



SPECIAL REPORT SMOKING AND THE PUBLIC

Published by the staff of The Tobacco Institute, 1776 K Street, Northwest, Washington, D.C. 20006

The Question of 'Public Smoking'

This special issue focuses on a subject that has become increasingly familiar to many - "public smoking" and the campaign to limit or prohibit smoking in public places.

The crucial question is whether the exposure of nonsmokers to tobacco smoke in normal, everyday situations actually creates a health hazard. The answer, arrived at after a careful examination of the scientific literature, is unequivocally "No." Indeed, many scientists who believe smoking is harmful to smokers have publicly stated there is no evidence that public smoking is harmful to nonsmokers.

Why, then, is so much emphasis being placed on the subject? A simple answer is difficult, but it seems reasonable to conclude that the failure of the campaign aimed at making smokers stop smoking has resulted in a compensatory effort to make smoking "socially unacceptable."

The campaign for outright bans or restrictions of smoking in public places is noteworthy for its lack of supporting scientific findings. However, it is causing unpleasant and potentially dangerous events. Smokers and nonsmokers, friends and neighbours, are being set against each other. Social friction has arisen in many instances. Violence and militancy have been kindled in some cases. And, most serious of all, personal freedoms in democratic societies are being attacked and eroded.

There is no need to demand restrictive legislation, to infringe on freedom of choice. Common sense, courtesy and tolerance for the preferences of others are all that is needed to enable smokers and nonsmokers each to enjoy their preferences and to respect those of others.

Society is ill-served when its members are subjected to any kind of campaign based on fear or misinformation. No goal can be justified by the use of any expedient or contrivance used in an effort to attain it. Emotional rhetoric is not a substitute for scientific fact.

The Editors

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No Scientific Proof for 'Public Smoking' Theory

To some it's "public smoking." Others call it "passive smoking" or "involuntary smoking," and it is also frequently referred to as "second-hand smoke" or "environmental smoke."

No matter what phrase is used, it means only one thing: the inhalation of tobacco smoke in the ambient air by nonsmokers who are in the vicinity of smokers.

Behind this phrase is the allegation that such inhalation constitutes a health risk for the nonsmoker.

Those who make this allegation are seeking to have governments - national,

regional and local - enact legislation or issue rulings to restrict or prohibit smoking in public places and transportation facilities. They have been successful in certain instances to date.

Supporting or corroborative scientific data for the theory that public smoking is harmful do not exist. On the contrary, there is a considerable amount of research findings which show that normally encountered environmental tobacco smoke is not a health hazard to nonsmokers.

It is significant that many scientists who have claimed smoking is a health

hazard for smokers (especially smokers of cigarettes), have also expressed their belief that public smoking does not represent such a hazard for those who do not smoke.

How It Began

The public smoking theme appears to have been promoted for the first time by Dr. Jesse L. Steinfeld during his 1968-1973 term as Surgeon General of the U.S. Public Health Service. This is a major division of the Department of Health, Education and Welfare (DHEW).

In a 1971 speech he said: "Evidence

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of Hamburg, West Germany, a scientist who has conducted considerable research into the possible effects of public smoking. He has frequently published findings which show that environmental tobacco is not a health hazard for non-smokers.

Dr. Harke, in this particular project, had 21 persons smoke 2 cigarettes each in 16-18 minutes in a closed room 57 cubic metres in volume. The purpose, he wrote, was to study the influence of ventilation on the CO and nicotine content of room air "under extreme conditions that did not correspond to normal situations."

Under the abnormal conditions, he said, the CO and nicotine concentrations approached those maximum permissible levels set by the West German government for working places. However, he added, "they are never approached under actual conditions."

Moderate ventilation of the kind usually present results in a drop of the concentration "substantially below" the government maximums, Dr. Harke said.

Low Nicotine Absorption

In another phase of the study, he measured airborne CO and nicotine under normal conditions in an office designed for two persons. The concentrations of the two substances were low, he said.

Nonsmokers absorbed only 1/100th of the nicotine absorbed by the smokers who inhaled when both were in the same room, Dr. Harke said.

In a later report on tests in which cigarettes were smoked by a machine to generate smoke, Dr. Harke said the findings "do not allow the conclusion that measured concentrations contribute to human illness in the sense of toxicity."

He also looked closely at the physiologic reactions of nonsmokers in a room (170 cubic metres in volume) in which 150 cigarettes were smoked by machine in 30 minutes. The smoke concentration was heavy.

"The results of these experiments demonstrate that, of the measurement magnitudes selected by us - blood pressure, pulse frequency, electrocardiogram, and skin temperature, which can only be considered criteria for the acute effects of smoke - skin temperature shows the most sensitive reaction to the influence of cigarette smoke," he reported. "The quantities of smoke absorbed during passive smoking are too small to cause a significant change in the skin temperature of nonsmokers, even when the nonsmokers are located in rooms containing extremely large smoke concentrations."

Importance of Ventilation

The importance of ventilation, often stressed by researchers in work involving "passive smoking," is seen in a British study in which 20 persons (12 nonsmokers, 8 smokers) sat in an unventilated room 43 cubic metres in volume. Eighty cigarettes and 2 cigars were smoked or burned in 78 minutes.

The scientists who conducted the study, Drs. M. A. H. Russell, P. V. Cole and E. Brown of London's St. Bartholomew's Hospital, said the experimental conditions were "rather extreme" and resulted in smoke conditions "not likely to be met very often in natural social conditions."

They also found what they called a "puzzling result" in the nonsmokers: no significant relation between the amount of CO absorbed and the duration of exposure to smoke.

The aforementioned study was published in "The Lancet," a British medical journal, on 7 March 1973. One of the scientists, Dr. Cole, later reported in the journal "Nature" (26 June 1975) a study in which he compared the effects on carboxyhaemoglobin in humans from atmospheric CO and cigarette smoking.

In that article Dr. Cole wrote: "It is unlikely that COHb levels similar to those found in our nonsmoking subjects could be shown to be harmful to health."

Cancer Claim Is 'Dishonest'

Dr. E. Cuyler Hammond, chief statistician of the American Cancer Society, has often said smoking is dangerous for smokers. In 1974 he participated in an international conference on public education in cancer sponsored by the International Union Against Cancer. In 1975 the Union published a report on the conference that included the following:

"Dr. Hammond stated that there 'was no shred of evidence' that a nonsmoker can get cancer from 'second-hand' smoke and there is a lot of evidence that he cannot. For instance, one doesn't find in the tracheobronchial trees of nonsmokers those atypical cells which are so characteristic of even light cigarette smokers. He added that to suggest passive smoking could cause cancer is dishonest, and that he would be prepared to testify as much in a court."

Bartenders at Risk?

In May 1976, three scientists at the University of Cincinnati, Ohio (USA) reported a study which, they said, showed that bartenders in smoke-filled taverns could suffer a health risk from the CO and other substances produced by the cigarettes of their customers.

The report was carefully analyzed by two researchers at the Harvard School of Public Health, Boston (USA). In a later issue of the same journal in which the report had appeared, they pointed out it had "certain errors" which made the conclusions doubtful.

"Because of strong public sentiment on the subject of passive smoking," warned Drs. Melvin W. First and William C. Hinds, "it is imperative that investigators in this field do careful and responsible work to avoid sensational claims on one side or the other of this issue."

These two investigators had earlier published results of their own study of tobacco smoke concentrations in a variety of public places. Their findings did not suggest any health hazard to nonsmokers, they said.

Research in Sweden

Two Swedish scientists, Drs. Gunnar Anderson and Tore Dalhamn, conducted an experiment in which 7 smokers and 5 nonsmokers were exposed in a ventilated but closed room for 2 hours to smoke from cigarettes, pipes and cigarillos (cigarettes made from pipe tobacco).

There was no significant increase in COHb levels in the nonsmokers, they reported, and the CO concentration in the room, which rose to a mean value of 4.5 ppm, "cannot be assumed to constitute any health risk to nonsmokers." (Before smoking, the room CO concentration was 2 ppm.)

Long-Term CO Exposure

Well-conducted research does not support any claim that long-term exposure to CO might be hazardous to nonsmokers.

In a study of guards who worked in a motor vehicle tunnel in New York City it was reported that they were healthy and that their work performance did not seem to be affected even though they were regularly exposed to CO concentrations averaging 70 ppm. Some exposures rose as high as 200-300 ppm.

Commenting later on this study, Dr. T. J. Curphey wrote in a medical journal:

"What appears to be the most significant observation of this study of traffic officers in the Holland Tunnel is that the blood CO levels of nonsmokers in the tunnel on the average exceeded those of smokers in an environment free from any occupational exposure to CO. Since these men remained healthy after being consistently exposed for 13 years to CO levels appreciably higher than those found in tobacco smoke, the conclusion then is inescapable that smokers with CO levels that lie well within the same ranges are similarly unaffected by CO."

In another project, Dr. Frank Stern of Cincinnati, Ohio (USA) examined the causes of death of men employed as motor vehicle examiners by the state of New Jersey. Fewer deaths than had been expected were found, and of these fewer than expected were from heart disease.

The workers generally were exposed to CO concentrations below 35 ppm, but at times the level reached 200 ppm, Dr. Stern said. Smoking histories were not available, but it seemed likely that workers' smoking experience was similar to that of the general white male population in the U.S.

CO and Heart Disease

There have been some reports claiming that exposure to CO, especially in cigarette smokers, can contribute to the development of atherosclerosis, or hardening of the arteries. Several studies on pigeons, rabbits, dogs, primates, and humans have not shown any harmful effects at blood COHb levels of 15%, a high level rarely found in humans and then only transiently.

In a report on an experiment done on rabbits, three British investigators wrote that "the relationship of moderate chronic CO exposure to the development of arterial disease still remains open."

They also said that extrapolation of the data from animal studies to "the human tobacco smoker must, again, be applied with much caution, and the role of substances other than carbon monoxide should continue to be investigated."

Dr. Kenneth Master of The Bronx, New York, has written about the inhabitants of the New Guinea highlands who maintain fires in small, poorly ventilated huts where CO levels average 21 ppm and sometimes reach 150 ppm. Most of the adults also smoke home-grown tobacco, another source of CO, he said.

Cardiovascular disease is a relatively rare cause of death among the natives, Dr. Master wrote in a letter to a medical journal that concluded with this paragraph:

"Thus, exposure to elevated levels

of CO does not induce arteriosclerosis vascular disease in natives of the highlands of New Guinea. It is likely that inhalation of CO alone does not directly cause atherosclerosis in man but, in combination with dietary, stress, hereditary, and other unknown factors, may predispose to it."

Animals Tests With CO

Animal experiments have also been conducted to see whether there are any biological effects from long-term exposure to CO.

In one such study, scientists from the USA and Canada exposed monkeys to high concentrations of CO for 22 hours a day, 7 days a week, for 2 years. The animals had increased COHb levels, but no adverse effects were detected in various blood components or in heart or brain tissues.

"The conclusion is reached," wrote the scientists, "that these levels of carboxyhaemoglobin for two years did not lead to any biologically significant changes in the monkeys."

In another experiment, investigators at the University of Washington, Seattle (USA) used rat embryos maintained in a culture medium so that their heartbeats were vigorous and constant.

The embryos were exposed to "hyperlethal concentrations" of CO with no adverse effect noted, the researchers reported.

"The observed results are entirely unexpected," they wrote. "The lack of any apparent detrimental effect on the heart or indeed of any observed difference between the experimental animals and the controls is difficult to explain consistent with the known toxicity of CO and the demonstrated effect of the test gas mixtures on adult mice and on the colour of embryonic blood."

International Meeting of Experts

In March 1974, an international workshop on the subject of "Tobacco Smoke Effects on the Nonsmoker" was held with 21 experts participating, all of whom had previously done considerable research into various aspects of smoking and related fields. During the three-day conference, according to one of the participants, there was not one conclusive observation to the effect that exposure to environmental tobacco smoke causes disease in nonsmokers.

Dr. Ragnar Rylander, formerly of Geneva University in Switzerland and now at the University of Gothenburg in Sweden, was the principal organizer of the gathering.

In a report published later, he wrote

his personal conclusion was that "the risk for the development of chronic pulmonary effects due to environmental tobacco smoke exposure is non-existent among the population in general."

Another participant was Dr. Domingo M. Aviado, professor of pharmacology at the University of Pennsylvania, Philadelphia (USA). He has said that "on the basis of existing scientific evidence, tobacco smoke constitutes no health hazard to nonsmokers in public places."

Dr. Aviado made this statement at a public hearing called by officials of a local government who were considering legislation to prohibit smoking in public places.

Another speaker at the hearing was Dr. Walter M. Booker, professor of pharmacology at Howard University College of Medicine, Washington, D.C., for 33 years and chairman of the school's department of pharmacology for 20 years. The proposed legislation was without scientific support, he said, citing research studies to show that no adverse effects have been demonstrated in nonsmokers exposed to smoke.

'Passive Smoking' by Children

Young children are considered to be "passive smokers" if they live in households where one or both parents or other family members smoke. Do such situations have adverse effects on the youngsters?

Dr. John R. T. Colley of London's School of Hygiene and Tropical Medicine, attended the international workshop previously mentioned and, with Dr. Rune Cederlof of the Karolinska Institute in Stockholm, reported on epidemiological investigations on environmental tobacco smoke.

"When parents' respiratory symptoms were taken into account, exposure of the child to cigarette smoke generated by the parents' smoking had little if any effect upon the child's respiratory symptoms," they wrote. "Thus associations between parental smoking and children's respiratory symptoms reported by other authors and interpreted as indicating the effects of environmental tobacco smoke, may in fact be wholly an effect of parents' respiratory disease."

In regard to respiratory diseases in children, a report recently published in the "British Medical Journal" (16 July 1977) said an association has been found between cooking with gas and chest ailments in young boys and girls.

The report, by four researchers at London's St. Thomas's Hospital Medical School, described results from a long-

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term study of more than 5,700 children aged 6 to 11 years from 28 different areas in England and Scotland.

It was found that children from homes where gas was used for cooking had more cough, chest colds and bronchitis than did children from homes where electricity was used. The girls also had more wheeze in homes where gas was used. This "cooking effect" was independent of the effects of age, social class, family size, overcrowding, types of fuel used for heating, etc.

The researchers concluded that the increased incidence of respiratory disease in the children resulted from the higher levels of so-called oxides of nitrogen produced by the burning of gas for cooking.

Performance and 'Passive Smoking'

As has been stated, the alleged but largely unspecified harmful effects of "passive smoking" result chiefly from the presence of carbon monoxide produced by burning cigarettes. Studies have been done to see whether CO ac-

tually produces adverse effects in regard to mental behaviour and physical performance.

In 1967 and 1969, some published reports indicated CO exposure impaired a person's ability to distinguish between short intervals of time and to estimate 30-second time intervals. These decrements in time perception were said to occur upon exposure to CO at concentrations as low as 50 ppm for 90 minutes, exposures that are acceptable industrial standards in some countries, commonly found in urban population areas as a result of air pollution, and much lower than those experienced by the average adult who smokes one pack of cigarettes a day, according to one investigator.

Four scientists at the Medical College of Wisconsin, Milwaukee (USA), sought to corroborate these claims, but their results were totally negative.

They exposed 27 healthy adult men and women to CO at concentrations ranging up to 500 ppm for periods up to 5 hours to determine the effect of the gas on time perception. The exposures

resulted in COHb concentrations as high as 20%, but did not impair the ability of the subjects to perform various time discrimination or estimation tests.

In another study, aerospace medical researchers at Wright-Patterson Air Force Base, Ohio (USA), exposed subjects to CO concentrations ranging up to 250 ppm for 3 hours and then tested them for time estimation, their ability to keep a needle display dial from going off scale by manipulating a control stick, and loss of muscular coordination.

No adverse effects of CO were detected, the scientists reported.

"It is concluded that the present data do not support the hypothesis that low level CO exposure of humans results in performance decrement," they said.

The same research group, in a later study, exposed humans to 75 and 150 ppm of CO during sleep for 9 hours. Upon waking, the subjects were given mental arithmetic, time estimation, tracking, monitoring, and visual tests. No performance decrements or differences from control conditions were found.

Tobacco Allergy: Myth or Truth?

A small number of nonsmokers may be annoyed when they are in the presence of tobacco smoke. True tobacco allergy, however, is rare. Dr. Domingo Aviado of the University of Pennsylvania has described the situation this way:

"Since tobacco smoking first became part of our lives, smokers and nonsmokers have coexisted with little, if any, friction between them. There are certain individuals who object to tobacco smoke and these may generally be grouped as follows: (a) those who dislike the odour or are annoyed by it, and (b) those who complain of irritation, primarily of the eyes and nose."

"The (a) group represents a psychosocial phenomenon, the (b) group may be experiencing irritation which is not a form of allergy. Reported irritation of the eyes and nose has been explained as nonallergic responses because the reaction occurred in both allergic and non-allergic individuals."

"If true tobacco smoke allergy exists, it is believed to be quite rare, but may be considered a third grouping. The method of determining whether an allergy exists has not been settled although many allergists make use of a skin test using tobacco leaf extract. Such skin testing is not at all comparable to exposure to tobacco smoke. There are, of course, many substances (such as pollens and household dusts) which may

elicit an allergic response. It seems impractical, however, to seek to protect allergic individuals by regulating one out of countless sources of allergens."

No Tobacco Allergy Found

Drs. John C. McDougall and Gerald Gleich of the famed Mayo Clinic in Rochester, Minnesota (USA), gave a report on "Tobacco Allergy: Fact or Fancy?" at the 1976 meeting of the American Academy of Allergy. They said they had been unable to find allergy to tobacco and tobacco smoke in the subjects they studied.

"It should perhaps be stressed," they said, "that a negative study such as this one does not imply that persons with other allergies should expose themselves to tobacco smoke without fear of provoking symptoms, but it is likely that those symptoms they experience are due to nonspecific irritations."

Dr. Carl Seltzer of the Harvard School of Public Health told an earlier meeting of allergists of a survey of nearly 70,000 persons which disclosed that nonsmokers have higher rates of hay fever and asthma than do smokers.

The most obvious explanation is that people with allergies avoid smoking, he said. There is also the possibility that smoking may suppress hay fever and asthma, but "we have no data to support that hypothesis," Dr. Seltzer added.

Dr. Geoffrey Taylor, an immunologist at the University of Manchester, England, has written that reactions involving the respiratory tract are not uncommon in passive smokers. "Atopic individuals (those with an inherited tendency to develop some form of allergy) react more than do 'nonatopics,'" he said, "but the true incidence of this problem is not known with certainty."

Theoretically, tobacco smoke contains agents which could act as instigators and induce an immunological response, Dr. Taylor noted, but there is no proof that specific sensitization to tobacco exists.

Smoke Exposure of Asthmatics

Dr. Melvin First of the Harvard School of Public Health told a scientific symposium that hypersensitivity to environmental tobacco smoke has been inferred from studies showing a large number of people reporting eye irritation when exposed to smoke. Lesser numbers report nasal symptoms, headaches, cough, sore throat, and nausea, he said.

"Nevertheless, there is as yet no proof that specific sensitization to tobacco smoke exists," he said. The increased responsiveness of individuals may be due to irritation by one or more of the smoke components or to annoyance reaction.

Scientists Comment On Public Smoking

Many scientists and physicians who have done actual research on public smoking or are familiar with the medical literature on the subject, have made comments that are of direct relevance. Here are some:

"It may be said that, according to the present state of knowledge, passive smoking does not cause physiological injury to nonsmokers" - Dr. H. Schievelbein of the German Heart Centre, Munich. Dr. Schievelbein was a member of the World Health Organisation's Expert Committee on Smoking and Health.

"...our results suggest that concentrations of CO from cigarettes and cigar smoking do not present an inhalation hazard to nonsmokers" - Drs. D. P. Bridge and M. Corn, Graduate School of Public Health, University of Pittsburgh, Pennsylvania (USA).

"Probably not, no. The amount that you breathe in is so small in comparison with the amount that you take in when you smoke a cigarette" - Sir Richard Doll, Oxford, England, who for many years has said smoking is harmful to cigarette smokers.

"There is no evidence to date that passive smoking leads in the long run to typical smokers' diseases or to an increased health risk in an average healthy person. There are no plausible reasons to justify the assumption that such disturbances develop in passive smokers in the short term" - Prof. Dr. W. Klöster-

kotter and E. Gono, Essen University, Germany.

"Potential health effects of tobacco on the nonsmoker have recently been reviewed... No data are available to demonstrate health effects of physiologic response to nicotine levels reached in adult nonsmokers, and carbon monoxide concentrations in nonsmokers are far below levels that are known health hazards" - Dr. Gary L. Huber, Harvard University, Boston (USA).

"A number of research papers have been published on this subject. I am advised that they provide no clear evidence to show that tobacco smoke is harmful to normally healthy nonsmokers or that a heavily tobacco smoke laden atmosphere has other than a transient effect..." - Dr. David Owen, Minister of State (for health) in England in 1975.

"I do not have any hard evidence in that direction (that passive smoking harms the nonsmoker). To my knowledge, it is not in fact, actually harmful" - Dr. Jonathan E. Rhoads, chairman of the U.S. National Cancer Advisory Board and former president of the American Cancer Society.

"Passive smoking can provoke tears or can be otherwise disagreeable, but it has no influence on health. In this case, the doses are too small" - Dr. Ernst L. Wynder, president of the American Health Foundation, New York City, who has long proclaimed the hazards of tobacco for smokers.

"In very direct terms there is no medical proof that nonsmokers exposed to cigarette smoke in ordinary relations with smokers suffer any damage" - Dr. Reul Stallones, University of Texas and an advisor to the 1964 U.S. Surgeon General's Advisory Committee on Smoking and Health.

"The present evidence indicates that there is virtually no risk to the healthy nonsmoker..." - Sir Charles Fletcher, chairman of an Expert Group appointed by the British organization, Action on Smoking and Health, which was established by the Royal College of Physicians of London. (The above is from the group's report on pipe and cigar smoking published in a British medical journal.)

"As is always the case in any group that becomes anti of any situation or circumstance, there are always loud voices and much flag-waving. So it is in the anti-smoking group... Smoking may be offensive to certain people but so is an alcoholic breath, a sweaty body, an unkempt figure, a crying baby, or an undisciplined child... if you ban smoking then will you ban these other annoyances and inconveniences?" - Dr. Paul B. McCleave, while serving as director of the department of medicine and religion of the American Medical Association.

"If we want to remain with facts and not with fiction, there is little danger of disease to people that stay in a room where people smoke" - Dr. Gio Gori, U.S. National Cancer Institute (1976).

Editors' Comment:

The Solution Is Courtesy

Courtesy is the solution to any problem, whether real or imaginary, that may exist between smokers and nonsmokers. Add to this understanding and consideration, and there will not be situations of smokers vs nonsmokers, but rather one where each respects the other's preferences.

Everyone is occasionally subjected to annoyances and irritations from many sources, including those that result from the personal characteristics or customs of others. Such situations can be handled sensibly, if one maintains tolerance for the preferences of others. Nobody wants a government to intrude in such matters, for then there arises the spectre of legislative restrictions seeking to control many aspects of life.

Smokers who are reasonable in the enjoyment of their custom will not let it be an annoyance to others. A courteous approach will do much to lessen any friction that may arise and will increase mutual respect and understanding.

The Tobacco Institute recognizes that there are differences of opinion concerning smoking and health. This folder is presented in the belief that full, free and informed discussion of the smoking and health controversy is in the public interest, and in the conviction that the controversy must be resolved by scientific research.

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