

# An evaluation of how effective adolescents feel their health care providers are at discussing risky and unhealthy behaviors during routine well visit exams

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MEDICAL UNIVERSITY  
OF OHIO

COLLEGE OF GRADUATE STUDIES

FINAL APPROVAL OF SCHOLARLY PROJECT  
Master of Science in Biomedical Sciences  
Concentration in Physician Assistant Studies

An Evaluation of How Effective Adolescents Feel Their Health Care Providers are at  
Discussing Risky and Unhealthy Behaviors During Routine Well Visit Exams

Submitted by

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In partial fulfillment of the requirements for the degree of  
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An Evaluation of How Effective Adolescents Feel  
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During Routine Well Visit Exams

Scholarly Project  
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## Introduction

According to the Center for Disease Control (2003), 45% of the 15,000 9th through 12th grade students surveyed had consumed at least one alcoholic beverage in the last thirty days, and 28% reported occasional binge drinking. Forty-seven percent said they had engaged in sexual intercourse, and 37% reported not using a condom during their last sexual experience.

Approximately 10% smoked cigarettes on 20 of the last 30 days. Eleven percent had tried ecstasy at least once. Fifteen percent of the 9th through 12th graders had not eaten fruit in over seven days (Youth risk behavior surveillance system, 2003). Alcohol, recreational drugs, tobacco, sexual activity, poor eating habits, and lack of physical activity are leading causes of mortality, injury, and disability in adolescents (Youth risk behavior surveillance system, 2003). Statistics demonstrate that large numbers of adolescents are participating in these risky behaviors and are starting them earlier than in the past (Epner, Levenberg, & Schoeny, 1998).

Additionally, these behaviors often become adult habits. In adulthood, they increase the risk of chronic diseases including heart disease, stroke, diabetes mellitus, osteoporosis, and cancer in addition to the detrimental effects that may occur in adolescence (Klein & Wilson, 2002, Walker & Townsend, 1999, & Sallis et al., 2000).

The American Medical Association (AMA) developed Guidelines for Adolescent Preventive Services (GAPS) because of the implications of beginning these risky activities during adolescence. With these guidelines, the AMA hoped that primary medical care providers would increase their screening and counseling of teenagers to prevent or change these unhealthy behaviors (Epner et al., 1998). Although these guidelines have been published for over a decade, few studies definitively evaluate primary medical care providers' prevention screening and counseling. Much of the research that has been published is based on providers' self-reported

counseling data and therefore does not consistently reflect how the adolescents themselves perceive the discussion (Adams, Soumerai, Lomas, & Ross-Degnan, 1999). Even fewer studies discuss whether or not counseling adolescents about these issues produces beneficial results such as reducing risky behavior.

### *Problem*

The unhealthy habits adolescents develop while they are young, such as drug and alcohol abuse, unsafe sexual practices, tobacco use, poor diet, and sedentary lifestyle may persist throughout their lifetimes and lead to increased morbidity and mortality in adulthood (Brindis, Park, Ozer, & Irwin, 2002). Research has shown that adolescents who begin using tobacco early are likely to continue the habit throughout adulthood (Klein & Wilson, 2002). This significantly increases their risk for lung cancer, stroke, and heart disease (Walker & Townsend, 1999).

Adolescents are becoming involved in unhealthy behaviors at even younger ages than in the past (Epner et al., 1998). Twenty-eight percent of the 15,000 9<sup>th</sup> through 12<sup>th</sup> grade students surveyed in 2003 reported using some form of tobacco at least once in the last month (Youth risk behavior surveillance system, 2003). With the strong association between adolescent smoking and alcohol and drug use, these teenagers are at increased risk for serious injury, disease, and death (Walker & Townsend, 1999). Therefore, it is imperative for primary care providers to discuss these risky behaviors with adolescents, in a way that they understand, to attempt to change these habits and prevent the morbidity and mortality associated with them both in adolescence and adulthood.

### *Purpose*

The purpose of this study is to evaluate how effective adolescents feel their primary care medical providers are at discussing with them the following disease prevention issues during

routine well visit exams: drug use, alcohol use, safe sexual practices, tobacco use, healthy diet, and physical activity.

### *Significance*

Within the past ten years, studies on the prevention of drug use, alcohol use, tobacco use, unsafe sexual activity, poor diet, and sedentary lifestyle in adolescents have not focused on how effective the adolescents themselves feel primary care medical providers are at discussing these behaviors during routine well visit exams. Some investigators have concentrated on the barriers to following the GAPS. Several other studies have reported the frequency of prevention screening and counseling of adolescents during routine exams using providers' self-reported rates. However, these data are suspect because physicians' self-reported adherence to clinical practice guidelines is significantly overestimated (Adams et al., 1999). In addition, the determination of screening rates is often performed only to identify how differences among patient and provider demographics affect the likelihood of screening. Several studies have used adolescent reports to evaluate the frequency of preventive screening and discussion during routine exams (Klein et al., 1999, Klein et al., 2001, Klein & Wilson, 2002, Lustig et al., 2001, Ozer et al., 2001, & Ozer et al., 2004). These data may not accurately represent preventive counseling rates because the providers were aware that their adolescent patients were part of a preventive care study. In addition, these studies by Klein et al. (1999, 2001, & 2002), Lustig et al. (2001), and Ozer et al. (2001 & 2004) do not assess the quality of the discussions or adolescents' reactions to them.

Few studies have been published about the efficacy of counseling by providers in patients of any age range. However, those that have been published focused on adults not adolescents. Therefore, this study evaluating how effective adolescents feel their primary care medical

providers are at discussing preventive issues during routine well visit exams provides some new data which may influence providers' counseling of their adolescent patients.

## Literature Review

The Center for Disease Control's (CDC) 2003 statistics demonstrate the large number of adolescents in the 9<sup>th</sup> through 12<sup>th</sup> grade participating in risky behaviors such as drug use (22% use marijuana), alcohol use (45%), tobacco use (27.5%), sexual activity (34%), poor eating habits, and sedentary lifestyle (33%) throughout the United States (Youth risk behavior surveillance system, 2003). More than 25% of adolescents are engaging in at least two of these negative behaviors, and teenagers participating in one of these activities are more likely to begin participating in another (Brindis et al., 2002 & Walker & Townsend, 1999). Surveys have shown adolescent smokers are more likely than nonsmokers to begin drinking alcohol and/or using recreational drugs (Walker & Townsend, 1999). Furthermore, adolescents are becoming involved in these behaviors at even younger ages than in the past, and increasing numbers of teenagers enter into these risks as they grow older (Epner et al., 1998 & Brindis et al., 2002). For example, the CDC statistics show that in 1993 6.9% of adolescents had smoked marijuana before 13 years of age. The CDC's 2003 statistics report that 9.9% had tried marijuana before 13 years old (Youth risk behavior surveillance system, 2003). Most of the injury, disability, disease, and mortality associated with adolescence are a result of participation in these behaviors (Youth risk behavior surveillance system, 2003 & Ozer et al., 2001). For example, alcohol or drug intoxication may result in a debilitating or deadly car accident, and unsafe sexual practices may result in STD or HIV infection.

The behaviors initiated in adolescence often remain into adulthood and result in increased morbidity and mortality (Brindis et al., 2002). Most adults that have tobacco, alcohol, or drug habits began using these substances during adolescence (Klein & Wilson, 2002). In addition, adults who engaged in unhealthy behaviors as adolescents are at increased risk for heart disease,

stroke, diabetes mellitus, osteoporosis, cancer, and other chronic diseases if their adolescent behaviors become lifelong habits (Walker & Townsend, 1999 & Sallis et al., 2000). Primary care providers may be able to prevent negative outcomes in adolescence and adulthood by screening, educating, and providing counseling or anticipatory guidance to adolescents about these risky behaviors during their routine well visit exams (Ozer et al., 2001).

There is a significant increase in morbidity and mortality associated with these behaviors, and there are a growing number of adolescents at risk. The American Medical Association (AMA) realized medical providers needed to change their focus to include not only the treatment of existing illness but also the prevention of future disease. The AMA developed Guidelines for Adolescent Preventive Services (GAPS) in 1992 in order to increase the emphasis on health promotion services. GAPS contained 24 research-based guidelines that the AMA felt were important for providers to address annually with all 11 to 21 year-old adolescents during a preventive care appointment or routine well visit physical exam. Some of the topics stressed in GAPS included adjustment to puberty, safety, fitness, diet, safe weight management, eating disorders, HIV, contraception, sexual activities, hypertension, hyperlipidemia, tobacco use, alcohol and drug abuse, depression, physical and sexual abuse, and infectious disease prevention. GAPS suggest providers reinforce adolescents' positive choices, educate them on the consequences of participating in risky behaviors, provide them with methods to deal with peer pressure, suggest a plan to change unhealthy behaviors, and follow-up with adolescents that agree to stop these activities. The AMA intended for the GAPS to be incorporated into every provider's practice to increase preventive screening and education, thus reducing the preventable morbidity and mortality associated with high risk behaviors among adolescents (Guidelines for Adolescent Preventive Services, 1997).

Although the guidelines were published more than ten years ago, few studies definitively assess if GAPS were integrated into providers' practice behavior and how frequently primary medical care providers screen and discuss preventive issues with adolescents during routine well visit exams. One study by Halpern-Felsher and partners (2000) surveyed 366 Californian pediatricians about the percentage of adolescents they screened for risky behaviors and counseled about avoiding or eliminating these behaviors. These pediatricians reported screening on average 68-78% of adolescents for obesity, sexual intercourse, alcohol use, cigarette use, and illegal substance use during their routine physical exam. They reported educating an average of 51-64% of adolescents on STD and HIV transmission, the risk of alcohol use, the risk of substance use, or nutrition. This study also found that female physicians, providers who saw older adolescents, and recent graduates from medical school were significantly more likely to screen and educate patients. Earlier research by Ellen, Franzgrote, Irwin, and Millstein (1998) demonstrated similar frequencies in the self-reported screening of adolescents for alcohol use, tobacco use, drug use, and sexual activity by physicians specializing in pediatric, family, internal, or adolescent medicine. Physicians specializing in adolescent medicine screened patients most frequently (89.7%), while pediatricians were the least likely to screen (72.0%). Family and internal medicine frequencies fell between these percentages. Ellen et al. (1998) again demonstrated that older adolescents were screened more frequently.

Although both of these studies report that the majority of adolescents are receiving screening and counseling, the rates are still below the GAPS recommendation that preventive services be provided to every adolescent patient (Ellen et al., 1998 & Halpern-Felsher et al., 2000). However, these screening and counseling rates do not truly indicate how often adolescents are receiving preventive care. Adams et al. (1999) found that self-reported

adherence to clinical practice guidelines by physicians is significantly overestimated when compared to objective adherence data from chart reviews and billing codes. Physicians reportedly miscalculate their actual frequency by as much as 200% in preventive care screening and discussion specifically (Dickey & Tran, 2001). Therefore, the rates reported by Ellen et al. (1998) and Halpern-Felsher et al. (2000) may exaggerate the preventive care adolescents actually receive.

A number of recent studies have utilized adolescent-reports of screening and counseling to determine with more accuracy the frequency of providers' preventive care during routine well visit exams. Klein and others (1999) surveyed 354 adolescents from two weeks to seven months after their last routine exam about the frequency of preventive screening and discussion by their providers. After comparing the surveys to audiotaped recordings of their exams, Klein determined adolescent-reports of preventive services continued to be valid even six to seven months following the screening and discussion.

Utilizing these data, research by Ozer and partners (2001) found that of 104 14 year-olds surveyed, 61% were screened for tobacco use, 59% for alcohol use, and 47% for sexual activity before the providers received additional preventive care training. The adolescent-report demonstrated 55% were counseled on tobacco use, 46% on alcohol use, and 41% on sexual behavior before GAPS training. Another study by Klein et al. (2001) surveyed 260 14 to 19 year-olds by telephone after a well visit exam. They reported 38% were screened for or were counseled about diet, 46% about exercise, 63% about cigarette use, 58% about alcohol use, 55% about drug use, and 69% about sexual behavior before GAPS training was provided to the staff. A number of other studies have published adolescent-reported frequencies of provider screening and counseling with similar results (Lustig et al., 2001 & Ozer et al., 2004). Alcohol and tobacco

screening were consistent at approximately 60% and 63% respectively (Klein et al., 2001, Lustig et al., 2001, Ozer et al., 2001, & Ozer et al., 2004). Counseling rates in Ozer's (2001) and Lustig's (2001) research were consistent for tobacco, alcohol, and sexual activity guidance as well.

It is difficult to determine if any of the data from these studies are a true representation of the frequency in which adolescents are receiving preventive care recommendations. All of the research except for Klein and Wilson's study published in 2002 chose adolescents from health care facilities that had agreed to participate in a study on preventive screening. Primary care providers may have changed their preventive care practices knowing that this research was being conducted (Epner et al., 1998, Klein et al., 1999, Klein et al., 2001, Lustig et al., 2001, Ozer et al., 2001 & Ozer et al., 2004). Klein and Wilson's 2002 study surveyed 3216 9<sup>th</sup> through 12<sup>th</sup> grade students in schools across the United States. However, the frequency of counseling by providers was only calculated for adolescents already engaging in risky behaviors. It did not indicate how often providers discussed preventive issues with adolescents that were not yet participating in these behaviors. Klein found that only 28% to 40% of the adolescents currently involved in risky behaviors were counseled on alcohol use, drug use, sedentary lifestyle, safe sexual practices, or smoking.

Goodwin, Flocke, Borawski, Zyzanski, and Stange (1999) took a different approach in determining the rate of preventive services provided to adolescents by directly observing 445 adolescent visits to 119 northeast Ohio family practice physicians. Both well visit and sick visit exams were observed, and the physicians were blinded to the study hypothesis. Goodwin found 20% of adolescents were counseled on exercise and diet and 25% were counseled on contraception and sexual activity during well visit examinations. Forty percent of all well checks

included no preventive counseling. The rates of preventive screening and guidance were even lower during adolescent sick visits. Goodwin reported significantly more counseling was provided during new patient encounters and routine well visit exams. In addition, significantly less education and guidance were given to younger patients and adolescents of any age when a family member was present for the visit. These rates may be more representative of true prevention screening and counseling frequencies in adolescents because the data was recorded objectively with the providers blinded to the purpose of the study.

Little research has been conducted to determine the efficacy of preventive screening, education, and counseling in adolescents. An adult study demonstrated that a three to five minute discussion regarding physical activity given to sedentary adults by their providers, along with a follow-up phone call, resulted in 52% maintaining a regular exercise program six weeks later (Calfas et al., 1996). Boise and et al. (2003) completed a study with 58 adult women who did not wish to become pregnant but had visited their provider for a pregnancy test. After providing education, contraception, and a follow-up call, 41% of the women increased their use of effective contraception. Three of 22 women at risk for sexually transmitted diseases started using condoms regularly, and only five of the 58 women continued to use no form of contraception at follow-up. An adolescent study by Winter and Breckenmaker (1991) of 1261 15 to 18 year old females also found improved contraceptive practices after provider counseling. The adolescents who had received education were more likely using a form of contraception six months after their appointment and were less likely to be pregnant one year later. A study on adolescent smoking reported that 60% of adolescent smokers who were counseled on the risks of tobacco entered into a contract with the provider to quit smoking (Townsend, Wilkes, Haines, & Jarvis, 1991).

Research by Dickey, Gemson, and Carney (1999) found that prevention education and counseling were most effective when presented to the patient in a personalized manner on several occasions and in more than one form. Discussion of risky behaviors and anticipatory guidance by health care providers combined with printed brochures, websites with information, and/or a follow-up phone call from the provider or office staff increased behavioral change. For example, after initiating a multiple-occasion counseling approach, the primary care offices involved reported a 13% increase on average in smoking cessation among their patients (Solberg, Maxwell, Kottke, Gepner, & Brekke, 1990). These studies provide some evidence to support the benefits of adolescent screening and counseling, although more research needs to be conducted to determine how greatly preventive services affect adolescent behavior.

In order for prevention counseling to be effective and have an impact, providers and adolescents must be able to communicate with each other. A survey of 157 adolescent females by Clowers (2002) found that these adolescents considered good communication the most important characteristic of a provider, even more critical than medical competency. Unfortunately, only 35% of medical interns surveyed by Walsh, Roche, Sanson-Fisher, and Saunders in 2001 were confident in their ability to effectively interact with patients. According to the teenagers Clowers (2002) surveyed, adolescents want their providers to be direct and truthful with them. They value providers who take the time to answer their questions, listen to their concerns, and explain health issues to them. They are looking for an understanding, respectful, nonjudgmental, and supportive health care provider.

Furthermore, a study by Ford, Millstein, Halpern-Felsher, and Irwin (1997) randomly assigned 562 adolescents to one of three groups. Each group listened to a different recorded patient encounter in which the provider discussed either unconditional confidentiality,

conditional confidentiality, or did not discuss confidentiality at all. Surveys were distributed to each participant after the recordings. Adolescents who listened to either message about confidentiality were significantly more likely to say that they would be willing to truthfully discuss sensitive issues with their provider. They reported being more open to communication, more comfortable, and more likely to make future appointments. There was no significant difference between the group that heard the message about complete confidentiality and the conditional confidentiality group. By explaining confidentiality and incorporating values such as respect and understanding into each visit, providers will improve their communication with adolescents and increase receptiveness to prevention discussion.

There are a variety of reasons why providers are not screening and counseling all adolescents about engaging in risky behaviors. Cabana and partners (1999) published the main obstacles physicians encounter when trying to adhere to any set of practice guidelines. They include lack of awareness of and familiarity with the guidelines, disagreement with GAPS guidelines, and lack of self-efficacy in performing them. Ozer et al. (2004) surveyed 66 pediatric providers about their confidence in providing preventive care and 323 14 to 16 year-olds after their routine well checks. They demonstrated that providers' perceived self-efficacy to provide screening and counseling is positively associated with the frequency adolescents reported receiving preventive care. Additionally, physicians may not follow clinical guidelines because they do not expect their patients to receive the beneficial outcomes (Cabana et al., 1999). They may find it difficult and inconvenient to change their practices, or they may be concerned that they are embarrassing or offending their patients (Cabana et al., 1999). Other reasons include difficult to understand or use guidelines, lack of time, patient refusal, lack of reimbursement, and no available materials or staff to provide the care (Cabana et al., 1999).

Brindis et al. (2002) mentions several other factors that affect the GAPS specifically. These include the presence of a parent or guardian during the exam, a lack of preventive care training, the idea that prevention is ineffective, and a focus on acute medical care instead of prevention. Cheng, DeWitt, Savageau, and O'Connor (1999) received 1163 surveys from pediatricians regarding their attitudes toward preventive care counseling and the amount of preventive education they provide. These physicians felt behavioral and safety issues were less important than traditional medical issues and therefore discussed them significantly less often. They also felt behavioral and safety counseling was ineffective at changing or preventing risky adolescent behaviors.

Unfortunately, most medical care providers are not well trained in adolescent health issues and preventive care topics and therefore do not feel prepared to counsel teenagers about risky behaviors. In a study conducted by Veit, Sanci, Young, and Bowes (1995) assessing providers' adolescent care knowledge, as many as 52 of 57 providers admitted they had received minimal or no adolescent care education. Health care providers feel "ill equipped to counsel ... and that they perform poorly at assessment and advice giving" (Walsh et al., 2001). In a study by Park, Wolfe, Gokhale, Winickoff, and Rigotti (2005) 928 primary care residents were surveyed about their readiness to educate patients on preventive care topics. Although physician reported data tend to overestimate the true value, only 62% reportedly felt prepared to counsel about smoking, 53% about diet and exercise, and 36% about substance abuse. This lack of preparedness is in part due to a lack of preventive care education in medical school. Only 19% of United States medical schools have a required preventive medicine course (Park et al., 2005). Research by Dickey and Tran (2001) showed that at the University of California, San Francisco (UCSF) 63.3 hours of didactic instruction out of 1477 total hours were devoted to prevention.

Only 5.9% of clinical education in the third and fourth years of medical school at UCSF included preventive care. Inadequate training appears to be an important barrier lowering providers' self-efficacy and keeping them from adhering to the GAPS guidelines.

However, there is evidence that some of the perceived obstacles to preventive screening and counseling do not represent valid barriers. For example, in Cheng's (1999) study the pediatricians reported that a lack of time and reimbursement were not likely to affect the frequency of preventive counseling. Goodwin et al. (1999) demonstrated that visits were only 2.5 minutes longer when preventive education was provided to adolescents. Although counseling and anticipatory guidance may increase costs initially, future health care expenditures will decline if adolescents avoid these risky behaviors (Brindis et al., 2002). Also, Brindis et al. (2002) states that the majority of teenage health concerns are not acute and chronic diseases but are behavioral and social issues. Consequently, when these problems are ignored, they lead to most of the morbidity and mortality of adolescence. Many providers believe that adolescents are unwilling to discuss these issues (Cabana et al., 1999). However, Klein and Wilson (2002) state that adolescents consider their health care providers to be good sources for receiving health education and are willing to discuss these sensitive behaviors with them. Of the 3216 adolescents surveyed by Klein and Wilson (2002), 65% wanted to discuss drug use with their providers, 61% wanted to discuss sexual transmitted diseases, and 59% wanted to discuss smoking, although most of them did not. Most teenagers believe that it is the provider's responsibility to initiate the conversation on prevention (Goodwin et al., 1999). However, when asked about their participation in risky behaviors, they provide truthful responses to their providers (Epner et al., 1998).

A perceived barrier to adolescent prevention counseling and screening is the presence of a family member in the exam room during the entire visit (Goodwin et al., 1999). Providers may assume teenagers will not be truthful about their participation in these activities while family is present or may believe the guardian or parent would not approve of him or her asking these sensitive questions. Research by Cohall and partners (2004) demonstrated that parents, living in both urban and suburban areas, want providers to counsel their children. Cohall surveyed 167 parents of adolescents entering the ninth grade regarding their views on the importance of preventive care discussions between health care providers and their teenagers. Parents viewed physicians and other health care providers as a “preferred source of health information.” Although they also considered nutrition and exercise important, parents believed HIV, sexually transmitted diseases, and substance abuse education and counseling were the most critical topics providers should discuss with their adolescent patients. In addition, although providers are aware that a parent’s presence is a barrier to following the GAPS, they gave only 25% of adolescents the opportunity to speak in private according to their parents (Cohall et al., 2004).

The current challenge is to devise feasible strategies to reduce these barriers to implementing the GAPS and increase the screening and counseling provided to all adolescents. Four studies have published suggestions including increasing provider training in adolescent preventive care, making a health educator available to clinics seeing many adolescents, and supplying health care providers with resources such as preventive screening questionnaires, chart stickers, and charting forms (Dickey et al., 1999, Klein et al., 2001, Lustig et al., 2001, & Ozer et al., 2001). Lustig et al. (2001) surveyed adolescents before and after implementing an eight-hour training session for providers on preventive services. Adolescent-reported screening for drug use, alcohol use, and sexual activity increased significantly after the workshop. Adolescent-

reported counseling also increased in all three areas, although there was no statistically significant increase in counseling about alcohol use after the training.

In a similarly designed study, Klein and partners (2001) found increases in adolescent-reported screening and discussion about diet, exercise, cigarettes, alcohol, drug use, and sexual behavior after GAPS training and resources were supplied to the providers and staff. However, these increases were not significant. Klein also found that adolescents had significantly more knowledge about where to obtain reproductive and mental health services after their providers received GAPS training. Interestingly, physicians that did not undergo training but did have access to the questionnaires and charting forms also increased their preventive care (Klein et al., 2001). In another example, a randomized and controlled study showed providers supplied twice as much counseling to smokers with stickers on their charts compared to smokers without stickered charts (Dickey et al., 1999). Smokers with stickered charts had a 15% cessation rate at one year compared to a 2.7% rate without chart stickers (Dickey et al., 1999). This demonstrates that adding resources alone may remind providers to screen and counsel adolescents thus increasing preventive care and changing risky behaviors.

After providers received specific preventive care training, resources such as charting forms, and access to a health educator in Ozer's (2001) research, adolescents reported significantly more screening and more discussion of alcohol use, drug use, and sexual activity. Screening increased from 47% to 94% on average after these services were implemented, and counseling increased from 39% before to 91% after. Although screening was found to have decreased between 4% and 7% in a follow-up group surveyed five to eighteen months later, adolescents continued to report rates of preventive care services significantly higher than were present before the training and resources were provided. In addition, there was no significant

decrease in counseling rates found in the follow-up group. These studies indicate that supplying providers with more training and resources on preventive care for adolescents will increase their screening and counseling rates. While increased provider training and access to materials do enhance preventive care delivery, more research must be performed to find feasible strategies to eliminate the barriers to following GAPS in order to prevent or change participation in these risky behaviors, thus improving teenage patients' health both in adolescence and adulthood.

## Method

### *Design*

The research was survey-based.

### *Participants*

The survey was distributed to 9th through 12th grade students in two northeast Ohio locations in the spring of 2005. The participants were 430 9th through 12th grade students enrolled in social studies classes (US history, world history, government, economics, or psychology) at Copley High School as well as 600 9th through 12th grade students enrolled in a study hall at Wadsworth High School. Both high schools are public schools located in suburbs of Akron, Ohio.

### *Instrument*

The data were collected with a two-page survey (Appendix). No data or responses from the survey permit an individual student to be identified. A cover letter (Appendix) was attached to the survey for the students to read, which discussed the research question, explained that participation in the study was optional, reassured that the survey was anonymous and confidential, and provided instructions for completing and returning the survey.

A pilot study of the survey was performed with ten adolescents to evaluate their understanding of the questions and to detect any problems with the survey itself.

### *Procedure*

Initially a letter (Appendix) was mailed to Copley High School and Wadsworth High School explaining the research question and providing them with a copy of the survey in order to receive the principals' approvals to distribute the surveys according to the following procedure.

A plain business sized envelope was attached to each cover letter and survey. The plain

envelope allowed the survey to be returned with complete confidentiality and allowed the students to feel safe to answer truthfully. The materials were taken to the schools for distribution to the social studies teachers and study hall monitors. The social studies teachers and study hall monitors then distributed the survey packets to each student in each of their classes throughout the day. The students were given ten minutes to complete the survey if they chose to participate in the study. They sealed their completed survey in the plain envelope provided. If they chose not to participate, they sealed the blank survey in the envelope. Each student placed his or her own sealed envelope in a large collection envelope provided to each social studies teacher and study hall monitor. The large collection envelopes were returned to the principals, and the surveys were picked up from them directly.

#### *Data Analysis*

The frequency of discussion of preventive care issues, of adolescents' understanding of the health care provider's advice, of adolescents' comfort asking questions, of one-on-one discussion with their health care provider, of participation in risky behaviors, and of behavior change after discussion with a health care provider was determined. The chi square test was used to compare the frequency of preventive care discussion among age groups, genders, and races. The chi square test was used to determine if there was a difference in discussion frequency depending on a parent or guardian's constant presence in the exam room during the encounter with their provider.

## Results

There were 576 useable surveys collected from the two high school sites. Two hundred and eighty-five respondents (50.4%) were female, and 280 respondents (49.6%) were male. Eleven failed to indicate a gender. Of the respondents surveyed, there were six 13 year-olds (1.0%), fourteen 14 year-olds (2.4%), 81 15 year-olds (14.1%), 183 16 year-olds (31.8%), 161 17 year-olds (28.0%), 120 18 year-olds (20.9%), and ten 19 year-olds (1.7%). There were 467 Caucasian respondents (83.2%), 51 African American respondents (9.1%), 21 respondents who identified themselves as mixed race or other (3.7%), 14 Asian respondents (2.5%), and eight Hispanic respondents (1.4%). Three hundred thirty-five adolescents (58.6%) reported that they had a school or sports physical at their provider's office within the last year. One hundred fifty-one surveyed adolescents (26.4%) had a physical exam between one and two years ago. Only 86 adolescents (15.0%) reported having their last physical more than two years ago. There were 330 respondents (58.4%) that had the opportunity to talk to their health care provider one-on-one. Two hundred thirty-five respondents (41.6%) did not have the opportunity to talk with their provider in private.

The survey asked if the high school students felt comfortable asking their health care providers any questions they had about six different activities. There were 336 respondents (60.2%) who felt comfortable asking about recreational drug use and 222 respondents (39.8%) who did not feel comfortable asking about recreational drugs. There were 365 adolescents (65.5%) who did feel comfortable asking about alcohol use and 192 adolescents (34.5%) who did not feel comfortable asking about alcohol. Three hundred fifty-six (63.7%) felt comfortable asking questions about tobacco, and 203 (36.3%) did not feel comfortable asking about tobacco use. There were 313 respondents (55.9%) who felt comfortable asking about sexual activity and

247 respondents (44.1%) who did not feel comfortable asking questions about sexual activities. There were 534 adolescents (93.8%) who did feel comfortable asking about nutrition and 35 adolescents (6.2%) who did not feel comfortable asking about a healthy diet. There were 534 (93.8%) who felt comfortable asking questions about exercise and 35 (6.2%) who did not feel comfortable asking about regular exercise.

An important focus of the survey was to determine how frequently providers were screening for and discussing risky behaviors at physical exams according to the surveyed adolescents. There were 98 adolescents (17.1%) who definitely remember discussing drug use with their provider at their last physical. There were 101 respondents (17.7%) who remember discussing alcohol use and 130 (22.7%) who recall talking about tobacco use at their last exam. One hundred seventy-three (30.2%) discussed sexual activity with their provider. There were 313 adolescents (55.4%) who remember discussing good nutrition and 317 respondents (56.1%) who talked about regular exercise at their last exam. Table 1 has more detailed results on the frequency of risky behavior discussion. There was no significant difference in the frequency of discussion of any of these six behaviors between genders, among ages, or among races. However, there was a statistically significant difference in the frequency of discussion about drug use and whether or not the adolescent talked to his/her provider in private ( $P < 0.001$ ). There was also a statistically significant increase in the frequency of discussion about alcohol use ( $P < 0.001$ ), tobacco use ( $P < 0.001$ ), and sexual activity ( $P < 0.001$ ) among respondents who had a one-on-one conversation with a provider, versus those whose conversations were non-private (Figure 1-4). In all four instances, more discussion and counseling occurred when the provider and respondent were able to talk one-on-one. The adolescents were also asked if they felt they now make healthier lifestyle choices because of the discussion and advice from their health care

provider. Two hundred and ten respondents (37.7%) felt they do make better choices as a result, and 347 adolescents (62.3%) did not feel they make better choices as a result of their last physical exam.

Adolescents reported understanding the information given to them when their providers did discuss risky behaviors during routine physical exams. Only 1.3% of respondents did not understand the discussion about recreational drug use. There were 1.1% who did not understand the information about alcohol use, 0.9% who did not understand about tobacco, 2.0% who did not grasp the discussion on sexual activity, 1.7% who did not grasp the information on nutrition, and 0.7% who did not understand the discussion about regular exercise.

From the survey responses, it was also possible to determine how many adolescents were involved in these activities. There were 93 respondents (16.1%) using recreational drugs, 183 adolescents (31.8%) drinking alcohol, 116 (20.1%) using some form of tobacco, 101 respondents (17.5%) involved in unsafe sexual activities, 181 (31.4%) with poor nutrition, and 164 adolescents (28.5%) not participating in regular exercise. Approximately 16.1% of respondents were involved in two risky activities, and 9.2% were participating in three activities. Six adolescents (4.3%) were involved in all six risky behaviors.

Nine of the respondents who reported using recreational drugs (9.9%) stopped using these drugs as a result of their provider's advice at their last physical exam. Sixteen of the adolescents drinking alcohol (8.8%) stopped using it after their providers discussed this risky behavior at their last exam. Eleven of the respondents who reported using tobacco (9.6%) stopped after discussing it at their last physical. Thirty of the adolescents that were participating in unsafe sexual activities (30%) began practicing more safe sexual activities as a result of their providers' advice. Seventy who had poor diets (38.9%) reported eating healthier foods after

discussing it at their last physical. Fifty-one respondents who were not exercising regularly before their last exam (31.5%) began to as a result of their discussions with their providers.

## Discussion

The Guidelines for Adolescent Preventive Services were created in 1992 in order to decrease adolescent participation in risky behaviors, thus reducing the morbidity and mortality of adolescence and adulthood. The purpose of this study was to determine how frequently and how effectively teenagers felt their providers discussed these unhealthy behaviors at routine physical exams now thirteen years after GAPS was implemented.

This study demonstrates some encouraging results regarding how often adolescents present to their provider for routine physical exams. These data show that 59% of respondents had received a physical exam from their provider in the last twelve months and that 85% had a physical in the last two years. The results illustrate that providers have the opportunity to provided preventive care, to discuss risky behaviors, and to influence the lifestyle of adolescents if they choose to take it.

Contrary to the widespread belief that teenagers are embarrassed, offended, and unwilling to talk about such sensitive topics, Klein and Wilson (2002) demonstrated that adolescents wanted the opportunity to discuss issues like drug use, sexually transmitted diseases, and smoking (Cabana et al., 1999). This study supports Klein and Wilson's conclusions. Although asking their provider questions about sexual activity could be intimidating, 56% of respondents indicated that they would be comfortable doing this. Sixty to sixty-five percent of the adolescents surveyed felt comfortable asking about less sensitive topics such as alcohol, drug, or tobacco use. Nearly all of the respondents, 94%, said they were comfortable asking about the less personal topics of diet and exercise. If more than 50% of adolescents are comfortable asking these questions, then greater percentages would likely be comfortable discussing these risky behaviors when their provider initiated the conversation. Therefore, adolescent willingness to

discuss risky behaviors does not seem to be a significant barrier to giving preventive care counseling.

According to the respondents of this survey, providers are not taking advantage of adolescents' willingness to discuss the risky behaviors outlined in GAPS. The frequency of discussion of the six topics surveyed shows rates far below those expected by GAPS. Only 17-56% discussed alcohol use, drug use, tobacco use, sexual activity, diet, or exercise with their provider at their last exam, compared to the 100% who are recommended by GAPS. Again, there was more discussion about diet and exercise, 55% and 56% respectively, than other preventive care topics, 17%-30%. Providers likely feel more comfortable talking about these less personal issues and therefore discuss them more frequently. It is interesting that sexual activity, a very private topic, was discussed more frequently than drug, alcohol, or tobacco use. As Cheng et al. (1999) noted, providers may believe it is a "traditional medical issue" directly related to acute disease and therefore find it more important to discuss. Nonetheless, research has shown that all of these risky behaviors may lead to failing health, chronic disease, and mortality and that most adolescent health concerns are related to these behavioral issues (Brindis et al., 2002 & Ozer et al., 2001).

It is not surprising that the adolescents participating in this study appear to discuss preventive care issues with their provider less often than adolescents enrolled in studies that use provider self-reported data or that use adolescent-reported data from healthcare facilities that had agreed to participate in a study on preventive care (Ellen et al., 1998, Halpern-Felsher et al., 2000, Klein et al., 2001, Lustig et al., 2001, Ozer et al., 2001, & Ozer et al., 2004). However, it is encouraging that the frequency of discussion about sexual activity in this study, 30%, is similar to Goodwin's (1999) results. His blinded and objectively measured study demonstrated a

25% discussion rate. Although the reason is not clear, the adolescents in this survey discussed diet and exercise almost three times more frequently than those in Goodwin's research. One explanation may be the heightened focus on obesity in the United States in the last several years, or the discrepancy may be due to the limitations of this survey.

As previously stated, there are a variety of barriers that providers perceive to discussing preventive care issues. Although adolescents' willingness and embarrassment are not significant limitations, providers' lack of self-confidence and training in preventive care does seem to affect the frequency of these discussions (Ozer et al., 2004, Park et al., 2005, & Dickey & Tran, 2001). Perhaps the most significant barriers to providing adolescent preventive care are the presence of a parent or guardian during the exam and not providing the opportunity for a one-on-one conversation between the patient and the healthcare provider. Teenagers need an opportunity to openly talk about risky behaviors in private and with the understanding of conditional confidentiality, so that they do not fear punishment from their parent or guardian and are truthful with their provider (Ford et al., 1997). In addition, when others are present during the visit, providers may not ask about an adolescent's participation in these risky behaviors because they assume that the adolescent will deny them. They may not attempt to counsel the teenager because they assume his/her parent would disapprove of a conversation about such sensitive issues. However, Cohall's (2004) research showed that most parents would encourage such a discussion with their child and that less than five percent would oppose a preventive care discussion

Although Cohall et al. (2004) determined only 25% of adolescents had a private discussion at their last exam, these results showed 58% of respondents talked to their provider one-on-one. Nonetheless, providers must find a better method to provide adolescents with the

opportunity to discuss preventive care in a private setting, as significantly more discussion and advice about drug use, alcohol use, tobacco use, and sexual activity were given to respondents in this study who had a one-on-one discussion with their provider. Increasing the number of teenagers who engage in private conversations with their healthcare provider is the first step to improving the amount of preventive care screening and education adolescents receive at their routine physical exams.

In fact, the opportunity to speak one-on-one with the provider was the only factor that had a significant influence on the frequency of preventive care discussions between the patient and the provider. The data did not demonstrate a significant increase in counseling as patient age increased, which contrasts several earlier studies (Ellen et al., 1998, Halpern-Felsher et al., 2000, & Goodwin et al., 1999). There was also no relationship between the respondent's gender or race and the frequency of risky behavior discussion.

One encouraging result of this study is that 98-99% of respondents who received counseling understood their provider's advice. This demonstrates that in the instances that they do discuss preventive care, providers are successfully bringing the information to a level most adolescents can comprehend. During these discussions, it is important for providers to not only educate teenagers on the negative consequences of these activities but also to reinforce their positive choices, discuss methods to avoid peer pressure, inquire about any questions they have, and suggest a plan to end their participation in these risky behaviors (Guidelines for Adolescent Preventive Services, 1997).

The frequency of adolescent participation in the six risky behaviors surveyed is well below the 2003 nationally published frequencies for drug use, alcohol use, tobacco use, sexual activity, poor nutrition, and sedentary lifestyle (Youth risk behavior surveillance system, 2003).

This may be a result of the limitations of this survey, which include a small sample size, a suburban population, the students' fears of being identified, and the adolescents' untruthful responses. Another possibility, although less likely, is that involvement in these unhealthy behaviors has decreased since 2003.

Unfortunately less than ten percent of the adolescents actively using drugs, alcohol, or tobacco stopped participating in these risky behaviors after their provider's counseling and advice. This may be due in part to the highly addictive nature of these substances and the significant role of peer pressure in adolescence. Over 30% of respondents who were previously involved in these unhealthy behaviors began to make healthier choices regarding sexual activity, nutrition, and exercise after the discussion with their provider at their last physical exam. This was a much larger percentage than was seen for alcohol, drug, or tobacco use. These activities may be easier for adolescents to change because they only have to make improvements in their current lifestyles such as using condoms and birth control, reducing the amount of fast food they consume, or beginning to walk daily. In addition, these activities are not addictive and are less often associated with peer pressure, thus removing many of the challenges that teenagers face when they attempt to change their unhealthy habits.

Though a minority of respondents actually changed their behaviors, providing education in these areas is still worthwhile and should be a major aspect of all routine adolescent health maintenance exams because of the significant improvement in health and the decline in morbidity and mortality in both adolescence and adulthood that results when even one patient stops his/her destructive behavior. It is also important to remember studies have demonstrated that a patient usually needs the information presented on several occasions and in several forms before they make the decision to change their negative behaviors (Dickey et al., 1999). Although

most of the adolescent respondents were not ready to change and did not choose to stop the activity after this encounter, perhaps their provider's advice made them consider it. The next discussion may convince them to make the healthier decision and stop these behaviors.

Thirty-eight percent of respondents identified that they began to make better and safer lifestyle choices as a result of their provider's advice at their last physical exam. Considering the low number of patients that received any counseling, this percentage is reassuring. It demonstrates that the adolescents who did have a discussion about preventive care issues often listened to their providers, took their advice seriously, and as a result may have improved their health and decreased their risk of disease and premature death. Again, this lends support to the conclusion that preventive care discussion and education is effective at improving the health of adolescents. Therefore, it is important that providers stop focusing on the barriers to following the GAPS and begin to counsel all adolescents about risky behaviors.

There are several limitations of this survey-based study that may affect the validity of these results. The most significant limitation is not knowing whether the adolescents participating in the study fully understood the survey questions. This was apparent by some of the contradictory responses. Other important limitations of the study are that the adolescents may not have taken the survey seriously or may have feared being identified and therefore did not answer truthfully. Also, the participants may not have correctly remembered their discussion with the provider. This is more likely to be a problem associated with the adolescents who received their last exam more than two years ago. Klein et al. (1999) demonstrated that adolescent reports of preventive services were valid up to seven months following their exam. However, he never addressed whether or not adolescents remembered these visits correctly one to two years later. Finally, the small, suburban, and culturally similar sample population may

have skewed the data and may be one reason why some of results of this study do not match the conclusions of larger, national studies.

## Conclusion

In conclusion, although the opportunity for providers to follow GAPS is present and adolescents are willing to discuss even the most personal issues such as sexual activity and drug use, providers are rarely implementing GAPS by screening and counseling teenagers at their routine exams. While these results are disappointing, this study and Goodwin's (1999) study demonstrate an increase in the frequency of preventive care discussion when adolescent patients and providers have the opportunity for a one-on-one conversation. By removing this barrier and supplying time for a private discussion, providers will be making the first step toward improving adolescent preventive care. Although the positive change in participation in these behaviors was not overwhelming in this study, some teenagers were affected and stopped their unhealthy activities after just one discussion. Many more would likely quit with repeated counseling and discussion at every visit. The decline in the morbidity and mortality associated with decreasing risky health behaviors supports GAPS's stance since 1992 that providers must begin to discuss preventive care with every adolescent.

## References

- Adams, A.S., Soumerai, S.B., Lomas, J., & Ross-Degnan, D. (1999). Evidence of self-report bias in assessing adherence to guidelines. *International Journal for Quality in Health Care*, 11, 187-192.
- Boise, R., Petersen, R., Curtis, K.M., Aalborg, A., Yoshida, C.K., Cabral, R., & Ballentine, J.M. (2003). Reproductive health counseling at pregnancy testing: a pilot study. *Contraception*, 68, 377-383.
- Brindis, C., Park, M.J., Ozer, E.M., & Irwin, C.E. (2002). Adolescents' access to health services and clinical preventive health care: Crossing the great divide. *Pediatric Annals*, 31, 575-581.
- Cabana, M.D., Rand, C.S., Powe, N.R., Wu, A.W., Wilson, M.H., Abboud, P., & Rubin, H.R. (1999). Why don't physicians follow clinical practice guidelines? A framework for improvement. *JAMA*, 282, 1458-1465.
- Calfas, K.J., Long, B.J., Sallis, J.F., Wooten, W.J., Pratt, M., & Patrick, K. (1996). A controlled trial of physician counseling to promote the adoption of physical activity. *Preventive Medicine*, 25, 225-233.
- Cheng, T.L., DeWitt, T.G., Savageau, J.A., & O'Connor, K.G. (1999). Determinants of counseling in primary care pediatric practice. *Arch. Pediatric Adolescent Medicine*, 153, 629-635.
- Clowers, M. (2002). Young women describe the ideal physician. *Adolescence*, 37, 695-704.
- Cohall, A.T., Cohall, R., Ellis, J.A., Vaughan, R.D., Northridge, M.E., Watkins-Bryant, G., & Butcher, J. (2004). More than heights and weights: What parents of urban adolescents want from health care providers. *Journal of Adolescent Health*, 34, 258-261.
- Dickey, L.L., Gemson, D.H., & Carney, P. (1999). Office system interventions supporting primary care-based health behavior change counseling. *American Journal of Preventive Medicine*, 17, 299-308.
- Dickey, L.L. & Tran, K. (2001). Evaluating the teaching of clinical preventive medicine: A multidimensional approach. *American Journal of Preventive Medicine*, 20, 190-195.
- Ellen, J.M., Franzgrote, M., Irwin, C.E., & Millstein, S.G. (1998). Primary care physicians' screening of adolescent patients: a survey of California physicians. *Journal of Adolescent Health*, 22, 433-438.
- Epner, J., Levenberg, P.B., & Schoeny, M.E. (1998). Primary care providers' responsiveness to health-risk behaviors reported by adolescent patients. *Arch. Pediatric Adolescent Medicine*, 152, 774-780.

- Ford, C.A., Millstein, S.G., Halpern-Felsher, B.L., & Irwin, C.E. (1997). Influence of physician confidentiality assurances on adolescents' willingness to disclose information and seek future health care: A randomized controlled trial. *JAMA*, 278, 1029-1034.
- Goodwin, M.A., Flocke, S.A., Borawski, E.A., Zyzanski, S.J., & Stange, K.C. (1999). Direct observation of health-habit counseling of adolescents. *Arch Pediatric Adolescent Medicine*, 153, 367-373.
- Guidelines for adolescent preventive services. (1997). *American Medical Association*. Retrieved September 13, 2004, from <http://www.ama-assn.org/ama/pub/category/1980.html>
- Halpern-Felsher, B.L., Ozer, E.M., Millstein, S.G., Wibbelsman, C.J., Fuster, C.D., Elster, A.B., & Irwin, C.E. (2000). Preventive services in health maintenance organization: How well do pediatricians screen and educate adolescent patients? *Arch. Pediatric Adolescent Medicine*, 154, 173-179.
- Klein, J.D., Allan, M.J., Elster, A.B., Stevens, D., Cox, C., Hedberg, V.A., & Goodman, R.A. (2001). Improving adolescent preventive care in community health centers. *Pediatrics*, 107, 318-327.
- Klein, J.D., Graff, C.A., Santelli, J.S., Hedberg, V.A., Allan, M.J., & Elster A.B. (1999). Developing quality measures for adolescent care: Validity of adolescents' self-reported receipt of preventive services. *Health Services Research*, 34, 1 pt 2, 391-404.
- Klein, J.D., & Wilson, K.M. (2002). Delivering quality care: Adolescents' discussion of health risks with their providers. *Journal of Adolescent Health*, 30, 190-195.
- Lustig, J.L., Ozer, E.M., Adams, S.H., Wibbelsman, C.J., Fuster, C.D., Bonar, R.W., & Irwin, C.E. (2001). Improving the delivery of adolescent clinical preventive services through skills-based training. *Pediatrics*, 107, 1100-1107.
- Ozer, E.M., Adams, S.H., Gardner, L.R., Mailloux, D.E., Wibbelsman, C.J., & Irwin, C.E. (2004). Provider self-efficacy and the screening of adolescents for risky health behaviors. *Journal of Adolescent Health*, 35, 101-107.
- Ozer, E.M., Adams, S.H., Lustig, J.L., Millstein, S.G., Camfield, K., El-Diwany, S., Volpe, S., & Irwin, C.E. (2001). Can it be done? Implementing adolescent clinical preventive services. *Health Services Research*, 36, 6 pt 2, 150-165.
- Park, E.R., Wolfe, T.J., Gokhale, M., Winickoff, J.P., & Rigotti, N.A. (2005). Perceived preparedness to provide preventive counseling: Reports of graduating primary care residents at academic health centers. *Journal General Internal Medicine*, 20, 386-391.

- Sallis, J.F., Patrick, K., Frank, E., Pratt, M., Wechsler, H., & Galuska, D.A. (2000). Interventions in health care settings to promote healthful eating and physical activity in children and adolescents. *Preventive Medicine*, 31, S112-S120.
- Solberg, L.I., Maxwell, P.L., Kottke, T.E., Gepner, G.J., & Brekke, M.L. (1990). A systematic primary care office-based smoking cessation program. *J. Family Practice*, 30, 647-654.
- Townsend, J., Wilkes H., Haines, A., & Jarvis, M. (1991). Adolescent smokers in general practice: Health, lifestyle, physical measurement, and response to anti smoking advice. *British Medical J.*, 303, 947-950.
- Veit, F.C., Sanci, L.A., Young, D.Y., & Bowes, G. (1995). Adolescent health care: Perspectives of Victorian general practitioners. *Medical J. Australia*, 163, 16-18.
- Walker, Z., & Townsend, J. (1999). The role of general practice in promoting teenage health: A review of the literature. *Family Practice*, 16, 164-172.
- Walsh, R.A., Roche, A.M., Sanson-Fisher, R.W., & Saunders, J.B. (2001). Interactional skills of students from traditional and non-traditional medical schools before and after alcohol education. *Medical Education*, 35, 211-216.
- Winter, L. & Breckenmaker, L.C. (1991). Tailoring family planning services to the special needs of adolescents. *Family Planning Perspect.*, 23, 24-30.
- Youth risk behavior surveillance system. (2003). *National Center for Chronic Disease Prevention and Health Promotion*. Retrieved October 1, 2004 from <http://www.cdc.gov/healthyyouth/data/index.htm>

**Table 1** Frequency of risky behavior discussion

	# Respondents who discussed with provider	# Respondents who did not discuss with provider	# Respondents who do not remember discussing with provider
Drug use	98 (17.1%)	374 (65.2%)	102 (17.8%)
Alcohol use	101 (17.7%)	396 (69.5%)	73 (12.8%)
Tobacco use	130 (22.7%)	376 (65.7%)	66 (11.5%)
Sexual activity	173 (30.2%)	333 (58.2%)	66 (11.5%)
Good nutrition	313 (55.4%)	194 (34.3%)	58 (10.3%)
Regular exercise	317 (56.1%)	192 (34.0%)	56 (9.9%)

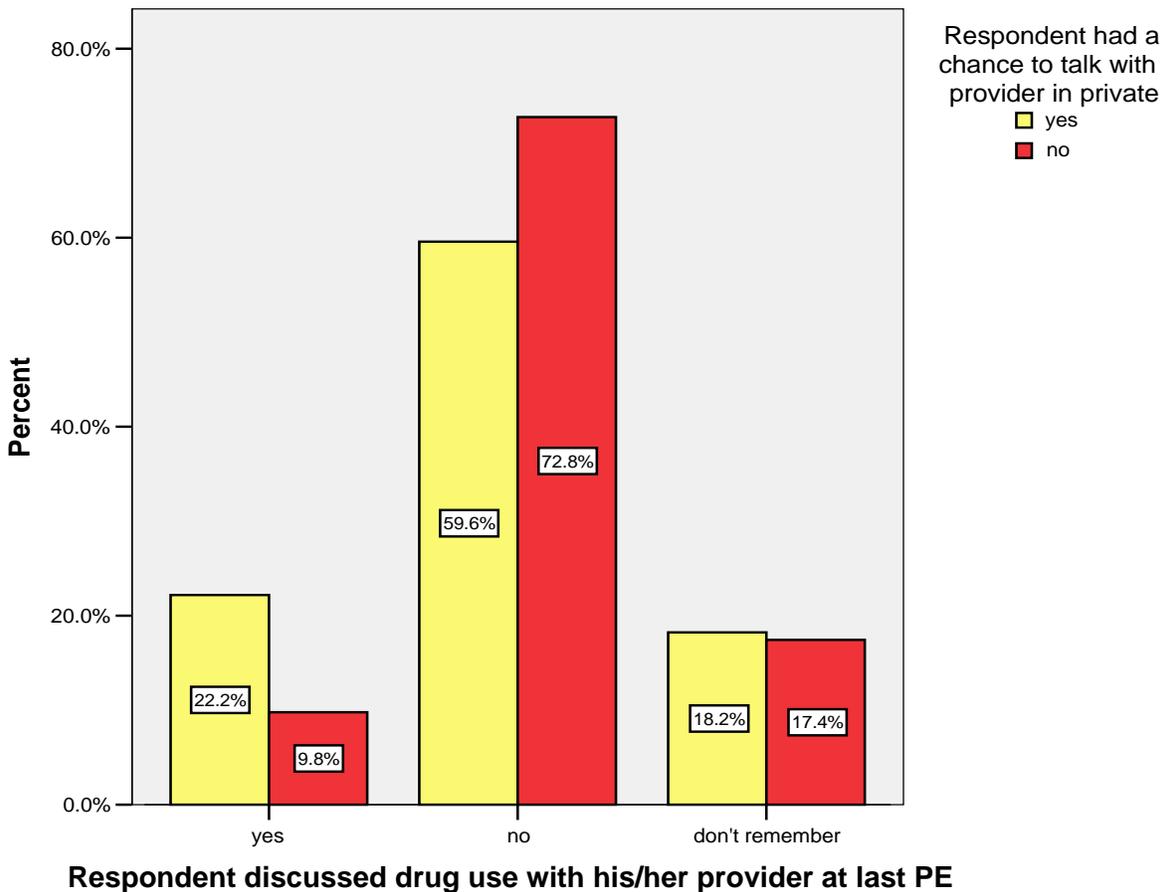
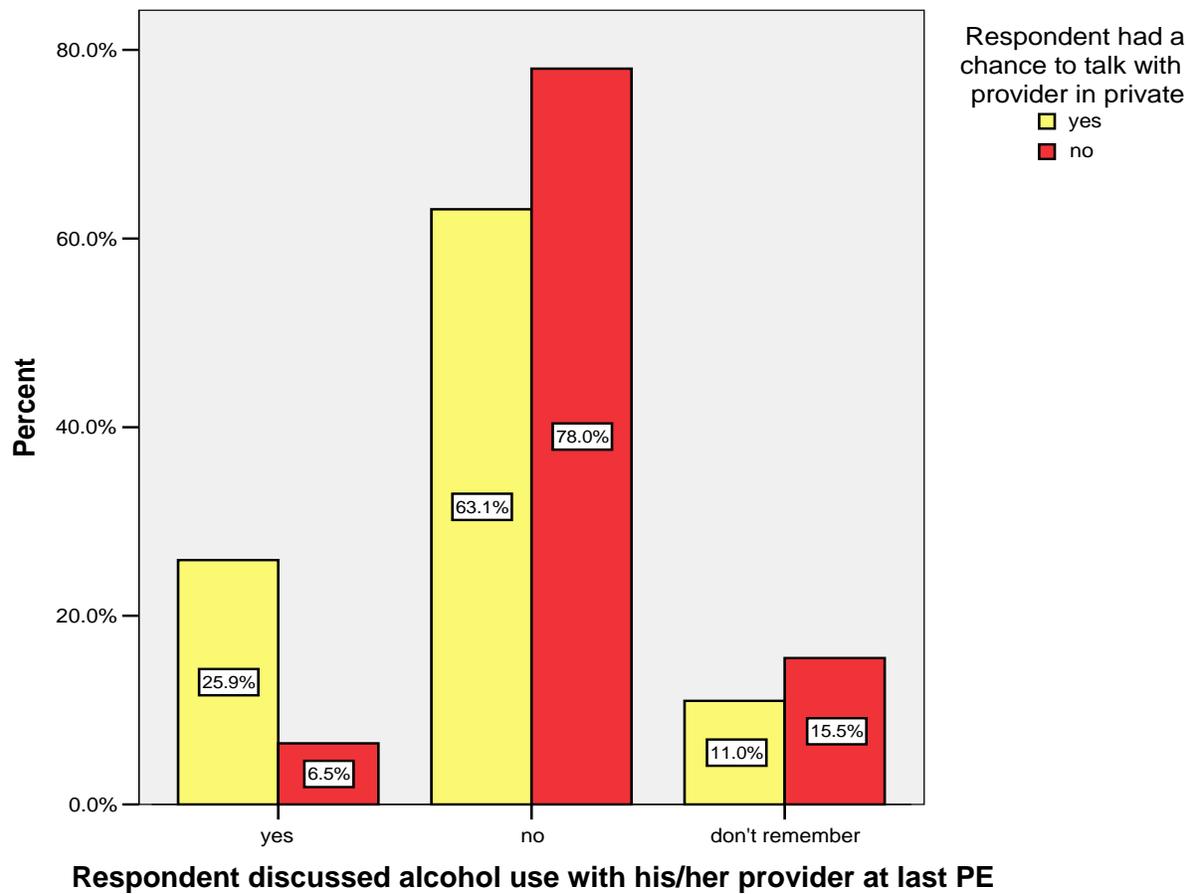


Figure 1 Comparison of discussion frequency based on whether respondent had a private conversation about drug use with their provider



*Figure 2* Comparison of discussion frequency based on whether respondent had a private conversation about alcohol use with their provider

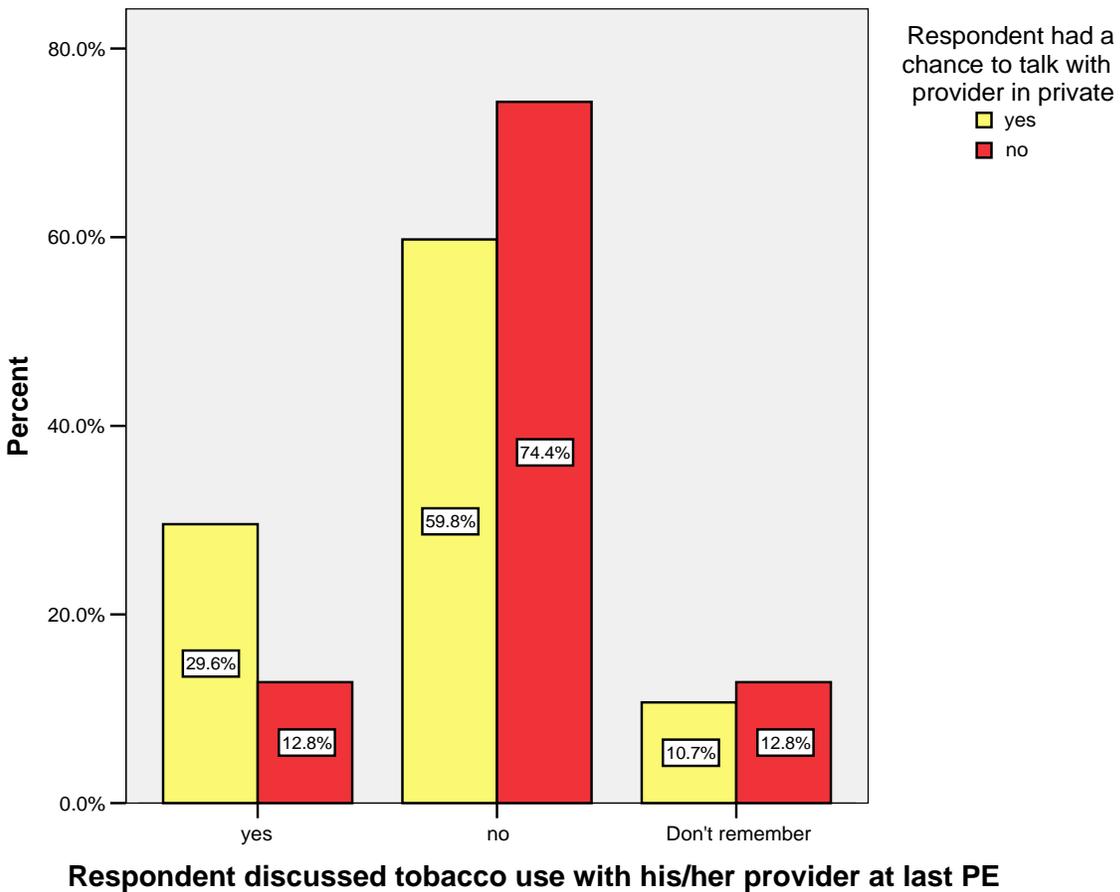
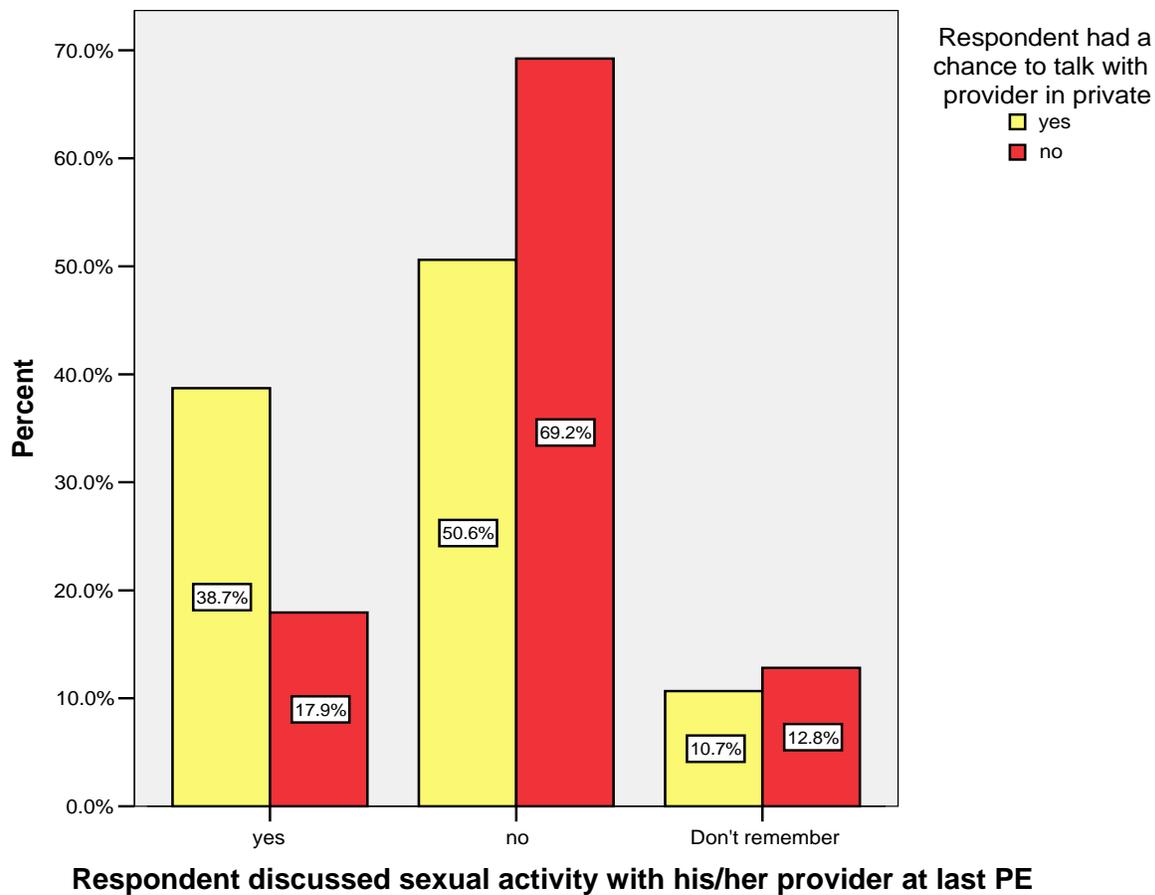


Figure 3 Comparison of discussion frequency based on whether respondent had a private conversation about tobacco use with their provider



*Figure 4* Comparison of discussion frequency based on whether respondent had a private conversation about sexual activity with their provider

## Appendix

*Letter to School Principal*

January 27, 2005

Mr. Steffen, Principal  
Copley High School  
3807 Ridgewood Rd.  
Copley, OH 44321

Dear Mr. Steffen:

I am writing to inform you of the details of my research study titled: How effective adolescents feel their health care providers are at discussing risky and unhealthy behaviors during routine physical exams. Enclosed is a preliminary copy of my cover letter and survey. Upon approval from the Medical College of Ohio's Institutional Review Board, I will provide you with the finalized cover letter and survey for your distribution according to the procedure we previously discussed. Attached to each cover letter and survey will be a plain envelope for the students to seal their completed surveys in order to maintain the privacy of their responses.

As we discussed previously, I will provide 450 survey packets for distribution to your social studies teachers (US history, world history, government, economics, and psychology). The survey should take only ten minutes for the students to complete. I will also provide large envelopes for each of the teachers to collect the students' sealed and completed surveys. If the teachers would return the surveys to you or your secretary, I will pick them up in person.

However, before I can proceed with the formal approval of my research through MCO, I need a letter with your signed and dated permission to allow me to distribute the surveys at Copley High School.

Thank you for your time and help with my research. I look forward to working with you and Copley High School. Please contact me if you have any further concerns.

Sincerely,

Katherine McCormick  
MSBS-Physician Assistant Student  
Major Advisor: Michael Guerra PA-C  
Medical College of Ohio  
kmccormick@mco.edu

*Survey Cover Letter*

May 2, 2005

Dear Copley High School student:

You are being asked to participate in a study of how well health care providers (doctors) discuss unhealthy and risky behaviors with teenagers during routine physical exams. If you decide to be a part of this study, please complete the attached survey during class. It should take you only ten minutes. Your participation is voluntary. You do not need to participate; however your participation is greatly appreciated. You may stop completing this survey at any time. You do not need to answer every question in order to participate, and you may skip any questions you do not wish to answer.

This survey is completely **anonymous**. You **can not be identified** from your answers, and only the researchers will see the completed surveys.

The survey is attached to this letter along with a plain envelope. Please fill out the survey, put it into the envelope, and seal it. This will prevent anyone from seeing your responses. If you do not want to participate in this research, put the blank survey into the envelope and seal it. When you are finished, place your sealed envelope in your teacher's large collection envelope. **Please only complete this survey in one class.** If you have already filled one out in another course, turn this survey in blank. Thank you for your participation.

Sincerely,

Katherine McCormick  
Physician Assistant Student  
Advisor: Michael Guerra PA-C  
Medical College of Ohio

## Survey

IRB Approval- 104918

**Routine Physical Exam Survey**

Please mark the appropriate box:

- |                                 |                                       |   |
|---------------------------------|---------------------------------------|---|
| 1. Gender                       | 2. Age                                | 3. Race                                   |
| <input type="checkbox"/> Female | <input type="checkbox"/> 13 years old | <input type="checkbox"/> African American |
| <input type="checkbox"/> Male   | <input type="checkbox"/> 14 years old | <input type="checkbox"/> Asian            |
|                                 | <input type="checkbox"/> 15 years old | <input type="checkbox"/> Caucasian/White  |
|                                 | <input type="checkbox"/> 16 years old | <input type="checkbox"/> Hispanic         |
|                                 |                                       | <input type="checkbox"/> Other            |

4. How long ago was your last routine school or sports physical exam that was performed **at your health care provider's office** (for example your doctor's office)?

- Less than 1 year ago       1 to 2 years ago       More than 2 years ago

5. Did you have the chance to talk to your health care provider alone, without your parent or guardian during part of your last routine physical exam?

- Yes       No

For the remaining questions, answer about your personal experience to the best of your ability.

6. I felt comfortable or would feel comfortable asking my health care provider the questions that I had about each of the following activities during my routine physical exam.

- |                       |                              |                             |
|-----------------------|------------------------------|-----------------------------|
| Recreational Drug Use | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Alcohol Use           | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Tobacco Use           | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Sexual Activities     | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Good Nutrition        | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Regular Exercise      | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

7. My health care provider and I discussed recreational drug use at my last routine physical exam.

- Yes       No       I don't remember

8. I understood the information and advice my health care provider gave me about recreational drug use.

- Yes       No       No advice was given       I don't remember if advice was given

9. My health care provider and I discussed alcohol use at my last routine physical exam.

- Yes       No       I don't remember

10. I understood the information and advice my health care provider gave me about alcohol use.

- Yes       No       No advice was given       I don't remember if advice was given

11. My health care provider and I discussed tobacco use at my last routine exam.

- Yes       No       I don't remember

12. I understood the information and advice my health care provider gave me about tobacco use.

- Yes       No       No advice was given       I don't remember if advice was given

13. My health care provider and I discussed sexual activity at my last routine physical exam.  
 Yes       No       I don't remember
14. I understood the information and advice my health care provider gave me about sexual activity.  
 Yes       No       No advice was given       I don't remember if advice was given
15. My health care provider and I discussed good nutrition and eating habits at my last routine exam.  
 Yes       No       I don't remember
16. I understood the information and advice my health care provider gave me about good nutrition.  
 Yes       No       No advice was given       I don't remember if advice was given
17. My health care provider and I discussed the importance of regular exercise at my last routine exam.  
 Yes       No       I don't remember
18. I understood the information and advice my health care provider gave me about exercising regularly.  
 Yes       No       No advice was given       I don't remember if advice was given
19. I make better and healthier lifestyle choices because of the discussion and advice my health care provider gave me at my last routine exam.  
 Yes       No

Please remember that this survey is completely anonymous, and you **CAN NOT be identified**.

20. Please indicate which activities, if any, you were involved in **before** your last routine physical exam.
- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Recreational Drug Use           | <input type="checkbox"/> Alcohol Use    | <input type="checkbox"/> Tobacco Use         |
| <input type="checkbox"/> <b>Unsafe</b> Sexual Activities | <input type="checkbox"/> Poor Nutrition | <input type="checkbox"/> No regular exercise |

Please mark the appropriate box. If you were not involved in the activity before you had your exam or if the activity was not discussed during the exam, mark "does not apply".

21. **After** discussing recreational drug use with my health care provider at my last routine exam,  
 I have stopped using drugs.       I am still using drugs.       Does not apply
22. **After** discussing alcohol use with my health care provider at my last routine exam,  
 I have stopped drinking alcohol.       I am still drinking alcohol.       Does not apply
23. **After** discussing tobacco use with my health care provider at my last routine exam,  
 I have stopped using tobacco.       I am still using tobacco.       Does not apply
24. **After** discussing poor eating habits with my health care provider at my last routine exam,  
 I have begun to eat healthier foods.       I haven't changed my eating habits.       Does not apply
25. **After** discussing exercise with my health care provider at my last routine exam,  
 I have begun to exercise regularly.       I am still not exercising regularly.       Does not apply
26. **After** discussing unsafe sexual activities with my health care provider at my last routine exam,  
 I am more careful about practicing safe sexual activities.       I have not changed my unsafe sexual practices.       Does not apply

Thank you for completing this survey!

If you have additional comments, please use the space provided below.

## Abstract

*Objective:* The purpose of this study was to evaluate how effectively adolescents felt their providers discussed unhealthy behaviors such as drug, alcohol, and tobacco use, unsafe sexual practices, poor nutrition, and sedentary lifestyle at routine physical exams.

*Method:* A survey was distributed to 430 students enrolled in social studies classes at Copley High School and 600 students enrolled in study hall at Wadsworth High School.

*Results:* Only 17-56% of adolescents discussed risky behaviors with their provider at their last exam. There was a statistically significant increase in the frequency of discussion about drug, alcohol, and tobacco use and sexual activity ( $P < 0.001$ ) among respondents who had a one-on-one conversation with their provider.

*Conclusion:* Although adolescents are willing to discuss these issues, providers are rarely screening and counseling teenagers at their routine exams. However, there is an increase in the frequency of preventive discussion when adolescents and providers have a one-on-one conversation.