

NEW  
EDITION

**The cigarette controversy  
eight questions and answers**

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The facts and statements in this document are presented by The Tobacco Institute in the belief that the many controversial questions concerning smoking and health must ultimately be answered by further scientific research and new knowledge—and that full, free, and informed public discussion is essential in the public interest.

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## Preface

For many adults, cigarette smoking is one of life's pleasures.

Does it cause illness—even death? No one knows.

The case against smoking is based almost entirely on inferences drawn from statistics and no causal relationship has actually been established. Many respected scientists find that cigarette smoking has not been shown to cause any human disease.

Many others believe that it has. The controversy concerns millions of persons—smokers and nonsmokers. This document presents some relevant facts.

Until colonization of the Americas, tobacco was unknown to the rest of the world. A short time later, in the first half of the 17th Century, King James I of England called the use of tobacco "a custom loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs."

At about the same time, one Dr. Roger Marbecke, in a work entitled "A Defense of Tobacco," recommended smoking in moderation as beneficial.

The controversy had begun.

It continued, little changed, until recent years. Amid rising longevity, rapidly spreading use of the internal combustion engine, growing urbanization, a quickening pace of life and a reported increase in lung cancer, there has been a steadily mounting barrage of charges against smoking.

In 1964, a panel of advisers to the United States Surgeon General reported that cigarette smoking was a cause of lung cancer.

They further declared smoking to be a cause of cancer of the larynx and chronic bronchitis. They suspected it of causing heart disease.

In 1965, and again in 1970, the U. S. Congress said "cigarette smoking may be hazardous to health."

From these developments have come many public warnings: "Don't smoke." "Stop smoking." A concerned public needs the truth about smoking and health. This requires that both sides of the controversy must be known. Statistics are not enough. If smoking does cause disease, why has it not been proved, after all the years of intensive research, how this occurs?

Why, if smoking does cause disease, has no ingredient as found in smoke been identified as the causative factor?

The type of malignancy for which smoking is most often blamed is "epidermoid" lung cancer. Have researchers ever produced this in animals with cigarette smoke? [Despite countless attempts, no such experimental result has ever been verified. This is true of a recent claim made about smoking dogs—as a matter of fact, access by impartial experts to the underlying data has been refused.]

Why do so many more men than women get lung cancer? No one knows. If cigarette smoking is indeed the hazard it is said to be, the roughly six-to-one difference is most perplexing.

Why is it that lung cancer often does not occur in those parts of the lung which are exposed to the most smoke? No one knows.

Do smokers get lung cancer at an earlier age than nonsmokers? Apparently not. Lung cancer occurs most often around age 60—no matter how long or how much a person has smoked, or whether he has smoked at all.

Do statistics prove that cigarette smoking is a cause of lung cancer, heart disease, emphysema, bronchitis, and other dis-

eases? It is a cardinal principle that statistics alone cannot prove the cause of any disease.

Has any new evidence that actually convicts cigarettes been reported in recent years? No. Interestingly, some of the most suggestive new evidence has implicated factors other than cigarettes. The role of emotional stress in disease, for instance.

Does smoking cause disease? That question is still an open one.

**1**

**Does scientific evidence  
really establish a case against cigarettes?**

You may have read about various animal experiments. They have been widely publicized and acclaimed as laboratory proof of the charges against cigarettes.

#### Smoking mice

The mouse experiments, about which you have heard so much, certainly do not help to prove the case against smoking.

Thousands of mice in many laboratories have been made to inhale cigarette smoke for days, weeks, and months.

How many cases of "epidermoid" lung cancer resulted—the type attributed by some to cigarettes?

None.

This type of lung cancer has never been produced in mice with cigarette smoke,<sup>1</sup> a fact not widely publicized.

#### Painted and injected mice

On the other hand, much has been made of the fact that painting smoke condensate ("tar") on the backs of mice has caused some cases of skin cancer in the laboratory.<sup>2</sup> Still, these laboratory experiments hardly advance the case against smoking. For one thing, the doses used in some of these experiments have been estimated to equal a man smoking 100,000 cigarettes a day.<sup>3</sup>

Moreover, cancer has been produced in mice or rats by injecting sugar,<sup>4</sup> mineral oil,<sup>5</sup> tomato juice,<sup>6</sup> and other substances considered quite harmless to man.<sup>7</sup>

Benzpyrene was thought for years to be a culprit in cigarette smoke because it was cancer-producing on mouse skin.

However, after a six-year study of people, completed recently, an American Cancer Society official said, "It is most unlikely that BaP [benzpyrene] as inhaled by man has anything to do with lung cancer."<sup>8</sup>

It has been appropriately said of the mouse painting experiments that they involve the application of "the wrong material, in the wrong form, in the wrong concentration, to the wrong tissue of the wrong animal."<sup>9</sup>

#### Smoking beagles

Scientists have been trying for nearly thirty years to induce human-type lung cancer in animals by having them inhale cigarette smoke. They have used many different species, numerous methods of "smoking," huge doses of cigarette smoke, and thousands of animals. With what result? They have consistently failed.

Past experiments have been publicized as having succeeded in producing human-type lung cancer but have soon lost their luster when subjected to careful scientific scrutiny.

A recent experiment was reported in an American Cancer Society news release February, 1970, as having produced in beagles "early invasive squamous cell carcinoma . . . indistinguishable from that same, quite common form of lung cancer in humans."<sup>10</sup> However, scientists have questioned the experiment, in part, because of the procedures used, the definition of the term "early invasive," the choice of an experimental animal, the adequacy of the controls, and the unusually high incidence of tumors in all the dogs. Forcing smoke through holes cut in dogs' throats, as was done in this experiment, hardly approximates natural smoking in all humans.

As a former president of the College of American Pathologists commented: "These indisputably traumatic conditions could in themselves be causative and therefore create extreme doubt as to the meaning of the reported results."<sup>11</sup> In April, 1970, following a request by The Tobacco Institute for an impartial review of the data by a panel of independent scientists, the ACS refused such a review, saying they

would not submit the data "to any selected committee chosen by The Tobacco Institute or any other group."<sup>12</sup>

#### **Apart from animals, what?**

Other laboratory and clinical observations have similarly failed to prove that smoking causes diseases.

No research demonstrates that any ingredient as found in cigarette smoke causes cancer or cardiovascular, respiratory, or other illnesses in humans. No research has demonstrated any physiological process through which cigarette smoke results in illness.

As far as lung cancer is concerned, researchers have reasoned that if it is caused by cigarette smoking, then, as smoking increased, cancer should have increased proportionately in all areas of the body exposed to smoke.

It has been found that this is not the case. There has been no increase of cancer in all parts of the respiratory system to correspond with the increase in smoking. This includes the mouth,<sup>13</sup> nose and larynx.<sup>14</sup> In the lung, cancer often does not occur in those areas which are exposed to the most smoke.<sup>15</sup>

Much weight has been given, also, to so-called "changes" in the lungs of smokers. But such "changes" also occur in the trachea<sup>16</sup> where cancer is a relative rarity.<sup>17</sup> Further, studies have shown that the same "changes" are found in both smokers and nonsmokers.<sup>18</sup> They are found even in children.<sup>19</sup> And no one has ever demonstrated that these "changes" actually do lead to cancer.<sup>20</sup>

#### **"Tenuous and contradictory"**

One medical authority summed up, in a 1969 statement to the U.S. House of Representatives:

*"The evidence incriminating cigarettes as a cause of disease is based on statistical association. The purported*

*pathologic and experimental corroboration is tenuous and contradictory."*<sup>21</sup>

As bluntly as that.

#### **What supports the charges?**

Thus, the anti-smoking charges rest almost entirely on statistical associations, providing the critics of cigarettes with a "guilt by association" basis for their claim that cigarettes do indeed cause disease.

2

**What are some of the major defects  
in the statistical case against cigarettes?**

The statistical association between smoking and disease has continued to be a major and widely reported subject following the 1964 appearance of the U. S. Surgeon General's Advisory Committee Report, "Smoking and Health."

Less publicized are the continuing objections of qualified experts—doctors, scientists, statisticians—who find the statistical case less than convincing.

In fact, they find major defects in the statistical case against cigarettes. Consider the following:

### 1 Nonsmokers and illness

*Nonsmokers suffer from the same heart and lung diseases as smokers.*

As a matter of fact, these diseases existed long before cigarettes became popular.<sup>22,23,24</sup> Therefore, smoking obviously is not the cause, and may well not be even a cause of such diseases.

### 2 The disease-rate question

Authorities differ over how much of the reported increases in diseases associated with smoking is *apparent*, and how much is *real*.

For example, some suggest that the reported increase in lung cancer incidence is due in great part to improved diagnosis.<sup>25</sup> Many earlier cases were undoubtedly identified as "consumption," "pneumonia" or "lung abscess."<sup>26</sup> Now lung cancer is more accurately diagnosed—due to the use of X-rays, bronchoscopes and other new diagnostic techniques.<sup>27</sup>

Any real increase in emphysema incidence is even more difficult to measure. One prominent doctor-statistician re-

cently cited changes in the names and concepts of disease and "the statistician's arbitrary decision not to regard emphysema as a prime cause of death" until after 1949. "It is impossible today," he said, "to get a valid scientific appraisal of what happened in disease rates of the past."<sup>28</sup>

As to heart ailments—a recent American Heart Association publication actually points to a 20.1 percent *decline* in cardiovascular death rates since 1950 in persons under 65. It reports that heart attack is down 2.2 percent.<sup>29</sup>

### 3 The "dose-response" mystery

The anti-cigarette charges appear contrary to a recognized "dose-response" concept: If cigarettes do cause cancer, then the earlier a person starts to smoke and the more he smokes, the sooner he would be expected to get lung cancer.

Yet while people are smoking earlier and more heavily with each generation, the peak age for lung cancer remains about the same,<sup>30</sup> at around 60. If anything, this peak age may now be moving upward.<sup>31</sup>

### 4 The sex puzzle

Equally puzzling in the statistical findings is the gap between lung cancer rates in men and women.

Forty years ago, relatively few women smoked cigarettes. If smoking caused cancer, one would expect that as more women took up smoking, their lung cancer rate would approach that of men. But the gap between male and female lung cancer death rates has actually widened—and the reason has yet to be adequately explained.

A 1968 report to Congress by the U. S. Public Health Service showed that in 1950 the lung cancer fatality rate among



men exceeded the female rate by 4.7 to one; and that by 1965 the ratio was 6.1 to one.<sup>22</sup>

5 The geographical puzzle

If smoking caused lung cancer, it would be reasonable to expect more of the disease in countries where more cigarettes are smoked per capita. But consider these examples.

- A. Although people in Great Britain smoke fewer cigarettes per person than Americans, the incidence of lung cancer in Britain is *twice as high*.
- B. Per capita cigarette smoking in the Netherlands is also less than it is in the U. S., yet lung cancer death rates are about *one-third higher* than here.
- C. Australians smoke almost as many cigarettes per person as do the British, yet have *less than one-half* the incidence of lung cancer.<sup>23, 24</sup>

Are there other puzzling confusions in the statistical case?

6 The statistics are spread too thin

Statistics have been used to link cigarette smoking with *nearly two dozen diseases*, including lung cancer, heart disease, bronchitis, emphysema, cirrhosis of the liver—nearly every ailment that afflicts the human body.<sup>25</sup>

As one noted medical statistician has observed, "The idea that cigarette smoking causes all these many deaths from all these many causes does indeed seem seriously questionable. There is not any scientifically known pharmacologic or physical explanation for so widespread and multifarious an effect."<sup>26</sup>

These are six major defects. However, authorities have gone on to point out many other contradictions and perplexities in the anti-smoking statistics.

In the history of medical science, statistics have often mistakenly been interpreted as having "proved" the "cause" of diseases.

Statistics may have appeared to "prove" pellagra was caused by eating corn. But further research proved that the cause is a vitamin deficiency.

Statistics may have appeared to "prove" living at lower altitudes caused cholera. But further research proved a bacillus is the cause.

Statistics may have appeared to "prove" malaria was caused by "night air." But further research proved a miasma is the cause.

As the Surgeon General's Advisory Committee itself declared in 1964: "Statistical methods cannot establish proof of a causal relationship in an association."<sup>17</sup>

#### Contradiction after contradiction

The smoking and health figures are, in fact, a mine of contradictions and paradoxes. As survey after survey appears, the list of confusions lengthens. Everywhere there are questions which need answers. And the questions have no answers.

Here is a sampling of the contradictions in the reports used to indict smoking:

1. A 1967 U. S. government health survey reported that people who smoked ten cigarettes or less a day had a better overall health record than non-smokers.<sup>18</sup>
2. The same U. S. government survey also reported that the prevalence of heart conditions and hypertension in women smokers was only about half that in women who had never smoked.<sup>19</sup>

3. Heart disease, in another report, was less frequent among ex-smokers than among non-smokers.<sup>40</sup>

#### The surveys—are they representative?

Even the Surgeon General's Advisory Committee conceded that the seven major studies it had considered in writing its 1964 report were not designed to represent the U. S. population.

Said the report: "Any answer to the question 'to what general populations of men can the results be applied?', must involve an element of unverifiable judgment."<sup>41</sup> But this candor disappeared in subsequent official reports on smoking and health, even though some of the same studies were used to expand allegations about smoking and higher death rates.

#### The inhalation puzzle

In a British study that greatly stimulated the cigarette controversy, smokers who *inhaled* were found to have a lower incidence of lung cancer than those who did not inhale.

This led Sir Ronald Fisher, geneticist and world-famous statistician, to comment:

"Should not these workers have let the world know, not only that they had discovered the cause of lung cancer (cigarettes), but also that they had discovered the means of its prevention (inhaling cigarette smoke)?"<sup>42</sup>

#### Still more contradictions

Contradictions multiply, and absurdities abound.

A California study, for instance, showed that smoking

mothers had more low-weight babies than mothers who did not smoke. Yet, the nursery death rates for low-weight babies of smoking mothers were 40% to 60% lower than for such babies born to the mothers who did not smoke.<sup>43</sup> It is obviously ridiculous to draw positive conclusions exonerating cigarettes from such data. Yet many of the conclusions drawn *against* cigarettes are equally unjustified.

**What happens to the research  
that does not condemn cigarettes?**

It is minimized. Overlooked. Or—flatly ignored by the anti-smoking propagandists.

The truth remains: A great deal of research does not support the ritually repeated charges against smoking. In fact, much research suggests some vastly different conclusions. Some examples:

1. From a study published in 1969, in which 3,410 adults were examined in an Australian community to determine prevalence of heart disease: *No significant association was found between cigarette smoking and heart disease.*<sup>44</sup>
2. From an analysis of more than 1,400 autopsies conducted at the Legal Medical Institute of Santiago, Chile, reported here recently: *No significant relationship was found between cigarette smoking and heart disease.*<sup>45</sup>
3. From lung cancer research published in West Germany in 1964, covering 26,000 autopsy records dating back to the early 1900's plus 1,229 current cases: *No significant relationship was found between cigarette smoking and lung cancer.*<sup>46</sup>
4. From a 1964 study examining 1,000 cases of lung cancer at Mercy Hospital in Pittsburgh, Pennsylvania: *Approximately half (474) of these lung cancer patients were nonsmokers.*<sup>47</sup>
5. From a study reported to a Congressional committee in 1969 of Swedish identical twin pairs with differing smoking habits: *No association was found between smoking and any higher overall mortality.*<sup>48</sup>

These and other research studies further explain why many of the nation's most highly qualified doctors have

taken strong positions against the unsupported condemnation of smoking and have urged additional study. These doctors, it should be noted, are not for cigarettes—they simply do not believe that a case has been proved against cigarettes.

The disagreement of some of these doctors is a matter of Congressional record.

#### **The conclusions of some distinguished experts**

The following statements were made by experts in hearings before the U. S. House of Representatives:

*"As a scientist, I find no persuasive evidence that cigarette smoking causes lung cancer."<sup>49</sup>*

*"The cause of cancer in humans, including the cause of cancer of the lung, is unknown."<sup>50</sup>*

*"The incrimination that smoking causes or accelerates heart disease from atherosclerosis of the coronary arteries is wholly unwarranted."<sup>51</sup>*

*"In my opinion, there is insufficient evidence for attributing an established causal role in these conditions [bronchitis and emphysema] to cigarette smoking."<sup>52</sup>*

*"The widely publicized accusations of hundreds of thousands of deaths caused by cigarettes, and, of shortening of life expectancy a specific number of minutes per cigarette smoked are fanciful extrapolations and not factual data."<sup>53</sup>*

#### **Five facts**

It will be valuable to note five facts before we go on. First, as we have seen, the anti-smoking side of the controversy

has not been universally accepted by the responsible scientific community.

Second, there is awareness among scientists that not all research condemns smoking.

Third, much of the statistical research now used to condemn smoking is flawed, contradictory, and vulnerable to challenge.

Fourth, in any event, statistics alone cannot prove the cause of any disease.

Fifth, experimental research has not substantiated the charges against smoking.

Those facts, together, may help explain why some critics of smoking have reacted by adopting particularly aggressive positions—reaching for the most dramatic and “sweeping” of statistical claims. Reaching, it often appears, well beyond statistical fact.

Let us turn, next, to what is perhaps the most striking illustration of this.

The misleading claim that "300,000 excess deaths a year" are caused by cigarettes has echoed from hundreds of editorials, news stories and speeches.

A factual figure? No. It is sheer speculation. Where it comes from is worth retracing.

#### The story behind the statistic

The Surgeon General's Advisory Committee Report did not offer any such figure. It said that any such figure "cannot be accurately estimated."<sup>54</sup>

The Assistant Surgeon General, who was also the Committee's vice-chairman, told the press at the time:

"The Committee considered the possibility of trying to make such calculations, but it involves making so many assumptions that the Committee felt that it should not attempt this, that it might be as misleading as it was informing."<sup>55</sup>

#### The figure is born

Yet, on the first anniversary of the report, on January 11, 1965, a former advertising executive attacked cigarettes as causing 125,000 to 300,000 deaths a year.<sup>56</sup> He was at the time chairman of an organization called the National Interagency Council on Smoking and Health.

Soon, a government official was saying in a speech that smoking was responsible for at least 125,000 premature deaths a year.

His source, he said, was the chairman of the Council.<sup>57</sup>

#### Back to the ad man

The latter was asked in a hearing before the U.S. Congress where he got his figures. His reply: From the government!<sup>58</sup> So, the ball was shot back to the government man, who

then counted up 138,000—33,500 from lung cancer, 80,000 from coronary disease, 16,500 from bronchitis and emphysema, and 8,000 from cancer of the oral cavity, esophagus, larynx and bladder.<sup>59</sup>

To achieve this figure, the government official had arbitrarily included several diseases which were not claimed even by the Surgeon General's Advisory Committee Report to be causally related to smoking.

Later, the then U. S. Surgeon General undertook to explain the 300,000 figure. He did this by:

1. Taking as his basis the unsupported explanation of 138,000 deaths.
2. Adding to it another unsupported 102,000 deaths—"from diseases where the relationship to cigarette smoking, while not so obvious, is nevertheless clearly indicated."
3. Adding to this another unsupported but "reasonable estimate" of 60,000 excess deaths for women, who had not been included in the earlier estimates.<sup>60</sup>

#### Guesswork becomes "fact"

In the public press, this game of statistical volleyball—which was utterly without factual support—was never exposed. But 300,000 is simple, rounded, and a very large statistic. It is striking, easy to remember, easy to quote—and meaningless.

Statistics such as the notorious 300,000 figure—designed for publicity value—can be worse than meaningless. They can confirm prejudice and close the mind—and even deter further needed research, as medical observers have warned.

Neither side of the controversy can afford them.

6

Have you been misled  
by "scientific surveys" about cigarettes?

Statistics derived in a survey are only as good as their sources.

Statisticians are rarely deceived about this—and the famous caution of Sir Josiah Stamp is right to the point.

Public agencies, noted this distinguished economist, "are very keen on amassing statistics—they collect them, add them, raise them to the nth power, take the cube root and prepare wonderful diagrams. But what you must never forget is that every one of those figures comes in the first instance from the village watchman, who just puts down what he damn pleases."<sup>61</sup>

An exaggeration?

#### Judge for yourself

Take one of the most widely heralded pieces of statistical research ever done for the government—a report called "Cigarette Smoking and Health Characteristics."

Three years in the making, this report reflected detailed interviews in about 42,000 American households, probing the smoking habits and medical histories of some 134,000 Americans.<sup>62</sup>

Released to the press in May, 1967, the report was an immediate sensation. Here, it appeared, was massive new evidence against cigarettes. Apparently authoritative, objective, scientifically gathered and weighed.

The public read about it in such terms as these:

"Smoking Is Linked To Loss Of Time From Work And Recreation," *New York Times*. "U. S. Study Ties Heart Disease to 2-Packs-a-Day Smokers," *Philadelphia Inquirer*. "New Data Indicts Smoking," *Washington Star*. "Study Links Smoking to Increased Illness," *Cleveland Plain Deal-*

er. "Study Shows Smokers Lose A Third More Job Time," *Baltimore Sun*.<sup>63</sup>

Along with the survey, newsmen were given the startling claim that "there are 77 million 'excess' lost work days associated with cigarette smoking each year."<sup>64</sup> This well-remembered charge was reported as fact. But it was neither stated nor justified by the survey.

#### Second-hand information

You would suppose that the information in this study came first-hand from smokers themselves. It should have. Much of it, indeed, should have come from the smokers' doctors. *Data on the smoking habits and health record of three out of five men in the survey who had ever smoked did not even come from the men themselves.*<sup>65</sup>

And none of it came from their doctors.

The information came from anyone at home, other than children, when the interviewer called.

#### Memory—or guesswork?

Picture, if you will, a ring of the doorbell. A 19-year-old greets the interviewer.<sup>66</sup> Her parents are away, she is interested—and one of America's most ambitious "medical studies" is under way.

*Does your father have any ailments, conditions, or problems with his health? Does he smoke? During the period when he was smoking the most, how many cigarettes a day did he usually smoke?*<sup>67</sup> (Could she know? Could even her father remember precisely?)

Our teenager is now in the midst of a detailed five-page questionnaire. Against the chance she might overlook an



ailment, the interviewer is armed with a list of 26 "conditions" relevant to his task. These are read out, in turn, and the willing teenager remembers—or makes her diagnosis.

#### **Asthma? Skin trouble? Hemorrhoids?**

The list starts with asthma and tuberculosis. It ends with chronic skin trouble, rupture, and prostate trouble. And it includes varicose veins, rheumatism, goiter, "any allergy," mental illness, chronic nervous trouble, kidney stones, and hemorrhoids.<sup>84</sup>

The smoker himself would have had a hard time making valid diagnoses. Even his doctor might not have the facts.

Regardless, the on-the-spot data were recorded. Then assembled, tabulated, and given the *weight of scientific findings—to two decimal places.*

#### **The misunderstanding**

Publicity releases were drafted, distributed to the press, and the nation received its latest "research" report on smoking and health.

There was a critical misunderstanding: That this poll was indeed *scientific research*—and that it offered *authoritative* medical fact.

It would have been hard to miss the headlines and news stories. The publicists' work was well done.

Eminent doctors and scientists increasingly suggest that this may be so.

Authorities point out that there are patterns of behavior and background which differ between smokers and non-smokers, when considered as groups. (It may be that some smokers are also different from other smokers—different enough to affect reported disease patterns for the whole group of smokers.) Here are some reported findings:

Smokers generally are more communicative. They are more creative than nonsmokers—more energetic,<sup>70</sup> more volatile.<sup>70</sup>

They drink more black coffee and liquor.<sup>71</sup> They marry more often.<sup>72</sup> They prefer spicy or salty foods in preference to bland diets.<sup>73</sup> They participate in more sports.<sup>74</sup> They change jobs more often,<sup>75</sup> evidencing, perhaps, what one researcher has described as the smokers' search "for aims and purposes."<sup>76</sup>

As children, they were more independent.<sup>77</sup> As adults, they are more outgoing—living, so to speak, more in "over-drive."<sup>77a</sup>

They differ in family background as well. They are more likely to have parents with heart disease and hypertension.<sup>78</sup>

A "different kind of people," it appears—with smoking being one more difference in a comprehensive pattern of differences. Many authorities are convinced that here is a consideration with a real and possibly critical bearing on the smoking-health controversy.

And, as such, it is one of a growing number of considerations which are unsettling attempts to find in smoking a cause of ill health.

#### Why the differences are important

People who smoke apparently tend to differ quite importantly from people who do not—in their heredity, in constitutional makeup, in patterns of life, in the more demanding pressures under which they have chosen to live.

Are they the kind of people, who, expectably, would have higher illness rates than nonsmokers—because of the kind of people they happen to be?

#### The role of heredity

Evidence of the role heredity may play comes from Sweden. In that country, researchers studied sets of twins—one twin a smoker, the other a nonsmoker.

Comparisons between smoking and nonsmoking twins showed no difference in the relative health of their heart and circulatory systems. Heredity appeared to be very important in the health of the heart.<sup>80</sup> In a recent study, smoking and nonsmoking Swedish identical twins had about equal mortality.<sup>81</sup>

#### The role of emotional stress

Cancer researchers have noted the mounting evidence that emotional and psychological factors may be of crucial importance in an individual's susceptibility to disease.

"Data gathered here and abroad," *The New York Times* has summed up, "support the view that the way a person handles certain emotional stresses may be a determining factor in whether he develops cancer."<sup>82</sup>

As research data accumulates, more and more factors come under suspicion as contributors to the illnesses for which some blame smoking.

### The factors multiply

The possible role of air pollution is being more closely studied.<sup>25</sup> Virus research is being broadened.<sup>26</sup> Certain occupational hazards<sup>25</sup> and stresses<sup>26</sup> are suspected. Enzymes may play a role.<sup>27</sup>

Obviously, much more work must be done.

Too little is yet known about the psychological, physical and genetic differences between people who smoke and people who do not.

More data are needed about the incredible number of variables that can modify or even control a person's predisposition to disease.

More research is needed on the ways in which *all* factors develop, combine and interact—differently in each individual—leading to illness in some cases, but not in others. Has any meaningful scientific evidence showing a relationship between smoking and human health been developed since 1964, the year in which the Surgeon General's Advisory Committee Report was released? It was the recent judgment of a Congressional committee that "The arguments pro and con with respect to cigarettes are the same now as then, though supported by a larger statistical base."<sup>28</sup>

More than statistics is necessary. That is why this caution given in testimony before the U. S. Senate in 1965 by a leading medical specialist remains so timely:

*"The continuing need for honest research in seeking the answer to this unsolved problem cannot be sidestepped merely because an apparent statistical association has spotlighted a convenient though probably innocent suspect."<sup>28</sup>*

The problem is not a simple one. Too many factors are involved. And until their roles and their relationships are understood, no one can be sure about the role of smoking. Only further research can provide the answers.

A great deal. Far more, in fact, than most people realize. The tobacco industry has mounted no publicity campaign about the research it has been supporting with respect to the smoking-health controversy. Outside the medical and scientific communities, the work is little known.

#### No one is doing more

The tobacco industry is funding more scientific research into the problems than any other source, governmental or private.<sup>80</sup>

From the beginning, the industry's policy has been to work—as dispassionately as possible—toward a conclusive, scientific understanding of the actual facts, *whatever these facts turn out to be.*

#### Multi-million-dollar research

The American Medical Association, both a close observer of and participant in the cigarette controversy, has emphasized that although epidemiological and correlational studies have associated smoking with a number of diseases—including cancer, coronary disease and emphysema—their actual causes remain obscure. Only further research, AMA believes, will serve to clarify the picture.<sup>81</sup>

In 1964, the AMA House of Delegates adopted as official policy the statement that there is "a significant relationship between cigarette smoking and the incidence of lung cancer and certain other diseases, and cigarette smoking is a serious health hazard."<sup>82</sup>

AMA then authorized its Education and Research Foundation to begin a long-range scientific study of tobacco and

health. Since then, tobacco companies in the U.S. have pledged \$18 million in support of the project—no strings attached—over a ten-year period. The money is spent as the Foundation sees fit.<sup>83</sup>

In the summer of 1968, the Foundation gave its first formal report covering the work to date of 104 investigators or teams in 50 institutions in the U.S. and five other countries.

Referring to the supported research, the report stated:

"(T)he problems related to establishing any kind of cause and effect relationship between tobacco use and health are far more complex than had been supposed . . .

"It is evident that we have a long hard road to travel and that this will be done slowly. *Many years may be required to gather sufficient experimental facts and data to clear what is at best a muddled picture.*" (Emphasis added.)<sup>84</sup>

Providing tobacco company funds for AMA research is only part of the story.

Together, as an industry, since 1954, cigarette makers have committed unrestricted funds to the multiplying projects of The Council for Tobacco Research-USA.

The Council alone has awarded millions in grants for research to more than 240 scientists at more than 180 hospitals, universities and research organizations. A Scientific Advisory Board determines these grants. It is composed of distinguished, independent scientists affiliated with leading academic, research and governmental institutions. CTR support includes full freedom to perform research and publish results, *with no strings attached.* And, to date, more than 730 scientific papers reporting the research have been published by grant recipients.<sup>85</sup>

**The work goes on**

Yet, as all of these investigators recognize—and as many other scientists and doctors are aware—the work is nowhere near an end.

Research—and only research—holds the answer.

In the only way possible: by the facts.

Suspicion and unconfirmed accusation are so much easier than *knowledge*.

But they are unworthy substitutes.

**Footnotes**

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