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An Assessment of America's Tobacco-Free Colleges and Universities: Policies, Procedures, Practices, and Adherence to Acha's 2009 Guidelines and Recommendations

Sara S. Plaspohl

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AN ASSESSMENT OF AMERICA'S TOBACCO-FREE COLLEGES AND UNIVERSITIES:
POLICIES, PROCEDURES, PRACTICES, AND ADHERENCE TO ACHA'S 2009
GUIDELINES AND RECOMMENDATIONS

by

SARA PLASPOHL

(Under the Direction of Charles Hardy)

ABSTRACT

The purpose of the study was to survey each of the 100% tobacco-free campuses in the nation (N=175) to assess their policies, procedures, and practices, and the extent to which they adhere to American College Health Association (ACHA) guidelines promoting tobacco-free environments in colleges and universities. One key informant from each participating institution completed an online 35-item survey regarding school tobacco policies, practices, and enforcement. A scoring rubric was devised to measure compliance with ACHA guidelines. One hundred sixty-two institutions responded to the online survey, yielding a response rate of 92.6%. Cross-tabulations and Fisher's Exact Tests were used to examine the relationship of geographic region, institution type, enrollment size, and geographic location to compliance with ACHA guidelines. Results demonstrated that tobacco-free schools fall short of total compliance with current ACHA guidelines. Institutional type and enrollment size appear to be the most closely related factors among demographic variables, with public colleges/universities having the highest degree of compliance, and smaller schools (<10,000) more likely to enforce tobacco control policies. Larger schools are more likely to employ a tobacco control task force of a variety of members to enforce tobacco control policies. Findings from this study may serve as a helpful resource to colleges and universities for development of public health policies, practices, and enforcement for tobacco control.

INDEX WORDS: Tobacco policy, College campus, Policy enforcement, Tobacco-free environment

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SARA PLASPOHL

B.S., Armstrong State College, 1989

M.H.S., Georgia Southern University, 1992

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with a concentration in

Community Health Behavior and Education

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SARA PLASPOHL

Major Professor: Charles Hardy
Committee : Charles Hardy
Robert Vogel
Stuart Tedders
Andrew Epstein

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DEDICATION

This dissertation is dedicated to the Jiann-Ping Hsu College of Public Health inaugural DrPH class that first convened during Fall Semester, 2007: Betty, Raymona, Chris, Heidi, Kelley, Matt, Leigh, Krista, Becky, Michele, Deb, and Joe. It has been a privilege to be your classmate during the past three years, and I wish you all much success and happiness.

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Thanks to my sweet daughter, Libby, for her ongoing encouragement, and for the late phone chats that got me home from all of those late night classes in Statesboro.

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CHAPTER 1

BACKGROUND, SIGNIFICANCE, AND LITERATURE REVIEW

Introduction

The health effects of tobacco use are well-documented, with cigarette smoking identified as the most important risk factor for lung cancer (American Cancer Society, 2009). Historical trends for tobacco use among college students and other adults, combined with the known health hazards for behaviors associated with this harmful risk factor, demonstrate the need for tobacco control policies on college campuses. In a call to action, the Institute of Medicine offers a series of recommendations to help end the tobacco problem in the United States; Recommendation #8, which specifically targets college campuses, calls for a ban on smoking in indoor locations, a ban on the promotion of tobacco products on campus, and eventually the setting of an overall goal of becoming smoke-free (Institute of Medicine, 2009). As part of the *Healthy Campus 2010* overall goal to "...reduce illness, disability, and death related to tobacco use and exposure to secondhand smoke..." (American College Health Association, 2002), two supporting sub-goals reflect the commitment to smoke-free and tobacco-free campus environments (Goal 27-11) and to increasing the proportion of college worksites with formal smoking policies to prohibit/limit smoking to separately ventilated areas (Goal 27-12).

Tobacco use among college students in the United States poses a public health concern. During the 1990's, prevalence of cigarette smoking among this population increased by 27.8% (Wechsler, Rigotti, Gledhill-Hoyt, & Lee, 1998). Three in every four students (74.8%) are reported to have ever tried cigarette smoking, and nearly one-third (32.4%) reported current cigarette or smokeless tobacco use during the decade (Centers for Disease Control and Prevention, 1997). More recently, the prevalence of tobacco use among college students appears to have decreased to approximately 20% in 2005 (ACHA, 2007), and as low as 18% in 2008 (Johnston, O'Malley, Bachman, & Schulenberg,

2009). However, the current rate of tobacco use on campus remains unacceptable, much higher than the nationally-targeted goal of 10.5% identified in *Healthy Campus 2010* (ACHA, 2002).

Among adults, data from the National Health Interview Survey (NHIS) (CDC, 2008a) suggest “lagging progress” has been made on all four health objectives from *Healthy People 2010* (US Department of Health and Human Services, 2000), falling short of the national targeted goal of twelve percent. This trend is also applicable to college settings; in addition to the student body, the campus environment includes faculty, administrators, and other adult personnel, many of whom are tobacco users.

There are a variety of approaches aimed at the reduction of tobacco use, ranging from those with an individual focus – for example, smoking cessation programs – to those that target entire groups or populations. According to *Healthy People 2010* (USDHHS, 2000), programs that employ population-based approaches are becoming more prevalent. These programs typically include goals that strive to prevent community members from ever initiating a tobacco habit, to help existing tobacco users to quit their tobacco habits, and to reduce exposure to environmentally-toxic secondhand smoke. One strategy to achieve these goals is via policy intervention.

The literature includes abundant scientific evidence that the use of policy intervention is effective in promoting healthy outcomes. Moore, Roberts, and Tudor-Smith (2001) demonstrated that comprehensive school policies may produce a reduction in student smoking rates. Likewise, Chaloupka, Tauras, and Grossman (1997) conducted research on the use of smokeless tobacco, concluding that tobacco control policies are perhaps the best strategy to reduce smokeless tobacco consumption among community members. In 2002, Fichtenberg and Glantz published their meta-analysis of 26 studies examining the effects of smoke-free workplaces in four different countries, including the United States, and concluded that smoking prevalence and consumption is reduced in these settings. Lightwood and Glantz (2009) examined the possible relationship between acute

myocardial infarction rates after implementation of smoke-free laws and individual risk associated with second-hand smoke, concluding that strong smoke-free legislation yields significant benefits in reducing the rate of acute myocardial infarctions. As a final example, Pickett, Schober, Brody, Curtin, and Giovino (2006) examined the possible relationship between smoke-free laws and second-hand smoke exposure in non-smokers, concluding that smoke-free laws appear to be beneficial in reducing exposure to second-hand smoke, thus promoting enhanced wellness.

Halperin and Rigotti (2003) conducted a study to measure U.S. public universities' compliance with ACHA-recommended tobacco-control policies. They concluded that "...adherence to national recommendations for tobacco policies is likely to be an effective deterrent to tobacco use among college and university students..." (p. 187), and recommend evaluating both policy implementation and outcome measures in future studies so as to identify "...elements of success and strategies for overcoming barriers to policy implementation and student cessation..." (p. 187) Recently, ACHA published updated national guidelines designed to "...assist colleges and universities with evaluating progress toward becoming or maintaining tobacco-free living and learning environments that support the achievement of personal and academic goals." (ACHA, 2009, p. 2).

The American Lung Association in Oregon (ALA-O) recently began publishing a comprehensive listing of colleges and universities that self-report as 100% tobacco-free per their campus policies. The most recent list, published in October of 2009, documents 176 colleges that have achieved this goal, thus representing only 2-3% of all colleges and universities in the U.S. that are tobacco-free (ALA-O, 2009). While not all campuses desire to be 100% tobacco-free, a large proportion of the remaining 97% might entertain the idea of achieving this public health goal with varying degrees of interest (Halperin and Rigotti, 2003). Many may be reluctant to pursue such policies for various reasons such as fear of student support or lack of student interest in cessation programs (Wechsler, Kelley, Seilbring, Kuo, & Rigotti, 2001).

The Halperin and Rigotti study is limited in that it includes only large public universities; the need exists for a broader look at college campuses' compliance with tobacco-control policies, and that includes smaller public institutions, private independent colleges, religious-sponsored schools, etc. Colleges that are already tobacco-free have policies in place that support tobacco-free living and learning environments; an assessment of their observance of nationally-recommended standards per the new 2009 guidelines, including the extent to which their policies are communicated to students, faculty, staff, and other parties on campus, can yield valuable information which might be helpful to those campuses desiring to achieve the same tobacco-free status.

Purpose of the Study

The purpose of this study was to survey each of the 100% tobacco-free campuses in the nation to assess their policies, procedures, and practices, and the extent to which they adhere to ACHA guidelines promoting tobacco-free environments in America's colleges and universities. Respondents were asked to describe tobacco-control policies, practices, and enforcement efforts on their campuses, corresponding to ACHA guidelines and recommendations for tobacco-free environments (ACHA, 2009). The guidelines include sections on: policy details; policy communication; health education and promotion on-campus; programs and services to support compliance; on-campus marketing/ promotion that conveys awareness of the campus as a tobacco-free facility; policy enforcement; the public relations efforts of the institution; and the development and maintenance of an infrastructure (i.e., key individuals, departments, other stakeholders) that promote a tobacco-free campus.

Significance of the Study

The current study, as designed, provided the first comprehensive examination of ACHA's most recent set of guidelines and recommendations that promote tobacco-free campuses, and includes all colleges and universities in the United States that self-identify as 100% tobacco-

free ($N = 176$). As such, its contribution to public health cannot be understated, particularly as it relates to promoting overall wellness on college and university campuses. In addition, the “lessons learned” insights – from those colleges and universities that have done it, to those that are/might be considering doing it – will contribute invaluable information on creating a 100% tobacco-free environment for colleges and universities.

Literature Review

The purpose of this study was to survey each of the 100% tobacco-free campuses in the nation to assess their policies, procedures, and practices, and the extent to which they adhere to guidelines promoting tobacco-free environments in America’s colleges and universities. Respondents were asked to describe tobacco-control policies, practices, and enforcement efforts on their campuses, corresponding to ACHA guidelines and recommendations for tobacco-free environments (ACHA, 2009). The guidelines include sections on: policy details; policy communication; health education and promotion on-campus; programs and services to support compliance; on-campus marketing/promotion that conveys awareness of the campus as a tobacco-free facility; policy enforcement; the public relations efforts of the institution; and the development and maintenance of an infrastructure (i.e., key individuals, departments, other stakeholders) that promote a tobacco-free campus.

Negative Effects of Tobacco Use

The public health effects of tobacco use are well-documented, with cigarette smoking identified as the most important risk factor for lung cancer, as well as the leading cause of death and disease in the United States (Wechsler et al., 1998; American Cancer Society, 2009). The American Cancer Society (2009) predicts approximately 169,000 Americans will die in 2009 due to tobacco use, representing nearly one death out of every five occurring in the U.S. Eight-seven percent of lung cancer deaths are caused by smoking (ACS, 2009). It is estimated that 8.6 million Americans suffer from tobacco-related chronic conditions such as bronchitis, emphysema, gastric ulcers,

cerebrovascular disease, and cardiovascular disease (CDC, 2003). Smokers have an increased risk of more than 15 types of cancer that impact major body organs and anatomical structures such as the naso-pharynx, nasal cavity, nasal sinuses, lips, mouth, pharynx, larynx, lungs, pancreas, uterus, esophagus, kidneys, bladder, stomach, and blood (ACS, 2009). Tobacco use has been associated with infertility and peptic ulcer disease (USDHHS, 2004). Nearly one-third of babies delivered by pregnant smokers suffer from low birth weight, with as many as 14% delivered preterm (USDHHS, 2001).

There is scientific evidence that secondhand smoke, also referred to as environmental tobacco smoke or passive smoking, is associated with harmful effects on human health (USDHHS, 2006). According to the National Cancer Institute (1999), secondhand smoke is linked to annual U.S. mortality totaling more than 38,000 deaths from ischemic heart disease, lung cancer, and sudden infant death syndrome. In addition, estimated annual morbidity among children due to secondhand smoke exposure includes more than 9,700 cases of low birth weight births, 400,000 cases of pediatric asthma, 150,000 cases of acute lower respiratory illness in children less than 18 months of age, and 700,000 cases of pediatric otitis media (NCI, 1999). Currently there are over 126 million nonsmokers in the U.S. who are regularly exposed to secondhand smoke in settings that include their homes, transportation vehicles, workplace environments, and public places (USDHHS, 2006). Over half of American children ages 3 to 11 are exposed to secondhand smoke, which can attribute to respiratory symptoms and slow lung growth (USDHHS, 2006). In 2006, the U.S. Surgeon General noted there is no such thing as a risk-free level of exposure to the health hazard of secondhand smoke. Secondhand smoke is well-established in the literature as a known carcinogen, thus representing another potentially fatal risk factor related to tobacco exposure (USDHHS, 2006; NCI, 1999).

The established negative public health effects of tobacco use are intertwined with negative economic costs that impact consumers. Americans spent over \$88.7 billion on tobacco products in

2005, with \$82 billion (92%) of the expenditures being spent on cigarettes, \$2.61 billion (3%) spent on smokeless tobacco products, and over \$1 billion (1%) spent on cigars (USDA, 2007). During the five-year span of 2000 to 2004, cigarette smoking was responsible for \$193 billion in annual health-related economic losses in the U.S, with approximately half (\$96 billion) associated with direct medical costs and the other half (\$97 billion) associated with lost productivity; it is estimated that 5.1 million years of potential life are lost in the U.S. each year due to cigarette smoking (CDC, 2008b).

Tobacco Use Among College Students

Tobacco use among college students in the United States poses a public health concern. Tobacco is defined as “all tobacco-derived or containing products, including, but not limited to, cigarettes (clove, bidis, kreteks), cigars and cigarillos, hookah-smoked products, and oral tobacco (spit and spitless, smokeless, chew, snuff.” (ACHA, 2009, p. 1). During the 1990’s, prevalence of cigarette smoking among this population increased by 27.8% (Wechsler et al., 1998). Three out of every four students (74.8%) are reported to have ever tried cigarette smoking, and nearly one-third (32.4%) reported current cigarette or smokeless tobacco use during the decade (CDC, 1997). More recently, the prevalence of tobacco use among college students appears to have decreased to approximately 20% in 2005 (ACHA, 2007), and as low as 18% in 2008 (Johnston et al., 2009). However, the current tobacco use rate remains unacceptable, being much higher than the national targeted goal of 10.5% as identified in *Healthy Campus 2010* (ACHA, 2002).

College students, especially freshmen, are at a vulnerable point in their young lives, transitioning from living at home with various degrees of parental restrictions to a more independent and autonomous environment. This is a time when they experiment with many new behaviors, including the use of tobacco products such as cigarettes, smokeless tobacco, cigars, and pipes (Rigotti, Lee, & Wechsler, 2000). They choose to smoke, regardless of their awareness of the health consequences that result from the person habit (Van Volkom, 2008). In addition to chronic respiratory diseases

such as lung cancer, cigarette smoking has also been associated with depression among college students (Kenney & Holahan, 2008).

Research identifies psychosocial and behavioral protective factors, as well as other risk factors, contributing to smoking among college students (Costa, Jessor, & Turbin, 2007). From an ecological perspective, there are various elements within the college campus environment that encourage tobacco use among students. They are exposed to social influences from their peers, as well as to marketing influences via aggressive campaigns and advertisements at campus functions such as sporting events and in campus publications such as school-produced newspapers (Thompson et al., 2007). Students can have misperceptions about the harmfulness of tobacco products and medicinal nicotine replacement products, incorrectly believing that light and ultra-light cigarettes are less harmful than regular cigarettes, and that nicotine replacement products, such as nicotine gum and the nicotine patch, are more harmful than a regular cigarette (Smith, Curbow, & Stillman, 2006).

In a large study examining prevalence and characteristics of smokers at 30 colleges and universities, Thompson et al. (2007) found males were more likely to smoke than females (18.6% vs. 16.6%). Findings also reported that students attending public institutions were more likely to smoke (20.5%) compared to private independent schools (18.9%) and private religious schools (lowest at 11.6%). The typical college smoker does not smoke every day, is not dependent on tobacco, does not perceive himself/herself as a regular smoker, and intends to quit the tobacco habit prior to graduation (Thompson et al., 2007; Levinson et al., 2007).

In addition to personal use of tobacco products, college students have a high rate of exposure to secondhand smoke (83%), with the most common settings for this exposure occurring in bars or restaurants (65%), at home (55%), or in cars (38%) (Wolfson, McCoy, & Sutfin, 2009).

Tobacco Use Among Adults

Among adults, data from the NHIS (CDC, 2008a) suggest “lagging progress” has been made on all four health objectives from *Healthy People 2010* (USDHHS, 2000), falling short of the national targeted goal of 12%. In 2005, 45.1 million adults in the U.S. smoked cigarettes, representing one out of every five adults (20.9%) in the country (CDC, 2006). Of the 45.1 million smokers, 81% (36.5 million) reported smoking cigarettes every day (CDC, 2006). Prevalence data demonstrates that men are more likely to smoke than women (23.9% vs. 18.1%), and smoking rates in general decrease as higher levels of education are achieved (CDC, 2006; Green et al., 2007). Prevalence rates for use of other tobacco products are much lower than for cigarettes, with 2.2% of American adults smoking cigars and 2.3% using smokeless tobacco (CDC, 2006).

The majority of smokers (approximately 80%) begin the behavior prior to reaching the age of 18 (Burns, Lora, Vaughn, Chiu, & Shopland, 1995; Everett et al., 1999). Whether they choose to attend college or not, young adults are at a pivotal time in their lives as they go to work, find a mate, marry, have a family, and take on continuous new responsibilities. All of these lifestyle changes may increase their susceptibility to start smoking or using other tobacco products (Hammond, 2005). Smoking behaviors that begin during early adulthood are predictive of smoking behavior during later life, with as many as 72% of adolescent smokers continuing on as adult smokers, while only 7% of non-smoking adolescents becoming smokers in their adult years (Chassin, Presson, Rose, & Sherman, 1996).

These trends are applicable to the college campus setting because in addition to the student body, the environment includes faculty, administrators, and other adult personnel, many of whom are tobacco users.

Use of Policy to Promote Health and Eliminate Tobacco Use

Historical trends for tobacco use among college students and other adults, combined with the known health hazards for behaviors associated with this harmful risk factor, demonstrate the need for tobacco control policies on college campuses. In a call to action, the Institute of Medicine offers a series of recommendations to help end the tobacco problem in the nation, including Recommendation #8 – specifically targeting college campuses – calling for a ban on smoking in indoor locations, a ban on the promotion of tobacco products on-campus, and the consideration of setting an overall goal of becoming smoke-free (Institute of Medicine, 2009). As part of the *Healthy Campus* initiative, and the overall goal to “...reduce illness, disability, and death related to tobacco use and exposure to secondhand smoke...” (ACHA, 2002, p. 91), two of the supporting sub-goals reflect a commitment to smoke-free and tobacco-free campus environments (Goal 27-11) and to increasing the proportion of college worksites with formal smoking policies to prohibit/limit smoking to separately ventilated areas (Goal 27-12).

There are a variety of approaches aimed at reduction of tobacco use, ranging from those with an individual focus (e.g., smoking cessation programs) to those that target entire groups or populations. According to *Healthy People 2010* (USDHHS, 2000), programs that employ a “population-based” approach are becoming more prevalent. These programs typically include goals that strive to prevent community members from ever initiating a tobacco habit, help existing tobacco users to quit their tobacco habit, and reduce exposure to environmentally-toxic secondhand smoke. One strategy to achieve these goals is via policy intervention.

The literature includes abundant scientific evidence that the use of policy intervention is effective in promoting healthy outcomes. Moore, Roberts, and Tudor-Smith (2001) demonstrated that comprehensive school policies may produce reductions in student smoking rates. In an earlier investigation, Chaloupka, Tauras, and Grossman (1997) considered the use of smokeless tobacco,

concluding that tobacco control policies are perhaps the best strategies to reduce smokeless tobacco consumption in a community setting. Fichtenberg and Glantz (2002) conducted a meta-analysis of twenty-six studies examining the effects of smoke-free workplaces in four different countries, including the U.S., and concluded that smoking prevalence and consumption is reduced in these settings. Lightwood and Glantz (2009) examined the possible relationship between acute myocardial infarction rates after implementation of smoke-free laws and individual risk associated with second-hand smoke, concluding that strong smoke-free legislation yields significant benefits in reducing the rate of acute myocardial infarctions. Pickett et al. (2006) examined the relationship between smoke-free laws and second-hand smoke exposure in non-smokers, concluding that smoke-free laws appear to be beneficial in reducing exposure to second-hand smoke, thus promoting enhanced wellness.

Tobacco Control Policies, Procedures, and Practices: College/University Campuses

Prior to 2001, there was a low prevalence of tobacco control policies on U.S. college campuses, as demonstrated by a national survey reporting 27% having a limited smoke-free policy in place that excluded tobacco use in all campus buildings, including residence halls and dormitories (Wechsler et al., 2001). National organizations, including the American College Health Association, the American Cancer Society, and the American Lung Association developed policies and/or advocacy statements for a tobacco-free environment for college campuses, and more institutions began to slowly respond by implementing more comprehensive tobacco control policies. Figure 1.1 depicts the historical trend of tobacco policy implementation among college campuses.

As U.S. colleges and universities began implementing tobacco control policies, stage-by-stage, there was initially no proof that these policies were well-received and effective in curtailing the use of tobacco products on their campuses. Some literature suggested that college administrators did not perceive tobacco use to be a significant health issue on campus when compared to other college-related behaviors such as alcohol and drug abuse (Halperin, Ehlinger, & Majchrzak, 2001; Wechsler

et al., 2001). In addition to perceiving tobacco as the “lesser of campus evils,” administrators were possibly concerned that students would oppose the implementation of such policies on campus, thereby resisting these changes (Halperin et al., 2001).

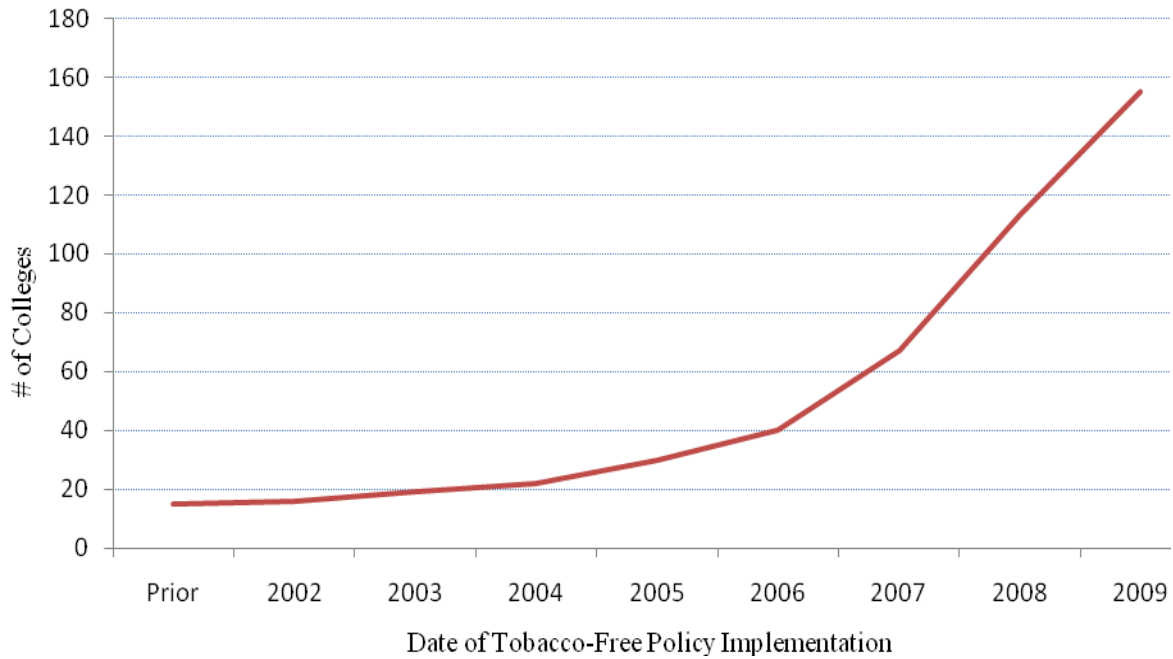


Figure 1.1. 100% tobacco-free policy implementation trend among U.S. colleges. This figure illustrates the dates that U.S. colleges/universities implemented their tobacco-free campus policy; comprised from ALA-O list of Tobacco-Free Colleges, October 2009.

Halperin and Rigotti (2003) conducted a study to measure U.S. public universities compliance with ACHA-recommended tobacco-control policies. They concluded that “...adherence to national recommendations for tobacco policies is likely to be an effective deterrent to tobacco use among college and university students...” and recommend evaluation of both policy implementation and outcome measures to identify “...elements of success and strategies for overcoming barriers to policy

implementation and student cessation.” (Halperin & Rigotti, 2003, p. 187) Only recently, ACHA published updated national guidelines designed to “...assist colleges and universities with evaluating progress toward becoming or maintaining tobacco-free living and learning environments that support the achievement of personal and academic goals” (ACHA, 2009, p. 1).

The American Lung Association in Oregon publishes a comprehensive listing of colleges and universities that are 100% tobacco-free per campus policies. The most recent list (ALA-O, 2009) documents 176 colleges having achieved this goal, thus representing only two-to-three percent of all colleges and universities in the U.S. While not all campuses desire to be tobacco-free, a large proportion of the remaining 97% might seriously consider the idea of achieving this public health goal, or with varying degrees of interest (Halperin & Rigotti, 2003). Many may be reluctant to pursue such policies for various reasons such as fear of student support or lack of student interest in cessation programs (Wechsler et al., 2001).

Evaluating Tobacco-Free Campuses: Strengths and Limitations

Research has been conducted from the early 1990’s to the present to investigate the efficacy of tobacco control policies on college and university campuses. Halperin and Rigotti (2003) performed an extensive study to assess the prevalence of recommended policies on campuses as set forth by the American College Health Association and the American Cancer Society. Other researchers have examined student opinions on recommended tobacco control policies in an effort to address possible barriers to policy administration prior to implementation (Rigotti, Regan, Moran, & Wechsler, 2003; Loukas, Garcia, & Gottlieb, 2006). Wechsler et al. (2001) reported that college health directors identified many challenges in addressing the issue of smoking on campus from the perspective of a public health concern, as well as from an operational perspective in the development of on-campus smoking cessation programs. What they found was that the development and acceptance of on-campus tobacco policies and procedures often met difficult challenges, such as student attitudes,

smoking styles, and reasons for smoking among the student populations. For example, the health directors reported little demand or use of existing smoking cessation programs on campus, and students commonly did not use existing campus resources.

Chakravorty and Chakravorty (1997) suggest that health educators face a tremendous challenge when addressing tobacco use and how to develop tobacco cessation programs that attract students and encourage smoking cessation. Wechsler et al. (2001) hypothesize that reducing the visibility of tobacco use in the environment could also discourage students from starting to smoke and make quitting easier. One way to accomplish this reduced visibility is via comprehensive tobacco control policies on campus. Historically it has been shown that such policies in the workplace are associated with declining smoking prevalence, and a similar effect may be demonstrated in college (Brownson, Eriksen, Davis, & Warner, 1997). Wechsler et al. (2001) found that colleges that prohibited smoking widely were less likely to perceive that smoking was a problem on campus.

The Halperin and Rigotti study (2003) is limited in that it includes only large public universities. The need exists to broaden research regarding college campus compliance with nationally recommended tobacco-control policies to include smaller public institutions, private independent colleges, and religious-sponsored schools. Colleges that are already tobacco-free have existing policies in place to support tobacco-free living and learning environments. An evaluation of their compliance with nationally-recommended standards per the ACHA guidelines (ACHA, 2009), including the extent to which their policies are communicated to students, faculty, staff, and other parties on campus, can yield valuable information which may be helpful to those campuses desiring to achieve the same tobacco-free status.

Summary

The public health effects of tobacco use are well-documented, with cigarette smoking identified as the most important risk factor for lung cancer and the leading cause of death and

disease in the United States (Wechsler et al., 1998; American Cancer Society, 2009). The Centers for Disease Control and Prevention estimates that 5.1 million years of potential life are lost in the U.S. each year due to cigarette smoking (CDC, 2008a).

The literature provides compelling evidence to demonstrate the significance of tobacco use on college campuses, including issues and concerns faced by college administrators who endeavor to promote wellness by banning tobacco use on campus via policy development and implementation. The current tobacco use rate of approximately 20% among college students (ACHA, 2007) is unacceptable, being much higher than the national targeted goal of 10.5% as identified in *Healthy Campus 2010* (ACHA, 2002).

In addition to the student body, college campuses are comprised of other adults, including administration, faculty, and staff, many of whom are tobacco users as well. Overall, there has been “lagging progress” on achieving all four health objectives pertaining to tobacco use from *Healthy People 2010* (USDHHS, 2000), with approximately one out of every five adults being a cigarette smoker (CDC, 2006). Thus, tobacco use is prevalent on U.S. colleges and university campuses, and is not just a public health issue that affects students.

Historical trends for tobacco use among college students and other adults, combined with the known health hazards for behaviors associated with this harmful risk factor, demonstrate the need for tobacco control policies on college campuses. The literature includes abundant scientific evidence that the use of policy intervention is effective in promoting healthy outcomes. Prior to 2001, there was a low prevalence of tobacco control policies on U.S. college campuses. Various national organizations, including the American College Health Association, American Cancer Society, and American Lung Association advocated a tobacco-free environment for college campuses, and more institutions began to slowly respond by implementing more comprehensive tobacco control policies. As U.S. colleges and universities implemented various drafts of tobacco control policies, there was

initially no proof that these policies were well-received and effective in curtailing the use of tobacco products on their campuses.

Halperin and Rigotti (2003) conducted a study to measure U.S. public universities' compliance with ACHA-recommended tobacco-control policies. They concluded that adherence to national recommendations for tobacco policies is likely to be an effective deterrent to tobacco use among college and university students, and recommend evaluation of both policy implementation and outcome measures to identify elements of success and strategies for overcoming barriers to policy implementation and student cessation (Halperin & Rigotti, 2003).

Recently, ACHA published updated national guidelines designed to assist colleges and universities with evaluating progress toward becoming or maintaining tobacco-free living and learning environments that support the achievement of personal and academic goals. The American Lung Association of Oregon (ALA-O, 2009) publishes a comprehensive listing of colleges and universities that are 100% tobacco-free per campus policies. While not all campuses desire to be tobacco-free, a large proportion of the remaining 97% might entertain the idea of achieving this public health goal.

CHAPTER 2

RESEARCH QUESTIONS AND HYPOTHESES

Research Questions

The following research questions were explored:

Research Question #1:

What percentage of U.S. colleges and universities that appear on the ALA-O list of 100% tobacco-free institutions actually have written policies that prohibit tobacco use on their campus?

Research Question #2:

Among colleges and universities that have written policies, what percentage of those policies are current (i.e., updated within the past two years)?

Research Question #3:

What percentage of “100% tobacco-free” colleges and universities has established each of the procedures and practices that appear in the 2009 ACHA published guidelines?

Research Question #4:

What differences will emerge when the data are analyzed by geographic region?

Research Question #5:

What differences will emerge when data are analyzed by urban vs. rural characteristics?

Research Question #6:

Will adherence to ACHA’s tobacco-free guidelines differ by virtue of college/university enrollment?

Research Question #7:

Will adherence to tobacco-free guidelines differ by virtue of college/university type?

Hypotheses

In addition, the following hypotheses were tested:

Hypothesis #1:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control policies and geographic region.

Hypothesis #2:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control policies and their geographic location in an urban vs. rural setting.

Hypothesis #3:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control policies and enrollment size.

Hypothesis #4:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control policies and institutional type.

Hypothesis #5:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control practices and geographic region.

Hypothesis #6:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control practices and their geographic location in an urban vs. rural setting.

Hypothesis #7:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control practices and enrollment size.

Hypothesis #8:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control practices and institutional type.

Hypothesis #9:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended enforcement guidelines and geographic region.

Hypothesis #10:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended enforcement guidelines and their geographic location in an urban vs. rural setting.

Hypothesis #11:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended enforcement guidelines and enrollment size.

Hypothesis #12:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended enforcement guidelines and institutional type.

CHAPTER 3

METHODS

Purpose of the Study

The purpose of the study was to survey each of the 100% tobacco-free campuses in the nation to assess their policies, procedures, and practices, and the extent to which they adhere to guidelines promoting tobacco-free environments in America's colleges and universities.

This chapter is organized into the following sections to profile study methods: (1) design of the study; (2) sampling plan; (3) instrumentation; (4) collection and treatment of data; and (5) analysis and interpretation of data.

Design of the Study

The variables under study – policies, procedures, practices, and adherence to ACHA's Guidelines and recommendations – were assessed via a cross-sectional research design (Campbell & Stanley, 1966). The intent was to provide researchers and college administrators with a comprehensive examination at the *status quo* with regard to compliance with recommended tobacco-control policies at colleges and universities that are identified as 100% tobacco-free.

Sampling Plan

The American Lung Association in Oregon's (ALA-O, 2009) list of colleges/universities that prohibit smoking and all forms of tobacco use everywhere on-campus (that includes no designated smoking areas) served as the study's population. The directory is updated every few months; consequently, the list published in October 2009 was selected (ALA-O, 2009). The list denoted 176 schools as being included in the applicable directory (N=176); however, there were four additional Oregon colleges included that have campus-specific tobacco-free policies, thus increasing the total to 180 (N=180). Ten of the 180 schools on the list were denoted as having announced but not yet implemented their policy for a 100% tobacco-free campus, with their expected dates of

implementation provided in parentheses. Of these ten, five planned to become tobacco-free as of January 1, 2010; these five schools were included in the population because their implementation date was prior to survey distribution. For the remaining five schools, four planned to be tobacco-free effective July, 2010, and one had a designated target date of August, 2011; these 5 schools were excluded from the population because they did not meet the criteria of being 100% tobacco-free at the time of survey distribution. Thus, 175 colleges/universities comprised the final population (N=175).

Instrumentation

The survey of key contacts was designed to include short-answer, semi-structured, and open-ended questions. Two major documents served as the foundation for construction of the survey instrument. First, the current version of the ACHA guidelines and recommendations for tobacco-free campus environments was used to establish scoring categories for measuring institutional compliance (ACHA, 2009). In this document, ACHA recommended that U.S. colleges and universities adopt positions in nine major categories to address tobacco-related issues of policy, prevention, and cessation. These categories are profiled in Figure 3.1.

The second major document that played a key role in construction of survey content was the Campus Health Action on Tobacco Study (CHAT) Key Informant Survey used previously by Halperin and Rigotti (2003) to assess the compliance of U.S. public universities with recommended tobacco-control policies. Content analysis of the CHAT survey questions was conducted to match each question to the current ACHA guidelines. If the CHAT survey did not include at least one question item that matched to the ACHA guidelines, then a question was constructed by replicating the guideline language in a yes/no format. All of the resulting questions were quantitative in nature, with the intent to measure whether or not each recommended guideline existed among the population of tobacco-free colleges/universities in the U.S.

ACHA Guidelines to Address Campus Tobacco Issues

1. Develop a strongly worded tobacco policy that reflects the best practices in tobacco prevention, cessation, and control. These include the following recommendations:
 - a. Tobacco is defined as all tobacco-derived or containing products, including, but not limited to, cigarettes (clove, bidis, kreteks), cigars and cigarillos, hookah-smoked products, and oral tobacco (spit and spitless, smokeless, chew, snuff).
 - b. Tobacco use is prohibited on all college and university grounds, college/university owned or leased properties, and in campus-owned, leased, or rented vehicles.
 - c. All tobacco industry promotions, advertising, marketing, and distribution are prohibited on campus properties.
 - d. The sale of tobacco products and tobacco-related merchandise (including logo containing items) is prohibited on all university property and at university-sponsored events, regardless of the operating vendor.
 - e. The distribution or sampling of tobacco and associated products is prohibited on all university owned or leased property and at university-sponsored events, regardless of the venue.
 - f. Tobacco industry and related company sponsorship of athletic events and athletes is prohibited.
 - g. The college/university does not permit tobacco companies on campus to conduct student recruitment or employment activities.
 - h. The college/university does not accept any direct or indirect funding from tobacco companies.
 - i. The campus provided and/or promotes cessation services/resources for all members of the college/university community.
2. Inform all members of the campus community by widely distributing the campus tobacco policy on an annual basis. The tobacco policy is clearly posted in employee and student handbooks, on the college/university website, and in other relevant publications. Key components of the policy are also shared with parents, alumni/ae, and visitors. The general policy should be included in prospective student materials in both printed and electronic formats.
3. Offer and promote prevention and education initiatives that actively support non-use and address the risks of all forms of tobacco use.
4. Offer and promote programs and services that include practical, evidence-based approaches to end tobacco use, including screenings through health and counseling services, free/reduced-cost tobacco-cessation counseling, free/reduced cost nicotine replacement therapy, and medication options on campus.

Figure 3.1. ACHA guidelines to address campus tobacco issues (September, 2009). This figure presents the guidelines that served as criteria for measuring college/university compliance.

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5. Advocate for the inclusion of tobacco use cessation products, medications, and services in student health insurance plans.
 6. Provide a comprehensive marketing and signage effort to ensure that all college/university visitors, vendors, guests, and others arriving on property owned or leased by the institution are aware of the tobacco-free policy.
 7. Plan, maintain, and support effective and timely implementation, administration, and consistent enforcement of all college/university tobacco-related policies, rules, regulations, and practices. Provide a well-publicized reporting system for violations.
 8. Collaborate with local, state, and national public health entities and tobacco prevention and control public, private, and national non-profit tobacco-related organizations in support of maintaining a healthy tobacco-free environment.
 9. Develop and maintain a tobacco task force on campus to identify and address needs and concerns related to tobacco policy, compliance, enforcement, and cessation. Key individuals and departments to invite/include:
 - a. Undergraduate and graduate students (particularly from student-elected/representative organizations)
 - b. Health and counseling center professionals
 - c. Faculty (including faculty senate or other faculty governing bodies)
 - d. Residence life/housing
 - e. Judicial affairs
 - f. Campus safety/police
 - g. Human resources
 - h. Neighborhood liaisons
 - i. Facilities
 - j. Other important stakeholders specific to campus

Figure 3.1 (continued). ACHA guidelines to address campus tobacco issues (September, 2009). This figure presents the guidelines that served as criteria for measuring college/university compliance.

A scoring system was devised to objectively measure the compliance of each participating college/university with the ACHA guidelines, based upon survey responses by the key informant at each school. Figure 3.2 provides details of the scoring rubric, mapping the survey questions to the 9 ACHA guidelines. Accrual of 57 points would yield a perfect score of 100% compliance with the

recommended guidelines. The scoring system was in line with the conceptual model used earlier by Halperin and Rigotti (2003) for the CHAT survey.

<i>ACHA Guideline</i>	<i>Survey Question #</i>	<i>Total Possible Points</i>
1	4	1
1a	6	1
1b	7, 8a-h, 9a-f	15
1c	10a-c	3
1d & 1e	Redundant with Guideline 1c	0
1f	11c-d	2
1g	Redundant with Guideline 1h	0
1h	11a-b, e-g, 12	6
1i	14, 15a-d	5
2	17, 18a-e	6
3	19, 20	2
4	21, 22a-e	6
5	23, 24	2
6	25, 26a-b	3
7	29, 30, 32	3
8	27	1
9	33	1
TOTAL POSSIBLE SCORE:		57

Figure 3.2. Scoring rubric for compliance assessment. This figure illustrates the scoring system for survey question responses to assess compliance with ACHA guidelines.

In order to enrich the quantitative results yielded by the research, three qualitative questions were added to comprise a “lessons learned” component to the methodology. Since the focus of the survey was an assessment of college/university tobacco policies, practices, and related enforcement, three open-ended qualitative questions were included to give respondents the opportunity to share the valuable lessons their schools learned along the way in these three corresponding areas to achieving a healthy, tobacco-free campus environment. The qualitative data did not receive an in-depth analysis, but were used to supplement the findings with insights that may be useful to other schools working to achieve tobacco-free status.

The final survey tool included four sections; respondents were asked to describe tobacco-control policies, practices, and enforcement efforts on their campuses. Section I of the survey contained three demographic questions on student enrollment, campus type, and location (urban, suburban, and rural). Section II contained thirteen items assessing tobacco control policies on-campus, including: the existence of a written policy and whether that policy is up-to-date (i.e., implemented/updated) within the past two years); a definition of tobacco products; a specific statement in the policy prohibiting tobacco use on-campus; indoor venues (e.g., classroom buildings, residence halls); outdoor venues (e.g., athletic fields, near building entrances, sports stadia and arenas); extent to which tobacco promotions are prohibited on-campus; whether tobacco companies have donated funds to support/name buildings, sports arenas, and endowments; whether tobacco companies sponsor events, activities, or other events on-campus (and which events have been sponsored); and whether the policy promotes tobacco cessation services and resources (and what type of services are included. The final item asked about “lessons learned” in the policy arena.

In Section III, twelve items assessed tobacco control practices, including: whether the policy is widely distributed annually (and what methods are used); whether prevention/education initiatives actively promote and support the non-use of tobacco (including the risks of tobacco use); whether evidence-based approaches to end tobacco use are offered/promoted (and which approaches are used); whether a student health insurance plan is available (and that tobacco treatment/cessation services are part of the plan); whether comprehensive marketing/signage are there to inform visitors, vendors, guests, etc. that the campus is a 100% tobacco-free environment (and what approaches are used); and whether the college/university collaborates with local, state, and national public health officials – and other non-profit agencies – in the support of maintaining a tobacco-free environment. The final question asked about “lessons learned” in implementing the aforementioned practices and procedures. In Section IV, there were seven questions on the enforcement of on-campus policies,

including: whether there are consistent consequences/penalties for non-compliance with tobacco policies; to what extent tobacco policies are enforced on-campus; who is responsible for enforcement; whether the reporting system for violations is well-published; whether a task force exists to address ongoing campus needs and concerns related to tobacco control; and which key individuals/departments are included in the task force. The final item asked about “lessons learned” in enforcement of the policy.

Collection and Treatment of the Data

The study was approved by the Georgia Southern University Institutional Review Board prior to data collection. Data collection occurred between December 2009 and February 2010; in all, three steps were used to collect data (see Table 3.1). In step one, a key informant at each college/university was identified to find an individual who was knowledgeable about the tobacco policies on his/her campus. College and university web sites, school administrators, and a database compiled by ALA-O were used to create the list; at this stage, an electronic format for respondents (i.e., Survey Monkey) was created and uploaded onto a dedicated web page for this purpose. Second, key informants were contacted to obtain their agreement to participate in the study. This was important for two reasons: (1) to inform participants about the plans to use the web site to field the questionnaire ; and (2) to verify all contact information (electronic/postal mail addresses and all phone numbers). Third, follow-up phone calls and emails were directed to all non-responders to maximize response rate; follow-up continued until all participants had responded, or until the scheduled date for survey completion arrived – February 5, 2010.

For purposes of analysis by geographic region, the surveys were coded by the researcher into one of four different regions per categories defined by U.S. Census Bureau (2009). Nine states were categorized as Northeast: Pennsylvania, New Jersey, New York, New Hampshire, Massachusetts,

Table 3.1
Survey Timetable

Date	Activity
November/December 2009	Key informants at colleges and universities identified
December 18-31, 2009	Survey Monkey format created for key informant survey
January 4, 2010	Survey posted to internet link
January 4, 2010	Phone calls and emails began
January 11-February 5, 2010	Follow-up phone calls and emails to non-responders
February 5, 2010	Deadline for survey completion
February 8, 2010	Data entry and analysis began

Connecticut, Vermont, Rhode Island, and Maine. Twelve states were categorized as Midwest (formerly known as Central): Ohio, Indiana, Michigan, Illinois, Missouri, Kansas, Nebraska, Iowa, North Dakota, South Dakota, Wisconsin, and Minnesota. Sixteen states were categorized as South: Maryland, Delaware, Virginia, West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Arkansas, Oklahoma, Louisiana, Texas, and Florida. Finally, thirteen states were categorized as West: Montana, Wyoming, Colorado, New Mexico, Idaho, Utah, Arizona, Nevada, Washington, Oregon, California, Alaska, and Hawaii. Three additional demographic questions were included in the survey as independent variables: (1) institutional type; (2) enrollment size; and (3) geographic location of the campus. Institutional types included public college/university, 2-year college, private college/university, religious school, and technical school. Enrollment size categories included less than 5,000; 5,000 to 9,999; 10,000 to 19,999; 20,000 to

29,999; and 30,000 or more. Geographic locations included urban, suburban, and rural; this last variable was not defined for the participants as they self-reported based upon their own interpretation of the categories.

Analysis and Interpretation of the Data

The data were analyzed in four phases. SAS® 9.2 STAT (Cary, NC: SAS Institute, Inc.) was used to analyze the quantitative data. In the first phase, returned surveys were placed into one of four geographic categories for purposes of analysis: Northeast; Midwest; South; and West. In this phase, individual items were re-coded to create dichotomous yes/no variables to match the criteria set forth in ACHA's policy guidelines (e.g., smoking not allowed in buildings with classrooms: yes/no). In phase two, descriptive statistics were generated to detail subject responses to items related to their campus' tobacco control policies, practices, and enforcement. For instances where the question response was "Does not exist," credit was nonetheless given, with the assumption that if the attribute/location *did* exist, the campus policy would not allow tobacco use for that particular venue, thereby not penalizing the possible accrual of points for the institution. For instances where the question response was "Don't know," points were not awarded. The qualitative data did not receive an in-depth analysis, but were used to supplement the findings with insights that may be useful to other schools working to achieve tobacco-free status. Third, prevalence data were created for all dependent measures to determine the percentage of institutions that comply with ACHA guidelines. A set of cross-tabulations was constructed and Fisher's Exact Test was used to examine significant associations in the data. When differences were observed, Additive Partitioning Procedures were performed to determine the location of the difference within the contingency table (Siegel and Castellan, 1988). In the fourth phase, univariate and bivariate analyses were conducted in order to identify potential differences according to geographic region, urban vs. rural setting,

enrollment size, and institutional type. In addition, an examination of school location in a major tobacco-producing state (Georgia, Kentucky, North Carolina, South Carolina, Tennessee, and Virginia) (U.S. Department of Agriculture, 2000) compared the descriptive compliance score of these institutions with similar scores from all other schools (i.e., those not classified as a major tobacco-producing state). Statistical models were used to evaluate independent effects; all tests used $\alpha \leq .05$ as the level of significance.

CHAPTER 4

RESULTS

The purpose of the study was to survey each of the 100% tobacco-free campuses in the nation to assess their policies, procedures, and practices, and the extent to which they adhere to guidelines promoting tobacco-free environments in America's colleges and universities.

This chapter is organized into the following sections to present study results: (1) sample characteristics; (2) descriptive analysis of survey questions; (3) descriptive analysis of scoring for demographic variables; and (4) analysis of the research questions and hypotheses.

Sample Characteristics

A key informant from 162 of the 175 colleges/universities in the study population responded to the online survey, for a response rate of 92.6%. Participants represented a variety of departments and positions on campus, as profiled in Table 4.1. Student Affairs, Student Development, Student Services, and Student Life offices were the most prevalent departments represented, with 44 (27.2%) key contacts in those areas, followed by Communications, College Relations, Marketing, Public Relations, and Community Development offices with 35 (21.6%) contacts. Departments of Health, Wellness, Counseling, and Smoking Cessation Centers collectively provided 27 (16.7%) of the contacts. The remaining 56 contacts (35.0%) represented departments including Academic Affairs, President's Office, Human Resources, Admissions, Enrollment, Strategic Operations, Administrative Services, Finance, Accounting, Provost Office, departmental faculty, and others.

The vast majority of jobs held by the respondents were executive, upper, and mid-level management positions, including 10 (6.2%) college presidents, 35 (21.6%) deans and chancellors, 23 (14.2%) vice presidents, and 50 (31.0%) directors. The remaining 44 (27.2%) were departmental chairs, managers, coordinators, faculty, counselors, educators, and general administrative staff.

Table 4.1
Profile of Key Contacts

<i>Variable</i>	<i>n</i>	<i>Percent</i>
<i>Campus Department</i>		
Student Affairs/Development/Services/Life	44	27.2
Communications/College Relations/Marketing/PR/Community Development	35	21.6
Health/Wellness/Counseling/Smoking Cessation Center	27	16.7
Academic Affairs	19	11.7
President's Office	13	8.0
Human Resources	8	4.9
Admissions/Enrollment/Strategic Ops/Admin Services	6	3.7
Finance/Accounting/Provost	4	2.5
Faculty	3	1.9
Other	3	2.5
<i>Job Position</i>		
Dean/Chancellor	35	21.6
President	10	6.2
Vice President	23	14.2
Director/Officer	50	31.0
Chair	3	1.9
Manager	6	3.7
Coordinator	13	8.0
Faculty	3	1.9
Staff/Counselor/Educator	19	11.7
<i>Total</i>	162	100.0

Four demographic variables were included in the survey, three of which comprised Part I in the survey questionnaire. Table 4.2 displays the demographic characteristics of the population. Two-thirds of schools (109 or 67.7%) identified an enrollment of less than 5,000 students, followed by 29 (18.0%) with 5,000 to 9,999 students, ten (6.2%) with an enrollment of 10,000 to 19,999, seven (4.4%) with 20,000 to 29,999, and six (3.7%) with 30,000-plus students. More than two in five institutions (66, or 41.0%) were 2-year colleges, followed by private schools (47, or 29.2%), 26 (16.2%) public colleges/universities, 13 (8.1%) technical colleges, and 9 (5.6%) religious schools. Sixty-six schools (41.0%) were described as rural, followed by 50 (31.1%) that were categorized as urban, and 45 (28.0%) that were suburban.

Table 4.2
Demographic Characteristics of Population

<i>Variable</i>	<i>n</i>	<i>Percent</i>
<i>Enrollment Size</i>¹		
<5,000	109	67.7
5,000-9,999	29	18.0
10,000-19,999	10	6.2
20,000-29,999	7	4.4
30,000+	6	3.7
<i>Type of College/University</i>¹		
Public college/university	26	16.2
Private college/university	47	29.2
2-year college	66	41.0
Technical college	13	8.1
Religious school	9	5.6
<i>Geographic Location</i>¹		
Urban	50	31.1
Suburban	45	28.0
Rural	66	41.0
<i>Geographic Region</i>		
Northeast	4	2.5
Midwest (Central)	57	35.2
South	73	45.1
West	28	17.3
<i>Total</i>	162	100.0

¹ No response from one institution.

The fourth demographic variable was coded by the researcher after all surveys were submitted. Using the four geographic regions defined by the U.S. Census (2009), almost half of the respondents (73, or 45.1%) represented schools located in the South Region, followed by 57 (35.2%) in the Midwest Region (formerly known as Central Region), with 28 (17.3%) more in the West Region, and 4 (2.5%) in the Northeast Region. Figure 4.1 presents the location of the 162 participating colleges/universities.

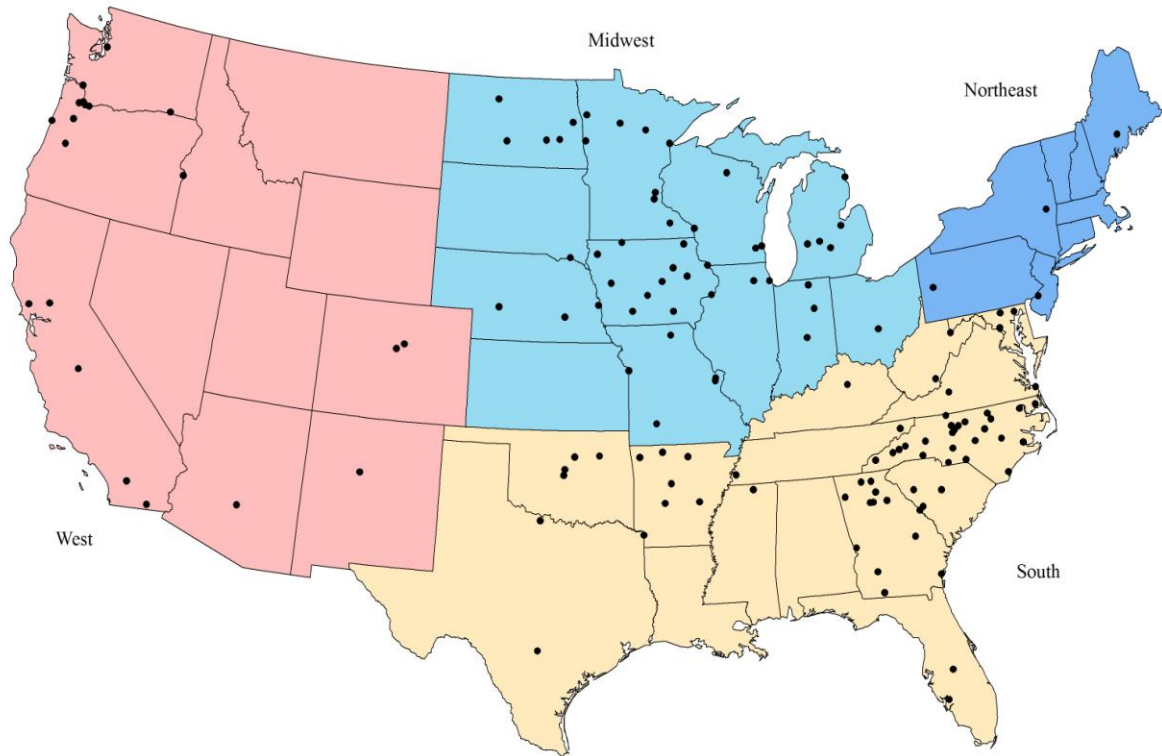


Figure 4.1. Survey respondents by geographic region. This figure illustrates the location of the 162 colleges/universities that participated in the survey.

Descriptive Analysis of Survey Questions

Part II of the questionnaire included 13 items pertaining to school tobacco control policies. One hundred fifty-six contacts (98.7%) reported having a written policy at their institution, while two (1.3%) acknowledged their institution had no such written document; four contacts did not respond to this question. When asked if the written policy on tobacco use had changed in the past two years, 74 (46.3%) responded yes, while slightly more than half (86, or 53.8%)

responded no; two contacts did not respond to this item. Three-fifths of schools (96, or 59.6%) had a tobacco policy that included a definition of tobacco products, including, but not limited to, cigarettes, cigars, cigarillos, hookah-smoked products, and oral tobacco (i.e., spit, spitless, smokeless, chew, and snuff), while 55 (34.2%) did not include this detail in their policy; ten (6.2%) respondents did not know whether their school policy included this information, and one did not respond to this question.

Nearly nine out of every ten schools (144, or 89.4%) had a policy that stated tobacco use was prohibited on all campus grounds, campus-owned or leased properties, and in campus-owned, leased, or rented vehicles. Fifteen (9.3%) did not have this provision, and two (1.2%) did not know; one did not respond.

Contacts were asked to describe how their institution's tobacco policy applied to a series of indoor places on campus (Table 4.3). Tobacco use was not allowed at all in buildings with classrooms, according to 161 (100%), with one missing response. Likewise, tobacco use was not allowed at all in private offices for 160 schools (100%), with two missing responses. It was not allowed at all in the student union for 153 (95.0%), while eight (5.0%) indicated that their schools did not have a student union; one did not respond to this item. In cafeteria/dining areas, 157 (98.1%) schools did not allow tobacco use at all, and three (1.9%) did not have this indoor venue; two contacts did not respond to this question. Tobacco use was not allowed at all in residence halls of 94 (60.7) schools, while one (0.7%) allowed its use in some areas, 59 (38.1%) did not have residence halls, and one (0.7%) did not know how this pertained to his/her school; seven contacts did not respond to this item. For campus apartments, 85 (54.5%) did not allow tobacco use at all, while one (0.7%) allowed it anywhere, 69 (44.2%) did not have campus apartments, and one (0.7%) did not know this detail; six institutions did not respond to this question. Tobacco use was not

Table 4.3
Tobacco Use in Indoor Venues

<i>Indoor Venue</i>	Not allowed at all		Allowed in some areas		Allowed anywhere		Does not exist		Don't know	
	#	(%)	#	(%)	#	(%)	#	(%)	#	(%)
Buildings with classrooms ¹	161	(100.0)	---	---	---	---	---	---	---	---
Private offices ²	160	(100.0)	---	---	---	---	---	---	---	---
Student union ¹	153	(95.0)	---	---	---	---	8	(5.0)	---	---
Cafeterias/dining areas ²	157	(98.1)	---	---	---	---	3	(1.9)	---	---
Residence halls ⁵	94	(60.7)	1	(0.7)	---	---	59	(38.1)	1	(0.7)
Campus apartments ⁴	85	(54.5)	---	---	1	(0.7)	69	(44.2)	1	(0.7)
Student recreation areas ¹	156	(96.9)	1	(0.7)	---	---	4	(2.5)	---	---
Sports arenas ³	115	(72.3)	1	(0.6)	---	---	43	(27.0)	---	---

¹ No response from one institution; ² No response from two institutions; ³ No response from three institutions; ⁴ No response from six institutions; ⁵ No response from seven institutions.

allowed at all in student recreation areas at 156 schools (96.9%), while one (0.7%) allowed it in some of these areas; four (2.5%) did not have this type of venue, and one school did not respond. For the final indoor venue, 115 (72.3%) schools did not allow tobacco use at all in sports arenas, while one (0.6%) allowed its use in some areas, and 43 (27.0%) did not have indoor sports arenas; three contacts did not respond to this question. Overall, the vast majority of the schools appeared to be intolerant of tobacco use in indoor venues, with little exception.

Contacts were also asked how their institution's tobacco policy applied to a series of outdoor places on campus, with responses profiled in Table 4.4. Tobacco use was not allowed at all in campus stadia, fields, and arenas for 133 (82.6%) schools; 2 (1.2%) allowed its use in some areas,

Table 4.4
Tobacco Use in Outdoor Venues

<i>Outdoor Venue</i>	Not allowed at all		Allowed in some areas		Allowed anywhere		Does not exist		Don't know	
	# (%)	# (%)	# (%)	# (%)	# (%)	# (%)	# (%)	# (%)	# (%)	# (%)
Campus stadia, fields, & arenas ¹	133	(82.6)	2	(1.2)	1	(0.6)	25	(15.5)	---	---
Parking garages/lots ²	142	(88.8)	16	(10.0)	1	(0.6)	---	---	1	(0.6)
Near entrances to buildings ¹	160	(99.4)	1	(0.6)	---	---	---	---	---	---
Campus walkways & benches ²	156	(97.5)	2	(1.3)	1	(0.6)	1	(0.6)	---	---
Outside dining areas ¹	146	(90.7)	1	(0.6)	---	---	14	(8.7)	---	---
Bus shelters ³	97	(61.0)	4	(2.5)	---	---	55	(34.6)	9	(5.6)

¹ No response from one institution; ² No response from two institutions; ³ No response from three institutions.

1 (0.6%) allowed it anywhere at this type of setting, and 25 (15.5%) did not have this type of outdoor venue; one contact did not respond to this question. While 142 (88.8%) did not allow tobacco use in parking garages/lots, 16 (10.0%) allowed its use in some areas and 1 (0.6%) allowed tobacco to be used anywhere in this location category; 1 contact did not know his/her school's policy about parking garages/lots, and 2 contacts did not respond. Among the outdoor venues, schools appeared to be least tolerant of tobacco use near entrances to buildings, with 160 (99.4%) not allowing its use at all in this location, while only 1 (0.6%) allowed it in some areas; one contact did not respond. Along campus walkways and outdoor benches, 156 (97.5%) did not allow tobacco use at all, 2 (1.3%) allowed it in some areas, and 1 (0.6%) allowed it anywhere; two contacts did not respond. Tobacco use was not allowed at all for outside dining areas at 146 (90.7%) schools and in some areas for 1 (0.6%) campus; this type of venue did not exist for 14 (8.7%); one contact did not respond to this item. Finally, for bus shelters, 97

(61.0%) did not allow tobacco use at all, while 4 (2.5%) allowed it in some areas; over one-third of the schools did not have bus shelters, according to 55 (34.6%) contacts; 3 (1.9%) were unaware of their school’s policy for this particular venue; three did not respond.

Contacts were asked to what degree tobacco industry promotions were prohibited on their campus per the school’s tobacco policy; responses to this question are presented in Table 4.5.

Tobacco industry advertising on campus, such as in student newspapers, was not allowed at all by 119 schools (73.9%), while two (1.2%) allowed advertising in some areas; one school (0.6%) allowed it anywhere, and 30 (18.6%) responded that it does not exist on their campus; 9 (5.6%) did not know and 1 did not respond to this question. Tobacco marketing was not allowed on 125 (77.6%) campuses, yet one (0.7%) allowed it in some areas, and two (1.2%) allowed it anywhere; tobacco marketing did not exist on 23 (16.8%) campuses, while respondents at six schools (3.7%) did not know this detail about their policy; one person did not respond. Tobacco distribution on campus via industry promotions was not allowed at all for 133 schools (83.1%), one campus (0.6%) allowed distribution anywhere; however, 23 (14.4%) noted it did not exist on their campus, and three (1.9%)

Table 4.5 <i>Tobacco Industry Promotional Activities on Campus</i>										
<i>Promotional Activity</i>	Not allowed at all # (%)		Allowed in some areas # (%)		Allowed anywhere # (%)		Does not exist # (%)		Don’t know # (%)	
Tobacco advertising (e.g., student newspapers) ¹	119	(73.9)	2	(1.2)	1	(0.6)	30	(18.6)	9	(5.6)
Tobacco marketing ¹	125	(77.6)	1	(0.65)	2	(1.24)	23	(16.8)	6	(3.7)
Tobacco distribution ²	133	(83.1)	---	---	1	(0.6)	23	(14.4)	3	(1.9)

¹ No response from one institution; ² No response from two institutions.

did not know; two contacts did not respond to this item. For the most part, tobacco industry promotions appeared to not be allowed at all or did not exist on campuses.

Beyond promotional activities, tobacco companies may fund a variety of programs and administrative positions on college campuses. Participants were asked about this, summarized in Table 4.6. A very small percentage of campuses received such funding. Student programs were the most common destination for tobacco funds, with 5 (3.1%) of the schools receiving monies from tobacco companies for this purpose. Four (2.5%) institutions received scholarship funding, three (1.9%) received funding for a building. Two (1.3%) received funding to support sports teams, two (1.3%) received funding to support a sports field or arena, and two (1.3%) received monies to support faculty endowments. One institution (0.6%) received funding for a campus career center. For each of these possible funding targets, there were a fair number of “don’t know” responses, ranging from 19 (11.8%) to 33 (20.8%).

Table 4.6 <i>Funds Donated by Tobacco Industry for Campus Support</i>						
Funded Program	Yes # (%)		No # (%)		Don't Know # (%)	
Career center ¹	1	(0.6)	139	(86.3)	21	(13.0)
Building ¹	3	(1.9)	137	(85.1)	21	(13.0)
Sports Team ²	2	(1.3)	137	(85.6)	21	(13.1)
Sports field or arena ¹	2	(1.2)	140	(87.0)	19	(11.8)
Scholarship(s) ¹	4	(2.5)	126	(78.3)	31	(19.3)
Faculty endowment(s) ³	2	(1.3)	124	(78.0)	33	(20.8)
Student programs ²	5	(3.1)	132	(82.5)	23	(14.4)

¹ No response from one institution; ² No response from two institutions; ³ No response from three institutions.

When asked whether tobacco companies, such as Phillip Morris or RJ Reynolds, sponsored events, activities, or other promotions on campus, 157 (97.5%) responded no, while two (1.2%) confirmed this to be affirmative for their campus, and two (1.2%) did not know; one contact did not respond to this question. For the two schools that did receive promotional funding from the tobacco companies, one reported the monies were accepted for general social activities, and the other reported support for many units on campus, including the school's College of Law, Public Policy School, and College of Agriculture.

The final quantitative question in Section II pertained to whether schools' tobacco policy included the provision and/or promotion of tobacco cessation services/resources for all members of the campus community. Over three out of every five respondents indicated their policy did indeed include this attribute, with 108 (66.7%) responding yes; 43 (26.5%) responded no, and the remaining 11 (6.8%) did not know. For the 108 schools that did provide this service, Table 4.7 presents their various offerings for tobacco cessation services/resources. Referrals to off-campus services, such as a smoking cessation service/quit line/website, appeared to be the most common practice, with 97 (91.5%) using this service, followed by referral to off-campus services, such as American Cancer Society, which was used by 95 (89.65) of schools offering tobacco cessation services/resources. Referral to an on-campus counselor/cessation specialist was utilized by 67 (63.2%). Nicotine replacement therapy, such as nicotine patches/gum, appeared to be the least often type of resource utilized, with 40 (38.1%) offering this service on campus.

Section III of the questionnaire focused on tobacco control practices. Three out of every four respondents (123, or 76.4%) reported their college/university informed all members of the community campus about the school's tobacco policy by widely distributing it on an annual

Table 4.7
Tobacco Cessation Services/Resources

<i>Services</i>	Yes		No		Don't Know	
	#	(%)	#	(%)	#	(%)
Nicotine replacement therapy, such as nicotine patches/gum ²	40	(38.1)	53	(50.5)	12	(11.4)
Referral to counselor/cessation specialist on-campus ¹	67	(63.2)	35	(33.0)	4	(3.8)
Referral to off-campus services (e.g., American Cancer Society) ¹	95	(89.6)	3	(2.8)	8	(7.6)
Referral to smoking cessation service/ quit line/website ¹	97	(91.5)	4	(3.8)	5	(4.7)

¹ No response from two institutions; ² No response from three institutions.

basis; this practice was not performed on 34 (21.1%) of the campuses, and 4 (2.5) contacts did not know their school's practice on regarding policy communication; one participant did not answer the question. Table 4.8 profiles the various distribution methods of communication about the policy on campus for the 123 schools that distribute the information annually. The most prevalent method of annual policy distribution was via employee and student handbooks by 122 (99.2%) schools, followed by sharing the policy with key persons such as parents, alumni(ae), and visitors by 109 (88.6%), clearly posting the policy on the college/university website by 99 (80.5%), posting in other relevant publications by 95 (77.2%), and including promotional student materials in both printed and electronic formats by 94 (77.1%).

The practice of offering/promoting prevention and education initiatives that actively supported non-use of tobacco was performed by 115 (71.9%) of the schools, compared to 36 (22.5%) who did

Table 4.8
Annual Policy Distribution on Campus

<i>Distribution Method</i>	Yes		No		Don't Know	
	#	(%)	#	(%)	#	(%)
Clearly posted in employee and student handbooks	122	(99.2)	1	(0.8)	---	---
Clearly posted on the college/university website	99	(80.5)	16	(13.0)	8	(6.5)
Clearly posted in other relevant publications	95	(77.2)	15	(12.2)	13	(10.6)
Shared with key persons, such as parents, alumni(ae), visitors	109	(88.6)	6	(4.9)	8	(6.5)
Included in promotional student materials in both printed/electronic formats ¹	94	(77.1)	17	(13.9)	11	(9.0)

¹ No response from one institution.

not offer these types of initiatives, and 9 (5.6%) not knowing whether their school offered this or not; two contacts did not respond. Slightly fewer schools offered and/or promoted prevention and education initiatives that addressed the risks of all forms of tobacco use, as 104 (65.0%) incorporated this practice while 40 (25.0%) did not; an additional 16 (10.0%) did not know their school's practice pattern regarding this; two contacts did not respond.

Slightly more than half of the respondents (87, or 54.0%) reported their college/university offered and promoted practical, evidence-based approaches to end tobacco use; 48 (30.0%) did not offer any of these approaches and 26 (16.2%) did not know; one contact did not respond. Table 4.9 details the evidence-based approaches offered by the 87 schools who utilized these approaches in their practices. Off-campus referrals were most often employed, with 78 (89.7%) providing referrals to outside programs such as American Cancer Society or local hospitals, and

Table 4.9
Evidence-Based Approaches to End Tobacco Use on Campus

<i>Evidence-Based Approach</i>	Yes # (%)		No # (%)		Don't Know # (%)	
	Free and/or reduced cost nicotine replacement therapy, such as nicotine patches/ gum offered on campus ²	30	(35.3)	49	(57.7)	6
Cessation medication options (e.g., Zyban or Wellbutrin) offered on campus ²	23	(27.1)	55	(64.7)	7	(8.2)
Referrals to/screenings by counselor or cessation specialist offered on campus ¹	56	(65.1)	26	(30.2)	4	(4.7)
Referrals made to outside programs (e.g., American Cancer Society or local hospitals)	78	(89.7)	5	(5.8)	4	(4.6)
Referrals made to smoking cessation quit lines and/or web sites ²	76	(89.4)	3	(3.5)	6	(7.1)

¹ No response from one institution; ² No response from two institutions.

76 (89.4%) making referrals to smoking cessation quit lines and/ or web sites. Nearly two-thirds of these schools (56, or 65.1%) provided referrals to screenings by counselors or cessation specialists on campus. Free and/or reduced cost nicotine replacement therapy, such as nicotine patches and gum, were offered on campus by 30 (35.3%), and cessation medication options, such as Zyban or Wellbutrin, were offered on campus by 23 (27.1%).

A student health insurance plan was available at 96 (59.6%) of the schools, while 56 (34.8%) did not include this coverage in their practices, and 9 (5.6%) did not know whether an insurance plan was available to students or not; one contact did not respond. For the 96 schools who offered such a plan, 16 (16.8%) of the plans covered tobacco or cessation services, while

21 (22.1%) did not; over half of the contacts (58, or 61.1%) did not know whether the student health insurance plan covered these services; one contact did not respond.

Comprehensive marketing/signage was a commonly employed practice utilized by 137 (85.6%) schools in an effort to ensure that all visitors, vendors, guests, and others arriving on campus were aware of the tobacco-free policy; 18 (11.3%) did not employ this practice, and five (3.1%) respondents did not know whether their school used this tactic or not; two contacts did not respond. Table 4.10 presents the signage locations used by the 137 schools in an effort to communicate the tobacco-free policy to campus guests/visitors. While signage was displayed both indoors and outdoors, outdoor displays were more common, with 129 (94.2%) using this practice in such locations as sports arenas, stadia, walkways or benches, and near building entrances. Indoor signage was displayed at 118 (87.4%) sites in such locations as classroom buildings, cafeteria, student union, and residence halls.

Table 4.10 <i>Campus Signage</i>						
<i>Signage Locations</i>	Yes # (%)		No # (%)		Don't Know # (%)	
Displayed in indoor places (e.g., classroom buildings, cafeteria, student union, residence halls) ¹	118	(87.4)	16	(11.9)	1	(0.7)
Displayed in outdoor places (e.g., sports arenas, stadia, walkways or benches, near building entrances)	129	(94.2)	7	(5.1)	1	(0.7)

¹ No response from two institutions.

According to respondents, many schools reached beyond their campus borders for tobacco control-related activities, as 102 (63.8%) collaborated with local, state, and/or national public

health entities and/or other public, private, and national non-profit tobacco-related organizations in support of maintaining a healthy tobacco-free environment. Thirty-one (19.4%) of the participating schools did not employ this practice, and 27 (16.9%) did not know about their institution's collaborative efforts; two contacts did not respond.

The remainder of the survey, Section IV, pertained to tobacco control enforcement on the college/university campuses. Three-fourths of the respondents (120, or 75.0%) reported their college/university had consistent consequences or penalties for not complying with campus tobacco policies, while 32 (20.05) acknowledged their school did not consistently enforce its tobacco policy; 8 (5.0%) did not know their school practice for handling non-compliance with its tobacco policy; 2 contacts did not respond.

When asked to what extent were tobacco policies enforced at their college/university, 84 (54.5%) reported their policy as always enforced, while 60 (37.5%) of the schools occasionally enforced their tobacco policy, and 3 (1.9%) schools never enforced it; an additional 13 (8.1%) did not know the extent of their policy enforcement; 2 contacts did not respond. The most frequently cited source of enforcement was campus police/security (110, or 67.9%), followed by anyone who saw an infraction (103, or 63.6%), faculty/administrators (94, or 58.0%), resident advisors/dormitory staff (48, or 29.6%) and health professionals (29, or 17.9%).

Approximately one-third of the represented schools (54, or 33.5%) had a task force working to address ongoing campus needs and concerns related to tobacco control (e.g., policy, compliance, enforcement, cessation). Membership on these 54 task forces included undergraduate and graduate students (27, or 50.0%), health and counseling center staff (33, or 61.1%), faculty (35, or 64.8%), resident life/housing staff (19, or 35.2%), judicial affairs (17, or 31.5%), campus safety/police (47, or 87.0%), human resources (34, or 63.0%), neighborhood liaisons (7, or 13.0%), and facilities staff (31, or 57.4%).

Scoring for Measure of Compliance with ACHA Guidelines

Table 4.11 displays compliance scores for the total population and the four demographic variables of enrollment size, type of college/university, geographic location, and geographic

Table 4.11 <i>Compliance Scores for Demographic Variables</i>							
<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>Std Dev</i>	<i>Min</i>	<i>Median</i>	<i>Max</i>	<i>Kruskal-Wallis Test¹</i>
Total	162	72.23	13.32	33.33	71.93	98.25	NA
Enrollment Size							0.7105
<5,000	109	71.48	13.18	35.09	71.92	98.25	
5,000-9,999	29	75.02	12.91	45.61	77.19	91.23	
10,000-19,999	10	74.04	11.75	56.14	75.44	88.72	
20,000-29,999	7	74.94	16.76	56.14	78.95	98.25	
30,000+	6	72.81	7.90	57.89	74.56	80.70	
Type of College/University							0.0050*
Public college/university	26	79.22	12.50	54.39	84.21	98.25	
Private college/university	47	70.44	12.62	35.09	71.93	98.25	
2-year college	66	72.73	13.15	40.35	72.81	98.25	
Technical college	13	71.52	12.35	50.88	70.18	91.23	
Religious school	9	63.06	8.32	50.88	64.91	73.68	
Geographic Location							0.8103
Urban	50	72.88	14.58	40.35	77.19	98.25	
Suburban	45	72.44	10.43	56.14	71.93	98.25	
Rural	66	72.20	13.42	35.09	71.93	98.25	
Geographic Region							0.0144*
Northeast	4	85.96	6.56	77.19	86.84	92.98	
Midwest (Central)	57	72.27	12.26	40.35	73.68	98.25	
South	73	73.88	12.84	45.61	73.68	98.25	
West	28	65.91	14.99	33.33	66.67	89.47	

¹ Used to test for differences between values within a category; *Statistically significant for $p \leq 0.05$.

region. The overall compliance score for the total population of 162 (100%) was 72.2%, with a range of scores from 98.3% to 33.3%. Mean compliance scores were calculated for each of the categorical values that comprised the four variables. Category scores for each variable were compared for statistical differences using the Kruskal-Wallis Test ($p \leq 0.05$).

The 29 schools with an enrollment size of 5,000 to 9,999 had the highest mean compliance score by fulfilling 75.0% of the ACHA guidelines recommended for a tobacco-free campus. The seven larger schools (enrollment of 20,000 to 29,999) had the second highest compliance score at 74.9%, followed by the 10 schools of 10,000 to 19,999 at 74.0%, the six schools with 30,000 or more at 72.8%, and finally the 109 smaller schools with enrollments less than 5,000, with a mean compliance score of 71.5%. Interestingly, the smaller schools (< 5,000 students) had the lowest minimum score of all institutions at 35.1%, and also had the highest score: 98.3%. Comparing mean compliance scores for all enrollment sizes, the Kruskal-Wallis Test calculated $p = 0.7105$, indicating that enrollment size did not appear to be a factor in the scoring trends.

With regard to type of college/university, the 26 public colleges/universities had the highest compliance score of 79.22%, followed by the 66 2-year colleges averaging 72.73%, the 47 private colleges/universities with a score of 70.44%, and the 13 technical schools with an average score of 71.52%. The nine religious schools had the lowest level of compliance to the ACHA guidelines with an average score of 63.06%. With the exception of the religious schools, all of the other school types had maximum scores above 90%, ranging from 91.23% to 98.25%. The religious schools had a maximum value of 73.68%. In comparing the average compliance scores for all college/university types, the Kruskal-Wallis Test yielded $p = 0.0050$, which is statistically significant, indicating that there appears to be a relationship between school type

and degree of compliance with the ACHA guidelines, as evidenced by the much higher score for public colleges/universities versus the much lower score for religious schools.

Average compliance scores for the three geographic locations were very similar, as the 50 urban schools scored an average of 72.88%, followed closely by the 45 suburban schools with a mean score of 72.44%, and the 66 rural schools with a score of 72.20%. All three of these categories included a maximum score of 98.25, which was the highest score attained by any of the respondents. In comparing the average compliance scores for the geographic locations, the Kruskal-Wallis Test yielded $p=0.8103$, indicating that geographic location did not appear to be a factor in the scoring trends.

Similar to college type, scores for the four geographic regions varied greatly. The four Northeast region schools had an average compliance score of 85.96%, followed by the 73 schools in the South region with a mean score of 73.88%, the 57 Midwest schools with a score of 72.27%, and finally the 28 schools in the West region with the lowest average of 65.91%. The Kruskal-Wallis Test produced $p = 0.0144$, which is statistically significant, indicating that the geographic region of colleges/universities appears to be associated with their average compliance score.

An examination of school location in a major tobacco-producing state (Georgia, Kentucky, North Carolina, South Carolina, Tennessee, and Virginia) (USDA, 2000) compared the descriptive compliance score of these institutions with similar scores from all other schools (i.e., those not classified as a major tobacco-producing state). The 48 schools in the tobacco-producing states had an average compliance score of 76.53%, compared to 71.69% for the 112 campuses that were not located in the tobacco-producing region of the U.S. The Kruskal-Wallis Test yielded $p = 0.3258$, which is not statistically significant. Even though schools in the tobacco-producing states

collectively had an average compliance score that was three points higher than the other schools not in this region, the differences were not statistically significant.

Analysis of Research Questions and Hypotheses

Research Question #1

What percentage of U.S. colleges and universities that appear on the ALA-O list of 100% tobacco-free institutions actually have written policies that prohibit tobacco use on their campus?

For those schools that responded, 98.7% had written policies that prohibit tobacco use on their campus. Table 4.12 presents data to profile the results of univariate analysis comparing compliance scores among institutions with and without a written tobacco policy. The mean compliance score for the 156 schools with a written policy in place was 73.19%, compared to 47.37% for the two schools without a written policy. The maximum score for those schools with a policy was 98.25%, much higher than the 54.39% high score for the small group with no written policy. The Wilcoxon Two-Sample Test yielded $p = 0.0239$, which is statistically significant but also unstable due to the small number of schools ($n = 2$) without a written policy.

Table 4.12
Research Question #1: Compliance Scores by Existence of Written Policy

<i>Is there a written policy about institution being tobacco-free?</i>	<i>N</i>	<i>Mean</i>	<i>Std Dev</i>	<i>Min.</i>	<i>Median</i>	<i>Max.</i>	<i>Wilcoxon Two-Sample Test¹</i>
Yes	156	73.19	12.42	40.35	73.68	98.25	0.0239*
No	2	47.37	9.92	40.35	47.37	54.39	

¹ Used to test for differences between values within a category; *Statistically significant for $p \leq 0.05$.

Research Question #2

Among colleges and universities that have written policies, what percentage of those policies are current (i.e., updated within the past two years)?

For those schools that responded, 74 (46.3%) of the colleges/universities had current tobacco policies in place, having updated them within the past two years. Table 4.13 presents data to profile the results of univariate analysis in comparing compliance scores among institutions with current policies to scores for those with older tobacco policies that have not been updated within the past two years. The mean compliance score for the 74 schools with a current policy in place was 76.13%, compared to 69.77% for the 86 schools without a current written policy in place. The maximum score for those schools with a current policy was 98.25%, compared to 94.74% for those with an older policy. The Wilcoxon Two-Sample Test yielded $p=0.0022$, which is statistically significant, indicating schools that have updated their tobacco policy within the past years are more likely to have a higher compliance score with the ACHA guidelines.

Table 4.13 <i>Research Question #2: Compliance Scores by Change of Written Policy in Past 2 Years</i>							
<i>Has campus written policy on tobacco use changed in past 2 years?</i>	<i>N</i>	<i>Mean</i>	<i>Std Dev</i>	<i>Min.</i>	<i>Median</i>	<i>Max.</i>	<i>Wilcoxon Two-Sample Test¹</i>
Yes	74	76.13	11.83	43.86	77.19	98.25	0.0022*
No	86	69.77	12.74	40.35	70.18	94.74	

¹ Used to test for statistical significance of $p \leq 0.05$; *Statistically significant.

Research Question #3

What percentage of “100% tobacco-free” colleges and universities has established each of the procedures and practices that appear in the 2009 ACHA published guidelines?

Figure 3.2 provides data to match each of the ACHA Guidelines with corresponding survey content. ACHA Guideline #1 recommends that colleges/universities develop a strongly worded tobacco policy that reflects the best practices in tobacco prevention, cessation, and control. For those that responded, 98.7% complied with this guideline. ACHA Guideline #1 includes nine sub-components for more in-depth exploration of details pertaining to content of school tobacco policies.

ACHA Guideline #1a recommends that school/university policies include a definition of tobacco products, including, but not limited to, cigarettes, cigars, cigarillos, hookah-smoked products, and oral tobacco (spit, spitless, smokeless, chew, snuff). For those that responded, 59.6% complied with this guideline.

ACHA Guideline #1b recommends that tobacco use be prohibited on all college and university grounds, college/university owned or leased properties, and in campus-owned, leased, or rented vehicles. For those that responded, 89.4% complied with this recommendation. Additional data specific to indoor venues for those that responded revealed 100.0% did not allow tobacco use at all in buildings with classrooms; 100.0% did not allow tobacco use at all in private offices; 95.0% did not allow use at all in student unions, with the remaining 5.0% not having this type of indoor venue; 98.1% did not allow use at all in cafeterias/dining areas, with the remaining 1.9% not having this type of indoor venue; 60.7% did not allow use at all in residence halls, with 38.1% not having this type of indoor venue; 54.5% did not allow use at all in campus apartments, with 44.2% not having this type of indoor venue; 96.9% did not allow use at all in student recreation areas, with 2.5% not having this type of indoor venue; and finally, 72.3% did not allow tobacco use at all in sports arenas, with 27.0% not having this type of indoor venue. With regard to specific outdoor venues, 82.6% did

not allow tobacco use at all in/on campus stadia, fields, or arenas, while 15.5% did not have this type of outdoor venue; 88.8% did not allow use at all in parking lots/garages; 99.4% did not allow use at all near entrances to buildings (e.g., within 20 feet); 97.5% did not allow use at all on campus walkways or benches, while 0.6% did not have this type of outdoor venue; 90.7% did not allow use at all in outside dining areas (e.g., cafes), while 8.7% did not have this type of outdoor venue; and finally, 61.0% did not allow use at all in bus shelters, with an additional 34.6% not having this type of outside venue.

ACHA Guideline #1c recommends that all tobacco industry promotions, advertising, marketing, and distribution be prohibited on campus properties. For those that responded, tobacco advertising (including student newspapers) was not allowed at all by 73.9%, with 18.6% not having this type of activity on campus; tobacco marketing was not allowed at all by 77.6%, with 16.8% not having this type of activity; and tobacco distribution was not allowed at all by 83.1%, with 14.4% not having this type of activity.

ACHA Guideline #1d recommends the sale of tobacco products and tobacco-related merchandise (including logo containing items) be prohibited on all university property and at university-sponsored events, regardless of the operating vendor. ACHA Guideline #1e recommends that distribution or sampling of tobacco and associated products be prohibited on all university owned or leased property and at university-sponsored events, regardless of the venue. Both of these guidelines were interpreted to be redundant with data provided for ACHA Guideline #1c.

ACHA Guideline #1f recommends that tobacco industry and related company sponsorship of athletic events and athletes be prohibited. For those that responded, 85.6% did not allow sponsorship of a sports team, and 87.05 did not allow sponsorship of a sports field or arena.

ACHA Guideline #1g recommends that the college/university not permit tobacco companies on campus to conduct student recruitment or employment activities. This guideline was interpreted to be redundant with data provided for ACHA Guideline #1h.

ACHA Guideline #1h recommends that the college/university not accept any direct or indirect funding from tobacco companies. Those who responded indicated that tobacco company funding was not allowed for a career center (86.3%), a building (85.1%), scholarship(s) (78.3%); faculty endowment(s) (78.0%), or student programs (82.5%). Such funding was also not allowed by 97.5% for sponsored events, activities, or other promotions on campus.

ACHA Guideline #1i recommends that the campus provide and/or promote cessation services/resources for all members of the college/university community. For those that responded, 66.7% provided these services for all members of their campus community. Provided services included nicotine replacement therapy, such as nicotine patches and gum, by 38.1%, referral to an on-campus counselor/cessation specialist by 63.2%, referral to off-campus services (e.g., American Cancer Society), by 89.6%, and referral to smoking cessation service/quit line/web site by 91.5%.

ACHA Guideline #2 recommends that the college/university inform all members of the campus community by widely distributing the campus tobacco policy on an annual basis. The tobacco policy should be clearly posted in employee and student handbooks, on the college/university website, and in other relevant publications. Key components of the policy should be shared with parents, alumni(ae), and visitors. The general policy should be included in prospective student materials in both printed and electronic formats. For those that responded, 76.4% informed all members of the campus community by widely distributing the campus tobacco policy on an annual basis. The policy was clearly posted in employee and student handbooks by 99.2%, on the college/university web site by 80.5%, and in other relevant publications by 77.2%. The policy was shared with key persons,

such as parents, alumni, and visitors by 88.6%. It was included in promotional student materials in both printed and electronic format by 77.1%.

ACHA Guideline #3 recommends that the college/university offer and promote prevention and education initiatives that actively support non-use and address the risks of all forms of tobacco use. For those that responded, 71.9% complied with this guideline.

ACHA Guideline #4 recommends that the college/university offer and promote programs and services that include practical, evidence-based approaches to end tobacco use, including screenings through health and counseling services, free/reduced-cost tobacco-cessation counseling, free/reduced cost nicotine replacement therapy, and medication options on campus. For those that responded, 54.0% offered and promoted practical, evidence-based approaches to end tobacco use. Various approaches used included free and/or reduced nicotine replacement therapy, such as nicotine patches/gum (35.3%), cessation medication options, such as Zyban or Wellbutrin (27.1%), referrals to/screenings by on-campus counselors or cessation specialists (65.1%), referrals to outside programs, such as American Cancer Society or local hospitals (89.7%), and referrals to smoking cessation quit lines and/or web sites (89.4%).

ACHA Guideline #5 recommends that the college/university advocate for the inclusion of tobacco use cessation products, medications, and services in student health insurance plans. For those that responded, 59.6% had a student health insurance plan available to their students, with 16.8% of these plans covering tobacco treatment or cessation services.

ACHA Guideline #6 recommends that the college/university provide a comprehensive marketing and signage effort to ensure that all college/university visitors, vendors, guests, and others arriving on property owned or leased by the institution are aware of the tobacco-free policy. For those that responded, 85.6% complied with this guideline. Signage was displayed in indoor places by 87.4% and in outdoor places by 94.2%.

ACHA Guideline #7 recommends that the college/university plan, maintain, and support effective and timely implementation, administration, and consistent enforcement of all college/university tobacco-related policies, rules, regulations, and practices, and provide a well-publicized reporting system for violations. For those that responded, 75.0% had consistent consequences or penalties for not complying with their campus tobacco policies, and 52.5% always enforced their tobacco policies. Campus parties responsible for enforcement included faculty/administrators (58.0%), campus police/security (67.9%), resident advisors/dormitory staff (29.6%), anyone who sees an infraction (63.65), and health professionals (17.9%).

ACHA Guideline #8 recommends that the college/university collaborate with local, state, and national public health entities and tobacco prevention and control public, private, and national non-profit tobacco-related organizations in support of maintaining a healthy tobacco-free environment. For those that responded, 63.8% complied with this guideline.

ACHA Guideline #9 recommends the college/university develop and maintain a tobacco task force on campus to identify and address needs and concerns related to tobacco policy, compliance, enforcement, and cessation, including key individuals and departments such as undergraduate and graduate students (particularly from student-elected representative organizations), health and counseling center professionals, faculty (including faculty senate and other faculty governing bodies), residence life/housing, judicial affairs, campus safety/police, human resources, neighborhood liaisons, facilities, and other important stakeholders specific to campus. For those that responded, 33.5% complied with this guideline. Task force membership included undergraduate and graduate students (50.0%), health and counseling center (61.1%), faculty (64.8%), resident life/housing (35.2%), judicial affairs (31.5%), campus safety/police (87.0%), human resources (63.0%), neighborhood liaisons (13.0%), and facilities (57.4%).

Research Question #4 (Addressed by data in Hypotheses #1, #5, and #9)

What differences will emerge when the data are analyzed by geographic region?

Hypothesis #1:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control policies and geographic region.

To test Hypothesis #1, cross-tabulations were calculated between the each participant school's location within four geographic regions (coded by researcher) and their respective responses to survey questions 4-thru-15. These twelve questions comprised the quantitative component of Part II of the survey, and pertained specifically to schools' tobacco control policies. Fisher's Exact Test was conducted for each cross-tabulation to examine significant associations in the data. When differences were observed, Additive Partitioning Procedures were performed to determine the position of the difference within the contingency table (Siegel and Castellan, 1988). Univariate/bivariate analyses were conducted in order to identify potential differences according to geographic region. A total of 32 Fisher's Exact Tests were conducted for Hypothesis #1. Table 4.14 provides the resulting data.

A significant effect ($p = 0.0478$) was detected between geographic region and school policy for use of tobacco in student unions. Data reflected 153 schools did not allow tobacco use at all in their student union and 8 schools in three regions (three in Midwest, one in South, four in West) did not have a student union. Differences observed were due to eight schools not having this type of indoor venue; therefore, this finding is statistically significant but irrelevant.

A significant effect ($p = 0.0156$) was detected between geographic region and school policy for tobacco use in student recreation areas. Data reflected 156 schools did not allow tobacco use at all in student recreation areas, one school (South) allowed it in some areas, and four schools in two of the regions (one in South, three in West) did not have student recreation areas. The differences were due

to four schools not having this type of indoor venue; therefore, this finding is statistically significant but irrelevant.

Table 4.14
*Summary of Fisher's Exact Tests:
 Tobacco Control Policy Compliance by Geographic Region*

Survey Question #	Fisher's Exact Test ¹		Survey Question #	Fisher's Exact Test ¹
4	0.1872		9f	0.6998
5	0.5629		10a	0.8544
6	0.8979		10b	0.8382
7	0.4824		10c	0.7035
8a	--- ²		11a	0.1460
8b	--- ²		11b	0.4789
8c	0.0478*		11c	0.6765
8d	0.6025		11d	0.6355
8e	0.2419		11e	0.3459
8f	0.4309		11f	0.7076
8g	0.0156*		11g	0.6804
8h	0.2639		12	0.4675
9a	0.1725		14	0.0081*
9b	0.0889		15a	0.8712
9c	0.5466		15b	0.2972
9d	0.0848		15c	0.1156
9e	0.4916		15d	0.6296

¹ Used to test for statistical significance at $p \leq 0.05$; ² Not applicable due to 100% compliance; * Statistically significant.

A significant effect ($p = 0.0081$) was detected between geographic region and whether a school's policy included the provision and/or promotion of tobacco cessation services and/or resources for all members of the campus community. The data reflected that 100.0% of the schools in the Northeast included this feature in their policy, followed by 71.2% in the South, 70.2% in the Midwest, and 42.9% in the West. Differences observed suggest that colleges/universities in the North are most likely to include this provision in their policy, while schools in the West are least likely to include it.

In summary, data revealed a total of three significant findings for Hypothesis #1; however, two of the three were statistically significant but irrelevant, and the 29 additional Fisher's Exact Tests revealed no significant findings. Based upon these results, Hypothesis #1 was not rejected.

Hypothesis #5:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control practices and geographic region.

To test Hypothesis #5, cross-tabulations were calculated between the each participant school's location within four geographic regions (coded by researcher) and their respective responses to survey questions #17-thru-27. The eleven questions comprised the quantitative component of Part III of the survey, and pertained specifically to schools' tobacco control practices. Fisher's Exact Tests were conducted for each cross-tabulation to examine significant associations in the data. When there were differences observed, Additive Partitioning Procedures were performed to determine the precise location of the difference within the contingency table (Siegel and Castellan, 1988). Univariate and bivariate analyses were conducted in order to identify potential differences according to geographic region. A total of 20 Fisher's Exact Tests were conducted for Hypothesis #5. Table 4.15 provides the results of the analyses.

A significant effect ($p = 0.0209$) was detected between geographic region and whether a college/university had comprehensive marketing and signage in an effort to ensure that all visitors, vendors, guests, and others arriving on campus were aware of the tobacco-free policy. Data analyses revealed that 100.0% of the Northeast schools utilized this practice, followed by 94.5% in the South, 81.8% in the Midwest, and 67.9% in the West. Differences observed suggest that colleges/universities in the Northeast and South are most likely to include this practice in their tobacco-control efforts, while those in the Midwest are somewhat likely, and those in the West least likely to employ this practice.

A significant effect ($p=0.0464$) was determined between geographic region and whether schools displayed signage in outdoor places, such as sports arenas, stadia, walkways, benches, or near building entrances. Data reflected that 100.0% of the Northeast and West schools conducted this practice, followed closely by 98.6% of the South schools, and finally, 84.4% of the Midwest schools. Differences observed suggest that colleges/universities in the Northeast, West, and South regions are most likely to post outdoor signage regarding their tobacco policy, while those in the Midwest are not as likely to use this practice.

In summary, data revealed a total of two significant findings for Hypothesis #5; however, the 18 other Fisher's Exact Tests did not reveal any other practices of significance between the regions. Based upon these results, Hypothesis #5 was not rejected.

Table 4.15
*Summary of Fisher's Exact Tests:
 Tobacco Control Practices Compliance by Geographic Region*

Survey Question #	Fisher's Exact Test ¹		Survey Question #	Fisher's Exact Test ¹
17	0.1523		22b	0.9055
18a	0.5772		22c	0.5286
18b	0.1488		22d	0.9521
18c	0.3272		22e	0.9421
18d	0.2604		23	0.1275
18e	0.2041		24	0.5104
19	0.3020		25	0.0209*
20	0.0859		26a	0.3723
21	0.0529		26b	0.0464*
22a	0.3935		27	0.6738

¹ Used to test for statistical significance at $p \leq 0.05$; * Statistically significant.

Hypothesis #9:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended enforcement guidelines and geographic region.

To test Hypothesis #9, cross-tabulations were calculated between the each participant school's location within four geographic regions (coded by researcher) and their respective responses to survey questions #29-thru-34. These six questions comprised the quantitative component of Part IV of the survey, and pertained specifically to schools' tobacco control enforcement. Fisher's Exact Tests were conducted for each cross-tabulation to examine significant associations in the data. When differences were observed, Additive Partitioning Procedures were performed to determine the location of the difference within the contingency table (Siegel and Castellan, 1988). Univariate and bivariate analyses were conducted in order to identify potential differences according to geographic region. A total of 19 Fisher's Exact Tests were conducted for Hypothesis #9. Table 4.16 provides the resulting data.

A significant effect ($p = 0.0138$) was determined between geographic region and the extent to which tobacco policies were enforced at the college/university. Data reflected that 100.0% of the Northeast schools always enforced their tobacco policies. In the West region, 77.8% of the schools always enforced their policies, while 14.8% occasionally and 3.7% never provided enforcement. In the South, 50.7% always enforced their tobacco policies, while 39.7% occasionally did so and 2.7% never provided enforcement. Lastly, in the Midwest region, 39.3% always enforced their tobacco policies, while nearly half (48.2%) occasionally enforced. Differences observed suggest there is a wide variation among the 4 regions for enforcement of their tobacco policies, with schools in the Northeast region being most likely to always enforce the policy provisions, while schools in the Midwest are least likely to do so.

In summary, data revealed one significant finding for Hypothesis #9; however, 18 other Fisher's Exact Tests did not reveal any other enforcement patterns of significance between the regions. Based upon these results, Hypothesis #9 was not rejected.

Table 4.16
*Summary of Fisher's Exact Tests:
 Tobacco Control Enforcement Compliance by Geographic Region*

Survey Question #	Fisher's Exact Test ¹		Survey Question #	Fisher's Exact Test ¹
29	0.9730		34b	0.5529
30	0.0138*		34c	0.3374
31a	0.5540		34d	0.1140
31b	0.2449		34e	0.6028
31c	0.3049		34f	0.4069
31d	0.9237		34g	0.5772
31e	0.7965		34h	0.0652
32	0.3679		34i	0.7986
33	0.8525		34j	0.4489
34a	0.2699			

¹ Used to test for statistical significance at $p \leq 0.05$; * Statistically significant.

As a result of testing for Hypotheses #1, #5, and #9, very few differences emerged when the data were analyzed by geographic region. Seventy-one Fisher's Exact Tests produced six statistically significant findings, and two of the six were statistically significant but irrelevant after further analysis. Geographic region does not appear to be a factor in college/university tobacco policies, practices, and enforcement.

Research Question #5 (Addressed by data in Hypotheses #2, #6, and #10)

What differences will emerge when data are analyzed by urban vs. rural characteristics?

Hypothesis #2:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control policies and their geographic location in an urban vs. rural setting.

To test Hypothesis #2, cross-tabulations were calculated between survey question #3, whereby participants identified their campus location as being urban, suburban, or rural, and their respective responses to survey questions #4-thru-15. These six questions comprised the quantitative component of Part II of the survey, and pertained specifically to schools' tobacco control policies. Fisher's Exact Tests were conducted for each cross-tabulation to examine significant associations in the data. When differences were observed, Additive Partitioning Procedures were performed to determine the location of the difference within the contingency table (Siegel and Castellan, 1988). Univariate and bivariate analyses were conducted in order to identify potential differences by urban vs. rural campus setting. A total of 32 Fisher Exact Tests were conducted for Hypothesis #2. Table 4.17 provides the resulting data.

A significant effect ($p = 0.0035$) was determined between geographic location and school policy for use of tobacco in student unions. Data reflected 153 schools did not allow tobacco use at all in their student union, while eight schools (two in urban and six in suburban locations) did not have a student union. Differences observed were due to eight schools not having this type of indoor venue; therefore, this finding is statistically significant but irrelevant.

This was the only significant finding out of 32 Fisher's Exact Tests for Hypothesis #2. Based upon these results, Hypothesis #2 was not rejected.

Table 4.17
*Summary of Fisher's Exact Tests:
 Tobacco Control Policy Compliance by Geographic Location*

Survey Question #	Fisher's Exact Test ¹		Survey Question #	Fisher's Exact Test ¹
4	0.3376		9f	0.7144
5	0.7788		10a	0.1476
6	0.6016		10b	0.4251
7	0.5261		10c	0.1004
8a	--- ²		11a	0.9177
8b	--- ²		11b	0.8536
8c	0.0035*		11c	0.9889
8d	0.3616		11d	0.8410
8e	0.1593		11e	0.5488
8f	0.2404		11f	0.3413
8g	0.1600		11g	0.7770
8h	0.5503		12	0.2669
9a	0.8445		14	0.4588
9b	0.2325		15a	0.0762
9c	1.0000		15b	0.4737
9d	0.9211		15c	1.0000
9e	0.2502		15d	0.5155

¹ Used to test for statistical significance at $p \leq 0.05$; ² Not applicable due to 100% compliance; * Statistically significant.

Hypothesis #6:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control practices and their geographic location in an urban vs. rural setting.

To test Hypothesis #6, cross-tabulations were calculated between survey question #3, whereby participants identified their campus location as being urban, suburban, or rural, and their respective responses to survey questions #17-thru-27. These eleven questions comprised the quantitative component of Part III of the survey, and pertained specifically to schools' tobacco control practices. Fisher's Exact Test was conducted for each cross-tabulation to examine significant associations in the data. When differences were observed, Additive Partitioning Procedures were performed to determine the location of the difference within the contingency table (Siegel and Castellan, 1988).

Univariate and bivariate analyses were conducted to identify potential differences according to urban vs. rural campus setting. A total of 20 Fisher’s Exact Tests were conducted for Hypothesis #6. Table 4.18 provides the resulting data.

A significant effect ($p = 0.0005$) was detected between geographic location and whether schools used the evidence-based approach of offering free and/or reduced cost nicotine replacement therapy, such as nicotine patches/gum, on campus. Data reflected 63.0% of urban schools included this type of offering in their practices, compared to 31.8% among suburban schools and 16.7% of rural schools. Differences observed suggest that schools in urban locations are most likely to offer nicotine replacement therapy, and rural schools are least likely to do so.

A significant effect ($p = 0.0500$) was detected between geographic location and whether a school’s student health insurance plan covered tobacco treatment or cessation services. The data

Table 4.18 <i>Summary of Fisher’s Exact Tests: Tobacco Control Practices Compliance by Geographic Location</i>				
Survey Question #	Fisher’s Exact Test ¹		Survey Question #	Fisher’s Exact Test ¹
17	0.9280		22b	0.2385
18a	0.2869		22c	0.0951
18b	0.2259		22d	0.2312
18c	0.7645		22e	0.5402
18d	0.7692		23	0.7857
18e	0.9527		24	0.0500*
19	0.9012		25	0.9677
20	0.5790		26a	0.5148
21	0.7173		26b	0.0679
22a	<0.0001*		27	0.6859

¹ Used to test for statistical significance at $p \leq 0.05$; * Statistically significant.

reflected 27.6% of urban schools included this practice in their tobacco control program, while the same was true for 22.2% of suburban schools and 5.3% of rural schools. A closer look revealed that many contacts did not know whether this practice was applicable to their institution, as expressed by

44.8% of those in urban settings, 59.3% in suburban locations, and 76.3% in rural locations. While differences initially suggest that urban and suburban campuses are more likely to include tobacco treatment or cessation services in their student health insurance plan, this finding is questionable due to the large number of contacts who were unable to provide an accurate response.

In summary, data revealed two significant findings for Hypothesis #6; however, one of the two was questionable, and 18 additional Fisher's Exact Tests did not reveal any other practices of significance between the geographic locations. Based upon these results, Hypothesis #6 was not rejected.

Hypothesis #10:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended enforcement guidelines and their geographic location in an urban vs. rural setting.

To test Hypothesis #10, cross-tabulations were calculated between survey question #3, whereby participants identified their campus location as being urban, suburban, or rural, and their respective responses to survey questions #29-thru-34. These questions comprised the quantitative component of Part IV of the survey, and pertained specifically to schools' tobacco control enforcement. Fisher's Exact Tests were conducted for each cross-tabulation to examine significant associations in the data. When differences were observed, Additive Partitioning Procedures were performed to determine the location of the difference within the contingency table (Siegel and Castellan, 1988). Univariate and bivariate analyses were conducted in order to identify potential differences according to urban vs. rural campus setting. A total of 19 Fisher's Exact Tests were conducted for Hypothesis #10. Table 4.19 provides the resulting data.

Data revealed no significant findings for Hypothesis #10, suggesting there are no relationships between geographic region and tobacco policy enforcement. Based upon these results, Hypothesis #10 was not rejected.

Table 4.19
*Summary of Fisher's Exact Tests:
 Tobacco Control Enforcement Compliance by Geographic Location*

Survey Question #	Fisher's Exact Test ¹		Survey Question #	Fisher's Exact Test ¹
29	0.1315		34b	0.4756
30	0.0750		34c	0.7819
31a	0.1512		34d	0.3057
31b	0.6536		34e	0.2853
31c	0.8627		34f	0.6024
31d	0.8190		34g	0.4815
31e	0.6610		34h	0.2121
32	0.2643		34i	0.4070
33	0.7617		34j	0.8979
34a	0.6419			

¹ Used to test for statistical significance at $p \leq 0.05$.

As a result of testing for Hypotheses #2, #6, and #10, very few differences emerged when the data were analyzed by geographic region. Seventy-one Fisher's Exact Tests produced three (4.2%) statistically significant findings; however, two of the three test results were unstable when additional analyses were conducted. Geographic location does not appear to be a factor in college/university tobacco policies, practices, and enforcement.

Research Question #6 (Addressed by data in Hypotheses #3, #7, and #11)

Will adherence to ACHA's tobacco-free guidelines differ by virtue of college/university enrollment?

Hypothesis #3:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control policies and enrollment size.

To test Hypothesis #3, cross-tabulations were calculated between survey question #1, whereby participants identified their school enrollment size, and their respective responses to survey questions #4-thru-15. These eleven questions comprised the quantitative component of Part II of the survey, and pertained specifically to schools' tobacco control policies. Fisher's Exact Test was conducted for each cross-tabulation to examine significant associations in the data. When differences were observed, Additive Partitioning Procedures were performed to determine the location of the difference within the contingency table (Siegel and Castellan, 1988). Univariate and bivariate analyses were conducted to identify potential differences according to enrollment size. A total of 32 Fisher's Exact Tests were conducted for Hypothesis #3. Table 4.20 provides the resulting data.

A significant effect ($p = 0.0158$) was detected between enrollment size and whether tobacco companies donated funds to support college/university faculty endowments. Data reflected 100.0% of schools with 30,000 or more students did not have tobacco-sponsored endowments, followed by 89.7% of schools with 5,000 to 9,999, 77.6% of schools with less than 5,000, 71.4% of schools with 20,000 to 29,999 students, and 40.0% of those with 10,000 to 19,999. A closer look at the data reveals only two schools actually had this type of endowment, one with enrollment less than 5,000 and one with 20,000 to 29,999 students. Many respondents did not know whether their school received such funding, as indicated by 60.0% with enrollment of 10,000 to 19,999, 21.5% with less

Table 4.20
*Summary of Fisher's Exact Tests:
Tobacco Control Policy Compliance by Enrollment Size*

Survey Question #	Fisher's Exact Test ¹		Survey Question #	Fisher's Exact Test ¹
4	1.0000		9f	0.2323
5	0.7788		10a	0.1720
6	0.6016		10b	0.6364
7	0.5261		10c	0.8989
8a	--- ²		11a	0.2133
8b	--- ²		11b	0.1471
8c	0.6179		11c	0.1093
8d	0.4451		11d	0.1039
8e	0.4188		11e	0.0583
8f	0.2677		11f	0.0158*
8g	0.2504		11g	0.1244
8h	0.0927		12	0.2875
9a	0.1586		14	0.4718
9b	0.0333		15a	0.0796
9c	0.3230		15b	0.4069
9d	0.2426		15c	0.0819
9e	0.5553		15d	0.0281*

¹ Used to test for statistical significance at $p \leq 0.05$; ² Not applicable due to 100% compliance; * Statistically significant.

than 5,000, 14.3% with 20,000 to 29,999, and 10.3% with 5,000 to 9,999, suggesting the results are unstable.

A significant effect ($p = 0.0281$) was detected between enrollment size and whether a college/university offered referral to smoking cessation services, quit lines, and/or web sites. Data reflected that such service referrals were offered by 100.0% of schools with enrollments of 5,000 to 9,999 or 10,000 to 19,999, followed by 92.4% of those with less than 5,000 students, 85.7% with enrollments of 20,000 to 29,999, and 40.0% with 30,000 or more. A closer look at the data revealed that two of five respondents from the largest schools (i.e., 30,000 or more) and one of six in schools with 20,000 to 29,999 did not know whether their institution offered this type of referral, weakening the results.

In summary, data revealed two significant findings for Hypothesis #3; however, each of the tests appeared to be unstable upon closer examination of the data. The other 30 Fisher's Exact Tests yielded no statistically significant findings. Based upon these results, Hypothesis #3 was not rejected.

Hypothesis #7:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control practices and enrollment size.

To test Hypothesis #7, cross-tabulations were calculated between survey question #1, whereby participants identified their enrollment size, and their respective responses to survey questions #17-27. These eleven questions comprised the quantitative component of Part III of the survey, and pertained specifically to schools' tobacco control practices. Fisher's Exact Tests were conducted for each cross-tabulation to examine significant associations in the data. When differences were observed, Additive Partitioning Procedures were performed to determine the precise location of the differences within the contingency table (Siegel and Castellan, 1988). Univariate and bivariate analyses were conducted in order to identify potential differences according to enrollment size. A total of 20 Fisher's Exact Tests were conducted for Hypothesis #7. Table 4.21 provides the resulting data.

A significant effect ($p=0.0366$) was determined between enrollment size and whether a college/university offers free and/or reduced cost nicotine replacement therapy, such as nicotine patches/gum, on campus. Data reflected 83.3% of schools with enrollment of 10,000 to 19,999 included this practice in their tobacco control program, followed by 75.0% of 20,000 to 29,999, 46.75 of 5,000 to 9,999, 26.3% of those with less than 5,000, and finally 0.0% of those with 30,000 or more. A closer examination revealed one of the three respondents for schools with enrollment of 30,000 or more did

Table 4.21
*Summary of Fisher's Exact Tests:
 Tobacco Control Practices Compliance by Enrollment Size*

Survey Question #	Fisher's Exact Test ¹		Survey Question #	Fisher's Exact Test ¹
17	1.0000		22b	0.0669
18a	1.0000		22c	0.5556
18b	0.6481		22d	0.3186
18c	0.2890		22e	0.6274
18d	0.4504		23	0.9295
18e	0.5684		24	0.2727
19	0.3408		25	0.2654
20	0.2873		26a	0.2355
21	0.2295		26b	0.6989
22a	0.0366*		27	0.9609

¹ Used to test for statistical significance at $p \leq 0.05$; * Statistically significant.

not know this detail, nor did four of the 15 respondents from schools with less than 5,000 students, or one of 15 from those with 5,000 to 9,999, thus producing some instability in interpretation of results. There was only one significant finding out of 20 Fisher's Exact Tests, and the single result was unstable. The other 19 tests did not reveal any other practices of significance attributed to enrollment size. Based upon these results, Hypothesis #7 was not rejected.

Hypothesis #11:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended enforcement guidelines and enrollment size.

To test Hypothesis #11, cross-tabulations were calculated between survey question #1, whereby participants identified their enrollment size, and their respective responses to questions #29-thru-34. These six questions comprised the quantitative component of Part IV of the survey, and pertained specifically to schools' tobacco control enforcement. Fisher's Exact Tests were conducted for each cross-tabulation to examine significant associations in the data. When differences were observed,

Additive Partitioning Procedures were performed to determine the location of the difference within the contingency table (Siegel and Castellan, 1988). Univariate and bivariate analyses were conducted to identify potential differences according to enrollment size. A total of 19 Fisher’s Exact Tests were conducted for Hypothesis #11. Tables 4.22 and 4.23 provide the resulting data.

Table 4.22 <i>Summary of Fisher’s Exact Tests: Tobacco Control Enforcement Compliance by Enrollment Size</i>				
Survey Question #	Fisher’s Exact Test ¹		Survey Question #	Fisher’s Exact Test ¹
29	0.9227		34b	0.0021*
30	0.0297*		34c	0.0384*
31a	0.7652		34d	0.2017
31b	0.7023		34e	0.0313*
31c	0.1257		34f	0.0254*
31d	0.9759		34g	0.0614
31e	0.4981		34h	0.5251
32	0.1312		34i	0.0117*
33	0.0276*		34j	0.0656
34a	0.0029*			

¹ Used to test for statistical significance at $p \leq 0.05$; * Statistically significant.

A significant effect ($p=0.0297$) was determined between enrollment size and the extent that tobacco policies were enforced at a college/university. Data reflected policies were always enforced at 59.8% of schools with less than 5,000 students, followed by 44.8% with 5,000 to 9,999, 33.3% with 30,000 or more, 30.0% with 10,000 to 19,999, and 14.3% with 20,000 to 29,999. Policies were occasionally enforced by 85.7% of schools with 20,000 to 29,999, 60.0% with 10,000 to 19,999, 41.4% with 5,000 to 9,999, 33.3% with 30,000 or more, and 31.8% with less than 5,000. Three institutions never enforced their tobacco policies, including 1 with less than 5,000 students, 1 with 5,000 to 9,999, and 1 with 10,000 to 19,999. A closer look revealed that contacts for 2 of the 6 schools with enrollment of 30,000 or more did not know the extent to which their tobacco policy was enforced. Overall, it

Table 4.23
Campus Tobacco Task Force Membership per Enrollment Size¹

Membership	< 5,000	5,000-9,999	10,000-19,999	20,000-29,999	30,000+
Undergrad & Grad Students*	11.0	20.7	20.0	42.9	66.7
Health/Counseling Center*	13.8	20.7	30.0	57.1	66.7
Faculty*	17.4	20.7	20.0	42.9	66.7
Resident Life/Housing	9.2	17.2	20.0	28.6	---
Judicial Affairs*	7.3	10.3	20.0	42.9	16.7
Campus Safety/Police*	23.9	24.0	50.0	57.1	66.7
Human Resources	17.4	17.2	40.0	57.1	16.7
Neighborhood Liaisons	3.7	3.5	---	14.3	---
Facilities*	15.6	13.8	30.0	42.9	66.7
Other	16.5	6.9	40.0	28.6	33.3

¹ Data reflects % of schools among same size with membership representation on tobacco task force.

* Fisher's Exact Test identified membership as statistically significant for $p \leq 0.05$.

appeared that enrollment size was a potential factor for enforcement, with a trend of greater enforcement for the smaller schools versus less enforcement efforts for the larger institutions.

A significant effect ($p = 0.0276$) was determined between enrollment size and whether a college/university had a task force working to address ongoing campus needs and concerns related to tobacco control. Data reflected 66.7% of schools with 30,000 or more had a task force, followed by 57.1% of schools with 20,000 to 29,999, 50.0% of those with 10,000 to 19,999, 31.0% of those with 5,000 to 9,999, and 28.8% of those with less than 5,000. A closer look revealed that two-in-six respondents from high-enrollment schools (i.e., 30,000-plus) did not know whether their school had a task force in place. Nevertheless, results suggest the larger the enrollment size for a college/university, the more likely a task force exists to address ongoing campus needs and concerns related to tobacco control.

A significant effect ($p=0.0029$) was determined between enrollment size and whether task force membership included undergraduate and graduate students. The largest campuses – those with

enrollments of 30,000 or more – included students on 66.7% of their task forces, followed by 42.9% for 20,000 to 29,999, 20.0% for 10,000 to 19,999, 20.7% for 5,000 to 9,999, and 11.0% for less than 5,000. Overall, it appeared that the larger the school’s enrollment, the more likely its tobacco control task force included undergraduate and graduate students.

A significant effect ($p = 0.0021$) was detected between enrollment size and whether task force membership included health and counseling center staff. The largest campuses of 30,000 or more included health and counseling center staff on 66.7% of their task forces, followed by 57.1% for 20,000 to 29,999, 30.0% for 10,000 to 19,999, 20.7% for 5,000 to 9,999, and 13.8% for less than 5,000. Overall, it appeared that the larger the school’s enrollment, the more likely its tobacco control task force included health and counseling staff.

A significant effect ($p = 0.0384$) was detected between enrollment size and whether task force membership included faculty. The largest campuses of 30,000 or more included faculty members on 66.7% of their task forces, followed by 42.9% for 20,000 to 29,999, 20.0% for 10,000 to 19,999, 20.7% for 5,000 to 9,999, and 17.4% for less than 5,000. Overall, it appeared that the larger the school’s enrollment, the more likely its tobacco control task force included faculty.

A significant effect ($p = 0.0313$) was detected between enrollment size and whether task force membership included judicial affairs staff. The largest campuses of 30,000 or more included judicial affairs staff on 16.7% of their task forces, with the smaller enrollment size of 20,000 to 29,999 including 42.9% (highest of all five categories), followed by 20.0% for 10,000 to 19,999, 10.3% for 5,000 to 9,999, and 7.3% for less than 5,000. Overall, it appeared that the larger campuses were more likely to include judicial affairs staff on their task force, especially for those schools with enrollment of 20,000 to 29,999.

A significant effect ($p = 0.0254$) was detected between enrollment size and whether task force membership included campus safety/police. The largest campuses of 30,000 or more included

campus safety/police on 66.7% of their task forces, followed by 57.1% for 20,000 to 29,999, 50.0% for 10,000 to 19,999, 24.1% for 5,000 to 9,999, and 23.9% for less than 5,000. Overall, it appeared that the larger the school's enrollment, the more likely its tobacco control task force included campus safety/police.

A significant effect ($p = 0.0117$) was detected between enrollment size and whether task force membership included facilities staff. The largest campuses of 30,000 or more included facilities staff on 66.7% of their task forces, followed by 42.9% for 20,000 to 29,999, 30.0% for 10,000 to 19,999, 13.8% for 5,000 to 9,999, and 15.6% for less than 5,000. Overall, it appeared that the larger the school's enrollment, the more likely its tobacco control task force included facilities staff.

In summary, data revealed eight significant results among the 19 Fisher's Exact Tests conducted for Hypothesis #11. Smaller schools appeared more likely to enforce their tobacco policies, while larger schools were more likely to have a task force in place to address ongoing campus needs and concerns related to tobacco control. Significant task force membership included undergraduate and graduate students, health and counseling center staff, faculty, judicial affairs staff, campus security/police, and facilities staff. With 42.1% of the significance tests producing statistically significant results, Hypothesis #11 was rejected. Statistical differences were detected between college and university compliance with ACHA-recommended tobacco control practices and enrollment size.

As a result of testing for Hypotheses #3, #7, and #11, some differences emerged when the data were analyzed by enrollment size. A total of seventy-one Fisher's Exact Tests produced 11 (15.5%) statistically significant findings, with eight (72.7%) of these test results concentrated in enforcement efforts. Enrollment size does appear to be a factor in college/university tobacco policies, practices, and enforcement.

Research Question #7 (Addressed by data for Hypotheses #4, #8, and #12)

Will adherence to tobacco-free guidelines differ by virtue of college/university type?

Hypothesis #4:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control policies and institutional type.

To test Hypothesis #4, cross-tabulations were calculated between survey question #2, whereby participants identified their institutional type, and their respective responses to questions #4-thru-15. These eleven questions comprised the quantitative component of Part II of the survey, and pertained specifically to schools' tobacco control policies. Fisher's Exact Test was conducted for each cross-tabulation to examine significant associations in the data. When differences were observed, Additive Partitioning Procedures were performed to determine the location of the difference within the contingency table (Siegel and Castellan, 1988). Univariate and bivariate analyses were conducted in order to identify potential differences according to institutional type. A total of 32 Fisher's Exact Tests were conducted for Hypothesis #4. Table 4.24 provides the resulting data.

A significant effect ($p = 0.0059$) was detected between university type and whether the college/university had changed its written tobacco policy in the past two years. The data revealed that policy revisions had occurred within the past two years at 69.2% of technical colleges, at 53.9% of public colleges/universities, at 51.5% of two-year colleges, at 37.0% of private colleges/universities, but at no religious schools. This finding suggests that technical colleges, two-year colleges, and public colleges/universities are more likely to have the most up-to-date tobacco policies and that religious schools might be least likely to have made policy revisions in the past two years.

A significant effect ($p = 0.0465$) was detected between university type and whether the school's policy allowed tobacco use in student unions. The data revealed tobacco use was not allowed at all

Table 4.24
Summary of Fisher's Exact Tests
Tobacco Control Policy Compliance by Institutional Type

Survey Question #	Fisher's Exact Test ¹		Survey Question #	Fisher's Exact Test ¹
4	1.0000		9f	0.0146*
5	0.0059*		10a	0.6981
6	0.4914		10b	0.8386
7	0.9586		10c	0.9016
8a	--- ²		11a	0.5437
8b	--- ²		11b	0.3553
8c	0.0465*		11c	0.7859
8d	0.5497		11d	0.7941
8e	<0.0001*		11e	0.3516
8f	<0.0001*		11f	0.3355
8g	0.0283*		11g	0.3824
8h	0.0007*		12	0.7714
9a	0.0131*		14	0.0138*
9b	0.1860		15a	0.0047*
9c	1.0000		15b	0.3889
9d	0.3717		15c	0.5984
9e	0.4040		15d	0.2852

¹ Used to test for statistical significance at $p \leq 0.05$; ² Not applicable due to 100% compliance; *Statistically significant.

in student unions for 100.0% of public colleges/universities and religious schools, 98.5% of two-year colleges, 89.4% of private colleges/universities, and 84.6% of technical colleges. A closer look at the data revealed that 153 schools across all institutional types responded that tobacco use was not allowed at all in student unions, and that the remaining eight institutions did not have this type of indoor venue. This explains the difference, and suggests that the finding is statistically significant but irrelevant.

A significant effect ($p < 0.0001$) was detected between university type and whether the school's policy allowed tobacco use in residence halls. The data revealed tobacco use was not allowed at all in residence halls for 100.0% of religious schools, 92.3% of public colleges/universities, 75.0% of private colleges/universities, 41.3% of two-year colleges, and 15.4% of technical colleges. A closer look at the data revealed that for the 155 responding schools, beyond the 94 (60.7%) that did not

allow tobacco use at all in residence halls, 59 (38.1%) did not have this type of indoor venue on campus and only one (0.7%) institution in the population allowed tobacco use in some areas of their residence halls. Therefore, this finding appears to be statistically significant but irrelevant.

A significant effect ($p < 0.0001$) was detected between university type and whether the school's policy allowed tobacco use in campus apartments. The data revealed tobacco use was not allowed at all in campus apartments for 100.0% of religious schools, 84.6% of public colleges/universities, 68.9% of private colleges/universities, 34.9% of two-year colleges, and 7.7% of technical colleges. A closer look at the data revealed that for the 156 responding schools, beyond the 85 (54.5%) that did not allow tobacco use at all in campus apartments, 69 (44.2%) did not have this type of indoor venue on campus and only one (0.6%) institution in the population allowed tobacco use in some areas of their campus apartments. Therefore, this finding appears to be statistically significant but irrelevant.

A significant effect ($p = 0.0283$) was detected between university type and whether the school's policy allowed tobacco use in student recreation areas. Data revealed tobacco use was not allowed at all in student recreation areas for 100.0% of religious schools and two-year colleges, 92.3% of public colleges/universities, 97.9% of private colleges/universities, and 84.6% of technical colleges. A closer look at the data revealed that for the 161 responding schools, beyond the 156 (96.9%) that did not allow tobacco use at all in student recreation areas, 4 (2.5%) did not have this type of indoor venue on campus and only one (0.6%) institution in the population allowed tobacco use in some of these areas. Therefore, this finding appears to be statistically significant but irrelevant.

A significant effect ($p = 0.0007$) was detected between university type and whether the school's policy allowed tobacco use in sports arenas. Data revealed tobacco use was not allowed at all in sports arenas for 88.9% of religious schools, 84.6% of public colleges/universities, 76.1% of private colleges/universities, 72.3% of two-year colleges, and 23.1% of technical colleges. A closer look at the data revealed that for the 159 responding schools, beyond the 115 (72.3%) that did not allow

tobacco use at all in sports arenas, 43 (27.0%) did not have this type of indoor venue on campus and only one (0.6%) institution in the population allowed tobacco use in some of these areas. Therefore, this finding appears to be statistically significant but irrelevant.

A significant effect ($p = 0.0131$) was detected between university type and whether the school's policy allowed tobacco use in/on campus stadia, fields, or arenas. Data revealed tobacco use was not allowed at all in these outdoor venues for 100.0% of religious schools, 92.3% of public colleges/universities, 85.1% of private colleges/universities, 81.8% of two-year colleges, and in 46.2% of the technical colleges. A closer look at the data revealed that for the 161 responding schools, beyond the 133 (82.6%) that did not allow tobacco use at all in/on campus stadia, fields, or arenas, 25 (15.5%) did not have these types of outdoor venues on campus, and only two (0.6%) institutions in the population allowed tobacco use in some of these outdoor venues, and one (0.6%) allowed its use anywhere in these locations. Therefore, this finding appears to be statistically significant but irrelevant.

A significant effect ($p = 0.0146$) was detected between university type and whether the school's policy allowed tobacco use in bus shelters. Data revealed tobacco use was not allowed at all in bus shelters for 66.7% of religious schools, 88.5% of public colleges/universities, 45.7% of private colleges/universities, 61.5% of two-year colleges, and 53.9% of technical colleges. A closer look at the data revealed that for the 159 responding schools, beyond the 97 (61.0%) that did not allow tobacco use at all in bus shelters, 55 (34.6%) did not have this type of outdoor venue on campus, and four (2.5%) institutions in the population allowed tobacco use in some of these areas. Therefore, this finding appears to be statistically significant but irrelevant.

A significant effect ($p = 0.0138$) was detected between university type and whether the school's policy included the provision and/or the promotion of tobacco cessation services/resources for all members of the campus community. Data revealed that 88.5% of public colleges/universities

included this provision in their tobacco policies, followed by 69.7% of two-year colleges, 61.7% of private colleges/universities, 53.95 of technical colleges, and 22.2% of religious schools. This finding suggests that public colleges/universities are the most likely to have tobacco policies that provide/promote tobacco cessation services/resources for all members of the campus community and religious schools are the least likely to have this provision in their policy.

A significant effect ($p = 0.0047$) was detected between university type and whether schools with policies to provide/promote tobacco cessation services and/or resources to campus members include nicotine replacement therapy, such as nicotine patches /gum, in the services offered. Data revealed that 60.9% of public colleges/universities provided this service, along with 24.4% of the two-year colleges, 53.6% of private colleges/universities, and 0.0% among technical colleges, and religious schools. This finding suggests that public colleges/universities are the most likely to have policies that include provision of nicotine replacement therapy, while technical colleges and religious schools are the least likely to have this provision in their policies.

In summary, while data revealed 10 significant findings for Hypothesis #4, seven of 10 appeared to be statistically significant but irrelevant and/or unstable. Taking into account the additional 22 Fisher's Exact Tests that yielded non-significant findings, 29 of 32 significance test results were either non-significant or were statistically significant but irrelevant. Based upon these results, Hypothesis #4 was not rejected.

Hypothesis #8:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended tobacco control practices and institutional type.

To test Hypothesis #8, cross-tabulations were calculated between survey question #2, whereby participants identified their institutional type, and their respective responses to survey items 17-thru-27. These eleven questions comprised the quantitative component of Part III of the survey, and

pertained specifically to schools' tobacco control practices. Fisher's Exact Tests were conducted for each cross-tabulation to examine significant relationships. When differences were observed, Additive Partitioning Procedures were performed to determine the specific location of the difference within the contingency table (Siegel and Castellan, 1988). Univariate and bivariate analyses were conducted in order to identify potential differences according to institutional type. A total of 20 Fisher Exact Tests were conducted for Hypothesis #8. Table 4.25 provides the resulting data.

A significant effect ($p < 0.0001$) was detected between institutional type and whether the college/university offered and promoted prevention and education initiatives that actively supported non-use of tobacco. The data revealed that most all of the institutional types with the exception of one were likely to incorporate this practice into their tobacco program. Schools that offered these initiatives included public colleges/universities (92.0%), technical colleges (76.9%), 2-year colleges (74.2%), and private colleges/universities (69.6%). Six of nine religious schools did not offer these services, and practices of the remaining three were not known by the respondents; nevertheless, findings suggest that all institutional types with the exception of religious schools are likely to offer and promote prevention and education initiatives to actively support non-use of tobacco on campus.

A significant effect ($p = 0.0011$) was determined between institutional type and whether the college/university offered and promoted prevention and education initiatives that addressed the risks of all forms of tobacco. Once again, data revealed that most all of the institutional types with the exception of one were likely to incorporate this practice into their tobacco program. The schools that offered these initiatives included public colleges/universities (84.6%), technical colleges (76.9%), two-year colleges (63.1%), and private colleges/universities (67.4%). Seven of nine religious schools did not offer such services, and practices of the remaining two were not known by respondents; none-

Table 4.25
*Summary of Fisher's Exact Tests:
 Tobacco Control Practices Compliance by Institutional Type*

Survey Question #	Fisher's Exact Test ¹		Survey Question #	Fisher's Exact Test ¹
17	0.7760		22b	<0.0001*
18a	1.0000		22c	0.0203*
18b	0.2523		22d	0.4595
18c	0.2144		22e	0.1918
18d	0.4380		23	0.0046*
18e	0.0946		24	0.8738
19	<0.0001*		25	<0.0001*
20	0.0011*		26a	0.7714
21	0.1138		26b	0.0341*
22a	0.0328*		27	0.3685

¹ Used to test for statistical significance at $p \leq 0.05$; * Statistically significant.

theless, findings suggest that all institutional types with the exception of religious schools likely offer and promote prevention and education initiatives that address the risks of all forms of tobacco use.

A significant effect ($p = 0.0328$) was determined between institutional type and whether a school that promoted practical, evidence-based approaches to end tobacco use offered free and/or reduced cost nicotine replacement therapy, such as nicotine patches/gum on campus. Data revealed that for schools using this type of approach, 57.9% of public colleges/universities offered this option, followed by 47.6% private colleges/universities, 21.6% two-year colleges, 14.3% technical colleges, and 0.0% religious schools. Findings suggest that for those schools with evidence-based programs to promote cessation of tobacco use, nicotine replacement therapy is offered to a degree among all types except religious schools.

A significant effect ($p = 0.0006$) was determined between institutional type and whether a school that promoted practical, evidence-based approaches to end tobacco use offered cessation medication options, such as Zyban or Wellbutrin, on campus. Data revealed that for schools using this type of approach, 57.9% of public colleges/universities offered this option, followed by 33.3% of the private

colleges/universities, 10.8% two-year colleges, 14.3% technical colleges, and 0.0% religious schools. A closer look at the findings demonstrates that public colleges were the most likely to offer cessation medications, with 11 of 19 institutions providing this service on campus. Findings suggest that for those schools with evidence-based programs that promote cessation of tobacco use, the medication option is the one most likely to be offered by public colleges/universities, while the other institutional types are not as likely to provide this option.

A significant effect ($p = 0.0203$) was determined between institutional type and whether a school that promoted practical, evidence-based approaches to end tobacco use offered referrals to/screenings by counselors or cessation specialists on campus. Data revealed that for schools using this type of approach, 84.2% of public colleges/universities offered this option, followed by 81.8% of private colleges/universities, 51.4% of two-year colleges, 42.9% of technical colleges, and 0.0% religious schools. Once again, findings suggest that for those schools that have evidence-based programs on campus (those that promote tobacco cessation, those that use referrals to/screenings by counselors, or those that have cessation specialists on campus) the most likely method to be used is the one that refers students, faculty, and staff to screenings by counselor or cessation specialists on-campus; this method is most likely to be offered by public colleges/universities while the other institutional types are not as likely to provide this option, especially so for religious institutions.

A significant effect ($p = 0.0046$) was determined between institutional type and whether a school had a student health insurance plan available to its students. The data revealed that 84.6% of public colleges/universities offered such a plan, followed by 77.8% of religious schools, 69.6% of private colleges/universities, 53.6% of technical schools, and 40.9% of two-year colleges. Findings suggest that public colleges/universities are the most likely to offer a student health insurance plan, while two-year colleges are the least likely.

A significant effect ($p < 0.0001$) was determined between institutional type and whether a school had comprehensive marketing and signage in an effort to ensure that all visitors, vendors, guests, and others arriving on campus were aware of the tobacco-free policy. The data revealed that for all institutional types except one, this attribute was commonly found, with comprehensive marketing and signage at 95.4% of technical schools, 92.3% of public colleges/universities and two-year colleges, and 78.3% of private colleges/universities; only 22.2% of religious schools utilized this type of practice.

A significant effect ($p = 0.0341$) was determined between institutional type and whether a school had signage displayed in outdoor places, such as sports arenas, stadia, walkways, benches, and/or near buildings. Data revealed that 100% of religious schools, 98.4% of two-year colleges, 94.4% of private colleges/universities, 91.7% of technical colleges, and 83.3% of public colleges/universities located tobacco signage outdoors. A closer look at the data revealed that even though religious schools had the highest compliance rate for this attribute, there were only 2 religious schools in this data set; therefore, their high compliance rate was not as statistically significant but irrelevant. Findings suggest that outdoor signage is heavily used among all institutional types, with the highest prevalence found among two-year colleges.

In summary, the data revealed eight significant findings among the 20 Fisher's Exact Tests that were conducted for Hypothesis #8. Based upon 40.0% of the significance tests yielding statistically significant results, Hypothesis #8 was rejected. Statistical differences were detected between college/university compliance with ACHA-recommended tobacco control practices and institutional type.

Hypothesis #12:

No statistical differences will be detected between colleges and universities' compliance with ACHA-recommended enforcement guidelines and institutional type.

To test Hypothesis #12, cross-tabulations were calculated between survey question #2, whereby participants identified their institutional type, and their respective responses to survey questions #29-thru-34. These six questions comprised the quantitative component of Part IV of the survey, and pertained specifically to schools' tobacco control enforcement. Fisher's Exact Tests were conducted for each cross-tabulation to examine significant associations in the data. When differences were observed, Additive Partitioning Procedures were performed to determine the location of the specific difference within the contingency table (Siegel and Castellan, 1988). The univariate and bivariate analyses were conducted in order to identify potential differences according to institutional type. A total of 19 Fisher Exact Tests were conducted for Hypothesis #12. Tables 4.26 and 4.27 provide the resulting data.

A significant effect ($p = 0.0067$) was detected between institutional type and the extent to which tobacco policies were enforced on-campus. Data revealed policies to be always enforced at 88.9% of religious schools, 67.4% of private colleges/universities, 49.2% of two-year colleges, and 30.7% of technical colleges and public colleges/universities. Overall, it appeared that institutional type was a potential factor in tobacco policy enforcement, with higher enforcement rates at religious schools versus the lowest levels of enforcement found at technical colleges and public colleges/universities.

A significant effect ($p < 0.0001$) was detected between institutional type and policy enforcement as a responsibility of resident advisors/dormitory staff. Data indicated these staff to be responsible for policy enforcement at 66.5% of religious colleges, 55.3% of private colleges/universities, 30.8% of public colleges/universities, 12.1% of two-year colleges, and 0.0% of technical colleges. Overall, it appeared that resident advisors/dormitory staff factored in to enforcement efforts among some of the institutional types, particularly religious schools and private colleges/universities.

A significant effect ($p = 0.0179$) was detected between institutional type and whether a college/university had a task force working to address ongoing campus needs and concerns related to tobacco

control. Data reflected 50.0% of public colleges/universities had a task force in place, followed by 46.2% of technical colleges, 34.9% of two-year colleges, 21.7% of private colleges/universities, and 11.1% of religious schools. Results suggest that public colleges/universities are the most likely type of institution to have a tobacco control task force.

Table 4.26 <i>Summary of Fisher's Exact Tests: Tobacco Control Enforcement Compliance by Institutional Type</i>				
Survey Question #	Fisher's Exact Test ¹		Survey Question #	Fisher's Exact Test ¹
29	0.6969		34b	0.0015*
30	0.0067*		34c	0.0517
31a	0.8019		34d	<0.0001*
31b	0.8566		34e	<0.0001*
31c	<0.0001*		34f	0.0463*
31d	0.1232		34g	0.1354
31e	0.6808		34h	0.2315
32	0.7948		34i	0.0551
33	0.0179*		34j	0.4674
34a	0.0260*			

¹ Used to test for statistical significance at $p \leq 0.05$; * Statistically significant.

A significant effect ($p = 0.0260$) was detected between institutional type and whether task force membership included undergraduate and graduate students. Among public colleges/universities, 38.5% included students on their task force, followed by 16.7% among two-year colleges, 10.6% among private colleges/universities, 7.7% among technical colleges, and 0.0% among religious schools. Overall, it appeared that students were most likely to participate in task forces at public colleges/universities and least likely to participate in religious schools.

A significant effect ($p = 0.0015$) was detected between institutional type and whether task force membership included health and counseling center staff. Among public colleges/universities, 50.0%

Table 4.27
*Campus Tobacco Task Force Membership per Institutional Type*¹

Membership	Public College/ University	Private College/ University	2-Year College	Technical College	Religious School
Undergrad & Grad Students*	38.5	10.6	16.7	7.7	---
Health/Counseling Center*	50.0	12.8	15.2	23.1	---
Faculty	38.5	12.7	24.2	15.4	---
Resident Life/Housing*	38.5	12.7	1.52	7.7	11.1
Judicial Affairs*	38.5	8.5	4.6	---	---
Campus Safety/Police*	50.0	19.2	27.3	38.5	11.1
Human Resources	38.5	18.2	21.2	15.4	11.1
Neighborhood Liaisons	11.5	4.3	1.5	---	---
Facilities	38.5	12.8	18.2	23.1	---
Other	26.9	17.9	19.7	15.4	11.1

¹ Data reflects % of schools among type with membership representation on tobacco task force.

* Fisher's Exact Test identified membership as statistically significant for $p \leq 0.05$.

included health and counseling center staff on their task force, followed by 23.1% among technical colleges, 15.2% at two-year colleges, 12.8% at private colleges/universities, and 0.0% at religious schools. Overall, it appeared health and counseling center staff were most likely to participate in task forces at public colleges/universities and least likely to participate at religious schools.

A significant effect ($p < 0.0001$) was determined between institutional type and whether task force membership included resident life/housing staff. Among public colleges/universities, 38.5% included resident life/housing staff on their task force, followed by 12.8% among private colleges/universities, 7.7% among technical colleges, 1.5% among two-year colleges, and 11.1% among religious schools. Overall, it appeared resident life/housing staff were most likely to participate in task forces for public colleges/universities and least likely to participate in two-year colleges.

A significant effect ($p = 0.0004$) was detected between institutional type and whether task force membership included judicial affairs staff. Among public colleges/universities, 38.5% included

judicial affairs staff on their task force, followed by 8.5% among private colleges/universities, 4.6% among two-year colleges, 0.0% among task forces at technical and religious schools. Overall, it appeared judicial affairs staff were most likely to participate in task forces for public colleges/universities and least likely to participate in technical colleges and religious schools.

A significant effect ($p = 0.0463$) was detected between institutional type and whether task force membership included campus security/police. Among public colleges/universities, 50.0% included campus safety/police on their task force, followed by 38.5% among technical colleges, 27.3% among two-year colleges, 19.2% at private colleges/universities, and 11.1% among task forces at religious schools. Overall, it appeared campus security/police were most likely to participate in task forces for public colleges/universities and least likely to participate in religious schools.

In summary, the data revealed eight significant findings among the 19 Fisher's Exact Tests for Hypothesis #12. Based upon 42.1% of the significance tests producing statistically significant results, Hypothesis #12 was rejected. Statistical differences were detected between college and university compliance with ACHA-recommended tobacco policies and institutional type.

As a result of testing for Hypotheses #4, #8, and #12, some differences emerged when data were analyzed by institutional type. Seventy-one Fisher's Exact Tests produced 26 (36.6%) statistically significant results, with 10 (38.5%) of these concentrated in school policies, eight (30.1%) pertaining to tobacco control practices, and eight (30.1%) related to enforcement efforts. Institutional type does appear to be a factor in college/university tobacco policies, practices, and enforcement.

To summarize the data analysis and results for Research Questions #4, #5, #6, and #7, it appears that institutional type is the most related among the four demographic variables when analyzing college/university tobacco policies, practices, and enforcement activities. Enrollment size also seems to have a noticeable relationship, while geographic region and geographic location do not appear to be related variables when assessing school tobacco policies, practices, and enforcement activities.

CHAPTER 5

SUMMARY, DISCUSSION, AND CONCLUSIONS

The purpose of this study was to survey each of the 100% tobacco-free campuses in the nation to assess their policies, procedures, and practices, and the extent to which they adhere to ACHA guidelines promoting tobacco-free environments in America's colleges and universities. The intent is to provide researchers and college administrators with a comprehensive examination at the *status quo* with regard to compliance with recommended tobacco-control policies at colleges and universities that are identified as 100% tobacco-free.

This final chapter is organized into the following sections pertaining to relevant findings, conclusions, and implications of the study: (1) summary of findings; (2) conclusions; (3) discussion of findings; (4) strengths and limitations; (5) implications for public health programs, policies, and allocation of resources; and finally, (6) suggestions for future research.

Summary of Findings

The response rate for this study was 92.6%, with key informants representing a variety of departments within the institutions. The diverse representation demonstrates the extensive campus network of departments knowledgeable about campus tobacco-related activities. The most prevalent demographic profile was a 2-year college with enrollment of less than 5,000, located in a rural setting within the South Region of the U.S.

Research Question #1: Descriptive analysis of data pertaining to policy demonstrated that 98.7% of the participating institutions have a written tobacco-free policy. Only two institutions responded that they had no written policy in place. Multiple informants stressed the importance of having a clearly written policy:

“Be very clear in writing the policy. State how it will be enforced, who will enforce it, and what sanctions will be incurred if violations of the policy occur.”

A school with a written policy has the document to serve as a framework for supporting consistent practices and enforcement, whereas the lack of such policy may result in inconsistent practices and enforcement. It is somewhat surprising to find that any of the schools on the ALA-O list of 100% tobacco-free schools would report not having a written policy for tobacco control on campus. Further investigation of the 2 outliers reveals one to be a 2-year community college in the West and the other to be a private college in the Midwest, thus not sharing common attributes of college type or location. The questionnaire did not provide the opportunity for these 2 schools to provide a reason for not having a written policy.

Research Question #2: Slightly less than half (46.3%) of the written policies have been updated within the past 2 years, indicating that the majority (53.7%) of colleges and universities that are on the ALA-O list of 100% tobacco-free institutions do not have current written policies in place. This indicates that some schools are more active than others in continuous monitoring and updating of their tobacco policy content. Univariate analysis comparing compliance scores among institutions with current policies to scores of those with older tobacco policies that have not been updated within the past two years indicates a significantly higher compliance score (76.13%) for those with the more current policies, compared to the lower score (69.77%) for those with older policies. This is not surprising, as one might expect schools with a more current policy to be more stringent in compliance requirements.

Research Question #3: In examining compliance with ACHA guidelines, utilizing the scoring rubric established for this purpose, the average score among all schools is 72.23%, with scores ranging from 98.25% to 33.33%. This finding suggests that while schools may consider themselves to be 100% tobacco-free, this designation commonly does not align with meeting 100% of the recommended ACHA guidelines for tobacco-free status.

Data indicated rare exceptions where tobacco-use is permitted in indoor venues, while there appears to be slightly more tolerance of its use in certain outdoor locations, most notably in parking garages/lots. Some schools that have slowly transitioned to being 100% tobacco free allowed smoking in parking lots at first, then gradually phased it out, as reflected in the following comment:

“Initially when we developed the tobacco policy, the committee decided to have designated smoking area for resident students. The student could go to their vehicles in the northwest parking lot and use tobacco products. In 2008 we changed that policy to go completely tobacco free and not allow any tobacco use on the campus.”

Another outdoor location mentioned as a lesson learned for policy implementation was public sidewalks. Some respondents pro-actively addressed tobacco prohibition for this type of outdoor location by garnering support from their local legislature:

“We were granted control of the public sidewalks around our campus, and prohibit smoking on the public sidewalks as well. This limited the confusion about where it is okay to keep smoking.”

Tobacco advertising, marketing, and distribution on campus appear to be rarely permitted by school policies. As a general rule, tobacco-free schools do not receive tobacco-sponsored funding for career centers, buildings, sports teams, sports fields/arenas, scholarships, faculty endowments, or student programs. With rare exception, tobacco companies are not permitted to sponsor events, activities, or other promotions on campus.

Two-thirds of the schools have tobacco policies that include the provision and/or promotion of tobacco cessation services/resources for all members of the campus community. This was a common suggestion among the input for lessons learned, as respondents stress the importance of offering the service to everyone, not just faculty and staff:

“Give cessation options to students and provide resources to them. They get upset when only faculty and staff are covered for available cessation services.”

Suggestions were also made to offer cessation services before policy implementation to give everyone on campus plenty of time to seek help if desired. The data revealed referrals to off-campus services, smoking cessation services, quit lines, and web sites to be the most common approaches supported by school policies, while nicotine replacement therapy is used to a lesser degree.

Three-fourths of the schools inform all members of the campus community about the tobacco policy by widely distributing it on an annual basis. Various communication vehicles are utilized, including posting the policy in employee and student handbooks, as well as on the college/university website. The policy is also shared with key persons, such as parents, alumnae, and visitors, being made available in both printed and electronic format. Respondents noted the importance of communication about the policy to visitors, such as parents, contractors, vendors, and people attending events on campus such as sports activities and conferences/workshops.

“Advertise and market the tobacco-free policy so all visitors to campus are aware of the rules. For instance, violators of our policy often include individuals on campus for a day or several days for professional development workshops/seminars/etc. These people are not technically students - they are not part of the population that makes up the College community - so they are not always fully aware of the community expectations and rules/regulations. We've learned that the tobacco-free policy needs to be included on materials sent to potential professional development course attendees (e.g. registration and program materials) and also announced in their courses/seminars/workshops.”

Data reveals colleges/universities offer and promote prevention/education initiatives that actively support non-use of tobacco and address the associated risks of tobacco use in all forms. Slightly more than half of the schools offer a student health insurance plan; however, data suggests few of the plans cover tobacco treatment or cessation services.

Over 85% of the schools employ a comprehensive marketing and signage plan to ensure that all visitors, vendors, guests, and others arriving on campus are aware of the tobacco-free policy.

Outdoor signage appears to be slightly more prevalent than indoor signage. Overall, signage was a common theme suggested as a lesson learned:

“Good signage is a must.”

Analysis of the data indicates 64% of the schools collaborate with local, state, and national public health entities and/or other public, private, and national non-profit tobacco-related organizations in support of maintaining a healthy tobacco-free environment. Such partnerships can serve to strengthen and broaden a school’s tobacco policies and practices, providing models of other successful programs, as well as funding.

“There are amazing resources available.”

While three-fourths of the schools have consistent consequences or penalties for not complying with campus tobacco policies, approximately half report to always enforce the policies on campus. Campus police/security officers are most frequently reported to be responsible for enforcement, followed by anyone who sees an infraction, then by faculty/administrators. The topic of policy enforcement generated many comments from respondents, both positive and negative. To some, it presents a major challenge:

“Enforcement is our challenge with no designated security officers. It is a self-directed policy for the most part and we struggle at various locations on campus.”

To others, it is not an apparent issue, possibly attributed to advance planning and communication prior to implementation:

“We did a lot of campus education for a year, and then went tobacco free on Aug. 1, 2008. We have not had any problems with enforcement. It has really become a non-issue.”

One particular area of enforcement commonly cited as a challenge pertains to students going off-campus into neighboring areas to smoke:

“Give careful consideration to where students will go to smoke if you go 100% tobacco free. We are bordered on all sides by residential areas and when our students move into these areas to smoke, it creates friction.”

A well-published reporting system for violations is provided by one-third of the schools.

Data analysis indicates that one-third of the schools have a task force working to address ongoing campus needs and concerns related to tobacco control.

“Once the policy was implemented, the feeling within our committee was that the work was done. We had issues when we did not keep the tobacco-free campus out on the forefront. We now work every semester to inform all staff and students all over again.”

Task force membership most commonly includes campus safety/police officers, faculty, human resources, health and counseling center staff, and facilities staff. It is interesting that students do not appear to be commonly included in these task forces, since many respondents emphasize the importance of including students in the early planning phase leading up to policy implementation. Likewise, the group least likely to be included is neighborhood liaisons, who represent a commonly cited area of enforcement challenge.

Research Question #4: Analysis of the data revealed very few differences emerge with respect to comparisons by geographic region (Northeast, Midwest, South, West). In addition, the data did not reflect any differences between compliance scores for tobacco-producing states compared to non-tobacco-producing states. Thus, geographic region does not appear to be a factor in college/university tobacco policies, practices, and enforcement.

Research Question #5: Very few differences emerged after analysis by geographic location (urban, suburban, rural). Conclusively, geographic location does not appear to be a factor in college/university tobacco policies, practices, and enforcement.

Research Question #6: Some differences emerged when the data were analyzed by enrollment size. The demographic variable of enrollment size appears to be a factor in college/university tobacco policies, practices, and enforcement, with the majority of differences occurring in enforcement efforts. Schools with smaller enrollment numbers appear more likely to enforce their tobacco policies. This may be attributed to the smaller number of students being more manageable from a volume perspective. Also, larger schools are more likely to have a task force in place to address ongoing campus needs and concerns related to tobacco control. Significant task force membership included undergraduate and graduate students, health/counseling center staff, faculty, judicial affairs staff, campus security/police, and facilities staff. The larger schools are likely to have proportionately larger budgets, more staffing, more departments, and overall, more resources to support the activities of an ongoing task force.

Research Question #7: Some differences emerged when the data were analyzed by institutional type. Technical colleges, 2-year colleges, and public colleges/universities are more likely to have the most up-to-date tobacco policies. Religious schools are the least likely to have made policy revisions in the past two years. Public colleges/universities are the most likely to have tobacco policies that provide/promote tobacco cessation services/resources for all members of the campus community and religious schools are the least likely to have this provision in their policy. Public colleges/universities are the most likely to have policies that include provision of nicotine replacement therapy, while technical colleges and religious schools are the least likely to have this provision in their policies. Findings suggest that all institutional types with the exception of religious schools are likely to offer and promote prevention and education initiatives to actively support non-

use of tobacco on campus. All institutional types with the exception of religious schools are likely to offer and promote prevention and education initiatives that address the risks of all forms of tobacco use. For those schools with evidence-based programs to promote cessation of tobacco use, nicotine replacement therapy is offered to a degree among all types except religious schools. Findings suggest that for those schools with evidence-based programs to promote cessation of tobacco use, cessation medication options is most likely to be offered by public colleges/universities while the other institutional types are not as likely to provide this option.

For those schools with evidence-based programs to promote cessation of tobacco use, referrals to/screenings by counselors or cessation specialists on campus, referrals to/screenings by counselor or cessation specialists on campus are most likely to be offered by public colleges/universities while the other institutional types are not as likely to provide this option, especially so for religious institutions. Public colleges/universities are the most likely to offer a student health insurance plan, while 2-year colleges are the least likely. Data reveals that for all institutional types except one, comprehensive marketing and signage is commonly found, being most prevalent at technical schools, followed by public colleges/universities, technical colleges, and private colleges/universities; very few religious schools utilize this type of practice. Institutional type appears to be a potential factor for tobacco policy enforcement, with considerably higher enforcement at religious schools versus the lowest levels of enforcement found among technical colleges and public colleges/universities. Results suggest public colleges/universities are the most likely type of institution to have a tobacco control task force. Institutional type does appear to be a factor in college/university tobacco policies, practices, and enforcement.

To summarize the findings, none of the four independent variables (geographic region, geographic location, enrollment size, institution type) impacted tobacco control compliance scores

for policies. Both institutional type and enrollment size were related to tobacco control practices and enforcement on U.S. college and university campuses that are 100% tobacco free.

Conclusions

As a result of this study, the following conclusions are presented:

- Ninety-eight point seven percent (98.7%) of U.S. colleges/universities that appeared on the ALA-O list of 100% tobacco free institutions as of October, 2009, have written policies that prohibit tobacco use on campus. (Research Question #1)
- Among the colleges and universities that have written policies, the percentage of those policies that were current (updated within the past two years) is 46.3%. The 74 institutions that indicated their policies were current had a compliance score of 76.13%. The 86 institutions that had not updated their written policies within the past two years had a compliance score of 69.77%. Over 50% (53.75%) of the written policies were not current, and associated compliance scores were lower for these institutions. (Research Question #2)
- The percentage of the 100% tobacco free colleges and universities that has established each of the procedures and practices that appear in the 2009 ACHA guidelines is presented below:

Table 5.1 <i>Overall Compliance with ACHA Guidelines</i>									
ACHA Guideline	1	2	3	4	5	6	7	8	9
%	98.7	76.4	71.9	54.0	59.6	85.6	75.0	63.8	33.5

Overall, colleges and universities have complied with the 2009 ACHA guidelines; however, the institutions are far from 100% compliance. (Research Question #3)

- Geographic region (Northeast, South, Midwest, West) is not significantly related to compliance with ACHA recommended tobacco control policies, practices, and/or enforcement. (Research Question #4)
- Geographic location (urban, suburban, rural) is not significantly related to compliance with ACHA recommended tobacco control policies, practices, and/or enforcement. (Research Question #5)
- Enrollment size is not significantly related to compliance with ACHA recommended tobacco control policies and practices. However, enrollment size is significantly related to compliance with ACHA recommended tobacco control enforcement policies. Smaller schools (<10,000) were more likely to enforce tobacco policies. Larger schools were more likely to have task forces to address ongoing campus needs and concerns related to tobacco control. Moreover, larger schools were more likely to have variation in task force membership, including representation by students, health and counseling staff, faculty, judicial affairs/staff, campus security/police, and facilities staff. (Research Question #6)
- Institution type is not significantly related to compliance with ACHA recommended tobacco control policies. However, institution type is significantly related to compliance with ACHA recommended tobacco control practices and enforcement of policies. Public colleges and universities engage in significantly more preventive education, utilize evidence based principles, utilize cessation medications, and provide significantly more on-campus referrals than the other institutional types. Public universities also offer higher levels of health insurance plans for students than the other types of institutions. Finally, all institution types utilize outdoor signage to market tobacco policies. It should be noted, however, that religious schools have the lowest involvement in marketing/signage for tobacco control policy as compared to other types of institutions. Enforcement is highest at religious institutions, and both religious and private

colleges/universities use residence hall advisors to enforce tobacco control policies to a greater extent than all other types of institutions. Public and technical colleges utilize task forces to a greater extent, and public institutions have the greatest variety of task force membership.

(Research Question #7)

Discussion of Findings

Historical trends for tobacco use among college students and other adults, combined with the known health hazards for behaviors associated with this harmful risk factor, demonstrate the need for tobacco control policies on college campuses. The Institute of Medicine offers a series of recommendations to help end the tobacco problem in the nation, including Recommendation #8 – specifically targeting college campuses – calling for a ban on smoking in indoor locations, a ban on the promotion of tobacco products on-campus, and the consideration of setting an overall goal of becoming smoke-free (Institute of Medicine, 2009). As part of the *Healthy Campus* initiative, and the overall goal to “...reduce illness, disability, and death related to tobacco use and exposure to secondhand smoke...” (ACHA, 2002, p. 91), two of the supporting sub-goals reflect a commitment to smoke-free and tobacco-free campus environments (Goal 27-11) and to increasing the proportion of college worksites with formal smoking policies to prohibit/limit smoking to separately ventilated areas (Goal 27-12).

There are a variety of approaches aimed at reduction of tobacco use, ranging from those with an individual focus (e.g., smoking cessation programs) to those that target entire groups or populations. According to *Healthy People 2010* (USDHHS, 2000), programs that employ a “population-based” approach are becoming more prevalent. These programs typically include goals that strive to prevent community members from ever initiating a tobacco habit, help existing tobacco users to quit their tobacco habit, and reduce exposure to environmentally-toxic secondhand smoke. One strategy to achieve these goals is via policy intervention. The literature includes abundant scientific evidence

that the use of policy intervention is effective in promoting healthy outcomes (Chaloupka et al., 1997; Moore et al., 2001; Fichtenberg & Glantz, 2002; Pickett et al., 2006; Lightwood & Glantz, 2009).

Prior to 2001, there was a low prevalence of tobacco control policies on U.S. college campuses, as demonstrated by a national survey reporting 27% having a limited smoke-free policy in place that excluded tobacco use in all campus buildings, including residence halls and dormitories (Wechsler et al., 2001). National organizations, including the American College Health Association, the American Cancer Society, and the American Lung Association developed policies and/or advocacy statements for a tobacco-free environment for college campuses, and more institutions began to slowly respond by implementing more comprehensive tobacco control policies.

In 2003, the CHAT survey (Halperin & Rigotti, 2003) was conducted to measure college/university compliance with ACHA guidelines. The CHAT survey concluded with the acknowledgement that "...adherence to national recommendations for tobacco policies is likely to be an effective deterrent to tobacco use among college and university students..." and recommended evaluation of both policy implementation and outcome measures to identify "...elements of success and strategies for overcoming barriers to policy implementation and student cessation." (Halperin & Rigotti, 2003, p. 187). Since then, there has been an escalating trend of colleges and universities to implement tobacco control policies for their campuses, as reflected in Figures 1.1. This study has attempted to address the CHAT recommendations by assessing the policies, practices, and enforcement measures currently in place on all U.S. colleges and universities that are on the ALA-O's list (2009) of 100% tobacco free institutions.

The findings in this study demonstrate that although the population of colleges and universities on the American Lung Association-Oregon list of 100% tobacco-free institutions has many policies, practices, procedures, and enforcement efforts in place for tobacco control, they fall short of total

compliance with the current American College Health Association's guidelines and recommendations. The schools fare well with having a written document to clearly define the tobacco policy parameters; however, many have not updated their policy contents in more than two years, suggesting that the older policies are not as stringent with those most current. None of the four independent variables (geographic region, geographic location, enrollment size, institution type) were related to tobacco control compliance scores for policies; however, both institutional type and enrollment size were related to tobacco control practices and enforcement on these campuses.

One specific area where the schools have lesser degrees of compliance with the ACHA standards include practices for outdoor venues, particularly parking lots/garages, public sidewalks, and sporting events. Another area that falls short of ACHA recommendations pertains to providing tobacco-cessation services and resources to all parties on campus. A third area of weakness is the provision of student insurance plans, and for such plans to include coverage of tobacco cessation services. Enforcement efforts seem to hamper many of the schools, presenting an ongoing challenge. Another area of weakness is lack of collaboration with public health entities at the local, state, and federal levels for sharing best practices, as well as to seek funding sources. Finally, many of the schools do not maintain a task force to address ongoing tobacco-related issues after the policy is implemented.

Institutional type and enrollment size are related to compliance with the ACHA guidelines. Public colleges and universities have the highest compliance with the ACHA guidelines, while religious colleges have the lowest. One possible reason for this trend may be the availability of funds for public colleges/universities, as well as the possibility of state legislative mandates for tobacco control (e.g., North Carolina and Iowa).

Similar in mission, there are some basic fundamental differences between this study and the previous CHAT survey (Halperin & Rigotti, 2003). Both surveys measured compliance with ACHA guidelines; however, the CHAT survey was based on an earlier version of the ACHA guidelines

published in 2005 (the current version was published in 2009). The CHAT survey used a sample that was limited to include one public college/university from each of the 50 states (n=50), and the schools were not designated as being tobacco-free. The current survey used a population (N=175) of all 100% tobacco-free schools in the U.S., as published on the ALA-O listing (ALA-O, 2009) for October 2009. The CHAT survey utilized a phone survey, with multiple key informants at each of the 50 schools to find those who would be most knowledgeable about the different campus tobacco policies. The current study involved input from one key informant per institution, and utilized an electronic format. Both studies utilized a scoring system to measure compliance with the ACHA guidelines; however the scoring criteria differed in point values. There are no other studies that have attempted to analyze compliance of the schools included on the ALA-O list to ACHA guidelines.

Similar to this study, the CHAT survey demonstrated that its sample of schools fell short of ACHA recommendations. One finding that is very different between the two studies involves geographic regional variations. The CHAT survey found clear regional differences in practices, with schools in the South region having fewer tobacco policies in place; the same was true for schools in the major tobacco-producing states. The current study found no significant differences in comparing compliance among the regions, nor between tobacco-producing versus non-tobacco-producing states. These differences may be due to the profile of the samples (one being limited to public universities while the other was more comprehensive).

Study Strengths and Limitations

This study provides researchers and college administrators with a comprehensive examination at the *status quo* with regard to compliance with ACHA recommended tobacco-control policies at colleges and universities that are identified as 100% tobacco-free. The major strength of the study is its response rate of 92.6% from the entire population of 100% tobacco-free colleges and universities in the U.S. (N=175). It is reasonable to conclude the results are representative of the population.

The descriptive findings portray a vivid profile of tobacco-related policies, practices, and enforcement measures on our nation's college/university campuses. An additional strength is the foundational framework of ACHA guidelines recommended for a 100% tobacco-free campus, which provides the basis for a quantitative assessment of institutional compliance with objectively-defined measures. A third strength is use of the CHAT survey (Halperin and Rigotti, 2003) to serve as basis for content validity of the questionnaire. Finally, the descriptive nature of the study design prevented manipulation of study factors by the researcher, thus cause-and-effect can not be established.

As with any research endeavor, the study is not without limitations. It is possible that history may have played a role in the key informants' memories, especially pertaining to policy development and implementation if these activities occurred in much earlier times. Some of the informants may not have had first-hand knowledge of the early policy planning activities, and could have reported inaccurate responses, thus presenting the possibility of selective recall. Inaccurate responses could have been provided due to prevarication bias, especially if a key informant wanted to present his/her school in a more policy-compliant stature. It is possible that a different key informant from each school could have provided different responses to the questionnaire. Due to the diversity of school sizes and types, key informants represented a variety of positions and departments versus all of them being in the same position, etc. Lastly, it is possible that the ALA-O list of 100% tobacco-free colleges and universities in the U.S. excluded some schools that actually have this status, and should be included in the survey population.

Implications for Public Health Programs, Policies, and Allocation of Resources

The health effects of tobacco use are well-documented, with cigarette smoking identified as the most important risk factor for lung cancer (American Cancer Society, 2009). Historical trends for tobacco use among college students and other adults, combined with the known health hazards for behaviors associated with this harmful risk factor, demonstrate the need for tobacco control policies

on college campuses. Tobacco control is a goal of the *Healthy campus 2010* (ACHA, 2002) initiative. According to *Healthy People 2010* (USDHHS, 2000), programs that employ population-based approaches for tobacco control are becoming more prevalent, with policy intervention being one strategy utilized to impact behavior change to reduce this risk factor.

This study provides the first comprehensive examination of ACHA's most recent set of guidelines and recommendations that promote tobacco-free campuses, and includes all colleges and universities in the United States that self-identify as 100% tobacco-free ($N = 176$). As such, its contribution to public health cannot be understated, particularly as it relates to promoting overall wellness on college and university campuses.

Probably the most significant contribution to be made for public health programs and policies as a result of this study is its ability to provide U.S. colleges and universities with a detailed profile of the work accomplished by peer institutions in their quest to achieve and maintain a healthy tobacco-free campus environment. The need to have role models for tobacco policy development and implementation is exquisitely cited by some of those who have already ventured down this path:

"There's no right or wrong, only consequences."

There are multiple policy implications to be considered as the result of this study. First, the existing tobacco-free colleges and universities can serve as a source of advocacy to their peer institutions that are not yet tobacco-free. Public health professionals and programs should strive to increase the number of institutions that are tobacco-free via policy implementation in an effort to promote campus and community wellness, resulting in the elimination of this known risk factor from the campus setting. Having a tobacco control policy in place is the first step to compliance with national standards such as ACHA guidelines. Second, institutions should conduct regular periodic assessments of their tobacco policies to keep them current. This is clearly reflected from the study

data that demonstrated a statistically significant higher compliance score for those institutions with up-to-date policies less than two years old. Third, institutions should consider the value of offering evidence-based approaches for tobacco cessation programs, as well as offer student insurance coverage that will include tobacco cessation services, treatment, and medications. These practices will promote optimal health for members of the campus community, and as the data in this study have shown, will contribute to higher compliance with national guidelines. Fourth, context matters for demographic variables of institutional type and enrollment size, both of which have been shown by data in this study to be factors in the types of practices an institution is able to offer, as well as the level of enforcement activities that will be feasible. A large public university will have access to larger funding resources as compared to a much smaller private school or religious college, resulting in the ability to offer more services to its campus members. A large public university will also have more staff available to serve on task forces to address ongoing issues and needs related to tobacco control, whereas a smaller private, technical, or religious institution will be more limited in multi-tasking by its smaller staff. A smaller campus with fewer students will likely have fewer enforcement issues due to its physical size, where a larger campus may sprawl over miles of geography, presenting logistical challenges for enforcement activities.

It should be noted that the ALA-O listing of 100% tobacco-free schools was updated in February, 2010, to include 223 U.S. college/universities, representing an increase of 27% from the population that qualified for participation in this research. The growth pattern is phenomenal, and there is no reason to believe it will slow down in the near future. Hopefully, schools that are looking for a model to emulate in their tobacco control efforts will understand and appreciate the following insight offered by a key informant:

“Research best practices at other institutions.”

“Review tobacco policies from other institutions and use those to create your own policy. We looked at several – most were very similar – so creating the policy was very easy.”

“Learn from others and don’t reinvent the wheel.”

By following the example of others, colleges and universities can customize their own tobacco control policy to meet their campus needs, ultimately supporting the *Healthy Campus* initiative and overall goal to “...reduce illness, disability, and death related to tobacco use and exposure to secondhand smoke...” (ACHA, 2002, p. 91). This study gives them the ability to learn more about the policies, practices, and enforcement activities of their peer institutions who have achieved 100% tobacco free status.

The college campus is a vibrant community, and tobacco control is only one issue of many that impact the public health of those who comprise its population. As more schools become tobacco-free in the future, the overall public health of the college community stands to benefit at multiple socio-ecological levels. A tobacco-free campus community will have policies in place to govern behaviors and activities that contribute to a healthy environment. The individuals and groups that comprise the campus community will benefit from the healthy environment by not being exposed to tobacco products.

“Consider the implications to the larger community as a model for better health.”

Suggestions for Future Research

Although the main purpose of the current study was primarily a quantitative assessment of tobacco policies, practices, and enforcement mechanism in place on college campuses today, a rich collection of qualitative information accompanies the data set, and will provide the basis for future in-depth analysis and reporting, further contributing to the knowledge base in this area of public

health. Future research efforts may continue to focus on historical trends as more schools become tobacco-free in the future. The vast majority of U.S. colleges and universities are not 100% tobacco-free, and it may be worthy to explore if any of these schools do *not* wish to implement tobacco policies (and if so, why not). It may also be worthy to examine the relationship between tobacco policy intervention and smoking prevalence on college campuses. In other words, does adherence/compliance to a campus tobacco control policy impact overall tobacco use among the members of the campus community? Another area of focus may be exploration of additional demographic variables beyond those explored in this study, searching for other factors that differentiate tobacco policies for varying sectors of the college/university population within the U.S. Researchers may also desire to further explore all of the differences yielded by analysis of school type and enrollment size with tobacco practices, and enforcement. Finally, other areas to investigate could be the relationship between tobacco control policies on campus and associated economic, academic, and/or health outcomes for the campus community.

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Appendices

Appendix A
ALA-O List of 100% Tobacco-Free Colleges and Universities

COLLEGES & UNIVERSITIES
100% Tobacco Free as of October 2009
per ALA-O

STATE

AZ	A.T. Still University-Mesa
AR	National Park Community College
AR	North Arkansas College
AR	Ozarka College
AR	Phillips Community College of the University of Arkansas
AR	SAU tech
AR	University of Arkansas
AR	University of Arkansas Community College at Morrilton
CA	Fresno Pacific University
CA	Grossmont-Cuyamaca Community College District
CA	Imperial Valley College
CA	Santa Rosa Junior College
CA	Woodland Community College
CO	Colorado Mountain College Summit Campus
CO	Denver School of Nursing
CO	Colorado Christian University
FL	Edison State College-Charlotte
FL	Florida Hospital College of Health Sciences
FL	Warner University
GA	Altamaha Technical College
GA	Appalachian Technical College
GA	Athens Technical College
GA	College of Coastal Georgia
GA	Columbus Technical College
GA	Darton College
GA	Dekalb Technical College
GA	East Georgia College
GA	Gainesville State College
GA	Georgia Highlands College
GA	Gwinnett Technical College
GA	Medical College of Georgia
GA	North Georgia College & State University
GA	Southwest Georgia Technical College
IL	Rush University
IL	Wheaton College
IN	Goshen College
IN	Indiana University
IN	Ivy Tech Community College

IN Purdue University North Central
IN Taylor University
IO AIB Colleg of Business
IO Allen College
IO Des Moines Area Community College
IO Des Moines University
IO Hawkeye Community College
IO Indian Hills Community College
IO Iowa Lakes Community College
IO Iowa Valley Community College District
IO Loras College
IO Luther College
IO Mercy College of Health Sciences
IO North Iowa Area Community College
IO Northwestern College
IO St. Ambrose University
IO Southeastern Community College
IO Southwestern Community College
IO Western Iowa Tech Community College
KY Bellarmine University
KY University of Kentucky
ME Kennebec Valley Community College
MD Carroll Community College
MD Garrett College
MD Harford Community College
MD Montgomery College
MI Alpena Community College
MI Delta College
MI Great Lakes Christian College
MI Grand Rapids Community College
MI Lansing Community College
MI Montcalm Community College
MN Bethel University
MN Itasca Community College
MN Lake Superior College
MN Minnesota State University Moorhead
MN Northwest Technical College
MN Northwestern Health Sciences University
MN Rochester Community and Technical College
MN University of Minnesota, Crookston
MN Winona State University
MS Blue Mountain College

MO A.T. Still University-Kirksville
MO Cox College
MO Kansas City University of Medicine & Biosciences
MO Ozarks Technical Community College
MO St. Charles Community College
MO St. Louis Community College-Wildwood
NE College of St. Mary
NE Creighton University
NE Nebraska Methodist College
NE York College
NE Mid-Plains Community College
NJ Camden County College
NM University of New Mexico
NY Maria College
NC A-B Technical Community College
NC Barber Scotia College
NC Bennett College
NC Blue Ridge Community College
NC Cape Fear Community College
NC Catawba Valley Community College
NC Central Carolina Community College
NC Cleveland Community College
NC College of the Albemarle
NC Craven Community College
NC Davidson County Community College
NC Gardner-Webb University
NC Greensboro College
NC Guilford Technical Community College
NC Haywood Community College
NC High Point University
NC Louisburg College
NC Montreat College
NC Peace College
NC Richmond Community College
NC Roanoke-Chowan Community College
NC Stanly Community College
NC Wake Technical College
NC Vance-Granville Community College
NC Wayne Community College
NC Western Piedmont Community College
NC Wingate University
ND Bismark State College

ND Jamestown College
 ND Mayville State University
 ND Minot State University
 ND University of North Dakota
 ND Valley City State University
 OH Hocking College
 OK Oklahoma Christian University
 OK Oklahoma City University
 OK Oklahoma State University(OSU)-Oklahoma City
 OK OSU-Stillwater
 OK OSU-Tulsa
 OK St. Gregory's University
 OK University of Oklahoma Health Sciences Center
 OR Corban College
 OR East West College
 OR Mt. Hood Community College
 OR Multnomah University
 OR Northwest Christian University
 OR Oregon Coast Community College
 OR Oregon College of Oriental Medicine
 OR Oregon Health & Science University
 OR Portland Community College
 OR Walla Walla University-Portland
 OR Warner Pacific College
 OR Western States Chiropractic College
 OR Chemeketa CC Dallas Center
 OR Linfield College Portland Campus
 OR Pacific University Health Professions Campus
 OR Treasure Valley Comm. College Harney County Ctr & Nyssa Ctr
 PA Butler County Community College
 SC Aiken Technical College
 SC Lander University
 SC Piedmont Technical College
 SC University of South Carolina Upstate
 SD Mount Marty College
 SD Oglala Lakota College
 TN East Tennessee State University
 TN Milligan College
 TX Alamo Community Colleges
 TX Midwestern State University
 VA Jefferson College of Health Sciences
 VA Regent University

WA Clark College
WA Lower Columbia College
WA Seattle Pacific University
WA Walla Walla University
WV West Virginia School of Osteopathic Medicine
WI Alverno College
WI Carroll University
WI Medical College of Wisconsin
WI Nicolet College
WI Western Technical College
WI University of Wisconsin-Baraboo/Sauk County

Appendix B
IRB Approval Letter

Georgia Southern University
Office of Research Services & Sponsored Programs

Institutional Review Board (IRB)

Phone: 912-478-0843		Veazey Hall 2021
		P.O. Box 8005
Fax: 912-478-0719	IRB@GeorgiaSouthern.edu	Statesboro, GA 30460

To: Sara Plaspohl
P.O. Box 1780
Statesboro, GA 1326

CC: Charles E. Patterson
Associate Vice President for Research

From: Office of Research Services and Sponsored Programs Administrative
Support Office for Research Oversight Committees
(IACUC/IBC/IRB)

Date: December 18, 2009

Subject: Status of Application for Approval to Utilize Human Subjects in Research

After a review of your proposed research project numbered **H10140** and titled “**An Assessment of America’s Tobacco-Free Colleges and Universities: Policies, Procedures, Practices and Adherence to ACHA’s 2009 Guidelines and Recommendations**”, it appears that (1) the research subjects are at minimal risk, (2) appropriate safeguards are planned, and (3) the research activities involve only procedures which are allowable.

Therefore, as authorized in the Federal Policy for the Protection of Human Subjects, I am pleased to notify you that the Institutional Review Board has approved your proposed research.

This IRB approval is in effect for one year from the date of this letter. If at the end of that time, there have been no changes to the research protocol; you may request an extension of the approval period for an additional year. In the interim, please provide the IRB with any information concerning any significant adverse event, **whether or not it is believed to be related to the study**, within five working days of the event. In addition, if a change or modification of the approved methodology becomes necessary, you must notify the IRB Coordinator **prior** to initiating any such changes or modifications. At that time, an amended application for IRB approval may be submitted. Upon completion of your data collection, you are required to complete a *Research Study Termination* form to notify the IRB Coordinator, so your file may be closed.

Sincerely,

Eleanor Haynes
Compliance Officer

Appendix C
Key Informant Survey

Assessing 100% Tobacco-Free Colleges and Universities Key Informant Survey

The survey asks about the policies, procedures, and enforcement efforts in-place on your campus. Questions are designed to match up with the most current guidelines and recommendations published by the American College Health Association in its Position Statement on Tobacco on College and University Campuses. The answers you give will play a part in promoting the overall health of all who live and work on college and university campuses nationwide; the information and “lessons learned” insights gained – from the colleges and universities that have instituted tobacco-control policies, to those that are (or might be) considering doing it – will contribute valuable information in creating 100% tobacco-free environments.

The survey is private and your participation is voluntary; taking the survey means you consent to take part in the study. The answers will not be traced to you, so please give honest answers to each question. Thank you.

I. The first three questions ask you about your school (please mark only one response to each question)...

1. How many students are currently enrolled at your college/university?
 < 5,000
 5,000-to-9,999
 10,000-to-19,999
 20,000-to-29,999
 30,000-or-over

 2. Which of the following best describes your college/university? (Please check one)
 Public college/university
 Private college/university
 2-year college
 Independent school
 Technical college
 Religious school
 Other

 3. Which of the following best describes the geographic location of your college/university’s main campus?
 Urban
 Suburban
 Rural
-

- PLEASE GO ON TO SECTION II -

II. Tobacco Control Policies (please mark only one response to each question)...

4. At your college or university, is there a written policy about your institution being tobacco free?
 Yes
 No
 Don't know
5. Has the campus written policy on tobacco use changed in the past two years? (Please check one)
 Yes
 No
 Don't know
6. Does your policy include a definition of tobacco products, including, but not limited to, cigarettes, cigars, cigarillos, hookah-smoked products, and oral tobacco (spit, spitless, smokeless, chew, snuff)?
 Yes
 No
 Don't know
7. Does your policy state that tobacco use is prohibited on all your campus grounds, campus-owned or leased properties, and in campus-owned, leased, or rented vehicles?
 Yes
 No
 Don't know
8. For each indoor place listed below, please check the category in the response pattern which best describes your campus' tobacco policy.

INDOOR VENUE	NOT ALLOWED AT ALL	ALLOWED IN SOME AREAS	ALLOWED ANYWHERE	DOES NOT EXIST	DON'T KNOW
8a. Buildings with classrooms					
8b. Private offices					
8c. Student union					
8d. Cafeterias/dining areas					
8e. Residence halls					
8f. Campus apartments					
8g. Student recreation areas					
8h. Sports arenas					

- PLEASE GO ON TO THE NEXT PAGE -

9. For each outdoor place listed below, please check the category in the response pattern which best describes your campus' tobacco policy.

OUTDOOR VENUE	NOT ALLOWED AT ALL	ALLOWED IN SOME AREAS	ALLOWED ANYWHERE	DOES NOT EXIST	DON'T KNOW
9a. In/on campus stadia, fields, or arenas					
9b. In parking garages/lots					
9c. Near entrances to buildings (e.g., 20 feet)					
9d. On campus walkways or benches					
9e. In outside dining area (e.g., cafes)					
9f. In bus shelters					

10. To what degree are tobacco industry promotions prohibited on campus? For each of the items listed below, please check the category in the response pattern which best describes your campus' tobacco policy.

PROMOTIONAL ACTIVITY	NOT ALLOWED AT ALL	ALLOWED IN SOME AREAS	ALLOWED ANYWHERE	DOES NOT EXIST	DON'T KNOW
10a. Tobacco advertising (including student newspapers)					
10b. Tobacco marketing					
10c. Tobacco distribution					

11. Have tobacco companies donated funds to your college/university to support any of the following?

FUNDS DONATED TO SUPPORT...	YES	NO	DON'T KNOW
11a. A career center			
11b. A building			
11c. A sports team			
11d. A sports field or arena			
11e. A scholarship(s)			
11f. A faculty endowment(s)			
11g. Student programs			

- PLEASE GO ON TO THE NEXT PAGE -

12. Do tobacco companies (e.g., Phillip Morris or RJ Reynolds) sponsor events, activities, or other promotions on campus?

- Yes →(Go to Question 14)
- No →(Go to Question 14)
- Don't know →(Go to Question 15)

13. Which events/activities have been sponsored? (Check as many as apply)

- Sporting events
- Fund raising for charity
- Art exhibits
- Musical events, including concerts
- General social activities, including dances
- Other (please specify): _____

14. Does your policy include the provision and/or promotion of tobacco cessation services/resources for all members of the campus community?

- Yes →(Go to Question 16)
- No →(Go to Section II)
- Don't know →(Go to Section II)

15. Please indicate which of the following services are provided.

SERVICES	YES	NO	DON'T KNOW
15a. Nicotine replacement therapy, such as nicotine patches/gum			
15b. Referral to counselor/cessation specialist on-campus			
15c. Referral to off-campus services (e.g., American Cancer Society)			
15d. Referral to smoking cessation service/ quit line/web site			

16. As it applies to Tobacco Control Policies on your campus, what "lessons learned" can you share that can help colleges and universities not currently 100% tobacco free – but that might be considering implementing such policies – in their efforts to get through the process?

– PLEASE GO ON TO SECTION III –

III. Tobacco Control Practices (please mark only one response to each question)...

17. Does your college/university inform all members of the campus community by widely distributing the campus tobacco policy on an annual basis?

- Yes →(Go to Question 18)
- No →(Go to Question 19)
- Don't know →(Go to Question 19)

18. Please indicate which of the following distribution methods are used.

DISTRIBUTION METHOD	YES	NO	DON'T KNOW
18a. The policy is clearly posted in employee and student handbooks			
18b. The policy is clearly posted on the college/university website			
18c. The policy is clearly posted in other relevant publications			
18d. The policy is shared with key persons, such as parents, alumni(ae), and visitors			
18e. The policy is included in promotional student materials in both printed and electronic formats			

19. Does your college/university offer and promote prevention and education initiatives that actively support non-use of tobacco?

- Yes
- No
- Don't know

20. Does your college/university offer and promote prevention and education initiatives that address the risks of all forms of tobacco use?

- Yes
- No
- Don't know

- PLEASE GO ON TO THE NEXT PAGE -

21. Does your college/university offer and promote practical, evidence-based approaches to end tobacco use?
- Yes →(Go to Question 22)
- No →(Go to Question 23)
- Don't know →(Go to Question 23)

22. Please indicate which of the following approaches are used.

EVIDENCE-BASED APPROACH	YES	NO	DON'T KNOW
22a. Free and/or reduced cost nicotine replacement therapy, such as nicotine patches/gum are offered on campus			
22b. Cessation medication options (such as Zyban or Wellbutrin) are offered on campus			
22c. Referrals to/screenings by counselor or cessation specialists are offered within the college/university			
22d. Referrals are made to outside programs (e.g., American Cancer Society or local hospitals)			
22e. Referrals are made to smoking cessation quit lines and/or web sites			

23. Is a student health insurance plan available to students at your college/university?
- Yes →(Go to Question 24)
- No →(Go to Question 25)
- Don't know →(Go to Question 25)
24. Does the student health insurance plan cover tobacco treatment or cessation services?
- Yes
- No
- Don't know

25. Does your college/university have comprehensive marketing and signage in an effort to ensure that all visitors, vendors, guests, and others arriving on campus are aware of the tobacco-free policy?
- Yes →(Go to Question 26)
- No →(Go to Question 27)
- Don't know →(Go to Question 27)

26. Please indicate which of the following places where signs are located.

LOCATION OF SIGNAGE ON-CAMPUS	YES	NO	DON'T KNOW
26a. Signage displayed in indoor places (e.g., classroom buildings, cafeteria, student union, residence halls).			
26b. Signage displayed in outdoor places (e.g., sports arenas, stadia, walkways or benches, near building entrances).			

27. Does your college/university collaborate with local, state, and national public health entities and/or other public, private, and national non-profit tobacco-related organizations in support of maintaining a healthy tobacco-free environment?
- Yes →(Go to Question 28)
- No →(Go to Question 29)
- Don't Know →(Go to Question 29)

28. As it applies to Tobacco Control Practices on your campus, what "lessons learned" can you share that can help colleges and universities not currently 100% tobacco free – but that might be considering implementing such policies – in their efforts to get through the process?

IV. Tobacco Control Enforcement (please mark only one response to each question)...

29. Does your college or university have consistent consequences or penalties for not complying with campus tobacco policies?

- Yes
- No
- Don't know

30. To what extent are tobacco policies enforced at your college or university?

- Always enforced
- Occasionally enforced
- Never enforced
- Don't know

31. Who is responsible for the enforcement? (check all that apply)

- Faculty/administrator
- Campus police/security
- Resident advisors/dormitory staff
- Anyone who sees an infraction
- Health professionals

32. Does your college or university provide a well-published reporting system for violations?

- Yes
- No
- Don't know

33. Does your college or university have a task force working to address ongoing campus needs and concerns related to tobacco control (e.g., policy, compliance, enforcement, cessation)?

- Yes
- No
- Don't know

34. What key individuals and departments are included in the task force? (check all that apply)

- Undergraduate and graduate students
- Health and counseling center
- Faculty
- Resident life/housing
- Judicial Affairs
- Campus safety/police
- Human Resources
- Neighborhood liaisons
- Facilities
- Other

35. As it applies to Tobacco Control Enforcement on your campus, what "lessons learned" can you share that can help colleges/universities not currently 100% tobacco free - but that might be considering implementing such policies - in their efforts to get through the process?

- END OF SURVEY. THANK YOU -

Appendix D
Project Timeline

Project Timeline
Sara Plaspohl Dissertation: Tasks and Timeline

	Action Steps	To be completed by...
√	Committee Sign up	Oct 19, 2009
√	Work on dissertation proposal	October and November
√	Submit dissertation proposal to Chair	Dec 4, 2009
√	Meet with Chair...conduct proposal revisions	Week of Dec 7, 2009
√	Deadline for submitting Application for Graduation	Dec 10, 2009
√	Proposal e-mailed to Committee	Dec 11, 2009
√	Complete survey packet and IRB forms	Week of Dec 14, 2009
√	Dissertation proposal meeting	Dec 18, 2009
√	Endorse signature page(s) and college forms	Dec 18, 2009
√	Submit study to IRB for review and approval	Dec 18, 2009
√	Submit Research Grant Application to JPHCOPH	Dec 18, 2009
√	Incorporate revisions...file w/JPHCOPH and COGS	Jan 4, 2010
√	Survey Monkey posted to website	Jan 4, 2010
√	Participant contacts begin	Jan 4, 2010
√	Follow-up calls and emails to non-responders begin	Jan 11, 2010
√	Deadline for survey completion	Feb 5, 2010
√	Data entry...consult with Chair and Committee Biostatistician	Week of Feb 8, 2010
√	Statistical analyses	Week of Feb 15, 2010
√	Data analysis and write-up	Week of Feb 22, 2010
√	Submit data analysis write-up to Chair and Committee Biostatistician	Week of Mar 1, 2010

Project Timeline
Sara Plaspohl Dissertation: Tasks and Timeline

	Action Steps	To be completed by...
√	Incorporate revisions, complete Chapter IV...submit to Chair	Week of Mar 8, 2010
√	Submit Discussion (Chapter V)... check final formatting	Week of Mar 15, 2010
√	Meet with Chair to finalize document...send to Committee	Mar 19, 2009
√	Dissertation Defense	Mar 26, 2010
√	Endorse signature page(s) and college forms...file w/COGS	Mar 26, 2010
√	Incorporate revisions, submit to Committee for review and approval	Apr 2, 2010
√	Committee to e-mail approval/final recommendations	Apr 9, 2010
√	Present copy to COGS for final format review and approval	Apr 15, 2010
√	Notify IRB of Study Completion	Week of May 3, 2010
√	Exit Interview	Week of May 3, 2010
√	Graduation	May 8, 2010

Appendix E
Introductory Phone Script

INTRODUCTORY PHONE SCRIPT TO STUDY PARTICIPANTS

Hello, [KEY INFORMANT NAME]! My name is Sara Plaspohl, and I'm doing my dissertation research at Georgia Southern University. I am calling because your school is among the 176 colleges and/or universities that are classified as "100% Tobacco-Free." Your help is needed as a participant in a study to explore exactly what that means on your campus. You have been identified as the "key contact" at your school.

The study comprehensively assesses the American College Health Association's 2009 Guidelines and Recommendations for Tobacco-Free Environments. I would appreciate your participation. Can I count on you?

I will be sending you an e-mail to access the survey for completion online. The 35-item survey should take no more than 20 minutes to complete. All responses will be held confidential; for your information, this study has been approved by the IRB at GSU.

When you complete the survey you will receive a small token of appreciation; there will also be a drawing conducted at the end. A \$100 gift certificate to Amazon.com will be the top prize; two additional \$50 gift certificates will be awarded, as well as four at \$25 each. You'll also receive a copy of the results.

Your participation is very much appreciated. Thank you very much.

Appendix F
Introductory Email

Hello, [KEY INFORMANT NAME]! My name is Sara Plaspohl, and I'm doing my dissertation research at Georgia Southern University.

I just left you a voice mail message, and am sending this note as follow-up. Your school is among the 176 colleges and/or universities that are classified as "100% Tobacco-Free." Your help is needed as a participant in a study to explore exactly what that means on your campus.

You have been identified as the "key contact" at your school. The study comprehensively assesses the American College Health Association's 2009 Guidelines and Recommendations for Tobacco-Free Environments.

I would like to send you another e-mail with a link to access the survey for completion online. The 35-item survey should take no more than 20 minutes to complete. All responses will be held confidential; for your information, this study has been approved by the IRB at GSU.

When you complete the survey you will receive a small token of appreciation; there will also be a drawing conducted at the end. A \$100 gift certificate to Amazon.com will be the top prize; two additional \$50 gift certificates will be awarded, as well as four at \$25 each. You'll also receive a copy of the results.

Your participation will be very much appreciated. Can I count on you?

If you can please send a quick response to this note, I will send the second email with the study link. If you are not the appropriate person to answer the survey, I would appreciate your recommendation for another representative from your school who can participate.

Thank you,
Sara S. Plaspohl, DrPHc, MHS, CIM, CIP
splaspoh@georgiasouthern.edu

Appendix G
Follow-up Emails

Hello [KEY INFORMANT]! I am following up on the email that was sent to you within the past few days after you kindly confirmed your willingness to participate in my dissertation research at Georgia Southern University regarding college tobacco policies. After your confirmation, you should have received a second email with a direct link to the online survey.

If you have already completed the survey, thank you very much! If you have not completed it yet, there is still plenty of time! Some of you indicated it would be a few days before you could get to it. I respect your time, and appreciate your willingness to work the survey into your busy schedule. **I would like to have all responses by Friday, January 29.**

The 35-item survey should take no more than 20 minutes to complete. All responses will be held confidential. Please let me know if you have any questions.

All participants will receive a copy of the research results and a small token of appreciation. There will also be a drawing conducted at the end, with a \$100 gift certificate to Amazon.com being the top prize, as well as two additional \$50 gift certificates and four \$25 gift certificates.

Thank you for your time, and I look forward to your response.

--

Sara S. Plaspohl, DrPHc, MHS, CIM, CIP
splaspoh@georgiasouthern.edu

Hello [KEY INFORMANT]! I am following up on the deadline for your participation in my dissertation research survey on college tobacco policies and practices. If you have already completed the survey, thank you very much! If you have not completed it yet, there is a little extra time to participate!

Data collection has been extended for one additional week in order to maximize the response rate. I hope you will be able to take a few minutes to complete the brief online survey at your convenience during the next few days. Please submit your response no later than **Friday, February 5**.

You may access the survey with the following link: [INSERT LINK HERE]

All participants will receive a copy of the research results and a small token of appreciation. There will also be a drawing conducted at the end, with a \$100 gift certificate to Amazon.com being the top prize, as well as two additional \$50 gift certificates and four \$25 gift certificates.

Thank you for your time, and I look forward to your response.

--

Sara S. Plaspohl, DrPHc, MHS, CIM, CIP
splaspoh@georgiasouthern.edu

Hello, [KEY INFORMANT]! I am following up my previous request for your help with my dissertation research being conducted at Georgia Southern University (GSU) regarding college tobacco policies and practices.

You indicated in an email response on DATE that you were willing to participate, and should have received subsequent emails with the survey link. I have not received your response yet, and the deadline for submission is this **Friday, February 5**.

I am hoping you will be able to find a few minutes between now and Friday to complete the brief online survey. I know your schedule is very busy, and I appreciate your willingness to support my research.

Here is the link again for easy access to the online survey:
[INSERT LINK]

In return for your participation, you will receive a copy of the study results at the end of the semester and a small token of appreciation. In addition, your name will be entered into a drawing for a gift certificate to Amazon, with the top prize being a \$100 gift certificate, followed by two at \$50 and four at \$25.

Thank you for your time, and I look forward to your response.

--

Sara S. Plaspohl, DrPHc, MHS, CIM, CIP
splaspoh@georgiasouthern.edu