

The Cigarette Controversy

K. Michael Cummings, Anthony Brown, and Richard O'Connor

Department of Health Behavior, Roswell Park Cancer Institute, Buffalo, New York

Abstract

This study examines the history of the cigarette controversy using the tobacco documents as a roadmap to explore the following four questions: (a) What did tobacco companies know about the health risks of smoking and when did they know it? (b) What evidence is there that tobacco companies conspired to deliberately mislead the public about the health risks of smoking? (c) How were scientists involved in the cigarette controversy? (d) Have tobacco companies changed the way they do business since signing the 1998 Master Settlement Agreement? The tobacco companies knew and for most part accepted the evidence that cigarette smoking was a cause of cancer by the late 1950s. The documents also reveal that the tobacco companies helped manufacture the smoking controversy by funding scientific research that was intended to obfuscate and prolong the debate about smoking

and health. Today, the tobacco companies acknowledge that smoking is a cause of disease, but they have not materially altered the way they do business. In our opinion, it is not sufficient for the tobacco industry to merely concede the obvious point that smoking is a cause of disease when it is evident that decades of misinformation has resulted in a public that is massively ignorant about the risks of smoking low-tar cigarettes, nicotine addiction, and secondhand smoke exposure. Public education efforts are still needed to correct these misperceptions along with government oversight to ensure that the industry is not permitted to mislead the public further. If the past 50 years have taught us anything, it is that the tobacco industry cannot be trusted to put the public's interest above their profits no matter what they say. (Cancer Epidemiol Biomarkers Prev 2007;16(6):1070-6)

Introduction

In 1994, heads of the major U.S. tobacco companies testified before Congress that the evidence that cigarette smoking caused diseases such as cancer and heart disease was inconclusive, that cigarettes were not addictive, and that they did not market to children. Less than 1 month after this testimony, a box containing confidential documents from the Brown & Williamson Tobacco Corporation was delivered to the University of California at San Francisco. What was revealed in these documents was evidence that the tobacco industry had for decades known and accepted the fact that cigarettes caused premature death, considered tobacco to be addictive, and that their programs to support scientific research on smoking and health had been a sham (1-6).

The release of these documents provided a roadmap for future document discovery, fueling a wave of litigation against the tobacco industry. In 1998, lawsuits filed on behalf of state governments resulted in the Master Settlement Agreement, which included as one of its key provisions the requirement to post over 30 million pages of industry documents online (7). In 1999, the federal government filed its own suit against the tobacco industry for violating the Racketeer Influenced and Corrupt Organizations (RICO) Act. In August 2006, U.S. District Judge Gladys Kessler concluded that "...the tobacco companies conspired to violate the substantive provisions of RICO...and...in fact violated those substantive provisions" (ref. 8, see page 2).

This study examines the history of the cigarette controversy using the tobacco documents as a roadmap to explore the following four questions: (a) What did tobacco companies know about the health risks of smoking and when did they know it? (b) What evidence is there that tobacco companies conspired to deliberately mislead the public about the health risks of smoking? (c) How were scientists involved in the cigarette controversy? (d) Have tobacco companies changed the way they do business since signing the 1998 Master Settlement Agreement?

Materials and Methods

This study relies on statements made by cigarette manufacturers individually and collectively through the Tobacco Industry Research Committee (TIRC), Council for Tobacco Research (CTR), Center for Indoor Air Research (CIAR), and the Tobacco Institute (TI) on the subject of smoking and health. All of these organizations were financially supported by tobacco companies. The TIRC was established in 1954 with the goal of supporting independent research on the relationship between smoking and health. In 1964, the TIRC was renamed the CTR but operated with the same management structure until 1998 when it closed. The CIAR was formed in 1988 by tobacco companies to sponsor research on indoor air issues and to facilitate communication of research findings to the broad scientific community. The TI was established in 1958 and operated as public relations and lobbying organization for the tobacco industry. CTR, CIAR, and TI all were closed down as part of the 1998 Master Settlement Agreement.

The documents referenced in this study were located by searching on two web sites developed specifically to facilitate tobacco industry document research. The URLs and special features of these web sites are briefly described in Table 1. As a requirement of the Master Settlement Agreement, the tobacco

Received 10/31/06; revised 12/5/06; accepted 12/15/06.

Note: To assist readers in locating and reviewing documents referenced in this study, we have created a web site with hyperlinks to each referenced document. This web site can be accessed at <http://roswell.tobaccodocuments.org>.

Requests for reprints: K. Michael Cummings, Department of Health Behavior, Roswell Park Cancer Institute, Elm and Carlton Streets, Buffalo, NY 14263. Phone: 716-845-8456; Fax: 716-845-1265. E-mail: Michael.cummings@roswellpark.org

Copyright © 2007 American Association for Cancer Research.

doi:10.1158/1055-9965.EPI-06-0912

industry is required to place new documents identified through litigation on their web sites. Thus, the denominator of documents available for searching is constantly changing but now includes over 41 million pages of material. The Legacy Library at the University California at San Francisco and Tobacco Documents Online each hold over 9 million distinct documents. Documents found within these online libraries span from the early 1920s to the present time. Not all of the documents available are dated, and some have missing pages or sections that have been redacted for legal reasons. Web site searches for this study were done by two of us (K.M.C. and A.B.) using short-string Boolean-based methodologies. Different Boolean search phrases were applied (e.g., <smoking AND cancer> or <tobacco AND cancer>). In addition, The Roswell Park Cancer Institute has scanned, digitally indexed, and done optical character recognition on over 1.3 million documents previously belonging to the TI and CTR where full-text Boolean searches have been employed. Part of this collection is the TI audiovisual collection consisting of over 3,300 unique tobacco industry audio and videotapes. All audiovisual materials have been hand-indexed into database where searching of named persons, dates, programs, producer, named organizations, titles, and keyword or subject headings were done.

Smoking Causes Cancer: When Did They Know?

For most of the past 100 years, cigarette manufacturers have told smokers that their products were not proven to be injurious to health (8-10). In fact, cigarette companies frequently implied to consumers that their brands were safer than their competitor's brands because the smoke was less irritating, smoother, and milder (11). Ironically, making cigarette smoke lighter, milder, and less irritating caused smokers to inhale the smoke more deeply into their lungs, thereby negating any health benefit that might have been gained by altering the product (12-14). The question of when tobacco companies knew or should have known about the

serious health consequences of smoking goes to the very question of whether or not there was a real cigarette controversy.

Evidence linking smoking and cancer appeared in the 1920s (15). Between 1920 and 1940, a chemist named Angel Honorio Roffo published several articles showing that cancers could be experimentally induced by exposure to tars from burned tobacco (16). Roffo et al. further showed that cancer could be induced by using nicotine-free tobacco, which means that tar, with or without nicotine, was carcinogenic. Research implicating smoking as a cause of cancer began to mount during the 1950s, with several landmark publications in leading medical journals (17-23). The first official U.S. government statement on smoking and health was issued by the Surgeon General Leroy Burney in a televised press conference in 1957, wherein he reported that the scientific evidence supported cigarette smoking as a causative factor in the etiology of lung cancer (24, 25). By 1960, Joseph Garland, Editor of the *New England Journal*, wrote, "No responsible observer can deny this association, and the evidence is now sufficiently strong to suggest a causative role" (26).

In their public statements, tobacco companies held that cigarettes had not been proven to be injurious to health. For example, a November 1953 press release issued by the American Tobacco Company stated, "...no one has yet proved that lung cancer in any human being is directly traceable to tobacco or its products in any form" (27). In a *New York Times* story based on this press release, the headline states that Mr. Hahn (President of the American Tobacco Company) characterizes the evidence of a link between cigarette smoking and an increase in the incidence of lung cancer as "Loose Talk" (28). In 1954, Philip Morris Vice President George Weissman announced that if the company had any thought or knowledge that in any way we were selling a product harmful to consumers, that they would stop business immediately (29). Senior scientists and executives at tobacco companies, however, knew about the potential cancer risk of smoking as early as the 1940s, and most accepted the fact that smoking caused cancer by the late 1950s (30-34).

A 1939 memorandum from the American Tobacco Company Research Director Hiram Hanmer noted, "We have been following Roffo's work for some time, and I feel that it is rather unfortunate that a statement such as his [implicating smoking in cancer] is widely disseminated" (30). A few years later, H.B. Parmele, a scientist working for the Lorillard Tobacco Company, wrote a report to the company's manufacturing committee observing that, "Certain scientists and medical authorities have claimed for many years that the use of tobacco contributes to cancer development in susceptible people. Just enough evidence has been presented to justify the possibility of such a presumption...benzpyrene is presumed to be a combustion product of burning tobacco and, by animal experiments, it has been shown to possess definite carcinogenic properties" (31). In 1953, a chemist at R.J. Reynolds Tobacco Company, Claude Teague, produced a literature survey on smoking and cancer referencing 78 articles, which offered the following conclusion: "...studies of clinical data tend to confirm the relationship between heavy and prolonged tobacco smoking and incidence of cancer of the lung" (32). Three scientists from the British American Tobacco Company reported in 1958 on the results of a visit to the United States, investigating the extent to which tobacco industry and non-industry scientists accepted the premise that cigarette smoke was a cause of lung cancer (33). Their report concludes that "With one exception [HSN Green from Yale University] the individuals with whom we met

Table 1. Tobacco document web sites

Web site and features

<p>Legacy Tobacco Documents Library: http://legacy.library.ucsf.edu The Legacy Tobacco Documents Library includes documents posted on tobacco industry web sites as of July 1999 in accordance with the Master Settlement Agreement, additional documents added to those sites since that date, and the Mangini and Brown & Williamson document collections from the Tobacco Control Archives maintained by the University of California, San Francisco. New documents are added to the Legacy Tobacco Documents Library monthly as they are collected from industry web sites. Legacy Tobacco Documents Library recently added optical character recognition and searchable pdf files to facilitate document searching. The web site also provides easy to download pdf images and a way to collect multiple documents into a separate file for later reference.</p>
<p>Tobacco Documents Online: http://tobaccodocuments.org Tobacco Documents Online includes documents posted on tobacco industry web sites as of July 1999. The Tobacco Documents Online spent over a year standardizing the document descriptions to allow uniform searching. The Tobacco Documents Online offers powerful searching across all the company web sites, access to high-quality images, optical character recognition, and the ability to collect and annotate documents. The search tools have been built for document researchers and are available to anyone with a web browser. Other special features of this web site are topic-related document collections (i.e., youth marketing, cigarette ingredients, and witness testimony), profiles on names, organizations, etc. to facilitate searching and cigarette advertising archives.</p>

believed that smoking causes lung cancer, if by 'causation' we mean any chain of events which leads finally to lung cancer and which involves smoking as an indispensable link" (33).

In 1961, the Arthur D. Little Company provided a confidential report to Liggett and Myers Tobacco Company, which stated that there are "biologically active materials present in cigarette tobacco. These are: a) cancer causing; b) cancer promoting; and c) poisonous" (34). A 1961 presentation to the R&D committee at Philip Morris acknowledged that there was evidence that smoking may be a causative factor in lung cancer and included a partial list of carcinogens identified in cigarette smoke (35). A 1962 report by the R.J. Reynolds scientist Dr. Alan Rodgman characterized the amount of evidence accumulated to indict cigarette smoking as a health risk as "overwhelming," whereas the evidence challenging such an indictment was "scant" (36).

In summary, internal industry documents reveal that the tobacco companies knew and for the most part accepted the evidence that cigarette smoking was a cause of cancer by the late 1950s.

Conspiracy to Deceive

"Conspiracy" is defined as an act of plotting or contriving together, often with regard to an agreement to perform an unlawful or wrongful act (37). In her decision regarding the allegation that the tobacco companies had violated RICO, Judge Kessler observed that the trial record amply showed a conspiracy to make false, deceptive, and misleading public statements about cigarettes and smoking from at least January 1954, when the Frank Statement was published, up to the present (ref. 8, see pages 1500-01). The "Frank Statement to Cigarette Smokers" was a jointly sponsored advocacy advertisement published by tobacco manufacturers in January 1954 (38). The advertisement appeared in 448 newspapers in 258 cities, reaching over 43 million Americans. The advertisement questioned research findings implicating smoking as a cause of cancer, promised consumers that their cigarettes were safe, and pledged to support impartial research to investigate allegations that smoking was harmful to human health (9, 38).

Documents pertaining to the formation and subsequent support of the TIRC, later renamed the CTR and TI, provide the basis for understanding Judge Kessler's finding that the tobacco companies had conspired to mislead consumers about the risks of smoking (ref. 8, see page 1330). To understand the motivation behind the conspiracy, it is important to recognize that in the early 1950s, tobacco executives were being pressured to respond to scientific reports that their products might cause cancer. By 1952, two cigarette manufacturers had introduced filter cigarette brands that were marketed as safer (e.g., Kent and Viceroy). The potential for competition between the companies in the marketing of safer cigarettes was also perceived as a potential threat to the industry as a whole because "safer" cigarettes might fuel consumer concern about the possible health risks of smoking (39).

In the fall of 1953, the President of the American Tobacco Company, Paul Hahn, invited the heads of the leading tobacco manufacturers to a meeting at the Plaza Hotel in New York City on December 14, 1953 (40). At this meeting, it was decided that a public relations firm, Hill & Knowlton, would be employed and jointly paid by the tobacco companies to develop a response to the smoking and health allegations (41). On the next day, executives at Hill & Knowlton met with the tobacco company executives to outline their plan to help

the industry address the smoking and health problem. A memorandum from Hill & Knowlton stated their task as follows: "We have one essential job — which can be simply said: Stop public panic...There is only one problem — confidence, and how to establish it; public assurance, and how to create it...And, most important, how to free millions of Americans from the guilty fear that is going to arise deep in their biological depths — regardless of any pooh-poohing logic — every time they light a cigarette" (42).

The tobacco documents reveal how the tobacco industry worked together since the early 1950s to create a pro-cigarette public relations campaign to mislead the public about the dangers of smoking to advance their collective interest to market cigarettes.

Science for Sale

Scientists were the perfect foil for the tobacco industry's public relations response to allegations that cigarette smoking was injurious to health. Scientists could be counted on to call for more research, giving the impression that there was controversy. In addition, by supporting scientific research, the industry would be seen as doing something positive to address the serious allegations that smoking was harmful (43).

The "Frank Statement to Cigarette Smokers" informed the public that the tobacco industry "will cooperate closely with those whose task it is to safeguard the public health" and to support independent research into all phases of tobacco use and health. According to a TIRC press release, the purpose of the organization was to "...encourage and support qualified research scientists in their efforts to learn more about smoking and health" (44). However, in the first year of operation, the TIRC did not fund any independent research, instead used the resources to mount an aggressive public relations campaign (45). In 1955, Dr. Clarence Little, the first Scientific Director of TIRC, appeared on the Edward R. Murrow show and was asked, "Dr. Little have any cancer-causing agents been identified in cigarettes?" Dr. Little replied, "No. None whatever, either in cigarettes or in any product of smoking, as such." Dr. Little was also asked, "Suppose the tremendous amount of research going on were to reveal that there is a cancer causing agent in cigarettes, what then?" Dr. Little replied, "It would be made public immediately and just as broadly as we could make it, and then efforts would be taken to attempt to remove that substance or substances" (46).

However, by the late 1950s, it was becoming increasingly difficult for the TIRC to appear free from the influence of tobacco manufacturers. It was for this reason in 1958 that the communications committee of the TIRC split off to form the TI. The TI charter listed the following among its duties: dissemination of scientific and medical material related to tobacco, cooperating with governmental agencies and public officials with reference to the tobacco industry, and promoting the public good will (47). Over its 40-year history (1958-1998), the TI was the collective voice of the tobacco industry. In 1958, the TI started its operation with just four people but increased to a staff of 32 by the mid-1970s (48). Budget documents reveal that the funding sources and management structure of TIRC and TI were essentially the same (49).

The Surgeon General's 1964 Report on Smoking and Health left little doubt about whether smoking was harmful to health; yet, the tobacco companies continued to insist that the case against smoking was unproven. However, tobacco companies also recognized it was becoming increasingly difficult for them

Table 2. Selected comments from industry spokespersons about smoking and health

Date	Source	Statement
4 Jan 1954	A Frank Statement to Cigarette Smokers, published in major U.S. newspapers (38)	"Distinguished authorities point out that: . . .there is no proof that cigarette smoking is one of the causes. . .that statistics purporting that to link cigarette smoking with disease could apply with equal force to any other aspect of modern life. Indeed the validity of the statistics themselves is questioned by numerous scientists."
30 Mar 1954	George Weissman, Philip Morris VP, speech to the National Association of Tobacco Distributors (29)	"If we had any thought or knowledge that in any way we were selling a product that was harmful to consumers, we would stop business tomorrow."
1 Jan 1968	The Cigarettes Controversy TI publication (67)	Q. Has it been proved that smoking causes premature death? A. No Q. Has anyone ever been able to prove that any ingredient as found in cigarette smoke is a cause of lung cancer? A. No
23 April 1968	R.J. Reynolds Tobacco Company, Letter to elementary school teacher (68)	" . . .medical science has been unable to establish that smoking has a direct causal link with any human disease."
4 Sept 1969	American Tobacco advertisement in the New York Times (69)	"We believe that the anticigarette theory is a bum rap . . . each time the Congress of the United States has held hearings on the cigarette controversy; distinguished, independent scientists have gone to Washington to say so."
3 Jan 1971	Joseph Cullman, Philip Morris CEO, Face the Nation (70)	INTERVIEWER: "Have they [cigarettes] been proved to be safe Mr. Cullman?" CULLMAN: "I believe: they have not been proved to be unsafe."
16 Aug 1976	James Bowling, Philip Morris VP, BBC documentary "Death In The West." (71)	"From our standpoint, if anyone ever identified any ingredient in tobacco smoke or smoke as being hazardous to human health or being something that shouldn't be there, we could eliminate it. But no one ever has."
11 Nov 1977	Robert Roach, Manager of PR for Brown & Williamson Tobacco Company (72)	"We don't think it's a question of safer cigarettes. We think all of our cigarettes are safe because there is no documented evidence whatsoever that indicates a cause and effect relationship between smoking any disease. We are producing low tar, high filtration products along with our competitors to appeal to consumer demand."
12 Mar 1982	Edward Horrigan, R.J. Reynolds Tobacco Company CEO, Testifying before the U.S. Congress (73)	"I am saying that the science to date and over a hundred million dollars of our industry's money indicates that there is no causal link."
1985	Of Cigarettes and Science advert from R.J. Reynolds Tobacco Company (74)	"We believe in science. That is why we continue to provide funding for independent research into smoking and health. . . Science is science. Proof is proof. That is why the controversy over smoking and health remains an open one."
11 Jan 1989	Brennan Dawson, TI, ABC TV, Good Morning America (75)	"I think it's worth pointing out that all the links that have been established between smoking and certain diseases are based on statistics. What that means is that the causative relationship has not yet been established."
11 Jan 1990	Letter to elementary school, R.J. Reynolds Tobacco Company (76)	"[d]espite all the research going on, the simple and unfortunate fact is that scientists do not know the cause or causes of the chronic diseases reported to be associated with smoking."

to suggest that they were supporting independent research on smoking and health given their financial stake in the outcome. In an effort to create a perception of independence from the tobacco companies 1 month after the Surgeon General issued his first report on smoking and health, the TIRC changed its name to CTR (50). However, the management of CTR remained intact, and evidence shows that industry lawyers started to exert greater control over how CTR research funds were expended (4, 51-54).

From 1964 onward, the TI frequently made reference to the fact that qualified scientists challenged the evidence that smoking caused disease. Yet, many of these so-called independent scientists were recruited and had their research programs supported by the tobacco industry through the TIRC/CTR (55, 56). For example, in 1970, the TI sponsored the "Truth" public service campaign that informed the public that there was a scientific controversy about whether smoking caused disease (57-59). The "Truth" campaign encouraged people to contact the TI to get a copy of a "White Paper" that included quotes from scientists challenging the evidence that smoking caused the disease. Lawyer-controlled "special

project accounts" were used to recruit and support scientists who were willing to make statements and/or conduct research that would be favorable to the industry's view that causes other than smoking were responsible for lung cancer and other diseases (51-54). Table 2 provides examples of public statements made by tobacco industry spokespersons between 1954 and 1997 regarding the smoking and health "controversy."

Although TIRC and CTR did fund legitimate peer reviewed research on cancer and other tobacco-related health issues, much of the research that was supported was far removed from addressing the question of whether cigarette smoking caused cancer or other diseases. Evidence that CTR funded research projects had little to do with smoking and health was confirmed in a 1989 survey of CTR-funded scientists, which asked grantees if their research had anything to do with understanding the relationship between smoking and health. Only one of six scientists responded affirmatively to this question (60).

Internal documents from the industry acknowledged that TIRC/CTR was largely a public relations asset for them rather

than a real research endeavor to address the smoking and health controversy (51-54). A 1970 letter from Helmut Wakeham, then Vice President of the Corporate Research and Development at Philip Morris, to the President of the TI summed up this view: "nobody believes we are interested in the truth on this subject; and the fact that a multi-billion dollar industry has put up 30 million dollars for this over a ten-year period cannot be impressive to a public which at the same time is told we spend upwards of 300 million dollars in one year on advertising" (61).

The tobacco company conspiracy to manufacture a false controversy about smoking and health is summarized in a 1972 TI memorandum, which defined the strategy as consisting of three parts: (a) "creating doubt about the health charge without actually denying it"; (b) "advocating the public's right to smoke, without actually urging them to take up the practice"; and (c) "encouraging objective scientific research as the only way to resolve the question of the health hazard" (62). In her analysis of the purpose of the industry's jointly funded "research" organizations, Judge Kessler observed that the TI, TIRC, CTR, and CIAR helped the industry achieve its goals because they "sponsored and funded research that attacked scientific studies demonstrating harmful effects of smoking cigarettes but did not itself conduct research addressing the fundamental questions regarding the adverse health effects of smoking" (ref. 8, see pages 1532-33).

In summary, the internal industry documents show how tobacco companies deliberately confused the public debate about smoking and health by creating and supporting research organizations that were never really interested in discovering the truth about whether smoking was a cause of disease.

Have Tobacco Companies Changed?

The 1998 Master Settlement Agreement was intended to reform the tobacco industry by requiring the companies to alter their marketing practices and dissolve the TI and the various research organizations that they had supported (i.e., CTR and CIAR). In October 1999, Philip Morris Tobacco Company announced to the public on its web site that, "[t]here is an overwhelming medical and scientific consensus that cigarette smoking causes lung cancer, heart disease, emphysema and other serious disease in smokers" (10). However, when shareholders proposed a resolution asking the company to produce a report on how it intended to correct the defects that resulted in its products causing disease (63), the company responded that the shareholder's resolution had "... mischaracterizes the Company's web site as constituting a public admission that cigarettes cause illness. It does not." (64). Today, all of the major tobacco companies have web sites acknowledging that smoking is a cause of disease. However, the current web site statement of R.J. Reynolds on the health effects of smoking continues to insist that smoking "causes disease in some individuals" only "in combination with other factors" (ref. 8, see page 1632). In the courtroom, the companies continue to challenge allegations about nicotine addiction and smoking causing illness. The tobacco companies have not yet been able to bring themselves to accept responsibility for their past illegal acts.

Thus, should we believe the tobacco companies claim that they have changed? According to Judge Kessler, the answer is no because the fundamental motivation of the industry is to remain profitable by selling a lethal, addictive product. Judge Kessler compared the tobacco industry with an "amoeba..

changing it shape to fit its current need, adding organizations when necessary and eliminating them when they become obsolete...but ...again like an amoeba, its core purpose remained constant; survival of the industry" (ref. 8, see page 1532). In fact, Kessler noted that within months of Philip Morris signing the Master Settlement Agreement, they were making plans for establishing a new external research program, using the same offices, people, and peer reviewers that had been established as the CIAR.

In summary, it does not seem that the tobacco industry has changed since the 1998 Master Settlement Agreement but instead has found alternative ways to support research and create controversy about the health risks of smoking. For example, in the 2006 election, the tobacco industry spent over US\$100 million dollars opposing state-initiated proposals to limit smoking in public places and raise cigarette taxes.

Discussion

Internal industry documents reveal that the tobacco companies knew and for the most part accepted the evidence that cigarette smoking was a cause of cancer by the late 1950s. The documents reveal that the tobacco companies conspired to deliberately confuse the public debate about smoking and health and co-opted scientists through the offer of research funding provided by shadowy "independent" funding organizations. In her ruling against the tobacco companies, Judge Kessler observed that the practices of the tobacco companies had not changed materially (ref. 8, see pages 1606-07). She observed that Phillip Morris's had already established a new research program essentially combining the functions of the CTR and CIAR into a single program. Judge Kessler cautioned that the RICO enterprise of TI, TIRC, CTR, and CIAR "can be resurrected, recreated, or reincarnated at any time at [the tobacco companies] wish" (ref. 8, see page 1534). The implication of Judge Kessler ruling is clear: the tobacco companies cannot and should not be trusted.

In our opinion, it is not sufficient for the tobacco industry to merely concede the obvious point that smoking is a cause of disease when it is evident that decades of misinformation has resulted in a public that is massively ignorant about the risks of smoking low-tar cigarettes, nicotine addiction, and second-hand smoke exposure (65). Moreover, claims by tobacco companies that they are involved in sponsoring programs to help smokers to quit and discourage youth from taking up smoking must be seriously questioned in light of recent findings that show that these programs have no beneficial effect and may potentially be iatrogenic (66). There remains a need for public education efforts to correct consumer misperceptions about the risks of smoking along with government oversight to ensure that industry is not permitted to use its vast marketing resources to continue to mislead the public. Universities should also consider adopting policies that prohibit their faculty from accepting funding from tobacco companies.

References

1. Glantz SA, Slade J, Bero LA, Hanauer P, Barnes DE. The cigarette papers. Berkeley (CA): University of California Press; 1996.
2. Glantz SA, Barnes DE, Bero LA, Hanauer P, Slade J. Looking through a keyhole at the tobacco industry: the Brown and Williamson documents. *JAMA* 1995;274:219-24.
3. Slade J, Bero LA, Hanauer P, Barnes ED, Glantz SA. Nicotine and addiction: the Brown and Williamson documents. *JAMA* 1995;274:225-33.

4. Hanauer P, Slade J, Barnes ED, Bero LA, Glantz SA. Lawyer control of internal scientific research to protect against products liability lawsuits: the Brown and Williamson documents. *JAMA* 1995;274:234–40.
5. Bero LA, Barnes ED, Hanauer P, Slade J, Glantz SA. Lawyer control of external scientific research: the Brown and Williamson documents. *JAMA* 1995;274:241–7.
6. Barnes ED, Hanauer P, Slade J, Bero LA, Glantz SA. Environmental tobacco smoke: the Brown and Williamson documents. *JAMA* 1995;274:248–53.
7. Malone RE, Balbach ED. "Tobacco industry documents: treasure trove or quagmire?" *Tobacco Control* 2000;9:334–8.
8. US v Philip Morris et al. Civil Action 99-2496, Final opinion, issued August 17, 2006, U.S. District, Lexis 61412.
9. Cummings KM, Morley, Hyland A. Failed promises of the cigarette industry and its effect on consumer misperceptions about the health risks of smoking. *Tobacco Control* 2002;11:i110–6.
10. Cummings KM. A promise is a promise. *Tobacco Control* 2003;12:117–8.
11. See historical archive of over 8000 examples of cigarette brand advertising at <http://roswell.tobaccodocuments.org> (click on the Richard W. Pollay 20th Century Tobacco Advertisement Collection).
12. Kozlowski LT, O'Connor RJ. Cigarette filter ventilation is a defective design because of misleading taste, bigger puffs, and blocked vents. *Tobacco Control* 2002;11:i40–50.
13. Hecht SS, Murphy SE, Carmella SG, et al. Similar uptake of lung carcinogens by smokers of regular, light and ultralight cigarettes. *Cancer Epidemiology Biomarkers Prevention* 2005;14:693–8.
14. Hammond D, Fong GT, Cummings KM, Hyland A. Smoking topography, brand switching, and nicotine delivery: results from an *in vivo* study. *Cancer Epidemiology Biomarkers Prevention* 2005;14:1370–5.
15. Proctor RN. The Nazi war on cancer. Princeton (NJ): Princeton University Press; 1999.
16. Robert PN. Angel H Roffo: The forgotten father of experimental tobacco carcinogenesis. *Bulletin of the World Health Organization* 2006;84:494–6.
17. Schrek R, Baker LA, Ballard GP, Dolgoff S. Tobacco smoking as an etiologic factor in disease. I. Cancer. *Cancer Res* 1950;10:49–58.
18. Wynder EL, Graham EA. Tobacco smoking as a possible etiologic factor in bronchogenic carcinoma. *JAMA* 1950;143:329–336.
19. Levin ML, Goldstein H, Gerhardt PR. Cancer and tobacco smoking. *JAMA* 1950;143:336–8.
20. Wynder EL, Graham EA, Croninger AB. Experimental product of carcinoma with cigarette tar. *Cancer Res* 1953;13:855–4.
21. Hammond EC, Horn D. The relationship between human smoking habits and death rates: a follow-up study of 187,766 men. *JAMA* 1954;155:1316–28.
22. Doll R, Hill BA. The mortality of doctors in relation to their smoking habits - a preliminary report. *BMJ* 1954;1:1451–5.
23. Auerbach et al. Changes in the bronchial epithelium in relation to smoking and cancer of the lung. A report of progress. *N Engl J Med* 1957;256:97–104.
24. US Department of Health Education and Welfare, Press release. 12 Jul, 1957. Bates Number: 966016828-966016833.
25. Burney LE. "Policy over politics: the first statement on smoking and health by the Surgeon General of the United States Public Health Service." *New York State Journal of Medicine* 1983;83:12–13.
26. Garland J. "Editorials." *N Engl J Med* 1969;262:417–8.
27. American Tobacco Company. "Press Release." 26 Nov 1953. Bates Number: ATX040334272-040334277.
28. New York Times. "Cigarette Concern Scouts Cancer Link, American Tobacco Head Says There Is No Proof Smoking Causes Disease in Lungs, Loose Talk Is Assailed, Hahn Notes That Experts Differ on Causes of Increases in Respiratory Ailments." 27 Nov 1953. Bates Number: MNAT00616550.
29. Weissman G. "Facts versus fancy." 26 Feb 1954. Bates Number: 1002366389-1002366397; also see: Weissman, George, Philip Morris, Inc. Public relations and cigarette marketing. 30 Mar 1954. Bates Number: 1002366398-1002366402.
30. Hanmer HR, [No title]. American Tobacco Company, 11 May 1939. Bates Number: MNAT00637003.
31. Parmele HB [No title]. Lorillard Tobacco Company, 29 Jul 1946. Bates Number: 04365255-04365256.
32. Teague C. Survey of cancer research. R.J. Reynolds Tobacco Company, 2 Feb 1953. Bates Number: 501932947-501932968.
33. Bentley HR, Felton DGI. Reid WW Report on Visit to U.S.A. and Canada. "Smoking and Health Research in U.S.A." British American Tobacco Company, 12 May 1958. Bates Number: 105407187-105407194.
34. Arthur D, Little Inc; "L & M — a perspective review." 15 Mar 1961. Bates Number: TINY0003153-0003156.
35. Wakeham H. "Tobacco and Health R&D Approach, Presentation to R&D Committee by Dr. H. Wakeham, a meeting held in New York Office on November 15, 1961." 15 Nov 1961. Bates Number: 2024947172-2024947196.
36. Rodgman A. Chemical Research. "The smoking and health problem — a critical and objective appraisal." [undated] 1962. Bates Number: 504822823-504822846.
37. Webster's Seventh New Collegiate Dictionary. Springfield (MA): G&C Merriam Company; 1961.
38. Tobacco Industry Research Committee. "A Frank Statement to Cigarette Smokers." 4 Jan 1954. Bates Number: 980014685.
39. Kluger R. Ashes to ashes: America's hundred-year cigarette war, the public health, and the unabashed triumph of Philip Morris. New York (NY): Alfred A. Knopf; 1996.
40. Western Union; Hahn PM; American. "In view of the highly publicized claims of certain medical men not sponsored by any duly accredited scientific medical organization charging serious danger to health from smoking." 10 Dec 1953. Bates Number: 508775416.
41. Tobacco Industry Meeting, New York December 14, 1953. 14 Dec 1953. Bates Number: 680262226-680262228.
42. Edwin F Dakin To Members of the Planning Committee — Forwarding memo, [undated], John Hill's papers related to the tobacco industry from the State Historical Society of Wisconsin Archive Division, JH 000493-JH000501.
43. Memorandum Pollay RW. Propaganda, puffing and the public interest: the scientific smoke screen for cigarettes. *Public Relations Rev* 1990;16:27–42.
44. Hill & Knowlton, Inc. Press Release for: Tobacco Industry Research Committee. For immediate release, 12 Oct 1954. Bates Number: 961002287.
45. Hill Knowlton. "Public Relations Progress Report and Program for the Tobacco Industry Research Committee." 30 Dec 1954. Bates Number: 501941204-501941216.
46. Edward R. Murrow's TV show on "Cigarettes and Lung Cancer." 6 Jun 1955. Bates Number: 11311595/1602.
47. NY Supreme Court, Bickert GW, Brown JC, et al. "Certificate of Incorporation of the Tobacco Institute, Inc. Pursuant to the Membership Corporations Law". 27 Jan 1958. Bates Number: 2024984445-2024984450.
48. Komegay HR, Kastenbaum MA, Ehringhaus JCB, Kloepfer W, Dwyer W, Drath C. "Briefing by Tobacco Institute Staff Activities of the Institute 1975 [Brief View of TI History and the Role it Plays with Government at the Federal Level]". 24 Sept 1975. Bates Number: TIMN0075441-0075453.
49. Cummings KM. (slide presentation). History of the US Tobacco Institute and Tobacco Industry Research Committee. 16 Sept 2003. *Tobacco Control*: <http://tc.bmjournals.com/misc/powerpoint.dtl>.
50. Council for Tobacco Research, O'Shea S, Press Release "[Concerns Renaming and Relocation of TIRC and Programs It Sponsors]." 11 Mar 1964, Bates Number: 11313323-11313325.
51. Seligman RB, "Draft Meeting Notes." 17 Nov 1978. Bates Number: 1003718428-1003718432.
52. Notes of Meeting of Committee of General Counsel Held on September 10, 1981. 18 Sept 1981. Bates Number: 2047641691-2047641698.
53. Jones, Day, Reavis & Pogue. Fact Team Memorandum. 31 Dec 1985. Bates Number: 515873805-515873929.
54. Wakeham H. "Hilton Head Meeting of the Cigarette Company Research Directors 680214-680216, or Some Thoughts on Cooperative Research in the Tobacco Industry." 7 Mar 1968. Bates Number: 83713819-83713824.
55. Congressional Preparation Including Consultation Fees Authorized For Preparation of "Backgrounder" Materials, Literature Studies, Panel Preparation and Preparation of Statements, But Excluding Special Projects and 3i Approvals, Payments and Payables as of January 1, 1968. 26 Jan 1968. Bates Number: 955017820-955017825.
56. CTR Special Projects [and Special Accounts]. 2 Feb 1979. Bates Number: 1005045370-1005045383.
57. Brown and Williamson. Project Truth TV production: "Statue." 16 Mar 1971. Bates Number: 680282172.
58. Brown and Williamson. Project Truth: 60 TV "White Paper." [undated] 1971. Bates Number: TIMN0261425-0261226A.
59. Mctigue T [Letter]. Project Truth transfer to Tobacco Institute. 17 Nov 1971. Bates Number: TIMN0261417.
60. Wakeham H, [letter to Earle Clements]. 26 May 1970. Bates Number: 1000320801-1000320802.
61. Cummings KM, Sciandra R, Gingrass A, Davis R. What Scientists funded by the tobacco industry believe about the hazards of cigarette smoking? *Am J Public Health* 1991;81:894–896.
62. Panzer F. Subject: the Roper proposal. Philip Morris Incorporated. The Tobacco Institute. 1 May 1972. Bates Number: 2024274199-2024274202.
63. Bible G. Notice of annual meeting of stockholders and proxy statements. Philip Morris Companies, Inc., 10 March 2000.
64. Whitson J, Jerry, Hunton & Williams. [Letter to Securities and Exchange Commission on behalf of Philip Morris regarding] Shareholder proposal submitted by Gregory N. Connolly. 10 Feb 2000.
65. Cummings KM, Hyland A, Giovino GA, Hastrup JL, Bauer JE, Bansal MA. Are smokers adequately informed about the health risks of smoking and medicinal nicotine? *Nicotine Tob Res* 2004;6:S333–340.
66. Wakefield M, Terry-McElrath Y, Emery S, et al. Effect of televised, tobacco company-funded smoking prevention advertising on youth smoking-related beliefs, intentions, and behavior. *AJPH* 2006;96:2154–60.
67. The Cigarettes Controversy Tobacco Institute publication. 1 Jan 1968. Bates Number: TIMN0104765-0104868.
68. Mann JB. [Letter] R J. Reynolds Tobacco Company. 23 Apr 1968. Bates Number: 500320466.
69. New York Times. [Advertisement] American Tobacco Company. 4 Sept 1969. Bates Number: 682823472.

Tobacco Industry Misinformation Campaign

70. Face the Nation. Transcript of interview with Joseph Cullman, Philip Morris Tobacco Company CEO. 3 Jan 1971. Bates: 1005081714-1005081732.
71. Thames Broadcasting Company. Mr. James C. Bowling, Vice president, Philip Morris, Inc., interviewed by Mr. Peter Taylor for documentary entitled "Death in the West." 16 Aug 1976. Bates Number: 1002410318-1002410351.
72. WAVE TV - Channel 3. Transcript of interview with Robert Roach, Manager of PR Manager for Brown & Williamson Tobacco Company. 11 Nov 1977. Bates Number: TMDA2009340-TMDA2009342.
73. Tobacco Institute Videotape Collection. Transcript of Edward Horrihan, RJ Reynolds Tobacco Company CEO, testifying before the US Congress. 12 Mar 1982. Bates Number: TI55230001, box 1518.
74. R J. Reynolds Tobacco Company. "Of cigarettes and science" [undated], 1985. Bates Number: 513960251.
75. Tobacco Institute Videotape Collection. ABC TV, Good Morning America, interview with Brennan Dawson, Tobacco Institute. 11 Jan 1989. Bates Number: TI55230001, box 1518.
76. Spach JF. [Letter] R J. Reynolds Tobacco Company. 11 Jan 1990. Bates Number: 508466199-508466200.