

EXECUTIVE SUMMARY

Over the last decade, knowledge about smoking-related disease and death has gained widespread acceptance. As doubt about the effects of smoking on smokers has been replaced by solid evidence, concern over the possible effects of tobacco smoke on nonsmokers has grown. Public pressure has led to a number of actions to restrict smoking for the benefit of nonsmokers, a trend that is continuing. Much of the recent activity has focused on controlling smoking in the workplace. This Staff Paper responds to a request for information about the health effects of passive smoking, the types of policies that are in force in the public and private sectors to control workplace smoking, and the costs and effects of those policies. The request for this study came from Senator Ted Stevens, Chairman of the Subcommittee on Civil Service, Post Office, and General Services of the Senate Government Affairs Committee.

Three major areas are covered in this Staff Paper: 1) a review of the studies of health effects related to passive smoking; 2) a review of current Federal, State and local, and private sector workplace smoking policies; and 3) a discussion of factors to consider in an analysis of the costs and benefits of implementing a workplace smoking policy.

Health Effects and Exposure Measures

There is ample evidence that nonsmokers are exposed to the elements of tobacco smoke when they are around people who are smoking. "Sidestream" smoke (which comes from the lit end of a cigarette, cigar, or pipe), smoke that escapes from the nonburning end, and mainstream smoke that has been inhaled by smokers and then exhaled, all mix with air in enclosed spaces to form "environmental tobacco smoke." "Passive smoking," "involuntary smoking," and "exposure to environmental tobacco smoke" are used synonymously in the literature to describe this phenomenon. Environmental tobacco smoke is basically the same, though lower in concentration, as the mixture to which smokers are exposed. Most lung cancer and chronic obstructive lung disease, as well as a large share of heart disease deaths are clearly associated

with active smoking, and tobacco smoke contains a number of substances that cause cancer in animals. These facts have led to continuing research to characterize the effects of environmental tobacco smoke on nonsmokers and on some particular groups that might be especially sensitive.

Children and people with preexisting lung disease might be more susceptible than healthy adults to some of the effects of passive smoking. There is substantial evidence linking parents' smoking habits with acute respiratory illnesses, chronic respiratory symptoms, and mild impairments of lung function in children. OTA did not review that literature in detail. The few studies of exacerbation of respiratory symptoms in asthmatics suggest that this population may also be harmed by environmental tobacco smoke.

The most widespread acute effects of exposure to environmental tobacco smoke are eye irritation and irritation of the mucous membranes. Headaches and coughs are also commonly reported. These conditions are not life threatening or fatal, but large numbers of people, including smokers, experience them, some severely. There is little formal research on these acute effects, but they are often tangentially noted in reports of experimental research in this area, and are generally accepted as the result of environmental tobacco smoke exposure. They are, therefore, appropriate to consider in developing smoking policies for the workplace.

The case is less clear for the contribution of passive smoking to chronic diseases. Debate about the link between passive smoking and lung cancer is one of the most contentious in public health today, and a similar contention has arisen about a possible link with heart disease. The other major category of concern is chronic obstructive lung disease. Because of documented exposure of nonsmokers to the constituents of tobacco smoke and the strong links of active smoking with these chronic diseases, the case for links with passive smoking comes over a foundation of biological plausibility. Epidemiologic studies have been aimed at characterizing the extent to which these diseases are associated with passive smoking in the population.

Passive Smoking in the Workplace: Selected Issues

There is currently a small literature on the effects of passive smoking on the risk of developing chronic obstructive lung disease or heart disease. Some evidence suggests that long-term passive smoking by adults may result in decreased lung capacity. Experimental studies measuring short-term changes in lung function in response to environmental tobacco smoke lend support to this finding. Evidence linking passive smoking to heart disease and cardiovascular symptoms is rather scanty, but studies suggest an acute exacerbation of anginal pain and an increased risk of death from cardiovascular disease. Further research should clarify the role of passive smoking in causing and exacerbating these diseases.

More than a dozen studies have been published during the 1980's that address the possible association of passive smoking and lung cancer. Taken one by one, the studies cannot be considered "definitive;" however most investigators have found that passive smoking elevates a nonsmoker's risk of lung cancer, and results in about half the studies were statistically significant. The consistency of the results argues for stronger conclusions that could be drawn from individual studies: examined together, the evidence is generally consistent with an increased risk of lung cancer, on the order of a doubling of risk, among nonsmokers regularly exposed to environmental cigarette smoke compared with nonsmokers without exposure. These studies do not have the methodological strength of studies of direct smoking and lung cancer, and they cannot be interpreted without considering the effects on their results of potential biases. Despite the remaining uncertainties, the data are sufficient to warrant serious concern. Given the large number of people exposed, even a small increase in the risk of lung cancer from passive smoking would be important.

In summary, the evidence for an association of passive smoking with lung cancer has accumulated during the 1980's, and is consistent with the biologically plausible hypothesis that passive exposure to tobacco smoke can cause cancer. There is evidence that environmental tobacco smoke is an acute respiratory irritant in healthy adults. Relatively strong evidence also

supports an association of parental smoking and respiratory infections and symptoms in their children; few studies of this type have been carried out for adults, but the evidence that exists points to a similar relationship. People with preexisting heart or lung disease can be especially sensitive to the effects of passive smoking.

Workplace Smoking Policies

Three Federal agencies administer 90 percent of Federal office space: the General Services Administration (GSA), the Department of Defense (DoD), and the Postal Service. In addition, the Veterans Administration (VA) develops policies for VA hospitals and clinics across the country. Over 2 million civilian Federal workers and 2 million military personnel are affected by the policies of these agencies. Some agency-wide workplace smoking policies date back to 1973 or earlier, but most have been enacted or revised more recently. In general, revisions have made policies more restrictive of workplace smoking and have explicitly considered the protection of nonsmokers. Each of the current policies handles smoking in work areas differently, ranging from requesting smokers to consider the comfort of nonsmokers to limiting smoking to designated areas.

Twelve States and more than 70 communities have passed laws regulating smoking in the workplace, most of them in the past four years. Some laws apply only to public workplaces and some to both public and private workplaces. Two provisions are common to many of the State laws: restricting smoking to designated areas and requiring signs to define smoking and nonsmoking areas. Employers are given leeway in designating smoking areas. Most States rely on employers' compliance with the law's intent to provide a healthful environment; two State laws stipulate that the nonsmokers' preferences take precedence in determining work area smoking policies.

Passive Smoking in the Workplace: Selected Issues

Smoking policies in the private sector have shifted in emphasis during the past five years. Previous concern centered mainly on protection of workers and property against cigarette-caused fires, on product purity, and on the protection of equipment. Today, protection of nonsmokers and regulations requiring smoking policies are the forces behind most current policies in the private sector. According to recent surveys, approximately 30 percent of all workplaces have formal smoking policies, and there appears to be a trend toward increasing adoption of policies in the private sector. The most prevalent type of policy is one that restricts smoking in certain areas such as auditoriums, elevators, and conference rooms. Some businesses allow smoking only in specially designated areas. A few companies have recently banned smoking entirely from the workplace, and a small number hire only nonsmokers.

Costs and Effects of Workplace Smoking Policies

Any administrative or physical changes made to alter smoking behavior in the workplace are likely to generate costs and benefits, including possible cost savings and health benefits. Quantitative information from which to predict the magnitude of total costs and effects is scanty, and therefore OTA has not conducted a formal cost-effectiveness or cost-benefit analysis of workplace smoking policies. Instead, a short discussion of some of the factors that would be included in an analysis of the costs and effects of these policies is provided.