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IMPLICATIONS OF THE TOBACCO INDUSTRY DOCUMENTS FOR PUBLIC HEALTH AND POLICY

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■ **Abstract** The release of previously secret internal tobacco industry documents has given the public health community unprecedented insight into the industry's motives, strategies, tactics, and data. The documents provide information that is not available from any other source and describe the history of industry activities over the past 50 years. The documents show that the tobacco industry has been engaged in deceiving policy makers and the public for decades. This paper begins with a brief history of the tobacco industry documents and describes the methodological challenges related to locating and analyzing an enormous number of poorly indexed documents. It provides an overview of selected important findings of document research conducted to date, including analyses of industry documents on nicotine and addiction, product design, marketing and promotion, passive smoke, and internal activities. The paper concludes with a discussion of the implications of tobacco document research for public health and the application of such research to fields other than tobacco control.

INTRODUCTION

The most valuable outcome of recent lawsuits against the tobacco industry may be the internal industry documents that have been made available to the public through settlement agreements. The internal tobacco industry documents give the public health community unprecedented insight into the industry's motives, strategies, tactics, and data (Table 1). The documents provide information that is not available from any other source and describe the history of industry activities over the past 50 years. The documents describe an industry that has been motivated almost exclusively by a desire for profits. Protecting the tobacco industry from litigation or regulation has been the driving force behind the industry's actions. The documents show that the tobacco industry has been engaged in deceiving policy makers and the public for decades. The documents also describe how the industry operated and provide the truth about tobacco, secondhand smoke, advertising, promotion, and other industry activities (Table 1).

TABLE 1 Selected findings from the tobacco industry documents

Tobacco industry motives

- Profit
- Fear of litigation
- Protect tobacco from regulation
- Concerns about credibility/image of the industry

How the tobacco industry operates

- Deceive the public and policy makers
- Hide information from the public and policy makers
- Create controversy
- Involve lawyers in decisions—from scientific research to marketing to public relations
- Use third parties or front groups to hide political lobbying and public relations activities
- Coordinate action and communication among tobacco companies globally
  - Some disagreement among tobacco companies in different countries regarding how to deal with fact that tobacco is harmful
- Influence practices/procedures that affect a variety of corporate interests
- Use financial ties with other corporations to pressure those organizations to support tobacco industry goals

The truth about tobacco and tobacco advertising

- Nicotine is a drug
- Nicotine is addictive
- Secondhand smoke exposure is harmful to health
- Industry attempts to develop less harmful tobacco products have been a failure
- Tobacco advertising, promotions, and product design target youth
- Tobacco advertising aims to increase consumption of tobacco products

This paper begins with a brief history of the tobacco industry documents and describes the methodological challenges to conducting research using the documents. It provides an overview of selected important findings of document research conducted to date. Discussed here are the implications of tobacco document research for public health and the application of such research to fields other than tobacco control.

HISTORY OF THE TOBACCO DOCUMENTS

In 1994, the first tobacco industry documents became public knowledge when a series of articles was published in the *New York Times* based on information from Brown and Williamson (B&W) Tobacco Corporation and its parent company, British American Tobacco (BAT) Company. The B&W documents, which were released by a tobacco industry whistleblower, were also sent to a university professor, resulting in the publication of peer-reviewed academic articles, a book,

and, ultimately, the posting of the documents on the Internet (21). Meanwhile, additional documents became available during Congressional hearings [e.g., (55)] or from tobacco litigation cases [e.g., (10)]. In 1998, the availability of tobacco industry documents increased exponentially as a result of the settlement of a suit by the state of Minnesota and Blue Cross/Blue Shield against the major tobacco companies. As part of the Minnesota settlement, Attorney General Humphrey required that the defendants release millions of pages of internal documents. These documents are stored in depositories in Minnesota and Guildford, England. The Master Settlement Agreement between the attorneys general of 46 states and B&W/BAT, Lorillard, Philip Morris, RJ Reynolds, the Council for Tobacco Research, and The Tobacco Institute required that the documents be made available on the Internet and be updated until 2010. Governmental and private funding sources have begun to support the archiving and indexing of these documents on other Internet sites, as well (15). Recent funding initiatives from the National Cancer Institute, Legacy Foundation, and California Tobacco-Related Disease Research Program have supported projects aimed at making the tobacco industry documents more accessible and promoting scholarly analyses of the documents.

METHODOLOGICAL CHALLENGES

The millions of tobacco industry documents are poorly indexed, located on unstable tobacco industry websites, and often of poor visual quality. Thus, identifying documents that are useful for research purposes is a challenge. In addition, methods used for qualitative analyses of the documents are evolving. Completed analyses of documents are appearing at a rapid rate, making it difficult for researchers in the field to keep up with the latest developments. This section briefly summarizes some of the methodological challenges facing document researchers.

Searching

Although the tobacco industry documents contain an extraordinary amount of information, it is often hard to find, incomplete, and difficult to interpret. Malone & Balbach have described in detail the methodological challenges facing researchers searching for documents at the depositories or on the Internet sites (38). For example, visiting the document depositories is not like visiting a public library. Elaborate sign-in procedures are required, there are delays in retrieving documents, and copying the documents is costly. Searching for tobacco industry documents on the web sites managed by the tobacco industry is more efficient than attempting to find documents at the depositories (1). However, these web sites have regular crashes, the tobacco companies index the documents in different ways, full-text word searches are not available, misspellings are rampant, and the search engines are limited. Web sites run by the tobacco control community, such as the University of California, San Francisco/Legacy site (http://legacy.library.ucsf.edu), and Tobacco Documents Online (http://www.tobaccodocuments.org) are starting to

overcome some of these problems relating to indexing and stability. As of July 2002, the Legacy Documents Library contained more than 24 million pages of tobacco industry documents.

A major question for researchers attempting to identify documents is "How much is enough?" Document researchers tend to use snowball sampling techniques (building on previous searches) and stop searching when they start to retrieve the same documents with each new search (saturation). Although there is a great deal of apparent duplication among documents on the various sites, many documents are not exact duplicates. For example, documents may contain different handwritten marginalia that provide interesting insight into how the documents were edited by lawyers or others.

Analyses

Although most published papers contain little information on the search methods used to identify tobacco industry documents, even less information is provided about how the documents are actually analyzed. Most papers report that the documents have been "read and summarized." One good example of an analysis plan is in Hastings & MacFayden (23). These authors conducted a literature review, developed four questions (themes) based on this literature review, and analyzed their documents according to these themes. O'Sullivan & Chapman also provide a brief description of how they developed analytic themes (44).

The methods used for document research are evolving. Although reading a series of quotes from tobacco industry documents can be entertaining, it is not necessarily informative. Interpretive methods, used by historians and social scientists who study archival and documentary data, may be unfamiliar to many public health researchers. Interpretive data analysis involves iteratively reviewing data to construct an account that is coherent, supported by the evidence, and deeply contextualized. This approach often involves seeking out secondary sources to answer questions raised by the primary source material. Document researchers need to put the documents into their historical and situational context. In addition, the tobacco industry documents frequently consist of industry plans, and it is important for document researchers to consult additional sources to test whether the industry actually implemented its plans.

Reporting

Given the difficulties in searching for tobacco industry documents, it would be useful for research papers reporting analyses of the documents to have clearly stated search strategies. However, descriptions of search strategies vary widely from no description at all to detailed descriptions. Research articles based on tobacco industry documents tend to be long because the analyses are qualitative and include many quotes, so there may be a tendency in journals to minimize the methods section. It would be beneficial if the methods could be posted electronically if page limitations do not allow publication of the methods within the article.

Keeping Up to Date

Keeping up to date with the research on tobacco industry documents is a difficult task. For papers that are indexed in MEDLINE, there are no relevant MESH terms and the titles do not always contain the words "tobacco industry document." For this review, PubMed was searched using the phrase "tobacco document*". This search strategy appears to have good sensitivity and specificity as it identified all the relevant papers in the March 2002 supplement I of Tobacco Control devoted to tobacco industry document research (53a). However, some tobacco industry document research is published as news items, editorials, letters, on the Internet only, or not published at all. Therefore, PubMed searches should be supplemented with searches of other databases and by contacting other researchers in the field, as was done for this review article. Of the 49 tobacco document analyses cited in this review, 33 were retrieved through the PubMed search. In addition, new document analyses, spurred by funding initiatives from the National Cancer Institute and elsewhere, are appearing at a rapid rate. Registries of ongoing document research would be useful for keeping abreast of the latest research on tobacco industry documents.

HOW THE INDUSTRY OPERATES: STRATEGIES AND TACTICS

The tobacco industry documents are often referred to as the "internal," "confidential," or "previously secret" documents. In other words, these documents were never meant for public consumption, and they give us a valuable insight into the inner workings of the industry. Table 1 lists the main findings about how the industry operates.

Deception has been the *modus operandi* of the industry. The tobacco industry has deceived the public and policy makers by controlling information about addiction, product design and chemistry, adverse health effects of tobacco, and marketing (12, 14, 20, 32). The industry has often attempted to hide its involvement in these deceptions by working through third parties and front groups in all areas of activity that it viewed as posing a threat to profitability (11, 16, 17, 37, 49).

The tobacco industry documents also reveal the extent to which industry lawyers were involved in decisions in every arena. Correspondence among industry lawyers shows how scientific research, marketing, public relations, and almost all industry activities were directed by the efforts of tobacco industry lawyers to protect the industry from litigation (4, 22).

Lawyers at Brown and Williamson developed methods for handling documents to protect them from discovery during lawsuits. Lawyers monitored internal and external tobacco research (22). Documents were circulated on restricted lists and some documents were labeled, sometimes inappropriately, as "work product" or "privileged" to prevent them from being used in court. Documents that dealt with the toxicity of tobacco smoke or the pharmacological properties of nicotine often fell into these protected categories. The documents that were considered by lawyers to have the most potential for damage to the industry were shipped from U.S.

tobacco companies to non-U.S. companies to avoid discovery (22). Some of the documents from Brown and Williamson Tobacco Company, labeled "deadwood," may reside in the Guildford Depository in England, whereas others are likely to have been destroyed.

The pervasiveness of tobacco industry activities is another major theme among the tobacco industry documents. The tobacco industry saw the world as its market (57), and tobacco companies coordinated their activities globally (18). This did not mean that tobacco companies in different countries always agreed, however. The issue of whether to admit that tobacco was harmful has been a source of friction between tobacco companies based in the United States and those based in other countries. For example, a transnational company and Chinese tobacco companies argued about the latter's willingness to admit harm and work to develop "less harmful products" (44). By the 1970s, BAT wished to tell the truth about the harms of smoking because the company realized that its credibility was damaged (18). Document analyses show that the tobacco companies have been continually concerned about their credibility.

Not only have tobacco companies coordinated activities on a global level, they are also linked with many other corporate interests. Financial ties between tobacco companies and the chemical, pharmaceutical, and food industries gave the tobacco companies leverage to influence policies that could affect these other industries (34, 52). For example, the tobacco industry has used its financial ties with pharmaceutical companies to pressure the pharmaceutical companies to weaken their marketing of nicotine replacement therapies (52).

WHAT WE HAVE LEARNED: THE TRUTH ABOUT TOBACCO

The following sections provide an overview of findings from the documents related to the industry's research on tobacco and advertising/marketing, policy, and international activities. To date, most published document analyses focus on the tobacco industry's effort to influence scientific research. Another large group of document analyses has focused on the advertising and marketing practices of the industry, particularly marketing related to youth. Document analyses have also described strategies used by the industry to influence other policies, such as indoor air regulation, and to coordinate internationally.

Science

NICOTINE According to the tobacco industry internal documents, nicotine is a drug and cigarettes are drug-delivery devices (28, 53). Tobacco companies consider themselves to be comparable to drug companies. Sir Charles Ellis, executive in Research and Development, BAT, stated in 1962: "It is my conviction that nicotine is a very remarkable beneficent drug. . . . Nicotine is not only a very fine drug, but the techniques of administration by smoking has considerable psychological

advantages. . .” (53). The tobacco industry hoped to identify beneficial health effects of nicotine. Early research conducted by BAT investigated the effects of nicotine on the stress response and weight reduction (21, 53). The tobacco industry also conducted research, such as animal self-administration experiments, to test the addictive properties of nicotine. Also studied were tolerance and withdrawal, two hallmarks of an addictive substance. Research on nicotine delivery led to the design of filter additives that would increase the amount of free nicotine, the kind that is more easily absorbed in the mouth (32, 53).

All of the nicotine projects were closely monitored by lawyers. The projects were conducted secretly because the tobacco industry had not yet admitted that its products were addictive or harmful to health. Three projects were conducted by the Battelle Memorial Institute Laboratory in Geneva, Switzerland between the late 1950s and about 1967. Battelle’s work on nicotine’s effects on weight control preceded published research on this topic by 20 years (53).

In sum, the tobacco industry documents tell us that nicotine is addictive and that the tobacco industry concealed this information from the public. However, the industry did attempt to manipulate the amount of nicotine in cigarettes as part of their strategy to design a less harmful cigarette (21, 32, 47, 53).

ADVERSE HEALTH EFFECTS OF SMOKING The aim of the nicotine research conducted by the tobacco industry was to understand more about cigarettes and how to modify them. Research was also conducted on the adverse health effects of tobacco in order to promote controversy about the data on the association of smoking and disease. Some of the most significant findings from the document analyses are not what the tobacco industry knew about the health effects of tobacco, but when they knew it. For example, although tobacco industry executives knew in 1963 that nicotine was addictive, they denied during Congressional hearings in 1994 that nicotine was addictive (21). The documents clearly show the contrast between what the industry knew about the harms of smoking and their public statements (14, 21).

Research on health effects conducted by the industry included mouse-skin painting experiments (a bioassay for cancer caused by tobacco tar), studies of carcinogenic effects in a variety of animal models, and modeling of basal cell carcinoma in human lung cells (22). The research on health effects was shrouded in secrecy and directed by lawyers for the tobacco industry in the United States. Even the internal documents used euphemisms such as “biological activity” for cancer and other diseases.

Product liability lawsuits were more likely to occur in the United States than in other countries. The documents describe how representatives of tobacco companies based outside the United States accepted that smoking caused a variety of diseases, whereas companies based in the United States did not (18). Therefore, the U.S. tobacco companies pushed the other companies to conspire at an international level to hide their research results. For example, J.K. Wells, corporate counsel for Brown and Williamson, noted that “direct lawyer involvement is needed in all BAT activities pertaining to smoking and health from conception through every step of the activity” (22). “Operation Berkshire” was an international conspiracy between

Philip Morris, R.J. Reynolds, British American Tobacco, Rothmans, Reemtsma, and U.K. tobacco companies Gallagher and Imperial formed in 1977 with the goal of creating controversy about the health effects of smoking (18).

Funding research served multiple purposes for the tobacco industry. Research that was directly related to tobacco products could be used to refute scientific findings suggesting that the product is harmful to health and to keep alive controversy about adverse effects. The research could also be used to prepare the tobacco industry for litigation or legislative challenges. The industry was also funding research that was not directly related to its product in order to distract attention from tobacco as a health problem, to generate good publicity, and to enhance its credibility.

The tobacco industry documents show that the lawyers did not always agree that refuting research about the harms of tobacco was the best approach to dealing with this fact. For example, as early as 1977, some members of the industry argued in favor of acknowledging the harms of cigarettes and keeping focused on product modification research to make a less harmful cigarette, rather than continuing research on other factors that might also cause smoking-related diseases (18).

The documents also describe the role of lawyers in externally funded research programs. The Tobacco Institutes in the United States, Australia, and elsewhere funded research on tobacco and the effects of secondhand smoke (2, 4, 18). Tobacco companies and law firms that represented tobacco company clients also funded research on tobacco (4). The projects that the lawyers selected for funding often involved research on potential confounding factors for the adverse health effects associated with smoking. For example, projects examined genetic factors associated with lung disease or the influence of stress and low-protein diets on health (4). Thus, the research served the purpose of deflecting attention away from tobacco as a health hazard.

The tobacco industry also formed funding organizations to give the appearance that the research they supported was independent of influence from the industry. The industry stated publicly that the Council for Tobacco Research (CTR) was formed in 1954 to fund independent scientific research to determine whether there was a link between smoking and lung cancer. However, internal documents from Brown and Williamson Tobacco Company have shown that CTR was actually formed for public relations purposes, to convince the public that the hazards of smoking had not been proven (4, 21).

PRODUCT DESIGN The goal of much of corporate research on nicotine was to modify tobacco product design. The tobacco industry anticipated that its profits could be protected if it could modify cigarettes to make the benefit, believed to be stress relief, outweigh the harms (53). The industry sought to identify the harmful components of tobacco smoke and eliminate them.

The tobacco industry's research aimed at producing a "safer" cigarette progressed through several phases. During the 1950s, the industry developed cigarettes with filters, and during the 1960s, cigarettes that were lower in "tar"—the particulate matter believed to be associated with cancer (21). The tobacco industry's

research on filter ventilation showed that although ventilation reduced tar according to standard smoking machine tests and made cigarettes taste milder, it did not reduce tar delivery to the smoker (32). Smokers of ventilated cigarettes take more puffs, breathe more deeply, or cover the ventilation holes with their fingers, thus defeating the purpose of the tar reduction (32, 53). Thus, by the 1970s the tobacco industry knew that smokers "compensated" for, or altered the way they smoked, reduced-tar or -nicotine cigarettes (47, 53). Several years later, research on smoker compensation was published in the scientific literature (53). The tobacco industry realized that its efforts to develop a safer cigarette were a failure and shifted to marketing the image of a safer cigarette, rather than product design (47).

SECONDHAND SMOKE

The tobacco industry was threatened by the secondhand smoke issue and took steps to protect itself from regulation and litigation related to secondhand smoke exposure. Internal research was conducted to learn about the toxicity of secondhand smoke (2). By the mid 1970s, British American Tobacco knew that sidestream smoke contained chemicals that "might be considered harmful to non-smokers" (2). By the 1980s, the industry was conducting research on the adverse health effects of secondhand smoke exposure; by 1983, BAT was measuring not only irritation and odors associated with secondhand smoke, but also "biological activity" (i.e., carcinogenicity) (2). As with research on active smoking, the industry withheld findings and publicly denied that secondhand smoking was harmful (2). Tobacco industry–funded research related to secondhand smoking and indoor air was disseminated through scientific symposia, sponsored publications, the media, and directly to policy makers (2, 17, 42).

The tobacco industry also launched a full-scale campaign to create controversy about the health effects of involuntary smoking. Their strategies were the same as those used to create controversy about active smoking. Research was funded that could be used to attempt to refute the evidence on secondhand smoking and disease (2, 9, 17). The industry also funded research on the adverse health effects of other components of indoor air. This research could then be used to distract regulators from the harmful effects of secondhand smoke (3, 17). Also funded were scientists to criticize published research on involuntary smoking. The industry devoted extensive efforts to undermining the findings of the 1981 Hirayama study on the association of secondhand smoke exposure and lung cancer (27), the 1992 United States Environmental Protection Agency risk assessment of involuntary smoking, and the 1998 International Agency for Research on Cancer's case control study of secondhand smoke exposure and lung cancer (27, 45).

The industry's program of creating controversy was accomplished primarily through extensive and coordinated funding of scientific consultants around the world and the Center for Indoor Air Research (2, 9, 17, 42). The Center for Indoor Air Research (CIAR) was formed by three tobacco companies in 1988. Similar to

CTR, CIAR awarded "peer-reviewed" projects after review by a Science Advisory Board and "special-reviewed" projects after review by their Board of Directors consisting of tobacco company executives (3). CIAR was formed to produce research that could be used to prevent smoking restriction regulations and to fund scientists who were hesitant about receiving funding from the tobacco industry (17, 42). CIAR was apparently successful in achieving its goals of enhancing the industry's credibility and in diverting attention away from passive smoking as an indoor air pollutant (3).

The CIAR was disbanded as part of the Master Settlement Agreement in 1998. However, internal tobacco industry documents describe how in 2000 Philip Morris reinitiated an external research grants program that is almost identical to CIAR (26).

Despite the industry's knowledge of the harms of passive smoking, it attempted to develop "socially acceptable" cigarettes that did not have the negative qualities of secondhand smoke. Perhaps as a result of the failure to develop a "safer" cigarette during the 1970s, the industry's approach to modifying secondhand smoke from cigarettes was to mask the smoke, rather than reduce its toxicity (12). Philip Morris, Lorillard, R.J. Reynolds, and Brown and Williamson conducted product design research on the use of chemical additives to reduce or mask the visibility, odor, or irritation of secondhand smoke.

Dissemination of Research to the Scientific Community

Lawyers representing the tobacco industry realized that disseminating research within the scientific community was important. Scientific papers produced by their internal and externally funded scientists were edited by industry lawyers prior to their publication in the peer-reviewed literature. This editing included omiting references, changing wording, and deleting acknowledgments of tobacco industry sponsorship (4, 22). Tobacco industry lawyers also played a major role in organizing scientific symposia. They arranged for funding, screened speakers, and sometimes arranged for sponsorship through a third party so that the conference would be perceived as "independent" of the tobacco industry (4, 22).

Scientific Methods and Regulatory Procedures

As described above, the tobacco industry has devoted enormous resources to attacking and refuting individual scientific studies. In addition, the documents show how the industry has attempted to manipulate scientific methods and regulatory procedures to its own benefit. The tobacco industry has played a role in influencing the debate around "sound science" (46), standards for risk assessment (25), and international standards for tobacco and tobacco products (5).

The tobacco industry has generated much of the discussion and press coverage about "junk science" and "Good Epidemiological Practices" (GEP) and used this rhetoric to criticize governmental reports, particularly on the harms of environmental tobacco smoke (46). By including secondhand smoke research among "junk science" criticisms of research on other environmental health risks, the tobacco

industry has been able to hide its involvement in attempts to refute research on passive smoking.

The tobacco industry also developed a campaign to criticize the technique of risk assessment of low doses of a variety of toxins (25). The 1992 U.S. EPA risk assessment of passive smoking classified secondhand smoke as a Class A carcinogen and was influential in stimulating smoking restriction legislation and regulations. The tobacco industry worked with the chemical, petroleum, plastics, and chlorine industries to develop its criticisms of risk assessment, on the assumption that its credibility would be protected if attempts to discredit risk assessment were hidden among those of other corporate interests. In fact, the first version of GEP was drafted by the Chemical Manufacturers' Association.

Document analyses described above show that the tobacco industry has dealt with smoker compensation through product design. The industry has also dealt with compensation by attempting to influence standard setting and product testing. Bialous & Yach describe how the tobacco industry, through the Cooperation Centre for Scientific Research Relative to Tobacco, played a major role in developing standards that are set by the International Organization for Standardization (ISO) (5). ISO standard methods are important to tobacco control because they are used to determine the tar and nicotine yields of cigarettes. The ISO standard measurement cannot be used to determine health claims because it is based on machine-smoked cigarette tests. As described earlier, human smokers compensate to obtain tar and nicotine yields that are higher than those of the machines. The industry documents show that the tobacco industry dominated all the ISO committees that were involved in tobacco standards. The industry provided data to the committees, inhibited "outsider" participation, and developed new smoking machine-testing methods that were endorsed by the committees (5). This involvement in ISO standard setting contrasted with the public health community's lack of involvement.

The tobacco industry also funded consultants within a United Nations' standard setting activity for pesticides (11). By influencing pesticide standards, the tobacco industry hoped to continue their use of fungicides for tobacco plants.

INFLUENCING POLICY RELATED TO TOBACCO

The internal documents provide examples of how the tobacco industry took a very direct approach to delaying or preventing policies that would regulate tobacco. For example, the documents clearly outline how the industry planned to prevent passage of a strong statewide clean indoor air law in Maryland, and analysis of the hearings and media coverage showed that the industry was partially successful in fulfilling its plans (39). In April 1994, the Occupational Safety and Health Administration (OSHA) proposed the first federal Indoor Air Quality (IAQ) rule. This comprehensive rule proposed ventilation as a way to control indoor air contaminants, and separately ventilated smoking rooms to control secondhand smoke exposure. After seven years of deliberations, OSHA withdrew

the proposed rule from consideration in December 2001. The tobacco industry documents also show that the industry had five main strategies to defeat the OSHA Indoor Air Quality rule. These were: (*a*) maintain scientific debate about the basis of the rule, (*b*) delay deliberation on the rule, (*c*) redefine the scope of the rule, (*d*) recruit and assist labor and business organizations in opposing the rule, and (*e*) increase unfavorable media coverage of the rule. The tobacco industry successfully implemented all five strategies (6).

Document analyses provide details about the operations of lobbyists for the tobacco industry and how they approach legislatures in the United States (19). The documents describe how the industry recruited media and other special interest group allies to be "front groups" for the industry's position (16). For example, one document analysis presents a detailed case study of how the industry cultivated its relationship with the Massachusetts Restaurant Association for more than 20 years (49). The Association consistently opposed state and local bans on smoking in Massachusetts, especially those that included restaurants and bars. In contrast to public statements made by the Restaurant Association, the documents provide evidence that the Association was supported by the tobacco industry.

The documents also provide evidence of more direct tactics that are used by the tobacco industry in attempts to influence policy. They offer documentation of political campaign contributions to legislators who oppose tobacco control legislation and to political caucuses and parties of these legislators (19). Other forms of payments are also described, such as gifts, honoraria, entertainment events, and charitable contributions to legislators who are influential in tobacco control policy (19). Tobacco Institute payments to lobbyists have been highest in states that have a high level of tobacco control activity (41).

Big Tobacco is Watching

The tobacco industry closely monitors any and all activities that could be considered a threat to the industry. Public health groups were an obvious threat, and internal documents have revealed the covert intelligence-gathering activities used to monitor groups such as STAT (Stop Teenage Addication to Tobacco) and INFACT (Infant Formula Action Committee) (37). This monitoring was often conducted through public relations firms (7). The result of this monitoring was to develop plans to subvert the activities of the public health groups, including the WHO's Framework Convention, by, for example, minimizing the effects of boycotts, portraying health advocates as "extreme," and "redirecting" funding of tobacco control groups (7, 37).

Pharmaceutical companies were a threat to the tobacco industry because they began to market nicotine-replacement therapies. Financial ties between pharmaceutical companies that manufacture nicotine-replacement therapies and the tobacco industry gave the tobacco companies leverage over the pharmaceutical companies (52). Document analyses showed that corporate diversification allowed well-hidden financial ties between pharmaceutical and tobacco companies that fostered both competition and collaboration. Financial ties have been maintained between

these companies by changing nicotine-replacement therapy marketing messages to contain less tobacco control education and to restrict the market for nicotine-replacement therapy. Corporate diversification has also facilitated the sharing of technology that was used to develop tobacco products and smoking-cessation products (52).

Internal documents reveal that the tobacco industry has also applied financial or political pressure to companies that established policies restricting smoking or tobacco advertising (34). Various tactics were used, with variable success, to pressure Federal Express, hospitals, the Massachusetts Bay Transportation Authority, airlines, and the insurance industry. The tobacco industry used its financial ties to the companies or third parties related to the companies by threatening to withdraw financial support if smoking restrictions were not eliminated.

Advertising/Marketing

Another major contribution of the documents to date has been information on the advertising and marketing practices of the industry. Hastings & MacFayden describe four major questions about the process and effects of tobacco marketing: (*a*) Does the tobacco industry target young people? (*b*) Does tobacco advertising affect consumption as well as brand share? (*c*) What role does sponsorship play? (*d*) What other forms of promotion does the tobacco industry use and what roles do they play in promoting tobacco use? (23). Corporate representatives publicly answer these questions by claiming that advertising does not initiate smoking, that the industry does not target youth, and that sponsorship and other forms of promotion are philanthropic activities. The tobacco industry documents give us the real answers to these questions.

How the industry has targeted the marketing of tobacco products toward youth and young adults is well documented. The tobacco industry and its hired advertising firms collected detailed personal information on potential consumers in order to segment their target markets. Segments were established according to personality characteristics (e.g., masculine, popular, shy, adventuresome, etc.) and stages of smoking (e.g., starters, "ostriches"—those who are not concerned about health) (36, 48). The industry's goal was to market to youth and young adults throughout the stages of smoking (36). Many advertising efforts then focused on the young starters and latent quitters. These market segmentation materials discussed youth as young as 11 years old (48). The tobacco industry also conducted detailed surveys of smokers as young as 12 and 13 years of age to determine which brands they preferred (13). Marketing was directed to young adults (18- to 24-year-olds) as a way to ease the stress of the life transitions that they face as they become more independent from their families (36). In addition, marketing to young adults, who are role models for teens, can promote smoking to teens; and marketing to teens, who are role models for youth, can promote smoking to children.

The tobacco industry publicly denies that it markets to youth and, in fact, developed policies to delete references to youth from internal company correspondence.

Employees at the major tobacco companies were instructed to refer to "young adult smokers" rather than to "youth" (13).

Enormous resources were devoted to developing and testing advertising campaigns using a "textbook approach" (23). Just as the tobacco industry commissioned scientific studies on the health effects of tobacco, it also commissioned marketing studies from outside research contractors. These studies were aimed at designing advertising campaigns and monitoring their effectiveness (48). Based on these projects, the tobacco companies developed advertising that appealed to youth. Imagery representing freedom and independence, rebelliousness, positive social appeal, and peer group acceptance appealed to youth (13, 48). Advertising was also designed to help alleviate health fears among the segment of smokers who had such concerns. This marketing strategy included timing of these advertisements to coincide with government reports on the adverse effects of tobacco (48).

The tobacco industry documents refer to "expansion of the market" (48). The emphasis on encouraging new smokers and discouraging quitters suggests that the aim of advertising is to increase the number of smokers, not brand switching.

PRODUCT DESIGN IS A FORM OF MARKETING The tobacco industry documents reveal that certain product characteristics—such as mildness, filters, and sweet flavorings—were preferred by young smokers. Although the industry developed advertising with imagery that would promote these characteristics, it also developed products that had these characteristics. Thus, product design was closely linked to marketing. For example, Camel cigarettes were marketed to youth on the basis of their "smoothness" (13), and the cigarettes were reformulated using additives and blends that would reduce throat irritation but increase or maintain nicotine delivery (56). These changes in Camel design and advertising were aimed at appealing to young male smokers. Tobacco industry strategies to develop a "safer cigarette" described above were also closely linked to methods for marketing the image of a safer cigarette (47).

PROMOTIONS During the 1980s various tobacco companies conducted research documenting that youth as young as 15 are more sensitive to cigarette price than older smokers (8), as are low-income people (44). However, young people are more likely to choose a cigarette based on its image rather than its price (8, 13). The data on price sensitivity helped tobacco companies develop promotional campaigns that led youth to believe that they were getting good value for their money (e.g., buy one get one free, free samples, etc.) (8, 13).

The tobacco industry has carefully designed product promotion schemes including bar promotions (29), clothing giveaways, point-of-sale incentives, sponsorship of arts and sports, and product placement in movies (40) or places where young people congregate such as beaches at spring break (13). The Internet is also mentioned in the documents as a marketing tool (23). These promotions encourage brand recognition and promote the "image" of the product and reach target groups of a variety of ages (13). Internal documents describe how cigarette packaging itself

is part of the industry's promotional plans, especially as restrictions on traditional advertising increase (54). The tobacco industry has conducted extensive research to determine what types of cigarette packaging appeal to different target groups, and which imagery influences smokers' taste ratings and perceptions of "mildness" (54).

INFLUENCING ADVERTISING REGULATION Document analyses also describe how the tobacco industry has fought regulation of tobacco advertising. During the late 1980s the tobacco industry lobbied against the European Community directive on tobacco advertising and sponsorship that would ban most forms of tobacco advertising and promotion. Although such lobbying is not surprising, the internal documents reveal that the industry provided payments to politicians who opposed the directive and attempted to hide its involvement in some of the efforts to defeat it (43).

International Relevance

Since the bulk of the available docments derive from the 1998 Master Settlement Agreement, most of the analyses to date focus on the activities of U.S. tobacco companies and their influence on tobacco policy in the United States. However, document analyses show that U.S. tobacco companies coordinate closely with their international partners (11, 18, 44). Researchers have only begun to analyze documents that describe the practices of U.S. tobacco companies in other countries, and more country-specific analyses are needed. The Guildford documents and other documents that become available through litigation worldwide will add to our knowledge of the international practices of the tobacco industry.

The limited analyses that have been conducted show that the tobacco industry operates on a global level (11, 57). The industry strategized about developing "global brands" and used a variety of tactics to influence organizations that set international policy such as the World Bank and World Health Organization (WHO) (11, 57). For example, the tobacco industry hired consultants to criticize the WHO in attempts to cut the organization's budget for tobacco control (57). The tobacco industry works through international front groups just as it works through front groups in the United States. For example, the International Tobacco Growers Association (ITGA), which lobbies against tobacco control, claims that it is independent of industry influence. However, internal documents describe how the IGTA was founded and financially supported by the tobacco industry (57).

Documents from the 1998 Settlement Agreement have provided a glimpse into tobacco industry strategies to influence one of their largest markets—China (44). The transnational tobacco companies promoted smuggling and the idea of a flat excise tax so that imported and locally produced cigarettes would be closer in price (44). Tobacco companies, working through the U.S. Trade Office, pushed for global tobacco trade agreements that dissociated trade from health. The tobacco industry holds the same position today as it urges that the WHO Framework Convention on Tobacco Control to dissociate trade issues from health issues.

Tobacco advertising in China has been aimed at women and youth at least as young as 15, although the tobacco industry publicly denies this. Although direct advertising of tobacco products was banned in China in 1992, the tobacco industry continued to market its product through sponsorship of sports and philanthropic activities as it did in other countries (44).

As in other countries, the tobacco industry applied political pressure and worked with the Chinese National Tobacco Company to limit smoking restrictions. The scientific consultants program was extended to China to fund scientists to refute the adverse health effects of smoking and passive smoking. An additional rationale for funding research in China and Japan was the importance of having "local" epidemiological studies that could refute epidemiological studies conducted elsewhere (27, 44).

Analyses of documents from the 1998 Settlement Agreement also shed light on tobacco industry activities in Europe, although many more documents relevant to Europe are likely to be found at the BAT depository in Guildford, U.K. The documents show that the Verband der Cigarettenindustrie, the German cigarette trade association, spearheaded research on the adverse effects of passive smoking (24). Although the U.S. tobacco companies were mindful of the legal implications of the results of the German research, they used Germany as a site to conduct research that they hoped to hide from possible litigation in the United States. Unlike the U.S. tobacco companies, the Verband had a close relationship with the German government and funded and controlled the dissemination of research on passive smoking that was conducted by the government. These initial analyses of documents on the German tobacco industry reveal the extensive influence of the industry on research and government policy.

CONCLUSION

Implications for Tobacco Control

Scholarly publications of tobacco industry document analyses have begun to summarize the vast amount of information in the documents related to the industry's motives, mode of operation, and the health effects of tobacco. To date, these analyses have been conducted primarily by public health and tobacco control researchers and provide some very concrete recommendations for tobacco control policy. For example, keeping the price of cigarettes high and restricting both marketing and promotion could reduce youth smoking (15). Voluntary industry agreements regarding tobacco advertising are unlikely to influence sales (23). Tobacco product design should be regulated to reduce targeting of certain market segments such as youth or African Americans (56).

The revelations about nicotine from the tobacco industry documents suggest that, in the United States, tobacco is not regulated in a way that provides meaningful protection to the public. In 1996, the Food and Drug Administration attempted to obtain regulatory authority of tobacco products as drugs under the Food, Drug, and

Cosmetic Act. The FDA was successfully sued by the tobacco industry in federal court, and tobacco products remain unregulated by the FDA. Despite compelling evidence, it has been difficult to turn back the historical approach of not considering tobacco as a drug.

The tobacco industry documents are permeated with the industry's preoccupation about its image. Much of what the tobacco industry has done, including scientific research, marketing, and politics, has been motivated to create a favorable image with the public. The findings from the documents have fundamentally changed the way in which the tobacco industry now discusses tobacco in public. However, the tobacco industry's claims about transparency and that it now behaves differently could be just another attempt by the industry to remake its image.

The documents contain data showing that industry attempts to reduce nicotine in cigarettes and develop less harmful cigarettes have been a failure. These data are relevant for current discussions in the tobacco control community regarding the development of "reduced harm tobacco products." Advocates of the reduced harm product approach should carefully study the industry documents before embarking on a research program that the tobacco industry appears to have abandoned years ago.

Document analyses have pointed out areas where the public health community's involvement in policy has been overshadowed by that of the tobacco industry. For example, the public health community has been minimally involved in setting international standards for tobacco and pesticides or in responding to public commentary on indoor air regulation. Thus, the tobacco industry has played the major role in influencing policies that affect its product. While corporate domination of the standard setting or public commentary processes raises questions about whether the industry should be involved at all, it is not desirable to exclude special interest groups from these activities. However, the contrast between involvement by tobacco industry representatives and the public health community in these influential public processes presents opportunities for the latter to focus attention in areas that will affect tobacco policy.

Additional Research

Although scholars with expertise in public health are well suited to describing the documents and their implications for tobacco control policy, scholars in other disciplines could also contribute to our understanding of the industry. For example, chemists, pharmacologists, and toxicologists could help interpret the industry's product design research. Historians and sociologists could put the tobacco documents in the context of major historical or social events, or analyze the organizational behavior and corporate culture of the industry. Business and legal scholars could comment on the ethics of the business and legal practices revealed in the documents.

Citations of tobacco industry documents by journalists in the lay press and by policy makers are an important way of getting this information before the

public. For example, journalists have cited internal tobacco industry documents in articles exposing the tobacco industry's marketing strategies (30, 31, 33). Tobacco industry internal documents have also been cited in Congressional hearings on tobacco regulation (55).

One tobacco control advocate has described the role that internal tobacco industry documents had in encouraging legislators and the public to accept a cigarette excise tax in New York (51). However, the extent to which tobacco control advocates at the state and local level use the documents to support their efforts is not known. For example, tobacco industry documents describing the industry's efforts to manipulate youth could be used as part of prevention education or a smoking cessation intervention. More experimentation and evaluation of ways to use documents to promote tobacco control will move tobacco industry document research from description to action.

Future document analyses should attempt to assess whether the tobacco industry implemented the plans described in the documents. In fact, some documents express the frustration of tobacco industry executives when their plans are not implemented. The public health community should learn about failed tobacco industry efforts in order to take advantage of these failures to promote tobacco control.

Corporate Interests and Public Health

Although the tobacco industry documents are the largest set of internal industry documents that have been released through litigation, they are not the first. Documents released through litigation involving the asbestos and lead industries show that, for decades, other corporate interests have used tactics that are similar to those of the tobacco industry. Internal asbestos industry documents released as a result of litigation brought against the industry by workers with asbestosis revealed that fear of litigation drove asbestos company insurers to fund research. During the late 1920s and early 1930s, the asbestos industry (primarily Johns-Manville) and one of its insurers who handled workers compensation claims (Metropolitan Life) became alarmed at the prospect of asbestos-related litigation. In response, they began to systematically gather information on the carcinogenesis of their product (35).

The asbestos industry began funding research on asbestos in the late 1920s. The research produced by university scientists funded by the asbestos industry was first reviewed and approved by industry lawyers before publication (35). Some reports were published if the manuscripts were changed as suggested by the lawyers; some were never published (35). By the 1960s the asbestos industry had managed to suppress almost 20 years of research by their funded scientists.

During the 1960s independent scientists began to publish studies showing the associations between asbestos and cancer. During legal proceedings, the industry continued to publicly deny this research. These denials led John McKinney, the president of Johns-Manville, to prepare a memo in 1979 stating, "I can easily see why we have members of Congress calling us 'liars'" (35).

Tobacco industry internal documents have revealed that, in 1963, Addison Yeaman, vice president and general counsel at Brown and Williamson Tobacco Company, summarized the findings of some recent tobacco industry research as follows: "Moreover, nicotine is addictive. We are, then, in the business of selling nicotine, an addictive drug . . ." (53). In 1994, Thomas Sandefur, Chairman & CEO of Brown and Williamson Tobacco Company, testified during congressional hearings about whether the Food and Drug Administration should regulate nicotine products. He stated: " I do not believe that nicotine is addictive . . . [it is] a very important constituent in the cigarette smoke for taste" (53). The contrast between what the tobacco industry knew in 1963 and what was stated in 1994 resulted in accusations of lying being made against tobacco company executives similar to those made against asbestos industry executives years before.

The lead industry offers another example of corporate interest group suppression of research. As early as 1922, scientists warned that tetraethyl lead (the type of lead added to gasoline) was "a serious menace to public health" (50). The evidence for this warning came from studies of workers in the lead industry who suffered neurological disorders from lead poisoning. However, no direct evidence linked airborne lead with the symptoms of occupational lead poisoning. General Motors Research Corporation provided funding to the U.S. Bureau of Mines to conduct studies of the health effects of tetraethyl lead. General Motors then began a campaign aimed at suppressing the results of this research. To prevent leaks to the lay press, General Motors prohibited the use of the word "lead" in any correspondence about this research. This is similar to the tobacco industry's use of the code word "zephyr" for "cancer" in internal memos about health effects research (21). In addition, General Motors demanded that all scientific papers resulting from the project be submitted to them for "comment, criticism, and approval"—a requirement that delayed or prevented publication of the research (50).

The historical similarities in behavior among the tobacco, asbestos, and lead industries indicate that public health researchers who are interested in the activities of chemical, pharmaceutical, or oil companies, for example, could learn much about how these industries operate by studying the internal tobacco industry documents. Furthermore, some of the tobacco industry's activities could directly affect other industries of interest to public health. For example, the tobacco industry's involvement in guiding the development of standards for scientific methods or regulations has consequences for other regulated industries. In addition, corporate and financial ties are documented between the tobacco and other industries, such as the pharmaceutical industry.

Additional comparative analyses of the internal workings of multiple industries are needed to assess the relevance of industry behavior for public health. However, corporate documents are often kept secret, and the public health community needs data to make these comparisons. Corporate interests might also learn from the tobacco companies' misfortune and destroy documents. Thus, the public health community must press for the release of corporate documents as part of settlement

agreements from lawsuits. Released tobacco industry documents have been critical in subsequent tobacco litigation. Thus, internal corporate documents can help future plaintiffs. The information gleaned from corporate documents could also help the public health community shape policies that are driven by concern for health rather than for corporate profits.

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LITERATURE CITED

1. Balbach E, Glasior R, Barbeau EM. 2002. Tobacco industry documents: comparing The Minnesota Depository and Internet access. *Tobacco Control* 11:68–72
2. Barnes DE, Bero L, Glantz SA, Hanauer P, Slade J. 1995. Environmental tobacco smoke: the Brown and Williamson documents. *JAMA* 274:248–53
3. Barnes DE, Bero LA. 1996. Industry-funded research and conflict of interest: an analysis of research sponsored by The Tobacco Industry through The Center for Indoor Air Research. *J. Health Polit. Law* 21:515–42
4. Bero L, Barnes DE, Hanauer P, Slade J, Glantz S. 1995. Lawyer control of the tobacco industry's external research program. *JAMA* 274:241–47
5. Bialous S, Yach D. 2001. Whose standard is it, anyway? How the tobacco industry determines the International Organization for Standardization (ISO) standards for tobacco products. *Tobacco Control* 10:96–104
6. Bryan-Jones K, Bero L. 2002. Tobacco industry efforts to defeat the occupational safety and health administration indoor air quality rule. *Am. J. Public Health.* In press
7. Carter SM. 2002. Mongoven, Biscoe & Duchin: destroying tobacco control activism from the inside. *Tobacco Control* 11:112–18
8. Chaloupka F, Cummings KM, Morley C, Horan J. 2002. Tax, price and cigarette smoking: evidence from the tobacco documents and implications for tobacco company marketing strategies. *Tobacco Control* 11:i62–i72
9. Chapman S. 1997. Tobacco industry memo reveals passive smoking strategy. *BMJ* 314:1569
10. Cipillone v. Liggett Group. 1988. Transcript of proceedings of Antonio Cippillone, individually and as an Executor of the Estate of Rose D. Cipillone, Plaintiff v. Liggett Group, Inc., a Delaware Corporation; Philip Morris, Inc. a Virginia Corporation; and Loew's Theatres, Inc., a New York Corporation, defendants. In *Civil Action no. 83-2864(SA)*, Tobacco Products Liability Reporter, pp. 3.431–3.68
11. Committee of Experts on Tobacco Industry Documents. 2000. *Tobacco Company Strategies to Undermine Tobacco Control Activities at the World Health Organization.* Geneva: WHO
12. Connolly GN, Wayne GD, Lymperis D, Doherty MC. 2000. How cigarette

additives are used to mask environmental tobacco smoke. *Tobacco Control* 9:283–91

13. Cummings KM, Morley C, Horan J, Steger J, Leavell N-R. 2002. Marketing to America's youth: evidence from corporate documents. *Tobacco Control* 11:i5–i17
14. Cummings KM, Morley C, Hyland A. 2002. Failed promises of the cigarette industry and its effect on consumer misperceptions about the health risks of smoking. *Tobacco Control* 11:i110–17
15. Cummings KM, Pollay R. 2002. Exposing Mr. Butts' tricks of the trade. *Tobacco Control* 11:i1–i4
16. Dearlove JV, Bialous S, Glantz S. 2002. Tobacco industry manipulation of the hospitality industry to maintain smoking in public places. *Tobacco Control* 11:94–104
17. Drope J, Chapman S. 2001. Tobacco industry efforts at discrediting scientific knowledge of environmental tobacco smoke: a review of internal industry documents. *J. Epidemiol. Commun. Health* 55:588–94
18. Francey N, Chapman S. 2000. "Operation Berkshire": the international tobacco companies' conspiracy. *BMJ* 321:371–74
19. Givel MS, Glantz SA. 2001. Tobacco lobby political influence on US state legislatures in the 1990s. *Tobacco Control* 10:124–34
20. Glantz AS, Barnes DE, Bero L, Hanauer P, Slade J. 1995. Looking through a keyhole at the tobacco industry. *JAMA* 274:219–24
21. Glantz S, Slade J, Bero L, Hanauer P, Barnes D. 1996. *The Cigarette Papers*. Berkeley: Univ. Calif. Press. 539 pp.
22. Hanauer P, Slade J, Barnes DE, Bero L, Glantz SA. 1995. Lawyer control of internal scientific research to protect against products liability lawsuits: the Brown and Williamson Documents. *JAMA* 274:234–40
23. Hastings G, MacFayden L. 2000. A day in the life of an advertising man: review of internal documents from the UK tobacco industry's principal advertising agencies. *BMJ* 321:366–71
24. Hirschhorn N. 2000. Shameful science: four decades of the German tobacco industry's hidden research on smoking and health. *Tobacco Control* 9:242–48
25. Hirschhorn N, Bialous S. 2001. Secondhand smoke and risk assessment: What was in it for the tobacco industry? *Tobacco Control* 10:375–82
26. Hirschhorn N, Bialous S, Shatenstein S. 2001. Phillip Morris' new scientific initiative: an analysis. *Tobacco Control* 10:247–52
27. Hong M, Bero L. 2003. Tobacco industry efforts to refute an influential study. *BMJ.* In press
28. Hurt R, Robertson C. 1998. Prying open the door to the tobacco industry's secrets about nicotine. *JAMA* 280:1173–81
29. Katz S, Lavack A. 2002. Tobacco related bar promotions: insights from tobacco industry documents. *Tobacco Control* 11:i92–i101
30. Klein A. 1998. The cigar caper—first in a series. In *The Baltimore Sun*, January 11, pp. 11, Baltimore, MD
31. Klein A. 1998. The cigar caper—second in a series. In *The Baltimore Sun*, January 12, pp. 7, Baltimore, MD
32. Kozlowski L, O'Connor R. 2002. Cigarette filter ventilation is a defective design because of misleading taste, bigger puffs, and blocked vents. *Tobacco Control* 11: i40–i50
33. Kuczynski A. 1999. Tobacco's newest billboards are on the pages of its magazines. In *New York Times*, December 12, pp. 24–25, New York
34. Landman A. 2000. Push or be punished: Tobacco industry documents reveal aggression against businesses that discourage tobacco use. *Tobacco Control* 9:339–46
35. Lilienfeld D. 1991. The silence: the asbestos industry and early occupational cancer research—a case study. *Am. J. Public Health* 81:791–800

36. Ling P, Glantz S. 2002. Why and how the tobacco industry sells cigarettes to young adults: evidence from industry documents. *Am. J. Public Health* 92:908–16
37. Malone R. 2002. Tobacco industry surveillance of public health groups: the case of STAT and INFACT. *Am. J. Public Health* 92:955–60
38. Malone RE, Balbach ED. 2000. Tobacco industry documents: treasure trove or quagmire? *Tobacco Control* 9:334–38
39. Mangurian CV, Bero LA. 2000. Lessons learned from the tobacco industry's efforts to prevent the passage of a workplace smoking regulation. *Am. J. Public Health* 90:1926–30
40. Mekemson C, Glantz S. 2002. How the tobacco industry built its relationship with Hollywood. *Tobacco Control* 11:i81–i91
41. Morley C, Cummings KM, Hyland A, Giovino G, Horan J. 2002. Tobacco institute lobbying at the state and local levels of government in the 1990s. *Tobacco Control* 11:i102–i9
42. Muggli M, Forster JL, Hurt R, Repace J. 2001. The smoke you don't see: uncovering tobacco industry scientific strategies aimed against environmental tobacco smoke policies. *Am. J. Public Health* 91: 1419–23
43. Neuman M, Bitton A, Glantz S. 2002. Tobacco industry strategies for influencing European Community tobacco advertising legislation. *Lancet* 359:1323–30
44. O'Sullivan B, Chapman S. 2000. Eyes on the prize: transnational tobacco companies in China 1976–1997. *Tobacco Control* 9:292–302
45. Ong EK, Glantz S. 2000. Tobacco industry efforts subverting International Agency for Research on Cancer's second-hand smoke study. *Lancet* 355:1253–59
46. Ong EK, Glantz S. 2001. Constructing "Sound Science" and "Good Epidemiology": tobacco, lawyers, and public relations firms. *Tobacco Control* 91:1–9
47. Pollay R, Dewhirst T. 2002. The dark side of marketing seemingly "light" cigarettes: successful images and failed fact. *Tobacco Control* 11:i18–i31
48. Pollay RW. 2000. Targeting youth and concerned smokers: evidence from Canadian tobacco industry documents. *Tobacco Control* 9:136–47
49. Ritch WA, Begay ME. 2001. Strange bedfellows: the history of collaboration between the Massachusetts Restaurant Association and the tobacco industry. *Am. J. Public Health* 91:598–603
50. Rosner D, Markowitz G. 1985. A 'gift of God'?: the public health controversy over leaded gasoline during the 1920s. *Am. J. Public Health* 75:344–52
51. Sciandra RC. 2000. A case study of the successful effort to increase New York's cigarette excise tax. Abstr. 128th APHA Annu. Meet., New York, Nov. 16
52. Shamasunder B, Bero L. 2002. Financial ties and conflicts of interest between pharmaceutical and tobacco companies. *JAMA* 288:738–44
53. Slade J, Bero L, Hanauer P, Barnes D, Glantz S. 1995. Nicotine and addiction: the Brown and Williamson documents. *JAMA* 274:225–33
53a. Tobacco Control. 2002. 11(March, Suppl. I):1–117
54. Wakefield M, Morley C, Horan J, Cummings K. 2002. The cigarette pack as image: new evidence from tobacco industry documents. *Tobacco Control* 11:i73–i80
55. Waxman HA. 1994. Conclusion of the Tobacco Investigation in the 103rd Congress. In *Summary Subcom. Tobacco Invest.*, p. 4
56. Wayne GF, Connolly GN. 2002. How cigarette design can affect youth initiation into smoking: Camel cigarettes 1983–93. *Tobacco Control* 11:i32–i9
57. Yach D, Bettcher D. 2000. Globalisation of tobacco industry influence and new global responses. *Tobacco Control* 9:206–16

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