THE HEALTH CONSEQUENCES OF INVOLUNTARY SMOKING

a report of the Surgeon General

1986

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
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Center for Health Promotion and Education
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THE SECRETARY OF HEALTH AND HUMAN SERVICES
WASHINGTON D.C. 20201

DEC 15 1986

The Honorable George Bush
President of the Senate
Washington, D.C. 20510

Dear Mr. President:

It is my pleasure to transmit to the Congress the 1986 Surgeon General's Report on the health consequences of smoking, as mandated by Section 8(a) of the Public Health Cigarette Smoking Act of 1969. The current volume, entitled The Health Consequences of Involuntary Smoking, examines the scientific evidence on the health effects resulting from nonsmoker exposure to environmental tobacco smoke.

The issue of whether or not tobacco smoke is carcinogenic for humans was conclusively resolved more than 20 years ago when the first report on smoking and health was issued in 1964. Based on the current report, the judgment can now be made that exposure to environmental tobacco smoke can cause disease, including lung cancer, in nonsmokers. It is also clear that simple separation of smokers and nonsmokers within the same airspace may reduce but cannot eliminate nonsmoker exposure to environmental tobacco smoke.

The report also reviews an extensive body of evidence which establishes an increased risk of respiratory illness and reduced lung function in infants and very young children of parents who smoke. This effect is more pronounced if both parents smoke than if only one parent smokes. As a physician, I believe that parents should refrain from smoking around small children both as a means of protecting their children's health and to set a good example for the child.

Today, only 30 percent of the adult population in the United States are smokers--the lowest level of smoking in the country since World War II, reflecting that the great majority of the population has never smoked or has successfully quit.

Accompanying this decline in overall prevalence of cigarette smoking has been an increased concern for protecting the health and well being of nonsmokers, as evidenced by the number of laws and regulations restricting smoking in public places. Today, 40 States and the District of Columbia have enacted some form of legislation to restrict smoking in public. Increasingly, these 1aws pertain to protecting nonsmokers in many different settings, including the workplace.

Based on the evidence presented in this report, the choice to smoke should not interfere with the nonsmoker's choice for an environment free of tobacco smoke.

Sincerely,

Otis R. Bowen M.D.

Otis R. Bowen, M.D.
Secretary

Enclosure

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WASHINGTON, D.C. 20201

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Speaker of the House
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FOREWORD

The data reviewed in 17 previous U.S. Public Health Service reports on the health consequences of smoking have conclusively established cigarette smoking as the largest single preventable cause of premature death and disability in the United States.

The question whether tobacco smoke is harmful to smokers was answered more than 20 years ago. As a result, many scientists began to question whether the low levels of exposure to environmental tobacco smoke (ETS) received by nonsmokers could also be harmful.

The current Report, The Health Consequences of Involuntary Smoking, examines the evidence that even the lower exposure to smoke received by the nonsmoker carries with it a health risk. Use of the term "involuntary smoking" denotes that for many nonsmokers, exposure to ETS is the result of an unavoidable consequence of being in proximity to smokers. It is the first Report in the health consequences of smoking series to establish a health risk due to tobacco smoke exposure for individuals other than the smoker, and represents the work of more than 60 distinguished physicians and scientists, both in this country and abroad.

After careful examination of the available evidence, the following overall conclusions can be reached:

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. Simple separation of smokers and nonsmokers within the same air space may reduce, but does not eliminate, exposure of nonsmokers to environmental tobacco smoke.

Exposure to environmental tobacco smoke occurs at home, at the worksite, in public, and in other places where smoking is permitted.

The quality of the indoor environment must be a concern of all who control and occupy that environment. Protection of individuals from exposure to environmental tobacco smoke is therefore a responsibility shared by all:

- As parents and adults we must protect the health of our children by not exposing them to environmental tobacco smoke.
- As employers and employees we must ensure that the act of smoking does not expose the nonsmoker to tobacco smoke.
- For smokers, it is their responsibility to assure that their behavior does not jeopardize the health of others.
- For nonsmokers, it is their responsibility to provide a supportive environment for smokers who are attempting to stop.

Actions taken by individuals, employers, and employee organizations reflect the growing concern for protecting nonsmokers. The number of laws and regulations enacted at the national, State, and local level governing smoking in public has increased substantially over the past 10 years, and surveys conducted by numerous organizations show strong public support for these actions among both smokers and nonsmokers.

As a Nation, we have made substantial progress in addressing the enormous toll inflicted by active smoking. Efforts to improve and protect individual health must be not only continued but strengthened. On the basis of the evidence presented in this Report, it is clear that actions to protect nonsmokers from ETS exposure not only are warranted but are essential to protect public health.

Robert E. Windom, M.D.
Assistant Secretary for Health

PREFACE

This, the 1986 Report of the Surgeon General, is the U.S. Public Health Service's 18th in the health consequences of smoking series and the 5th issued during my tenure as Surgeon General.

Previous Reports have documented the tremendous health burden to society from smoking, particularly cigarette smoking. The evidence establishing cigarette smoking as the single largest preventable cause of premature death and disability in the United States is overwhelming--totaling more than 50,000 studies from dozens of cultures. Smoking is now known to be causally related to a variety of cancers in addition to lung cancer; it is a cause of cardiovascular disease, particularly coronary heart disease, and is the major cause of chronic obstructive lung disease. It is estimated that smoking is responsible for well over 300,000 deaths annually in the United States, representing approximately 15 percent of all mortality.

Thirty years ago, however, the scientific evidence linking smoking with early death and disability was more limited. By 1964, the year the Advisory Committee to the Surgeon General issued the first report on smoking and health, a substantial body of evidence had accumulated upon which a judgment could be made that smoking was a cause of disease in active smokers. Subsequent reports over the last 20 years have expanded our understanding and knowledge about smoking behavior, the toxicity and carcinogenicity of tobacco smoke, and the specific disease risks resulting from exposure to this agent.

This Report is the first issued since 1964 that identifies a chronic disease risk resulting from exposure to tobacco smoke for individuals other than smokers. It is now clear that disease risk due to the inhalation of tobacco smoke is not limited to the individual who is smoking, but can extend to those who inhale tobacco smoke emitted into the air. This Report represents a detailed review of the health effects resulting from nonsmoker exposure to environmental tobacco smoke (ETS). ETS is the combination of smoke emitted from a burning tobacco product between puffs (sidestream smoke) and the smoke exhaled by the smoker. The 1986 Report, The Health Consequences of Involuntary Smoking, is a critical review of all the available scientific evidence pertaining to the health effects of ETS exposure on nonsmokers. The term "involuntary smoking" is used to

note that such exposures often occur as an unavoidable consequence of being in close proximity to smokers.

Lung Cancer and Environmental Tobacco Smoke

The appropriate framework for an examination of the lung cancer risk from involuntary smoking is that of a low-dose exposure to a known human carcinogen. Over 30 years of research have conclusively established cigarette smoke as a carcinogen. This Report presents evidence that the chemical composition of sidestream smoke is qualitatively similar to the mainstream smoke inhaled by the active smoker, and that both mainstream and sidestream smoke act as carcinogens in bioassay systems. Data related to environmental levels of tobacco smoke constituents and from measures of nicotine absorption in nonsmokers suggest that nonsmokers are exposed to levels of environmental tobacco smoke that would be expected to generate a lung cancer risk; epidemiological studies of populations exposed to ETS have documented an increased risk for lung cancer in those nonsmokers with increased exposure.

It is rare to have such detailed exposure data or human epidemiologic studies on disease occurrence when attempting to evaluate the risk of low-dose exposure to an agent with established toxicity at higher levels of exposure. The relative abundance of data reviewed in this Report, their cohesiveness, and their biologic plausibility allow a judgment that involuntary smoking can cause lung cancer in nonsmokers. Although the number of lung cancers due to involuntary smoking is smaller than that due to active smoking, it still represents a number sufficiently large to generate substantial public health concern.

It is certain that a substantial proportion of the lung cancers that occur in nonsmokers are due to ETS exposure; however, more complete data on the dose and variability of smoke exposure in the nonsmoking U.S. population will be needed before a quantitative estimate of the number of such cancers can be made.

Children and Infants

This Report also documents a relationship between parental smoking and the respiratory health of infants and children (under 2 years of age). Infants of parents who smoke have an increased risk of hospitalization for bronchitis and pneumonia when compared with infants of nonsmoking parents. There is a relationship between parental smoking and an increased frequency of respiratory symptoms in children. A slower rate of growth in lung function has been observed in children of smoking parents. In many studies, if both

parents smoke, a stronger relationship exists than if only one parent smokes.

What future respiratory burden these findings may represent for these children later in life is not known. As a former pediatric surgeon, I strongly urge parents to refrain from smoking in the presence of children as a means of protecting not only their children's current health status but also their own.

Diseases Other Than Lung Cancer

Several studies have provided data on the relationship between ETS and cancers other than lung cancer and on ETS exposure and cardiovascular disease. However, further research in these areas will be required to determine whether an association exists between ETS exposure and an increased risk of developing these diseases.

Policies Restricting Smoking in Public Places

The growth in our understanding of the disease risk associated with involuntary smoking has been accompanied by a change in the social acceptability of smoking and by a growing body of legislation, regulation, and voluntary action that addresses where smoking may occur in public. Forty States and the District of Columbia now have some form of legislation controlling or restricting smoking in various public settings. Some States limit smoking to only a few designated areas; however, States are increasingly developing and implementing comprehensive legislation that restricts smoking in many public settings, including the workplace. Nine States have restrictions that cover smoking not only by public employees but also by employees in the private sector.

No systematic evaluation of the effects these measures may have on smoking behavior has been conducted, but there is little doubt that strong public sentiment exists for implementing such restrictions. A number of national surveys conducted by voluntary health organizations, government agencies, and even the tobacco industry have documented that an overwhelming majority of both smokers and nonsmokers support restricting smoking in public.

Public Health Policy and Involuntary Smoking

The 1986 Surgeon General's Report on the Health Consequences of Involuntary Smoking clearly documents that nonsmokers are placed at increased risk for developing disease as the result of exposure to environmental tobacco smoke.

Critics often express that more research is required, that certain studies are flawed, or that we should delay action until more conclusive proof is produced. As both a physician and a public health

official, it is my judgment that the time for delay is past; measures to protect the public health are required now. The scientific case against involuntary smoking as a health risk is more than sufficient to justify appropriate remedial action, and the goal of any remedial action must be to protect the nonsmoker from environmental tobacco smoke.

The data contained in this Report on the rapid diffusion of tobacco smoke throughout an enclosed environment suggest that separation of smokers and nonsmokers in the same room or in different rooms that share the same ventilation system may reduce ETS exposure but will not eliminate exposure. The responsibility to protect the safety of the indoor environment is shared by all who occupy or control that environment.

Changes in smoking policies regarding the workplace and other environments necessitated by the data presented in this Report should not be designed to punish the smoker. Successful implementation of protection for the nonsmoker requires the support and cooperation of smokers, nonsmokers, management, and employees and should be developed through a cooperative effort of all groups affected. In addition, changes are often more effective when support and assistance is provided for the smoker who wants to quit.

Cigarette smoking is an addictive behavior, and the individual smoker must decide whether or not to continue that behavior; however, it is evident from the data presented in this volume that the choice to smoke cannot interfere with the nonsmokers' right to breathe air free of tobacco smoke. The right of smokers to smoke ends where their behavior affects the health and well-being of others; furthermore, it is the smokers' responsibility to ensure that they do not expose nonsmokers to the potential harmful effects of tobacco smoke.

C. Everett Koop, M.D.
Surgeon General

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