Addressing Adolescent Tobacco Use in Current School-Based ATOD Programs: Recommendations for Washington's Prevention and Intervention Services Program

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Addressing Adolescent Tobacco Use

Statement of the Problem

Although the 1997 statewide evaluation of the Prevention and Intervention Services Program (PISP) reported significant decreases in many forms of substance use among participating students (Deck and Einspruch, 1997), little change in tobacco use was observed. From site visits the evaluation team knew that tobacco use received relatively little attention in program activities, despite the importance of tobacco use as a serious health risk and as a risk factor for initiating use of other substances.

Further discussions with grant coordinators and subsequent site visits revealed that many program coordinators and intervention specialists have mixed feelings about the importance or appropriateness of tobacco interventions. Program coordinators and intervention specialists cited insufficient time and resources and higher priorities as reasons for the low level of attention devoted to tobacco interventions. Coordinators also expressed concern that the training intervention specialists receive typically does not address nicotine. Furthermore, local programs operate within a larger context of prevention and intervention activities funded by a variety of federal, state, and local sources, and in many communities tobacco use is handled as a strictly disciplinary offense. In such cases the students are not referred to intervention specialists who possess many of the skills that could help develop a more effective, integrated strategy.

This paper is organized into three sections to address some of these issues. The first section establishes the need for tobacco intervention and cessation services by providing background information about the addictive nature of nicotine, the development of nicotine dependence, the harmful consequences associated with its use, and its increasing prevalence among adolescents. This section includes a research-based model that describes how nicotine dependence develops. The model is provided to help in planning activities appropriate to the level of dependence students have reached and thus provide a link to staff knowledge about the development of other forms of substance use. Second, key components of effective tobacco prevention and intervention programs are reviewed. A rationale for strengthening existing school-based tobacco programs and policies is also discussed. Third, several recommendations are offered to suggest how local projects could play a larger role in addressing adolescent tobacco use.

Need for Adolescent Tobacco Prevention, Intervention, and Cessation Services

Tobacco use is a progressive, chronic behavior that has been shown to be the foremost cause of preventable deaths in this country (United States Department of Health, Education, and Welfare, 1979). Tobacco use most often begins during adolescence—the average age of the onset of tobacco addiction is near 14 years (United States Department of Health and Human Services [USDHHS], 1994). If young people are prevented from becoming addicted before the age of 18, the probability that they will ever become addicted drops dramatically. Data indicate that 75 percent of all first-time smokers in 1995 and 66 percent of all new daily users in 1996 were under 18 years of age (Centers for Disease Control and Prevention [CDC], 1998c). As with other drugs of abuse, the best course of action is to never start using tobacco so use will not become a problem. Prevention efforts alone, however, do not eliminate tobacco use among young people.

Once adolescents begin to use tobacco, their propulsion to continue using it is influenced by the drug's pharmacological properties and by social and psychological factors. Without help many adolescents may develop other harmful behaviors and most are likely to continue to use tobacco throughout adulthood and develop severe health problems. To break this cycle, intervention and cessation efforts are needed. Recent survey data indicate that adolescent tobacco use has been increasing since the early 1990s (Substance Abuse and Mental Health Services Administration [SAMHSA], 1997), suggesting a growing need for adolescent tobacco prevention, intervention, and cessation services.

The Development of Nicotine Dependence

All tobacco products contain nicotine, the primary pharmacological agent responsible for tobacco's reinforcing effects (USDHHS, 1988). Like many other drugs of addiction, nicotine acts to increase the likelihood of continued use via principles of positive and negative reinforcement. In addition to activating classic drug-reward stimulating pathways (i.e., mesolimbic dopaminergic neurons), the positively reinforcing effects of nicotine include alertness, increased memory and attention, enhanced mood, and appetite suppression. Once the nicotine is eliminated from the body, smokers often begin to experience a number of negative symptoms, including restlessness, irritability, decreased attention, and anxiety. These negative consequences in turn reinforce the tobacco user to continue using the drug to avoid the withdrawal syndrome. The pharmacological and behavioral process that establishes nicotine dependence is prototypical of many drugs of

abuse, including heroin and cocaine. Furthermore, the probability of becoming addicted to nicotine after any exposure is higher than for heroin, cocaine, or alcohol.

Stages of Nicotine Dependence

The development of nicotine dependence can be grossly divided into five stages: (1) naïve nonusing, (2) experimental use, (3) habit-forming use, (4) habit-maintaining use, and (5) addiction. Each stage is characterized by a distinct set of risk factors that influence the adolescent to remain a naïve nonuser, progress to a higher level of use on the continuum, or return to nonusing status. Factors that influence an adolescent's decision to use tobacco include environmental, behavioral, sociodemographic, pharmacological, genetic, and personality factors (USDHHS, 1994). Figure 1 presents a summary depicting the interplay of the domains that promote adolescent tobacco use and the specific risk factors associated with each domain.

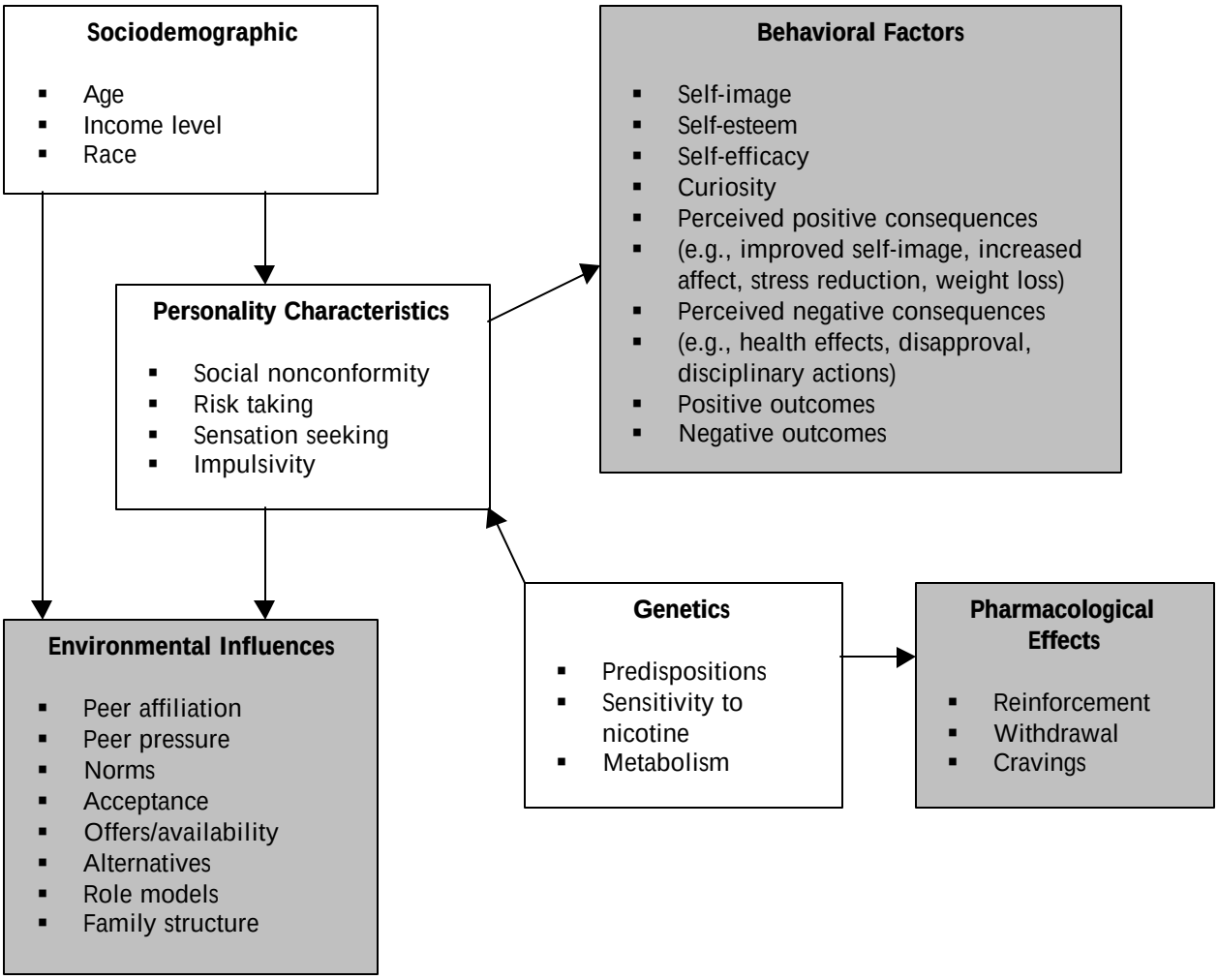

Figure 1. Risk factors that promote adolescent tobacco use. White boxes indicate long-term or immutable characteristics while shaded boxes indicate malleable characteristics that are the target of interventions.

Youth aged 10 to 18 years are particularly vulnerable to the psychosocial variables that increase their chances of using tobacco (DHHS, 1994). Some of these influences are stable (e.g., genetic predisposition), whereas other influences can be manipulated or naturally change over time (e.g., self-efficacy). In addition, the importance and relative influence of these factors change as the adolescent moves through the stages of nicotine dependence. Figure 2 presents a diagram depicting the progression of tobacco dependence and the relative influence of the various factors. This model is based on years of basic research and prevention assessment studies designed to identify risk and protective factors associated with tobacco use (Flay, 1985) and has been instrumental in the development of tobacco prevention and cessation programs (Sussman, Dent, Burton, Stacy, and Flay, 1995).

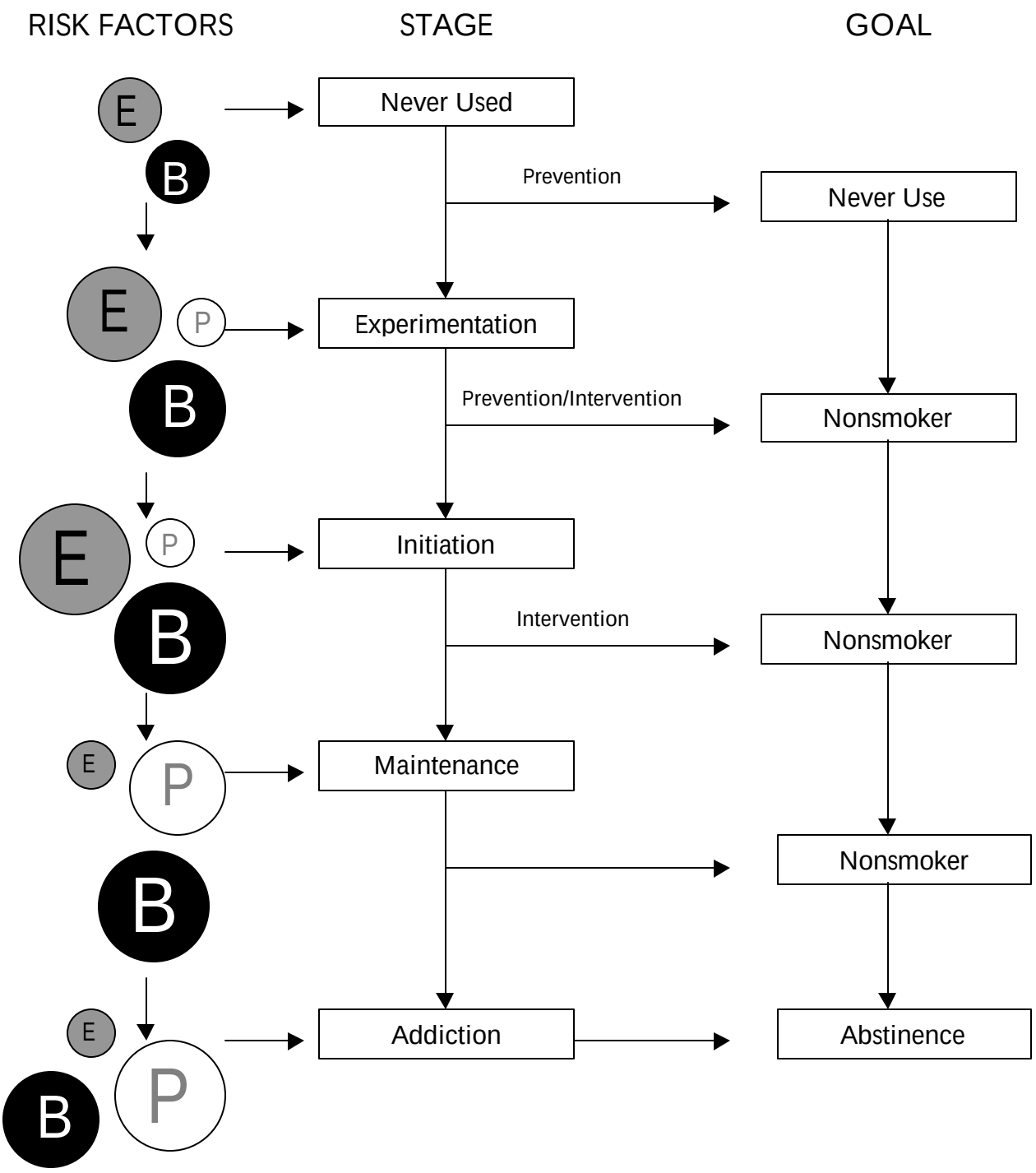

Figure 2. Relative importance of risk factors and appropriate prevention and intervention goals by stage of nicotine dependence (E = Environmental factors; B = Behavioral factors; P = Pharmological factors). Size of circles represent the relative importance of each group of risk factors with respect to each other and across stages. Adapted from Sussman et al. (1995) and U.S. Department of Health and Human Services (1994).

Stage 1: Naïve Tobacco Nonuser

The naïve nonuser is faced with a multitude of factors that influence the decision to experiment with tobacco. Flay (1993) termed this stage of the dependence cycle as the *preparatory phase* because it is the time at which an adolescent's beliefs and attitudes about tobacco use are formed. The adolescent may gather information from the home, peers, and advertisements. In addition, self-image, underlying personality traits, and personal challenges also influence how information is processed and whether consequences are perceived as positive or negative. The behavioral intention to use tobacco has been found to be directly related to the ratio of positive-to-negative consequences expected from using tobacco (Fishbein, 1980). A review of the research literature suggests that adolescents who exhibit rebellious, risk-taking, and deviant behaviors, who have siblings who smoke, or who know peers who smoke have greater intentions to begin using tobacco (Conrad, Flay, and Hill, 1992).

Stage 2: Experimentation

The second stage of the addiction cycle is the experimental phase, which includes the first few times the adolescent uses tobacco. The tobacco event occurs irregularly and is generally precipitated by an offer to use tobacco or being with a best friend or a group of friends using tobacco. The need for peer affiliation and persistent peer pressure, accompanied by poor refusal skills, curiosity, and a lack of adult supervision at home or at school are likely to increase the probability of tobacco use (Conrad et al., 1992). If an adolescent does decide to experiment with tobacco, other factors such as the pharmacological effects of nicotine, the presence or absence of disciplinary actions, and reactions from peers play a role in determining whether experimentation continues.

Stage 3: Habit Initiation

Following the period of sporadic experimentation, the adolescent begins to use tobacco more frequently in response to specific environmental cues such as parties, favorite hangouts, or a particular group of friends. This phase of nicotine dependence is still driven by social influences; however, the behavior is starting to become more internalized as the adolescent begins to develop a new self-image, which may be accompanied by greater self-esteem. The original perceptions about the social utility and function of tobacco (e.g., maturity, affiliation) can be evaluated and compared with actual tobacco experiences, and new individual expectations may be formed (e.g., stress reduction, weight loss). The

adolescent is likely to progress to the next stage of dependence if the immediate positive consequences continue to outweigh the immediate negative consequences.

Stage 4: Habit Maintenance

The fourth stage of nicotine dependence is characterized by the regular and frequent use of tobacco. The tobacco habits developed in Stage 3 are strengthened and generalized. The use of tobacco is no longer limited to a few social situations; instead, tobacco use occurs across a variety of environments and social interactions, including when the adolescent is alone. Social influences are no longer as important as the behavior is solidified and cues for using tobacco are initiated from internal resources. Sensitivity to the negative effects of nicotine (e.g., nausea, dizziness) attenuates and tolerance to the positive effects increases, causing pharmacological and psychological cravings that drive continued use. The average time it takes an adolescent to reach this stage from the first tobacco experience is about two to three years, but this figure varies considerably (Leventhal, Fleming, and Glynn, 1988). This time interval can be extended if the time between the first and second experimental episodes is lengthened.

Stage 5: Nicotine Dependence

The final stage of nicotine dependence or nicotine addiction is characterized by a physiological need for nicotine. The user's main concern is keeping enough nicotine in the body to avoid the unpleasant symptoms of withdrawal. The titration of nicotine becomes highly controlled and compulsive. At this stage, the behavior is likely to persist regardless of adverse physical, psychological, or social consequences. Furthermore, the ability to quit is low despite internal motivation, and repeated attempts and brief episodes of abstinence commonly end in relapse. The identity of being a tobacco user is internalized and external influences have little effect on deterring or supporting the habit.

Negative Health Consequences of Tobacco Use

In 1996 the Centers for Disease Control and Prevention estimated that that five million children alive in 1995 would die prematurely of a tobacco-related illness if current patterns of tobacco behavior persisted (CDC, 1996). In Washington alone, more than 8,000 premature deaths a year are attributable to tobacco-related diseases (Washington Department of Health and Office of Epidemiology, 1997). New evidence suggests that smoking at an early age may trigger irreversible changes in DNA that put young smokers at

higher risk for developing cancer even if they later quit (Wiencke et al., 1999). Smoking is responsible for one-third of all cancer cases, one-third of all cases of coronary heart disease, and the majority of cases of pulmonary dysfunction (USDHHS, 1988). In general, smokers have a 100 percent greater chance of dying prematurely than do nonsmokers.

The human body is most directly susceptible to tobacco smoke's negative health consequences along the route of entry to the respiratory tract, which includes the mouth, nose, throat, bronchial airways, and lungs. Early warning signs that indicate damage has occurred in these areas include coughing, phlegm production, wheezing, shortness of breath when not exercising, decreased lung capacity, and increased episodes of respiratory illnesses. Smoking also causes early adverse cardiovascular changes that result in a blunted heart rate response to exercise (Sidney et al., 1993), increased stimulation of the heart (Gidding et al., 1992), and arterial plaque deposits (McNamara, Molot, Stremple, and Cutting, 1971). Although not as life threatening, smokeless tobacco is also responsible for adverse health effects, including a suppressed immunological response, gum recession, the destruction of soft and hard oral tissues, high blood pressure, and oral cancer (USDHHS, 1986).

Tobacco Use as a Risk Factor

In addition to the direct negative health consequences of tobacco, indirect negative behaviors are associated with tobacco use in adolescents. These behaviors include school absences, violence, risky sexual behaviors, depression, and the use of other drugs. Data from the 1997 National Youth Risk Behavior Survey indicated that a higher percentage of high school students who reported never or rarely wearing a seatbelt, participating in six or more fights in the past year, carrying a weapon one or more days in the past month, attempting suicide in the past year, being sexually active, having had four or more sexual partners in their lifetime, not wearing a condom, and not participating in a sponsored sports activity also reported having used tobacco in the past month (CDC Division of Adolescent and School Health, 1999). An independent study also found a relationship between tobacco and increased absences from school (Charlton and Blair, 1989).

Although no evidence confirms that tobacco directly causes later drug use, several studies have found cigarette tobacco to be an important risk factor and predictor of subsequent drug use (Kandel, 1975). A recent national household survey showed that children who currently smoke are 12 times more likely to use marijuana and 19 times more likely to use cocaine (Merill, Fox, Lewis, and Pulver, 1994). This same survey also found that adults

who reported having used tobacco as children were three times more likely to use marijuana and four times more likely to use cocaine. Further evidence that links early tobacco use with subsequent alcohol and illicit drug use was recently found among participants in Washington's Prevention and Intervention Services Program. The results of the statewide evaluation revealed that smokers who reported no alcohol or marijuana use at the beginning of the school year were two times more likely to use alcohol and four times more likely to use marijuana by the end of the school year compared to nonsmokers (Deck et al., 1997). In fact, prior tobacco use was found to be a better predictor of later alcohol and marijuana use than gender, grade, or ethnicity. Although no causal inferences can be made from these data, the presence of this cluster of health-compromising behaviors associated with young tobacco users suggests that some underlying relationship may be involved.

Prevalence of Tobacco Use Among Young People

Recent trend data indicate that current tobacco use patterns among youth aged 12 to 17 years has been increasing for the past eight years. Recent estimates indicate that more than 6,000 young people try cigarettes and 3,000 adolescents become daily smokers each day (CDC, 1998c). Because of tobacco's addictive nature, 33 to 55 percent of persons who try tobacco cigarettes become daily users and continue to smoke throughout adulthood unless intervention and cessation services are made available. Smokeless tobacco products are also used by young people. Although smokeless tobacco use is not as prevalent as cigarette smoking, the prevalence of smokeless tobacco among youth is considerably higher among adults. Nationwide, 9.3 percent of the adolescents who participated in the 1997 Youth Risk Behavior Surveillance Survey were current users of smokeless tobacco (CDC, 1998c).

In a manner similar to the national trend, tobacco use by young people has been increasing in Washington over the last decade for students in Grades 6, 8, 10, and 12. Table 1 and Figure 3 present the stages of nicotine dependence and depict the prevalence of adolescent tobacco use in Washington by grade, as indicated by the results of the 1998 Washington State Survey of Adolescent Health Behaviors (WSSAHB; Einspruch, Gabriel, Deck, and Nickel, 1998). These data indicated a general increase in tobacco use by age. The majority of students in Grade 8 or lower had never tried tobacco. By Grade 6, 25 percent of the students surveyed had experimented with cigarettes, but less than 5 percent had initiated the habit. The greatest changes in tobacco status occurred between Grades 6 and 8: during that interval the percentage of youth experimenting with tobacco increased by 50 percent, the percentage of youth initiating the habit increased by 150 percent, and the percentage of

youth maintaining the habit increased by 250 percent. The increase in the number of students trying cigarettes was not as substantial between Grades 8 and 10, although the percentage of regular smokers more than doubled. By Grade 12 there were few new cases of tobacco experimentation and a relatively small increase in the percent of adolescents initiating or maintaining the tobacco habit. However, this interpretation does not take into account the much higher prevalence of tobacco use among youth who had dropped out of school by Grade 12 and were not surveyed. Students in Grades 10 and 12 made up the majority of adolescents initiating or maintaining the tobacco habit.

Table 1. Tobacco Patterns of Washington Adolescents by Grade

Stage of Nicotine Dependence	Grade 6	Grade 8	Grade 10	Grade 12
Naïve nonuse (Percentage who had never tried tobacco in lifetime)	73.1%	50.4%	35.1%	30.1%
Experimentation (Percentage who had tried tobacco in lifetime minus percentage who had used tobacco in the past 30 days)	20.9%	32.5%	39.5%	37.0%
Habit initiation (Percentage who had used tobacco in the past 30 days minus the percentage who reported smoking 5 or more cigarettes a day or using smokeless tobacco 3 or more times a day)	4.5%	11.6%	12.8%	15.2%
Habit maintenance/addiction (Percentage who reported smoking 5 or more cigarettes a day or using smokeless tobacco 3 or more times a day)	1.5%	5.5%	12.6%	17.7%

Note. These estimates were derived from student self-report data collected during the 1998 administration of the Washington State Survey of Adolescent Health Behaviors (Einspruch et al., 1998). The prevalence of the first and last stages is represented by single survey items. The intermediate stages are estimated by subtracting results from an item that reflects a more advanced stage. These adjusted percentages are shown in Figure 3.

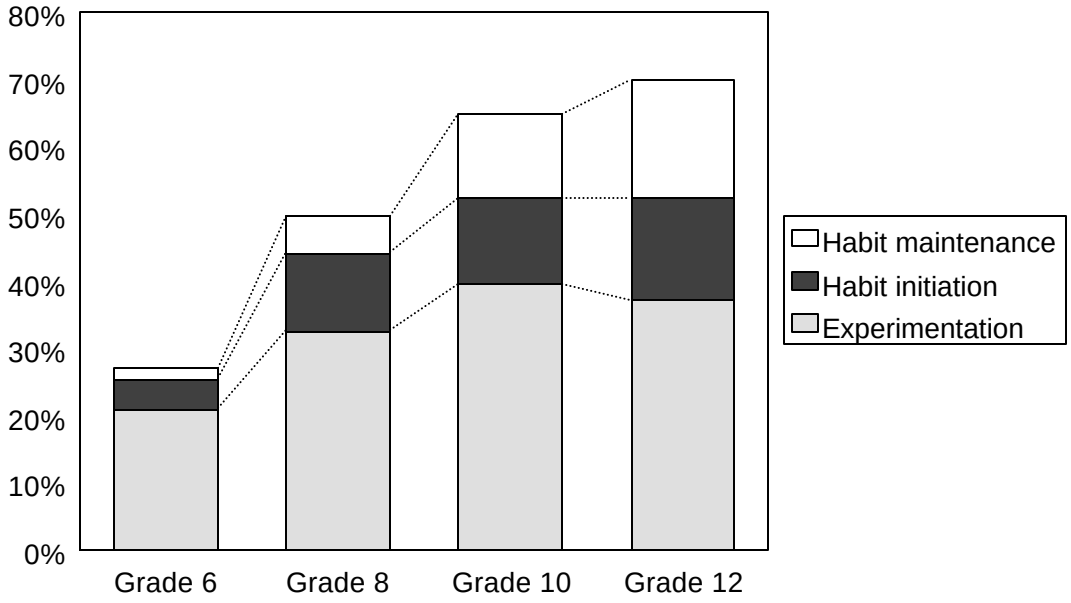

Figure 3. Prevalence of tobacco use by stage and grade level among Washington youth. Tobacco use increases dramatically with grade level but the majority of users have not progressed beyond the experimentation stage until their senior year. Estimated from the 1998 Washington State Survey of Adolescent Health Behavior (Einspruch et al., 1998).

These data provide strong evidence that a large percentage of Washington adolescents could benefit from tobacco prevention education, intervention services, and cessation programs. The relative need for these services varies across age groups as the number of adolescents progressing through the tobacco addiction cycle increases. One forum through which to reach the majority of these adolescents in a cost-effective and time-efficient manner is the school system.

Characteristics of Effective School-Based Tobacco Programs

Schools are ideal settings in which to provide educational and behavior modifying programs to children and adolescents. Many young people spend a significant amount of their impressionable years in school, which provides educators with the opportunity to reach a large percentage of youth and to follow the course and development of their behaviors as they grow older and pass through the various grade levels. Acting on these benefits, school-based health promotion has been in effect for nearly 100 years (Lear, 1996) and has been successful in changing young peoples' attitudes and behaviors toward alcohol and drug use, diet, and sexual practices. Programs directed toward the prevention

and intervention of tobacco use is a natural progression of these other health-promoting programs. Given the high association between tobacco use and other risky health behaviors, the benefits of tobacco programs are far reaching and include the reduction of school absences and dropout rates. School-based programs to prevent tobacco use can also contribute to the prevention of illicit drug use, especially if tobacco is treated as other illicit drugs and not as an exception. Research has indicated that many of the same approaches used in tobacco prevention and intervention programs are also effective in preventing and reducing the abuse of other drugs (Hansen, 1992).

Washington's goal is to reduce the prevalence of tobacco among Grade 12 students to 10 percent in the year 2000 (Washington State Department of Health, 1996). Following the November 1998 resolution of the state of Washington's tobacco litigation against the tobacco industry, Washington is in the timely position to address the problem of tobacco use among youth and develop more intense prevention and intervention services.

Under the terms of the settlement agreement the tobacco industry will pay Washington an initial sum of nearly $50 million followed by additional payments over the next 25 years totaling over $4 billion (Attorney General of Washington, 1999). Attorney General Christine Gregoire and Governor Gary Locke persuaded the House and Senate representatives to include $100 million in the fiscal year 2000 budget for tobacco prevention, with an additional $829 million in 1999 for planning and developing the new statewide tobacco prevention program (National Center for Tobacco-Free Kids, 1999). Drawing on expertise from the federal CDC, the Food and Drug Administration, and the Surgeon General, the Washington State Attorney General's Tobacco Task Force (1998) devised eight recommendations for the construction of a multifaceted comprehensive approach to tobacco prevention. Among the task force's recommendations is that more money be allocated to improving school-based tobacco programs to impact the largest percentage of Washington's young people.

The CDC (1994) indicated that the purposes of school health programs aimed at preventing tobacco use and addiction are threefold: First, school-based tobacco programs should encourage and promote adolescents who have not experimented with tobacco to continue to abstain. Second, for those adolescents who have experimented with tobacco or who are current users, prevention and intervention programs should encourage and promote them to immediately stop all use. Third, for those adolescents who are regular tobacco users and are unable to stop on their own, prevention and intervention programs should assist the adolescents in successfully quitting tobacco use and provide the necessary support. To

accomplish these goals, a multifaceted comprehensive tobacco program should include focused and comprehensive tobacco prevention and intervention curricula; efforts to identify, locate, and refer experimental or new smokers to special groups; better enforcement of stricter school-based tobacco policies; and tobacco cessation efforts.

Tobacco Prevention Curriculum

To be effective, a tobacco prevention curriculum should be multidimensional and include instruction on the short- and long-term consequences of tobacco use; the social norms and attitudes concerning tobacco; the behavioral skills necessary to refuse offers, solve problems, and make decisions; personal growth and self-enhancement opportunities; and alternatives to tobacco use. A review of the research literature suggests that these psychosocial factors are common to most successful tobacco prevention programs (Flay, 1985). A summary of specific, age-appropriate instructional concepts that address these factors can be found in the article *Guidelines for School Health Programs to Prevent Tobacco Use and Addiction* (CDC, 1994).

Equally important to the age appropriateness of the curriculum is stage appropriateness. As illustrated in Figure 2, multiple influences and risk factors are involved in the tobacco dependence cycle, and the relative importance of these dimensions vary as a function of the stage of dependency. To develop and implement successful tobacco prevention and intervention programs, it is important to understand the interplay among the environmental, behavioral, sociodemographic, pharmacological, and personality factors that influence an adolescent's decision to smoke at each stage. Sociodemographic variables (such as age, gender, and ethnicity), personality factors, and genetic predisposition are the primary building blocks that form adolescents' beliefs and attitudes and influence their behaviors. These characteristics are relatively stable and cannot be manipulated through education, but they do influence secondary risk factors associated with tobacco use, including environmental influences, behavioral factors, and the pharmacological effects of nicotine. Classic prevention and intervention programs are geared to manipulating these secondary influences. The relative influence of these secondary influences differs at each of the five developmental stages of tobacco dependence and must be considered when developing tobacco prevention and intervention programs appropriate for the intended at-risk population. One way to customize the curriculum for a particular school, grade, or class would be to anonymously assess the tobacco status of students currently enrolled.

Identification and Referral of At-Risk Youth

Regardless of grade level or the diversity of the curriculum, some students need extra knowledge, support, and guidance. By the time young people reach high school, a large number of youth are in the initiation stage of the tobacco dependence cycle. Although not habitual users, these adolescents are in need of a program with a specific intervention agenda. Whereas the general curriculum is developed to focus on prevention but includes an intervention component, the intent of additional classes aimed toward high-risk populations is to expand on what has been learned in the classroom by focusing on issues and factors specific to adolescents who are currently tobacco users. Unlike the tobacco intervention component of the general in-class curriculum, the tobacco intervention program specifically designed for at-risk youth should be tailored to each adolescent. Specific areas to be explored are the reasons for tobacco use, ways in which difficult situations can be avoided, positive alternatives, pharmacological cravings, and self-identity. Although voluntary participation may not be popular, some prevention and intervention programs offer these types of specialized programs to adolescents caught using or possessing tobacco. The focus of these programs, however, is often strictly informational and thus may be viewed by students as irrelevant and useless. In addition, these programs are not offered until the adolescent is well along in the tobacco dependence continuum. A more multifaceted, interactive program approach coupled with a quicker referral system would make early identification a more successful approach to a tobacco intervention program. The implementation and enforcement of stricter no-tobacco policies would help in this endeavor.

Implementation and Enforcement of School No-Tobacco Policies

Data from the 1997 National Youth Risk Behavior Survey revealed that 14.6 percent of the high school student respondents in Grades 9 through 12 smoked cigarettes on school property and 5.1 percent used smokeless tobacco on school property (CDC, 1998c). These data suggest there is a need to improve current school no-tobacco policies. Implementing and enforcing school no-tobacco policies can serve many purposes (Goodstadt, 1989). Foremost, these policies provide a public format to relay to adolescents a clear and consistent message that tobacco use is not tolerated, is not acceptable, and is not the social norm. Second, when tobacco policies are effectively reinforced they serve as a deterrent to generally reduce the likelihood of a first tobacco use instance or a repeat offense. Finally, actively pursuing ways of enforcing the no-tobacco policies can help in the detection of at-risk students who may be in need of tobacco intervention or a cessation program. One

study conducted by Pentz et al. (1989) suggested that no-tobacco polices are most effective at reducing tobacco use when they are supportive and emphasize intervention and cessation rather than punitive measures alone.

School policies will be most effective when they are perceived as legitimately reflecting the norms of the community as a whole (Goodstadt, 1989). One way to accomplish this goal is by emphasizing the current social norms of the community in the established educational curriculum. Another component of consistency is to ensure that school no-tobacco policies apply to all individuals in all settings. In 1991 the Community Intervention Trial for Tobacco Cessation (COMMIT) polled a national sample of elementary, middle, and high schools on their current tobacco policies and found extreme variation in policy content (Bowen, Kinne, and Orlandi, 1995). In general, tobacco policies in middle and high schools were less restrictive than in elementary schools, after-school tobacco policies were less restrictive than policies covering school hours, and staff policies were less restrictive than student policies. These kinds of inconsistencies, whether they be expressed in the formally written rules or the result of informal head-turning, deliver mixed messages and create double standards for young people. It is important to remember that in addition to controlling tobacco behavior while in school, the larger goal of a no-tobacco school policy is to set norms and standards about the acceptability of tobacco in the community.

Use of Tobacco Cessation Programs

Attempts to stop tobacco use among young people are common but usually unsuccessful (Lamkin, Davis, and Kamen, 1998). School-based tobacco cessation programs may increase the odds of a successful attempt to quit by providing young people with an opportunity to stop their addiction to nicotine in a supportive setting using a formal, well-researched curriculum. The research specifically tailored toward adolescent tobacco cessation programs has generate a list of common guidelines and specific curricula that are likely to be effective in helping adolescents quit tobacco (Brink, Simons-Morton, Harvey, Parcel, and Tiernan, 1988; Perry, Killen, Telch, Slinkard, and Danaher, 1980; St. Pierre, Shute, and Jaycox, 1983; Sussman et al., 1995; Youth Tobacco Cessation Task Force, 1998). These guidelines include, but are not limited to, using a group approach with no less than six and no more than ten adolescents per session, maintaining confidentiality, gathering participants through recruitment and volunteer efforts, limiting groups to tobacco users only, a duration of five to eight sessions and the use of booster sessions, and conducting the sessions during class times staggered throughout the school day. The content of these sessions should combine addiction-based content and psychosocial dependency

information with a focus on the immediate consequences of tobacco use, incorporate the use of contracts that include positive incentives, utilize individualized cessation plans and self-evaluations tailored to the individual needs of each participant, and specify actual and obtainable goals.

Conduct Staff Inservice Training

Any school-based program requires support from the superintendent, the principal, and teachers. In many cases, teachers and other key school personnel feel they do not have the time, energy, or resources to focus on adolescent tobacco use. Common concerns among school staff include losing class time devoted to important topics, the more pressing need to address the use of more harmful drugs, the notion that suspension from school or excused absences from class to attend tobacco cessation class is more harmful to the student than smoking, and a lack of knowledge about the warning signs of a tobacco problem. One way to alleviate these concerns, gain schoolwide support, and increase commitment to addressing tobacco problems is to provide inservice training to appropriate staff members. Teachers and other personnel who have frequent and personal contact with students must be made aware of the importance of decreasing youth tobacco use.

Inservice training can serve a multitude of purposes (CDC, 1994). First, inservice training can help school personnel become more familiar with the problem of tobacco use and the importance of their role as leaders, models, teachers, and rule enforcers. Second, inservice training can help teachers and other staff members become more familiar with the underlying theory and conceptual framework of the proposed program and policies. Third, inservice training can be used to educate staff members about the importance of carefully and completely implementing the selected program and enforcing school no-tobacco policies. Studies have indicated that adequate curriculum implementation and overall program success are enhanced when teachers are trained to deliver the program as intended (Connell, Turner, and Mason, 1985) and that in-person training and curriculum review contribute to greater program compliance (Perry, Murray, and Griffin, 1990). Inservice training also provides school personnel with an outlet to discuss their concerns and make suggestions about what they feel is most applicable to the student population.

Role of Local Projects

PISP is well positioned to help local school districts mount a more effective campaign against adolescent tobacco use. Through this program intervention specialists are currently

placed in schools throughout the state, especially at the middle school level, where their services can have the greatest impact. These individuals understand how addiction evolves and the health risks associated with substance use. They are trained in various risk and protective factor models and have experience applying this knowledge with adolescents in the school setting. Intervention specialists are adept at screening to determine the severity of substance use and making school or community referrals appropriate to the students' age and stage of substance use. The intervention specialists often serve as a liaison between the school, the family, and the students addressing substance use issues. In many areas of the state, intervention specialists are also the recognized experts on the prevention of substance use and abuse. Many intervention specialists are involved in developing district policies, supporting the implementation of the prevention curriculum, and organizing peer leadership or pledge groups that encourage students to remain clean and sober.

Yet many grant coordinators and intervention specialists have expressed ambivalence about the specific roles they should play in this campaign and the priority they should give to tobacco prevention and intervention. Moreover, in some areas the role of PISP is constrained by funding and may be limited to services that address a narrowly defined range of student referrals. This section offers both general strategies and specific recommendations for strengthening the contribution of PISP to local tobacco prevention and intervention efforts.

Make a Commitment to Address Tobacco as a Problem

Tobacco use has historically been considered less dangerous than other alternative behaviors, such as alcohol and other drug use and violence, because the consequences of tobacco use are not immediate (Hurt, Eberman, Slade, and Karan, 1993). The links between tobacco use and the subsequent use of other drugs and acts of delinquent behaviors, however, need to be addressed. Research has indicated that multifaceted prevention programs and early intervention activities during the early youth years are critical steps in reducing the prevalence and overall use of tobacco products in adolescence. By adapting many of the successful skills and programs currently used by intervention specialists to stop the use of alcohol and other drugs, new tobacco prevention and intervention programs could be easily adopted into the current program. Recent PISP data indicated a slight decrease in the number of students who had used tobacco in the past 30 days after the students participated in the current program (Deck and Einspruch, 1997). This decrease, however, was quite small relative to the reduction in the percentage of students who had used marijuana or engaged in binge drinking. In addition, at the end

of the program more than 50 percent of the students still reported having used tobacco in the past 30 days. These data suggest that although the current program is a promising avenue for the prevention and intervention of tobacco use, progress remains to be made. The question the program coordinators need to ask themselves is not whether local programs should play a major role in addressing adolescent tobacco use, but how can they best leverage the strengths of their programs to complement other local efforts that already exist.

Help Establish and Enforce Effective School No-Tobacco Policies

Establishing and enforcing school no-tobacco policies in such a way that effectively reduces the prevalence and number of occurrences of adolescent tobacco use is a challenging task but one that should be thoroughly addressed. To serve as a deterrent, social statement, and first line of offense for identifying at-risk youth, the no-tobacco policy must contain elements of certainty, consistency, fairness, timeliness, and social consequence and punitive and support mechanisms (Goodstadt, 1989; Pentz, Sussman, and Newman, 1997).

Local projects could greatly serve the Washington school system by providing all school districts with a model no-tobacco policy and enforcement procedures based on current state law, (1) RCW 28A.210.310, which requires that all Washington State schools have a formal, written tobacco prohibition policy that is recognized by students and staff, has sanctions for violators, is publicly posted, and is enforced; and (2) RCW 70.155.080, which states that anyone under age 18 who purchases, possesses, obtains, or attempts to obtain cigarettes or tobacco products is considered to have committed a Class 3 civil infraction and is subject to a fine of up to $50 or participation in up to four hours of community service. The court also has the authority to require that any person guilty of this offense participate in a tobacco cessation program. Using this format will help provide a consistent and community-based message not only to young people but also to school disciplinarians and community law enforcers. Better communication and collaboration between schools and communities is needed and may be strengthened by the work of intervention specialists. This statewide standard of conduct should be carefully researched and evaluated to ensure that the standard is fair and consistent for all violators across all school levels, there is certainty that violations result in appropriate consequential actions (according to the number and type of offenses), the response following violations is quick and timely, appropriate support mechanisms are available, and negative social consequences are incorporated into the punitive process and used as an alternative to

suspension. Great effort should be concentrated in creating a no-tobacco policy that simultaneously conveys the message that youth tobacco use is not tolerated and is punishable by law and that a multitude of services are available to help youth stop using tobacco at any stage.

Recent site visits to a random sampling of school districts in Washington and interviews with key school and program personnel suggested that no consistent set of guidelines that adequately enforce Washington's state law on adolescent tobacco use currently exists. Inconsistencies in current school tobacco policies are evident in the varied definitions of a violation, the disciplinary actions taken for each violation, and the actual enforcement of these policies. Some school districts broadly apply these definitions of tobacco policy violations at all school levels, whereas other districts limit the scope of the policy and customize the definition for different school levels. For example, in one suburban school district students in all school levels may be cited for a tobacco violation if they are suspected of using or possessing tobacco products on or near school property or at school-sponsored events. This district's no-tobacco policy specifically states that evidence of suspected use or possession may include, but is not limited to, visual or olfactory evidence of the use of tobacco products on the student's person or breath. In contrast, a nearby school district's more limited tobacco policy restricts the definition of a tobacco policy violation to the possession or use of tobacco at any elementary or middle school or the use of tobacco at any high school.

The differences in the consequences for violating the tobacco policies between these districts are also noteworthy. In the first district the consequence for a first-time tobacco policy violation is parent notification, a conference with the administrator, and required attendance at the next tobacco information class. If the student fails to complete the tobacco information class or commits a second offense, the student is suspended for up to three days and directed to enroll in an eight-week evening tobacco cessation class. The suspension may end prior to the three days once the student is enrolled. If the student fails to complete the tobacco cessation program or commits a third offense, the student receives an undetermined long-term suspension or may opt for a change of placement and is advised to undergo an alcohol and drug assessment. In contrast, a student who commits a first-time tobacco policy violation in the second district is suspended for one to three days with the option of attending a tobacco-free education program or completing up to six hours of community service. For a second offense the student is suspended for two to five days with the option of attending a tobacco-free education program or completing 20 hours

of community service. The consequence for a third offense is at least five days of suspension with a maximum of up to the balance of the semester.

In general, both of these school no-tobacco policies emphasize punitive action and provide some type of alternative support mechanism aimed at tobacco education and cessation. However, inconsistencies between the two polices may undermine the communitywide standards of tobacco intolerance and send conflicting signals. The certainty and timeliness of the enforcement of these rules also appear to vary between the schools. Site visits conducted at various school districts have suggested that better enforcement procedures are necessary. Although many school sites reported issuing tickets to students in possession of tobacco and offering tobacco cessation groups and a reduced fine as an alternative to suspension, school and program personnel cited some obstacles to implementing this practice. The most significant barrier to proper enforcement is a lack of administrative support and cooperation on the part of school personnel due to unwillingness to spend time on tobacco issues at the expense of problems that are considered more important, reluctance to follow through on threats of suspension or alternatives to suspension such as participation in group sessions, and feelings of inadequacy in recognizing problems with tobacco. Other barriers to policy enforcement include a lack of support from community service law enforcers, segregation of tobacco policies from other school alcohol and drug regulations, and regulations concerning the provision of drug treatment in school settings.

Conduct Needs Assessments of Stage-Appropriate Services

To accurately match the appropriate tobacco prevention and intervention service with the appropriate student population, it is imperative that the needs of the population be assessed. The first step in this assessment is determining the prevalence of students at each stage of the tobacco addiction cycle by grade. The second step involves reviewing the appropriateness of existing interventions and programs.

If sufficient participation in the most recent administration of the Washington State Survey of Adolescent Health Behaviors or other surveys has occurred, then the prevalence of students at each stage may be estimated. Otherwise, a short anonymous questionnaire that assesses students' current tobacco status may be administered by grade level. Secondary data collection methods that assemble by school existing data on key demographic variables, student absenteeism, dropouts, disciplinary referrals, drug referrals, teachers' requests for transfer, and tobacco violations provide additional information that can help customize the tobacco prevention and intervention curriculum and identify at-risk students.

The curriculum for any given class should be customized to address the particular dimensions that are most important in influencing the tobacco behavior at the assessed stage.

An examination of the state's prevalence data on tobacco use (see Table 1) can provide some guidance in projecting the type of tobacco prevention and intervention curriculum that will be necessary at different grade levels and how the ratios of students at different phases changes over time. In general, education at the Grade 6 level and earlier should focus on tobacco prevention efforts that emphasize environmental and behavioral risk factors equally. Although not enough youth use tobacco to justify school-based cessation programs at these early grade levels, it is important that these youth are recognized as being at risk. Intervention specialists should involve parents and refer students to the proper community-based facility as necessary. As the students progress in grade levels, an increasingly larger percentage of students experiment with tobacco and begin to initiate the tobacco habit. After Grade 6, the tobacco prevention and intervention curriculum must enhance its emphasis on environmental risk factors in conjunction with behavioral risk factors and introduce pharmacological risk factors. Once students enter Grade 10, their tobacco status remains relatively stable. A tobacco prevention and intervention curriculum is still necessary but greater effort should be put into recruiting habitual smokers into school-based tobacco cessation programs.

The second step in the process of matching prevention and intervention services with the student population is reviewing the appropriateness of the available interventions and programs. The following questions, modified from the CDC's (1994) *Guidelines for School Health Programs to Prevent Tobacco Use and Addiction*, can serve as a guide:

1. Does each school have a comprehensive policy on tobacco possession and use that is in accordance with state law? Are the individual school polices consistent across school levels and between districts? Are the policies enforced as written? Do the consequences match the violations? Do the consequences immediately follow the violations? Are there social consequences in addition to punitive actions? Are positive alternatives to suspension available? Are at-risk students being identified? Are students given a clear and concise message about the acceptance and social norms of tobacco?

2. Is the tobacco education curriculum stage and age appropriate in kindergarten through Grade 12? Does the tobacco prevention and intervention program foster

the necessary knowledge, attitudes, and skills to prevent tobacco use? Are school-level assessments being conducted to match the curriculum to the students' needs? Are at-risk students provided with additional educational services?

3. Does the tobacco prevention and intervention program encourage and support cessation efforts by students and all school staff through referrals to community facilities and school-based tobacco cessation programs? Is parent involvement sought after?

4. Is inservice training provided to school administrators, educators, and staff? Do school personnel understand the importance of their commitment to stop tobacco use? Are educators familiar with the theory behind the tobacco education program and how to implement the curriculum effectively?

5. Are the lines of communication open between the intervention specialist and families, educators, school administrators, school staff, and appropriate community representatives? Are suggestions heard and adjustments made to the program in response to feedback from parents, school personnel, and community representatives?

6. Are students who are referred to tobacco classes engaged? Do students who access special intervention and cessation classes show improved outcomes?

Evaluate Program Effectiveness

An evaluation of effectiveness is a component of any good program. Once a strengthened program is in place, some thought should be given to evaluating its effectiveness. Some simple steps can be taken early to determine whether the individual components have been implemented as intended and are producing the desired outcomes. For example, a simple record-keeping system could be used to track whether the intended referrals and interventions occur as planned and to monitor completion rates. Interviews or focus groups with students and staff might reveal implementation issues that deserve attention. Short, anonymous self-report surveys could be used at the end of special tobacco education or cessation classes to determine student satisfaction and intent to abstain. Secondary analysis of service and outcome data reported to PISP would also be helpful.

Ultimately, however, the overall success of comprehensive prevention and intervention efforts should be measured in terms of the impact on the overall school system.

Participation in periodic surveys, such as the Washington State Survey of Adolescent Health Behaviors, provides consistent data on all stages of tobacco use by grade level. Determining whether changes in tobacco use can be directly attributed to local prevention and intervention efforts is difficult, however. Comparing local results with state or national trends and with the timing of renewed efforts can help distinguish general changes in the prevalence of tobacco use from the impact of local programming.

Strengthen the Current Program

PISP can take specific steps to help strengthen the local tobacco interventions:

1. Provide school personnel with a tracking system to continuously log students' tobacco policy violations, the actions taken, the students' outcomes, and the students' current stage in tobacco cycle.

2. Institute a simple screening process for students referred to the program for tobacco policy violations to determine the students' stage of nicotine dependence and use the results to guide the choice of appropriate services.

3. Change the tobacco education curriculum to emphasize how to recognize and cope with environmental, behavioral, and pharmacological risk factors associated with tobacco use initiation.

4. Conduct inservice training sessions on the importance of tobacco education, the implementation of specific program strategies and the theories behind them, and the enforcement of school no-tobacco policies with appropriate school personnel and community representatives.

5. Help schools integrate a complete stage- and age-appropriate tobacco prevention and intervention curriculum into current alcohol and drug program.

6. Reinforce the message to school personnel, students, parents, and community members that tobacco is a drug, not an exception.

7. Seek parental involvement and community commitment to support the no-tobacco message conveyed in schools.

8. Help develop alternatives to school suspension.

9. Make referrals to appropriate community-based tobacco cessation programs if school-based programs are not available or as appropriate.

Conclusion

Adolescent tobacco use is a serious health risk that affects thousands of young people each day. The chances of becoming addicted to tobacco after only one use are great because pharmacological, social, and behavioral processes can lead one through the nicotine dependence cycle. To break the cycle, intervention and cessation services must pick up where prevention efforts fail. As more adolescents continue to experiment with or use tobacco each year, the need for tobacco intervention programs increases. One way to reach the largest number of young people who need these services is to offer them as part of the existing school-based drug and alcohol programs. PISP is well equipped to help in this endeavor.

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