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Provider, Patient, and Family Perspectives of Adolescent Alcohol Use and Treatment in Rural Settings

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Abstract

Purpose—We examined rural primary care providers' (PCPs) self-reported practices of screening, brief interventions, and referral to treatment (SBIRT) on adolescent alcohol use and examined PCPs', adolescents', and parents' attitudes regarding SBIRT on adolescent alcohol use in rural clinic settings.

Methods—In 2007, we mailed surveys that inquired about alcohol-related knowledge, attitudes, and treatment practices of adolescent alcohol use to all PCPs in 8 counties in rural Pennsylvania who may have treated adolescents. We then conducted 7 focus groups of PCPs and their staffs (n = 3), adolescents (n = 2), and parents (n = 2) and analyzed the narratives using structured grounded theory, evaluating for consistent or discordant themes.

Results—Twenty-seven PCPs from 7 counties returned the survey. While 92% of PCPs felt that routine screening for alcohol use should begin by age 14, 84% reportedly screened for alcohol use occasionally, and reportedly 32% screened all adolescent patients. The provider focus groups (n = 20 PCPs/staff) related that SBIRT for alcohol use for adolescents was not currently effective. Poor provider training, lack of alcohol screening tools, and lack of referral treatment options were identified barriers. Adolescents (n = 12) worried that physicians would not maintain confidentiality. Parents (n = 12) acknowledged a parental contribution to adolescent alcohol use. All groups indicated computer-based methods to screen for alcohol use among adolescents may facilitate PCP engagement.

Conclusions—Despite awareness that rural adolescent alcohol use is a significant problem, PCPs, adolescents, and parents recognize that SBIRT for adolescent alcohol use in rural PCP

settings is ineffective, but it may improve with computer-based screening and intervention techniques.

Keywords

Access to care; adolescents; alcohol abuse; geography; patient assessment

Primary health care providers (PCPs) in rural settings can play a vital role in the identification, management, and referral of adolescents with problematic alcohol use. In the United States, despite public policy and health care interventions, the number of adolescents (defined as 12-20 years old) consuming alcohol has not declined.¹ Almost one third of 12th graders reported being drunk in the past 30 days,² and as many as 13% of adolescents have diagnostic criteria for an alcohol use disorder (AUD, a diagnosis of alcohol abuse or alcohol dependence).³ The National Survey on Drug Use and Health (NSDUH) and the Monitoring the Future study collectively continue to indicate that adolescents drink, often to excess.^{2,4} According to a 2004 survey, over 28% of adolescents reported alcohol consumption in the last month, and 17% of adolescents met criteria for a past-year AUD,⁴ whereas an estimated 10% of adult drinkers met AUD diagnosis criteria.⁵ It has been conservatively estimated that, of adolescent drinkers between the ages of 12 and 17, 5% will develop either alcohol abuse or dependence.⁶

One comprehensive strategy for addressing alcohol misuse is referred to as screening, brief interventions, and referral to treatment (SBIRT), which consists of 3 major components: Screening, which determines the extent of alcohol use and identifies the appropriate level of intervention needed; Brief Intervention, a non-confrontational, patient-centered nonpharmacologic treatment approach to alcohol misuse, grounded in the Transtheoretical Model of Behavior Change;⁷⁻⁹ and Referral to Treatment, which provides those needing more extensive treatment with referral to specialty care.

We have previously demonstrated that adolescent self-reported alcohol drinking history is consistent between samples of adolescents recruited in school settings and in primary care practices.¹⁰ Rural primary care environments may be an ideal setting in which to employ SBIRT to address adolescent alcohol use.¹¹ As many as 70% of adolescents are seen annually for a “well-care” PCP visit, and in a rural survey, over 90% of adolescents report having seen a physician within the past 2 years.¹² In adult populations, the Institute of Medicine and the National Institutes of Health advise PCPs to identify and treat hazardous alcohol consumption within outpatient settings.^{13,14} Similarly, the American Academy of Pediatrics^{15,16} and the American Medical Association¹⁷ have recommended that all health care professionals routinely ask adolescent patients about their drinking.

PCP efforts to identify rural adolescent alcohol use may be particularly crucial as fewer specialty treatment programs for drug and alcohol problems exist in rural settings, yet when treatment is available, it can be effective.¹⁸ PCPs may support engaging adolescents in discussions about their alcohol use but face barriers to assessing and intervening. Several studies suggest that PCPs underestimate pathology related to adolescent substance abuse, and structured screening instruments may improve identification of alcohol consumption.¹⁹ Recently, Van Hook found significant barriers to the identification and treatment of adolescent alcohol use, including insufficient time and lack of training on how to address it.²⁰ In a study of adolescents in mid-sized and rural communities, Elliot found that barriers to receiving care included lack of health care information, lack of health care access, poor insurance coverage, parenting issues, and confidentiality concerns.¹²

The specific perspectives of rural PCPs toward SBIRT in rural clinic environments and the concordances or disagreements between PCPs', adolescents', and adolescents' parents' views toward engagement in rural adolescent PCP settings have yet to be examined. In this 2-part study, we first examined rural PCPs' self-reported practices regarding SBIRT components to address adolescent alcohol consumption. Second, we examined and compared rural PCPs', adolescent patients', and adolescents' parents' knowledge and attitudes regarding SBIRT to address adolescent alcohol use in rural areas. Our ultimate goal was to identify methods to overcome rural PCPs' barriers to SBIRT for adolescent drinking.

Methods

Part I

We identified, through hospital physician directories and health plan provider listings, 148 PCPs (family practice, pediatric, internal medicine, and obstetrics/gynecology) that may have treated adolescents in 8 counties in rural north-central Pennsylvania. This region includes the area with the lowest population density in the Commonwealth, a declining population (based on the 2000 and 2004 Census) and, according to the National Center for Health Statistics (<http://www.cdc.gov/nchs/>), all the counties (McKean, Cameron, Elk, Clearfield, Jefferson, Forest, Potter, and Warren) were considered rural.

We mailed a written, self-administered survey to all the PCPs who presumably may treat adolescents. The survey goals were to (1) identify PCPs that serve adolescent patients, (2) inquire about SBIRT practices, and (3) determine interest in future study participation. The survey questions inquired about PCPs' patient populations, alcohol-related practices, and views about screening for risky behaviors—particularly alcohol consumption—among their adolescent patient populations. The survey, based on instrument questions used by Millstein & Marcell, included inquiry into physician and practice characteristics, as well as measures on alcohol-related practices in their practice setting.²¹ The survey inquired about the utilization of 5 specific alcohol screening tools: the CAGE questionnaire,²² Michigan Alcohol Screening Test (MAST) and Brief MAST (BMAST),²³⁻²⁶ Alcohol Use Disorders Identification Tests (AUDIT),²⁶⁻²⁸ and the CRAFFT questionnaire.^{29,30} Furthermore, the survey evaluated demographics and characteristics of the PCPs' adolescent patient population, availability of alcohol-related referral resources, and self-assessment of attitudes and skills concerning rural adolescent drinking identification and treatment. Remuneration was provided to all respondents.

Part II

Through the written survey (Part I of this study), we inquired about PCPs' interest in participating in future discussions regarding views about adolescent alcohol engagement in rural practices. We also asked the respondents to inquire to their adolescent patients and parents of adolescents about interest in participating in separate focus groups. In Part II of this study, interested providers and adolescent patients and their parents were asked to contact the study team to arrange focus group participation. We targeted a focus group sample size guided by the principle of "saturation"—a process by which researchers collect and analyze data until no new themes are generated. Saturation is generally reached with 12 to 20 of each "type" of participant.^{31,32} Furthermore, it has been suggested that a minimum of 2 focus groups per participant "type" is required to achieve saturation.³³

During a 6-month period in 2007, we conducted 7 focus groups: 3 with PCPs and their clinical staff (provider groups) in Punxsutawney, Warren, and Dubois, Pennsylvania; 2 with adolescent patients (adolescent groups) in Punxsutawney and Warren, Pennsylvania; and 2 with adolescents' parents (parent groups) in Punxsutawney and Warren, Pennsylvania. The

groups were conducted separately in hospital- and office-based settings by investigators experienced in leading structured group interviews. Participants were provided written and verbal study information with instructions to remain anonymous during participation. Each focus group lasted approximately 1 hour. We audio-recorded and transcribed all focus groups verbatim. Field notes helped in documenting and supplementing the tenor, tone, and physical actions of participants. Remuneration was provided to all participants.

A set of theme-based questions was constructed a priori to guide the focus group discussions. They centered on facilitators and barriers to screening and treatment for adolescent alcohol problems within the confines of rural PCP practices. We also evaluated the impact of adolescent alcohol use on the community, available community resources for adolescent alcohol treatment, and the prospect of using computerized screening instruments to assist in screening and treating adolescent alcohol problems.

From the focus group transcripts, we isolated the major themes using grounded theory.³⁴ These themes revolved around 4 categories: (1) the general environment of screening and treatment of adolescent alcohol problems in the community and physician offices, (2) the barriers to screening for adolescent alcohol use in physician offices, (3) the barriers to treating adolescent alcohol use in physician offices, and (4) the facilitators that would enable screening of adolescent alcohol use in physician offices.

The qualitative analyses were conducted using similar methodology to the study of alcohol screening conducted previously by the investigative team.³⁵ General descriptions (eg, age of adolescents, type of practitioner) of the participants were noted. Concordant and discordant themes were compared within type of group (eg, provider to provider group) and between groups (eg, provider to adolescent to parent group). Two independent coders (AG, KR) examined the data and collaborated on discordant impressions of thematic coding. The University of Pittsburgh Institutional Review Board approved both parts of this study.

Results

In Part I, we examined rural physician PCPs' self-reported practices focusing on assessment, interventions, and referral to treatment of adolescent alcohol drinkers. Twenty-seven PCPs from 7 counties affirmed that they treat adolescents, and they completed the surveys. Demographic and practice characteristics are described in Table 1. The majority of these participants were male, middle-aged (mean age 47), white, had a medical doctorate (MD) degree, and were board certified (overall 81%) in family medicine (55%). Most PCPs were in private practice in solo (52%) or group (40%) arrangements (all but 1 respondent indicated working in a small group practice of fewer than 5 physicians). All PCP respondents saw adolescent patients. One third saw more than 15 adolescent patients aged 17 years or younger per week, 18% saw more than 15 aged 18-20 per week, and 65% estimated that the majority of their patients in these age groups were below middle class.

The responses for provider attitudes and behaviors toward screening and treatment of adolescent patient populations are indicated in Table 2. Eighty-five percent of PCPs reported assessing alcohol consumption by asking the adolescent directly; only 5 PCPs indicated use of written questionnaires. Likewise, 85% of PCPs asked adolescents directly regarding their quantity and frequency of use, and none indicated use of a questionnaire for this. Interestingly, no practitioner used MAST, B-MAST, AUDIT, or CRAFFT standard instruments when assessing adolescent alcohol consumption; about one fifth of physicians used the CAGE questionnaire. The messages PCPs gave their adolescent patients about alcohol use were predominantly the general risk of alcohol use (93%), use of designated drivers (93%), relationships of alcohol use and injury (89%), and risks of alcohol abuse

(89%). Predominant PCP counseling techniques for alcohol drinking among this population included warning of the risks, advising current drinkers to stop drinking, and advising non-drinkers to continue abstinence. While a large proportion of PCPs (93%) indicated that they advise adolescent drinkers to abstain, 85% indicated that they also encourage drinking limits among their adolescent drinkers. While a vast majority of physicians (92%) felt that routine screening for alcohol use should begin by age 14, only 40% of physicians reported that their initial visit for patients in this age group “sometimes” included inquiry about alcohol use. Fifty percent of PCPs reported that they asked some established patients in this age group about alcohol use during routine visits.

Table 3 indicates the degree of familiarity that PCP respondents admitted to with identifying and managing alcohol problems in adolescent populations. Of the assessed factors, physicians were moderately knowledgeable about identifying AUDs in their patients and confident in their abilities to diagnose them. There was a moderate degree of interest in using computer-assisted alcohol screening tools to assess alcohol problems among adolescents; a minority of PCPs (44%) was extremely enthusiastic about computer-assisted screening tools. Physicians had a less-than-favorable opinion regarding their training to manage mild to moderate alcohol use problems in adolescent populations. About 30% of respondents reported it would be difficult to counsel all their adolescent patients about alcohol use, and 27% felt they had been insufficiently trained to manage mild to moderate alcohol problems in adolescents.

Forty-four individuals participated in our focus groups: 20 providers, 12 adolescents, and 12 parents. Not all physicians who attended the focus groups completed the Part I mailed survey. Table 4 summarizes the characteristics of the participants of the focus groups. Themes expressed were consistent within types of groups, although perceptions of availability of community resources to treat adolescent alcohol consumption varied. Major themes consistent between the rural provider, adolescent, and parent groups were: (1) adolescent alcohol consumption is a significant problem, (2) PCP settings are not ideal environments to engage adolescents regarding alcohol problems, (3) treatment resources for adolescent alcohol problems are scarce, and (4) computerized screening (and treatment) for alcohol problems in PCP settings may reduce adolescent drinking. Table 5 summarizes divergent and convergent themes regarding rural PCP adolescent alcohol engagement across focus groups.

Provider Focus Groups

While providers estimated that 25% to 90% of their adolescent patients have ever drunk alcohol, many endorsed that a variety of drinking behavior occurs:

I look at it as a spectrum from people who—well the baseball team that goes on to win the baseball championship and they’re passing around a can of beer in the car, and the kid who is not a drinker that takes a sip out of it to be one of the team; that [kid] doesn’t have a problem drinking [compared with] the people who say, ‘If it’s available, I’ll drink it.’ The far end of the spectrum of people [are those] who say ‘It’s not a weekend unless I have a drink.’

One focus group endorsed that just 5%-10% of adolescents have “problem” alcohol drinking.

Providers indicated that parents often enable adolescent drinking—typically by supplying alcohol directly—and that interventions may be appropriate for parents as well as adolescents. Providers related, “... if you ask the kids where they get the alcohol, they say, ‘At home.’” “Thirteen-year-old kids drink because dad is out of the picture and mom is

going to the bar every Friday and Saturday night and not locking the liquor cabinet when she goes.” “At an after-prom party, one mother provided Jell-O shots to the kids; each parent was supposed to bring something to the party,” and, “Well, it’s like the 400-pound mom bringing in her 150-pound 7-year-old and [who] doesn’t see the problem.”

The potential for legal problems was noted as motivation for adolescents to receive help for drinking:

Half of the police blotter in the local paper is filled with DUIs [driving under the influence arrests]. Sometimes, a whole page of DUIs [is] there.” One provider indicated, “[Adolescents] have a hard time understanding about negative aspects of drinking. It’s not like they have a job where drinking affects their performance. They hide it so their families don’t get on them about drinking, or their friends aren’t getting mad about them drinking. The only thing that seems to make the adolescents see that there is a negative aspect to drinking is if they get caught.

Providers felt that the primary care environment was suited for an “identification,” “assessment,” and “referral” resource, but not as a “treatment” environment. Provider participants rarely used standard screening questionnaires to identify adolescent alcohol use. Rural adolescent alcohol treatment resources (“when we can get [adolescents] in”) were thought of as scarce. Providers said schools provide most alcohol-related education, although they had misgivings about its effectiveness. In addition, they indicated that school-based programs identified the bulk of adolescent alcohol problems and provided most referrals to treatment in rural communities.

Providers identified confidentiality and the need to build trust between adolescents and PCPs as primary concerns for engaging adolescents about alcohol consumption. One provider summarized,

I do the driving physical. That’s a good time there to talk to them about a number of issues, from tobacco to alcohol, to whatever. I make sure they know that when it’s time for the sign-off on a driver’s form, I say, ‘You know, you just gave me permission to test your bodily secretions, to make sure you’re telling the truth, and if not, I can’t issue the license.’ Some get this little panic look, and I say, ‘OK, I’ve stretched it a little bit,’ but you sort of put them on guard there. That maybe you have a chance to open up and that this guy here [the doctor] is going to be trustworthy. I do think you can establish a confidential basis because most of them have opened up to me.

Providers recognized that poor training about alcohol and lack of alcohol screening tools inhibit provider identification of adolescent alcohol problems:

We have our problems. A lot of it is education—lack of education—and then it’s the population here. A lot of our problem professionally is not being fully informed about the things going on in this area.

One group indicated that lack of time with patients was another significant barrier to engaging adolescent alcohol consumption. Providers felt that computer- or web-based tools in the clinic would help with identification of adolescent alcohol drinking. One provider related,

The only drawback on that would be if they felt like going on it and their parents saw ... that would be an indication that they were drinking ... they would be a little bit afraid. But they would probably find someplace they could do it without worrying about that. I would be interested enough I think to use it as a resource.

Adolescent Focus Groups

Adolescents generally acknowledged that alcohol use in rural communities is a problem interwoven in the fabric of adolescent social culture. Participants related that “pretty much every kid I know” drinks and many peers drink to “get drunk.” One participant explained, “I’d say at least 25% [of their peers] go out and party every weekend, and then at least 50%-75% have partied or drank sometimes.” Another adolescent mentioned, “I’d say at least 95% have ... tried alcohol, whether it be with parents or somewhere I’m talking about different than partying.”

Adolescents related that school-based education often involved pamphlets and videos that were “scary,” use “shock” value, and “show the gory stuff.” Participants also indicated that school-based programs for alcohol education were more important than engagement in PCP settings: “Yeah, I don’t think it should be the doctor’s job. I think the school covers it enough.” One participant related, “It gets kind of boring hearing the same thing all the time.” Another adolescent mentioned that in school, alcohol education is “pushed aside” for other health-related topics.

Adolescents visited PCPs regularly—typically for a school or sports physical—sometimes without their parents in the room, and felt there was time to discuss issues with their PCPs. Few adolescents indicated that a physician inquired about alcohol use, and when an inquiry was made, it was often in the context of completing a form. General sentiments were that peers thought that PCPs would not maintain confidentiality of their alcohol use and that a fear of disclosure to parents exists: “They would probably tell my parents,” “I wouldn’t want my parents to know,” and “They would tell.” One adolescent participant mentioned,

I went last week and I guess my doctor asked me about it. I told her I didn’t do anything because I don’t. But even if I did, I probably wouldn’t tell her anyway because she’s really not very confidential ... she told my mom and dad stuff that I really didn’t want them to know. That kind of made me upset.

All the adolescents had ready Internet access and generally felt that computer-based screening would be more anonymous and enhance comfort in disclosing alcohol use. One participant mentioned that a computer-based program in PCP offices with a question/answer format may be helpful, while others indicated that a computer could provide education regarding the medical harm associated with alcohol consumption.

Parent Focus Groups

Parent participants acknowledged that adolescent alcohol use in their communities was problematic. One parent indicated: “I don’t think it’s a large percentage of kids, but I think it’s probably worse than we think it is.” They also mentioned that community attitudes toward drinking are “pretty liberal” and that adolescent drinking is “acceptable.” General community issues may contribute to these attitudes:

I think also that we live in kind of a depressed area. ...I know where my husband works there were 22 guys who lost their jobs, and they all drank heavily, you know, to deal with that. You know, so I think they’re in an area where they can’t find another job. What else is there for them to do with their lives?

Parents indicated that older persons (ie, parents, siblings, or friends) contribute to adolescent alcohol provision:

... a lot of them get it from home. I see family members, say at New Year’s Eve or a Fourth of July party, I see them passing, say a 15-year-old, like a beer I think sometimes the parents are more lenient than they were when I was a kid.

Other parents mentioned, “I don’t think [parents] bat an eye. I mean, I honestly think that everyone wants to be their kid’s best friend and a fun parent,” and “... a generation of parents did it. So we realize we were stupid when we did it then. We were dumb, so let’s make a safe haven for them. At least try to make it a little bit safer.”

Parents highlighted the paucity of community social activities that do not involve alcohol, but they noted that when adolescents have non-alcohol-related activities, they seem to cut back on alcohol consumption.

I think that is a problem for a certain percentage of kids because they don’t take part in a sport or do something within school, and I think that there are certain ones that will [drink or take drugs because there is nothing to do].

Parents mentioned that increased electronic social networking provides opportunities to drink:

But now with Facebook and all the instant messaging, they can look people up and start talking to them from [other communities]. I think they can get to know each other so much quicker and more often.

Parents felt that this communication encourages invitations to parties where alcohol consumption occurs and that peer pressure to drink was common and highly influential.

Parents also indicated that adolescents see PCPs about once a year, mainly for physicals. Many parents indicated they are present while doctors see their adolescent sons and daughters, and that this may promote non-disclosure of alcohol use: “... when I took my son for his football physical, the doctor was point blank about a lot of things: ‘Do you have sex?’—everything—the whole nine yards.” There was general agreement that parents expect physicians to engage adolescents about alcohol use and to report back to parents if their children are drinking. However, there was some agreement among parents that adolescents perceive PCP offices as a “threatening” environment with “authoritative” figures and may feel “trapped” in disclosing alcohol use. Parents also felt that computer-based engagement of adolescent alcohol use may enable more honesty than face-to-face encounters with PCPs, especially if confidentiality could be assured.

Discussion

In rural Pennsylvania communities, PCPs, adolescents, and adolescents’ parents perceive that adolescent alcohol use is a prominent problem. Providers, adolescents, and parents recognize that SBIRT for adolescent alcohol use is not currently ideal or effective. While significant common barriers to SBIRT were found among all 3 focus groups, all groups thought that computer-based screening may encourage more rural adolescents to disclose alcohol use, particularly if confidentiality were assured.

This study supports the growing awareness that SBIRT for adolescents who misuse alcohol is difficult for PCPs. The results confirm that rural PCPs face similar barriers to other PCPs in addressing adolescent alcohol use. The American Academy of Pediatrics identified 6 main barriers to physician involvement in routine adolescent substance use screening, intervention, and treatment.²⁰ Of the factors identified by our rural PCP focus groups, we found that inadequate training in detecting and intervening in adolescent AUDs, lack of referral resources, and to a lesser extent, time constraints, were confirmed themes. Rural practice settings may further compound efforts of PCPs to screen, identify, and treat adolescent alcohol use. The adolescent culture in these communities encourages drinking, and parents sometimes support this behavior. We found that approaches to facilitating adolescent screening and clinical triage for alcohol-related problems in primary care are

particularly needed by rural PCPs since specialized services and prevention programs are perceived to be less available.

In our physician survey, respondents—while likely to screen and assess alcohol consumption among their adolescent population—used ad hoc means to do so. No physician used the CRAFFT screening instrument, a well-validated instrument for adolescent alcohol use,^{29,30} and about a fifth of physicians were identifying adolescent alcohol consumption using the CAGE questionnaire, a screening tool often used in adult populations. Physicians recognized that they lacked sufficient skills in identifying and managing alcohol consumption among their adolescent patients, and over 40% indicated that there were no local referral treatment resources, or they were not sure what resources existed.

We found that adolescents' and adolescent parents' perceptions of adolescent alcohol use were similar. Both groups agreed that alcohol use is part of rural adolescent culture. Parents decried the lack of availability of treatment if a serious legal or medical problem occurs. Adolescent drinking is compounded by the rural environment: there is "not much to do," and adolescents drink to "fit in." In addition, some parents explicitly allow or facilitate adolescent drinking. Finally, engagement of adolescents with PCPs regarding alcohol use is hampered by fear of disclosure to the community: all focus groups indicated community members are knowledgeable about "others' business." Similar to the results of Elliott,¹² we found evidence that PCPs and their staff may not be "trustworthy" to keep alcohol use among adolescents confidential. Both the adolescent and his or her parents may feel repercussions of identifying and labeling an adolescent's alcohol problem. Legal problems, reduction in school activities, and social stigmatization—a particularly deleterious consequence in tight-knit rural communities—are all potential consequences.

Most adolescents visit PCPs for their health care, but providers felt ill-equipped to engage adolescents in alcohol use discussions. We found a perceived need to facilitate adolescent screening and clinical triage for alcohol-related problems but discovered that groups differed with regard to the appropriateness of PCPs addressing adolescent alcohol use. Parents indicated that it was a PCP's responsibility, PCPs were tepid in this endorsement, and adolescents did not believe that PCPs would be effective.

Once adolescent alcohol use has been identified and assessed by providers, treatment should occur. Brief intervention approaches, including motivational interviewing techniques and comprehensive adolescent programs, have been shown to reduce adolescent alcohol use.⁶ Training providers to conduct brief interventions or having the time needed to conduct brief interventions may be significant barriers to implementation in rural areas. As a result, comprehensive adolescent treatment programs may continue to be scarce in rural areas.⁶ We found that adolescent, parent, and health care provider focus groups acknowledged the potential benefit of having a web- or computer-based screening and intervention tool within PCP settings. Evolving research, primarily in college-aged students, has investigated the use and efficacy of web- or computer-based screening, identification, and interventions for adolescent alcohol drinking.³⁶⁻⁴⁵ Advances in computer technology and self-administered assessment methods may combine to provide feasible and effective methods for PCPs to identify underage drinking. We found that PCPs, adolescents, and adolescents' parents would be amenable to a computer-based identification and treatment tool for adolescent alcohol use within the confines of PCP environments, especially if confidentiality could be assured.

There are several limitations to our study findings. We sent our physician survey to PCPs who potentially treated adolescent populations in a defined geographical area. Several factors may have contributed to non-response rate of our mailed survey: published mailing

addresses of physicians may have been inaccurate, physicians receiving the mailed survey may not have been seeing any (or a significant number of) adolescent patients, or they may have declined to participate. Therefore, it is unknown how many of the 148 targeted physicians for the survey were eligible to actually participate in the survey. Nevertheless, the responses of those physicians that were able and motivated to return the survey yielded important results and provided the research team initial themes to explore in the subsequent focus groups. Not all of the adolescent patients' health care providers may have been targeted as potential subjects for the mailed survey: adolescent residents in the targeted counties may see other types of providers (eg, emergency room physicians, non-physician providers such as nurse practitioners and physician assistants) or physician/non-physician providers in other counties. All focus group participants volunteered; people not willing to participate may perceive different barriers than those who participated. Providers who responded to the survey selected adolescent patients and parents; non-responding PCPs' patients and their parents may have different perceptions of care. Our findings may not generalize to other rural areas where racial and socio-economic factors differ. Finally, we did not assess rural emergency medicine providers' or rural addiction treatment providers' perceptions of alcohol use; these providers often treat adolescent alcohol use.

Despite these limitations, we found that adolescent alcohol use is a prominent problem for this rural area, and that PCPs, adolescents, and their parents recognize that SBIRT practices for adolescent alcohol use in rural out-patient settings is not currently effective. Emerging research indicates that SBIRT may be facilitated in rural PCP practices for adolescent drinkers.¹¹ Further studies should examine the practicality, efficacy, and effectiveness of computer-based engagement of computer-based screening and treatment of adolescents within the confines of rural primary care practices.

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Table 1

Rural Physician and Practice Characteristics

	n (%) (n = 27)
Gender:	
Male	17 (63)
Age (years) (mean \pm SD)	47 \pm 11.41
Race/ethnicity:	
White	22 (81.5)
Asian, Pacific Islander	5 (18.5)
Type of physician training	
Doctor of medicine (MD)	17 (63)
Doctor of osteopathy (DO)	10 (37)
Board certified	
Pediatrics	6 (27.3)
Family Medicine	12 (54.5)
Other	4 (18.2)
Practice Setting	
Private practice, solo	14 (51.9)
Private practice, group	11 (40.7)
Public/community clinic	1 (3.7)
Other	1 (3.7)

Table 2**Physician Behaviors and Practice Patterns Toward Alcohol Identification, Assessment, and Treatment Among Rural Adolescents**

	n (%) (n = 27)
Means to assess whether adolescent has tried alcohol	
Adolescent fills out questionnaire	5 (18.5)
I ask adolescent (n = 26)	23 (85.2)
I wait for the adolescent to volunteer this	0 (0.0)
Other (parents usually volunteer)	1 (3.7)
Means to assess the frequency and quantity of alcohol use	
Adolescent fills out questionnaire	0 (0.0)
I ask adolescent	23 (85.2)
I wait for the adolescent to volunteer this	0 (0.0)
Other (parents usually volunteer)	1 (3.7)
Routine use of alcohol screening assessments	
CAGE	6 (22)
Context of information provided to adolescents who drink	
General risks of use	25 (92.6)
Using designated drivers	25 (92.6)
Relationship of alcohol use and injury	24 (88.9)
Risks of alcohol abuse	24 (88.9)
Alcohol related situations that patient may encounter	21 (77.8)
Information about the number of peers who do not drink alcohol	24 (51.9)
Techniques when counseling	
Warn of the risks	26 (96.3)
Express concern about drinking	26 (96.3)
Advise to stop drinking	25 (92.6)
Advise non-drinkers to abstain	25 (92.6)
Discuss peer pressure	24 (88.9)
Encourage drinking limits	23 (85.2)
Discuss needs that alcohol may fill	19 (70.4)
Use refusal skills	16 (59.3)
Where do you refer patients who need help	
Within practice setting	0
Within community	17 (37.0)
No local referral resources	5 (18.5)
Not sure	6 (22.2)

Table 3

Degree of Familiarity in Identifying and Managing Alcohol Problems in Adolescents

	Mean * (SD)
Knowledgeable about criteria to identify alcohol abuse in adolescents (n = 26)	4.00 (1.2)
Enthusiastic about using computer-assisted assessment tools for screening adolescents	3.93 (1.6)
Confident about my ability to diagnose alcohol abuse	3.85 (1.4)
Extremely difficult for me to counsel all of my adolescent patients about alcohol use	3.59 (1.4)
Knowledgeable about DSM4 AUD criteria (n = 26)	3.46 (1.5)
Sufficiently trained to manage mild to moderate alcohol problems in adolescents (n = 26)	3.12 (1.6)
Knowledgeable about motivational interviewing for alcohol use and alcohol use disorders	2.52 (1.6)
Knowledgeable about prevention web sites for alcohol and drug use	2.44 (1.7)
Knowledgeable about the AUDIT	1.81 (1.4)

* Measures based on a 6-point Likert scale, with 6 being the highest value. Each item indicates mean (SD) of the survey's 27 respondents, except where noted.

Table 4

Description of Focus Group Participants

	Provider Groups	Adolescent Groups	Parent Groups
Number of groups	3	2	2
Number of participants	20	12	12
Mean group size (range)	6.7 (5 to 9)	6.0 (6 to 6)	6.0 (6 to 6)
Sex (% male)	45%	42%	8%
Age (range) in years	–	15.9 (13 to 19)	–
Type of providers:			
Physicians	11		
Physician assistants	3		
Nurses	5		
Office staff	1		
Physician type			
Family practice	7 (55%)		
Pediatrics	3 (27%)		
Obstetrics	1 (9%)		

Table 5**Perceived Facilitators and Barriers of Engagement of Adolescent Alcohol Use in Rural Primary Care Practice Environments**

	Provider Groups	Adolescent Groups	Parent Groups
Current environment for engagement of adolescent alcohol use			
Location: school	Yes	Yes	Yes
Location: legal	Yes		Yes
Location: primary care	Yes	No	Yes
Barriers for screening			
Logistics of the practice environment	Yes		Yes
Lack of screening tools	Yes		
Worry about confidentiality	Yes	Yes	Yes
Perceptions of physician environments			Yes
Repercussions of alcohol disclosure		Yes	Yes
Barriers for treatment			
Parental drinking	Yes		Yes
Lack of provider training	Yes		
Treatment does not work	Yes		
Lack of local treatment resources	Yes	Yes	
Alcohol is too socially acceptable to be treated			Yes
Facilitators for screening			
Provider education	Yes		
Computer/web-based resources	Yes	Yes	Yes
Face-to-face interactions		Yes	
Primary care attention		No	Yes

Yes: indicates direct agreement in the discussion.

No: indicates direct disagreement in the discussion.

Empty cell: indicates this issue was not discussed in this group.