Chapter **1**

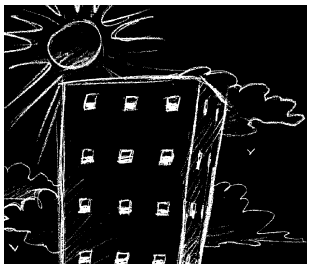
COSTS AND OTHER CONSEQUENCES OF TOBACCO

Tobacco causes more deaths than AIDS, alcohol abuse, automobile accidents, illegal drugs, fires, homicide, and suicide combined.[1]

Examples of hazardous materials that when combined with smoking present a serious health risk[5]:

- Coal
- Grain
- Silica
- Welding materials
- Asbestos
- Petrochemicals
- Aromatic amines
- Pesticides
- Cotton dust
- Ionizing radiation

Asbestos workers who smoke have ten times the risk of developing lung cancer as asbestos workers who do not smoke.[5]



Cigarette smoking is the leading preventable cause of death in this country: it is responsible for one in every five American deaths.[2] Smoking claims the lives of an estimated 1,100 people each day—over 400,000 smokers die from smoking-related diseases and 3,000 nonsmokers die from lung cancer each year.[2,3] In addition, nonsmokers exposed to environmental tobacco smoke (ETS) have higher death rates from cardiovascular disease than nonsmokers who are not exposed to ETS.[4]

Since the first Surgeon General's report on smoking and health in 1964, tobacco use has been increasingly linked to disease, disability, and premature death. That is, tobacco users die sooner than people who don't use tobacco. Figure 1-1 lists known effects of tobacco use and ETS.

Adverse Effects of Combining Cigarette Smoking and Other Workplace Risks

According to the 1985 Surgeon General's report on *The Health Consequences of Smoking: Cancer and Chronic Lung Disease in the Workplace*, the combination of smoking with exposure to hazardous substances at the workplace presents a serious health risk.[5] As explained in the 1979 Surgeon General's report on smoking and health, cigarette smoking can

- transform existing chemicals into more harmful ones,
- increase exposure to existing toxic chemicals,
- add to the biological effects caused by certain chemicals, and
- interact synergistically with existing chemicals.[6]

For example, the health effects of smoking and workplace exposure to asbestos are greater than the sum of the risks of separate exposures. For most workers who smoke, however, cigarette smoking is a greater cause of death and disability than any hazard in the workplace.[5]

Health Consequences of ETS

ETS is a proven health hazard. For example, the 1986 Surgeon General's report on involuntary smoking concluded that exposure to ETS can cause lung cancer: nonsmoking spouses have nearly a doubled risk of developing lung cancer if their spouses are heavy smokers.[7] Research reviewed in the reports of the Surgeon General, the National Academy of Sciences,[8] and the National Institute of Occupational Safety and Health (NIOSH)[9] found that secondhand tobacco smoke was harmful, and the U.S. Environmental Protection Agency (EPA)[3] estimated that ETS causes 3,000 lung cancer deaths each year in the United States. In addition, scientific studies published in peer-reviewed journals on both animals and human subjects indicate that nonsmokers exposed to secondhand tobacco smoke have higher death rates from heart disease.[4,10–12] Figure 1-2 highlights statements from important reports on ETS.

ETS has been classified as a Group A (known human) carcinogen, as have asbestos and benzene.[3] Nonsmokers subjected to ETS are exposed to nicotine, carbon monoxide, and cancer-causing agents. A recent study found that nonsmokers exposed to ETS only at work had significantly higher levels of a

FIGURE 1-1. HEALTH CONSEQUENCES OF TOBACCO USE AND ETS

Health Consequences of Tobacco Use[14–17]

Mortality and Morbidity
- Results in premature death
- Causes significant disease and disability

Cardiovascular Effects
- A cause of coronary heart disease
- A cause of cerebrovascular disease (stroke)
- A cause of atherosclerotic peripheral vascular disease

Cancer
- A cause of lung cancer
- A contributing factor for pancreatic cancer
- A cause of laryngeal cancer
- A contributing factor for renal cancer
- A cause of cancer of the oral cavity (lip, tongue, mouth, and pharynx); smokeless tobacco is also a cause of oral cancer
- Associated with gastric cancer
- A cause of esophageal cancer
- A cause of bladder cancer

Lung Diseases
- A cause of chronic bronchitis
- A cause of emphysema

Women's Health Effects
- A cause of intrauterine growth retardation, leading to low birth weight babies
- A contributing factor for cervical cancer
- A probable cause of unsuccessful pregnancies

Other Health Effects
- Addiction to nicotine
- Adverse interactions with occupational hazards that increase the risk of cancer
- Alteration of the actions and effects of prescription and nonprescription medications
- A probable cause of peptic ulcer disease

Health Consequences of ETS[3, 4, 7, 10–12, 18–20]
- A cause of lung cancer in nonsmokers
- Associated with higher death rates from cardiovascular disease in nonsmokers
- In children, associated with respiratory tract infections, increased prevalence of fluid in the middle ear, additional episodes of asthma, and increased severity of symptoms in children with asthma, and a risk factor for new onset of asthma in children who have not previously displayed symptoms
- Associated with increased risk of sudden infant death syndrome (SIDS)
- Associated with increased irritant effects, particularly eye irritation, among allergic persons

FIGURE 1-2. STATEMENTS FROM REPORTS ON ETS

In 1986, the Surgeon General made these conclusions[7]:

- Involuntary smoking is a cause of disease, including lung cancer, in healthy nonsmokers.
- Simple separation of smokers and nonsmokers within the same airspace may reduce but does not eliminate exposure of nonsmokers to ETS.

In 1991, NIOSH strengthened the findings on ETS in the workplace[9]:

- ETS is a potential occupational carcinogen.
- ETS poses an increased risk of lung cancer and possibly heart disease to occupationally exposed workers.
- Exposure to ETS should be reduced to the lowest feasible level.
- Employers should minimize occupational exposure to ETS by using all available preventive measures.

In 1993, the EPA released a report on the respiratory health effects associated with passive smoking with this conclusion[3]:

- ETS is a human lung carcinogen responsible for 3,000 lung cancer deaths annually in U.S. nonsmokers.

Evidence that ETS is a risk factor for cardiovascular disease and other diseases continues to accumulate.[3,4,10–12,18–20]

ETS is a combination of smoke exhaled by the smoker and the smoke that comes from the burning end of a cigarette, cigar, or pipe.

nicotine metabolite in their blood than nonsmokers reporting no workplace exposure.[13]

The EPA concluded that children with asthma have their condition worsened by exposure to ETS.[3] Yet children often spend considerable amounts of time in the worksites of adults (e.g., schools, restaurants).

More people die from ETS than all other regulated occupational substances combined.[3] Even one of these deaths due to ETS is unnecessary.

Costs to Employers

The costs of employee smoking to the employer are significant. Direct costs to the employer include health care costs associated with smoking. Indirect costs include lost productivity, absenteeism, and recruitment and retraining costs resulting from death and disability related to smoking. Following is a list of some of the factors that contribute to smokers costing employers more than nonsmokers.[21]

- Absenteeism
- Health insurance and life insurance costs and claims
- Worker's compensation payments and occupational health awards
- Accidents and fires (plus related insurance costs)
- Property damage (plus related insurance costs)
- Smoke pollution (increased cleaning and maintenance costs)
- Illness and discomfort among nonsmokers exposed to passive smoke

The cost to employers of employees who smoke is not a simple number; many factors and variables need to be consid-

ered. However, the most frequently cited estimate for the excess cost (adjusted to 1991 dollars) is $1,300 per year per smoking employee.[21]

Other costs arise from ETS. Historically, smoking restrictions were implemented to prevent fires and explosions in the workplace. These rules were established to protect products, machinery, and furniture rather than to protect the health of employees. Today, employers who implement smokefree policies for their offices can save money for the same reason because computer equipment, furniture, and carpets last longer in a smokefree environment and require less maintenance.[22]

Regardless of the size of your company, implementing smokefree policies and providing support to help employees and covered dependents to quit smoking makes good business sense.

Liability

As early as 1972, the Surgeon General warned that cigarette smoking was dangerous to nonsmokers.[23] Since then, court rulings and state, county, and city statutes and regulations have provided protection for the nonsmoker. In March 1994, the Occupational Safety and Health Administration of the U.S. Department of Labor issued proposed national regulations to govern indoor air quality, including ETS. In workplaces where smoking is not prohibited, the proposed rule calls for designated smoking areas that are enclosed and exhausted directly to the outside. The regulations have not been finalized as of September 1996. Many states and municipalities have enacted legislation restricting smoking in public, and some have moved to restrict smoking at the worksite. As of June 1995, 47 states had restricted smoking at some level in workplaces or public places, and 21 states regulated smoking in private worksites.[24] More than 800 local ordinances exist that impose restrictions on tobacco use.[25]

Because no one has the right to impose a health risk on others and because an employer has a common-law responsibility to provide a safe and healthful workplace,[26] liability is a significant issue for employers. Because ETS has been classified as a Group A (known human) carcinogen, it would be difficult to argue that an employer who has not reduced ETS to the lowest possible levels has provided a safe workplace.

Recent examples show the validity of liability concerns. In December of 1995, a widower of a Veterans Affairs hospital nurse was awarded death benefits on the grounds that his wife's fatal lung cancer was caused by exposure to secondhand smoke while treating

ETS contains about 4,000 chemical compounds, including formaldehyde, cyanide, carbon monoxide, ammonia, nicotine, and cancer-causing agents such as benzene and N-nitrosamines.[3]

FIGURE 1-3. ONE-YEAR COSTS OF SMOKING-ATTRIBUTABLE MEDICAL CARE (1993)[31]

Type of Cost	Amount ($ billion)
Hospital expenditures	26.9
Physician expenditures	15.5
Nursing home expenditures	4.9
Prescription drugs	1.8
Home health care expenditures	0.9
Total	50.0

Eliminating ETS in the workplace and decreasing smoking by employees can reduce health care costs and increase years of productive life. These two factors alone will positively affect the bottom line for companies. While premature death among smokers may offset the increased health care costs with savings in pension benefits, all responsible employers want their employees to live full and productive lives, before and during retirement.

patients.[27] In January 1996, a Florida state appeals court ruled that airline flight attendants could proceed with a national class-action lawsuit against cigarette manufacturers for their responsibility in causing health problems related to exposure to secondhand smoke.[28]

Costs to Individuals and to Society

The cost savings associated with a heart attack that is prevented or with the delayed onset of cancer are often difficult to calculate. Yet, reducing the prevalence of smoking behavior in a worksite can save money, not only for the employer but also for individuals and society as a whole. Individual costs in time, health, and money arise because smokers tend to

- have more hospital admissions,
- take longer to recover from illness and injury,
- have higher outpatient health care costs,[29,30] and
- have lower birth weight babies.[16]

A 1994 report from the Centers for Disease Control and Prevention (CDC) estimated that the cost of smoking for direct medical care was $50 billion for 1993 (Figure 1-3).[31] Indirect costs of smoking to society, such as lost productivity from increased absenteeism and productive years of lives lost, also are enormous. For 1990, the Congressional Office of Technology Assessment estimated that indirect costs from smoking-attributable illness and death totaled $47.2 billion.[32]

ETS is dangerous to employees and costly for employers. To protect all employees from the health hazards associated with ETS exposure, companies should restrict smoking in the workplace. In addition, companies should offer assistance to employees and dependents interested in stopping smoking.

This chapter has described the consequences of tobacco use and ETS exposure. Chapter Two discusses the benefits of a smokefree workplace.

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