approaches might be best characterized under the theoretical rubric of social cognitive theory, which posits that behavior change can result from heightened self-efficacy through various active and interactive modes of learning.⁵⁵ Information and advice given to adolescents as passive learners, with lack of elicitation of adolescent skill-building and commitment to change, is unlikely to impact adolescent alcohol use patterns.

Typical educational approaches used by busy physicians in time-restricted visits are limited by the barriers described at the beginning of this chapter and may not include interactive opportunities for skill-building. Future research and physician guideline development should examine realistic physician roles and responsibilities in adolescent alcohol risk reduction and prevention and incorporate educational resources that can enhance physicians' approaches to intervention.

Most of the trials performed to date use physicians for limited patient interactions that require small amounts of physician time. The trials to reduce adolescent problems from alcohol often attempt to build on brief physician interactions with adolescents by using ancillary staff. These studies limit exploration of different possibilities for physician involvement in reducing or preventing adolescent alcohol use, and physician alcohol intervention is often set up by design in the trials to be less effective than the experimental intervention condition. Although it may be possible in some settings to defer alcohol education to nonphysicians, the primary, and often only, educational interaction that adolescents have in their health care is with their physician. Furthermore, physicians' professional practice guidelines are written assuming the physician is the interventionist rather than ancillary staff.

There are a limited number of trials on reducing outpatient adolescent alcohol use, particularly with physicians as the primary interventionist, to make strong conclusions about physician efficacy in reducing adolescent alcohol risk-taking. It appears that reduction in outpatient adolescent alcohol use and some related behaviors is possible with nonphysicians as interventionists and perhaps physicians as interventionists, if physicians are supported by patient counseling guides, appropriate resources, and effective prescreening tools. Opportunities for personalized, interactive adolescent education with goal setting appears key to intervention success. The physician role that is tested in most trials is confined to a single brief encounter with little attention to development of physician skills, systems-level resources, the parental role, or the impact of incorporating prevention into an ongoing adolescent-physician relationship.

Reliance on adolescent self-report measures is also a major limitation of many existing trials. The results of trials are variable and suggest the need for further examination of the impact of behaviorally focused intervention with noninjury patients, infrequent alcohol users, younger versus older adolescents, and over various follow-up time points to assess short- and long-term adolescent behavior change.

Newly Emerging Concerns about Adolescent Alcohol Misuse and Their Relevance to Clinical Prevention

There are emerging concerns that make prevention efforts more difficult when dealing with adolescents. The marketing of high-potency alcoholic beverages is not new, but new marketing methods are being developed to attract adolescent consumers to these beverages. "Alcopops" are high-potency flavored alcohol products which are being marketed to females; these drinks are usually colorful, fruity, do not taste like beer, and may or may not

contain caffeine. One example is “Blast,” which is manufactured by Colt45. Blast is a fruit-flavored drink with 12% alcohol by volume. A 23.5-ounce can contains the equivalent of 4.7 servings of alcohol and thus can make a person legally drunk with just 1 can. Blast has very trendy and attractive marketing and is packaged in colorful cans. A popular rapper who can be identified by many adolescents, has provided endorsement for this drink in advertisements. This drink has been dubbed “binge in a can” because of the high alcohol content and has gained national attention by many state officials and law officials.⁵⁶ Another example is “Four Loko.” This is a caffeinated and alcoholic drink previously dubbed “blackout in a can.” Four Loko was sold in 23.5-ounce cans and contained 12% alcohol by volume. There were documented teen deaths attributed to consumption of Four Loko, and it has since been reformulated. This drink led the FDA to warn beverage companies about adding caffeine to alcoholic beverages because of the combination is potentially lethal.^{57–58}

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Table 1
Trials to Improve Physician Provision of Alcohol Use Prevention Services with Adolescent Outpatients.

Citation	Setting and Target Population	Study Sample	Study Design and Conditions	Experimental Intervention	Clinician Behavior Change or Fidelity	Adolescent Outcomes	Authors' Observed Limitations
Fleming, Balousek, Grossberg, Mundt, Brown, Wiegell, Zakletskaia, & Saewyc, 2010 ⁴⁵	<p><i>Setting:</i> 5 college health clinics <i>Sample Frame:</i> College students 18 years of age or older screened for high-risk drinking (12,900 eligibles) <i>Location:</i> Wisconsin, Washington state, & Vancouver</p>	<p><i>Number of Participants:</i> 17 health-care providers (13 physicians, 3 nurse practitioners, 1 physician assistant); 986 college students <i>Participant Characteristics:</i> Physicians: Mean age: 45 years; Average length in practice: 15 years College Students: Mean age: 21.9 years; 50.9% female</p>	<p><i>Design:</i> Randomized controlled trial (RCT) with 12-month follow-up <i>Conditions:</i> 1 Usual care 2 Two 15-minute counseling visits based on role playing and motivational interviewing. 2 follow-up phone calls (performed by research assistants), diary cards, and take-home exercises</p>	<p><i>Interventionist:</i> 1 Physician or other clinic staff 2 Physician <i>Format:</i> 1 Individual 2 Individual <i>Length:</i> 1 30 minutes for counseling; variable for phone calls 2 variable</p>	<p>Physician fidelity was measured via physician-completed form following each intervention visit.</p>	<p><i>Knowledge/Attitudes/Behaviors:</i> At 12-month follow-up, student drinking totals and RAPI scores were significantly improved in experimental group.</p>	<p>Potential limitations include reliance on self-report data, use of a student health class to recruit small proportion of sample, and the generalizability of results due to high-risk drinking requirement for inclusion into the study.</p>
Boekeloo, Jerry, Lee-Ougo, Worrell, Hamburger, Russek-Cohen, & Snyder, 2004 ⁴⁵	<p><i>Setting:</i> Managed care organization primary care group practices <i>Sample Frame:</i> English speaking, adolescents receiving a general health examination (892 eligibles) <i>Location:</i> Washington, DC, & Maryland metro area</p>	<p><i>Number of Participants:</i> 26 physicians; 409 adolescent patients <i>Participant Characteristics:</i> Physicians: 77% female; 50% white; 35% African American Adolescents: 56% female; 79% African American Age range: 12 to 17 years</p>	<p><i>Design:</i> RCT with 6- and 12-month follow-up <i>Conditions:</i> Usual care plus 15 minutes of listening to radio of program with self-assessment and general health examination 3) Same as Group 2 and researchers placed study brochure, adolescent self-assessment answer sheet, and self-assessment template in bag on examination room door for physicians' use</p>	<p><i>Interventionist:</i> 1 Physician 2 Physician 3 Physician <i>Format:</i> 1 Individual 2 Individual 3 Individual <i>Length:</i> > 15 minutes > 15 minutes</p>	<p>It was reported that 86.7% of adolescents in Group 3 saw their physicians look at their alcohol risk assessments. 41.5% of adolescents in Group 3 reported that their physician had discussed the brochure</p>	<p><i>Knowledge/Attitudes/Behaviors:</i> Group 3 adolescents were significantly more likely (odds ratio 2.08) to refuse alcohol at 6-month follow-up. However, Groups 2 and 3 were also at least 3 times as likely to have binged within the previous 3 months at the 6-month follow-up. At 12-month follow-up, Groups 2 and 3 were again at least 3 times as likely to have binged in the previous 3 months.</p>	<p>Potential limitations included reliance on self report data, dissimilarity of the study groups, and potential for more honest reporting by intervention adolescents.</p>

Citation	Setting and Target Population	Study Sample	Study Design and Conditions	Experimental Intervention	Clinician Behavior Change or Fidelity	Adolescent Outcomes	Authors' Observed Limitations
<p>Grossberg, Brown, & Fleming, 2004⁴⁴</p>	<p><i>Setting:</i> 17 primary care clinics <i>Sample Frame:</i> Patients were approached by a receptionist and asked to complete the health screening survey. Male patients who drank more than 14 drinks per week and female patients who drank more than 11 drinks per week were then contacted by research staff and invited to participate in the study (850 eligibles) <i>Location:</i> southern Wisconsin</p>	<p><i>Number of Participants:</i> 226 patients <i>Participant Characteristics:</i> Physicians: 64 full-time family physicians and internists Adolescents: 51% female; 86% white, 5% African American; 53% aged 18 to 25, 47% aged 26 to 30</p>	<p><i>Design:</i> RCT with 6-, 12-, 24-, 36-, and 48-month follow-up <i>Conditions:</i> Patients randomized to: Usual care Brief intervention in which physician used a scripted workbook to review alcohol-related health effects, frequency of at-risk drinkers, methods to cut down on drinking, a treatment contract, and cognitive behavioral exercises</p>	<p>>15 minutes</p> <p><i>Interventionist:</i> 1 Physician 2 Physician <i>Format:</i> 1 Individual 2 Individual <i>Length:</i> 1 Variable 2 10–15 minutes per session</p>	<p>information with them, and 66% of the same adolescents reported that their physician had given them information about alcohol.</p>	<p>Potential limitations included the use of a brief intervention and self-report data.</p>	<p><i>Knowledge/Attitudes/Behaviors:</i> At the 6-month follow-up, patients in the experimental condition significantly decreased their weekly alcohol consumption (42%). Weekly consumption between the 2 groups remained significantly different at 12-, 24-, and 36-month follow-up periods as well. The patients in the experimental condition also experienced significantly less binge drinking episodes at 6-, 12-, and 48-month follow-up periods when compared to the patients in the usual care condition (resulting in a difference of at least 15%). Those patients in the experimental condition also experienced significantly less emergency department visits, nonfatal motor vehicle accidents, and</p>

Citation	Setting and Target Population	Study Sample	Study Design and Conditions	Experimental Intervention	Clinician Behavior Change or Fidelity	Adolescent Outcomes	Authors' Observed Limitations
Stevens, Olson, Gaffney, Tosteson, Mott, & Starr, 2002 ⁴⁶	<p><i>Setting:</i> 12 pediatric primary care practices</p> <p><i>Sample Frame:</i> Families with 5th or 6th grade students attending scheduled health supervision visits (3496 eligible)</p> <p><i>Location:</i> Massachusetts, Vermont, and New Hampshire</p>	<p><i>Number of Participants:</i> 92 physicians and nurse practitioners; 3145 families</p> <p><i>Participant Characteristics:</i> Adolescents: Mean age: 11 years; 48% female; 57.6% had a family income of at least \$50,000</p>	<p><i>Design:</i> RCT with 12-, 24-, and 36-month follow-up</p> <p><i>Conditions:</i> Alcohol and tobacco use counseling and education. Gun safety, bicycle helmet use, and seatbelt use counseling and education. In both groups, all participants signed contracts to discuss the health issues and received a physician-signed agreement, a refrigerator magnet, and periodic newsletters</p>	<p><i>Interventionist:</i></p> <p>1 Physician</p> <p>2 Physician</p> <p><i>Format:</i></p> <p>1 Family</p> <p>2 Family</p> <p><i>Length:</i></p> <p>1 Variable</p> <p>2 Variable</p>	<p>Physician fidelity was determined by chart audit, calls, and routine visits from research coordinators. It was reported that the intervention was implemented as planned.</p>	<p>liquor violations than those in the usual care condition.</p> <p><i>Knowledge/Attitudes:</i></p> <p><i>Behaviors:</i> A moderate increase in alcohol consumption was reported for adolescents in Group 1 at 24 and 36 months (odds ratio of 1.27 and 1.30 respectively).</p>	<p>Potential limitations included the focus on many health behaviors, no true control group, and reliance on self-report data.</p>