

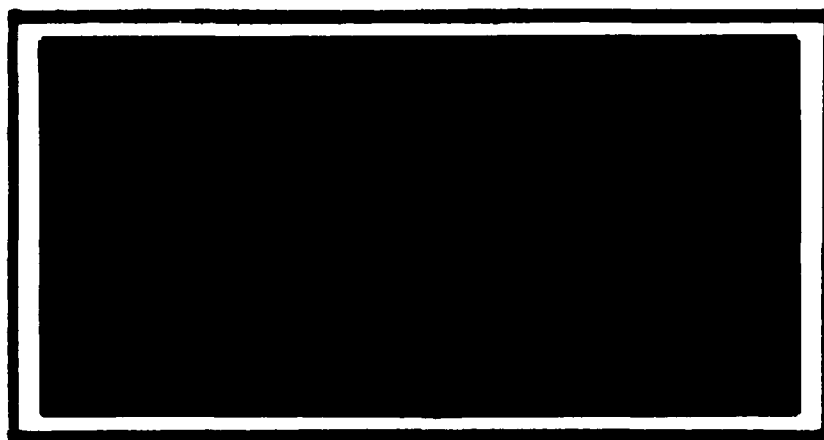
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THE IMPACT OF A NONSMOKING POLICY
ON A USAF MEDICAL CENTER

THESIS

Mark E. Kain
Major, USAF

AFIT/GSM/LSR/89S-21

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AFIT/GSM/LSR/89S-21

THE IMPACT OF A NONSMOKING POLICY
ON A USAF MEDICAL CENTER

THESIS

Presented to the Faculty of the School of Systems And
Logistics of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Systems Management

Mark E. Kain, B.S.

Major, USAF

September 1989

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Preface

The purpose of this study was to determine the impact on an Air Force organization when the commander implements a strict non-smoking policy. It is hoped that this study will show Air Force organization commanders some of the possible effects of implementing provisions of Air Force Regulation 30-27.

An employee survey was administered approximately six months after a strict non-smoking policy went into effect at a USAF Medical Center. This study analyzes the results of that survey and compares these results with those of prior studies.

This study would not have been possible without the help of others. I would like to thank my thesis advisor, Lt Col John Ballard for providing me with the opportunity to participate in this study and providing the necessary guidance and encouragement. I am also greatly indebted to Maj (Dr.) Kenneth Olive who acted as an enthusiastic point of contact at the Medical Center and interested contributor to the study. The employees and staff of the Medical Center deserve my deepest thanks for participating in these surveys. Last but not least I am forever indebted to my wife, Debbie, who is probably the fastest and most reliable envelope stuffer in the world.

Mark E. Kain

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Abstract

This study investigated the results of the implementation of a strict nonsmoking policy at a USAF medical center. Areas of interest included changes in smoking behavior, attitudes toward the policy, and organizational behavior after policy implementation. A literature search revealed only five similar previous studies, none of which were conducted in a military organization.

A survey was administered six months after policy implementation to the entire staff of 1613 employees. 934 were returned for a response rate of 57.9%.

Smoking prevalence did not change significantly. The number of cigarettes reported smoked at work decreased by an average of 1.9 per workday. There were no indications of compensatory smoking off the job. Smokers differed significantly with nonsmokers in their amount of support for the policy. Using a constructed scale of response items, only 31% of the smokers approved of the policy while 89% of the nonsmokers approved.

Organizational behavior areas examined included commitment, job satisfaction, smoker networking, break patterns, and perceptions of productivity decrease. The average daily time loss per smoker per day due to smoking breaks was

calculated to be 49.5 minutes. Over 70% of the respondents reported a perceived decrease in productivity as a result of the policy.

THE IMPACT OF A NONSMOKING POLICY
ON A USAF MEDICAL CENTER

I. Introduction

General Issue

The American society has experienced a changing attitude toward smoking in the recent past. This change is linked to increasing evidence of the health risks of smoking. Of recent interest is the evidence about the hazards of "second hand smoke." This new evidence indicates that even nonsmokers have reason to be concerned about cigarette smoke in their environment. These concerns about smoking and its effects for the smoker and nonsmoker are magnified by the increasing health consciousness in this country.

One potential outcome of this heightened smoking awareness is interpersonal conflict between smokers and nonsmokers. In the past smokers have enjoyed the privilege of smoking in areas shared with nonsmokers with few restrictions. Now, smokers face increasing restrictions on where they may engage in what is considered a perfectly legal act. Although many smokers are in fact sympathetic to the needs and desires of nonsmokers, some may feel these new restrictions are unjustified. These feelings could easily result in interpersonal conflict in the work environment where such conflict might be counterproductive.

This conflict presents a situation that managers increasingly cannot ignore. Managers traditionally have had a responsibility to provide a healthy working environment for employees. Air Force Regulation 30-27, Smoking In Air Force Facilities (Appendix A), states "commanders will resolve conflicts, due to the provisions of this regulation, in favor of the nonsmoker" (Downey, 1988, p.1). This is one example of many where managerial response to the conflict has been a written policy regarding smoking in the workplace.

A case could be made that hospitals should be on the forefront of this movement. If hospitals consider their mission to be the betterment of health for society, then it would contribute to that mission to propagate policies which might curb a practice which has been labeled as "the largest single preventable cause of premature death and disability in the United States" (DHHS, 1986, p.vii). Professional medical organizations (e.g., the American Medical Association, the American College of Physicians, and the American Academy of Pediatrics) support smoking restrictions in hospitals (DHHS, 1986). Such restrictions set the example for the public, and they eliminate the effects of involuntary smoking on patients.

On July 1, 1988, the management of a USAF Medical Center implemented a strict nonsmoking policy. The policy restricted smoking to outdoors and one indoor facility which

is attached to the main building. This policy impacted Air Force members, civilian employees, and volunteers working at the medical center, as well as patients.

Specific Problem

Few studies of a smoking policy to examine organizational impact have been conducted after implementation. A literature search found only five (Andrews, 1983; Biener, Abrams, Follick, and Dean, 1989b; Petersen, Helgersen, Gibbons, Calhoun, Ciacco, and Pitchford, 1988; Rigotti, Pikel, Cleary, Singer, and Mulley, 1986; Rosenstock, 1986), none of which involved a military organization. More research is needed. Of specific interest are the attitudinal and behavioral impacts of a restrictive smoking policy on employees.

This study will examine attitudes and self-reported behaviors associated with a restrictive smoking policy at one Air Force Medical Center. Specifically, the study will examine the impact of the policy with respect to smoking behavior, attitudes toward the policy, and organizational behavior. The study will examine reporting differences between smokers and nonsmokers, supervisors and non-supervisory personnel, those frequently involved with patients versus those with other duties, and other dichotomous groups.

Limitations

This research effort was limited to a single USAF Medical Center. No data was gathered prior to policy implementation. The study was not initiated until after the policy was implemented. Several recall questions were asked in the survey instrument in an attempt to establish baseline data.

II. Literature Review

Introduction

The purpose of this literature review is to summarize literature related to smoking in the workplace. The information can be divided into various sections. This chapter begins by taking a short look at the studies relating to the hazards of environmental tobacco smoke (ETS). It then reviews current trends in public sentiment toward smoking, and covers some of the resulting government and Department of Defense actions. From there, it moves to policies in the work place, and associated legal ramifications. Finally, the effects of smoking policies in the workplace, especially hospitals, are reviewed.

For this study, the following definitions apply:

Involuntary smoking: inhaling cigarette smoke as a result of being in the vicinity of it without actually being actively engaged in smoking.

Mainstream cigarette smoke: "the smoke drawn through the tobacco into the smoker's mouth" (DHHS, 1986, p.7).

Sidestream smoke: "the smoke emitted by the burning tobacco between puffs" (DHHS, 1986, p.7).

Environmental tobacco smoke (ETS): "smoke [which] results from the combination of sidestream smoke and the fraction of exhaled mainstream smoke not retained by the smoker" (DHHS, 1986, p.7). Also: "second hand smoke."

Smoking Policy: an officially mandated or directed policy from the management of an organization restricting smoking in any way.

Smoker: a person who regularly smokes cigarettes, pipes, or cigars.

Nonsmoker: a person who does not and has never smoked at all.

Ex-smoker: a previous smoker who no longer smokes at all.

Compensatory smoking: increased smoking away from the work site to offset a decrease in smoking at the work site as a result of a smoking policy (DHHS, 1986).

ETS Related Studies

Much literature exists related to the health hazards of environmental tobacco smoke. The most extensive review of the literature is found in the 1986 Surgeon General's report, The Health Consequences Of Involuntary Smoking (DHHS, 1986). The authors of this report come to the following conclusions:

1. Involuntary smoking is a cause of disease, including lung cancer, in healthy nonsmokers.
2. The children of parents who smoke compared with the children of nonsmoking parents have an increased frequency of respiratory infections, increased respiratory symptoms, and slightly smaller rates of increase in lung function as the lung matures.
3. The simple separation of smokers and nonsmokers within the same air space may reduce, but does not eliminate, the exposure of nonsmokers to environmental smoke (DHHS, 1986, p.7).

Similar conclusions are cited from other studies and antismoking experts. Steven D. Stellman, assistant vice president of epidemiology with the American Cancer Society, speculates the risk for cancer in nonsmokers routinely

exposed to ETS is between 1.3 to 3.5 times the risk of unexposed nonsmokers (BNA, 1986).

Skeptics of the studies conducted thus far look at the evidence differently. The most comprehensive collection of these viewpoints was found in Clearing The Air: Perspectives On Environmental Tobacco Smoke (Tollison, 1988), funded by the Tobacco Institute. This collection of works examines the social and legal issues, the flaws of studies to date, and cites 25 pages of excerpts from studies which support the case that the health risks of ETS are negligible, or at least inconclusive. Many of its references are the same as those in the Surgeon General's report. The work points out that two major studies (one by the Surgeon General) "concluded that ETS has not been shown scientifically to increase the risk of cancers in tissues other than the lung or to increase cardiovascular disorders or deficits in respiratory function in adults..." (Reasor, 1988, p.11-12).

The most often cited flaw of existing studies is the lack of measures of smoke exposures (BNA, 1986; Tollison, 1988). Another criticism is the failure to address "building-related illnesses" (Robertson, 1988, p.23-37). Building-related illnesses refer to ventilation and filtration problems with modern air conditioning systems (Robertson, 1988). Robertson (1988) suggests poor indoor air quality as a result of "building-related illnesses" is the real problem and that smoking is just a symptom of the problem.

Changing Public Sentiment

The warnings that smoking is dangerous have been quite numerous. The first U.S. Surgeon General report on the health hazards of smoking was published in 1964 (Crocker, 1987, p.739). Since that era, smoking in the United States has gone from being quite fashionable to very unfashionable. While thirty years ago 38% of American adults smoked, it is now only 26% (Gibbs, 1988). Some claim that the Surgeon General's 1986 report related to involuntary smoking helped spark current anti-smoking activity (Crocker, 1987; Gibbs, 1988; Goode, 1988). However, this might have simply been needed ammunition for closet anti-smoking activists to come out into the open. Regardless of which is the case, public opinion has apparently shifted.

Surveys indicate this shift in public attitude toward smoking. A 1985 Gallup Poll indicated that 80% of nonsmokers and 76% of smokers desired employers to establish specified smoking areas (Crocker, 1987). A 1987 readers survey by the business periodical, Venture, investigated the issue of smoker courtesy. Nearly 80% of the 1,548 respondents, and over half of the smokers said that depending on smokers' courtesy was inadequate protection from ETS (Williams, 1988).

One survey response was so overwhelming, it caused a major shift in company policy, a new advertisement campaign, and the subsequent firing of an advertising agency by the

subsidiaries of R.J. Reynolds tobacco company (Gibbs, 1988; Konrad and Foust, 1988). A Northwest Airlines survey determined that 90% of its regular customers preferred seats in the no smoking section (Gibbs, 1988). As a result, on 23 April, 1988, Northwest eliminated smoking on all its domestic flights (Konrad and Foust, 1988). When the vice-chairman of R.J. Reynolds saw a Northwest television commercial touting the plan and he realized that the advertising agency involved, Saatchi & Saatchi DFS, was also the agency for several R. J. Reynolds subsidiaries, he ordered the agency fired (Konrad and Foust, 1988).

Obviously, the potential for conflict in this situation is immense. Smokers, the tobacco industry, and civil libertarians will not sit by quietly and watch changes occur without being heard. The conflicts range from massive court battles to subtle hints. "Signs on office walls that used to smile THANK YOU FOR NOT SMOKING now growl IF YOU SMOKE, DON'T EXHALE" (Gibbs, 1988, p.65). The battle grounds are diverse including family homes, the work place, bars, and restaurants. Restaurants are a particularly sensitive spot as "some people can no more dine out without smoking than eat without chewing" (Gibbs, 1988, p.67). One Texan smoker, Kay Cohlmiia, heads the Great American Smokers Club (Baker, Cohen, Fragin, and Springen, 1988). "'This is a civil-rights movement,' says Cohlmiia, whose club offers members dog tags inscribed 'Since the government's treating you like

a dog, you might as well look like one'" (Baker et al., 1988, p.25).

Government Action

Public sentiment has prompted government action in some instances. Legislation restricting cigarette smoking is not new. Around 1900 some states banned cigarettes entirely, but the bans were short lived and by 1927 they were all repealed (Lacayo, 1988). The literature did not indicate that any person or group was trying to duplicate such restrictive legislation.

Policies or regulations restricting smoking have been established in various federal organizations including the General Services Administration (GSA), Veteran's Administration, Postal Service, Department of Defense (DoD), and the Federal Aviation Administration (FAA) (Crocker, 1987; "No Smoking", 1988; SPOHP, 1986). A recent FAA regulation is notably restrictive. As of April 30, 1988, passengers on domestic flights of two hours or less were not allowed to smoke throughout the flight ("No Smoking," 1988). Flights of two hours or less comprise approximately 80% of domestic flights ("No Smoking," 1988).

States and municipalities have enacted the majority of antismoking restrictions. Approximately 40 states and 200 to 300 municipalities have some type of laws restricting smoking (Baker et al., 1988; Gibbs, 1988; Williams, 1988). Minnesota passed the first "Clean Indoor Air Act" in 1975

(Baker et al., 1988). Maine limits locations for cigarette-vending machines to places where teenagers will not have easy access and Utah prohibits cigarette billboard advertisements (Gibbs, 1988). The most cited and controversial law is that of New York City. It may be the toughest in the nation. One provision of the law fines the business failing to enforce the rules, not the smoker (Baker et al., 1988). A first offense results in a \$100 fine with subsequent fines from \$200 to \$500 (Baker et al., 1988). The New York law requires half the tables in restaurants seating over 50 be in a nonsmoking section (Gibbs, 1988). The city of Beverly Hills attempted to outlaw smoking in eating establishments, but with restaurant owners complaining of 30% decreases in business, the city council changed the law allowing for smoking sections with special ventilation requirements (Gibbs, 1988).

Department of Defense Action And Related Studies

DoD Policies. The first DoD policy concerning smoking in the workplace was enacted in 1977 (SPOHP, 1986). It contained a specific ventilation requirement for offices shared by smokers and non-smokers (SPOHP, 1986). Overall, the purpose of the 1977 policy appears to have been a set of guidelines, and not directive in nature.

On 11 March 1986, the Secretary of Defense issued DoD Directive 1010.10 (Downey, 1988; SPOHP, 1986). It is the current DoD policy. This directive implements an all out

campaign against smoking in the DoD. It provides specific requirements to:

create a social environment that supports abstinence and discourages use of tobacco products, to create a healthy working environment, and to provide smokers with encouragement and professional assistance in quitting. (Downey, 1988, p.1)

These requirements have forced DoD organizations to reevaluate and modify their regulations pertaining to smoking in the workplace.

A major dilemma faced by the DoD is the issue of reduced prices for tobacco products in military exchanges and commissaries. At odds are the health promotion advocates and the forces concerned with the degradation of military benefits. Repeated legislative attempts to increase the current prices or ban the products from military shelves have had limited success, but it appears the attempts will continue (Schill, 1988).

Air Force Policy. Air Force Regulation 30-27, Smoking In Air Force Facilities (Appendix A), implements DoD Directive 1010.10. Provisions of the regulation indicate its seriousness. The regulation starts by advising that "major commands may adopt more restrictive supplements" (Downey, 1988, p.1). In addition, the regulation establishes non-smoking as the "organizational norm," as well as making unit and base commanders specifically responsible for implementation as well as conflict resolution (Downey, 1988, p.1). It further specifies "commanders will resolve conflicts, due to

the provisions of this regulation, in favor of the nonsmoker" (Downey, 1988, p.1).

At least one major command, Air Training Command (ATC) has adopted a more restrictive supplement to the regulation. While the Air Force regulation allows for smoking in some designated areas within buildings, the ATC supplement virtually restricts smoking to outside (Adams, 1988).

Besides a more restrictive regulation, the Air Force has also mounted an extensive anti-smoking campaign with a goal of 10% reductions in the number of smokers each year (Datko, 1988). Education programs related to smoking hazards have been introduced during initial training as well as continuing training programs for all Air Force personnel (Datko, 1988). A major survey effort is being conducted to determine the effectiveness of this campaign, the most recent of which was in 1988. The 1988 survey measured a multitude of tobacco related items including campaign awareness, smoking policy prevalence, smoking prevalence for both members and spouses, cessation attempts, desirability of cessation classes, and purchasing habits (Datko, 1988). The extent of the campaign is evident by the increase in members reporting knowledge of the campaign. The percentage increased from 29% in 1986 to 83% in 1988 (Datko, 1988). The percentage of members reporting they worked under a workplace smoking policy increased from 51% to 91% over the same period.

Smoking Prevalence In The DoD. One reason for the concern over smoking in the military is the higher incidence of smoking in the military compared to the civilian population. While both civilian and military surveys indicate decreased use, the military rates still far exceed the civilian. Smoking prevalence in the Air Force, however, is much closer to the civilian rate than is the DoD rate. A depiction of the percentages (by year) of the civilian, DoD, and Air Force populations which smoke is presented in Table 1. The difference between DoD and civilian smoking prevalence is apparent.

TABLE 1

Percentages of the Civilian, DoD, And Air Force
Populations Which Smoke By Year

<u>Population</u>	<u>1958</u>	<u>1967</u>	<u>1980</u>	<u>1982</u>	<u>1985</u>	<u>1986</u>	<u>1988</u>
Civilian	38 ^a	42 ^b	--	--	30 ^c	27 ^c	26 ^a
DoD	--	--	51 ^d	51 ^e	46 ^e	--	41 ^d
Air Force	--	--	--	--	39 ^f	31 ^f	28 ^f

(^aGibbs, 1988; ^bHamilton, 1987; ^cBaker et al., 1988; ^d"DoD," 1989; ^eMarsden, Bray, and Herbold 1988; ^fDatko, 1988)

Smoking Prevalence In The Air Force. Overall thus far, the Air Force has been able to meet its goal of 10% reductions in the number of smokers per year (Datko, 1988). Surveys indicate a 20.5% reduction from 1985 to 1986 and a 10.5% reduction from 1986 to 1988 (Datko, 1988). It is important to note that the goal is a 10% annual reduction in

the number of smokers, not in the percentage of smokers in the Air Force. As shown in Table 1, these reductions are not of a 10% magnitude. A disturbing trend is indicated by the results of the 1988 survey which may indicate the Air Force is down to its hard core smokers. While the 1985 to 1986 period indicated significant reductions of smokers in all ranks, the 1986 to 1988 period showed a marked reduction in progress in the ranks of senior airmen through technical sergeant (Datko, 1988). Members in these ranks comprise 49% of the force (Datko, 1988). The percentage of all enlisted members (airmen and noncommissioned officers) who smoke only fell from 34% to 32% over the 1986-1988 time period (Datko, 1988). One estimate of the percentage of blue collar workers who smoke is as high as 50% (Gibbs, 1988).

Service Related Literature On Smoking. While all of the services are concerned with smoking prevalence, the literature reflects other specific research topics related to smoking.

Efforts by the Navy revolve around determining if they recruit a higher number of smokers than the civilian norm, or if their personnel start smoking after entry into the Navy. Additionally, efforts have been made to determine the effects of smoking on fitness and the effects of smoking education on Navy recruits. This research effort is spearheaded by Terry A. Cronan at the Naval Health Research Center and includes several studies (Conway and Cronan,

1986; Cronan, Conway, and Kaszas, 1988; Cronan, Hervig, and Conway, 1987). The conclusion of Cronan and colleagues is that in fact, the Navy recruits a proportion of smokers similar to the civilian population, but a large number of them start smoking after they enter the Navy (Cronan et al., 1988). Using results of the Navy physical fitness test, as might be expected, Conway and Cronan (1986) conclude that Navy smokers are less fit, especially with regard to cardiovascular fitness. Cronan also concludes that smoking intervention education during basic training helps prevent recruits who have never smoked from starting, but has no effect on the rate of ex-smokers who start smoking again (Cronan et al., 1987). One earlier Navy study attempted to determine differing traits of smokers and non-smokers (Burr, 1983).

Air Force literature targets general health practices (including smoking) of military and civilian members (Allen, 1987; Hyde, 1986; Vogel, 1986). The Vogel (1986) study was conducted at the Air Force Logistics Command Headquarters (AFLC HQ) at Wright-Patterson AFB, Ohio while the Allen (1987) study at the Ogden Air Logistics Center (Ogden ALC), Hill AFB, Utah. Allen (1987) reported that military smoking rates within the AFLC HQ were higher than civilian (this would correlate with national figures), while Vogel (1986) indicated the opposite. This difference may have simply indicated regional or population age differences. Hyde

(1986) examined trends of Air Force captains at WPAFB, and concluded that smoking was decreasing in prevalence. One additional study described a proposed method to measure Air Force recruit smoking rates similar to the Navy efforts, but unfortunately, did not include any data gathering or subsequent data analysis (Fisher, 1985). The 1988 Air Force survey did, however, indicate that approximately 25% of the smokers in the Air Force started after they had entered the service (Datko, 1988).

One study by the Army had a particularly different direction. In an extensive literature review, Dyer (1986) examined the impact of smoking on the effectiveness of individuals involved in Army operations on the ground. The review addressed topics varying from position disclosure due to the glow of a cigarette, to the physical and mental impact on soldier performance as a result of smoking (Dyer, 1986).

Actions In The Private Sector

Some private businesses, realizing this change in employee attitude toward smoking in the work place, have initiated smoking policies. Some do not even hire smokers. These include Turner Broadcasting, Northern Life Insurance in Seattle, and U.S. Gypsum (Crocker, 1987; Gibbs, 1988). For the most part, however, it is only smaller companies that have such policies (Swart, 1988; Williams, 1988).

A particularly extensive survey on corporate smoking policies is described by Swart (1988). He describes six different corporate smoking policies on a continuum from most to least restrictive (Swart, 1988). His survey revealed that the most prevalent (39%) policy type was:

Smoking is prohibited in all areas in company buildings, with few exceptions. Smoking is permitted in the smoking section of the cafeteria (or room with a similar function in your company, if there is no cafeteria); and in private offices, which may be designated "smoking permitted" or "no smoking" by the occupant. (Swart, 1988, p.62)

His survey suggested that in the future, more companies would adopt policies, and strict policies would occur more often than today (Swart, 1988).

Company motivation for enactment of smoking policies varies. Reasons include employee complaints, concern about employee health, state and local laws, or simply management's dislike for smoke (Swart, 1988; Williams, 1988). The previously mentioned Venture survey (Williams, 1988) differed with the Personnel survey (Swart, 1988) regarding the most frequent motive. The Personnel survey concluded employee complaints were the top motivation, while in the Venture survey, personal dislike for smoke by management was the most likely inducement (Swart, 1988; Williams, 1988).

Legal Ramifications

The literature cited several major types of legal problems associated with smoking. One type was effort to overturn legislation and restrictions, while another was

litigation against the tobacco companies (Crocker, 1987; Koepp, 1988; Lacayo, 1988). Probably most important to managers is the potential for legal conflict between employees and employers. This includes situations where the employer does not have a policy for smoking in the work place, and nonsmokers want one, or instances where the employer attempts to implement a policy against the wishes of employees (Crocker, 1987; Lacayo, 1988).

Much confusion exists concerning legal guidance or precedent related to the establishment of policies governing smoking in the work place. Crocker (1987) covers the topic extensively. Citing Federal Employees for Non-Smokers' Rights v. United States, she concludes that OSHA (Occupational Safety and Health Administration) takes virtually no stance on the issue (Crocker, 1987). On the other hand, citing Shimp v. New Jersey Bell, she determines that the fact that OSHA gives no guidance does not preclude states from establishing some (Crocker, 1987). Crocker goes on to describe cases where nonsmokers have both done well and not so well in legal action (Crocker, 1987). She concludes:

Does an employer have a right or a responsibility to attempt to monitor an employee's personal life to prohibit the employee from smoking? Can an employer legally discriminate against smokers in selecting employees or deciding to continue the employment relationship? (Crocker, 1987, p.745)

The first, she answers no, and the second, a qualifying maybe (Crocker, 1987). The first answer she bases on indi-

vidual privacy and the second based on the fact that smokers are not a group specifically identified for protection by discrimination laws (Crocker, 1987). Although not yet tested, other discrimination aspects could become legal issues given the demographics of smokers and nonsmokers (Crocker, 1987; Gibbs, 1988; Lacayo, 1988).

Impact Of Smoking Policies

The literature search revealed five documented studies related to postimplementation of smoking policies. Two were controlled studies with data gathering at "baseline" (prior to implementation), one was uncontrolled with data gathering at baseline, and two were uncontrolled with no baseline data gathered (other than recall information) (Andrews, 1983; Biener et al., 1989b; DHHS, 1986; Petersen et al., 1988; Rigotti et al., 1986; Rosenstock, 1986). All were studies of health maintenance organizations except Petersen et al. (1988) which was of an insurance company. Only an abstract of preliminary information was available on the Rigotti et al. (1986) study. Contact with the author revealed that further work on that research effort had not been accomplished. No literature was found involving a military study, although mention was made of a smoking ban at the Madigan Army Medical Center, Tacoma WA. (SPOHP, 1986).

The authors of the 1986 Surgeon General's report included an extensive review of all of the aforementioned studies except Petersen et al. (1988) (DHHS, 1986). They

suggested that postimplementation studies should include research in air quality, approval/support, smoking behavior, attitudes (about smoking) and social norms, and policy enforcement/compliance (DHHS, 1986). The authors conclude that not enough research has been done in this area (DHHS, 1986).

They cautioned about conclusions from limited studies:

Uncontrolled one-time assessments done before or after policy adoption do not permit conclusions about the policy effects, although they may provide hypotheses for further work. Postimplementation surveys of a population can, however, provide useful information about the degree of policy approval, awareness, compliance, and enforcement. (DHHS, 1986)

The report was cautious about conclusions on smoking prevalence in the Andrews study which noted drastic reductions in smokers (Andrews, 1983; DHHS, 1986). This apparent reduction may have been due more to sampling differences with pre and post implementation surveys than actual reductions in the numbers of smokers (DHHS, 1986).

Methodological problems considered, the following conclusions were reached regarding postimplementation:

Smoking policies may have multiple effects. In addition to reducing environmental tobacco smoke exposure, they may alter smoking behavior and public attitudes about tobacco use. Over time, this may contribute to a reduction of smoking in the United States. To the present, there has been relatively little systematic evaluation of policies restricting smoking in public places or at the workplace.

On the basis of case reports and a small number of systematic studies, it appears that workplace smoking policies improve air quality, are met with good compliance, and are well accepted by both smokers and nonsmokers. Policies appear to be followed by a decrease in smokers' cigarette consumption at work and an increase in enrollment in company-sponsored smoking cessation programs. (DHHS, 1986, p.324)

The authors offered several explanations for the unexpectedly favorable support for policies by smokers including the assurance of smoking rights by having a written policy, the anticipated help a policy could provide for cessation attempts, and health concerns (DHHS, 1986). They also determined there is no evidence that policies will decrease smoking prevalence or increase cessation attempts (DHHS, 1986).

Studies to date indicate widespread approval of smoking policies after implementation for smokers as well as nonsmokers. Although the various studies sampled respondents at varying time intervals after policy implementation, a comparison of approval rates seems fairly consistent (see Table 2). The one exception is the Rosenstock study. The lower support rate among smokers in this study seems to stem from poor communication and implementation of the policy (Rosenstock, 1986). Petersen et al. (1988) did not ask any survey questions directly related to policy approval or support. Although no literature specifically examined a military organization's reaction to a particular policy, the

TABLE 2
Policy Approval/Support Rates By Study

<u>Study</u>	<u>Percent Smokers</u>	<u>Percent Ex And Nonsmokers</u>	<u>Percent Overall</u>
Andrews (1983)	83	93	88 ^a
Biener et al. (1989b)	69	89	87 ^a
Petersen et al. (1988)	--	--	--
Rigotti et al. (1986)	--	--	86
Rosenstock (1986)	36	93 ^a	85

^aEstimate by this author based on data reported.

Note: Figures are expressed as percentages of respondents by group. No data was available for Petersen et al. (1988) and part of Rigotti et al. (1986).

previously mentioned USAF surveys indicated a large decrease in the number of personnel definitely desiring increased smoking restrictions. From 1986 to 1988 the percentage fell from 58% to 19% (Datko, 1988). Over the same period, the percentage agreeing with the provisions of the current Air Force regulation on smoking rose slightly from 61% to 64% (Datko, 1988).

Following implementation of a restrictive smoking policy, cigarette consumption at work might be expected to decrease, hopefully with no compensatory increased smoking during breaks or at home. The available data indicate that indeed decreased smoking at work may occur (see Table 3). These numbers must be evaluated with caution however, as in at least one study, the control group also had decreases

indicating that the policy may not have been the only cause (Biener et al., 1989b). While Andrews (1983) did not indicate specific consumption numbers, 33 percent of the smokers indicated they were smoking less 20 months after policy implementation.

TABLE 3

Cigarette Consumption Rates At Work By Study

<u>Study</u>	<u>Baseline</u>	<u>1Mo</u>	<u>3Mo</u>	<u>4Mo</u>	<u>6Mo</u>	<u>12Mo</u>
Biener et al. (1989b)	8.4	4.5	--	--	3.5	4.5
Petersen et al. (1988)	19.8 ^a	--	13.4 ^a	--	--	--
Rigotti et al. (1986)	5.0	--	--	--	--	2.7
Rosenstock (1986)	17.6	--	--	15.6	--	--

^aEstimate by this author based on number of packs x 20 cigarettes per pack.

Note: Figures indicate cigarettes consumed per workday.

Studies thus far are inconclusive about whether or not compensatory smoking occurs (Biener et al., 1989b; DHHS, 1986; Rigotti et al., 1986; Rosenstock, 1986). While Rigotti et al. (1986) reported decreased consumption at work, the researchers concluded no significant change in total daily consumption which would indicate some compensatory smoking. Of interest however, was the slight increase in total daily consumption changing from 13.5 to 14.6 cigarettes (Rigotti et al., 1986). These numbers not only indicate that compensatory smoking may have occurred, but that for some reason, smoking increased slightly above what might be expected for

mere compensation. Biener et al. (1989b) reported a disturbing trend at the twelve month point indicating that smokers may have started compensating for the inconvenience by finding ways to increase their smoking at work. Rosenstock (1986) indicated no evidence of compensatory smoking.

While some might speculate there would be a drastic decrease in smoking prevalence, only the Andrews study indicated such as a result of policy implementation and it probably should be interpreted with caution due to the previously mentioned flaws (Andrews, 1983; DHHS, 1986). All other studies indicated only minor changes in smoking prevalence (Biener et al., 1989b; Petersen et al., 1988; Rigotti et al., 1986; Rosenstock, 1986). Conclusions were also inconsistent on a policy's impact on the prevalence of quitting attempts.

Conclusion

The major shift in public attitude toward smoking, especially in public and in the work place, is a phenomenon that will affect both Air Force and civilian managers now and in the near future. Managers will have to determine if changes are necessary in their work place, and if so, the best way to implement them. This chapter began by reviewing some of the studies related to environmental tobacco smoke. It continued with a description of the magnitude of the change in public attitude toward smoking, and the resulting forms of legislation and regulation. It then reviewed

current DoD and corporate policies related to smoking, and some of the legal implications that managers might consider. Finally, the effects of implementing a smoking policy were discussed. With a review of current literature related to this topic complete, the next chapter describes the method used in conducting this research effort.

III. Method

Background

The medical center management was primarily interested in change as a result of the policy. Their primary interests were in changes in smoking behavior as well as attitudes toward the policy. Investigation of organizational behavior was added to the study to make it a more complete evaluation of the policy's impact. Additionally, this area had apparently not been evaluated in previous studies.

The ideal research effort would have included data collection both prior to (baseline) and after implementation of the policy. Unfortunately, no data collection was accomplished prior to the policy implementation (1 July 1988), and so in that respect the research is limited. No early data collection was accomplished because the research effort was not conceived until after the policy became effective.

The Survey Instrument

Survey response was completely optional. Survey responses were completely anonymous and no attempts were made to identify respondents or nonrespondents. Survey responses were made on a standardized computer form, AFIT Form 11C, to facilitate scoring by computer.

Survey Questions. Emory states "survey instruments normally include three types of information:" administrative, classification/analysis, and sought data (Emory, 1985,

p.207)). The administrative information for this survey instrument (Appendix B) is included in the cover letter signed by the medical center commander. It identifies and endorses the nature of the research and the researchers. The letter also promises dissemination of results and identifies a specific point of contact for respondents with questions. This promised dissemination of information was accomplished with an article in the base newspaper describing initial results. In addition, initial results were briefed to the medical center staff and made available for interested employees. Following the cover letter is a cover page, followed by a page with brief instructions. The survey consists of 59 questions.

The classification and analysis questions make up the first section of the survey labeled Part I: Demographic Information. This section simply attempts to classify respondents according to various groups of interest within the medical center.

Part II, Attitudinal Information makes up the majority of the questions of interest applicable to all respondents. Responses are based on a seven point Likert scale, with responses ranging from strongly disagree to strongly agree. The sequence of questions attempts to go from simpler to more thought provoking. Some questions are asked in different forms more than once to aid in reliability verification. Two questions, numbers 18 and 43 are related to Part I

(Demographic Information), but were felt to be better answered with a scaled response. While a few of the questions are exploratory in nature, most are directly related to the investigative questions from chapter one. Variables isolated in this section include attitudes toward: smoking in general, second hand smoke, policy adherence and enforcement, job satisfaction, and effectiveness on the job.

Parts III and IV are multiple choice questions to determine smoking habits of smokers and ex-smokers respectively. These questions address cigarette consumption and the policy's effect on consumption. An attempt is also made to determine cigarette consumption of the respondent prior to the policy implementation. Results of these recall questions should be interpreted with caution as research indicates the poor ability of respondents' recall (Emory, 1985). In addition to consumption, smoking break patterns are addressed as well as attempts to quit.

Part V of the survey is a comment sheet for any miscellaneous comments.

Survey Validity. The survey was designed primarily by Lieutenant Colonel John Ballard, Ph. D., Assistant Professor of Management and Organizational Science at the Air Force Institute of Technology's School of Systems and Logistics. Colonel Ballard is a recognized consultant on survey design and administration and former director of the Air Force's survey program. Contributions to survey design were also

received from Major Ken Olive, M. D., an internal medicine physician as well as this author. No questions from previously administered surveys were used exactly as worded, but survey design relied heavily on surveys and survey response summaries from the literature (Andrews, 1983; Becker, Myers, Sacci, Weida, Swank, Levine, and Pearson, 1986; Biener et al., 1989b; Lahey, undated; New England, undated; Petersen et al., 1988; Questionnaire, undated; Rigotti et al., 1986; Rosenstock, 1986).

In a small pretest, five survey drafts were administered to various medical center employees to verify understandability of the instrument. The five were chosen to specifically represent various groups within the employee population including the medical center commander. No severe difficulties were noted regarding understanding of the instrument, or its directions. One modification was made to a demographic question (#8) to provide more suitable responses.

Population

Surveys were sent to the entire population (over 1600) of medical center employees, including civilian and military workers, as well as Red Cross Volunteers. Employees had surveys addressed directly to them at their clinic locations. The employee list came from a November, 1988 computer output. The volunteer list came from the October, 1988 Red Cross volunteer roster. Surveys were not sent to volun-

teers listed on the roster as on a leave of absence, nor were they sent to volunteer registered nurses who averaged one day of work per month or less, since the likelihood of a response would be minimal and the policy would have little effect on them.

Data Collection

The survey was sent to medical center employees from the medical center mail room via distribution on 5 December, 1988. The specified return date on the survey was 15 December. Surveys were returned to Major Olive at the medical center via medical center distribution in pre-addressed envelopes included with the surveys.

In January, 1989 the returned computer sheets were scored using an automatic scanner. A total of 934 completed answer sheets were read. The scores were accumulated in a computer file and transferred directly to a VAX-11/785 mini computer.

Statistical Analyses

Statistical analyses were accomplished using SPSS^X (Statistical Package For The Social Sciences) software (SPSS^X, 1986). Initial analyses were accomplished using the Condescriptive, Frequencies, Breakdown, and Pearson Correlation procedures (SPSS^X, 1986).

IV. Results

Introduction

This chapter presents study results. Actual data used is included in Appendix C and a basic description of survey item response frequencies is shown in Appendix D. Chapter IV begins with findings concerning survey response rate and proceeds with the evidence of the policy's change on smoking behavior. From there the chapter continues with an analysis of attitudes toward the smoking policy and finally, the policy's impact on organizational behavior.

Survey Response

A total of 934 survey responses were received out of the 1613 originally sent out for an overall response rate of 57.9%. Of the 934 responses, 46 were excluded from the analysis for a total of 888 "usable" responses. One was excluded due to the apparent invalid nature of the response (the respondent marked a value of 4 for all responses after item 16). Six responses were excluded due to the admission of questionable truthfulness in responding (disagreed with item 45, "responded as they really felt"). Another 39 were excluded for failing to answer item 45 since the truthfulness of these respondents' answers would also be questionable.

With a response rate of only 57.9%, there was concern that some demographic groups might be under or over repre-

sented and therefore the survey response might not be representative of the medical center population. Analyses were accomplished to determine how representative the respondents were of the hospital population. The medical center computer data bank had employee information on positions, grades, full/part-time status, and sex. Information on employee age was available only for military personnel. Data in Appendix E compares population and respondent percentages for various demographic breakdowns. Percentages not totaling 100 are due to rounding error. The comparisons indicate that the respondents were a good representation of the medical center population.

Smoking Behavior

Smoking Prevalence. Of the 885 respondents answering question 13 regarding current smoking status, 191 indicated they were cigarette smokers while another 12 indicated they considered themselves pipe or cigar smokers. Table 4 depicts the breakdown of smokers and nonsmokers by military, civilian, and all respondents.

Of the 212 ex-smokers answering how long it had been since they quit, 22 (10.4%) indicated they quit within the last six months (the approximate time the policy had been in effect). Twelve respondents (5.7%) indicated they had quit during the six month period prior to policy implementation during which the policy implementation plans were announced (see Table 5). Of the 205 respondents answering why they

quit, only two claimed the hospital policy as the primary reason.

TABLE 4

Respondent Smoker Prevalence

<u>Category</u>	<u>Percent Military Respondents</u>	<u>Percent Civilian Respondents</u>	<u>Percent All Respondents</u>
Smokers	21.3	25.9	23.9
Nonsmokers	55.8	43.1	51.1
Ex-smokers	22.8	31.0	25.0

TABLE 5

Time Since Ex-Smokers Quit Smoking

<u>Time</u>	<u>Frequency</u>	<u>Percent</u>
Less than 6 months	22	10.4
6 months - 1 year	12	5.7

Note: N = 212.

Cigarette Consumption At Work. Calculations of cigarette consumption were accomplished by assigning midpoint values to each cigarette consumption range corresponding to a response. This was done with items 47 and 55, self-report measures of smoking at work now and smoking at work six months ago. Values were assigned as follows: 0 to 10 = 5, 11 to 20 = 15, 21 to 30 = 25, 31 to 40 = 35, and 41 or more = 45. Total consumption numbers may be slightly low given

the last value assignment if there are a significant number of heavy smokers who smoke more than 50 cigarettes per day.

Using these values, a change was computed for each respondent, and a mean was determined for all respondents. Respondents failing to answer a necessary question for the calculation were not included in the computations. Mean cigarette consumption at work before policy implementation was reported as 8.58 cigarettes per workday; six months after policy, 6.62 ($t = 5.15$, $p < .001$). This indicates an average reported daily decrease of 1.96 cigarettes per day at work.

Subjective reporting by each smoker (item 54) also indicated a perceived decrease in the amount of cigarettes smoked at work. 56% reported smoking less, 31% reported no change, 7% reported smoking more, and 6% reported they quit smoking while at work.

Daily Cigarette Consumption. Changes in daily cigarette consumption, computed using items 48 and 56, were significant. Calculations were accomplished using the same method as in the previous section. Cigarette smokers reported an average of 18.5 cigarettes smoked daily before the policy and 16.4 after policy implementation ($t = 4.37$, $p < .001$).

Attitudes Toward Smoking Policy

This section and the following section on organizational behavior report results using multiple-item scales, that

is, additive scales created by grouping various response items into logical groups to summarize the responses. Items to be included in the scales were determined by analyzing correlations between the individual items and various combinations of those items making up possible scales, as well as the reliability of the scale as indicated by the Cronbach's alpha value.

Scale values were computed by adding the Likert scale response values (1-7) and dividing by the number of items included in the scale. Response values for negatively correlated items were transformed, i.e. 1 = 7, 2 = 6, etc., to provide consistency within the scales. Values approaching 7 indicate strong agreement, while values approaching 1 indicate strong disagreement.

Comparisons of different demographic groups were made via t-tests. All p values indicate two tailed tests computed using a conservative separate variance estimate. For comparisons involving smokers and nonsmokers, "nonsmokers" includes ex-smokers as well as nonsmokers as defined in Chapter II. In some cases, comparisons were made between supervisors and non-supervisors based on responses to question 11. For these comparisons a dichotomous breakdown was established such that supervisors were considered as those who supervised six or more. Group comparisons were also made based on the responses of two Likert scale items, questions 18 and 43. These items were related to the re-

spondents' frequency of exposure to illness and disease (item 18) and patients (item 43). To create two groups for comparison for each item, responses were collapsed to reflect simple agreement or disagreement. Respondents answering no opinion for these items were not considered for the related comparisons.

Perceived Harmfulness Of Smoke. Over 84% of the respondents agreed with item 36, one need not actually smoke to be harmed by it. A perceived harmfulness of smoke scale was constructed using questions 22, 27, and 36. Item 36 was deleted from the scale to achieve a two item scale alpha value of .712. The scale mean value of 6.48 further substantiated respondent agreement with the idea that smoking is harmful.

Smokers and nonsmokers differed as to perceived harmfulness of smoking ($\bar{x}_s = 5.67$, $\bar{x}_{ns} = 6.73$, $t = 11.6$, $p < .001$), with smokers perceiving less harm. A similar difference was also perceived by those whose spouses smoked versus those whose spouses did not ($t = 4.16$, $p < .001$).

Respondents reporting frequent involvement with patients thought smoking was more harmful ($\bar{x}_{inv} = 6.54$) than those who reported little patient involvement ($\bar{x}_{n-inv} = 6.38$, $t = 2.22$, $p = .027$). Respondents reporting frequent exposure to illness and disease did not differ significantly in perceived smoking harmfulness from those reporting little exposure ($t = 1.45$, $p = .149$).

Policy Awareness. Nearly 85% of the respondents felt the policy was adequately publicized (item 17), but only 69.4% felt it was adequately publicized for patients and visitors (item 32). A two item scale using these items resulted in a mean value of 5.50 ($\alpha = .667$). Smokers and nonsmokers did not significantly differ in responses related to this area ($p = .065$).

Policy Approval And Support. Respondents generally approved of the policy with a mean value of 5.20 for a seven item scale with an alpha value of .905. Eight items were considered for the scale (16, 20, 23, 30, 37, 40, 41, and 44), with item 30 being deleted to improve reliability. Table 6 depicts the item correlation matrix for the constructed scale items.

TABLE 6

Correlation Matrix For Approval/Support Scale Items

Item	Scale	16	20	23	37	40	41	44
Scale	1.0							
16	.88	1.0						
20	.78	.62	1.0					
23	.82	.68	.61	1.0				
37	.78	.68	.51	.59	1.0			
40	.77	.63	.60	.56	.54	1.0		
41	.78	.63	.53	.59	.53	.49	1.0	
44	.80	.69	.52	.58	.62	.56	.55	1.0

Smokers and nonsmokers differed significantly on policy approval/support ($\bar{x}_s = 3.34$, $\bar{x}_{ns} = 5.76$, $t = 21.42$, $p < .001$), with smokers indicating disagreement with the idea that the policy was appropriate.

Supervisors and non-supervisors differed in their perceptions related to appropriateness of the policy ($\bar{x}_{sup} = 5.42$, $\bar{x}_{n-sup} = 5.15$, $t = 2.08$, $p = .038$), with supervisors showing greater approval/support. Approval/support rates were also significantly higher for physicians versus non-physicians ($\bar{x}_{phy} = 6.14$, $\bar{x}_{n-phy} = 5.07$, $t = 10.5$, $p < .001$), employees routinely seeing illness and disease versus those not often exposed ($\bar{x}_{exp} = 5.33$, $\bar{x}_{n-exp} = 4.88$, $t = 3.19$, $p = .002$), and those regularly involved with patients versus those with other duties ($\bar{x}_{inv} = 5.34$, $\bar{x}_{n-inv} = 4.88$, $t = 3.52$, $p < .001$).

Policy Compliance And Enforcement. Three survey items, 21, 26, and 38 were related to policy compliance and enforcement. Questions 21 and 38 were reversed in meaning for this analysis to provide consistency of meaning.

Question 26 asked the respondent to agree or disagree with the statement that he had not observed violations of the policy. Overall agreement with this occurred with a mean of 4.78. Smokers and nonsmokers, as well as supervisors and non-supervisors had insignificant differences responding to this item ($p = .115$, $p = .609$).

Items 21 and 38 dealt with agreement that the policy was enforced in the respondent's work area, and enforcement in general. Responses to both items indicated agreement that the policy was being enforced although it was perceived as more strictly enforced in respondents' work areas ($\bar{x} = 6.19$) than in the medical center in general ($\bar{x} = 5.21$). For both questions smokers perceived greater enforcement than nonsmokers (question 21: $\bar{x}_s = 6.40$, $\bar{x}_{ns} = 6.13$, $t = 2.20$, $p = .028$, question 38: $\bar{x}_s = 5.46$, $\bar{x}_{ns} = 5.13$, $t = 2.74$, $p = .007$). Supervisors also perceived greater enforcement than non-supervisors (question 21: $\bar{x}_{sup} = 6.46$, $\bar{x}_{n-sup} = 6.13$, $t = 2.81$, $p = .005$, question 38: $\bar{x}_{sup} = 5.51$, $\bar{x}_{n-sup} = 5.14$, $t = 3.16$, $p = .002$).

Organizational Behavior

It was assumed that the policy should impact certain organization behaviors. This section starts by taking a look at organizational commitment and job satisfaction. From there, it describes the results of the items related to smoker networking during breaks. Finally, it analyzes perceived productivity changes as a result of the policy and smoking break patterns that have evolved since policy implementation.

Organizational Commitment. A four item scale representing organizational commitment had a mean value of 4.72 with large values indicating high commitment ($\alpha = .779$). Items used for the scale included 29, 34, 35, and 39. No

attempt was made to use recall information to determine commitment levels prior to policy implementation. Scale values differed between smokers and nonsmokers ($\bar{x}_s = 4.21$, $\bar{x}_{ns} = 4.88$, $t = 5.55$, $p < .001$), and supervisors and non-supervisors ($\bar{x}_{sup} = 5.02$, $\bar{x}_{n-sup} = 4.64$, $t = 3.13$, $p = .002$), with higher organizational commitment reported by both nonsmokers and supervisors.

Job Satisfaction. Over 75% of the respondents agreed that they were generally satisfied with their job (item 25), while 83.1% reported they were satisfied with their work (item 42). Respondents reported a mean scale value of 5.18 for a three item scale with greater values indicating higher job satisfaction ($\alpha = .772$). The scale included questions 25, 34, and 42. Question 34 dealt with thoughts of quitting.

Smokers and nonsmokers did not differ significantly on reported job satisfaction ($p = .255$). Supervisors and non-supervisors however, did differ ($\bar{x}_{sup} = 5.38$, $\bar{x}_{n-sup} = 5.12$, $t = 2.09$, $p = .037$), with supervisors reporting greater job satisfaction.

Smoker Networking. As a result of the new policy, it was thought that smokers would make new acquaintances at the smoking break areas. This might result in productive networking throughout the medical center. Question 28 asked all respondents to agree or disagree with whether smokers developed new relationships during breaks while question 52

asked only smokers what kind of acquaintances (none, social, or work) they had made during breaks.

Responses to question 28 indicated slight agreement with the idea that smokers made new acquaintances during breaks with a mean value of 4.63. Smokers differed with nonsmokers indicating greater agreement with the idea that new relationships were being established during breaks ($\bar{x}_s = 4.90$, $\bar{x}_{ns} = 4.56$, $t = 2.52$, $p = .012$).

Responses to question 52 indicated that 46% of the smokers felt that no new relationships were made, 8% felt new social relationships were made, and another 8% felt that relationships useful to work were made. 32% of the smokers felt that new relationships were made which were both useful to work and also of social value.

Break Patterns. As perhaps the most obvious impact on productivity, three questions, 49, 50, and 51, were asked of smokers regarding smoking breaks. These questions related to number of breaks daily, enroute time to a break area, and length of breaks. Results of these items are depicted in Tables 7 through 9. These tables reflect responses from all smokers (including pipe and cigar smokers), regardless of whether or not they were at the medical center prior to policy implementation.

Over 62% of the respondents reported taking two to four breaks a day. The relatively large number of responses (25) reporting no breaks per day seems to indicate an inconsist-

ency in reporting. As reported earlier, of the cigarette smokers who were working at the medical center prior to policy implementation, only 11 reported quitting while at work on question 54. Evaluating question 49 responses of the same cigarette smokers, 21 report taking no breaks. This discrepancy may indicate regular policy violations, or merely an inconsistency in reporting.

Using responses from questions 49, 50, and 51, an average time lost per smoker was computed of 49.5 minutes daily as a result of smoking breaks. Responses were used only from smokers answering all three questions. Responses were not used if the respondent answered "don't know" for either 50 or 51 resulting in 174 valid computations. Values of zero were used for smokers reporting no breaks and were included in the calculation of the mean. Midpoint time values were assigned to represent each response time range value. Values of 12.5 and 17.5 were used for responses of over 10 and 15 minutes respectively.

TABLE 7

One Way Enroute Time To Break Area

<u>Time</u>	<u>Number Of Responses</u>	<u>Percent</u>
Less than 5 minutes	141	71.9
5 to 10 minutes	40	20.4
Over 10 minutes	3	1.5
Don't know	12	6.1

Note: N = 196.

TABLE 8

Number Of Daily Smoking Breaks

<u>Number Of Breaks</u>	<u>Frequency</u>	<u>Percent</u>
1	10	5.2
2	42	21.6
3	35	18.0
4	44	22.7
5	12	6.2
6	8	4.1
7	8	4.1
8	8	4.1
9 or more	2	1.0
None	25	12.9

Note: N = 194.

TABLE 9

Average Break Time Length

<u>Time</u>	<u>Number Of Responses</u>	<u>Percent</u>
Less than 5 minutes	62	32.5
5 to 10 minutes	86	45.0
11 to 15 minutes	25	13.1
More than 15 minutes	6	3.1
Don't know	12	6.3

Note: N = 191.

Perceptions Of Productivity Decrease. Over 70% of the respondents agreed that productivity suffers because of

frequent smoking breaks (item 31). Smokers and nonsmokers differed significantly on responses to this item ($\bar{x}_s = 4.13$, $\bar{x}_{ns} = 5.44$, $t = 8.18$, $p < .001$), with smokers indicating less perceived decrease. Supervisors and non-supervisors did not differ significantly in response to this item ($p = .953$).

A two item mean scale value of 4.13 also indicated slight agreement that there had been a decrease in productivity ($\alpha = .552$). Three items, 19, 31, and 33 were considered for the scale. Item 31 was deleted to achieve higher reliability. Questions 19 and 33 dealt with how difficult it was for a smoker to work at his best without a cigarette and the idea that much time was lost as a result of smokers not being able to smoke while working. Smokers differed in response with nonsmokers ($\bar{x}_s = 4.98$, $\bar{x}_{ns} = 3.37$, $t = 8.81$, $p < .001$), with nonsmokers disagreeing slightly. Supervisors and non-supervisors did not differ with respect to this scale ($p = .612$).

V. Discussion

Introduction

This chapter discusses the significance of the findings presented in Chapter IV and how these findings compared with those of previous studies. Some conclusions are drawn, and recommendations for further research are made. This chapter follows the same format as the previous chapter analyzing survey response, smoking behavior, attitudes toward the smoking policy, and finally, organizational behavior.

Survey Response

As suggested in Chapter IV, the analyses indicated the respondents were a good representation of the medical center population. Of the previous studies, only Biener et al. (1989b) reported information related to demographic representativeness. Biener et al. reported respondents "were virtually identical" to the population with relation to sex and occupational status (Biener et al., 1989b, p.193).

Table 10 shows study characteristics of this study and previous studies. With respect to percentage of the total population surveyed, this study achieved the most representation to date. Moreover, this study was based more soundly on accepted survey methodology. For example, Petersen et al. (1988) collected surveys at lunch time in a cafeteria. Both Biener et al. (1989b) and Rigotti et al. (1986) employed small samples. Furthermore Biener et al. (1989b)

used telephone surveys which have limited validity in obtaining responses to sensitive data. Thus this study significantly advances the research in this area.

TABLE 10
Survey Size By Study

<u>Study</u>	<u>Population Size</u>	<u>Sample Size</u>	<u># Surveys Returned</u>	<u>Percent Response Rate</u>	<u>Percent Of Population</u>
Andrews (1983)	2700	--	965	--	35.7
Biener et al. (1989b)	1400	85 ^a	60	71	4.3
Kain (1989)	1613	1613	934	58	57.9
Petersen et al. (1988)	2137	1501	1210	81	56.6
Rigotti et al. (1986)	--	93	85	91	--
Rosenstock (1986)	6000	687 ^b	447	65	7.4

^a85 surveys were solicited based on a random cross sectional sample (Biener et al., 1989b).

^b687 surveys were solicited based on a systemic probability sample (Rosenstock, 1986).

Note: Portions of the data were not available for Andrews (1983) and Rigotti et al. (1986).

Smoking Behavior

Smoking Prevalence. The medical center's percentage of employees that smoke (24%) was below the Air Force 1989 percentage (28%) (Datko, 1988). This is explained in part by the large proportion of officer versus enlisted employ-

ees. Additionally, one would suspect workers involved with health care might practice healthy lifestyles.

While it might seem logical that a strict workplace smoking policy would have an impact on smoking prevalence, previous studies, as described in Chapter 2, have determined relatively small changes. A policy's impact on smoking prevalence as well as consumption would probably vary considerably, depending on the policy's "restrictiveness, amount of forewarning, [and] degree of enforcement" (Biener, Abrams, Emmons, and Follick, p.5, 1989a). Table 11 gives the numbers of smokers who reported quitting after policy implementation by study. As was the case with this study, where only two respondents reported the policy as their primary reason for quitting, Andrews (1983) also reported

TABLE 11

Smokers Quitting After Implementation By Study

<u>Study</u>	<u>Number Quitting</u>	<u># Smokers At Baseline</u>	<u>Percent</u>
Andrews (1983)	87	335 ^a	9.0
Biener et al. (1989b)	2 ^a	28	7.0
Kain (1989)	22	225 ^a	9.8
Petersen et al. (1988)	19 ^a	284 ^a	6.7
Rigotti et al. (1986)	--	--	--
Rosenstock (1986)	3	70 ^a	4.3

^aEstimate by this author based on data reported.

Note: No change was reported by Rigotti et al. (1986).

few recent ex-smokers as citing policy as their major reason for quitting.

It would appear from the data to date, that appreciable decreases in smoking prevalence should not be one of the anticipated results of implementing a strict nonsmoking policy.

Cigarette Consumption. Previous studies addressed in Chapter 2 concluded that restrictive smoking policies in the workplace decrease cigarette consumption at work. Of the four studies addressing the issue, average daily decreases ranged from 2 to 6.4 cigarettes per day, depending on which study and how long after policy implementation the survey was made (Biener et al., 1989b; Petersen et al., 1983; Rigotti et al., 1986; Rosenstock, 1986). Results of this study also confirm a decreased consumption of 1.96 cigarettes per workday. Table 12 shows how the results of this study compared with those of previous studies.

A major concern while analyzing cigarette consumption at work is whether or not compensatory smoking occurs off the job. This can be evaluated by determining changes in the total daily consumption rate and comparing them with changes in consumption at work. Results from this study give no indication of compensatory smoking off the job. In fact, the policy may have contributed to not only less consumption on the job, but also slightly less off the job. Average total daily decrease in consumption was 2.13 when

TABLE 12

Cigarette Consumption Rate At Work Comparison

<u>Study</u>	<u>Baseline</u>	<u>1Mo</u>	<u>3Mo</u>	<u>4Mo</u>	<u>6Mo</u>	<u>12Mo</u>
Biener et al. (1989b)	8.4	4.5	--	--	3.5	4.5
Kain (1989)	8.6	--	--	--	6.6	--
Petersen et al. (1988)	19.8 ^a	--	13.4 ^a	--	--	--
Rigotti et al. (1986)	5.0	--	--	--	--	2.7
Rosenstock (1986)	17.6	--	--	15.6	--	--

^aEstimate by this author based on number of packs x 20 cigarettes per pack.

Note: Numbers indicate cigarettes consumed per workday.

computed with a difference determined for each respondent. This is slightly greater than the average daily decrease at work (1.96) indicating that the smoking pattern changes at work may have carried over slightly off the job.

As reported in Chapter II, past study results related to compensatory smoking are inconclusive. More research will have to be conducted at longer and perhaps more consistent intervals after policy implementation before significant conclusions can be drawn.

Attitudes Toward Smoking Policy

Perceived Harmfulness Of Smoke. Studies reviewed in Chapter II did not address this issue. More study would be required to include data collection at baseline, to determine if the implementation of policies impacts these perceptions. It seems quite understandable however, that smokers

would perceive less harm from smoking than nonsmokers. Certainly, smokers would use this as one rationalization mechanism for a practice which most consider hazardous.

Policy Awareness. Without adequate publicity, no policy can be expected to be effective. Results of this study seem to indicate employees generally felt there was adequate notice of the policy for themselves, but that there could be more for patients and visitors.

Policy Approval And Support. A particular concern of management following implementation of a restrictive smoking policy should be the approval and support of the policy. Support from both nonsmokers and smokers facilitates a smooth policy transition in organizations which have significant numbers of smokers.

As might be expected, smokers in this study approved of the policy less than nonsmokers. This is logical since in most cases, smokers probably have the most to lose following implementation of a policy. Using scale values of greater than four as indicating policy approval, Table 13 compares results of this study with previous studies. This survey response indicates an exceptionally low support rate by smokers as well as the lowest rate of overall support for all studies to date. This result could be interpreted in various ways. One confounding problem is the fact that the methods for determining "approval" for each study were different. Another problem is the fact that each policy is

TABLE 13

Policy Approval/Support Rate Comparison

<u>Study</u>	<u>Percent Smokers</u>	<u>Percent Ex And Nonsmokers</u>	<u>Percent Overall</u>
Andrews (1983)	83	93	88 ^a
Biener et al. (1989b)	69	89	87 ^a
Kain (1989)	31	89	76
Petersen et al. (1988)	--	--	--
Rigotti et al. (1986)	--	--	86
Rosenstock (1986)	36	93 ^a	85

^aEstimate by this author based on data reported.

Note: Figures expressed as percentages of respondents by group. Petersen et al. (1988) did not ask any related questions. Portions of the data were not available for Rigotti et al. (1986).

different in its restrictiveness. The policy in this study was the most restrictive in nature of all studied to date. In most other cases, smoking was allowed in designated areas within the facility. The restrictiveness of this particular policy certainly would explain to some extent the lower approval rate. Further studies should examine correlations between approval rates and restrictiveness of policies. Another possibility, however, is that the implementation of the policy was not carried out well. This was one possible explanation given for the low approval rate of smokers in the Rosenstock (1986) study where employees apparently mistakenly believed that the policy was not necessarily permanent.

Other demographic groups besides smokers and nonsmokers reported significant differences in support. Those reporting greater support included individuals whose spouses did not smoke, supervisors, physicians, and employees routinely involved with patients, illness and disease. One factor determining these differences is certainly the prevalence of smokers in one of the two dichotomous groups. For example, the higher frequency of smoking spouses among respondents who smoke (33%) versus nonsmoking respondents (10.9%) is probably a likely explanation in part for the differences in support among those groups. Another explanation for these differences is the relative dedication to the mission of healing these groups may have. For example, it might be assumed that since a physician has spent considerable time and effort in his training, he may be more committed to healing and therefore a policy promoting health such as a nonsmoking policy, than a non-physician.

Policy Compliance And Enforcement. Comparisons with previous studies in this area are difficult due to the diversity of measurement methods used. Andrews (1983) described overall good compliance, but this report seems to be a subjective assessment by management. Biener et al. (1989b) used respondents' reports of being bothered by smoke after policy implementation as a measure of air quality, but this could also be construed as a measure of compliance. Rigotti et al. (1986) used self-reported and observed viola-

tions, and air quality as measures of compliance, but little information was available as no extensive documents related to that study have been published.

Results of this study seem to indicate adequate compliance and enforcement. Interestingly, smokers and supervisors perceived more stringent enforcement than nonsmokers and non-supervisors. The first instance might be a result of the possibility of smokers considering the policy as being targeted toward them. As such, it is more likely to be in the forefront of the thoughts of smokers rather than nonsmokers. The fact that respondents perceived greater enforcement in their own work areas than in the medical center in general is interesting. This may simply be a case of lack of involvement in other work areas, or a simple case of "the other man's grass appearing greener."

Organizational Behavior

Organizational Commitment And Job Satisfaction. The higher self-reported organizational commitment of nonsmokers and supervisors may be unrelated to policy implementation. These two comparisons also certainly reflect the higher proportion of nonsmokers among supervisory personnel. One would certainly expect, if supervisors are selected based on ability and previous accomplishments, that supervisors would have greater commitment to the organization and its goals. This might very well occur regardless of the existence of a smoking policy.

No related baseline data was collected in the area of organizational commitment. Future studies should attempt to collect baseline data so that postimplementation comparisons can be made to see if policy implementation seems to affect these perceptions.

It is interesting to note that reported job satisfaction did not differ significantly between smokers and nonsmokers. Although smokers generally approved less of the policy, the policy apparently had little to no impact on their job satisfaction levels compared to those of nonsmokers. This must be confirmed in future studies with collections at baseline to confirm no changes. The significant difference in job satisfaction between supervisors and nonsupervisors could perhaps be explained in a similar fashion as differences in organizational commitment.

Smoker Networking. Approximately 40% of the smokers reported some work related value gained from the new acquaintances made at smoking break areas. Although it would be difficult to place a value on this gain, it might be of some consideration for management when considering implementation of a smoking policy. This would be especially true in highly fragmented organizations where communication is minimal but desirable.

Approximately 40% of the smokers also felt some social benefits were gained by smoking breaks. The social impact of meetings in smoking areas could be both beneficial and

detrimental. Smokers can perhaps achieve the mutual support necessary to handle a policy that many might consider harsh. Frequent meetings in the smoking areas could however, create a split in the employee population, or make an already existing split wider.

Break Patterns. The average time loss of 49.5 minutes per smoker per day is something that could have monetary value assigned to it. Much work has been done to determine the quantitative costs of smoking to companies. Future efforts in this area should attempt to weigh the losses of smoking with financial losses incurred from implementing a policy. Although there are more than just financial issues involved, management needs to know the anticipated cost impact of a nonsmoking policy. Other costs besides the cost of smoking breaks might be significant. The cost of implementing the policy (consultants, signs, cessation programs etc.) must be considered. Although studies to date do not indicate a high rate of employees quitting their jobs as a result of policy implementation, the costs of replacement hiring might also be considered.

Perceptions Of Productivity Decrease. Over 70% of the respondents reported a decrease in productivity. Whether this is actual or perceived it could well impact actual productivity as well as morale in general. It is understandable that smokers would report a less severe productivity decrease as this amounts to reporting themselves defi-

cient. Future studies should attempt to rely on other measures of productivity besides self-reported perceptions. Using these measures both at baseline and after implementation, actual productivity changes can be compared with perceived changes.

VI. Conclusion

Summary

This study investigated the results of the implementation of a strict nonsmoking policy at a USAF medical center. Areas of interest for the study included changes in smoking behavior, attitudes toward the policy, and organizational behavior after policy implementation.

A literature search highlighted the changing attitudes of the American public toward smoking in public and the perceived and actual dangers of second hand smoke. The literature search revealed only five previous studies (Andrews, 1983; Biener et al., 1989b; Petersen et al., 1988; Rigotti et al., 1986; Rosenstock, 1986). A lack of consistency in methods employed, sample sizes, sample timing, and organizations sampled made comparisons and conclusions difficult to determine. Some conclusions about previous studies however, were made. These studies indicated policies are usually well supported by both smokers and nonsmokers, compliance is generally good, and decreased smoking while at work can be expected (DHHS, 1986). Previous studies did not evaluate areas of organizational behavior.

This study was based on a survey conducted six months after policy implementation at a USAF medical center. The sample size included the entire employee population and the response rate yielded the highest percentage of the population yet achieved in a similar study. Sample size for this

study was consistent with the larger previous studies. The policy implemented at this institution was probably the most strict policy evaluated to date in that smoking was virtually banned inside of the facility with virtually no exceptions. This study was apparently the first of its kind in a military setting. Respondents were very representative of the population with respect to position, grade, job status, age, and sex.

Unlike two of the three previous studies evaluating policy support, this study indicated relatively little policy support from employees who smoke (Andrews, 1983; Biener et al., 1989b; Rosenstock, 1986). Of the four now existing studies evaluating support by smokers and nonsmokers (including this one), two have shown good support from smokers while the other two have shown less than desirable support from the smoking population (Andrews, 1983; Biener et al., 1989b; Rosenstock, 1986). Support levels after implementation are probably a function of policy severity as well as methods employed for policy planning and implementation. These relationships deserve further study.

Results related to smoking behavior and policy compliance were consistent with previous results. While smoking prevalence did not decrease significantly, cigarette consumption at work did. Compensatory smoking off the job was not evident in this study. Further study of the issue of compensatory smoking is needed, as previous studies are

inconclusive. Part of the problem with studying this issue is that compensatory smoking is probably a function of time (as well as other things) after policy implementation. The previously cited lack of consistency in studies to date makes conclusions on this issue difficult. Analysis of a follow-up study conducted twelve months after policy implementation will help look at this issue further.

While the reported levels of job satisfaction between smokers and nonsmokers did not differ significantly, the levels of organizational commitment did. This may be more a function of variables such as education level, position, or grade, than it is of smoking status.

Time lost from smoking breaks amounted to 49.5 minutes per day per smoker. This is certainly a financial consideration for any management team. Comparisons should be done to weigh the costs of smoking in the workplace with the costs of a restrictive policy. "Costs" evaluated must invariably include tangible costs such as health insurance, damage to property from smokers, policy implementation costs and costs of smoking breaks, as well as intangible costs such as a split in employees, increased nonsmoker motivation, and decreased smoker motivation. Comments from respondents of this survey indicated concern over the image presented by a medical center where every entrance is surrounded by a congregation of smokers. Additional concern (if not downright anger) was expressed by many nonsmokers

required to take up the slack of smokers absent from their duties for smoking breaks. Since an overwhelming 70.2% of the respondents perceived a decrease in productivity, other measurement methods conducted both at baseline and after policy implementation are needed.

Closing Comments

As with many studies, this one seems to have asked more questions than it answered. More studies are needed in this area to help provide both military and civilian managers the information they need in deciding appropriate courses of action. In many cases today, inaction will not be acceptable. Air Force regulation dictates action in the Air Force setting. The costs of a poorly implemented, or poorly designed policy have the potential to be severe. Hopefully with enough study, managers can provide a healthy environment for both smokers and nonsmokers without appreciable reductions, and perhaps even increases, in productivity.

19 July 1988

Personnel

SMOKING IN AIR FORCE FACILITIES

This regulation establishes procedures to control smoking in Air Force-occupied buildings and facilities. It does not cancel or supersede other instructions that control smoking because of fire, explosive, or other safety hazards. It implements DOD Directive 1010.10, 11 March 1986, and applies to all Air Force, Air Force Reserve, and US Citizen civilian personnel. It also applies to non-US citizen direct and indirect hire personnel, according to local custom and host country laws and agreements. It does not apply to Air National Guard units and members, except when serving on active duty or active duty for training, or when federalized, respectively. Major commands may adopt more restrictive supplements.

1. Background. The Air Force:

a. Supports the findings and the recommendations of the Surgeon General of the United States regarding the hazards of smoking.

b. Must ensure the best possible conditions for the health and welfare of all its personnel.

c. Recognizes the rights of workers and visitors in Air Force facilities to have an environment reasonably free from contaminants.

d. Supports the objectives of DOD Directive 1010.10, 11 March 1986, to create a social environment that supports abstinence and discourages use of tobacco products, to create a healthy working environment, and to provide smokers with encouragement and professional assistance in quitting.

2. Scope of This Regulation. Through this regulation, the Air Force intends to provide the best possible conditions for the health and welfare of its people.

3. Policy on Smoking. Nonsmoking is the acceptable organizational norm. Air Force personnel must not smoke in facilities except in "designated areas" that nonsmokers do not have to frequent. Designated areas may include outdoor areas, empty rooms, and infrequently used hallways. Consider distance from the workplace, ventilation, and airflow. If there is inadequate space and ventilation, smokers must not smoke in the area. Unit commanders should consult unions from the onset. Unit command-

ers must identify designated smoking areas in buildings under their control. Commanders will resolve conflicts, due to the provisions of this regulation, in favor of the nonsmoker. Final approval authority rests with the installation commander. Unit commanders will ensure that smokers do not smoke tobacco products within Air Force facilities listed below and will ensure smokers comply with the following guidelines:

a. Auditoriums. Place receptacles for disposing of cigarettes, etc., near entrances. Prominently post no smoking signs, and do not permit the use of ashtrays.

b. Eating facilities, lounges, and bars, except in designated areas. Base the location and size of the designated smoking areas primarily on the fact that the ventilation system and air movement pattern are sufficient to protect the health and comfort of nonsmoking patrons served.

c. Elevators.

d. Shuttle vehicles (government motor vehicles that transport government employees on a service basis), buses, and vans.

e. Medical treatment facilities, except in specifically designated areas. These areas will be extremely limited and far removed from all inpatient and clinic areas. Do not consider private offices used for patient care as designated smoking areas. Medical treatment facilities must not sell tobacco products. Medical staff will not smoke in the presence of patients. Patients may smoke only in extreme conditions and must

Supersedes AFR 30-27, 29 March 1978. (See signature page for summary of changes.)

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OPR: SGPA (Lt Col James A. Wright)

Approved by: Brig Gen Rufus M. DeHart

Writer-Editor: R. M. Downey

Distribution: F

have the attending physician's written orders to do so. The provisions of this paragraph also apply to Air Reserve medical units.

f. Conference rooms and classrooms. (When an office uses conference rooms and classrooms as normal work areas, the guidelines in g below apply, and personnel must not use ashtrays in these areas.)

g. Work or break areas used by nonsmokers. "Designated Smoking" as specifically requested, will meet the conditions as outlined in paragraph 3.

h. Corridors, lobbies, and restrooms. Unit commanders may designate these areas as smoking areas only in unusual circumstances and these areas must meet the criteria of paragraph 3.

i. Morale, welfare, and recreation (MWR) activities (in gymnasiums and fitness centers) and restricted in child care youth centers, except in designated smoking areas where patrons are not allowed. For all other MWR activities, the installation commander will establish the policy and where appropriate, prohibit or restrict the use of tobacco products in accordance with the intent of this regulation.

j. Commissary sales stores and storage areas. Installation commander or designee may establish designated smoking areas for employees in coordination with base fire marshals. (Army and Air Force Exchange Service Manual 17-1, Occupational Safety and Health Program, prohibits smoking in exchange retail customer contact and storage areas.)

k. Dependent schools. Students attending Department of Defense Dependent Schools (DODDS) or Section 6 schools must not smoke on school grounds, except as provided by policy promulgated by the Director, DODDS. Faculty, visiting adults, and staff may smoke only in specifically designated areas and must not smoke in the presence of students.

l. Cargo and passenger aircraft:

(1) Smokers must not smoke:

(a) On board all aeromedical evacuation flights.

(b) On all flights if planned flight duration is 2 hours or less.

(c) On all aircraft with less than 30 usable seats.

(d) Cigars and pipes.

(e) In restrooms and aisles at all times.

(2) Major Commands may further restrict smoking on aircraft assigned to the command.

(3) In combat missions, the troop commander may permit smoking aboard troop transport aircraft after proper coordination

with the aircraft commander, consistent with flight safety and operational concerns.

m. Training and education centers. Smokers should refrain from smoking while in all formal training and education programs, with the following specific restrictions:

(1) BMTS. Trainees must not smoke during duty hours and must only smoke in designated areas after duty hours. Instructors and staff will not smoke in the presence of students.

(2) OTS. Trainees must not smoke during duty hours and must only smoke in designated areas after duty hours. Instructors and staff will not smoke in presence of students in the work environment.

(3) USAFA. Cadets must not smoke during the basic cadet training phase. Smokers must use designated areas during all other phases. Instructors and staff will not smoke in the presence of students in the work environment (this includes upper class cadets training basic cadets at the USAFA).

(4) At AFROTC, AFIT, UPT, PME, and All Technical and Professional Training Settings. Smokers may only smoke in designated areas as identified in paragraph 3.

4. *Billeting and Dormitories.* The billeting officer will not billet smokers and nonsmokers together. The installation commander or designee should designate common areas in dormitories with maximum concern for the nonsmokers who use the area.

5. *Signs.* Facility managers will post signs at the major entry ways to all facilities. These signs should read "Smoking is prohibited except in designated areas." When the unit commander approves an area for smoking, the area will have a Designated Smoking Area, sign. These signs will be uniform in design and compatible with the interior design of the facility. Areas designated "No Smoking," due to the policies in this regulation, do not require signs; however, "No Smoking" signs are still required in areas posted "No Smoking" for fire, explosives, or safety hazards.

6. *Policy on Civilian Personnel.* The local implementation of this policy must conform to AFR 40-711, Labor-Management Relations.

7. *Education Programs.* Commanders will add education programs to discourage smoking in base health promotion programs, as specified by the Air Force Surgeon General. The programs should include lectures, films, pam-

phlets, and posters. Instructors will update their material frequently to include information about the latest available medical information on smoking and health.

a. As part of routine physical and dental examinations and at other appropriate times, health care providers will inquire about the patient's tobacco use, including use of smokeless tobacco products; and will advise him or her of the risks associated with use, the health benefits of abstinence, and where to obtain help to quit.

b. Health care providers will advise all pregnant smokers of the risks to the fetus.

c. The servicing medical treatment facility should make available smoking prevention programs in DOD Dependent Schools and Section 6 schools, when requested.

d. Commanders must give support to all personnel who make a conscious decision to quit smoking to follow through and quit. Therefore, every installation in the Air Force will provide on-base smoking cessation classes. Commanders must ensure these ongoing classes are offered. The Director, Base Medical Services will appoint instructors, conduct necessary training, and provide health care provider oversight of these programs. As a minimum, each medical treatment facility will offer a cessation program during duty hours and another during nonduty hours, at least on a quarterly basis. Providers will manage, not necessarily teach, these programs.

e. Commanders will not routinely provide smoking cessation classes to reservists on Air Force Reserve bases. Reservists at these bases may attend such classes if available through a local active duty military facility or occupational health clinic, etc. Attendance at smoking cessation classes in the civilian community must be at the member's expense. The intent of this paragraph is that it apply only to straight reservists while in a military status. It does not apply to pure civil service employees or air reserve technicians (ART) while in their civilian

pay status. The following special considerations also apply to reservists:

(1) Inactive Duty Training (IDT). Air Force Reserve members on IDT will not be provided smoking cessation classes. The member's private physician or health care provider will refer these members to appropriate smoking intervention programs at their own expense. Smoking cessation and other intervention programs are readily available in the civilian community and it is the member's responsibility to take advantage of these resources.

(2) Active Duty for Training (ADT). Air Force Reserve members on ADT may attend smoking cessation programs if locally available through an active duty military facility during the period specified in orders. However, those members on tours of active duty or active duty for training of less than 30 days may only attend smoking cessation programs at the discretion of the supervisor and if training time and mission requirements permit. Issuance or extension of orders for the purpose of attending a smoking intervention program is not permitted.

8. Additional Guidance. Air Force personnel should refer questions on overall policy or implementation of this regulation that cannot be answered locally to HQ USAF/SGPA, Bolling AFB DC 20332-6188, through major commands (MAJCOM) or separate operating agency (SOA) office of primary responsibility (OPR) channels. Every attempt should be made to resolve questions locally or at intermediate headquarters before submitting them to HQ USAF. Air Force Reserve units will submit questions through the unit level OPR and command authorities for resolution. Every attempt will be made to resolve questions at the lowest possible level. Questions that cannot be resolved locally will be submitted through each level of command for resolution, i.e., numbered air force command channels, HQ AFRES/SG, and HQ USAF/SGPA.

BY ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

LARRY D. WELCH, General, USAF
Chief of StaffWILLIAM O. NATIONS, Colonel, USAF
Director of Information Management
and Administration

SUMMARY OF CHANGES

This revision actively promotes no smoking as the norm (para 1d); adds policy that unit commanders will designate no smoking areas in favor of nonsmokers in the event of conflicts (para 3); prohibits tobacco sales in Air Force health care facilities (para 3e); prohibits smoking by students of DOD Schools on school grounds (para 3k); prohibits smoking on all aeromedical evacuation flights, on aircraft with less than 30 seats, and on flights of less than 2 hours duration; and restricts smoking on larger aircraft (para 3l).

Appendix B: Survey



DEPARTMENT OF THE AIR FORCE
USAF MEDICAL CENTER,

REPLY TO
ATTN OF: SG

18 November 1988

SUBJECT: Medical Center Smoking Policy

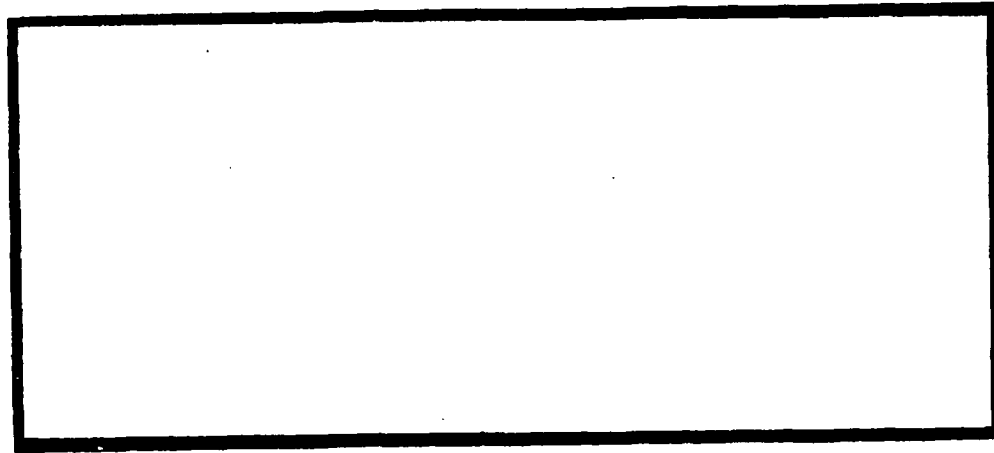
TO: All Medical Center Personnel

1. Since 1 July 1988, the Medical Center has not permitted smoking in the hospital. Major Ken Olive, an Internal Medicine physician, and researchers at the Air Force Institute of Technology (AFIT/LSR) are examining effects of this policy.
2. The attached questionnaire has been designed to determine attitudes and behaviors relating to smoking and the Medical Center policy. The questionnaire is based on similar surveys at other hospitals and organizations where smoking policies have changed.
3. Please take time to participate in this important survey. Your responses will be completely anonymous. Please complete the questionnaire as soon as possible but not later than 15 December and return the questionnaire and answer sheet in the envelope provided through Medical Center distribution to Major Olive.
4. Your participation is greatly appreciated. At a later date a report of study results will be made available for anyone who would like to review it.
5. Should you have any questions about this study or the questionnaire, please call Major Olive at 79656 or the AFIT Project Officer, Lt Col John Ballard, at 54529.

Commander

- 3 Atch
1. Questionnaire
 2. Answer Sheet
 3. Return Envelope

Note: Survey has been altered for publication in thesis to preserve anonymity of medical center.



MEDICAL CENTER SMOKING POLICY SURVEY



INSTRUCTIONS

1. Do NOT put your name or SSN on the answer sheet or questionnaire. This survey is strictly anonymous. No identification is required.
2. For each question, select the answer most appropriate for you. Then mark your answer on the answer sheet. Please use a No. 2 pencil and completely blacken the circle.

MEDICAL CENTER SMOKING POLICY SURVEY

PART I: DEMOGRAPHIC INFORMATION

1. What is your sex?

- (1) Female
- (2) Male

2. What is your age?

- (1) 20 or less
- (2) 21-30
- (3) 31-40
- (4) 41-50
- (5) 51-60
- (6) 61 or more

3. For enlisted personnel, what is your grade?

- (1) E-1
- (2) E-2
- (3) E-3
- (4) E-4
- (5) E-5
- (6) E-6
- (7) E-7
- (8) E-8
- (9) E-9
- (10) Not applicable (i.e., commissioned officer or civilian)

4. For commissioned officers, what is your grade?

- (1) O-1
- (2) O-2
- (3) O-3
- (4) O-4
- (5) O-5
- (6) O-6
- (7) Not applicable (i.e., enlisted or civilian)

5. For wage grade employees, what is your grade?

- (1) Not applicable, not wage grade employee
- (2) WG-2
- (3) WG-3
- (4) WG-4
- (5) WG-5
- (6) WG-6, WG-7
- (7) WG-8, WG-9
- (8) WG-10, WG-11
- (9) WS-8

6. For other civilian employees, what is your grade?

- (1) Not applicable (i.e., military, wage grade, etc.)
- (2) GS-2, GS-3
- (3) GS-4, GS-5
- (4) GS-6, GS-7
- (5) GS-8, GS-9, GS-10
- (6) GS-11
- (7) GS-12
- (8) GM-13
- (9) GM-14
- (10) GM-15

7. What is your racial or ethnic background?

- (1) American Indian
- (2) Black
- (3) Caucasian/White
- (4) Asian American
- (5) Hispanic
- (6) Other

8. What is your primary position?

- (1) Physician
- (2) Nurse
- (3) Physician assistant or nurse practitioner
- (4) Technician or technologist
- (5) Other medical staff (pharmacist, physical therapist, etc.)
- (6) Hospital administration
- (7) Secretarial and clerical administration
- (8) Support (housekeeping, maintenance, etc.)

9. What is your education level?

- (1) Some high school (did not graduate)
- (2) High school graduate or equivalent (no college)
- (3) Some college but less than two years
- (4) Two or more years of college (may include associate degree but no bachelor's degree)
- (5) College degree (BS, BA, or equivalent)
- (6) Graduate work beyond bachelor's degree (no master's degree)
- (7) Master's degree
- (8) Graduate work beyond Master's degree (no doctorate)
- (9) Doctorate (e.g., M.D., Ph.D., J.D., D.V.M., D.D.S.)

10. What is your job status?

- (1) Full-time
- (2) Part-time
- (3) Temporary employee
- (4) Volunteer

11. Do you supervise other employees?

- (1) No
- (2) Yes, 5 people or less
- (3) Yes, 6-10 people
- (4) Yes, 11 people or more

12. How long have you been assigned to or employed at Wright-Patterson Medical Center?

- (1) I began working here after 1 July 1988
- (2) I began working here between 1 July 1987 and 1 July 1988
- (3) I was working here before 1 July 1988 but have worked here five years or less
- (4) I have worked here over 5 but less than 10 years
- (5) I have worked here ten years or more

13. What is your current smoking status?

- (1) Never smoked
- (2) Currently cigarette smoker
- (3) Currently pipe smoker
- (4) Currently cigar smoker
- (5) Ex-smoker

14. Do you currently live with someone who smokes?

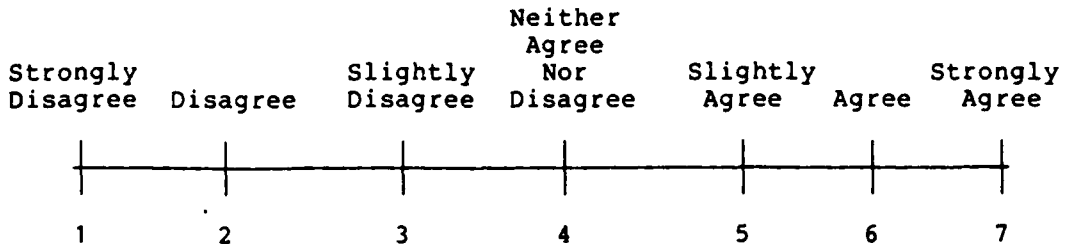
- (1) No
- (2) Husband, wife, significant other
- (3) Child
- (4) Other

15. Do any of your co-workers in your work area smoke?

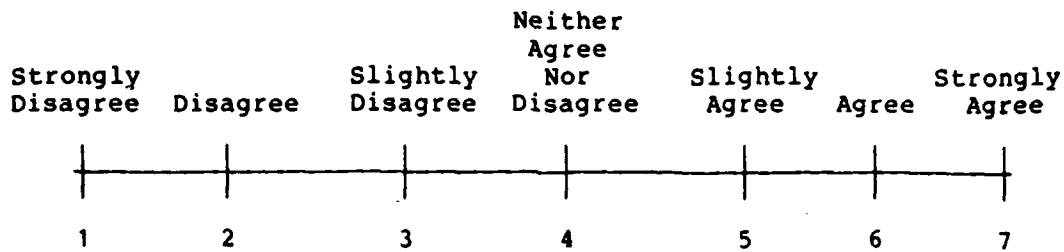
- (1) None
- (2) One or two
- (3) A few
- (4) A lot
- (5) Don't know

PART II: ATTITUDINAL INFORMATION

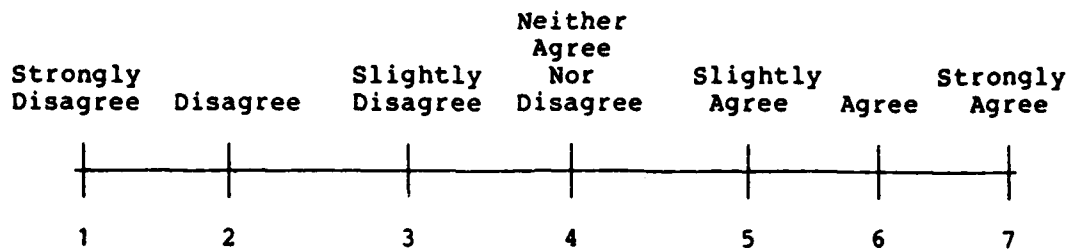
Using the scale below, indicate to what extent you agree or disagree with the following statements.



16. The hospital's policy of not allowing smoking in the hospital is appropriate.
17. The smoking policy for hospital personnel is adequately publicized.
18. In my position I am involved directly in patient care (i.e., inpatient, outpatient) most of the time.
19. It's difficult for a smoker to work at his/her best when the smoker has an unsatisfied desire for a cigarette.
20. Nonsmokers have no right to force a non-smoking policy on smokers.
21. Smoking restrictions are not enforced in my work area.
22. Smoking is harmful to both smokers and non-smokers.
23. Policies that restrict smoking are unfair.
24. I consider myself in good or excellent health.
25. Generally speaking, I am very satisfied with my job.
26. Since the restricted smoking policy has gone into effect (1 July 88), I have not observed anyone smoking in the hospital.



27. Smoking is harmful to one's health.
28. At the designated smoking areas, smokers develop new relationships with hospital co-workers which might not develop otherwise.
29. This organization is interested in the welfare of its people.
30. Non-smokers have a right to work in a smoke-free environment.
31. Productivity suffers because of frequent smoking breaks.
32. The smoking policy for patients and visitors is adequately publicized.
33. A great deal of time is lost as a result of not allowing smoking and working at the same time.
34. I frequently think of quitting this job.
35. Often I find it difficult to agree with this organization's policies on important matters relating to its employees.
36. You need not smoke cigarettes to be harmed by them.
37. The restricted smoking policy sets a good example for patients.
38. The smoking policy is poorly enforced.
39. I really don't feel a part of this organization.
40. The restricted smoking policy is fair to smokers.
41. A smoker should be permitted to smoke in his/her own work area.
42. I am generally satisfied with the kind of work I do in this job.
43. In my position I routinely see illness and disease.



44. The overall effect of the restricted smoking policy on the work environment has been positive.

45. In answering these questionnaire items, I've tried to respond the way I really feel.

If you smoke.....go to Part III: FOR SMOKERS

If you are an ex-smoker.....go to Part IV: FOR EX-SMOKERS

If you are not a smoker
and have never been a smoker.....go to Part V: COMMENTS

PART III: FOR SMOKERS

46. How long have you smoked?

- | | |
|----------------------|-------------------|
| (1) Less than 1 year | (6) 6-10 years |
| (2) About 1-2 years | (7) 11-15 years |
| (3) About 3 years | (8) 16-20 years |
| (4) About 4 years | (9) Over 20 years |
| (5) About 5 years | |

47. On an average day, how many cigarettes do you smoke at work?

- (1) 1/2 pack or less (0-10)
- (2) Between 1/2 pack and 1 pack (11-20)
- (3) Between 1 pack and 1 1/2 packs (21-30)
- (4) Between 1 1/2 packs and 2 packs (31-40)
- (5) Over 2 packs (41 or more)

48. On an average day, how many cigarettes do you smoke (including at work and elsewhere)?

- (1) 1/2 pack or less (0-10)
- (2) Between 1/2 pack and 1 pack (11-20)
- (3) Between 1 pack and 1 1/2 packs (21-30)
- (4) Between 1 1/2 packs and 2 packs (31-40)
- (5) Over 2 packs (41 or more)

49. On the average, how many breaks do you take each day to smoke?

- | | |
|-------|---------------|
| (1) 1 | (6) 6 |
| (2) 2 | (7) 7 |
| (3) 3 | (8) 8 |
| (4) 4 | (9) 9 or more |
| (5) 5 | (10) none |

50. How long does it take to get to a smoking area from your work area?

- (1) Less than 5 minutes
- (2) 5-10 minutes
- (3) Over 10 minutes
- (4) Don't know

51. On the average, how long are your smoking breaks (excluding getting to and from the smoking area)?

- (1) Less than 5 minutes
- (2) 5-10 minutes
- (3) 11-15 minutes
- (4) More than 15 minutes
- (5) Don't know

52. Have you made new acquaintances during breaks at the smoking areas?

- (1) No, not really
- (2) Yes, new social contacts
- (3) Yes, useful work contacts
- (4) Yes, both new social contacts and useful work contacts

53. What effect has the hospital's smoking policy had on your productivity at work?

- (1) No change
- (2) I am less productive
- (3) I am more productive

54. What effect has the hospital's smoking policy (implemented 1 July 88) had on the number of cigarettes you smoke at work?

- (1) No change
- (2) I smoke more
- (3) I smoke less
- (4) I no longer smoke at work
- (5) I no longer smoke at all

55. As best you can recall, before the policy began on 1 July 88, about how many cigarettes did you smoke at work on an average day?

- (1) 1/2 pack or less (0-10)
- (2) Between 1/2 pack and 1 pack (11-20)
- (3) Between 1 pack and 1 1/2 packs (21-30)
- (4) Between 1 1/2 packs and 2 packs (31-40)
- (5) Over 2 packs (41 or more)

56. As best you can recall, before the policy began in July 88, about how many cigarettes did you smoke (including at work and elsewhere) on an average day?

- (1) 1/2 pack or less (0-10)
- (2) Between 1/2 pack and 1 pack (11-20)
- (3) Between 1 pack and 1 1/2 packs (21-30)
- (4) Between 1 1/2 packs and 2 packs (31-40)
- (5) Over 2 packs (41 or more)

57. Have you ever tried to stop smoking?

- (1) No, never
- (2) Once or twice
- (3) Several times
- (4) Many times

Please go to PART V: COMMENTS

PART IV: FOR EX-SMOKERS

58. How long has it been since you quit smoking?

- (1) Less than 6 months
- (2) 6 months but less than 1 year
- (3) 1 year but less than 2
- (4) 2 years but less than 4
- (5) 4 years but less than 6
- (6) 6 years but less than 10
- (7) 10 years or more

59. Why did you quit smoking?

- (1) Health reasons
- (2) Family or friends
- (3) Hospital policy
- (4) Other

PART V: COMMENTS

Please use this section to make any comments you desire about smoking, the smoking policy, or the survey.

Thank you for participating in this survey. Please return the questionnaire and answer sheet in the envelope provided through distribution to SGHMI.

Appendix C: Survey Data

Note: Numbers listed are 1 less than actual responses. This facilitated column placement of the data, especially for responses of value 10. Values were recoded for analyses. Columns correspond to question numbers (i.e., column 1 is question 1).

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Appendix D: Response Frequencies By Item

Q1	SEX
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VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
FEMALE	1	403	45.5	45.7	45.7
MALE	2	479	54.1	54.3	100.0
	.	4	.5	MISSING	
	TOTAL	886	100.0	100.0	
VALID CASES	882	MISSING CASES	4		

Q2	AGE
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VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
20 OR LESS	1	29	3.3	3.3	3.3
21-30	2	322	36.3	36.4	39.7
31-40	3	292	33.0	33.0	72.7
41-50	4	130	14.7	14.7	87.4
51-60	5	84	9.5	9.5	96.9
61 OR MORE	6	26	2.9	2.9	99.9
	10	1	.1	.1	100.0
	.	2	.2	MISSING	
		-----	-----	-----	
	TOTAL	886	100.0	100.0	

```

VALID CASES      884      MISSING CASES      2
113 Aug 89 Frequencies Of Survey#1 Clean Data Using SPSSX
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Q3

ENL_GRD

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
E-1	1	2	.2	.2	.2
E-2	2	15	1.7	1.8	2.1
E-3	3	50	5.6	6.2	8.3
E-4	4	113	12.8	13.9	22.2
E-5	5	76	8.6	9.4	31.6
E-6	6	29	3.3	3.6	35.1
E-7	7	36	4.1	4.4	39.6
E-8	8	6	.7	.7	40.3
E-9	9	4	.5	.5	40.8
NA	10	480	54.2	59.2	100.0
	.	75	8.5	MISSING	
	TOTAL	886	100.0	100.0	
VALID CASES	811	MISSING CASES	75		

Q4

OFF_GRD

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
O-1	1	33	3.7	4.1	4.1
O-2	2	35	4.0	4.3	8.4
O-3	3	98	11.1	12.2	20.6
O-4	4	80	9.0	9.9	30.5
O-5	5	28	3.2	3.5	34.0
O-6	6	29	3.3	3.6	37.6
NA	7	484	54.6	60.0	97.6
	10	19	2.1	2.4	100.0
	.	80	9.0	MISSING	
	TOTAL	886	100.0	100.0	

VALID CASES 806 MISSING CASES 80
 113 Aug 89 Frequencies Of Survey#1 Clean Data Using SPSSX
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Q5

WG_GRD

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NA	1	751	84.8	97.2	97.2
WG-2	2	2	.2	.3	97.4
WG-3	3	1	.1	.1	97.5
WG-4	4	1	.1	.1	97.7
WG-5	5	1	.1	.1	97.8
WG-6, WG-7	6	5	.6	.6	98.4
WG-8, WG-9	7	3	.3	.4	98.8
WG-10, WG-11	8	3	.3	.4	99.2
WS-8	9	1	.1	.1	99.4
	10	5	.6	.6	100.0
	.	113	12.8	MISSING	
	TOTAL	886	100.0	100.0	

VALID CASES 773

MISSING CASES 113

Q6

GS_GRD

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NA	1	610	68.8	76.0	76.0
GS-2, GS-3	2	10	1.1	1.2	77.2
GS-4, GS-5	3	74	8.4	9.2	86.4
GS-6, GS-7	4	38	4.3	4.7	91.2
GS-8, GS-9, GS-10	5	46	5.2	5.7	96.9
GS-11	6	16	1.8	2.0	98.9
GS-12	7	5	.6	.6	99.5
GM-14	9	2	.2	.2	99.8
GM-15	10	2	.2	.2	100.0
	.	83	9.4	MISSING	
	TOTAL	886	100.0	100.0	

VALID CASES 803

MISSING CASES 83

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Q7

RACE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
AMERICAN INDIAN	1	10	1.1	1.1	1.1
BLACK	2	93	10.5	10.6	11.7
CAUCASIAN	3	727	82.1	82.8	94.5
ASIAN	4	11	1.2	1.3	95.8
HISPANIC	5	18	2.0	2.1	97.8
OTHER	6	18	2.0	2.1	99.9
	7	1	.1	.1	100.0
	.	8	.9	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	878	MISSING CASES	8		

Q8

POSITIO

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
PHYSICIAN	1	108	12.2	12.5	12.5
NURSE	2	142	16.0	16.4	28.9
PHYS ASST, NURSE PRA	3	13	1.5	1.5	30.4
TECHNICAN	4	313	35.3	36.2	66.7
OTHER STAFF	5	85	9.6	9.8	76.5
ADMIN	6	73	8.2	8.4	85.0
SECRETARIAL	7	92	10.4	10.6	95.6
SUPPORT	8	37	4.2	4.3	99.9
	9	1	.1	.1	100.0
	.	22	2.5	MISSING	
TOTAL		886	100.0	100.0	

VALID CASES 864 MISSING CASES 22

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Q9

EDUCAT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
SOME HS	1	4	.5	.5	.5
HS GRAD	2	123	13.9	13.9	14.4
SOME COLLEGE	3	215	24.3	24.3	38.7
>2 YEARS COLL	4	165	18.6	18.7	57.4
COLL GRAD	5	127	14.3	14.4	71.8
GRAD WORK	6	44	5.0	5.0	76.8
MASTERS	7	56	6.3	6.3	83.1
GRAD WORK > MASTERS	8	14	1.6	1.6	84.7
DOCTORATE	9	135	15.2	15.3	100.0
.	.	3	.3	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	883	MISSING CASES	3		

Q10

FULL_T

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
FULL-TIME	1	813	91.8	92.0	92.0
PART-TIME	2	9	1.0	1.0	93.0
TEMP	3	12	1.4	1.4	94.3
VOLUNTEER	4	48	5.4	5.4	99.8
	10	2	.2	.2	100.0
.	.	2	.2	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	884	MISSING CASES	2		

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Q11 SUPERVI

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NO	1	413	46.6	46.9	46.9
5 OR LESS	2	293	33.1	33.3	80.1
6-10	3	71	8.0	8.1	88.2
11 OR MORE	4	104	11.7	11.8	100.0
	.	5	.6	MISSING	
	TOTAL	886	100.0	100.0	

VALID CASES 881 MISSING CASES 5

Q12 TIME

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
AFTER 1 JUL 88	1	115	13.0	13.0	13.0
1 JUL 87 - 1 JUL 88	2	156	17.6	17.7	30.7
5 YEARS OR LESS	3	414	46.7	46.9	77.6
5-10 YEARS	4	112	12.6	12.7	90.3
>10 YEARS	5	86	9.7	9.7	100.0
	.	3	.3	MISSING	
	TOTAL	886	100.0	100.0	

VALID CASES 883 MISSING CASES 3

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Q13

SMOKER

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NEVER SMOKED	1	458	51.7	51.7	51.7
CIGARETTE	2	191	21.6	21.6	73.3
PIPE	3	7	.8	.8	74.0
CIGAR	4	5	.6	.6	74.6
EX-SMOKER	5	224	25.3	25.3	99.9
	7	1	.1	.1	100.0
TOTAL		886	100.0	100.0	

VALID CASES 886

MISSING CASES 0

Q14

LIVE_W

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NO	1	700	79.0	79.1	79.1
SPOUSE	2	141	15.9	15.9	95.0
CHILD	3	11	1.2	1.2	96.3
OTHER	4	32	3.6	3.6	99.9
	5	1	.1	.1	100.0
	.	1	.1	MISSING	
TOTAL		886	100.0	100.0	

VALID CASES 885

MISSING CASES 1

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Q15 WORK_W

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NONE	1	123	13.9	13.9	13.9
1-2	2	228	25.7	25.8	39.8
A FEW	3	375	42.3	42.5	82.2
A LOT	4	123	13.9	13.9	96.1
DO NOT KNOW	5	33	3.7	3.7	99.9
	6	1	.1	.1	100.0
	.	3	.3	MISSING	
TOTAL		886	100.0	100.0	

VALID CASES 883 MISSING CASES 3

Q16 POLICY APPROPRIATE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	68	7.7	7.7	7.7
DISAGREE	2	72	8.1	8.1	15.8
SLIGHTLY DISAGREE	3	57	6.4	6.4	22.2
NEITHER AGREE OR DIS	4	26	2.9	2.9	25.2
SLIGHTLY AGREE	5	35	4.0	4.0	29.1
AGREE	6	108	12.2	12.2	41.3
STRONGLY AGREE	7	520	58.7	58.7	100.0
TOTAL		886	100.0	100.0	

VALID CASES 886 MISSING CASES 0

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Q17 ADEQUATELY PUBLICIZED

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	18	2.0	2.0	2.0
DISAGREE	2	24	2.7	2.7	4.7
SLIGHTLY DISAGREE	3	28	3.2	3.2	7.9
NEITHER AGREE OR DIS	4	65	7.3	7.3	15.2
SLIGHTLY AGREE	5	65	7.3	7.3	22.6
AGREE	6	375	42.3	42.3	64.9
STRONGLY AGREE	7	311	35.1	35.1	100.0
TOTAL		886	100.0	100.0	
VALID CASES	886	MISSING CASES	0		

Q18 INVOLVED W PATIENT CARE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	135	15.2	15.5	15.5
DISAGREE	2	91	10.3	10.4	25.9
SLIGHTLY DISAGREE	3	11	1.2	1.3	27.1
NEITHER AGREE OR DIS	4	59	6.7	6.8	33.9
SLIGHTLY AGREE	5	53	6.0	6.1	40.0
AGREE	6	140	15.8	16.0	56.0
STRONGLY AGREE	7	383	43.2	43.9	99.9
	8	1	.1	.1	100.0
	.	13	1.5	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	873	MISSING CASES	13		

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Q19 HARD FOR SMKR TO WRK @ BEST W/O CIG

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	77	8.7	8.8	3.3
DISAGREE	2	106	12.0	12.1	20.8
SLIGHTLY DISAGREE	3	52	5.9	5.9	26.7
NEITHER AGREE OR DIS	4	195	22.0	22.2	48.9
SLIGHTLY AGREE	5	152	17.2	17.3	66.2
AGREE	6	174	19.6	19.8	86.0
STRONGLY AGREE	7	123	13.9	14.0	100.0
.	.	7	.8	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	879	MISSING CASES	7		

Q20 N-SMKRS HAVE NO RT TO FORCE POLICY

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	351	39.6	39.7	39.7
DISAGREE	2	168	19.0	19.0	58.7
SLIGHTLY DISAGREE	3	41	4.6	4.6	63.3
NEITHER AGREE OR DIS	4	66	7.4	7.5	70.8
SLIGHTLY AGREE	5	63	7.1	7.1	77.9
AGREE	6	74	8.4	8.4	86.3
STRONGLY AGREE	7	120	13.5	13.6	99.9
10	10	1	.1	.1	100.0
.	.	2	.2	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	884	MISSING CASES	2		

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Q21 NOT ENFORCED

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	553	62.4	62.6	62.6
DISAGREE	2	214	24.2	24.2	86.8
SLIGHTLY DISAGREE	3	16	1.8	1.8	88.6
NEITHER AGREE OR DIS	4	27	3.0	3.1	91.6
SLIGHTLY AGREE	5	15	1.7	1.7	93.3
AGREE	6	21	2.4	2.4	95.7
STRONGLY AGREE	7	38	4.3	4.3	100.0
	.	2	.2	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	884	MISSING CASES	2		

Q22 SMOKE HARMS SMKRS & N-SMKRS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	9	1.0	1.0	1.0
DISAGREE	2	12	1.4	1.4	2.4
SLIGHTLY DISAGREE	3	7	.8	.8	3.2
NEITHER AGREE OR DIS	4	48	5.4	5.4	8.6
SLIGHTLY AGREE	5	45	5.1	5.1	13.7
AGREE	6	147	16.6	16.6	30.3
STRONGLY AGREE	7	613	69.2	69.3	99.7
	9	1	.1	.1	99.8
	10	2	.2	.2	100.0
	.	2	.2	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	884	MISSING CASES	2		

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Q23

RESTRICT. POLICIES UNFR

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	405	45.7	46.0	46.0
DISAGREE	2	180	20.3	20.4	66.4
SLIGHTLY DISAGREE	3	38	4.3	4.3	70.7
NEITHER AGREE OR DIS	4	59	6.7	6.7	77.4
SLIGHTLY AGREE	5	69	7.8	7.8	85.2
AGREE	6	56	6.3	6.4	91.6
STRONGLY AGREE	7	74	8.4	8.4	100.0
	.	5	.6	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	881	MISSING CASES	5		

Q24

AM IN GOOD-EX HEALTH

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	9	1.0	1.0	1.0
DISAGREE	2	7	.8	.8	1.8
SLIGHTLY DISAGREE	3	7	.8	.8	2.6
NEITHER AGREE OR DIS	4	27	3.0	3.1	5.7
SLIGHTLY AGREE	5	51	5.8	5.8	11.4
AGREE	6	395	44.6	44.7	56.1
STRONGLY AGREE	7	388	43.8	43.9	100.0
	.	2	.2	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	884	MISSING CASES	2		

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Q25

AM SATIS. W MY JOB

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	43	4.9	4.9	4.9
DISAGREE	2	53	6.0	6.0	10.9
SLIGHTLY DISAGREE	3	45	5.1	5.1	16.0
NEITHER AGREE OR DIS	4	74	8.4	8.4	24.3
SLIGHTLY AGREE	5	110	12.4	12.4	36.8
AGREE	6	332	37.5	37.6	74.3
STRONGLY AGREE	7	227	25.6	25.7	100.0
.	.	2	.2	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	884	MISSING CASES	2		

Q26

HAVE NOT OBS VIOLATIONS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	98	11.1	11.1	11.1
DISAGREE	2	120	13.5	13.6	24.7
SLIGHTLY DISAGREE	3	71	8.0	8.0	32.7
NEITHER AGREE OR DIS	4	52	5.9	5.9	38.6
SLIGHTLY AGREE	5	40	4.5	4.5	43.1
AGREE	6	250	28.2	28.3	71.5
STRONGLY AGREE	7	251	28.3	28.4	99.9
.	8	1	.1	.1	100.0
.	.	3	.3	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	883	MISSING CASES	3		
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Q27

SMK IS HARMFUL TO HEALTH

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	10	1.1	1.1	1.1
DISAGREE	2	3	.3	.3	1.5
SLIGHTLY DISAGREE	3	6	.7	.7	2.1
NEITHER AGREE OR DIS	4	36	4.1	4.1	6.2
SLIGHTLY AGREE	5	20	2.3	2.3	8.5
AGREE	6	154	17.4	17.4	25.8
STRONGLY AGREE	7	656	74.0	74.0	99.9
	8	1	.1	.1	100.0
		-----	-----	-----	
	TOTAL	886	100.0	100.0	
VALID CASES	886	MISSING CASES	0		

Q28

SMKRS NOW DEV NEW RELATIONS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	42	4.7	4.8	4.8
DISAGREE	2	55	6.2	6.2	11.0
SLIGHTLY DISAGREE	3	15	1.7	1.7	12.7
NEITHER AGREE OR DIS	4	352	39.7	39.9	52.5
SLIGHTLY AGREE	5	119	13.4	13.5	66.0
AGREE	6	208	23.5	23.6	89.6
STRONGLY AGREE	7	92	10.4	10.4	100.0
	.	3	.3	MISSING	
		-----	-----	-----	
	TOTAL	886	100.0	100.0	

VALID CASES 883 MISSING CASES 3

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Q29

ORG INTERESTED IN PEOPLE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	39	4.4	4.4	4.4
DISAGREE	2	42	4.7	4.7	9.2
SLIGHTLY DISAGREE	3	44	5.0	5.0	14.1
NEITHER AGREE OR DIS	4	99	11.2	11.2	25.3
SLIGHTLY AGREE	5	131	14.8	14.8	40.1
AGREE	6	314	35.4	35.5	75.6
STRONGLY AGREE	7	216	24.4	24.4	100.0
	.	1	.1	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	885	MISSING CASES	1		

Q30

N-SMKRS HAVE RT TO SMK FREE ENV

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	5	.6	.6	.6
DISAGREE	2	7	.8	.8	1.4
SLIGHTLY DISAGREE	3		.9	.9	2.3
NEITHER AGREE OR DIS	4	40	4.5	4.5	6.8
SLIGHTLY AGREE	5	40	4.5	4.5	11.3
AGREE	6	208	23.5	23.5	34.8
STRONGLY AGREE	7	578	65.2	65.2	100.0
TOTAL		886	100.0	100.0	
VALID CASES	886	MISSING CASES	0		

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Q31 PROD SUFFERS FR BREAKS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	48	5.4	5.4	5.4
DISAGREE	2	62	7.0	7.0	12.5
SLIGHTLY DISAGREE	3	40	4.5	4.5	17.0
NEITHER AGREE OR DIS	4	111	12.5	12.6	29.6
SLIGHTLY AGREE	5	161	18.2	18.2	47.8
AGREE	6	230	26.0	26.0	73.8
STRONGLY AGREE	7	231	26.1	26.2	100.0
	.	3	.3	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	883	MISSING CASES	3		

Q32 ADEQUATELY PUB FOR PATS & VIS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	24	2.7	2.7	2.7
DISAGREE	2	55	6.2	6.2	8.9
SLIGHTLY DISAGREE	3	69	7.8	7.8	16.7
NEITHER AGREE OR DIS	4	122	13.8	13.8	30.5
SLIGHTLY AGREE	5	98	11.1	11.1	41.6
AGREE	6	354	40.0	40.0	81.6
STRONGLY AGREE	7	163	18.4	18.4	100.0
	.	1	.1	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	885	MISSING CASES	1		

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Q33 TIME LOST FR POLICY

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	127	14.3	14.4	14.4
DISAGREE	2	178	20.1	20.2	34.5
SLIGHTLY DISAGREE	3	76	8.6	8.6	43.1
NEITHER AGREE OR DIS	4	149	16.8	16.9	60.0
SLIGHTLY AGREE	5	143	16.1	16.2	76.2
AGREE	6	113	12.8	12.8	89.0
STRONGLY AGREE	7	97	10.9	11.0	100.0
	.	3	.3	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	883	MISSING CASES	3		

Q34 THINK OF QUITTING

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	238	26.9	27.0	27.0
DISAGREE	2	180	20.3	20.4	47.4
SLIGHTLY DISAGREE	3	34	3.8	3.9	51.3
NEITHER AGREE OR DIS	4	150	16.9	17.0	68.3
SLIGHTLY AGREE	5	93	10.5	10.6	78.9
AGREE	6	87	9.8	9.9	88.8
STRONGLY AGREE	7	99	11.2	11.2	100.0
	.	5	.6	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	881	MISSING CASES	5		

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Q35 DIFF TO AGREE W POLICIES

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	85	9.6	9.6	9.6
DISAGREE	2	192	21.7	21.8	31.4
SLIGHTLY DISAGREE	3	54	6.1	6.1	37.6
NEITHER AGREE OR DIS	4	198	22.3	22.5	60.0
SLIGHTLY AGREE	5	150	16.9	17.0	77.1
AGREE	6	112	12.6	12.7	89.8
STRONGLY AGREE	7	90	10.2	10.2	100.0
	.	5	.6	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	881	MISSING CASES	5		

Q36 NEED NOT SMK TO BE HARMED

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	31	3.5	3.5	3.5
DISAGREE	2	17	1.9	1.9	5.4
SLIGHTLY DISAGREE	3	13	1.5	1.5	6.9
NEITHER AGREE OR DIS	4	74	8.4	8.4	15.3
SLIGHTLY AGREE	5	78	8.8	8.3	24.1
AGREE	6	223	25.2	25.2	49.3
STRONGLY AGREE	7	448	50.6	50.7	100.0
	.	2	.2	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	884	MISSING CASES	2		

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Q37 POLICY GOOD EX FOR PATIENTS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	35	4.0	4.0	4.0
DISAGREE	2	45	5.1	5.1	9.1
SLIGHTLY DISAGREE	3	20	2.3	2.3	11.4
NEITHER AGREE OR DIS	4	110	12.4	12.5	23.8
SLIGHTLY AGREE	5	65	7.3	7.4	31.2
AGREE	6	221	24.9	25.1	56.3
STRONGLY AGREE	7	385	43.5	43.7	100.0
	.	5	.6	MISSING	
TOTAL		886	100.0	100.0	.
VALID CASES	881	MISSING CASES	5		

Q38 POORLY ENFORCED

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	179	20.2	20.3	20.3
DISAGREE	2	320	36.1	36.3	56.6
SLIGHTLY DISAGREE	3	73	8.2	8.3	64.9
NEITHER AGREE OR DIS	4	188	21.2	21.3	86.2
SLIGHTLY AGREE	5	76	8.6	8.6	94.8
AGREE	6	29	3.3	3.3	98.1
STRONGLY AGREE	7	17	1.9	1.9	100.0
	.	4	.5	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	882	MISSING CASES	4		

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Q39

DO NOT FEEL PART OF ORG

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	180	20.3	20.5	20.5
DISAGREE	2	272	30.7	30.9	51.4
SLIGHTLY DISAGREE	3	80	9.0	9.1	60.5
NEITHER AGREE OR DIS	4	146	16.5	16.6	77.1
SLIGHTLY AGREE	5	95	10.7	10.8	87.9
AGREE	6	60	6.8	6.8	94.8
STRONGLY AGREE	7	46	5.2	5.2	100.0
.	.	7	.8	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	879	MISSING CASES	7		

Q40

POLICY FAIR TO SMKRS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	112	12.6	12.7	12.7
DISAGREE	2	70	7.9	7.9	20.6
SLIGHTLY DISAGREE	3	89	10.0	10.1	30.7
NEITHER AGREE OR DIS	4	120	13.5	13.6	44.3
SLIGHTLY AGREE	5	68	7.7	7.7	52.0
AGREE	6	233	26.3	26.4	78.5
STRONGLY AGREE	7	188	21.2	21.3	99.3
	8	1	.1	.1	99.9
	10	1	.1	.1	100.0
.	.	4	.5	MISSING	
TOTAL		886	100.0	100.0	

VALID CASES 882

MISSING CASES 4

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Q41

SMKRS SHOULD BE ABLE TO SMK IN WORK AREA

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	352	39.7	39.8	39.8
DISAGREE	2	194	21.9	21.9	61.7
SLIGHTLY DISAGREE	3	64	7.2	7.2	68.9
NEITHER AGREE OR DIS	4	69	7.8	7.8	76.7
SLIGHTLY AGREE	5	69	7.8	7.8	84.5
AGREE	6	60	6.8	6.8	91.3
STRONGLY AGREE	7	76	8.6	8.6	99.9
	8	1	.1	.1	100.0
	.	1	.1	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	885	MISSING CASES	1		

Q42

SAT W MY WORK

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	29	3.3	3.3	3.3
DISAGREE	2	33	3.7	3.7	7.0
SLIGHTLY DISAGREE	3	32	3.6	3.6	10.7
NEITHER AGREE OR DIS	4	51	5.8	5.8	16.5
SLIGHTLY AGREE	5	112	12.6	12.7	29.2
AGREE	6	388	43.8	44.0	73.2
STRONGLY AGREE	7	236	26.6	26.8	100.0
	.	5	.6	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	881	MISSING CASES	5		

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Q43

SEE ILLNESS & DISEASE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	76	8.6	8.6	8.6
DISAGREE	2	90	10.2	10.2	18.8
SLIGHTLY DISAGREE	3	18	2.0	2.0	20.9
NEITHER AGREE OR DIS	4	62	7.0	7.0	27.9
SLIGHTLY AGREE	5	73	8.2	3.3	36.2
AGREE	6	215	24.3	24.4	60.5
STRONGLY AGREE	7	348	39.3	39.5	100.0
	.	4	.5	MISSING	
TOTAL		886	100.0	100.0	
VALID CASES	882	MISSING CASES	4		

Q44

OVERALL POS EFFECT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
STRONGLY DISAGREE	1	64	7.2	7.2	7.2
DISAGREE	2	54	6.1	6.1	13.3
SLIGHTLY DISAGREE	3	49	5.5	5.5	18.8
NEITHER AGREE OR DIS	4	150	16.9	16.9	35.8
SLIGHTLY AGREE	5	102	11.5	11.5	47.3
AGREE	6	264	29.8	29.8	77.1
STRONGLY AGREE	7	203	22.9	22.9	100.0
TOTAL		886	100.0	100.0	

VALID CASES 886

MISSING CASES 0

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Q45 RESPONDED AS FELT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NEITHER AGREE OR DIS	4	5	.6	.6	.6
SLIGHTLY AGREE	5	7	.8	.8	1.4
AGREE	6	228	25.7	25.7	27.1
STRONGLY AGREE	7	646	72.9	72.9	100.0
		-----	-----	-----	
	TOTAL	886	100.0	100.0	
VALID CASES	886	MISSING CASES	0		

SQ46 HOW LONG SMOKED

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
< ONE YEAR	1	3	.3	1.4	1.4
1-2 YEARS	2	7	.8	3.3	4.7
APX 3 YEARS	3	8	.9	3.7	8.4
APX 4 YEARS	4	14	1.6	6.5	14.9
APX 5 YEARS	5	19	2.1	8.8	23.7
6-10 YEARS	6	46	5.2	21.4	45.1
11-15 YEARS	7	40	4.5	18.6	63.7
16-20 YEARS	8	27	3.0	12.6	76.3
OVER 20 YEARS	9	51	5.8	23.7	100.0
	.	671	75.7	MISSING	
		-----	-----	-----	
	TOTAL	886	100.0	100.0	

VALID CASES 215 MISSING CASES 671
 113 Aug 89 Frequencies Of Survey#1 Clean Data Using SPSSX
 14:04:19 AFIT VAX/785 UNIX BSD 4.3

SQ47 # SMOKED @ WORK

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
0-10	1	172	19.4	82.7	82.7
11-20	2	29	3.3	13.9	96.6
21-30	3	3	.3	1.4	98.1
31-40	4	4	.5	1.9	100.0
	.	678	76.5	MISSING	
	TOTAL	886	100.0	100.0	

VALID CASES 208 MISSING CASES 678

SQ48 # SMOKED IN A DAY

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
0-10	1	44	5.0	22.4	22.4
11-20	2	101	11.4	51.5	74.0
21-30	3	38	4.3	19.4	93.4
31-40	4	11	1.2	5.6	99.0
>=41	5	2	.2	1.0	100.0
	.	690	77.9	MISSING	
	TOTAL	886	100.0	100.0	

VALID CASES 196 MISSING CASES 690

113 Aug 89 Frequencies Of Survey#1 Clean Data Using SPSSX

14:04:20 AFIT

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SQ49 # BREAKS/DAY

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1	1	10	1.1	5.1	5.1
2	2	43	4.9	22.1	27.2
3	3	35	4.0	17.9	45.1
4	4	44	5.0	22.6	67.7
5	5	12	1.4	6.2	73.8
6	6	8	.9	4.1	77.9
7	7	8	.9	4.1	82.1
8	8	8	.9	4.1	86.2
9 OR MORE	9	2	.2	1.0	87.2
NONE	10	25	2.8	12.8	100.0
	.	691	78.0	MISSING	
		-----	-----	-----	
	TOTAL	886	100.0	100.0	

VALID CASES 195 MISSING CASES 691

SQ50 ENROUTE TIME TO BREAK

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
< 5 MIN	1	142	16.0	72.1	72.1
5-10 MIN	2	40	4.5	20.3	92.4
> 10 MIN	3	3	.3	1.5	93.9
?	4	12	1.4	6.1	100.0
	.	689	77.8	MISSING	
		-----	-----	-----	
	TOTAL	886	100.0	100.0	

VALID CASES 197 MISSING CASES 689
 113 Aug 89 Frequencies Of Survey#1 Clean Data Using SPSSX
 14:04:20 AFIT VAX/785 UNIX BSD 4.3

SQ51 LENGTH OF BREAKS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
< 5 MIN	1	63	7.1	32.8	32.8
5-10 MIN	2	86	9.7	44.8	77.6
11-15 MIN	3	25	2.8	13.0	90.6
> 15 MIN	4	6	.7	3.1	93.8
?	5	12	1.4	6.3	100.0
	.	694	78.3	MISSING	
		-----	-----	-----	
	TOTAL	886	100.0	100.0	
VALID CASES	192	MISSING CASES	694		

SQ52 NEW ACQUAINTANCES?

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NO	1	95	10.7	49.5	49.5
SOCIAL	2	16	1.8	8.3	57.8
USEFULL WORK	3	17	1.9	8.9	66.7
BOTH	4	64	7.2	33.3	100.0
	.	694	78.3	MISSING	
		-----	-----	-----	
	TOTAL	886	100.0	100.0	
VALID CASES	192	MISSING CASES	694		

SQ53 PRODUCTIVITY CHANGE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NO CHG	1	126	14.2	64.3	64.3
LESS	2	62	7.0	31.6	95.9
MORE	3	8	.9	4.1	100.0
	.	690	77.9	MISSING	
		-----	-----	-----	
TOTAL		886	100.0	100.0	

VALID CASES 196 MISSING CASES 690
 113 Aug 89 Frequencies Of Survey#1 Clean Data Using SPSSX
 14:04:20 AFIT VAX/785 UNIX BSD 4.3

SQ54 EFFECT ON # CIGS @ WORK

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NO CHG	1	64	7.2	32.5	32.5
MORE	2	12	1.4	6.1	38.6
LESS	3	106	12.0	53.8	92.4
QUIT @ WK	4	15	1.7	7.6	100.0
	.	689	77.8	MISSING	
		-----	-----	-----	
TOTAL		886	100.0	100.0	

VALID CASES 197 MISSING CASES 689

SQ55 BEF POL # CIGS @ WORK

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
0-10	1	137	15.5	69.9	69.9
11-20	2	48	5.4	24.5	94.4
21-30	3	10	1.1	5.1	99.5
31-40	4	1	.1	.5	100.0
	.	690	77.9	MISSING	
		-----	-----	-----	
TOTAL		886	100.0	100.0	

VALID CASES 196 MISSING CASES 690

SQ56 BEF POL # CIGS / DAY

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
0-10	1	35	4.0	17.9	17.9
11-20	2	90	10.2	46.2	64.1
21-30	3	45	5.1	23.1	87.2
31-40	4	21	2.4	10.8	97.9
>=41	5	4	.5	2.1	100.0
	.	691	78.0	MISSING	
TOTAL		886	100.0	100.0	

VALID CASES 195 MISSING CASES 691
 113 Aug 89 Frequencies Of Survey#1 Clean Data Using SPSSX
 14:04:21 AFIT VAX/785 UNIX BSD 4.3

SQ57 TRIED TO QUIT?

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NO, NEVER	1	30	3.4	15.2	15.2
ONCE OR TWICE	2	79	8.9	40.1	55.3
SEVERAL TIMES	3	68	7.7	34.5	89.8
MANY TIMES	4	20	2.3	10.2	100.0
	.	689	77.8	MISSING	
TOTAL		886	100.0	100.0	

VALID CASES 197 MISSING CASES 689

ESQ58 TIME SINCE QUIT?

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
< 6 MOS	1	22	2.5	10.4	10.4
6 MOS-1 YR	2	12	1.4	5.7	16.0
1-2 YRS	3	13	1.5	6.1	22.2
2-4 YRS	4	30	3.4	14.2	36.3
4-6 YRS	5	19	2.1	9.0	45.3
6-10 YRS	6	36	4.1	17.0	62.3
>=10 YRS	7	80	9.0	37.7	100.0
	.	674	76.1	MISSING	
TOTAL		886	100.0	100.0	

VALID CASES 212 MISSING CASES 674
 113 Aug 89 Frequencies Of Survey#1 Clean Data Using SPSSX
 14:04:21 AFIT VAX/785 UNIX BSD 4.3

ESQ59 WHY QUIT?

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
HEALTH	1	90	10.2	43.9	43.9
FAMILY/FR	2	34	3.8	16.6	60.5
POLICY	3	2	.2	1.0	61.5
OTHER	4	79	8.9	38.5	100.0
	.	681	76.9	MISSING	
TOTAL		886	100.0	100.0	

VALID CASES 205 MISSING CASES 681
 113 Aug 89 Frequencies Of Survey#1 Clean Data Using SPSSX
 14:04:21 AFIT VAX/785 UNIX BSD 4.3

Appendix E: Demographic Breakdown

<u>Demographic Factor</u>	<u>Percent Of Population</u>	<u>Percent Of Respondents</u>
By employee position ¹		
Physicians	14	13
Nurses	15	16
Physician Assistants/ Nurse Practitioners	2	2
Technicians	39	36
Other Staff	5	10
Administrative	6	8
Secretarial	11	11
Support Staff	9	4
By grade ²		
Officer	27	34
Enlisted	41	37
GS/GM	22	22
WG/WS	3	2
Red Cross Volunteer	8	5
By job status ³		
Full Time	89	92
Part Time	2	1
Temporary	2	1
Red Cross Volunteer	8	5

¹Note: N = 863. For population percentage calculations, the following AFSC assignments were made:

Physicians:	093XX - 096XX, 098XX
Nurses:	097XX, 09756 - 09786
PA/Nurse P:	09281, 09286, 09296, 90230 - 90250
Technicians:	90130 - 90590, 90730 - 91130, 91255 - 91499, 91950 - 98270, 90251 - 90450, 92430 - 98270
Other Staff:	091XX, 09211 - 09276, 09296, 08811 09176 - 09256, 99006
Admin:	090XX, 90600 - 90699, 91150 - 91190, 09356
Secretarial:	70250, 903630 - 90760
Support:	01495, 10090 - 75132, 91500 - 91878, 01925, 049255, 09025, 23172 - 67251, 91530 - 91970

²Note: N = 892.

³Note: N = 882.

<u>Demographic Factor</u>	<u>Percent Of Population</u>	<u>Percent Of Respondents</u>
---------------------------	----------------------------------	-----------------------------------

By Age Of Military Employees⁴

20 Or Less	5	4
21 - 30	50	45
31 - 40	35	37
41 - 50	9	12
51 - 60	1	2
61 Or Greater	0	0

By Sex⁵

Male	56	54
Female	44	46 .

⁴Note: N = 631 (age data was available for military personnel only).

⁵Note: N = 882.

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→ This study investigated the results of the implementation of a strict nonsmoking policy at a USAF medical center. Areas of interest included changes in smoking behavior, attitudes toward the policy, and organizational behavior after policy implementation. A literature search revealed only five similar previous studies, none of which were conducted in a military organization.

A survey was administered six months after policy implementation to the entire staff of 1613 employees. 934 were returned for a response rate of 57.9%.

Smoking prevalence did not change significantly. The number of cigarettes reported smoked at work decreased by an average of 1.9 per workday. There were no indications of compensatory smoking off the job. Smokers differed significantly with nonsmokers in their amount of support for the policy. Using a constructed scale of response items, only 31% of the smokers approved of the policy while 89% of the nonsmokers approved.

Organizational behavior areas examined included commitment, job satisfaction, smoker networking, break patterns, and perceptions of productivity decrease. The average daily time loss per smoker per day due to smoking breaks was calculated to be 49.5 minutes. Over 70% of the respondents reported a perceived decrease in productivity as a result of the policy. Theses. (SDU) →

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