

**A Descriptive Analysis of the Virginia Tobacco Settlement Foundation  
Elementary Compendium Programs in Relation to Tobacco Prevention**

Amy Horsch Smith

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Kerry J. Redican, PhD, Chair  
Richard K Stratton, PhD  
Billie Lepczyk, PhD  
Kathy Hosig, PhD

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**(ABSTRACT)**

The purpose of this study was to determine if the VTSF elementary school compendium programs are effective in the prevention of youth tobacco use based on evaluations provided by the VTSF. In the years (2003-2005), tobacco use trends among middle and high school students in Virginia started moving upward despite the fact that the Virginia Tobacco Settlement Foundation (VTSF) spent nearly \$16 million in 2004 and approximately \$11 million in 2005 for marketing, programs, enforcement, research and evaluation. This study is primarily a review of evaluations and not individual people or groups of people. The study reviewed the final evaluations of the various programs of the compendium in the 2005-2006 VTSE grant cycle. Only elementary programs (Pre-K – 5 and in some systems 6) were reviewed. The VTSE provides a variety of evaluation formats ranging from short, descriptive outcomes to quasi-experimental statistical analysis. Information was extracted from the evaluations to answer the primary research question: *Do the elementary school compendium programs prevent tobacco use among Virginia's youth?* Two additional questions were answered: 1) Does the current program evaluation process provide useful information to determine if the programs are effective in tobacco use prevention? and 2) Are community or school-based programs more effective?

The following conclusions were drawn from this comparative program analysis: 1) Based on this current data approach to evaluating the elementary compendium programs, we cannot determine if the programs are effective in preventing youth tobacco use. However, based on the

review of literature combined with these finding it is logical to conclude that the programs may not be preventing tobacco use in their intended population. 2) The evaluation process and the information included in the evaluations on an elementary level are not effective in providing information regarding tobacco use or future tobacco use. 3) School programs are more efficient and reach more students than community-based programs. There is no indication in terms of tobacco goals that one setting is better than another. The following recommendations were suggested: 1) Transition funding for compendium programs involving pre-initiation age students to late elementary, middle, and high school. 2) Concentrate funding for community-based programs on at-risk students. 3) Require school systems that apply for funds to offer programs on all levels: late elementary, middle, and high school, 4) Only those programs that directly address tobacco or tobacco and other drugs should be on the compendium list, 5) Streamline the evaluation process and make it consistent for all schools for comparative purposes, 6) Provide curriculum for all 4<sup>th</sup>-12<sup>th</sup> grade health and PE teachers rather than compendium programs as a separate unit, 7) Fund the development and implementation of curriculum that integrates tobacco prevention objectives into all school curriculum grades 4-12, 8) Explore ways to reach parents, 9) Focus more initiatives on teen tobacco cessation.

## **DEDICATION**

This work is dedicated to my mentor and friend, Dr. Kerry Redican. Without his infinite patience and belief in my ability to accomplish this goal, it would not have happened.

Everyone needs a cheerleader and mine was Paula Dunn Hoskins who, despite battling breast cancer, never failed to give me a kick when I was ready to throw in the towel, as well as my husband, Dan, who gave and *suffered* the most while I was completing this degree.

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## Chapter 1

### INTRODUCTION

“Cigarette smoking is the leading preventable cause of disease and death in the United States” (Satcher,1998). This mantra is arguably one of the most quoted statements found in tobacco and chronic disease research. Figures from the 2005 Virginia Youth Tobacco Survey and the 2005 Youth Risk Behavior Surveillance (US) report the following: Among middle and high school students in Virginia, 20% reported being current tobacco users (1 or more times in the past 30 days) and 16% reported being current smokers. This compares to the national figures of 28.4% of students reporting current tobacco use with 23% being current smokers. The smoking rate steadily increases from 6<sup>th</sup> grade to 12<sup>th</sup> grade in both the state and nationally.

Current smokeless tobacco rates among students have risen in Virginia over the past two years from 3% in 2003 to 5% in 2005. This compares to the 2005 national figure of 8%. Eight percent of Virginia students report having smoked a cigar and 3% of students report having smoked a pipe in the past 30 days. Nationally, the number of students smoking cigars in the past 30 days is 14%. The age of initiation of cigarette smoking before the age of 13 in Virginia is 14% and 12% for smokeless tobacco. Per 100,000 of the population, annual deaths due to diseases directly linked to tobacco use in Virginia include diseases of the heart (185.7), malignant neoplasms (174.3), cerebrovascular disease (49.3), and chronic lower respiratory disease (35.5). In some pockets of Virginia such as Smyth County, where the tobacco use rate is double that of the state (44%), deaths due to tobacco related diseases are nearly double (VDH, 2004).

The General Assembly of Virginia established the Virginia Tobacco Settlement Foundation (VTSF) in 1999 after receiving \$4 billion dollars from the Master Settlement

Agreement (MSA). The MSA was signed on November 23, 1998 between the Attorneys General, representatives of 46 states and other US holdings and the five largest tobacco manufacturers for \$40 billion. Four states previously settled with these companies. In essence, the agreement relieves Brown & Williamson Tobacco Corporation, Lorillard Tobacco Company, Phillip Morris, R.J. Reynolds Tobacco Company, Commonwealth Tobacco, and The Liggett Group from lawsuits—previous and in the future—against them for the harmful effects of their products. Ultimately, the intent of the MSA is to lower health care costs due to the effects of tobacco by providing funding for tobacco use prevention and cessation, as well as educational programs (VTSF 2006, Wilson, 1999).

One component of the VTSF is to provide monies for compendium programs—those that are assumed to prevent or reduce youth tobacco use—for schools, community, and faith-based groups. Programs such as All Stars, Al's Pals, Life Skills Training, and Project Alert are based on established theoretical frameworks, have specific tobacco control outcomes, and cover a range of age groups. While youth programs can be offered in churches and community institutions, they are most often provided in schools (VTSF website).

### **Statement of the Problem**

Between the years of 2001 and 2003, smoking rates in Virginia decreased in middle school by 45% and by 28% in high school. This may in part be due to the introduction of initiatives by the VTSF as well as initiatives by other states and national efforts such as the Truth® Campaign. In the past two years (2003-2005), tobacco use trends among middle and high school students in Virginia started moving upward despite the fact that the Virginia Tobacco Settlement Foundation (VTSF) spent nearly \$16 million in 2004 and approximately \$11

million in 2005 for marketing, programs, enforcement, research and evaluation. More than \$10 million of that over the two year period was in youth programs alone (personal email from Terri-Ann Brown of the VTSF, April 2, 2004).

While most elementary school programs provide useful information and skill-building in a number of life style areas such as making good choices, getting along with others, positive actions, and self-efficacy/esteem, they are not always directed specifically at tobacco nor is there evidence that they affect tobacco use much beyond elementary school (Osganian, 2003). Additionally, the mixed evaluation processes used by grantees and the lack of statistically-based evidence for the programs may mean that not all compendium programs are effective toward tobacco use prevention.

### **Purpose of the Study**

The purpose of this study is to determine if the VTSF elementary school compendium programs are effective in prevention of tobacco use based on evaluations provided by the VTSF. Additional factors considered include increase in knowledge about the harmful effects of tobacco; perceived benefits of remaining tobacco free; current tobacco use; self-efficacy; intent to smoke/use tobacco products; resistance to peer pressure; and rejection of smoking. This paper will also include a discussion regarding the types of evaluations (qualitative vs. quantitative) and an analysis of evaluation methods and their value in providing research information. An analysis will be provided regarding the effectiveness of these programs in relation to youth tobacco prevention, the primary goal of the VTSF.

## **Research Question**

Based on a review of the literature and the increase in tobacco use in Virginia among middle and high school students over the past two years, the primary research question is *do the elementary school compendium programs prevent tobacco use among Virginia's youth?*

Additional questions include: 1) Does the current program evaluation process provide useful information to determine if the programs are effective in tobacco use prevention? 2) Are community or school-based programs more effective? An analysis of the evaluations will provide information to support these questions, as well as give the VTSF future direction for programs and allocation of money, and the evaluation process.

## **Significance of the Study**

The study will provide information to the VTSF regarding future direction of elementary-based programs. It will give insight into programs that are most effective in contributing to the goal of tobacco use prevention, especially in relation to time in the classroom—a valuable commodity in schools today. Additionally, the study will provide suggestions for streamlining the evaluation process to continually monitor for effectiveness of the programs so that only the most effective programs will remain on the elementary compendium list.

## **Definition of Terms**

- Tobacco—Refers to cigarettes, cigars, pipes, chewing and spit tobacco
- Tobacco Use—Using cigarettes, cigars, pipes, chewing and spit tobacco
- Initiation or uptake—First time use of tobacco

- Continuation—Second time use of tobacco and all other subsequent uses
- Elementary Students—Grades K-5, unless otherwise stated to include 6
- Susceptible—impressionable or influenced
- Non-susceptible—not influenced

### **Limitations of the Study**

Several problems surfaced while conducting this study. There was no control information with which to compare evaluations. None of the evaluations include schools that do not participate in a VTSF compendium programs nor was there comparison information with schools that use the programs for purposes other than tobacco avoidance/prevention. For example, schools in Washington County, Virginia use Al's Pals as a general guidance program and not for the intention of tobacco avoidance as those schools do that are funded for this program through the VTSF. The researcher had access only to information provided by the VTSF and it is possible that not all pertinent information was provided to make an accurate conclusion.

## Chapter 2

### REVIEW OF LITEATURE

This chapter represents a review of the literature for evaluating the elementary compendium programs of the Virginia Tobacco Settlement Foundation (VTSF). First, it is important to examine the primary influences on tobacco initiation and continuation. Second, included is a review of the various types of youth tobacco interventions, especially in schools. Third, is an examination of specific VTSF school-based programs and their effectiveness in preventing initiation and continuation, as well as cessation.

#### **Primary Influences on Youth Tobacco Use**

##### *Parents, Peers and Siblings*

Getting to the root of why children, adolescents, and teens initiate and continue to use tobacco products may influence the direction of tobacco education programs. Studies conducted over the years continually cite the following as being variables that influence tobacco use, smoking in particular, parents use and opinions, sibling use, peer use and influence, exposure to products, media and advertising. Risk factors that are frequently studied include age, gender, race, Socioeconomic Status (SES), self-concept/confidence and school rank.

Researchers differ somewhat on their opinion of whether peers or parents have a greater influence on initiation of tobacco use in children and adolescents. A review of the literature seems to indicate that both are major influences, but perhaps one more than the other depending on age of the adolescent (de Vries, 2006, Kalsean, et al., 2006, Wen, et al., 2005). A 2001 study by Sargent and Dalton found that not only does parental smoking status make a difference but students' perceptions of their parents opinions of their smoking is also influential. The study was

conducted in rural Vermont schools in grades 4-11 and revealed that students who perceived that their parents would object to their smoking were less likely to smoke. This was true for both parents who smoked and did not smoke. If the student perceived that both parents would object to their smoking they were twice as likely to be non-susceptible never smokers than those who did not perceive strong smoking disapproval from their parents. The study also revealed that this perception of parental disapproval was more influential than parents' actual smoking status.

Bricker, et al. (2006) conducted a study of 4744 children drawn from the Hutchinson Smoking Prevention Project (HSPP) starting when the adolescents were in 3<sup>rd</sup> grade. The study revealed that children who had a close friend who was a smoker were 38% more likely to try smoking. This initiation by friends' smoking was 12% greater than parental smoking. However, in making the transition from trying to monthly smoking, a smoking friend influenced about the same as a smoking parent. The trend reversed in the transition from monthly to daily smoking where parents became more influential than peers. If a child had both a close friend and parents who smoked, they were more than twice as likely to initiate smoking to transition to monthly and daily smoking.

The Bricker study confirmed de Vries', et al. 2003 study that took place among multi-European countries. Essentially, the study revealed that adolescent smoking was strongly related to friend smoking but friend and parent smoking were found to be equally predictive after one year of initiation. Parents smoking status had a greater influence in continuation of smoking than did friend smoking status (de Vries, Engels, Kremers, Wetzels, Mudde, 2003).

In 2006, de Vries, et al., conducting another longitudinal study in Europe, did not find support for the peer influence hypothesis among 12-13 year-olds, but did find support for choosing like friends after initiation. However, the opposite was true for parental influence,

which did impact continuation of smoking. The significant finding of this study is that peer smoking is not a significant predictor of adolescent smoking a year later; however, parent smoking is.

In their 2002 study of risk factors for daily smoking in adolescence among early nonsmokers and experimenters, Tucker, Ellickson, and Klein found that 7<sup>th</sup> grade experimenters were more likely to become regular smokers at grade 12 if a number of influences were in place. These include having the approval of a friend or parent for smoking, being around important adults who smoke, and having a best friend who smokes. They were also at greater risk if they perceived the prevalence of smoking to be higher than it actually was for their age group and if they had more positive beliefs about smoking. A large Canadian study consisting of 4,286 students in 57 elementary schools in grade 6-7 affirmed the findings of many studies in that the students in this age group are at an increased risk of initiating smoking if they have smoking friends (2 or more), a mother who smokes, or they attend a school with a relatively high smoking rate. The study further revealed that in the schools with a high 8<sup>th</sup> grade smoking rate, susceptibility increased for 6<sup>th</sup> & 7<sup>th</sup> graders (Leatherdale, McDonald Cameron, Jolin, Brown, 2006).

Additional associations among adolescent tobacco use and peer/parent influences were the focus of a study using data from The Robert Wood Johnson Foundation 1996 National Study of Tobacco Price Sensitivity, Behavior, and Attitudes Among Teenagers and Young Adults. Ninth -12<sup>th</sup> grade students in 202 schools were studied. Results indicated that students who value the positive opinion of a friend about smoking were less likely to be a susceptible and a current smoker. Susceptibility was less if the friend smoked but the student did not value the friend's opinion. Students with nonsmoking parent (s) and who did not value their parents' opinion about

smoking were 43% more likely to be a susceptible, never smoker compared to students whose parent (s) smoked, but who valued their parents' opinions about smoking. Students were 18% less likely to be current smokers if their parents did not smoke and they valued their parents' opinion about smoking. Those who did not value their parents' opinion about smoking and whose parents did not smoke, were 58% more likely to be current smokers (Castrucci, Gerlach, Kaufman, Orleans, 2002).

Parental monitoring is another factor in whether or not adolescents smoke. A study taking place in China where 9 million adolescents aged 15-19 are current smokers found that higher levels of parental monitoring are associated with lower prevalence levels of smoking. However, higher levels of peer smoking were associated with higher prevalence of smoking by students (Grenard, et al. 2006). Parental monitoring is associated with parental and social permissiveness about smoking, as revealed in the 2004 study by Lotrean, et, al. in Mexico. In summation, the study found that youth who were allowed to smoke at home and/or who smoked outdoors and on school property were five times as likely to smoke more cigarettes daily (>5) than those who did not. The study also revealed that having parents who smoke was a significant correlate for smoking more than 5 cigarettes per day. More often than not, parents who both smoke and do not smoke know about their children's smoking. Conclusions of the study indicated students who smoke in public or at home smoke more, and that emphasizing smoke-free environments including schools, community areas and homes is necessary to reduce regular smoking in youth.

Parents' actions have other influential impacts on whether or not youth smoke. In a 2003 study by impacTEEN, a policy research group to reduce youth substance use, Powell and Chaloupka found banning smoking in the home and setting rules on free time significantly reduces the likelihood of smoking among girls, but have less impact on boys' smoking behavior.

Daily talking between parents/adults and youth significantly reduces smoking for boys and girls in early teens as do rules against smoking in the home, but the impact lessens greatly by age 17. This study found that youth are less likely to smoke if they value their parents' opinion about smoking. The impact is greatest in early teens to age 15, but still has some influence in older teens.

Another parental influence on smoking—both initiation and continuance—is parent education level. Harrel's 1998 study of the roles of gender, race and socioeconomics, and developmental status on initiation of youth smoking revealed that lower parental education level is a significant predictor of youth smoking. At all time points in the study, smoking was greater among those adolescents whose parents had less than a high school education. As parent education level of the students increased, smoking among adolescents decreased. This was also found to be true in a study of risk factors for daily smoking among early nonsmokers and experimenters (Tucker, Ellickson, Klein, 2002).

The combination of both non-smoking parents and strict parental rules about smoking is a combination that produces a high likelihood that their adolescent children will not smoke. A random-sample study of 37,244 middle and high school students in Maryland found that homes with non-smoking parents had stricter rules and concern regarding smoking and this strictness dropped off sharply in homes with one or both parents smoking. The study also found that in cases where there were nonsmoking parents in the home, but whose parents had moderate or minimal rules regarding smoking, adolescents had a significantly higher risk of being current smokers compared with adolescents whose parents had strict rules. In homes where the parent (s) were smokers, but they had a strict concern for smoking, the risk of adolescent smoking was less than in homes with smoking parents and minimal concern. The study also found that the father's

smoking was more strongly associated with boys smoking, and mother's smoking more strongly associated with girls smoking ( Kalesan, Stine, et al., 2006).

Parental controls about smoking that extend beyond just setting rules may also have a protective effect on whether or not a child smokes. A New Hampshire and Vermont survey conducted in 2002-03 of 559 4<sup>th</sup>-6<sup>th</sup> graders in 26 schools revealed that children are at a lower risk of smoking if they were prohibited from watching R rated movies or who watched R rated movies with their parents present. Children were also at a lower risk of smoking if their parents went into the video rental store with them and monitored their rentals as well as monitored what they were watching at a friend's house. Less than 10% of the children reported that their parents consistently monitored all of these activities. The risk of smoking was 40% less for those children whose parents restricted R rated movies compared to those who did not. Parental co-viewing of R rated movies was also associated with a lower risk of smoking (Dalton, et al., 2006).

Maternal smoking may have a greater influence on initiation. A 2006 study conducted in Kaunas, Lithuania consisting of 369 5<sup>th</sup> graders found that 19.8% of boys of non-smoking mothers and 38.2% of boys of smoking mothers tried smoking; boys of mothers who smoked were 2.5 times more likely to start. However, this study found that father smoking status had little effect on the child's smoking. This study also measured family time together—Family Time Indication (FTI)—and its effect on smoking children. Boys who spent less time with their parents compared with those who spent more time were twice as likely to start smoking and girls who spent less time with their parents compared with those who spent more were 4.48 times more likely to start smoking. Mothers who reported spending more time with their family

generally smoked less frequently compared to mothers from families that spent less time together (Garmiene, Zemaitiene, Zaborskis).

Though the culture in Taiwan is different from Western culture, patterns of parental and sibling influence is similar to those found in studies conducted in the US. A self-reported nationwide survey of 44,976 high school students grades 10-12 (ages 15-18) revealed that among boys who smoke (24.5%), 25% had parents who smoked, compared to 16.5% of non-smokers. Boys who reported that they received low tender loving care (TLC) from their parents had a smoking rate of 29.3% compared to those who reported high TLC where the smoking rate was 20.3%. The overall smoking rate was much lower for girls at 5.1 %. Six percent of girls who smoke had parents who smoke compared to 2.9% of girls who did not smoke. The smoking rate for girls reporting low TLC was higher than those reporting high TLC. Boys were 1.7 time more likely to smoke and girls 2.2 times more likely to smoke if they had a parent that smoked. That ratio is about the same for receiving low TLC. Peer influence was also measured and found to have about the same effect as parental smoking (Wen, et al., 2005).

A unique qualitative study conducted in Ireland used interviews of 102 children aged 11-12 years old during the first year of a three-year study. Each student was individually interviewed. In year two, fifty-one of these students were re-interviewed at age 12-13 and in year three, 39 were interviewed again. The interviews took place at youth clubs in an urban area of Northern Ireland. The highest experimentation with tobacco was between the ages of 12 and 13. Eleven to 12-year-olds described situations of persuasion by peers as the main reason for smoking uptake. Refusal implied social exclusion. The 12-13 year-olds expressed a need to be like their friends and doing what their friends were doing. They did not want to be left out. Thirteen to 14-year-olds who were current smokers experienced much the same sentiments. They

were smoking because all their friends were smoking. Many expressed that they were still friends with those they were with when they had their first cigarette. These results underscore the importance of social identity in initiation and continuation of smoking (Stewart-Knox, et al., 2005).

Bricker, et al. (2006) extracted a sample of 4,576 3<sup>rd</sup> grade students and their families from the Hutchinson Smoking Prevention Project. The students were followed-up at grades 5 & 12, where smoking was self-reported. Children provided baseline information on their friends' smoking habits. Parents provided baseline information on their own smoking habits and those of older siblings in the family. For children whose parents were non-smokers, the 12<sup>th</sup> grade smoking rate increased as the number of close friends who smoked increased from 16 % with no friends smoking to 42% with two or more close friends smoking. This is similar to the pattern seen when one parent smoked. Among students with two parents who smoked, 12<sup>th</sup> grade daily smoking prevalence increased from 36% when no close friends smoked to 47% when two or more close friends smoked. The combination of smoking friends at 5<sup>th</sup> grade and smoking parents increased the prevalence of 12<sup>th</sup> grade smoking. The estimated probability that a smoking friend influences a smoker at 12<sup>th</sup> grade was 9%. Parental influence was slightly higher at 11%. An older sibling influencing smoking at 12<sup>th</sup> grade was 7%. Parents seem to be very influential in the decisions of children/adolescents to smoke. Researchers also make a good case for the influence of close friends (peers) smoking, especially at the initiation stage (Bricker, et al., 2006, de Vries, 2003, Grenard, et al., 2005).

Data analyzed from the National Longitudinal Study of Adolescent Health measured the smoking habits of 20,747 high school students in relation to peer influence and peer selection. Students were surveyed in two different waves; T1 & T2. The prevalence of smoking at T1

(mean age 15.7) was 56.7% (smoked at least one cigarette) and rose to 70% by T2. On a scale of 0-3, the mean number of smoking friends was 0.8 and 0.9 for the two waves respectively. The results in relation to peer selection indicated that smokers tended to select friends who were also smokers. However, this study found that peer influence was negative; friends' smoking at T1 was negatively associated with adolescent smoking at T2. This could have implications for the direction of tobacco prevention programs (Hoffman, Monge, Chou, Valente, 2006).

A qualitative study using interviews and focus groups found that both family members and peers were influential themes in prompting initiation and that social acceptance and conformity and access to tobacco in the home were sub-themes. Some participants reported that they were directly encouraged to smoke by family members, but many also took cigarettes from family members because they were available and the participant was curious. Others said they were just around it so much they thought it was the thing to do (Alexander, Allen, Crawford, McCormick, 2007).

Many questions arise when talking about influence or cause of smoking initiation. Does having parents or friends who smoke mean there is a correlation with smoking initiation as we have seen in much of the presented research? Arnette (2006) would argue that it does not. In relation to peer influence or pressure, Arnette argues that just because one has friends who smoke does not necessarily mean that this causes the smoking of others as is commonly suggested by research. He does suggest that friends find each other because of common interests and behaviors and smoking may be one of those commonalities. He argues that research needs to also consider social context. "More attention should be given to the social processes operating in the peer context, rather than making assumptions about those processes on the basis of a correlation in smoking behavior between adolescents and their friends" (p.11).

A good example of just looking at the numbers is revealed in a study of the influence of parents and peers on adolescent smoking behavior (ASB). In this study, parent and peer influence was determined by number of parents who smoke and number of peers who smoke. “Reporting more smoking peers is related to higher probability of the reporting adolescent’s smoking” (p. 207, Geckova, et al., 2005). Is it strictly numbers or are there other influencing factors as Arnette suggests?

It is clear that a number of both qualitative and quantitative studies suggest that parents, peers and siblings all have some impact on adolescent smoking, but it is just as clear that there are a number of reasons that this may be so. Some researchers might argue that numbers of smoking parents, peers and siblings influence smoking uptake and continuation. But, as Arnette argues, can we really use these numbers as correlative proof of influence/pressure? Others suggest that peers choose their friends based on like behavior and smoking is among those behaviors. Still others maintain that the attitudes and rules of parents rather than the number of parents smoking may have a great influence. In any event, we need to consider these influences when designing programs to prevent youth smoking.

As with adults, some adolescents who try smoking do not become regular smokers. This brings forth the question of when addiction takes hold. Two recent and important studies address this issue.

### *Dependency*

DiFranza, et al. (2002), in a 30 month follow-up of the DANDY study, launched a descriptive study of the onset of first symptoms of dependence using a cohort of 679 seventh graders in small industrial cities in Massachusetts. The study involved a series of eight interviews over three years. Ten questions were developed and ultimately became the Hooked On Nicotine Checklist (HONC). The 11<sup>th</sup> question was “did you feel sad, blue, or depressed because you couldn’t smoke?” (p.229). Each question constitutes a symptom of dependency. Forty-percent of the students who had ever used tobacco, even just a puff, reported symptoms of dependency. Needing a cigarette and strong cravings were the most commonly reported symptoms. Eighteen percent reported symptoms after their first use. Girls, on average, reported more symptoms quicker than boys.

At what point during adolescent smoking does one become addicted was the focus of a qualitative study conducted in the Southwest involving 52 high school students who were identified as “already smokers.” The study showed that most of these students felt that they became addicted after their first cigarette, supported by the fact that the majority smoked their second cigarette the next day. The study also revealed that the vast majority were with a friend or relative during initiation, but boys were more likely to be alone during their second try than girls (Peters, et al., 2005). Addiction then should be considered a reason for continuation and should be emphasized in prevention programs.

### *Spit Tobacco*

Though less prevalent in youth (8% among students >1 in 30 days) (YRBS, 2005), smokeless or spit tobacco also needs to be considered in our discussion. Predictors of use

include age, geographic region, perceived friends' approval/indifference and participation in organized sports. White males in the rural South and Midwest areas represent the largest group of users in the US. Use by other household members and by friends, being at home for periods of time without parental supervision, lower school performance, cigarette smoking, and participation in organized sports and activities are also predictors of use. (Tomar & Giovino, 1998).

### *Participation in Sports*

Participation in organized sports is not a predictor of cigarette smoking, but is a primary factor in smokeless tobacco use as outlined by a number of studies in different venues. A 2004 study conducted by Castrucci, Gerlach, Gerlach, and Orleans found that adolescents currently participating in sports were less likely to use cigarettes or smoked less often, however, both chewing tobacco and snuff were higher among athletic adolescents. Sinusas and Coroso (2006) conducted a 10 year study with the Pittsburgh Pirates organization and results included finding only 2% were regular smokers so no clear association was found between cigarette smoking and smokeless tobacco use. Smokeless tobacco use was often seasonal with many not using during the off season and over the 10 year period overall use declined from 41% to 25%.

Ice Hockey is a sport that facilitates snuff use. Reasons include having role models in the organizations that use, coaches that do not discourage use as they may with smoking, snuff's calming and peaceful effect on players, experiencing a sense of community (like wearing the same jacket), and creating an image of masculinity (Rolandsson, Hallberg, Hugoson, 2006). This qualitative study was conducted among males ages 15-32. Participants were interviewed

personally by the author and the sessions were taped and transcribed and conclusions were formed based on the grounded theory.

Morrell, Cohen, Bacchi and West, (2005) found similar predictors for smokeless tobacco use among college students. Gender (male), participation in intercollegiate sports, percentage of friends who use and ethnicity (white or Native American) were all found to be predictors for smokeless tobacco. Smokeless tobacco use does not seem to carry the negative social consequences that smoking does, and therefore may not be as attractive to adolescents and teens as smoking. Smokeless tobacco appears to be more influenced by having family members in the home who use, weekly alcohol use, being male, and having friends who use (DeMoor, 1994 ).

### *Advertising*

Advertising by tobacco companies fosters positive attitudes, beliefs and expectations regarding tobacco use (DiFranza, et al., 2006). These advertising methods may include product placement in movies and television, packaging and store displays, magazine and billboard advertising, tobacco logos on clothing and promotional items, and candy cigarettes and toys. (Billboard advertising of tobacco products was banned as part of the 1998 Master Settlement Agreement, therefore, we will not discuss it in this review.) Estimates of experimentation among adolescents in California between 1993-1996 that is attributed to tobacco promotional activities is 34% (Pierce, 1998). The Pierce study of 5531 12-17 year olds also concluded that over half of the non-susceptible never smokers had a favorite cigarette advertisement (Joe Camel). Among those who were found to be receptive to tobacco advertising, 34% went on to the experimentation stage.

Feighery, Borzekowski, Schooler and Flora (1998) found similar conclusions in their study of 571 seventh graders; "...receptivity to tobacco marketing materials also increases the odds that one will smoke" (p.126). About 70% of the study population indicated some receptivity to tobacco marketing beyond simple awareness. The study also concluded that the chances increase if the student has friends or family that smoke. A three year study in rural Vermont among 480 non-smoking 4<sup>th</sup>-11<sup>th</sup> graders found that receptivity to cigarette promotions at baseline was significantly associated with progression to smoking after adjusting for covariates (grade, gender, environmental smoking, etc.). Those who were non-receptive to marketing at surveys 2 & 3 had decreased odds of progressing to smoking (Sargent, 2000).

When examining dose-response in relation to smoking uptake, Sargent, Dalton and Beach (2000) conducted a study of 1265 6<sup>th</sup>-12<sup>th</sup> graders in rural New Hampshire and Vermont public schools. They found that 1.3 of the students owned a cigarette promotional item; 211 owned 1, 82 owned 2, 57 owned 3, 24 owned 4, 23 owned 5, and 7 owned 6. These owners tended to be male, poorer students, perceived high prevalence of peer smoking, and had higher exposure to peer and family smoking. Grade did not impact whether or not students owned or how many promotional items they owned. However, smoking did increase from 3% of 6<sup>th</sup> graders to 32% of 12<sup>th</sup> graders, suggesting that cigarette promotional items were owned by students before they became smokers. Seventy-percent of students who owned 6 cigarette promotional items were smokers, compared to 10% of smokers that did not own one. Among those who owned more promotional items, smoking prevalence was higher.

### *TV and Movies*

Numerous studies have examined the relationship between smoking on the screen (movies and TV) and its influence on smoking in adolescents. Sargent, et al. (2001) conducted a study of 4949 children aged 9-15 years to test the hypothesis that greater exposure to smoking in films is associated with trying smoking among adolescents. The most significant finding was that “Adolescents with higher exposure to tobacco use in films had significantly higher odds of trying smoking” (p.3). The study discussion suggests that “...influence from films is as strong as other kinds of social influences, such as smoking by a parent or sibling” (p. 4).

A 2004 study by Distenfan, Pierce and Gilpin looked at a baseline sample of 2084 never smokers age 12-15 in California regarding their favorite movie stars. Thirty-four percent named movie stars that smoked on screen, and girls were more likely to name a smoking star than boys. Those with a favorite star who smoked on-screen were significantly more likely to have smoked at follow-up, with girls being much more influenced than boys. An earlier study of 632 students in rural New England ages 10-19 found that adolescents who chose favorite movie stars who smoked on screen were more likely to have favorable attitudes toward smoking and an advanced smoking status (Tickle, Sargent, Dalton, Beach, Heatherton, 2001).

Some compelling conclusions were presented in a 2005 article representing a review of the nature and effect of smoking in the movies on adolescents. Notably, the study concludes that the positive depiction of tobacco use in films leads adolescents to hold more pro-tobacco attitudes and teach them the same smoking stereotypes and adult motivations for smoking that direct tobacco advertising does. This precipitates the attitude that smoking is normal, prevalent, and desirable in society (Charlesworth & Glantz).

Some key findings in a report issued by the Center for Tobacco Control Research and Education at the University of California, San Francisco that includes an analysis of 776 US movies released between 1999-2003 include: 80% of all movies of all ratings include smoking; three movie companies including Disney accounted for more than half of all movies with smoking; R-rated movies with smoking averaged twice as many tobacco incidents as youth-rated movies; The number of PG-13 releases with smoking has remained stable over five years; 8.3 billion of 32.6 billion theatrical tobacco impressions were evenly delivered in R-rated and youth rated films; Teen moviegoers ages 12-17 received the highest number of first run tobacco impressions; Rating all smoking movies “R” would reduce children’s and teens’ exposure to tobacco impressions by 50% (Polansky & Glantz, 2004). If we consider these findings, along with those of Sargent, et al. and others, the influence of tobacco use in films is great, as is exposure to films with tobacco use. We cannot ignore films as a primary influence of youth tobacco use.

A study to determine if exposure to portrayals of smoking in the movies and on TV increase the likelihood that adolescents will try smoking was conducted in North Carolina middle schools. The study was equally divided among girls and boys and black and white adolescents. Phase one included a media-use survey and among the 3,261 who took the survey a group was randomly selected to do a baseline health assessment and 1,017 completed a 2-year follow-up assessment. The findings for television and movie exposure ONLY applied to white adolescents. Findings were insignificant for black students. The findings include that high exposure to R-rated movies and PG 13-rated movies was strongly associated with smoking uptake. The higher the number of television watching hours, the higher the likelihood of smoking. Television privacy (in bedrooms) was also associated with significantly greater odds

of smoking initiation. Having a private television AND exposure to R-rated movies increased the chances of smoking initiation even more (Jackson, 2007). These findings support a previous study by Gidwani, Sobol, DeJong, Perrin and Gortmaker (2002) that also concluded there is a dose response in TV hours and likelihood of smoking initiation in youth.

A study intended to address the limitations of a previous 1993 study by Botvin and colleagues found an association between magazine advertising and cigarette smoking among adolescents. Middle and high school students numbering 242 and ranging from 7<sup>th</sup> to 12<sup>th</sup> grade participated in the study. The study concluded that exposure to cigarette advertising is equally high for young and older adolescents; advertising is related to adolescent cigarette smoking regardless of how it is measured; both exposure to cigarette advertising and recognition of cigarette ads augment the effect of passive peer pressure on smoking; and attention to cigarette advertising is positively related to smoking and is mediated by positive views of smokers (Aloise-Young, Slater, Cruickshank, 2006).

A cross-sectional study of 967 twelfth grade students in northern Virginia set forth to determine the potential mediators associated with youth smoking. These mediating variables included drive for thinness and receptivity to tobacco advertising. The study found that fashion, entertainment, and gossip magazine reading “leads to greater drive for thinness and tobacco advertising receptivity, which in turn lead to a greater likelihood of being a current smoker” (p.517). Receptivity to tobacco ads increased the likelihood of being a current smoker by 20%, and the drive for thinness increased the likelihood of being a current smoker by 6%. The findings are consistent with both boys and girls (Carson, Rodriguez, Audrain-McGovern, 2005).

Finally, the emergence of the internet provides yet another media for pro-tobacco messages and the distribution is not just local, regional, or national, but world-wide and easily

accessible. There are few if any studies that address whether or not internet sites promote initiation or continuation of youth smoking but there are many that discuss the availability and purchasing of tobacco products over the web by youth and sites that promote smoking culture and lifestyle. While tobacco products are easily obtained over the internet and require only the buyers' word that they are 18 or older, so, too is information about and access to cessation information, help, and products.

### **Types and Effectiveness of Youth Tobacco Prevention Efforts**

The basic rationale and evidence for youth tobacco programs is in the statistics. Nationwide, 54.3% of middle and high school students have ever tried cigarette smoking. The lifetime prevalence of cigarette use for students is 55.9% for males and 52.7% for females. The rates are even higher for some ethnic groups. Among 9<sup>th</sup> grade students, the prevalence of lifetime cigarette use is 48.7% and rises to 60.3% by 12<sup>th</sup> grade. Nationwide, 13.4% of students had ever smoked at least one cigarette every day for 30 days. 23% of students reported cigarette use and 10.7% of those students smoked more than 10 cigarettes per day preceding the survey. Eight percent of students use smokeless tobacco products making the total youth use of all tobacco products nationwide 28.4% (MMWR, 2006). Unfortunately, Virginia is not included in this national sample. Also unfortunate is that in our educational system (as well as our public health and medical systems) few successful health promotion programs have become widely disseminated into practice and they are not available on a large scale (Osganian, 2003).

As if the health problems created by nicotine are not bad enough, moderately higher rates of alcohol dependence, cannabis dependence, and psychiatric morbidity are found in daily teen smokers and these problems may persist into adulthood and include symptoms of depression and

anxiety (Patton, 2006). This information was gathered among 2032 students to determine the health of adolescent smokers as they reach young adulthood.

### *School-Based Interventions*

The results of a 1997 study in Nova Scotia to determine alcohol, tobacco and cannabis use among adolescents moved Poulin and Elliott to conclude that “there is a need for integrated school-and-community based drug prevention programs, with goals, strategies and outcome measures capturing the full spectrum of patterns of use and levels of risk among subgroups of the adolescent student population” (p.1387). The study information came from two self-reported surveys conducted in 1991 and 1996 of grades 7, 9, 10, and 12 in 175 randomly selected classes in the public schools. School-based prevention education programs are but one means of early intervention for tobacco prevention. Others include community and faith based education programs, efforts by health care providers, mass media campaigns, reducing access to minors, and anti-smoking legislation.

According to an August 1999 report issued by the CDC called “Best Practices for Comprehensive Tobacco Control Programs”, the goal of comprehensive tobacco control programs is to “reduce disease, disability, and death related to tobacco by: preventing the initiation of tobacco use among young people; promoting quitting among young people and adults; eliminating nonsmokers’ exposure to environmental tobacco smoke (ETS), and identifying and eliminating the disparities related to tobacco use and its effects among different population groups” (CDC, 1999).

School-based drug and tobacco prevention programs have been gaining popularity since the 1970’s and are mostly based on four major theoretical approaches; social learning theory,

theory of planned behavior, problem behavior theory, and social bonding theory (Tucker, 2002). Early and ongoing program evaluations have shown short term success, but more recently, these programs are facing criticism for not having any long term effects and for not actually preventing youth tobacco use. Programs also lack sustainability (Osganian, 2003).

Wiehe, Garrison, Christakis, Ebel, and Rivara (2005) conducted a systematic review of school-based smoking prevention trials that included long-term follow-up. To be included in the review, studies had to allocate randomly the unit of evaluation to intervention. Control groups had to follow students from the time of intervention to 12<sup>th</sup> grade or age 18 and at least one year after the intervention ended. A random-effects meta-analysis was performed on qualifying studies. Of the eight programs in the study, only one showed a statistically significant decrease in smoking among the intervention group compared to the control groups. The LifeSkills Program study by Botvin, which is examined more closely later, saw a 12<sup>th</sup> grade monthly smoking rate of 26% and 27% for the two intervention groups compared to 33% for the control group. All other studies, showed no statistically significant results in decreasing monthly smoking at 12<sup>th</sup> grade or age 18. Wiehe postulates that the LifeSkill Program may be effective because it uses a relatively high degree of interaction and participation. Because of these overall results, the author suggests that these programs in general are not a worthy financial investment.

In examining the evidence for school-based programs identified by the Department of Education and other prominent agencies such as the Substance Abuse and Mental Health Services Administration (SAMHSA) National Registry of Effective Programs, Drug Strategies Guide to Effective School-Based Drug Prevention Curricula, University of Colorado Blueprints for Violence Prevention and a few others, Gandhi, Murphy-Graham, Petrosino, Chrismer, Weiss, (2007) analyzed the supposed evidence for five programs that appeared on these lists. They

included LifeSkills Training, Midwestern Prevention Program, Project ALERT, Project Northland, and CASASTART. These programs were considered either Model, Promising, or Exemplary. Researchers looked at both short and long-term follow-up results. They found for every program EXCEPT LifeSkills Training that there were few empirical evaluations from which to draw conclusions about program effectiveness. The review suggests that there is “limited evidence of the effectiveness of all programs on reducing substance use” (p.60). One common problem cited is that program developers served as evaluators and there are few outside evaluations.

Looking at school-based drug (including tobacco) prevention programs from a financial standpoint was the focus of a study that compared the social cost per participant to the program cost per participant. These social costs stem from reduced tobacco use, alcohol and other illicit drugs. Among the four substances included in the study, tobacco realized the highest portion of benefit at 43%, but along with alcohol, cocaine, and marijuana the social benefit totals \$840 per participant compared to an estimated program cost of \$150. The non-budgetary costs of using school-time to teach prevention rather than conventional subjects is high even though the budgetary costs for programs is relatively small (Caulkins, Pacula, Paddock, Chiesa, 2004).

If the findings of Wiehe are accurate, then what should we be doing in our schools? Glantz and Mandel (2005) suggest that integrating tobacco issues into the curriculum will help schools focus on what they should be doing and that is teaching kids critical thinking skills. For example, teaching the science of addiction, the effects of second-hand smoke, cost of use, role of marketing in selling cigarettes, and the politics of protecting the tobacco industry are all ways of integrating tobacco issues into daily curriculum. Sussman, while acknowledging the long-term

limitations of school-based interventions, feels the programs have merit but more work is needed regarding theoretical mediation and should include programs for special populations, new problem areas, and using new teaching modalities. The addition of physical consequences if imparted in ways relevant to adolescents should also be considered. Continually monitoring the programs for “shelf-life” is also needed. “If a good program grows “old,” it may become less effective or ineffective” (p.198, 2001).

### *Health Care Workers*

In 1995 an official statement was issued by six international organizations concerning the responsibility of physicians regarding smoking and health. These organizations included the American College of Chest Physicians, the American Thoracic Society, the European Respiratory Society, the Asia Pacific Society of Respiriology, the Canadian Thoracic Society, and the International Union Against Tuberculosis and Lung Disease.

“Each physician is expected by the public, the medical profession and by each of his or her patients to prevent disease when possible, and to give the best available treatment once disease is present. This imposes upon all physicians the duty to ask each of their patients whether they smoke and to provide proper information and counseling based on that history. Pediatricians, obstetricians and family practitioners have a special opportunity to influence the health both of young patients and children” (p.1809, Eur Respir Jour, 1995).

It is important for physicians to act as role models in their communities by not smoking. Medical associations, hospitals, and physicians’ offices should have strict no smoking policies. Physicians should explain to all smoking patients the risk with smoking and the reduction in risk

associated with quitting. As soon as children are old enough to understand, often beginning with toddlers, clinicians should initiate counseling of children regarding the harmful effects of tobacco. And, physicians should offer all possible cessation tools available to current smokers (Eur Respir Jour, 1995).

Recommendations by the National Cancer Institute incorporate a five-step method including anticipate, ask, advise, assist, and arrange. **Anticipate** what needs to be addressed and plan for it. **Ask** children about experimenting starting at age 8 and ask parents about their smoking and about other environmental smoke to which children are exposed. **Advise** adolescents and parents to quit smoking, and **assist** with specific cessation techniques and **arrange** for follow-up visits to reinforce and review (Epps, 1993, Thomas, 1995).

Thomas and Thomas propose that there are four ways physicians can help preteens and teenagers avoid becoming smokers. First, identify the children at risk. Second, encourage parents and siblings who smoke to quit. Third, encourage school boards to institute and maintain anti-smoking programs, and fourth promote a complete ban on advertising and selling tobacco to minors. Physicians play a key role in community anti-smoking programs on many levels (1995).

If a youth patient is a smoker, this provides an excellent opportunity for a face-to-face discussion offering advice about quitting and pharmaceutical and educational support. It is also an opportunity to provide information about the health effects of smoking and secondhand smoke. Physicians can also explain to parents the best ways to reduce the chances that their children will become smokers. Discussions with pre-teens and teenagers could include the cosmetic consequences of smoking and the effects on athletic performance, as well as the financial implications. Physicians must be trained properly to provide both prevention and cessation counseling (Bal, Lloyd, Manley, 1995).

Prevention is a tough job but cessation efforts are at least equally difficult. In a random sample of 993 regular smokers ages 15-65 in Switzerland researchers found that 88% were asked about their smoking habits by their physicians, with women and older people being asked slightly more often. Only 34% had ever been advised by their physician to quit. This correlates with the fact that 34% of those surveyed also felt a strong desire to quit, with only 18% of those desiring to quit who had not been advised to do so by their physician (Eckert & Junker, 2001).

In 1996, comprehensive guidelines for treating tobacco use dependence were issued by the US Department of Health and Human Services and sponsored by seven major health institutions. They were updated in 2000 and collectively include assessment of tobacco use, brief clinical interventions, intensive clinical interventions, systems interventions relevance to health care administrators, insurers and purchasers, evidence, special populations, and special topics. The guidelines state that “because effective tobacco dependence treatments are available, every patient who uses tobacco should be offered at least one of these treatments” (DHHS, 2000).

Adolescents report a fairly low instance of physician and dentist counseling about smoking. A nationally representative sample of 35,828 students in grades 6-12 were asked questions regarding physician or dentist counseling about tobacco use. One third of the respondents who visited either a physician or a dentist in the past year received preventive counseling and 20% received preventive counseling from a dentist. Current smoking status was a prompter for discussion. Among those who were current smokers, 16.4% reported receiving advice to quit from a physician, and 11.6% received quitting advice from a dentist. This, too, was mostly precipitated by current smoking status (Shelley, et al., 2005).

One of the problems associated with physician counseling of adolescents about smoking is patients' reluctance to reveal their smoking status. In a self-reported study of 5016 teenagers

ages 16-19, 79.3% reported they would admit smoking to their physician, with girls more likely than boys to be honest. That leaves nearly 20% not willing to disclose their smoking status. About 43% reported ever being asked by their physician if they smoke, with girls more likely to be asked. Only 42% of the respondents reported ever being told by their physician not to smoke (Alfano, 2002).

In 2002, researchers launched the first large scale survey of health professionals and educators regarding spit tobacco (ST) attitudes and practices in a non-school setting. Health professional participants included physicians licensed in Texas in family medicine and pediatrics, nurses, dentists and dental hygienists. Among educators selected for participation were 4-H volunteers and professionals, family consumer science extension agents, agriculture science teachers, high school baseball coaches, and drug abuse resistance education (DARE) officers. This Texas sample of 4089 participants was 70% rural and 30% urban. Except for DARE officers, participants were surveyed by mail. A very small percentage of Dentist—2.3%-- are current users of ST, and less than 1% of physicians and nurses are current users. However, among educators, 23.7% of Agricultural Science Teachers, 17% of 4-H and family consumer agents, 18% of high school coaches, and 7% of DARE officers are current users. Among health professionals, 18%-36% said they did not feel adequately prepared to counsel patients who use ST and that it was not a high priority for them. Dentists and physicians in particular said they felt pessimistic about people's ability to quit, that patients resist referral to cessation programs, and there are few services in the community that can effectively treat ST use. Among the health professionals, 9%-16% said they did not have time to counsel patients on this subject. Among educators in the study, 37%-63% said there is a lack of training in ST prevention/cessation. Eighteen to 32% said it is so accepted in the community that no one was interested in prevention.

Twenty-four to 58% said they had other priorities and 10%-20% expressed discomfort in counseling about ST (Prokhorov, 2002).

Volkes, Bailey, and Rhodes (2006) conducted a study of Emergency Department (ED) physicians to determine the frequency and manner in which they addressed smoking with their patients by using audio tape screening. Of the 871 participants in the study at two sites (one urban, one rural), 484 were verbally screened for smoking and of those 32% said they were current smokers and 35% said they had previous discussions about their smoking with at least one physician. Of the 156 patients identified by the physicians, 28% had a condition aggravated by smoking and of those, half had a smoking related discussion with the ED physician. Initiating the discussion was most influenced by the patient having a smoking-aggravated condition.

In 1995-1996, Zapka, et al. sent a survey to 350 randomly selected pediatricians in Massachusetts to investigate intervention practices related to tobacco use and cessation. Overall, a score of .77 (0-1; SD:53) was averaged by the physicians with respect to encouraging children and adolescents not to start using tobacco. Regarding children/adolescents who already smoke, the average performance was 4.73 (SD: 1.86). Efforts to counsel parents who smoke scored 3.24 (SD:1.99). Sixty-three percent reported that helping prevent children and adolescent smoking was a great part of their role, with 28% feeling it was a considerable part, and 9% perceiving it as a moderate or lesser part. Twenty-five percent felt these prevention efforts were quite effective and 16% were quite confident they could prevent children from starting (1999).

“It is advantageous to consider treatment of tobacco dependence in the same paradigm as treatment of other chronic conditions such as hypertension, hyperlipidemia, and diabetes” (p. 14, Anderson, 2001). Some of the recommendations for adolescent physician-based prevention/cessation efforts include evidence-based guidelines for treatment of tobacco

prevention/dependence in youths, coordinated efforts at several levels of the health care system, and integrating tobacco prevention/treatment interventions into routine practice. Professional organizations can increase awareness among their members and recommend strategies for addressing tobacco issues. Managed care organizations need to provide coverage for tobacco-dependence youth programs and medications. Health care industry decision makers need to implement policies that support delivery of interventions. Managed care plans should include screening for tobacco use among youth and the delivery of education and assistance to quit (Pbert, 2003).

Creative means of communication with physicians and health care professionals should also be considered and studied. Bernhardt, Dalton, Sargent, and Stevens (2000), educators at the Norris Cotton Cancer Center at the Dartmouth-Hitchcock Medical Center in New Hampshire initiated a program utilizing 20 medical students who were partnered with groups of children as a part of a tobacco prevention program in two Vermont schools. Medical students and residents were mentors for groups of students and provided support to them through email and occasional site visits. Of the 1187 messages exchanged, 383 involved tobacco. Not only did the email exchanges provide information for the students, teachers and parents, they also provided educational and research opportunities for the medical students and helped develop communication skills and physician/patient relationships.

The issue of patients' rights, autonomy to choose their behavior, and habits both medically and morally, are issues for physicians. Should physicians inject their beliefs about smoking on someone who has obviously chosen to do so? "The physician must clearly and compellingly inform the patient of the risks and logically expected outcomes of whatever the unwise activity is. In addition, the physician should offer advice, support and referral, if

necessary, to help the patient alter the behavior” (p. 197). Additionally, Gaffney concludes her editorial *Ethical Responsibilities of Physicians in Tobacco Control* by saying, “Physicians who care for patients who smoke or engage in other seriously risky behaviors face a difficult dilemma: how to respect the individual’s choice while at the same time fulfilling one’s professional responsibility to the patient. Balancing respect for the person’s autonomy with the desire to prevent the harm inherent in tobacco use requires patience, insight and wisdom” (p. 198, 2000). Deckers, Farley, and Heath (2006) echo a similar sentiment. “Pediatric providers need to manipulate assessment, intervention and evaluation approaches to maximize the health and welfare of children and adolescents. Pediatric nurses have an inherent responsibility to address issues surrounding professional accountability and health system changes targeted toward tobacco education and prevention in youth” (p. 99).

### *Media Campaigns*

Media Campaigns aimed at influencing adolescents not to smoke have become increasingly popular after the Master Settlement Agreement was reached and more money became available to states for anti-tobacco programs. Early in 1998, Florida launched an anti-tobacco media campaign targeting ages 12-17. Called the “Truth” campaign, the purpose was to empower young people with the feeling they could challenge the tobacco industry and be part of a tobacco-free generation. Two levels of smoking behavior were measured at two points during the campaign by interview-type survey. Nine months into the campaign 4935 randomly selected youth had been interviewed by phone. The follow-up study consisted of 1820 interviews randomly selected from the first set. Overall, two results were realized. First, the campaign may prevent young non-smokers from becoming smokers. Second, it may make current smokers more

conscious of how often and how much they smoke. However, the question of generalizability of the analysis remains (Sly, 2001).

It would be easy to suppose that adolescents living in tobacco growing states such as Georgia, Kentucky, North Carolina, South Carolina, Tennessee, and Virginia would not be as receptive to anti-tobacco messages as those in non-tobacco producing states. However, the results of a study by Thrasher, et al. (2004) found that there was no significant difference in reactions to truth® ads. The study was conducted among a nationally representative sample of 28,307 12-24 year olds contacted by telephone. There was a slight difference (2.4%) in confirmed awareness of truth® ads among non-tobacco producing states, but the response rate to the ads were the same among groups.

Another recent study examined the relationship between youth's tobacco-related beliefs, behaviors, attitudes, and exposure to state anti-tobacco advertising. Controls were in place for tobacco industry-sponsored anti-tobacco messages and for ads for pharmaceutical cessation aids such as nicotine replacement therapy. Commercial ratings data on mean audience exposure to all anti-tobacco ads was accessed from Nielsen Media Research. Additional data were collected from Monitoring the Future, The Tax Burden on Tobacco and the US Bureau of Labor Statistics Consumer Price Index, as well as others. Results using data from 51,085 students in grades 8, 10 and 12 showed that recall of exposure to anti-tobacco ads, holding anti-smoking attitudes and beliefs, and not smoking in the past 30 days were correlated with states with aggressive ad campaigns. The higher the exposure to the number of ads produced the greater reduction in smoking. The threshold of exposure level of at least one state-sponsored anti-tobacco ad per 4-month period resulted in these positive outcomes (Emery, et al., 2005).

Types of advertisements and age groups may affect results of anti-smoking media campaigns. Siegel and Biener (2000), in a study of 592 12-15 year olds in Massachusetts over 4 years, found varied results. The study's main objective was to examine the impact of a statewide anti-smoking media campaign on progression to established smoking using ads on TV, radio and billboards. Twelve to thirteen-year-olds that reported exposure to anti-smoking TV ads were less likely to have progressed to established smoking than those not reporting exposure. There was no significant effect of exposure to television ads on progression to established smoking among 14-15 year-olds, suggesting that the message of the ad was not age-appropriate. No significant effects were realized from radio or billboard advertising.

Media campaigns may be enhanced by being a part of a comprehensive anti-tobacco campaign. Students in 7<sup>th</sup> grade from 340 classrooms were followed during and after exposure to the Television, School, and Family Smoking Prevention and Cessation Project (TVSFP). Students were pre-tested, post-tested directly after the intervention and for two years following. The study design included testing the independent and combined effects of classroom curriculum and television programming for social resistance skills, smoking prevention, training, and smoking cessation. Four treatment groups and one control group were compared. Students in the health-information-based attention-control curriculum group showed the greatest tobacco and health knowledge at all three tests. TV with social resistance education also increased on all four tests, as did TV alone, but not as much. Smoking prevalence at immediate posttest was lower for the TV/social resistance group and this maintained until the final test. However, students who were current smokers at the pretest with strong intentions to smoke in the future were not affected significantly by any of the treatments. The most favorable results overall came from the

TV/social resistance group and suggests that the two together can “reinforce, support and improve the effects of the other” (p. 39, Flay, 1995).

In 2000, the state of Minnesota organized an anti-tobacco campaign around three components: a paid advertising campaign, a youth organization, and a website. Four surveys were conducted between September of 2002 and December of 2003 to determine youth awareness of the campaign. Awareness increased by 10 percentage points during the first 3 surveys. The youth campaign ended in July 2003 and awareness decline by nearly 30% by that December. There was also nearly a 10% increase in smoking susceptibility between the July and December surveys in all age groups, both sexes, and by geographic area (Sly, et al., 2004).

A review of studies of anti-tobacco state mass media campaigns in three states among the general population concluded that “well-funded and implemented mass-media campaigns targeted at the general population and implemented at the state level, in conjunction with a comprehensive tobacco control program, are associated with reduced smoking rates” (p.95). Youth-oriented interventions had more mixed results but indicated strong potential (Friend, 2002).

In terms of reaching the youth population with effective messages in advertising campaigns, Goldman and Glantz (1998) found that highly effective messages for both youth and adults were industry manipulation and secondhand smoke, and to a lesser extent, addiction. Short-term effects were moderately effective for youth. Long-term health effects and romantic rejection were not important messages for youth. This study used 186 focus groups with over 1500 youth and adults from three states with state-wide media campaigns. They looked at advertising strategies in relation to industry manipulation, secondhand smoke, addiction, cessation, youth access, short-term and long-term effects, and romantic rejection.

In 2000, Wakefield and Chaloupka reported a review of 5 comprehensive state-wide tobacco control programs to assess their effectiveness in reducing teen smoking. They identified the factors that can mislead findings in these comprehensive programs. They include the slow process of change, infrequency of measures, confounding factors including societal influences, difference in intention, actual execution of programs, and tobacco industry activities undermining tobacco control programs. Overall, the study conclusion was, when combined together, school-based programs, mass media campaigns, restrictions on smoking, limiting access, a ban on advertising, and price increases will lead to a reduction in teenage smoking.

### *Legislation*

Anti-tobacco legislation, in particular limiting access of cigarettes to minors and increasing prices by taxation, may contribute to reducing youth tobacco use. Is it the law itself or the perception that tobacco is difficult to get? All states have laws prohibiting the sale of tobacco to minors under the age of 18. Non-compliance with the federal amendment could mean the state's loss of up to 40% of federal substance abuse prevention and treatment block grant funding (MMWR, CDC, 1996). The efficacy of the law is whether or not they deter adolescents from smoking. In a cross-sectional study of California tobacco surveys, information gathered in two interview periods from adolescents 12-17 years was considered. The first time the interviews took place was between 1993-1996 when the laws regarding sales to minors were not enacted or not strictly enforced. During the second survey period between 1996-1999 when the STAKE Act was implemented and enforced, random compliance checks at vendor sites for cigarettes were set up. From one survey period to the next, sales to minors dropped from 52% to 22% and finally

leveled off at 15%. In the latter survey, adolescents who perceived that cigarettes were hard to get were less likely to transition to any smoking, as compared to the first survey (Gilpin, 2004).

Similar information was found in a 1999 reported survey from Massachusetts of adolescents 12-15 years who were initially surveyed in 1993 by telephone, and again in 1997-98 to determine whether local tobacco sales laws decrease the rate of progression to established smoking among adolescents. After controlling for confounding variables, the study concluded that adolescents living in towns with local tobacco sales ordinances at baseline were significantly less likely to progress to established smoking than those living in towns without ordinances. The researchers did not find a relationship between living in a town with an ordinance and the adolescent's perceived access to tobacco. Adolescents in towns with weak or strong ordinances were less likely to initiate smoking than those living in towns with no ordinance (Siegel).

As early as 1988, before the federal government attached penalties to states for not having and enforcing tobacco access laws, communities across the country were initiating local ordinances. Tenth graders at a school in Everett, WA were surveyed in 1988 and again in 1990 to determine the effects of an ordinance restricting the sale of tobacco to minors under 18. After enforcement of the law, a substantial number of students agreed that tobacco sales to minors should be illegal. More students reported that they were asked for ID from one year to the next and said requests for ID were much higher. The findings also suggest that placement of tobacco products, banning vending machines, and raising the age of purchase to 19 may also be helpful in reducing adolescent use (Hinds, 1992).

In 1995, teens ages 12-17 in 13 schools in the North Sydney Health Region of Australia were surveyed and self-reported smoking behavior was assessed. Shortly after, the PROOF project to improve retailer compliance with tobacco sales-to-minors laws was set into motion.

Youth from 11 of the same schools were surveyed again in 2000. Little changed in the overall smoking rates among the youths from survey to survey, except for females who reported more “never smokers” than before. However, the proportion of students who purchased cigarettes from retailers decreased by 4%. There was a 10% decrease in the number of occasional smokers. Significant decreases were reported in the ease with which cigarettes could be purchased (Staff, 2003). If we are to adhere to Gilpin’s (2004) rule that the efficacy of the law is whether or not they deter adolescents from smoking, this project was not successful as overall smoking rates did not change, concluding that making cigarettes more difficult to get did not deter smoking.

Similarly, a systematic review of literature to assess the effectiveness of interventions to reduce underage access to tobacco by deterring stores from making illegal sales to minors was reported in 2000 by Stead and Lancaster. Studies were chosen for review if there was an intervention with tobacco retailers either through education about or enforcement of local ordinances. The study results showed that giving retailers information was less effective than active enforcement and/or multi-component educational strategies in reducing illegal sales of tobacco. Three of the controlled reviewed trials found there was little effect on youth perceptions of access or prevalence of smoking. These findings are different from the 2004 Gilpin survey in terms of youth perception of access.

The results of a study spanning 7 years and detailing the long-term effects of local policies and practices on adolescent smoking were published in 2006. Fourteen small cities in rural Minnesota were randomly assigned to either the intervention or the control group. The intervention, called Tobacco Policy Options for Prevention (TPOP), was begun in 1993 with the goals of changing local ordinances and policies to restrict access, to change merchants’ practices for selling tobacco to youth, to make the issue of youth access an important one in the

community, and to promote enforcement of tobacco age sale laws through ordinance provisions and community pressures. Data were collected by survey of all 8-10<sup>th</sup> grade students at baseline and three later times. The outcome measure was the prevalence of daily tobacco use among students in the survey age group. During the first time frame from 1993-1998, the intervention significantly decreased tobacco use among youth. During the second time frame of 1998-2003, no significant differences between the intervention and control communities were realized. This may be explained by control communities adopting similar policies and with a more concentrated state-wide effort during the second time frame (Chen, 2006).

Laws affecting access to minors weigh in both favorably and unfavorably when it comes to reducing adolescent smoking. Interviews were conducted with health department officials in communities in Massachusetts where efforts to prevent illegal sales to minors were only partially successful. Barriers to success included organizational problems, budgetary threats, political pressure, and challenges to citations. The combination of these things reduced the frequency of enforcement inspections to half the intended rate. Older youth were excluded from acting as buyers because of political pressure (DiFranza and Rigotti, 1999).

DiFranza and Rigotti included several counter-strategies representing the “wisdom of those who have been in the trenches” (p. 155). These include keeping elected officials and the courts informed about merchant education and law enforcement plans; securing community support for enforcement; using proven organizational techniques for maximum efficiency, and setting compliance goals and advising government officials and the public about progress. Additionally, use older youths to make attempted purchases and frequently test merchants for compliance.

Smoking bans are becoming more and more common in towns, cities, states (22 in the US by 2008 with 4 others excluding bars), and counties across the US, as well as in Europe. Entire countries such as Ireland, Norway, New Zealand, Scotland, England, Cuba, Uganda, Bhutan, and Italy have enacted nationwide smoke-free workplace laws. Do they help reduce the overall smoking rate and what is the government's role in public health? Can we legislate personal choice? Jochelson (2006) argues that "Legislation brings about changes that individuals on their own cannot, and sets new standards for the public good. Rather than condemning such activity as 'nanny statism', it might be more appropriate to view it as a form of stewardship" (p.1). Stewardship implies protection and promotion of good health. Smoke-free environments help non-smokers by preventing them from breathing secondhand smoke and they benefit smokers by lessening the places they can smoke thereby lessening the number of cigarettes they smoke (Fichtenberg, 2002).

In 2000 and again in 2001, adults were contacted by phone in the US and asked a number of questions that would reveal their attitudes and practices regarding children's exposure to secondhand or environmental tobacco smoke (ETS). During both survey periods, about 95% of those completing the survey said they believed secondhand smoke was harmful to children and that tobacco companies were not truthful when saying it was not. From 2000 to 2001, the number who felt that children whose parents smoke are more likely to smoke increased by 5%. In 2000, 69% of households were non-smoking and that increased to 74% one year later. When asked about smoking bans in particular public places respondents highly favored smoking bans in most indoor places except in restaurants where only 24%-28% said it should be implemented. Overall, the findings support smoke-free indoor policies in the US (McMillen, 2003). McMillen also looked at the difference in attitudes about ETS between rural and urban settings. The information

was analyzed from the Social Climate Survey of Tobacco Control as with the previous survey. Smoking rates were generally higher in the rural areas and rural areas had higher rates of ETS exposure as well as more smoking in homes and cars and more exposure in stores and restaurants.

Ireland enacted the Smoke-Free Workplace law in 2002 and two years later it was in effect. A report issued in 2004 showed a steady decline in calls to the Office of Tobacco Control complaining of non-compliance. During the first month of monitoring, 677 calls were received lodging complains of non-compliance compared to only 110 six months later. The report also reported on public attitudes and behaviors related to the ban. Ninety-nine percent of smokers who visited pubs said they either smoked outside or did not smoke at all and one in five said they chose not to smoke while socializing. The report concluded that there is widespread public support for the smoke-free workplace law and that genuine reservations initially expressed about the law have not come to fruition (Office of Tobacco Control, 2004).

Additional benefits found in pubs in Ireland include statistically significant amounts of Benzene, PM (parts per million) 2.5 and PM10 matter in the barmen working in the pubs. Goodman, Agnew, McCaffrey, Paul, and Clancy tested before and one year after the 2004 smoke-free workplace act went into effect. They found an 83% reduction in PM2.5 and an 80.2% reduction in Benzene concentration. Salivary test of the Barmen also found a 79% reduction in exhaled breath CO and an 81% reduction in salivary cotinine (2006).

A survey commissioned by the Irish Department of Health and Children of 1000 people six-months after the law was effective showed that 82% of people support the measure; 90% agreed it was a benefit to workers; 82% agreed it benefits everyone in public places, and 95% agreed it was a positive health measure (smokefreetwork.ie, 2004).

Fichtenberg and Glantz (2002) reviewed 26 studies reporting on smoking prevalence and daily consumption of totally smoke-free workplaces and found that there was a 3.8% reduction in prevalence and a decrease in consumption of cigarettes by 3.1% per continuing smoker. Together, this corresponds to a relative reduction of 29%.

Mandated warning labels on cigarettes and smoke-free bylaws can have a profound impact on quitting and staying tobacco free. Hammond, Fond, McNeill, Borland and Cummings (2006), in a telephone survey of 191 former smokers in Canada found that 35.2% of participants said that smoking bans and laws were one of the contributing reasons for quitting and 30.6% said that new warning labels on cigarettes were their motivation to quit. Not surprising, 93% said personal health was the number one motivator for quitting with the health of others reported by 75%.

### **VTSF School-Based Programs**

School-based prevention and cessation programs have become increasingly popular since the late 1970's and more accessible in Virginia with the formation of the Virginia Tobacco Settlement Foundation. The Foundation gives grants to schools, community-based organizations, and faith-based groups to purchase and execute these programs. This section represents an examination of the evidence and research in regard to efficacy and actual effects of both the compendium programs (year 2006-2007) and Drug Abuse Resistance Education (DARE) program, which is included because of its broad use across the country.

*DARE*

Perhaps one of the oldest and best known drug education programs is DARE. It gets both favorable and unfavorable reviews from researchers. The program was founded in 1983 in Los Angeles and originated as an elementary level program. Dare is now in 75% of our nation's school districts and in 43 countries around the world. It is a police officer-lead intervention consisting of 17 lessons approximately 50 minutes each during one semester for elementary students ([www.dare.com](http://www.dare.com)).

A meta-analysis of DARE published in 1994 compared to other interactive and non-interactive school-based prevention programs reported disappointing results, except for tobacco. The study looked at comparable programs with comparable outcomes, measures and evaluations of DARE 4<sup>th</sup> & 5<sup>th</sup> grade initiatives. Compared to others, in the categories of knowledge, attitudes and social skills, DARE was better than non-interactive programs, but significantly less effective than interactive programs. DARE was not as effective as both interactive and non-interactive programs for Drug Use. When broken down in the substance categories of alcohol, tobacco and marijuana, only tobacco had a statistically significant mean effect. However, though less than other programs, DARE's immediate effect on outcomes other than Drug Use was statistically significant, especially with Knowledge. Ennett, et al postulates that the Drug Use results may be due to the low frequency of drug use among elementary students (Ennett, Tobler, Ringwalt, and Flewelling, 1994).

Dukes, Stein, and Ullman (1997), in a long-term 6-year follow up study, found mixed results from the Colorado Springs sample of 5<sup>th</sup> & 6<sup>th</sup> grade DARE students. At the 3-year point, no effects of DARE were significantly different from the control group. There were no long-term 6-year effects for the more common, socially accepted drugs like alcohol, tobacco, and

marijuana, but there did seem to be some effect on “outsider”, more deviant illicit drugs and this was truer for males than females.

At the time DARE started in 1983, it was the most widely used drug prevention program in the country and therefore is worthy of our time. However, it is not a program of the VTSF. Since the publishing of many studies showing a not significant effect on the participants, one would have to wonder why the program is still in existence. Some short-term studies have shown efficacy in certain areas like knowledge and resistance skills, but not necessarily in the area of drug use. Likewise, the long-term effects are almost non-existent.

A study over 5 years designed to measure the long-term effects of DARE, 6<sup>th</sup> graders in 23 elementary schools in Lexington, KY was conducted. There were 8 control schools, some of which may have drug prevention in their health curriculum and some that did not. Data were collected and compared over a 5-year period. Most were in the 10<sup>th</sup> grade for the final collection. Before DARE, both groups were approximately equal in terms of cigarette, alcohol, and marijuana use—the three measures used in this study. Overall, there was an upward trend for use with all three substances, as were students’ perception of peer use. Though the growth was slower with the DARE group suggesting short term effects, by the final analysis, there was no difference. DARE students retained negative attitudes about drugs in the earlier surveys, but not by the final survey. Early and midpoint evaluations of students’ attitudes toward drug use, peer pressure resistance, and estimates of peer use were significant, but declined by the final evaluation. No statistically significant difference was found overall in cigarette, alcohol, or marijuana use between the DARE group and the control group after 5 years (Clayton, Cattarello, Johnstone, 1996).

Clayton's findings are echoed in a 10-year follow up study by Lynam, et al. reported in 1999. The initial sample for this study was 6<sup>th</sup> graders in a Midwestern metropolitan area and data were collected before the DARE intervention, after the intervention, and for a 5-year period through 10<sup>th</sup> grade. The final sample was taken when the average age of participants was 20.1 years. Seventy-six percent of the final sample had the DARE program, consistent with 75% having it in the original sample. For cigarettes, alcohol and marijuana, illicit drug use, peer-pressure resistance, there was no differentiation between the DARE group and the non-DARE group in the final findings or in the short term findings. "Thus, it appears that one can be fairly confident that DARE created no lasting changes in the outcomes examined here" (p. 592).

A study of the DARE program among 5<sup>th</sup> graders designed to test the association between participation in the DARE program and smoking initiation in adolescents was conducted by survey in upper-middle class neighborhoods of Nashville, TN. Both 5<sup>th</sup> (45%) and 6<sup>th</sup> (55%) graders (total 236) completed the 25 question survey but the intervention was only offered to 5<sup>th</sup> graders. Eighty-eight percent of the students completed the DARE program and the remaining 12% were the control or NON-DARE group. The DARE group reported a smoking rate of 8.7% while the NON-DARE group reported a smoking rate of 28% and the DARE group was 5 times less likely to initiate smoking. Eighty-one percent of 5<sup>th</sup> graders said they believed DARE prevents smoking initiation and 62% of 6<sup>th</sup> graders believed the same. Consistent with other DARE studies, the DARE students had a significantly greater knowledge about tobacco. There are many limitations to this study including the small sample size and little diversity in the ethnic and socioeconomic status of the population (2002).

Perhaps it was findings like these that lead to the revamping of the DARE program with a new component for 7<sup>th</sup> and 9<sup>th</sup> graders called TAKE CHARGE OF YOUR LIFE. In 2006,

researchers from The University of Akron (Ohio) conducted studies in six US cities for a total of 83 high schools and their 122 feeder middle schools for a 4<sup>th</sup> year evaluation of TAKE CHARGE OF YOUR LIFE. Students who receive the curricula in the 7<sup>th</sup> and 9<sup>th</sup> grade are surveyed annually to learn about the impact of the curricula. The final survey will take place in 11<sup>th</sup> grade. Preliminary findings are reported as “may be effective in reaching those adolescents who are at elevated risk for substance abuse”. Additional preliminary findings are that police officers are equal to teachers in delivering substance abuse prevention programs (DARE progress report, 2006).

Current elementary programs accepted by the Virginia Tobacco Settlement Foundation for their compendium program list include Al’s Pals, All Stars, Know Your Body, Life Skills Training, Positive Action, and Too Good For Drugs. Supplemental programs include Coole School, Keep A Clear Mind, Tar Wars, and Youth Media Network (VTSF website, 2007). According to the VTSF website, compendium programs are chosen “that address issues relative to tobacco use prevention, including primary tobacco use prevention education, tobacco cessation, early tobacco intervention and reduction, advocacy, youth empowerment and social skills building. Many of these science-based programs are recognized as model, promising, or effective tobacco prevention programs. At the same time, the range of programs found in the Compendium allows grantees to choose a program that best fits their communities” (VTSF website, 2007).

According to Terri-Ann Brown, Program Specialist for the Virginia Tobacco Settlement Foundation (personal communication March 19, 2007), criteria for the compendium programs include the following:

1. Program’s targeted audience is youth K-12.

2. Program offers a Tobacco Prevention or Control component or modules.
3. A VTSF Compendium worksheet has been completely filled out and submitted.
4. Program provides a solid theoretical foundation.
5. Program is recognized as “model”, “effective”, or “promising” by at least one of the following national agencies: Center for Substance Abuse prevention (CSAP), Substance Abuse and Mental Health Services Administration (SAMHSA), Center for Disease Control and Prevention (CDC), Safe, Disciplined, and Drug-Free Schools (SDDFS), US Department of Education (DOE), Collaborative for Academic, Social & Emotional Learning (CASEL), or, recommended by one of the following state agencies: State Tobacco Control Agencies, State Department of Education, State Health Services, or Office of Juvenile Justice Delinquency Prevention (OJJDP). The submitting agency must provide a web site link or supportive documentation designating the recognition.
6. Programs are multi-session (minimum of five sessions is the standard for multi-session).
7. The program is available for implementation by any/all organizations.
8. The program has been evaluated and proven effective.

Criteria for Virginia Tobacco Settlement Foundation *Supplemental* Programs Include:

1. Program’s targeted audience is youth K-12.
2. Program offers a Tobacco Prevention or Control component or modules.
3. A VTSF Compendium worksheet has been submitted.
4. Program is available for implementation by any/all organizations.
5. No implementation training is required.

6. May cost no more than \$200 for the program or \$10 per student.
7. Must be approved by VTSF staff.

With the exception of Life Skills Training, many of the VTSF compendium programs do not have published evidence of effectiveness or the articles and reports are more than 10 years old. There are a number of studies for the Know Your Body program, but none found by this researcher more recent than 1990 for elementary students. The following is a synopsis of what is available for each program in relation to tobacco, and is preceded by a short description of the program.

#### *LifeSkills Training*

LifeSkills Training is another widely used and widely proclaimed program that is used in elementary, middle and high schools across the country. In 1992, the CDC acted in response to requests from educators for effective programs that reduce health risk behaviors including tobacco. They would identify two programs per year based of theories of diffusion and would include the following components; 1) multi-component program, 2) classroom tested, 3) significant positive effects shown including delay or prevention of tobacco initiation, reduced tobacco use, increased quitting, strengthened intentions not to use, 4) design includes a control or comparisons group collection of follow-up data for minimum of six months, 5) published study results. Life Skills Training and Project Toward No Tobacco Use were the first two programs chosen (Collins, et al., 2002).

LifeSkills Training is also heavily funded and promoted by two major tobacco companies; Phillip Morris and Brown & Williamson mainly because the program does NOT

address the tobacco industry's long history of marketing tobacco products to youth (Mandel, et al, 2006). This is important because students list manipulation by the tobacco companies as a deterrent to smoking (Goldman & Glantz, 1998). The tobacco companies keep close evaluation tabs on the progress of LifeSkills Training and first and second year evaluations of state-wide adopted programs in West Virginia showed efficacy in knowledge of tobacco's effects as the only positive of the program. In fact, after 6<sup>th</sup> graders in West Virginia completed the full program, the smoking rate at post-test actually increased (p.38, Interactive Report, 2000).

Most studies of LifeSkills Training will show a modest if any effect on tobacco use. Hanewinkel and Abhauer (2004) conducted a study to test the hypotheses that the LifeSkills intervention group would have an increased knowledge about the effects of smoking, less favorable attitudes towards smoking, lower susceptibility to smoking, and improved social competencies and classroom atmosphere. One hundred-six 5<sup>th</sup> and 6<sup>th</sup> grade classes from Austria, Denmark, Germany and Luxembourg participated with 921 students in the LifeSkills group and 704 in the non-intervention group. Students were pre-tested and post-tested at 15 months. Life Skills participants were to receive 21 teacher-lead lessons over 4 months but in fact averaged 16.4, mostly because of time restraints. The study concluded that there were no differences in the two groups with regard to smoking status. Only a marginal effect was realized on never-smokers and experimental smoking. The study realized only a weak effect on the onset of smoking. No effects could be found regarding current smokers. There was no statistical difference in susceptibility to smoking among the groups. However, the study did show clear effects of LifeSkills on smoking related knowledge and classroom atmosphere.

A pre-test/post-test short term study of LifeSkills Training conducted among mostly 4<sup>th</sup> and 5<sup>th</sup> graders (n=1090) with the goal of reducing tobacco and alcohol use by providing students

with the necessary knowledge and skills for resisting social influences and to reduce motivation to use, did result in decreased tobacco use. Analysis was made on both an individual and school level. Results at post-test three months after the intervention showed a 61% reduction in the annual rate of smoking. Students in the intervention showed an increase in knowledge of tobacco effects. There are many limitations noted in this study and perhaps the greatest is the number of actual smokers among this age group as well as the small numbers in the intervention group (n=426). The study offers no evidence that the effects will last longer than any other elementary intervention, giving the students the same risk of tobacco use when they enter middle and high school (Botvin, Griffin, Paul, Macaulay, 2003).

LifeSkills may prove to be more effective on a middle and high school level with regard to tobacco use. Short term effects of the program shown in a study of 1,598 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup> grade students over a three year period did meet with favorable results. There were significantly fewer current smokers among those exposed to LifeSkills Training. In the LifeSkills group compared to the control group, more students said they did not intend to smoke in the next 12 months, but there was no statistical difference in intent to quit or quit attempts. Significantly fewer LifeSkills students hung out with friends who smoke and those exposed to the intervention twice reported it would not be difficult to refuse an offer of a cigarette. Students exposed to LifeSkills thought it was a good idea to pass laws in schools and other public buildings compared to those without the training. In the short term, the intervention seemed to make an impact on middle school students and tobacco use (Zollinger, et al. 2003). As with DARE, Life Skills Training may be more effective for middle and high school students when initiation is stronger.

The other program identified by the CDC in the first year of selection is Project Towards No Tobacco Use (TNT) (Collins, et al, 2002). Because this is not an elementary program but

designed for 7<sup>th</sup> graders with booster lessons in 8<sup>th</sup> grade (VTSF, 2007), it will not be included in this research.

### *Know Your Body*

Know Your Body (KYB) is a program of the American Health Foundation for elementary grades K-6 based on Social Learning Theory and first used in the late 1970's. The goal of the program is to empower students with skills to make positive health choices. While stressing individual responsibility for health, the program provides the basis for making health-promoting and disease preventing decisions. Goals of the program include reducing drug use and violence, and creating behavioral goals with outcomes that can affect breakfast and snack choices, and asking adults not to smoke in their presence. The five components of the program are skills-based health education curriculum, teacher/coordinator training, biomedical screening, extracurricular activities, and program evaluation. Generally, the teacher will serve as facilitator for 40 classroom hours, but the involvement of local health agencies, hospitals, and health care professionals is an important part of program effectiveness ([www.ed.gov](http://www.ed.gov), 2006). Among the elementary lessons provided, those for grades 4 & 5 address cigarette smoking as a risk factor (Williams, 1980). Booster lessons are provided through 12<sup>th</sup> grade.

Most studies showing the effects of KYB are geared toward cardiovascular disease, of which tobacco is a piece (Resnicow, et al., 1992, Walter, 1989, Williams, 1980). However, a study reported in 1989 to evaluate the effectiveness of KYB over a 6-year period showed favorable results to both diet choices and smoking. Nine-hundred eleven students who were in 4<sup>th</sup> grade in 1979 in the suburbs of New York City were tested six years after KYB was taught in their schools. Though no smokers were identified at 4<sup>th</sup> grade level, by the ninth grade the rate of

initiation among KYB participants was significantly less than in control schools. Students' saliva was tested for accuracy and presence of smoking chemicals. The study also revealed positive dietary and cardiovascular choices (Resnicow, et al., 1992).

After two years of a 5- year study of the KYB program with primarily black 4-6<sup>th</sup> graders involving 9 elementary schools in the Washington DC area, results showed promise. Of the 1,234 students eligible at baseline, 431 were re-screened after two years. Smoking was just one of the cardiovascular risks being studied. Serum Thiocyanate was used as the indication for possible smoking. At baseline, the intervention group had a significantly higher level of serum thiocyanate but after 3 years, there were significantly more non-smokers in the intervention group than in the control group. There was also a significant positive difference in attitude toward cigarette smoking (Bush, 1989).

A study geared specifically toward changes in cigarette smoking to reduce cancer risk was reported by Walter, Vaughan, and Wynder in 1989 and was based on the KYB program. A group of 485 students beginning in the 4<sup>th</sup> grade received the program and a control group of 620 students did not receive the intervention. Levels of serum thiocyanate were the predictor of smoking. Serum thiocyanate levels were comparable at baseline. When the 4<sup>th</sup> graders had reached 9<sup>th</sup> grade, smoking among the intervention group was significantly less (73.3%) than in the control group at the same grade.

Even when teacher style (honesty, motivation and enthusiasm, experience, technical skills, communicative behavior, and demeanor) are not optimal, KYB seems to have positive outcomes, but it is especially positive for those presenters with the above mentioned qualities. In a study of process evaluation of the KYB program in the District of Columbia, 82 teachers in 13 schools taught KYB during a 4-year intervention period. They ranged from regular classroom

teachers to physical education teachers, health teachers, and science teachers. Students participating were 100% black and 98% of the teachers were black. “Quality of teaching was measured by assessing fidelity to the curriculum and teacher approach and style, variables identified in the literature on education evaluation” (p. 62). Teachers were also rated in their status as a role model by noting weight, teacher mention of personal health promotion goals and activities, personal participation in the KYB Action Plan activities, and, based on personal admission or staff observation, teacher smoking habits. Scores of the teachers ranged from 8 (excellent) to 1(worse than average). Positive outcomes were found overall all for the intervention group compared to the control group in the areas of blood pressure, HDL/LDL ratio, serum smoking, and fitness. The effect was greater for teachers deemed effective than those deemed ineffective (Taggart, Bush, Zuckerman, Theiss, 1990).

### *Too Good For Drugs*

One of the compendium programs with a more recent evaluation available is Too Good For Drugs (TGFD). TGFD addresses social influences such as peers, advertising and media, and correcting misperceptions of social norms; emphasizing the development of social and personal skills to resist social and environmental pressures to engage in risk behaviors; persuading students of the value of pro-social behaviors; modeling pro-social skills, offering opportunities to perform the skills and providing rewards and recognition for using them (VTSF website, 2007).

The following is a brief program description from the VTSF website:

“TGFD is designed to reduce risk factors and enhance protective factors relating to alcohol, tobacco, and other drug use among all school students nationwide. Impacting students directly through the school and family, this program was designed to develop: 1)

personal and interpersonal skills relating to alcohol, tobacco, and other drug (ATOD) use, 2) appropriate attitudes towards ATOD use, 3) knowledge of the negative consequences of ATOD use and benefits of a drug-free lifestyle, and, 4) positive peer norms. Teaching methods are highly interactive and engage students through role-play, cooperative learning, games, small group activities and class discussions. Students have many opportunities to participate and receive recognition for their involvement. Teaching methods model and encourage bonding with pro-social others.”

An unpublished evaluation of TGFD prepared in 2003 by Evaluation and Research Consultant Tina P. Bacon, PhD, found favorable results when examining the effectiveness of the program in impacting children’s classroom behaviors, attitudes toward drugs, perceptions of the harmful effects of drugs, emotional competency skills, goal setting and decision making skills, and social and resistance skills. Results were analyzed from both 3rd and 4th grade students (n=1124) and teachers (n=52). A pretest and post test 4-months after TGFD delivery provided the data. Self-reported student surveys showed statistically significant higher scores compared to the control group for social resistance skills, goal setting and decision making skills, and perceptions of the harmful effects of drug use including smoking. Teachers’ observation of the students at the end of the program and at 4-month follow up found statistically significant higher scores in personal and social skills, prosocial behaviors, and fewer inappropriate social behaviors. Results were regardless of gender, socioeconomic status or ethnic background.

#### *Positive Action*

Positive Action (PA) is a K-6 program with a Middle School Drug Supplement Kit. The purpose of the program is to teach students that there is a Positive Action for all situations. There

are six units including: 1) self-concept, 2) physical and intellectual PAs for a healthy body and mind, 3) social/emotional PAs for managing yourself responsibly, 4) PAs for getting along with others, 5) PAs for being honest with yourself and others, 6) PAs for continually improving yourself (VTSF Compendium Worksheet, P. 1).

A 2001 case study of year 2 of a Positive Action Program implemented in an elementary school in northern Florida involving grades K-5 reported findings. Because there was no tobacco use in grades K-3, the only tobacco-related results came from a self report that indicated that students from a high implementation classroom had fewer positive feelings toward tobacco use. Grades 4 &5 that had high implementation of the program reported less increase in time using “substance” than the group with low implementation of PA, and the high implementation group actually showed a decrease in time spent using substance between the 3<sup>rd</sup> and 4<sup>th</sup> waves of the survey. The study concluded that the more consistently the program was offered, even the group with low implementation, and the high implementation group actually showed a decrease in time spent using substance between the 3<sup>rd</sup> and 4<sup>th</sup> waves of the survey. The study concluded that the more consistently the program was offered and the more exposure students had to the program, the greater the effects (Flay, Phil, 2001).

#### *Al's Pals*

According to SAMHSA Model Programs, Al's Pals: Kids Making Healthy Choices is a resiliency-based early childhood curriculum for children ages 3-8 that develops personal, social, and emotional skills. It teaches children how to express feelings appropriately, use kind words, care about others, use self-control, think independently, solve problems peacefully, make friends,

cope, make safe and healthy choices, and understand that tobacco, alcohol, and illegal drugs are not for children ([www.modelprograms.samhsa.gov](http://www.modelprograms.samhsa.gov), 2006).

Several VTTSF compendium program schools chose AI's Pals and conducted unpublished research beyond the required quarterly report. The Richmond Behavioral Health Authority facilitated the 46 lessons for AI's Pals in grades Pre-K-1<sup>st</sup> in a predominantly (90.4%) black/African American urban population. Pretests and posttests were used with the Child Behavior Rating Scale (CBRS) and the Social Interaction Subscale of the Merrell Preschool and Kindergarten Behavior Scale (PKBS). The results of the paired t-test analysis for the overall group showed that children who received the AI's Pals curriculum showed statistically significant improvements in pro-social skills and behavior using both scales. AI's Pals kids also showed decreases in negative behaviors such as avoidance of peer interaction, difficulty making friends, and failure to respond to affection. Conversely, the results on the Antisocial/Aggression Subscale showed that AI's Pal's children showed a slight *increase* in frequency in problem behaviors. Conclusions of the study stated that "Overall, the AI's Pals program was not effective in preventing an increase in antisocial and aggressive behaviors among AI's Pals children; in fact, overall the frequency of such behaviors actually increased over the course of the school year (p. 7, RBHA, 2006). According to this report, other AI's Pals studies have shown similar results.

The same scales were used in pre and post testing of kindergarten children in 12 classrooms of a predominantly white rural county. Results of the paired t-test analysis showed statistically significant improvement in prosocial skills and behaviors. The Social Withdrawal Subscale showed overall that children did not show significant decreases in behaviors such as avoidance of peer interaction, failure to respond to affection, and difficulty making friends. No significant changes were detected on the Antisocial/Aggressive subscale. Results of the RCI

analysis showed that 22.2% of children showed gains in prosocial skills on the CBRS, and 11.6% showed improvement on the PKBS Social Interaction Subscale. This study concludes that based on the results, “it would appear that the AI’s Pals program has a stronger impact on those children who have the most problem behaviors or the fewest positive social skills initially (p. 5, CMCSB, 2006).

Highlights from an AI’s Pals program in Alexandria serving 328 children ages 3-6 showed mixed results. The children were evaluated both pre and post intervention using the Kindergarten Behavior Scale-Second Edition (PKBS-II). The children received all 46 sessions of AI’s Pals. Seventy-four percent of the children either maintained or improved social cooperation scores and social independence scores, and 79% maintained or improved social interaction scores. Ninety-four percent of the children scoring “at-risk” on the social skills pre-test, showed improvement on the post-test. However, 57% showed no increase in externalizing problems scores and 62% showed no increase in internalizing problems scores (VTSF evaluation form).

AI’s Pals was also used in 12 Head Start preschool classrooms in the Charlottesville area. Pre and posttests of the Child Evaluation Instrument, the Creative Curriculum Developmental Continuum, Social and Emotional Development showed changes. At pretest, 67% were below curriculum goal for “sense of self” and this improved by 8.5% at posttest. Other areas showing significant gains include responsibility for self and others, pro-social behavior, and overall positive social and emotional development. The overall results showed an 89.5% increase in positive social and emotional development (CYFS, 2006).

### *All Stars*

According to the All Stars website and the VTSF compendium program description, the All Stars core program is designed for students between the ages of 11-13. The program consists of 13 interactive 45-minute sessions and the goal is to prevent alcohol, tobacco, and other drug use, to reduce bullying and fighting, and to postpone sexual activity by building idealism and a belief in the future, establishing positive norms, establishing personal commitments, avoiding risky behaviors, promoting bonding to school or group, and promoting positive parental attentiveness.

Harrington, et al. (2001) conducted a pretest, posttest longitudinal study of 1,655 students in 14 middle schools in two large Midwestern cities. A follow-up study was conducted one year after the All Stars intervention. One group was taught by the teacher, one by a specialist and the control group did not receive the intervention. The greatest effects were realized by the teacher-taught group from pretest to posttest in relation to bonding with school, positive ideals, commitment, and belief in conventional norms. With the exception of bonding with school, none of these were sustained at follow-up. In relation to sexual activity and substance use, they both increased over time; however, there was a small but significant main effect of substance use in the specialist group at all three assessment points.

A study was conducted in middle schools in Louisville and Lexington, KY consisting of 1,822 students in 14 middle schools. Six schools were control schools, three received a program delivered by classroom teachers and five received the program from an outside specialist. There was a pretest and a posttest. From baseline to follow-up, drinking, smoking, marijuana use, and engaging in sexual intercourse increased. Neither the teacher nor the specialist lead group had much effect at slowing the rate of students drinking or engaging in sexual intercourse. Inhalant

use declined slightly for both and that was similar to the decline from the control group. In relation to rate of growth in 30-day cigarette use, teacher delivered programs seem to have a substantial effect at reducing growth rate compared to the specialist and control groups (McNeal, Jr., et al., 2004).

One community and one school-based group among the VTSF compendium recipients used the All Stars program for upper elementary children encompassing ages 9-14 years in the cycle 2005-2006. An unpublished overview of a 2005 All Stars program offered to inner city lower income youth ages 10-14 in the Portsmouth area of Virginia revealed a high drop out rate from first class to last, about 50%. This study consists of a small sample size (n=22 pretest, n=17 posttest) and there was no follow-up of dropouts (Sentara's Community Partners, 2005). Result for those who attended at least 7 classes showed that at program completion, 69% made the decision not to smoke cigarettes, 88% made the decision not to use marijuana and  $\frac{3}{4}$  took a pledge that they would not drink alcohol (unpublished report, 2005).

### *Tar Wars*

One of the programs that has been studied in more recent years is Tar Wars, a VTSF *supplemental* program that was developed by the American Academy of Family Physicians. This one hour program for 4<sup>th</sup> and 5<sup>th</sup> graders is relatively inexpensive to implement and is generally facilitated by a local health professional. The program uses a class participation format to discuss peer norms, long and short term effects of tobacco use, financial implications of tobacco use, reasons people start and continue to use tobacco, and how advertising is geared toward and entices youth to start using tobacco products ([www.tarwars.org](http://www.tarwars.org)).

Cain, et al., (2006) reported on the Colorado Tar Wars program, which included 2926 5<sup>th</sup> grade students across the state. Physicians were recruited to facilitate the 1-hour classroom program. A pretest/posttest format was used for evaluation of the program and tests were adapted from those available in the Tar Wars materials. The analysis intended to show changes in knowledge about tobacco. Knowledge scores increased in all 14 of the test areas and the average knowledge score increased from 8.95 to 10.23. Because 75% of this population knew correct responses at pretest, there was a ceiling effect in the statistically significant response increase at posttest. The qualitative interviews revealed that students learned new information in the areas of percentage of different age groups using tobacco, financial implications of tobacco and how tobacco is advertised. Related results to the Cain, et al. study were found in a 2002 report of 888 5<sup>th</sup> grade students who returned posttests from 16 schools in New York State. Students reported favorably about learning short and long-term health effects, reasons for starting, and 79% of students reported that they thought programs like Tar Wars would help keep kids from using tobacco. The knowledge benefits were significant (Mahoney, et al.).

Mahoney, et al. also conducted a pretest/posttest study of three groups representing 5<sup>th</sup> grade students in western New York State. Students completed a pretest, the intervention and an immediate post test and a 4 month follow-up test during three different semester time periods. Group 1 completed all parts of the study (pretest, intervention, immediate posttest & delayed posttest) one right after the other. Group 2 started the intervention and posttest several months after the pretest. Group 3 started the intervention 2 months after the pretest. Based on the number of questions answered correctly, there were no significant differences noted at the baseline test. Overall, the groups showed a significant increase in knowledge of short-term effects, social

influences and advertisement at both posttests. The researchers concluded that “modest and sustained responses (were realized) as a result of this single session” (p. 6, 2002).

### *Coole School & Youth Media Network*

Additional supplemental compendium programs for elementary schools include Coole School and Youth Media Network. Coole School provides an interactive daily planner for teachers that are designed for teacher led discussions. The planners contain games and puzzles geared toward reducing risk factors and increasing certain protective factors. There is a pre and posttest module. Students are also provided a homework planner that contains daily reminders, weekly topics on character education, tobacco, and other drug prevention information (VTSF, 2007). The program claims to be evidence-based (Coole School, 2007). Youth Media Network is an interactive tobacco education curriculum that increases youth’s knowledge of tobacco-related issues and health information. It provides a way for peers to communicate with each other and increases skills and involvement to counter the tobacco industry’s influence (VTSF, 2007).

### **Conclusion**

Based on the studies included in this review, several conclusions can be drawn. Researchers generally agree that tobacco education programs offered in elementary schools have little shelf life beyond 5<sup>th</sup> grade (Sussman, 2001, Gandhi, 2007). There is little evidence to suggest that these programs have efficacy for tobacco initiation or continuation. However, there is evidence that they do increase knowledge of the health effects of tobacco use.

The primary influences on tobacco use include parents and their smoking status and perhaps more importantly, their opinions about tobacco use (Sargent & Dalton, 2001, Castrucci,

et al., 2002). The extent of parental monitoring is also an influencing factor (Grenard, et al., 2005, Lorrean, et al., 2004). Peers/friends also provide influence, especially for initiation (Bricker, et al., 2003, deVries, et al., 2003, Leatherdale, et al., 2006, Steward-Know, et al., 2005). However, some researchers caution that there may not be a direct correlation with parent and friend use and smoking initiation but rather, that friends who smoke find each other because of smoking as a common bond (Arnett, 2006). Participation in sports (Castrucci, et al., 2004, Rolandsson, 2006), advertising (DiFranza, et al., 2007, Feighery, et al., 1998, Sargent, 2000), and TV and movies (Sargent, et al., 2001, Charlesworth and Glantz, 2005, Jackson, 2007) also influence tobacco initiation.

Few elementary programs are effective beyond a year in terms of influencing tobacco decisions in youth (Osganian, 2003, Ghandi, et al., 2007). Programs like Al's Pals, designed specifically for young children, did not show a significant change in some negative behaviors (RBHA, 2006) and no mention was made of tobacco outcomes. All Stars showed a slowing rate of increase in tobacco use in teacher-led programs in short term studies (McNeal, Jr., et al., 2004).

Some elementary programs do show increase knowledge of the effects of tobacco, financial implications of tobacco, and manipulation by tobacco companies to entice young people to start (cite). LifeSkills Training (Hanewinkel and Abhauer, 2004), Too Good For Drugs (Bacon, 2003), and Tar Wars are programs with research to support short term effectiveness, but the country's most prevalent school drug education program, DARE, shows weak short term effects and no long term effects when delivered on an elementary level (Ennett, et al., 1994, Dukes, et al., 1997, Clayton, et al., 1996, Layman, et al., 1999). Perhaps the program with the

greatest statistical support is Know Your Body (Bush, 1989, Walter, et al., 1989, Taggart, et al., 1990).

Physicians and health care workers can have a profound influence on a child's smoking initiation, continuation, and cessation (Epps, 1993, Thomas, 1995, Bal, et al., 1995, DHHS, 2000). Media Campaigns, when offered consistently, are an effective tool in reaching large numbers of youth with an anti-tobacco message (Sly, 2001, Thrasher et al., 2004, Emery, 2004). Legislation that limits access to tobacco for youth under the age of 18 is only as good as the enforcement (Gilpin, 2004, Siegel, 1993, Stead & Lancaster, 2000, Chen 2006, Defranza, et al., 1999). Laws prohibiting smoking in the workplace, including restaurants and bars, greatly reduce indoor pollution, are generally well accepted, and provide protection from secondhand smoke to both employees and workers (Jacobson, 2006, Fichtenberg, 2002, Goodman, et al, 2006, Fichtenberg & Glantz, 2002). Perhaps it is the combination of all of these efforts that will provide the greatest reduction in the state's tobacco use rate (Flay, 1995, Sly, et al, 2004, Friend, 2002, Wakefield & Chaloupka, 2000).

## **Chapter 3**

### **METHODOLOGY**

#### **Study Design**

This research effort is a comparative program analysis that will focus on the evaluations provided by the VTSF to determine if and how the elementary compendium programs contribute to prevention of tobacco use. The study will employ a combination of methods including a quantitative analysis, a meta-analysis, and a number of comparative charts and tables for analysis.

Each school, community service board, church, health or community organization that applies for and receives program grant money must submit quarterly reports and an end-of-the-program evaluation. The quarterly reports include information such as program targets, program outputs, program goals, objectives and strategies, expected and actual outcomes, program summaries, implementation barriers/obstacles, steps for overcoming implementation barriers/obstacles, and evaluation progress. Along with the 4<sup>th</sup> quarter report, a final report is submitted that relates to the entire grant cycle. Final reports include descriptions of effective strategies for achieving objectives, recommendations for future activities, and local evaluation results (See Appendix A).

There were 12 compendium programs utilized in elementary schools and community centers throughout the four regions of Virginia during the school year 2005-2006. The following is an alphabetical list of the programs and a brief description of each. All information was taken from the VTSF Compendium Program Information Worksheet (See Appendix B) found on the VTSF website at the time the programs were available and active. Some programs were deleted from the compendium for the 2006-2007 grant cycle.

**Al's Pals: Kids Making Healthy Choices** is an early childhood prevention curriculum and teacher training program. Geared for children ages three to eight years old, Al's Pals develops children's pro-social skills, self-control, problem solving abilities, and an understanding that they are not to use tobacco, alcohol, and other drugs.

**All Stars** is an effective prevention program that prevents substance abuse (alcohol, tobacco, marijuana, and inhalants), premature sexual activity, fighting, and delinquency. The program also enhances positive characteristics such as idealism, belief in the future, commitment to a positive lifestyle, wholesome standards, resiliency, a sense of belonging, and positive relations with parents and other adults.

**Families and Schools Together (FAST)** is a multifamily group intervention designed to build protective factors and reduce the risk factors associated with substance abuse and related problem behaviors for children 0-16 years old and their parents. The goals include enhanced family functioning, prevention of school failure by the targeted child, prevention of substance abuse by the child and other family members, and reduced stress from daily life situations for parents and children.

**Get Real About Tobacco** is a research-based tobacco prevention program for grades K-12 that was designed to change attitudes and norms about tobacco. Each lesson is based on reducing one or more risk factors. Get Real About Tobacco is a comprehensive, student-centered, prevention program that includes components for involving parents and the community.

**Here's Looking at You** continues to be one of the most widely-used K-12 drug education programs in the United States. The research-based curriculum focuses on the gateway drugs of alcohol, nicotine, and marijuana and delivers strong abstinence messages. Each grade

level incorporates a variety of learning tools including puppets, books, videos, games, and posters to accommodate the different learning styles of students.

**Keep A Clear Mind** is a parent-child drug education program. The program requires little school time, but has been shown to be an effective way to involve parents and impact known risk factors for later substance use.

**LifeSkills Training** is a proven, highly effective substance-abuse prevention and competency enhancement program designed to focus primarily on the major social and psychological factors promoting substance use/abuse. LifeSkills Training increases students' knowledge of the immediate consequences of substance use while providing necessary skills to resist social (peer) pressures and reduce psychosocial motivation to smoke, drink, and use drugs.

**Lions-Quest *Skills for Growing*** is a comprehensive youth development program of the Lions Clubs International Foundation that brings together educators, parents, and members of the community to support children in learning 1) essential life skills, 2) character development, 3) skills and attitudes for the prevention of drug use and violence, and 4) an ethic of service to others within a caring and consistent environment. The program is designed as a school-based positive youth development program.

**Positive Action's** purpose is to teach there is a positive way to do everything. The program teaches the philosophy and specific positive actions that cover physical, intellectual, social, and emotional areas so that students can learn representative positive actions and be able to generalize to other contexts. Positive Actions are taught in six unit concepts that align the K-12 curriculum and program components for learning climate, counselors, parents, and community involvement.

**Project Charlie and Home Team** is a national/international prevention education written for universal and selected audiences. It provides curriculum and training that teaches and supports a life skills approach. It lends itself to a wide range of cultures with its focus on individual uniqueness, respecting differences, and the creation of a culture of inclusivity.

**Strengthening Families Program: For Parents and Youth 10-14** is a seven-week program in which parent (s) and their young adolescent children meet together. In the first hour, parents learn ways to build parenting skills while the youth learn appropriate life skills. In the second hour, parents and children come together for family activities. The interactive curriculum includes video tapes, discussions, projects, role plays, and learning games.

**Too Good for Drugs** is designed to reduce risk factors and enhance protective factors relating to alcohol, tobacco, and other drug use (ATOD) among all school students nationwide. Impacting students directly through the school and family, this program was designed to develop: 1) personal and interpersonal skills relating to ATOD, 2) appropriate attitudes towards ATOD use, 3) knowledge of the negative consequences of ATOD use and benefits of a drug-free lifestyle, and 4) positive peer norms.

### **Programs**

This study is primarily a review of evaluations and not individual people or groups of people. The study will look at the final evaluations of the various programs of the compendium (listed above) in the 2005-2006 cycle. Only elementary programs (Pre-K – 5 and in some systems 6) will be reviewed.

The programs all took place in Virginia elementary schools in the four regions of the state as defined by the VTSF. The students were in grades Pre-K through 5 or 6. They came from both urban and rural areas and a mixture of socio-economic backgrounds.

### **Instrumentation**

One of the problems with school health education programs is the lack of empirical research to support their efficacy. Typically, programs are evaluated by the teacher/facilitator and there are few outside evaluations (Ghandi, et al., 2007). Some do offer a pretest/posttest that gives some statistical information about the outcome; however, the teacher/facilitator is often called upon to make a judgment of these outcomes, especially for very young children. The VTSF provides a variety of evaluation formats ranging from short, descriptive outcomes to non-experimental statistical analysis. Because there is no consistency among the program evaluations, the process of “evaluating the evaluations” is difficult.

The primary research question is whether or not the elementary compendium programs prevent tobacco use. Additional questions include: Does the current program evaluation process provide useful information to determine if the programs are effective in tobacco use prevention (are the evaluations effective)? and Are community or school-based programs more effective?

A number of charts will be constructed to summarize the overall demographic picture of the programs. A detailed summary of the programs will be stated, as well as the number of students that completed each program throughout all four regions and the number of lessons that specifically deal with tobacco prevention.

Tables of all of the elementary programs funded for the 2005-2006 school year including the program setting (school or community), evaluation type, geographic setting (urban/rural),

and total number of participants will be drawn and geographic regions will be defined. A table will separate grants per region (North, Central, Southeast, Southwest), give the total money allocations for each region and the amount spent per student will be calculated. Tables will be constructed to analyze significance and effectiveness of the programs and will include the following information: whether or not the participant obtained knowledge of the harmful effects of tobacco, the benefits of being tobacco free, intent not to use tobacco products, resistance to peer pressure, and rejection of smoking. This analysis, along with supporting analysis from the review of literature, will help to answer the primary research question of whether or not the elementary compendium programs prevent tobacco use. The information was derived from either the final evaluation form or, when included, a pretest/posttest statistical analysis. Frequencies and means will be run on the percentage of students that showed a benefit in the five criteria areas. This analysis will provide information about short-term benefits of the programs.

Reviewing all of the above information, as well as previous supporting research, will help answer the additional research questions pertaining to the effectiveness of the evaluation forms in providing relevant information, and which programs are more effective in relation to tobacco avoidance. All of these components will be illustrated with a flow chart that will simplify the process of this methodology and condense it into one diagram.

The actual evaluation form and evaluation methods will also be reviewed for effectiveness in providing information that is relevant in determining whether or not the program achieved expected outcomes, in particular, tobacco prevention. Given the fact that youth tobacco use in Virginia is creeping up, it seems important that the VTSF use its program funds for maximum impact of tobacco avoidance and cessation. A recommendation based on the evaluations will be made as to the most effective programs for elementary students in terms of

tobacco avoidance and additional suggestions based on the meta-analysis of programs.

Recommendation will also be offered based on the review of literature and other published opinions.

## **Chapter 4**

### **RESULTS**

#### **Introduction**

The purpose of this study was to determine if the elementary compendium programs offered by the VTSF prevent tobacco use. Research Question one is: Do the elementary compendium programs prevent tobacco use among Virginia's youth? Two additional questions were raised: Does the current program evaluation process provide useful information to determine if the programs are effective in terms of tobacco use prevention? Are community or school-based programs more effective?

Materials provided by the VTSF to conduct this research included a VTSF Progress Report for the year ending June 30, 2006 (Appendix A). The report included the name and address of the organization receiving the grant money, total money received, names of each program included in the grant, number of students or families served by the grant, and their ages or grades. Other categories included on the form were the program goals, objectives, strategies, and their outcomes; program summary including implementation barriers; steps for overcoming barriers; and evaluation progress. The final report section of the form addressed several questions including: 1) Effective strategies for achieving objectives, 2) Recommendation for future activities, 3) Local evaluation results, and 4) Additional comments.

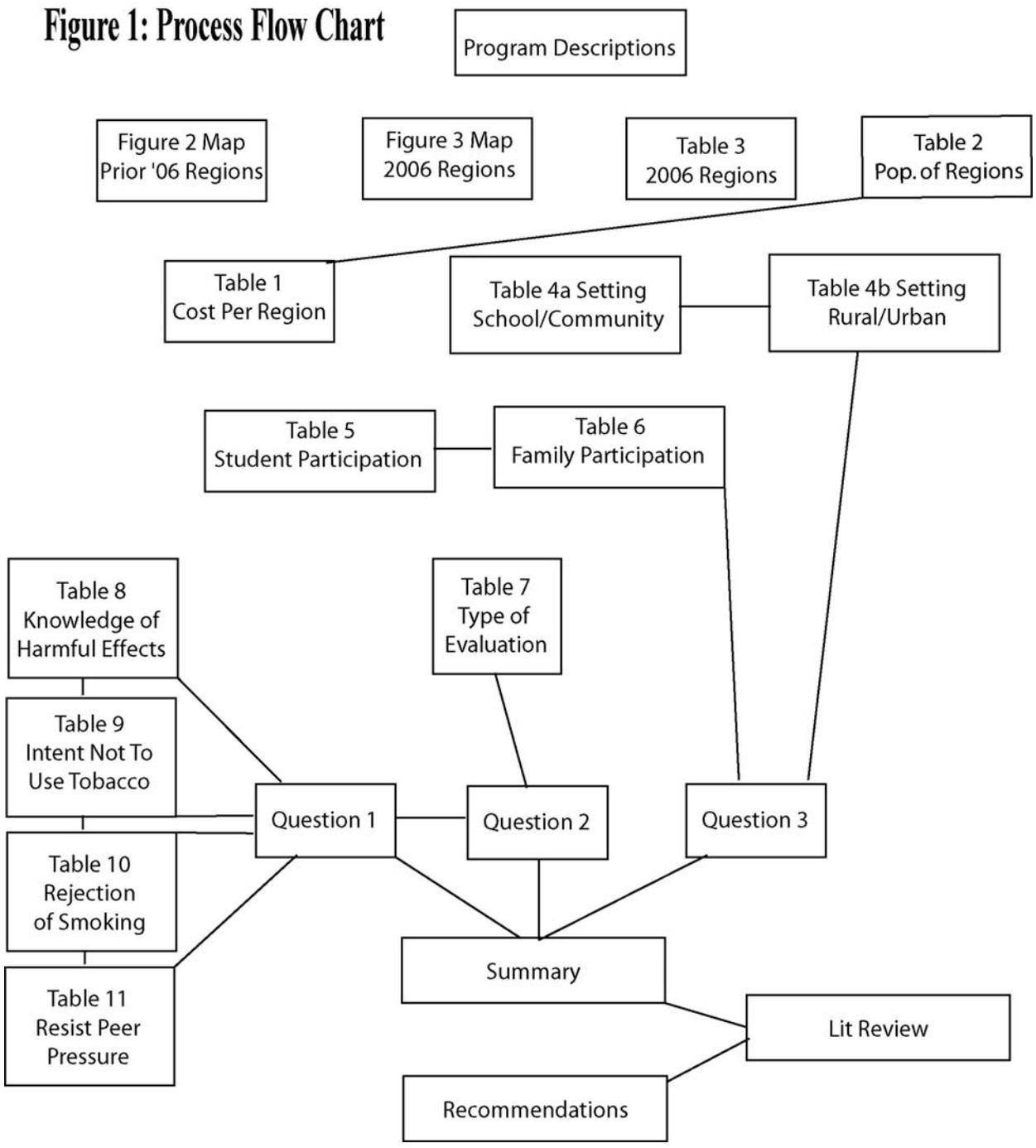
A total of 12 programs were analyzed in 18 final reports that included 29 separate offerings. Of these 18 final reports, three were conducted in a community setting such as a YMCA or Boys and Girls Club and 12 were conducted in public elementary or pre schools such as Head Start. Grades ranged from Pre-K to 5<sup>th</sup> or 6<sup>th</sup> (ages 4-12) depending on the grade range of the elementary school. Also included with some, but not all of the evaluations, were either a

pretest/posttest or posttest evaluation provided by the teacher, researcher from the program creators, or an independent researcher.

This chapter will provide a description of the compendium programs as provided on the VTSF Compendium Program Worksheet and offered in the year 2005-2006 (Appendix B). Each description includes goals of the program, number of participants in the program, grade level of the students, number of lessons directly addressing tobacco, and the specific tobacco related outcomes to be realized from the program. This description sets the stage for the five indications of program success, which in turn lead to answering the three research questions. A map of the regions for the year 2005-2006 is included, as well as a map of the regional breakdown beginning July 1, 2006 and tables showing the population break-down for those regions (Table 1). These maps present a perspective of the state and indicate how funding was allocated.

Tables illustrating the type of program (community or school), setting (urban or rural), number of students participating in programs, number of families participating in the programs, and the type of evaluation (VTSF final report, pretest/posttest, posttest, or other) are included and speak directly to the primary research questions. Additional tables provide information in five areas illustrating what the participants may have learned from the program: 1) knowledge of harmful effects, 2) benefits of being tobacco free, 3) intent not to use, 4) resistance to peer pressure, and 5) rejection of smoking (Tables 8-11). These questions were the key factors—supported by the previous literature--used to answer the primary research question. Findings of all these elements were considered when answering the research questions (Figure 1).

Figure 1: Process Flow Chart



## Program Descriptions

Information on the elementary compendium programs conducted and evaluated in 2005-2006 was obtained from the VTSF Compendium Program Information Worksheets unless otherwise noted (Appendix B). The worksheets contain the following information:

1) Program Title, 2) Description of the theoretical framework of the program, 3) Brief program description, 3) Description of specific outcomes the program addresses, 4) Description of specific tobacco control outcomes the program addresses, 5) How the program works, 6) Target age group, grade level and/or gender, 7) Type of program (i.e. cessation/reduction, prevention), 8) Recommended intervention site (i.e. school, community, faith, child care), 9) Website address, 10) Recognition by national and/or state level agencies and organizations, 11) Available in Spanish, 12) Program replications, 13) Implementation essentials, 14) Curriculum materials, 15) Training & costs, 16) Evaluation Information, 17) Contact information, 18) Additional comments.

**AI's Pals: Kids Making Healthy Choices (AP)** is an early childhood prevention program geared for ages three to eight years designed to develop children's pro-social skills, self-control, problem-solving abilities, and an understanding that they are not to use tobacco, alcohol, and other drugs. Specific tobacco control outcomes include preventing the initiation of tobacco use by youth, promoting attitudes that favor healthy lifestyles, avoiding harmful substances such as tobacco products, developing pro-social skills that help children resist peer pressure, and risky decision-making connected to tobacco product use. The full program involves 46-15 minute teacher-delivered lessons. Four of the 46 lessons specifically address tobacco. There are booster lessons available for 2<sup>nd</sup> or 3<sup>rd</sup> grade and a companion parent education series called Here, Now and Down the Road (HNDR). One thousand six hundred thirty six students

completed the AI's Pals training and 514 completed the booster lessons. Two of the five progress reports indicate that the HNDR program was offered, that some parents attended but in both cases, only three of four planned parent sessions took place.

**Positive Action (PA)** teaches that there is a positive way to do everything and specific positive actions cover physical, intellectual, social, and emotional areas. Lessons are available through grade six, with a middle school drug supplement program. Full implementation of the program involves 142 lessons. Of those, 11 lessons in grades K-4 and 6<sup>th</sup> specifically address tobacco. Tobacco outcomes include prevention (delay of onset), youth cessation, attitudes, normative beliefs, and self-efficacy. The 5<sup>th</sup> grade drug supplement kit also addresses tobacco. One thousand two hundred seventy eight students completed the positive action program in grades ranging from K-8.

**All Stars (AS)** is a substance abuse prevention program with outcomes that include use prevention of alcohol, tobacco, marijuana, and inhalants among others. It is designed for older elementary (4-5<sup>th</sup> grades) and middle school age students. There are 13 core sessions, each about 45 minutes, a nine-session booster program and 13 additional sessions in All Stars Plus. Of the 13 core sessions, five specifically addresses tobacco. The tobacco control outcomes listed on the worksheet include "cigarettes and smokeless tobacco" but the outcome stated for the overall program related to tobacco is to prevent substance abuse. One thousand four hundred and one students completed the program, 1347 in schools (grades 4-6) and 54 in community settings (ages 10-13).

**LifeSkills Training (LST)** is based on the Social Learning Theory and Problem Behavior Theory and is primarily a drug prevention program that increases awareness of social influences promoting alcohol, tobacco, and other drug use. The program tobacco outcomes

include a focus on short-term effects of smoking, increases knowledge about actual levels of smoking among adolescents and adults , reinforces anti-smoking attitudes and the declining acceptability of smoking. Information and class exercises demonstrate the immediate physiological effects of smoking and addresses peer and media pressures to smoke, and techniques for resisting these pressures. The “Smoking Information” module is conducted during the elementary years and “Smoking: Myths and Realities” is conducted during middle school years. Both programs have received national and state recognition from many noteworthy organizations. There are 24 elementary classes that are taught over a three year period and must be taught at least once per week and all lessons on both levels should be taught to achieve model outcomes and fidelity. A total of 477 completed elementary level (K-6) LifeSkills Training in 2005-2006 and 612 middle school students completed the program.

**Too Good For Drugs (TGFD)** is designed to reduce risk factors and enhance protective factors relating to alcohol, tobacco, and other drug use among students. It was designed to develop personal and interpersonal skills relating to alcohol, tobacco, and other drugs (ATOD). Additionally, it teaches students to use appropriate attitudes towards ATOD and to understand the negative consequences of ATOD use, as well as the benefits of living a drug-free lifestyle. There are 10 lessons for each level in grades K-8. At least one tobacco lesson is included at each grade level.

**Keep A Clear Mind (KACM)** is a supplemental VTSE offering. It is a parent-child drug education program that requires little school time and consists of four lessons—one that specifically deals with tobacco--five parent newsletters, and student incentives. Tobacco outcomes include peer pressure susceptibility, self-efficacy, family expectations, knowledge, perceived peer use, motivation for nonuse, actual use, intended use and family communication

about tobacco. Students take lessons home, complete them with a parent or guardian, and bring a tear sheet signed by the parent back to school to receive a small incentive. After four weeks of lessons parent newsletters are sent home every other week. Five hundred eighty nine 3<sup>rd</sup> graders completed the program.

**Project Charlie (PC)** is no longer a program on the VTSF compendium however, it was during the 2005-2006 grant cycle. During that year 647 students in grades K-5 completed Project Charlie in the Southwest region. This prevention curriculum supports a life skills approach to alcohol, tobacco, and other drug use, based on the assumption that learning to resist the interpersonal phenomenon of peer pressure will decrease an individual's susceptibility to chemical use. Along with the more than 20 core classes, of which 12-15 are necessary to achieve fidelity, the program offers a family program called Home Team and a Student Service Leadership Program for middle and high school. Eighteen families attended Home Team sessions. Specific outcomes are included to promote abstinence, delay onset of experimentation, inhibit development of tobacco and AOD, peer pressure, knowledge of harmful effects, and awareness that most young people do not use drugs.

**Lion's Quest: Skills for Growing (LQ)** is no longer a compendium program choice. It is a K-5 curriculum that includes life skills and citizenship, as well as drug prevention education and refusal skills. One of the program goals is promoting a healthy, drug-free approach to life and involves family, school, and community. Specific tobacco outcomes include differentiating among medicines and drugs, harms of tobacco, industry advertising, influences and pressures to use, school and home rules regarding tobacco, resistance skills, protective laws, addiction, reasons not to use, healthy lifestyle, promote positive peer pressure, peer support for a healthy lifestyle, and available resources. A middle and high school continuation program is also

available. There are 24 lessons in the K-5 program, with one full module specifically dealing with growing up drug free and 17 lessons that specifically address tobacco. Four hundred seven students in grades 3-5 completed the program through VTSEF compendium grants.

**Here's Looking at You (HLAY)** is no longer on the compendium program list but 1,293 completed the program in 2005-2006 in grades 4-6. The program delivers a strong abstinence message focusing on the elimination or delay of early first use of the gateway drugs nicotine, alcohol, and marijuana. A variety of learning tools including puppets, books, videos, and games are used. Four student sessions and one parent session specifically address tobacco. Tobacco outcomes include promoting healthy norms, increasing protective factors, reducing risk factors correlated with drug use, delaying early use, fostering peer connections, and resistance skills.

**Get Real About Tobacco (GRAT)** is no longer a VTSEF compendium program offering. Get Real About Tobacco is a K-12 curriculum designed to change attitudes and norms about tobacco. Each of the 22 elementary lessons is based on reducing one or more risk factors related to tobacco. It includes components for involving parents and the community. Tobacco outcomes include understanding legal use and developing media literacy skills to avoid false messages. GRAT was only offered in one elementary setting with a total of 202 students completing the six sessions. All three modules must be represented to achieve fidelity.

**Families and Schools Together (FAST)** was offered as a compendium choice in 2005-2006, but is not currently on the list. It is a multifamily group intervention and the goals are to enhance family functioning, prevent the child from experiencing school failure, prevent substance abuse by the child and other family members, and reduce the stress that parents and children experience in daily life. This eight-week community intervention also strengthens bonds between families and schools. During the initial eight weekly sessions parents are in charge of

activities with their own children. No specific outcomes for tobacco are listed “but research has shown that childhood behavioral outcomes are correlated in adolescence to the prevention of substance abuse” (VTSF Compendium Program Information Worksheet). Forty eight 4-9 year olds and their families completed the FAST program in 2005-2006. Five different eight-week cycles were offered.

**The Strengthening Families Program (SF)** for ages 10-14 is for parents and children together and they meet over a seven week period for two hours a week. The first hour is spent in separate classes and the second hour parents and children are together for family activities. Tobacco outcomes include how tobacco can keep youth from reaching goals, how tobacco causes stress, and peer pressure resistance skills.

### **Regional Breakdown of Cost**

It is difficult based on the information provided to break down the students by grade and/or age. Some evaluations are reported by grade (Pre-K through 12) and some are reported by age (3-18). Some reporting was given in groups of ages or grades, also making it difficult to isolate levels. Approximately 11,619 were Pre-K through 6<sup>th</sup> grade.

State-wide, an average of \$71.23 was spent per student to deliver the programs to 13,002 students. Total allocations per region and delivery cost per student are as follows: \$191,089 in the North with a cost per student for program delivery of \$143.78, \$154,608 in the Central region with a cost per student of \$44.94, \$208,927 in the Southeast with a cost per student of \$174.57, and \$371,567 in the Southwest with a cost per student of \$52.80. A total of \$926,236 was spent in all four regions with the majority of that being spent on elementary (Pre-K-6<sup>th</sup>) programs. The discrepancy between the most costly region (Southeast) and the least costly region (Central) was

\$129.63 (See Table 1). The cost per student in the Southeast region is \$174.57, and this is also the region with the greatest number of cities (urban areas) (n=14) (Table 3). The North region is geographically the smallest but has the greatest population at 2,627,948 proportionately more cities than counties (urban to rural). Conversely, the Central and Southwest regions have a much higher concentration of counties to cities (rural/urban).

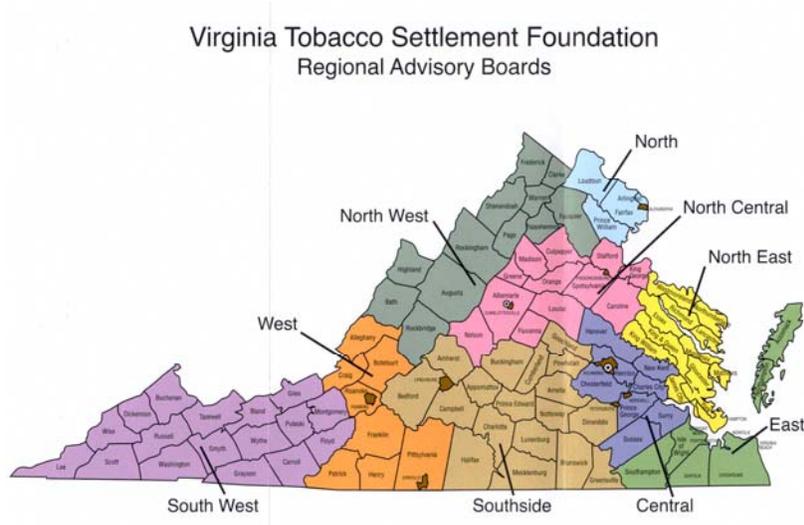
**Table 1. Cost Per Region**

<i>Region</i>	<i>Students Served by Grant (n)</i>	<i>Grant Allocation*</i>	<i>Amount per Student</i>
North	1329	\$191,089	<b>\$143.78</b>
Central	3440	\$154,608	<b>\$44.94</b>
Southeast	1197	\$208,972	<b>\$174.57</b>
Southwest	7036	\$371,567	<b>\$52.80</b>
<b>Totals (n)</b>	<b>13,002</b>	<b>\$926,236</b>	<b>\$71.23 mean/student</b>

### **Breakdown of Geographic Regions**

During the 2005-2006 grant cycle year (July 1- June 30), there were nine VTSF regions, each with a Regional Advisory Board: North, North Central, Northeast, Northwest, East, Central, Southside, West, and Southwest (Figure 2).

**Figure 2: VTSF Distribution of Regions Prior to 2006**



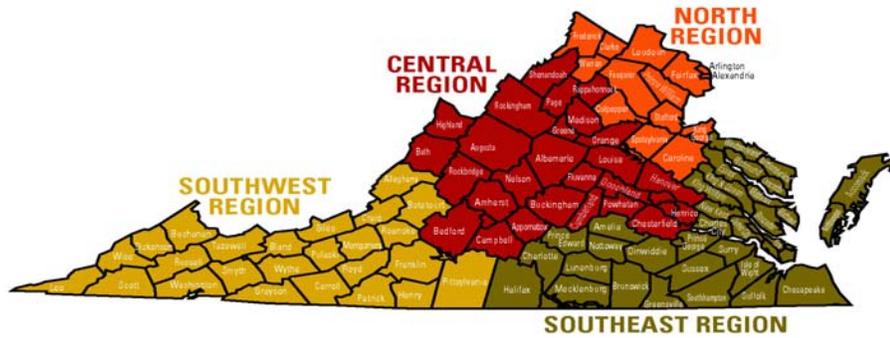
Map developed in 2001 for the VTSE and used here with their permission.

The North consisted of four counties and eight cities for a population of 1,944,943. The North Central consisted of 12 counties and two cities for a total population of 569,722. The Northeast had 12 counties and two cities for a total population of 580,832. The Northwest region had 12 counties and six cities for a population of 406,117. The East region had four counties and five cities for a total population of 1,166,848. The Central Region consisted of eight counties and two cities for a population of 934,355. Southside Virginia had 17 counties and 2 cities for a total population of 489,472. The West region had eight counties and eight cities with a population of 441,321. Finally, the Southwest region had 17 counties and four cities for a total population of 501,631.

**Table 2: Regional Populations 2000-2005**

<i>Region</i>	<i>Number of Counties (n)</i>	<i>Number of Cities (n)</i>	<i>Total Population</i>
North	<b>4</b>	<b>8</b>	1,944,943
North Central	<b>12</b>	<b>2</b>	569,722
Northeast	<b>12</b>	<b>2</b>	580,832
Northwest	<b>12</b>	<b>6</b>	406,117
East	<b>4</b>	<b>5</b>	1,166,848
Central	<b>8</b>	<b>2</b>	934,355
Southside	<b>17</b>	<b>2</b>	489,472
West	<b>8</b>	<b>8</b>	441,321
Southwest	<b>17</b>	<b>4</b>	501,631
<b>Totals (n)</b>	<b>94</b>	<b>39</b>	<b>7,035,241</b>

In 2006, The VTSF consolidated regions and reduced Grants Management staff (Figure 3). According to Donna L. Gassie, Director of Programs for VTSF, “We reduced the number of regions when we reduced Grants Management staff from 5 to 4. At the same time we decided to do the consolidation, so instead of 2 regions per Grants Manager, there would be one larger one for grants manager. It has definitely helped on the management side of things as far as paperwork and efficiency. The only negative has been the distance of travel for some of our Regional Advisory Board members now that the regions are much larger – but that has been minor” (personal email from Donna L. Gassie) (Table 3). According to the redistribution figures provided by the VTSF the population of Virginia has grown by 298,790 between 2001 and 2006.

**Figure 3: VTSF Redistribution of Regions in 2006**

Map developed in 2006 for the VTSF and used here with their permission.

**Table 3: VTSF Redistributed Regions**

<i>Region</i>	<i>Number of Counties (n)</i>	<i>Number of Cities (n)</i>	<i>Total Population</i>
North	<b>13</b>	<b>7</b>	2,627,948
Southeast	<b>30</b>	<b>14</b>	1,837,164
Central	<b>26</b>	<b>9</b>	1,785,717
Southwest	<b>25</b>	<b>9</b>	1,083,202
<b>Total (n)</b>	<b>94</b>	<b>39</b>	<b>7,334,031</b>

### Regional Advisory Boards

The duties of the Regional Advisory Board members are to provide input on local program issues to the Board of Trustees, provide input on programs to be included in the Compendium, provide input to the Board of Trustees on funding criteria, to screen and score proposals, and to recommend proposals for funding to the Board of Trustees (email from Terri-Ann Brown, VTSP).

### Program Setting

Of the 29 elementary programs offered, 89.6% (n=26) were facilitated in a school setting. Programs taking place in a community setting such as a YMCA or Boys and Girls Club, represented 10.3% (n=3). Sixty-two percent (62%, n=18) of the programs took place in an urban setting and 37.9% (n=11) in a rural setting (See Tables 4a & 4b).

**Table 4a: Frequency and Percentage of Programs by School or Community Setting**

	<i>School</i>	<i>Community</i>	<i>Total</i>
<b>n</b>	26	3	29
<b>%</b>	89.6%	10.3%	100%

**Table 4b: Frequency and Percentage of Programs by Rural or Urban Setting**

	<i>Rural</i>	<i>Urban</i>	<i>Total</i>
<b>n</b>	11	18	29
<b>%</b>	37.9%	62.0%	100%

### Program Participation

School program participation varied in size from 135 students to 1,536 students with a mean program size of 457 students. A total of approximately 11,619 students and families were served (Tables 5 & 6). Individual programs with students only were 88% (n=10225). The largest portion of students, 15.5% (n=1803), participated in Too Good For Drugs followed by Al's Pals at 12.7% (n=1483), All Stars at 12.3% (n=1438), LifeSkills Training at 10.7% (n=1244), Positive Action at 9.0% (n=1056), Here's Looking at You at 7.0% (n=822), Project Charlie at 5.7% (n=667), Keep a Clear Mind at 5.0% (n=589), Al's Pals Booster at 4.4% (n=514), Lion's Quest at 3.5% (n=407), and the smallest portion, 1.7% (n=202), participated in Get Real About Tobacco (See Table 5).

**Table 5: Frequency and Percentage of Individuals Participating in Programs**

<i>Program</i>	<i>Number of Individual Programs (n)</i>	<i>Number of Participants (n)</i>	<i>Percentage of Total</i>
Positive Action	2	1056	9.0%
Al's Pals	6	1483	12.8%
Al's Pals Boost	2	514	4.4%
LifeSkills Training	3	1244	10.7%
Project Charlie	2	667	5.7%
Lion's Quest	1	407	3.5%
All Stars	2	1438	12.3%
Too Good For Drugs	2	1803	15.5%
Here's Looking at You	2	822	7.0%
Keep a Clear Mind	1	589	5.0%
Get Real About Tobacco	1	202	1.7%
<b>Totals (n)</b>	<b>24</b>	<b>10225</b>	<b>88%</b>

A total of 11.9% (n=1394) participated in family programs with the largest portion in Positive Action at 10.9% (n=1278 youth & families), FAST at .41% (n=48 families), Too Good For Drugs at .32% (n=38 families), Home Team Passport at .1% (n=18 families), and the least participation was in Strengthening Families at .01% (n=12 families) (Table 6).

**Table 6: Frequency and Percentage of Families Participating in Programs**

<i>Program</i>	<i>Number of Participants (n)</i>	<i>Percentage of Total</i>
Positive Action	1278 Youth & Families	10.9%
Strengthening Families	12 Families	.01%
Too Good For Drugs	38 Youth & Families	.32%
Home Team Passport	18 families	.1%
FAST	48 families	.4%
<b>Totals (n)</b>	<b>1394 youth with families</b>	<b>11.9%</b>

### **Type of Evaluation**

All final program evaluations, 100% (n=29) included some type of local evaluation results (narrative) with 72.4% (n=21) having only the program evaluation report, 24.1% (n=7) also having pretest/posttest results and 3.4% (n=1) having only a posttest report (Table 7). The narrative evaluations on the VTSF final report forms were either teacher or facilitator observations. Some of the pretest/posttest evaluations for preschool and early elementary were based on teacher observation. In the older grades, pre and posttests were completed by the students.

**Table 7: Frequency and Percentage of Evaluation Type**

<i>Type of Evaluation</i>	<i>Number of Evaluations (n)</i>	<i>Percentage of Total</i>
VTSF Quarterly Only	21	72.4%
VTSF & Pretest/Posttest	7	24.1%
Posttest Only	1	3.4%
<b>Totals (n)</b>	<b>29</b>	<b>100%</b>

### Question 1

*Do the elementary compendium programs contribute to the goal of tobacco use prevention among Virginia's youth?*

Based on this current data approach to evaluating the elementary compendium programs, we cannot determine if the programs are effective in preventing youth tobacco use. However, based on the review of literature combined with these finding it is logical to conclude that the programs may not be preventing tobacco use in their intended population. There are no long-term studies provided to indicate that these programs are effective beyond the post-test period. Some of the programs such as Al's Pals do not focus on tobacco but rather, developing social skills and learning appropriate behavior. This program is used primarily (although not exclusively) for preschool and early elementary age students well before the age of initiation.

### Effectiveness of Programs

According to Donna L. Gassie, Director of Programs for VTTSF there are indicators of whether or not a program is effective in the short term. These indicators include: 1) knowledge of harmful effects of tobacco, 2) benefits of remaining tobacco free, 3) intent not to use tobacco, 4) resistance of peer pressure, and 5) rejection of smoking. However, not all of the program evaluations contained this information.

**Knowledge of Harmful Effects**--The mean percentage of students for all the programs reporting that gained knowledge of the harmful effects of tobacco was 50.2% (n=111). GRAT had the highest mean of 70.9% (n=35) improvement at posttest, while LST had the lowest mean at 11% (n=29.4), and KACM had a mean of 68.7% (n=269) (Table 8). One LST program reported “knowledge of short term effects”, and another reported knowledge of symptoms such as yellow teeth and wrinkled skin.

**Table 8: Percentage of Students Reporting Knowledge of Harmful Effects**

<i>Program</i>	<i>Number with Knowledge (n)</i>	<i>Percentage of Total</i>
LifeSkills	29.4	11%
Keep a Clear Mind	269	68.7%
Get Real About Tobacco	35	70.9%
<b>Totals (n) mean</b>	<b>111</b>	<b>50.2%</b>

**Benefits of Remaining Tobacco Free**—No information in this category was indicated on evaluations.

**Intent Not to Use Tobacco and Rejection of Smoking**—These two questions are somewhat overlapping and based on the way the question was asked on the evaluation determined in which column the information was placed. The mean percentage for KACM for

intent not to smoke was 92% (n=350). The mean for those who intend not to chew was 92.9% (n=350). The mean for students intending not to use *tobacco* after completing the GRAT program was 88.9% (n=202) (Table 9). It is interesting to note that at one school, the pretest was .3% higher than at posttest for intent not to chew.

**Table 9: Percentage of Students With Intent Not To Use Tobacco**

<i>Program</i>	<i>Number with Intent (n)</i>	<i>Percentage of Total (Tobacco)</i>	<i>Percentage of Total (Smoke)</i>	<i>Percentage of Total (Chew)</i>
Keep a Clear Mind	350		92%	92.9%
Get Real About Tobacco	202	88.9%		
<b>All Stars</b>	53	69%		

An average of 91.5% (n=345) of students in two KACM programs indicated they would reject smoking (Table 10).

**Table 10: Percentage of Students Who Reported Rejection of Smoking**

<i>Program</i>	<i>Number Would Reject (n)</i>	<i>Percentage of Total</i>
<b>Keep A Clear Mind</b>	345	91.5%

**Resisting Peer Pressure**—An average of 89% (n=337) of students from two programs reported that they could resist peer pressure (See Table 11).

**Table 11: Percentage of Students Who Could Resist Peer Pressure**

<i>Program</i>	<i>Number Resisting Pressure (n)</i>	<i>Percentage of Total</i>
<b>Keep A Clear Mind</b>	337	89.9%

Paramount is the fact that there are no follow-up studies with the students participating in the elementary programs so the influence of these programs is unknown. Additionally, some programs may use different evaluations, making results difficult to compare.

Results of the AI's Pals program among Kindergarten children in SW Virginia indicate that 22.2% of the students showed an improvement in social interaction and an 11.6 % improvement in social withdrawal from pretest to posttest. These variables were measured using two different rating scales, the Child Behavior Rating Scale (CBRS) and the Merrell Pre-Kindergarten and Kindergarten Behavior Scales (PKBS) respectively. Preschool-first graders in Richmond were rated using the same two scales. There, 32.9% of children showed improvement on the CBRS scale and 18.6% showed improvement on the PKBS social interaction subscale.

Preschool children in Alexandria were rated on the PKBS scale and findings indicated that 75% of the children maintained or improved social skills. Parkside Elementary used a different rating scale based on points. Results show that in both kindergarten and first grade, observable behaviors improved by 1.5-2 points on a 5 point scale.

A different rating scale was used for AI's Pals children in Pre-K in Charlottesville, showing that 89.5% of children increased positive social and emotional development. Preschool children in Williamsburg were evaluated using the Creative Curriculum to assess the children. The scale measured children moving from one step to another with three steps in total. This scale measured mastery of specific skills in each step and an overall percentage of improvement were not provided. Results are based on teacher observation. *Among this age group, no analysis is provided that speaks to tobacco avoidance/prevention..*

Of students participating in the Sentara Healthcare All Stars program, 91 youth attended the first class and 53 completed the classes. According to the Overview of 2005 All Stars VTSF Grant Funded Program for Sentara's Community Partners whose author is not identified, of those 53 students, 69% "had made the decision not to smoke cigarettes". No other relevant information regarding tobacco use was provided.

Findings for both the Tazewell and Russell County Keep a Clear Mind programs indicated that no significant findings were reported from pre to posttest. Evaluations for Positive Action and Get Real About Tobacco do not measure the tobacco objectives listed on the VTSF Compendium Program Information Worksheet. Project Charlie's results were not included except to say that there was a "significant improvement in attitudes toward not using". Individual objectives were not reported for Here's Looking at You but did show an overall improvement of knowledge. However, results also showed a decrease in knowledge. This was also true of the Too Good for Drugs results and the evaluations for this program measured different objectives than were listed on the VTSF Worksheet.

The Evaluation for Strengthening Families indicated that the students learned about peer pressure, but the evaluation did not specifically ask about tobacco related objectives. There were no tobacco objectives for FAST and the measures did not ask about tobacco. There were no evaluation results provided for Lion's Quest. Results for LifeSkills Training were provided in overall improvement (Smyth) and 4<sup>th</sup> grade showed a 7.6% overall improvement. The Bastian LifeSkills Training did measure some objectives and 25% of the students reported an increase in knowledge about tobacco. The Arlington evaluation was a true/false in-house evaluation and showed that a majority of the students knew the answers to the questions related to the six objectives.

## Tobacco Objectives

Tobacco objectives for each program are included in the program description at the beginning of this chapter. Questions on the posttests of *Positive Action*, *Get Real About Tobacco*, and *Strengthening Families* did not directly measure the stated objectives. Though tobacco objectives were stated for *Al's Pals*, the only objective reported referred to developing pro-social skills and the measurement tool was not consistent among the programs. One program of *All Stars* reported 69% of the students made the decision not to smoke. Evaluation forms for *Keep A Clear Mind* stated that no significant findings were reported overall from pre to posttest but as seen in Table 3, some tobacco objectives were met. *Project Charlie* evaluations reported that there were “significant improvements in attitudes toward not using”, but findings on the five objectives were not reported. *Here's Looking at You* findings reported “improvement in knowledge,” but they also showed a decrease in this area of 12%. One school providing *Too Good For Drugs* education reported that overall 77% of the students improved from pre to posttest, and 4% showed a decrease. Results of pretest/posttest for the *LifeSkills Training* in one school showed a 7.6% overall improvement, while the true/false in-house evaluation at another school showed that the majority of students knew the answers to questions related to the stated objectives. No results were available for *Lion's Quest* and no specific control outcomes related to tobacco are listed for *FAST* and the posttest evaluations did not measure objectives specifically related to tobacco.

## Question 2

*Does the current program evaluation process provide useful information to determine if the programs are effective in terms of tobacco use prevention?*

The evaluation process and the information included in the evaluations on an elementary level are not effective in providing information regarding tobacco use or future tobacco use. Programs such as AI's Pals, Positive Action, Strengthening Families, and FAST do not focus on tobacco use therefore, the evaluations do not ask questions pertaining to tobacco. The evaluation process is not consistent across programs or among programs; facilitators have options on both how to evaluate and how to report the results to the VTSP. Evaluations may be completed by the participant or by the facilitator/teacher, so that reports are both objective and subjective. Evaluation questions from program to program are not consistent or comparable, making it difficult to draw a consensus conclusion about the elementary programs. Most importantly, many of the evaluations did not measure the tobacco objectives of the program and thus it is difficult to conclude that the programs are effective in relation to tobacco uptake, use, or future use.

### *Evaluation Form*

Each quarterly report asks the same questions and the final evaluation includes findings for the full year (Appendix A). This comes under the heading *Local Evaluation Results (if applicable)*. Some of the forms attached evaluations which were completed either by the program facilitator, an outside evaluator, or a researcher from the program development office. In some cases these were observational evaluations, pretest/posttest, or posttest only and were completed by an observer, facilitator, or participant. Some of the evaluations were adaptations of one provided by the program developer. In some cases the evaluation was measuring what the

student learned, what the parent learned or how they liked the program. Most final reports provided a synopsis of evaluation results in the space provided and also sent a copy of the actual evaluation (pretest/posttest) if tests were conducted.

### **Question 3**

*Are community or school-based programs more effective?*

Facilitators reported a number of problems with community programs including participants (families and/or youth) did not attend all of the sessions, recruitment was difficult, and facilitators' observations were limited to "what was occurring in the program and not what was happening at home" making results difficult to obtain (2006 Strengthening Families program report). The advantage of a school-based program is the captive audience and guaranteed attendance unless the student is absent for personal reasons. Problems cited for some of the school based teacher-lead programs included time, dedication and lengthy evaluation tools (CMCS evaluation report). In terms of implementing and completing the programs and number of students served, schools seem to provide a better setting. Dollar for dollar, school programs are much more cost effective. There is no indication that in terms of tobacco goals one setting is better than another.

### Summary of Findings

The purpose of this study was to determine if the VTSF elementary tobacco programs prevent smoking among students. The findings of this chapter are summarized here.

1. It appears that it is more costly to deliver the programs in regions with more urban areas (Southeast and North) than in regions considered more rural (Central and Southwest).
2. Most of the programs are offered in a school setting as opposed to a community setting and schools are a better venue for these programs because they offer structure and regular attendance.
3. More urban than rural schools received funding and this may be because there is a greater population base, greater need, and/or more schools in urban areas apply for money.
4. Few tobacco program objectives were reported as being met. Only 3 of the programs—LST, KACM, GRAT--reported that students gained knowledge of the harmful effects of tobacco and none reported that students understood the benefits of remaining tobacco free. KACM and GRAT reported that students' intent was not to use tobacco and KACM reported on students resisting peer pressure and rejecting smoking.
5. The evaluations and the evaluation process are inconsistent among programs and therefore, do not provide a systematic way to determine if the programs are effective as a whole for tobacco prevention. Individual evaluations may provide pertinent information as to a specific program. If tobacco objectives are being evaluated, a short term benefit may be shown.

6. Community programs have a number of recruitment, delivery and participation problems therefore, schools provide a more beneficial venue for program delivery.

## **Chapter 5**

### **SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

#### **Introduction**

The purpose of this paper was to assess and evaluate the VTSF elementary compendium programs and to determine if they prevent tobacco use. Additionally, the evaluation process and the setting of the programs were considered. Final evaluation forms were provided by the VTSF for the year July 2005 through June 2006. These forms contain statistical information about the programs such as number of participants and the cost of the grant, as well as the facilitator's opinions and observations about program success. In some cases a more detailed statistical analysis such as a pretest/posttest were provided. This chapter summarizes the results and presents conclusions and recommendations related to the effectiveness of the elementary programs, the evaluation process, and recommendations for program improvement, as well as some recommendations to the VTSF based on this research and the review of literature.

#### **Summary**

A total of 18 final evaluation forms were provided by the VTSF containing information about 29 different programs throughout the state. The compendium offerings that were facilitated were Positive Action, Al's Pals, LifeSkills Training, Project Charlie, Lion's Quest, All Stars, Strengthening Families, Too Good For Drugs, Keep A Clear Mind, Get Real About Tobacco, and Families and Schools Together. Project Charlie, Lion's Quest, Here's Looking at You, Get Real About Tobacco, Families and Schools Together, and Strengthening Families were also included but are no longer offered on the compendium list.

A total of \$926,236 was spent on these programs with a regional breakdown as follows: North \$191, 089 or \$143.78 per student; Central \$154,608 or \$44.94 per student; Southeast \$208,972 or \$174.57 per student; and Southwest \$371,567 or \$52. 80 per student. State-wide, the mean cost of these programs was \$71.23 per student.

Twenty-six of the programs were conducted in public schools and three in community centers. More programs were facilitated in urban (n=18) than rural settings (n=11). Approximately 11,910 students and 104 families were served. All fiscal agents submitted evaluations of the programs and seven also provided a pretest/posttest with one submitting a posttest only. Evaluations were conducted by the program facilitator and/or an independent researcher.

Five indicators for success provided by the VTSF director of programs were considered in this evaluation. These indicators include knowledge of harmful effects of tobacco, benefits of remaining tobacco free, intent not to use tobacco, rejection of smoking, and resisting peer pressure. None of the evaluations indicated that students gained knowledge about the benefits of being tobacco free. Three program evaluations—KACM, GRAT, and LST-- indicated that the students gained knowledge of the harmful effects of tobacco, ranging from 11% (n=29.4) of the students in LifeSkills Training to 70.9% (n=35) in GRAT. The mean percentage of knowledge of harmful effects was 50.2% (n=111) among all programs reporting. GRAT and KACM reported intent not to smoke or chew with a mean of 92% (n=350) intending not to smoke and 92.9% (n=350) intending not to chew tobacco. Two programs of KACM reported resistance to peer pressure for a mean of 89.9% (n=337). Two KACM programs indicated that they would reject smoking for a mean of 91.5% (n=345).

The program descriptions on the VTSF Compendium Program Worksheet contained specific tobacco objectives. Posttest evaluations of Positive Action, AI's Pals, Get Real About Tobacco, and Strengthening Families did not directly measure these objectives. Evaluations for Keep A Clear Mind indicated that overall, no significant findings were reported. Project Charlie evaluations indicated that there were significant improvements in attitudes toward not using but there were no other tobacco-specific findings reported. One All Stars program reported that 69% of students made the decision not to smoke. Here's Looking At You reported improvement in knowledge, but they also showed a 12% decrease in that area. One of the schools facilitating Too Good For Drugs reported an overall improvement of 77%, but also showed a 4% decrease overall. Lion's Quest has no specific tobacco outcome objectives and FAST, a program of families and students together, did not measure specific tobacco objectives, but rather, concentrated more on parenting skills and parent/child relationships.

### **Research Questions**

Research Question 1: Do the elementary compendium programs prevent tobacco use among Virginia's youth?

To determine the answer to this question, consideration was given to the responses to the five indicators as well as the review of literature and the fact that the tobacco use rate among youth in Virginia has risen in the past two years. This is despite the fact that over \$19 million dollars were spent between 2002-2005 on youth tobacco programs offered by the VTSF. Additionally, there are no long-term studies provided with these programs, which began in 2001, to tell us if the elementary children, typically pre-initiation age (11-15), have tried or are currently using tobacco. The 2005 Youth Risk Behavior Surveillance conducted by the

Department of Health and Human Services of the Centers for Disease Control and Prevention does not include statistics from Virginia. The published results of the 2005 Youth Tobacco Survey conducted by the Community Health Research Initiative Survey and Evaluation Research Laboratory of Virginia Commonwealth University do not categorize tobacco use rates as schools that have completed the VTSF elementary compendium programs. Therefore, it is difficult to know if the specific programs are preventing tobacco use. Again, the fact remains that the youth tobacco use rate has risen in Virginia in the past two years, which may be an indication that the elementary programs are not having the intended impact and money may not be spent in the most effective way, or not enough money is being spent on these programs, and/or the evaluation process is flawed and/or the delivery of the program is flawed, and/or factors influencing the rising tobacco use rates are not being addressed.

This is not to say that the programs do not have value. For example, AI's Pals is an often chosen early elementary guidance program which concentrates primarily on behavior and whose objectives and measures are pro-social skills, expression of feelings, demonstration of self-control, interpersonal problem-solving, healthy decision-making and positive coping (VTSF Compendium Program Information Worksheet). Most schools using AI's Pals report an increase in these areas. However, the question remains: Does this program prevent tobacco use? It is difficult to say yes based on the data, but the review of literature would indicate that it does not.. This is due to the fact that the program is generally offered before the age of initiation, tobacco is not the emphasis of the program, and evaluations are not measuring tobacco outcomes. These reasons would also be true of programs offered on an early elementary (pre-K-3<sup>rd</sup> grade) level. Though grounded in theoretical framework for risk, resiliency, and protective factors, this does not appear to impact tobacco prevention when delivered at this early age. Revisiting the factors

that most effect youth about tobacco, research shows that understanding tobacco company manipulation, secondhand smoke, and the financial implications of tobacco use have the most impact. To a lesser extent, the short-term effects of tobacco are moderately effective (Goldman and Glantz, 1998). The early elementary programs generally do not place an emphasis on these factors if they touch them at all. When program objectives were met as indicated on the evaluations, this is not necessarily the same as tobacco objectives; therefore, participants' tobacco use is unknown.

To be effective, anti-tobacco messages need to come very strongly and consistently from parents (Kalesan, Stine, et al.2006). Most of these programs do not have a parent education component therefore a very important delivery source is not being addressed. Because of the logistics of educating parents that are demonstrated in programs such as FAST and Strengthening Families, because they reach such a limited number of families, and because they are costly per unit, this may not be an effective mechanism to reduce youth tobacco use overall in Virginia. Neither do we have evidence from the evaluations of these programs that they prevent tobacco use among the participants.

Research Question 2: Does the current program evaluation process provide useful information to determine if the programs are effective in terms of tobacco use prevention?

Section III on the VTSF final report is LOCAL EVALUATION RESULTS (if applicable). Twenty-one of the forms included only a short written synopsis of evaluation results, seven additionally included a pretest/posttest, and one included a posttest only. These evaluations were completed by either a facilitator and based on his/her opinion and observation, a facilitator based on participants' pre and posttest, or by an outside researcher based on a pre

and posttests completed by the participants. There were no consistent means of reporting program results. Some of the programs such as Strengthening Families do not have tobacco outcomes, therefore, no tobacco results were provided. Even when the program had a tobacco focus with tobacco outcomes such as LifeSkills Training and Too Good For Drugs, tobacco outcomes were not included. The evaluation process does not provide adequate information to determine if the programs prevent tobacco use.

Research Question 3: Are community or school-based programs more effective?

Community-based programs reach a much smaller number of participants than school-based programs and are plagued with problems such as recruitment difficulties, poor and inconsistent attendance and drop-outs (Sentara evaluation). Schools provide a captive audience with consistent attendance and no drop-outs unless the student leaves school altogether. Financially, community-based programs reach a very small number of people compared to school-based programs, which have the capacity to reach hundreds of children with any given program. For example, Home Team/Passport, a parent component of Project Charlie, and Strengthening Families were part of a \$60,000 grant that also included two programs for middle and high school students. The total number of families served with PC and SF was 30. An additional 93 middle and high school students were served by this grant for a total of 123 students. A FAST grant for \$43,067 served 48 participants and their families. In contrast, a \$32,000 grant served 1,536 students in elementary school, along with 484 middle school students and 288 high school students (n=2308).

Identifying participants and recruiting them is also a problem with community-based programs. It is the conclusion of this researcher that community-based programs are not as

logistically effective as school-based programs, do not contribute to reducing the overall tobacco use rate among Virginia's youth, and are more costly. Again, this is not to say that the programs do not have value. For example, the FAST evaluation indicated that parents reported a significant increase in their knowledge of tobacco-related topics after a special presentation on substance abuse. The question needs to be asked: Does parents' knowledge of tobacco use translate to youth knowledge of tobacco use or prevention? These parents also reported a statistically insignificant decrease in behavioral difficulties with their child (ren) after the program.

School-based programs may also have problems. These include the impact on instructional time, consistent delivery if individual teachers are presenting the program among multiple classrooms, and teachers' dedication to the program. Students' annoyance with additional testing and having to schedule make-up sessions due to school dismissals from inclement weather have also been cited as problems.

### **Research Limitations**

The limitations of this research focus primarily on the lack of information provided to answer the question. Since the conclusion is that the evaluation process and reporting is not sufficient to answer the primary research question of whether or not the elementary compendium programs prevent tobacco use, the information provided may not be sufficient to justly answer the question.

### **Recommendations for VTSF and Future Research**

Based on the conclusions above and going on the premise that the objective of the VTSF is to reduce youth tobacco use, the following recommendations can be made to the VTSF:

1. Transition funding for compendium programs involving pre-initiation age students to programs beginning in 4<sup>th</sup> and 5<sup>th</sup> grade.
2. Focus community-based compendium programs on at-risk youth near the age of initiation (4-5<sup>th</sup> grade) and on cessation (high schools).
3. Require consistency in programs within a system. If a school system is providing programs to elementary 4<sup>th</sup> & 5<sup>th</sup> grade, booster programs should be offered in middle and high schools within the system. Initiation generally begins in middle school (Stewart-Knox, et al., 2005) and consistently escalates until 12<sup>th</sup> grade, doubling between 9<sup>th</sup> and 12<sup>th</sup> grade (MMWR, 2006, Tucker, Ellickson, Klein, 2002) where intensive programming is needed in both prevention and cessation.
4. Choose programs whose primary focus is tobacco or tobacco and other drugs. This may make more systems interested in providing tobacco education because the programs should be shorter in duration, impacting less instructional time.
5. Provide more targeted programming to areas with a higher tobacco use rate and consider conducting a more comprehensive study of these problem areas.
6. Consider allocating a portion of program funds for technical evaluation assistance, perhaps in the form of regional centers for technical assistance.
7. Change the evaluation process by having one survey or pretest/posttest with tobacco outcome measures that all program participants take so that programs can be compared. This may be in addition to surveys provided by the program developer.
8. As an alternative to offering compendium programs, provide curriculum to all 4<sup>th</sup> & 5<sup>th</sup> grade and middle and high school health and physical education teachers so that all

students in this age group across the Commonwealth receive tobacco education (Glantz and Mandel, 2005).

9. Fund the development and implementation of curriculum that integrates tobacco prevention objectives.
10. Explore ways to reach parents.
11. Focus more programs on teen cessation (Pbert, 2003).
12. Conduct a state-wide study to determine why kids use tobacco products and what THEY feel the solution might be.

Based on the Review of Literature in Chapter 2, the following additional recommendations are made for the VTSTF:

1. Facilitate health care provider education regarding talking with youth and parents about tobacco starting at an early age, going beyond just those who present with tobacco related illnesses (Pbert, 2003, Anderson, 2001, Bernhardt, Dalton, Sargent, Stevens, 2000).
2. Increase state-wide media anti-tobacco messages and concentrate them during children and youth programming (Friend, 2002).
3. Increase state-wide media messages about youth tobacco use to reach parents. Include a strong campaign about how parents can help (Sly, 2001, Thrasher, et al., 2004, Friend, 2000, Emery, et al., 2005).
4. Provide a strong lobby to the Virginia legislature to implement laws regarding public tobacco use. Laws regarding smoke-free workplace and sales to minors are important in reducing the use rate (Lotrean, et al., 2004, Siegel, 2000, [www.smokefreeworkplace.com](http://www.smokefreeworkplace.com), 2004).

5. Make some funds available for the exploration of new and innovative programs.

### **Recommendations for Future Research**

Future research on the VTSF compendium programs should include:

1. Follow-up studies of the specific students who participated in these programs to determine if they are using tobacco products.
2. Research to determine if programs work consistently across the state. For example, which programs are effective in Southwest rural Appalachia Virginia, and are those programs effective in the urban area of Northern Virginia? Does programming in the tobacco growing and manufacturing areas need to be different from areas of Virginia where tobacco has no strong economic or cultural influence? (CDC, 1999).
3. Survey students to find out why they are using.

The VTSF no doubt has the awesome and overwhelming task of effectively spending millions of dollars each year to prevent youth tobacco use. Continued research is needed to determine not only which compendium programs are effective, but overall what components of the current budget items are working and accordingly, what dollar allocations need to be changed and what components are missing in the budget and offerings of the organization. Exploration and funding of new and innovative ideas to curb youth tobacco use should continue.

## References

- About Tar Wars. (2007). Retrieved March 15, 2007, 2007, from [www.tarwars.org](http://www.tarwars.org).
- Ahmed, N., Ahmed, N.S., Bennett, R., Hinds, J. (2002). Impact of a Drug Abuse Resistance Education (D.A.R.E) Program in preventing the initiation of cigarette smoking in fifth-and sixth-grade students. Journal of the National Medical Association 94(4): 429-256.
- Alexandria CSB, Al's Pals evaluation report (taken from final report). (2005-2006). Alexandria, VA, Alexandria Community Services Board.
- Alexander, C., Allen, P., Crawford, M., McCormick, L. (1999). Taking a first puff: Cigarette smoking experiences among ethnically diverse adolescents. Ethnicity & Health 4(4): 245-257.
- Alfano, C., Zbikowski, S., Robinson, L., Klesges, R., Scarinci, I. (2002). Adolescent reports of physician counseling for smoking. Pediatrics 109(3): e47.
- Aloise-Young, P., Slater, M., Cruickshank, C. (2006). Mediators and moderators of magazine advertisement effects on adolescent cigarette smoking. Journal of Health Communication 11: 281-300.
- A longitudinal evaluation of the new curricula for the D.A.R.E. Middle (7th Grade) and High School (9th Grade) programs: Take Charge of Your Life. Year four progress report. (2006). The University of Akron Adolescent Substance Abuse Prevention Study.
- Anderson, J., Fiore, M. (2001). Clinician perseverance helping patients overcoming tobacco dependence. Wisconsin Medical Journal 100(3): 14-15.
- Arnett, J. J. (2006). The myth of peer influence in adolescent smoking initiation: Health Education and Behavior OnlineFirst as doi: 10.1177/1090198105285330.
- Bacon, T. P. (2003). Evaluation of the Too Good For Drugs--Elementary School Prevention Program. Tallahassee, FL, Florida Department of Education Department of Safe and Drug-Free Schools: 5.
- Bal, D., Lloyd, J., Manley, M. (1995). The role of the primary care physician in tobacco use prevention and cessation. CA: A Cancer Journal for Clinicians 45(6): 369-374.

- Bernhardt, A., Dalton, M., Sargent, A., Stevens, M. (2000). E-mail communication between medical students and schoolchildren: A model for medical education. Archives Of Pediatrics & Adolescent Medicine 154(12 (Print)): 1258-1262.
- Bosworth, K. and S. Cueto (1994). Drug abuse prevention curricula in public and private schools in Indiana. Journal of Drug Education 24(1): 21-31.
- Botvin, G. J., Griffin, K.W., Paul, E., Macaulay, A.P. (2003). Preventing tobacco and alcohol use among elementary school students through life skills training. Journal of Child & Adolescent Substance Abuse 12(4): 1-17.
- Bricker, J.B., Peterson, A.V. Jr, Andersen, M.R., Rajan, K.B., Leroux, B.G., Sarason, I.G. (2006). Childhood friends who smoke: Do they influence adolescents to make smoking transitions? Addictive Behaviors 31(5): 889-900.
- Bricker, J. B., J. A. V. Peterson, Sarason, I.G., Andersen, M.R., Rajan, K.B. (2007). Changes in the influence of parents' and close friends' smoking on adolescent smoking transitions. Addictive Behaviors 32(4): 740-757.
- Bush, P., Zuckerman, AE, Theiss, PK, Taggart, VA, Horowitz, C, Sheridan, M, Walter, H (1989). Cardiovascular risk factor prevention in black schoolchildren: Two-year results of the "Know Your Body" program. American Journal Of Epidemiology 129: 466-482.
- Cain, J.J., Dickinson, W.P., Fernald, D., Bublitz, C., Dickinson, L.M., West, D. (2006). Family Physicians and Youth Tobacco-free Education: Outcomes of the Colorado Tar Wars Program. Journal of the American Board of Family Medicine 19(6): 579-589.
- Carson, N. J., D. Rodriguez, Audrain-McGovern.J. (2005). Investigation of mechanisms linking media exposure to smoking in high school students. Preventive Medicine 41(2): 511-520.
- Castrucci, B., Gerlach, K., Kaufman, N., Orleans, T. (2002). The association among adolescents' tobacco use, their beliefs and attitudes, and friends' and parents' opinions of smoking. Maternal and Child Health Journal 6(3): 159-167.
- Castrucci, B., Gerlach, Karen, Kaufman, Nancy, Orleans, Tracy (2004). Tobacco use and cessation behavior among adolescents participating in organized sports. American Journal of Health Behavior 28(1): 63-71.
- Caulkins, J. P., Pacula, R. L. Paddock, S., Chiesa, J. (2004). What we can--and cannot--expect from school-based drug prevention. Drug And Alcohol Review 23(1 (Print)): 79-87.

- Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance, United States 2005. MMWR 2006; 55 (SS-5).
- CDC (1996). Tobacco use and usual source of cigarettes among high school students--United States, 1995. Morbidity and Mortality Weekly Report (MMWR) 24(45): 413-418.
- CDC (1999). Best practices for comprehensive tobacco control programs, August 1999. Tobacco Information and Prevention Source (TIPS), Centers for Disease Control.
- Charlesworth, A. and S. A. Glantz (2005). Smoking in the movies increases adolescent smoking: A review. Pediatrics 116 (6):1516-1528.
- Chaudhuri, R., Livingston, E., McMahon, A.D., Lafferty, J., Fraser, I., Spears, M., et al. (2006). Effects of smoking cessation on lung function and airway inflammation in smokers with asthma. American Journal of Respiratory and Critical Care Medicine 174(2):127-133.
- Chen, V. and J. L. Forster (2006). The long-term effect of local policies to restrict retail sale of tobacco to youth. Nicotine and Tobacco Research. 8: 371 - 377.
- Clayton, R. R., Cattarello, A. M., Johnstone, B.M. (1996). The effectiveness of drug abuse resistance education (Project DARE): 5-Year Follow-Up Results. Preventive Medicine 25(3): 307-318.
- Collins, J., Robin, L., Wooley, S., Fenley, D., Hunt, P., Taylor, J. et al. (2002). Programs-That-Work: CDC's guide to effective programs that reduce health-risk behavior of youth. Journal of School Health 72(3): 93(7).
- Dalton, M. A., Adachi-Mejia, A. M., Longacre, R., Titus-Ernstoff, T, Gibson, J., Martin, S., et al. (2006). Parental rules and monitoring of children's movie viewing associated with children's risk for smoking and drinking. Pediatrics 118(5): 1932(11).
- de Moor, C., Johnston, D.A., Werden, D.L., Elder, J.P., Senn, K., Whitehorse, L. (1994). Patterns and correlates of smoking and smokeless tobacco use among continuation high school students. Addictive Behaviors 19(2): 175-184.
- de Vries, H., Engels, R., Kremers, S., Wetzels, J., Muddle, A., Uiters, E., et al. (2003). Parents' and friends' smoking status as predictors of smoking onset: findings from six European countries. Health Education Research 18: 627-636.
- de Vries, C., Engels, R. Mercken (2006). Challenges to the peer influence paradigm: results for 12-13 year olds from six European countries from the European Smoking Prevention Framework Approach study. Tobacco Control 15: 83-9-89.

- Deckers, S., Farley, J, Heath, J (2006). Tobacco and its trendy alternatives: Implications for pediatric nurses. Critical Care Nursing Clinics of North America 18: 95-104.
- DHHS (2000). Clinical Practice Guideline, Treating Tobacco Use and Dependence. U. S. D. o. H. a. H. Services: 196.
- DiFranza, J. R. and N. A. Rigotti (1999). Impediments to the enforcement of youth access laws. Tobacco Control 8(2): 152-155.
- DiFranza, J. R., Savageau, J.A., Rigotti, N.A., Fletcher, K., Ockene, J.K., McNeill, A.D., et al. (2002). Development of symptoms of tobacco dependence in youths: 30 month follow up data from the DANDY study. Tobacco Control 11: 228-235.
- DiFranza, J. R., Wellman, R.J., Sargent, J.D., Weitzman, M., Hipple, B.J., Winickoff, J. P. et al. (2006). Tobacco promotion and the initiation of tobacco use: Assessing the evidence for causality. Pediatrics 117: e1237-1248.
- Distenfan, J., Pierce, John, Gilpin, Elizabeth (2004). Do favorite movie stars influence adolescent smoking initiation? American Journal of Public Health 94(7): 1239-1244.
- Dukes, R., Stein, Judith, Ullman, Jodie (1997). Long-term impact of Drug Abuse Resistance Education (D.A.R.E) Results of a 6-year follow-up. Evaluation Review 21(4): 483-500.
- Eckert, T. (2001). Motivation for smoking cessation: what role do doctors play? Swiss Medical Weekly 131(35-36): 521.
- Effectiveness of school-based programs as a component of a statewide tobacco control initiative--Oregon, 1999-2000. (2001). MMWR. Morbidity And Mortality Weekly Report 50(31 (Print)): 663-666.
- Emery, S., Wakefield, M.A., Terry-McElrath, Y., Saffer, H., Szczypka, G., O'Malley, P.M. et al. (2005). Televised state-sponsored antitobacco advertising and youth smoking beliefs and behavior in the United States, 1999-2000. Archives Of Pediatrics & Adolescent Medicine 159(7 (Print)): 639-645.
- Ennett, S., Tobler, M., Ringwalt, C.L., Flewelling, R.L. (1994). How effective is Drug Abuse Resistance Education? A meta-analysis of Project DARE outcome evaluations. Am J Public Health 84(9): 1394-1401.
- Ennett, S. T., Tobler, N.S., Ringwalt, C.L., Flewelling, R.L. (1994). Long-term evaluation of drug abuse resistance education. Addictive Behaviors 19(2): 113-125.

- Epps, R. P., Manley, M.W., Glynn, T.J. (1995). Tobacco use among adolescents. Strategies for prevention. Pediatric Clinics Of North America 42(2 (Print)): 389-402.
- Feighery, E., D. Borzekowski, D.L., Schooler, C., Flora, J. (1998). Seeing, wanting, owning: the relationship between receptivity to tobacco marketing and smoking susceptibility in young people. Tobacco Control 7(2): 123-128.
- Fichtenberg, C., Glantz, S. (2002). Effect of smoke-free workplaces on smoking behaviour: systematic review. British Medical Journal 325(188): 1-7.
- Flay, B. R., Phil, D (2001). An intensive case study of the Positive Action Program as a comprehensive school reform demonstration program: Year 2 Results. Twin Falls, ID, University of Illinois at Chicago: 13.
- Flay, B. Miller, T.Q., Hedeker, D., Siddiqui, O., Britton, C.F., Brannon, B.R. et al. (1995). The Television, School, and Family Smoking Prevention and Cessation Project : VIII. Student Outcomes and Mediating Variables. Preventive Medicine 24(1): 29-40.
- Friend, K. and D. T. Levy (2002). Reductions in smoking prevalence and cigarette consumption associated with mass-media campaigns. Health Education Research 17: 85-98.
- Gaffney, M. (1996). Ethical responsibilities of physicians in tobacco control. Indiana medicine; the journal of the Indiana State Medical Association 89(2): 196-198.
- Gandhi, A., Murphy-Graham, E., Petrosino, A., Chrismer, S., Weiss, C. (2007). The Devil Is in the Details. Evaluation Review 31(1): 43-74.
- Garmiene, A., N. Zemaitiene, Zaborskis, A. (2006). Family time, parental behaviour model and the initiation of smoking and alcohol use by ten-year-old children: an epidemiological study in Kaunas, Lithuania. BMC Public Health 23(6): 287.
- Geckova, A., Stewart, R., van Dijk, J., Orosova, O., Groothoff, J., Post, D. (2005). Influence of socio-economic status, parents and peers on smoking behaviour of adolescents. European Addiction Research 11: 204-209.
- Gidwani, P. P Sobol, A., DeJong, W., Perrin, J.M., Gortmaker, S.L. (2002). Television viewing and initiation of smoking among youth. Pediatrics 110(3): 505-508.
- Gilpin, E. A., Lee, L., Pierce, J. (2004). Does adolescent perception of difficulty in getting cigarettes deter experimentation? Preventive Medicine 38(4): 485-491.

- Glantz, S. A. and Mandel, L. (2005). Since school-based tobacco prevention programs do not work, what should we do? The Journal Of Adolescent Health: Official Publication Of The Society For Adolescent Medicine 36(3 (Print)): 157-159.
- Goldman, L. K. & Glantz, S.A. (1998). Evaluation of antismoking advertising campaigns. JAMA: The Journal Of The American Medical Association 279(10): 772-777.
- Goodman, P., M. Agnew, M., McCaffrey, M., Paul, G., Clancy, L. (2007). Effects of the Irish smoking ban on respiratory health of bar workers and air quality in Dublin pubs. American Journal of Respiratory and Critical Care Medicine 175(8):840-5.
- Hammond, D., Fong, G.T., McNeill, A., Borland, R., Cummings, K.M. (2006). Effectiveness of cigarette warning labels in informing smokers about the risks of smoking: findings from the International Tobacco Control (ITC) Four Country Survey. Tobacco Control 15(suppl\_3): iii19-25.
- Harrell, J. S., Bangdiwala, S.I., Deng, S., Webb, J.P., Bradley, C. (1998). Smoking initiation in youth: The roles of gender, race, socioeconomics, and developmental status. Journal of Adolescent Health 23(5): 271-279.
- Harrington, N., Giles, S.M., Hoyle, R.H., Feeney, G.J., Yungbluth, S.C. (2001). Evaluation of the All Stars Character Education and Problem Behavior Prevention Program: Effects on mediator and outcome variables for middle school students. Health Education & Behavior 28(5): 533-546.
- Health Report, Smyth County. (2004). Health Statistics/Statistical Reports and Tables. Richmond, VA, Virginia Department of Health.
- Highlights of Findings of AI's Pals: Kids Making Healthy Choices. (2005-2006). Richmond, VA, Richmond Behavioral Health Authority.
- Highlights of Findings of AI's Pals: Kids Making Healthy Choices. (2005-2006). Buchanan County, VA, Cumberland Mountain Community Services Board: 9.
- Highlights of Findings of AI's Pals: Kids Making Healthy Choices Coordinated by Cumberland Mt. CSB in Buchanan County Public Schools. (2006).
- Highlights of Findings of AI's Pals: Kids Making Healthy Choices (2006). Coordinated by Richmond Behavioral health Authority in Pre-Kindergarten, Kindergarten, and First-Grade Classrooms 2005-2006. Richmond, VA.
- Hinds, M. W. (1992). Impact of a local ordinance banning tobacco sales to minors. Public Health Reports 107(3): 355-358.

- Hoffman, B. R., Monge, P.R., Chou, C.P., Valente, T.W. (2006). Perceived peer influence and peer selection on adolescent smoking. Addictive Behaviors In Press, Corrected Proof.
- Jackson, C., Brown, J., L'Engle, K. (2007). R-rated movies, bedroom televisions, and initiation of smoking by white and black adolescents. Archives of Pediatrics and Adolescent Medicine 161: 260-268.
- Jochelson, K. (2006). Nanny or steward? The role of government in public health. Public Health 120(12): 1149-1155.
- Josendal, O., Aaro, L., Torsheim, T., Rasbash, J. (2005). Health and disability: Evaluation of the school-based smoking-prevention program 'BE smokeFREE'. Scandinavian Journal of Psychology 46(2): 189-199.
- Kalesan, B., Stine, J., Alberg, A. (2006). The joint influence of parental modeling and positive parental concern on cigarette smoking in middle and high school students. Journal of School Health 76(8): 402-407.
- Leatherdale, S., McDonald, P., Cameron, R., Jolin, M.A., Brown, K.S. (2006). A multi-level analysis examining how smoking friends, parents, and older students in the school environment are risk factors for susceptibility to smoking among non-smoking elementary school youth. Prevention Science 7(4): 397-402.
- Leatherdale, S., Manske, S., Kroeker, C. (2006). Sex differences in how older students influence younger student smoking behaviour. Addictive Behaviors 31(8): 1308-1318.
- Lotrean, L., Sanchez-Zamorano, LM, Valdes-Salgado, R, Arillo-Santillan, E, Allen, Betania, Hernandez-Avila, M, Lazcano-Ponce, E (2005). Consumption of higher numbers of cigarettes in Mexican youth: the importance of social permissiveness of smoking. Addictive Behaviors 30(5): 1035-1041.
- Lynam, D. R., Milich, R., Zimmerman, R., Novak, S.P., Logan, T.K., Martin, C. et al. (1999). Project DARE: No effects at 10-year follow-up. Journal Of Consulting And Clinical Psychology 67(4): 590-593.
- Mahoney, M., Bauer, J.E., Tumiel, L., McMullen, S., Schieder, J., Pikuzinski, D. (2002). Longitudinal impact of a youth tobacco education program. BMC Family Practice 3: 3.
- Mandel, L. L , Bialous, S.A., Glantz, S.A. (2006). Avoiding "Truth": Tobacco industry promotion of LifeSkills Training. Journal of Adolescent Health 39(6): 868-879.

- McMillen, R. C., Winickoff, J.P., Klein, J.D., Weitzman, M. (2003). US adult attitudes and practices regarding smoking restrictions and child exposure to environmental tobacco smoke: Changes in the social climate from 2000-2001. Pediatrics 112: e55-60.
- McNeal, R. B., Hansen, W.B., Harrington, N.G., Giles, S.M. (2004). How All Stars works: An examination of program effects on mediating variables. Health Education and Behavior 31(2): 165-178.
- Merrill, J., Pinsky, I., Killeya-Jones, L.A., Sloboda, Z., Dilascio, T. (2006). Substance abuse prevention infrastructure: a survey-based study of the organizational structure and function of the D.A.R.E. program. Substance Abuse Treatment, Prevention and Policy 1: 25.
- Morrell, H. E. Cohen, L.M., Bacchi, D., West, J. (2005). Predictors of smoking and smokeless tobacco use in college students: a preliminary study using web-based survey methodology. Journal of American College Health 54(2): 108(8).
- Osganian, S. K. Parcel, G.S., Stone, E.J. (2003). Institutionalization of a school health promotion program: Background and rationale of the Catch-on Study. Health Education & Behavior 30(4): 410-417.
- Overview of 2005 All Stars a VTSP Grant Funded program for Sentara's Community Partners. (2005). Portsmouth, VA, Sentara Community Partners.
- Patton, G. C., Coffey, C., Carlin, J.B., Sawyer, S.M., Wakefield, M. (2006). Teen smokers reach their mid twenties. Journal of Adolescent Health 39(2): 214-220.
- Pbert, L., Moolchan ,E.T., Muramoto, M., Winickoff, J.P., Curry, S., Lando, H., et al. (2003). The state of office-based interventions for youth tobacco use. Pediatrics 111(6): e650-660.
- Peters, R., Kelder, S., Prokhorov, A., Meshack, A., Agurcia, C., Yacoubian, G., Griffith, J. (2005). Beliefs and social norms about smoking onset and addictions among urban adolescent cigarette smokers. Journal of Psychoactive Drugs 37(4): 449-453.
- Polanski, J. R. & Stanton, A. (2004) First-run smoking presentations in U.S. movies 1999-2003. Center for Tobacco Control Research and Education. Tobacco Control Policy Making:United States. Paper Movies 2004.

Powell, L., Chaloupka, FJ (2003). Parental influences, public policy, and youth smoking behavior. *J. impacTEEN*, University of Illinois at Chicago.

Pre and Post Child Evaluation Instrument, the Creative Curriculum Developmental Continuum, Social and Emotional Development AI's Pals. (2005-2006). Charlottesville, VA, Children, Youth & Family Services, Inc.

Programs (2007). Retrieved March 8, 2007 from <http://www.vtsf.org/programs.htm>.

"Programs That Work." Retrieved March 8, 2007 from [http://www.cdc.gov/healthyyouth/physicalactivity/promoting\\_health/pdfs/ppar\\_a19.pdf](http://www.cdc.gov/healthyyouth/physicalactivity/promoting_health/pdfs/ppar_a19.pdf)

Prokhorov, A., Wetter, D.W., Padgett, D., de M.C., Le T., Kitzman, H. (2002). Spit tobacco prevention and cessation counseling: Statewide survey of health-care professionals and educators. *Substance Use & Misuse* 37(2): 171-197.

Prokhorov, A., Winickoff, J.P., Ahluwalia, J.S., Ossip-Klein, D., Tanski, S., Lando, H.A., et al. (2006) Youth tobacco use: A global perspective for child health care clinicians." *Pediatrics*, 890-903 DOI.

Results of the 2005 Youth Tobacco Survey. (2006). Virginia Commonwealth University, Community Health Research Initiative, Survey and Evaluation Research Laboratory.

Rolandsson, M., Hallberg, L., Hugoson, A. (2006). Influence of the ice-hockey environment on taking up snuff: An interview study among young males. *Acta Odontologica Scandinavica* 64: 47-54.

Sargent, J. D., Beach, M.L., Dalton, M.A., Mott, L.A., Tickle, J.J., Ahrens, M.B., Heatherton TF. (2001). Effect of seeing tobacco use in films on trying smoking among adolescents: cross sectional study. *BMJ* 323(7326): 1394-7.

Sargent, J. D. and Dalton, M.A. (2001). Does parental disapproval of smoking prevent adolescents from becoming established smokers? *Pediatrics* 108, 6 (Electronic): 1256-1262.

Sargent, J. D., Dalton, M. A., Beach, M. (2000). Exposure to cigarette promotions and smoking uptake in adolescents: evidence of a dose-response relation. *Tobacco Control* 9(2): 163-168.

Sargent, J. D., Dalton, M., Beach, M., Bernhardt, A., Heatherton, T., Stevens, M. (2000). Effect of cigarette promotions on smoking uptake among adolescents. *Preventive Medicine* 30(4): 320-327.

- Shelley, D., J. Cantrell, J., Faulkner, D., Haviland, L., Heaton, C., Messeri, P. (2005). Physician and dentist tobacco use counseling and adolescent smoking behavior: results from the 2000 National Youth Tobacco Survey. Pediatrics 115(3): 719-725.
- Smoke-free workplace legislation implementation. (2004). Six months progress report. , Office of Tobacco Control.
- Smoking and health: a physician's responsibility. A statement of the joint committee on smoking and health. (1995). American College of Chest Physicians, American Thoracic Society, Asia Pacific Society of Respiriology, Canadian Thoracic Society, European Respiratory Society, International Union Against Tuberculosis and Lung Disease. European Respiratory Journal 8(10): 1808-1811.
- Siegel, M., & Biener, L., (2000). The Impact of an Antismoking Media Campaign on Progression to Established Smoking: Results of a Longitudinal Youth Study. American Journal of Public Health 90(3): 380-386.
- Sinusas, K. and J. G. Coroso (2006). A 10-yr study of smokeless tobacco use in a professional baseball organization. Medicine & Science in Sports & Exercise 38(7): 1204-1207.
- Sly, D. F., Heald, G.R., Ray, S. (2001). The Florida "truth" anti-tobacco media evaluation: design, first year results, and implications for planning future state media evaluations. Tobacco Control 10(1): 9.
- Sly, D.F., Dietz, N., Trapido, E.J., Nelson, D., Rodriguez, R., McKenna, J., Lee, D. (2005). The outcome consequences of defunding the Minnesota youth tobacco-use prevention program. Preventive Medicine 41(2): 503-510.
- Staff, M., Bennett, C.M., Angel, P. (2003). Is restricting tobacco sales the answer to adolescent smoking? Preventive Medicine 37(5): 529-533.
- Stead, L. F. and T. Lancaster (2000). A systematic review of interventions for preventing tobacco sales to minors. Tobacco Control 9(2): 169-176.
- Stewart-Knox, B., Sittlington, J., Rugkasa, J., Harrisson, S., Treacy, M., Abaunza, P., (2005). Smoking and peer groups: Results from a longitudinal qualitative study of young people in Northern Ireland. British Journal of Social Psychology 44: 397-414.
- Taggart, V. S., Bush, P.J., Zuckerman, A.E., Theiss, P.K. (1990). A process evaluation of the District of Columbia "Know Your Body" Project. Journal of School Health 60(2): 60-6.
- The global tobacco surveillance system. (2006), Tobacco Control 15 Suppl 2: ii1-3.

- Thomas, R., Thomas, A. (1995). Preventing children from smoking. Canadian Family Physician 41: 1517-1523.
- Tickle, J. J., Sargent, J.D., Dalton, M.A., Beach, M.L., Heatherton, T.F. (2001). Favourite movie stars, their tobacco use in contemporary movies, and its association with adolescent smoking. Tobacco Control 10(1): 16-22.
- Tomar, S. L., Giovino, G. (1998). Incidence and predictors of smokeless tobacco Use among US youth. American Journal of Public Health 88(1): 20-26.
- Tucker, J. S. (2002). Smoking cessation during the transition from adolescence to young adulthood. Nicotine & Tobacco Research 4(3): 321-332.
- Virginia Youth Tobacco Survey (YTS). (2004). 2001/2003 Comparisons, Virginia Commonwealth University.
- Vokes, N., Bailey, J., Rhodes, K. (2006). Should I give you my smoking lecture now or later?" Characterizing Emergency Physician Smoking Discussions and Cessation Counseling. Annals of Emergency Medicine 48(4): 406.
- Wakefield, M. and F. Chaloupka (2000). Effectiveness of comprehensive tobacco control programmes in reducing teenage smoking in the USA. Tobacco Control 9(2 (Print)): 177-186.
- Walter, H. J., Vaughn, Roger D., Wynder, Ernst, L. (1989). Primary prevention of cancer among children: Changes in cigarette smoking and diet after six years of intervention. Journal of the National Cancer Institute 81: 995-999.
- Wen, C. P., Tsai, S.P., Cheng, T.Y., Hsu, C.C., Chen, T., Lin, H.S.. (2005). Role of parents and peers in influencing the smoking status of high school students in Taiwan. Tobacco Control 14: i10-15.
- Wiehe, S. E., Garrison, M.M., Christakis, D.A., Ebel, B.E., Rivara, F.P. (2005). A systematic review of school-based smoking prevention trials with long-term follow-up. Journal of Adolescent Health 36(3): 162-169.
- Williams, C., Carter, B.J., Eng, A. (1980). The "Know Your Body" Program: A developmental approach to health education and disease prevention. Preventive Medicine 9: 371-383.
- Wilson, J. J. (1999). Summary of the Attorneys General Master Tobacco Settlement Agreement. National Conference of State Legislators.
- Zapka, J. G., Fletcher, K., Pbert, L., Druker, S.K., Ockene, J.K., Chen, L. (1999). The perceptions and practices of pediatricians: Tobacco intervention. Pediatrics 103(5): e65.

Zollinger, T. W., Saywell, R.M. Jr, Muegge, C.M., Wooldridge, J.S., Cummings, S.F., Caine, V.A.. (2003). Impact of the life skills training curriculum on middle school students tobacco use in Marion County, Indiana, 1997-2000. The Journal Of School Health 73(9 (Print)): 338-346.









## VTSF Quarterly Progress Report

<b>Program Summary</b>	
(31). Accomplishments or Success Stories:	
(32). Implementation Barriers/Obstacles:	
(33). Steps for Overcoming Implementation Barriers/Obstacles:	
(34). Statewide Evaluation Plan:	
(35). Requests for Staff Assistance or Program Implementation Visit:	
(36). Additional Comments:	
(37). Printed Name of Person Completing Report:	(38). Date Completed:

**VIRGINIA TOBACCO SETTLEMENT FOUNDATION  
FINAL REPORT 2005-2006 GRANT YEAR**

*Please answer the following questions as they relate to the **entire** grant cycle.*

**I. EFFECTIVE STRATEGIES FOR ACHIEVING OBJECTIVES**

**Describe the strategies that were effective in achieving the grant's objectives.**

**Include strategies that proved effective in overcoming implementation barriers that may have occurred.**

**Describe the unique lessons learned about implementing this grant (i.e. process, timing) that would be helpful for future grantees.**

**II. RECOMMENDATIONS FOR FUTURE ACTIVITIES**

**How can the results of this grant project be shared in order to have the greatest impact possible? What are your ideas for possible dissemination of the grant results?**

**As a result of this grant, do you have recommendations for VTSF about how to further meet the needs of Virginia's youth as it relates to tobacco use prevention?**

none

**III. LOCAL EVALUATION RESULTS (if applicable)**

**Describe your local evaluation efforts (i.e. evaluation tools used, processes used, contractor used) and your results here. Please attach any supporting reports, final data analysis, conclusions and recommendations.**

**ADDITIONAL COMMENTS – Please provide VTSF with any additional observations or comments about the grant program and its implementation as well as feedback about the role of VTSF and its staff in the process.**

**Name of Person Completing Report**

**Date of Final Report:**

**APPENDIX B**

**VTSF Compendium Program Information Worksheet**

Program Information			
<b>Compendium Program Title:</b>			
<b>Describe the theoretical framework of the program</b>			
<b>Brief Program Description:</b>			
<b>Describe Specific Outcomes the Program Addresses:</b>			
<b>Describe Specific Tobacco Control Outcomes the Program Addresses:</b>			
<b>Identify the specific lesson(s) or module(s) that addresses tobacco control</b>			
<b>How the program works:</b>			
<b>Target Age Group, Grade Level and/or Gender:</b>			
<b>Type of Program:</b>	<input type="checkbox"/> Cessation/Reduction	<input type="checkbox"/> Prevention	
<b>Recommended Intervention Site:</b>	<input type="checkbox"/> School	<input type="checkbox"/> Community	<input type="checkbox"/> Faith-based

<b>Website Address:</b>				
<b>Recognition By National and/or state level agencies and organizations</b> <i>(specify level of designation as model, promising or effective. Please provide a link or documentation that supports the level of designation)</i>	<b>Agencies and level of designation</b>		<b>National /State Level</b>	<b>Link</b>
<b>Is the Program curricula available in Spanish?</b>	No			
	Yes			

Program Replications					
Agency:					
Address:					
Phone #:					

Implementation Essentials <i>(What must be included to achieve model outcomes?)</i>		

**Curriculum Materials**

Required Materials	Cost	Comments Regarding Materials
Optional Materials	Cost	

**Training & Cost:**

Is training required to implement program?				
Training	Cost	Duration	Min # Participants	Max # Participants
Implementation				
TOT				

**Comments Regarding Training**

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Evaluation Information

Type of Evaluation Conducted on the program.

Information regarding evaluation type including organization(s) conducting independent evaluations (Name, address phone number, website, date of evaluation(s), etc. )

Method(s) of Evaluation (Please identify all that are applicable)

## **APPENDIX C**

### **Curriculum Vitae**

#### **Amy Horsch Smith**

##### **Home Address**

540 Cherry Hill Dr.  
Abingdon, VA 24210  
276-492-6207 (Cell)  
[smithprs@naxs.com](mailto:smithprs@naxs.com)

##### **Work Address**

Smyth County Community Foundation  
214 W. Main St.  
Marion, VA 24354  
276-781-0100  
[projectrightstart@earthlink.net](mailto:projectrightstart@earthlink.net)

#### **Education**

##### **PhD Virginia Tech**

Department of Education/Curriculum and Instruction/Option in Health Promotions  
Dissertation: *Efficacy of Virginia Tobacco Settlement Foundation Elementary  
Compendium Programs in Relation to Tobacco Prevention*  
Advisor: Kerry Redican, PhD  
Graduation Date: Fall 2007

##### **MS, Virginia Tech, 2001**

Major: Education/Curriculum and Instruction/ Health Promotions

##### **BA, University of Miami, 1978**

Major: English

**Principals of Real Estate Virginia Highlands Community College**, course completion,  
1988

**Certificate in Careers in Publishing**, Eckerd College, 1979

## **Professional Experience**

*September 2004 to present--***Coordinator, Project Right Start** for the Smyth County Community Foundation, Suzanne Jennings, Executive Director. A cooperative program with the Smyth County Elementary Schools targeting childhood obesity including nutrition, physical activity and tobacco avoidance. [www.projectrightstart.com](http://www.projectrightstart.com).

- Design and implement school and community Health Promotions programs
- Design and implement classroom curriculum
- Develop community partnerships
- Marketing of programs and health concerns
- Community speaking & workshops
- Website author and maintenance
- Author/designer monthly newsletter
- Design and initiate Health Promotions research
- Grant research and writing

*2001 to Present—*Co-Owner, Creeper Trail Cottages. Vacation Rentals on the Virginia Creeper Trail, Damascus, Virginia. 276-492-6207, [www.creepercottage.com](http://www.creepercottage.com).

*August to December 2007—*Graduate Teaching Assistant for Curriculum and Instruction at Virginia Tech.

- Taught 2 on-line Health Promotions Classes
- Developed two new Health Promotions Classes

*September 2002 to November 2003--***Director of Community Education and Development**, Hospice and Palliative Care of Virginia. Part time.

- Design and implement community education programs
- Marketing & public relations
- Patient advocacy
- Physician and consumer research
- Grant writing

*Fall Semester 2002--***Adjunct Faculty**, Emory & Henry College. Nutrition for Athletic Training Majors.

Immediate Supervisor: **Leigh Ann Adams**, [laadams@ehc.edu](mailto:laadams@ehc.edu).

*November 1985 to September 2004--*Self-employed **Public Relations and Marketing Specialist** for professional offices, small businesses, hospitals, libraries, educational institutions, nonprofit organizations and small corporations.

### **Teaching Interests**

Personal Health for Medical Professionals

Personal Health for College Students

Chronic Disease Prevention

Tobacco Prevention and Cessation

Health Literacy

### **Awards and Honors**

**2005--*Skelton Fellow***, awarded for outstanding service to club and community, Rotary Club of Washington County.

**2002--*Outstanding Masters Student in Health and Physical Education/Health Promotions***, awarded by Virginia Tech.

**1992--Award for Contributions to *Excellence in Education*** given by the Education Committee of the Greater Bristol Area Chamber of Commerce.

**1991--NAPE *Outstanding National School Volunteer***, sponsored by Kraft General Foods and Walt Disney World.