Big tobacco and science: Uncovering the truth

Photo of cigarette smoke

After combing through nearly 50 million pages of previously secret, internal tobacco-industry documents, UC Davis and UC San Francisco researchers say they have documented for the first time how the industry funded and used scientific studies to undermine evidence linking secondhand smoke to cardiovascular disease.

In a special report published in the Oct. 16 issue of the journal Circulation, authors Elisa K. Tong and Stanton A. Glantz say that the tobacco-related documents they reviewed show how the industry initially worked to question scientific evidence about the harmful effects of secondhand smoke as a way to fight smoke-free regulations. More recently, they suggest, tobacco-company-funded studies have been conducted to support the development of so-called “reduced-harm” cigarettes.

“People should understand how hard the tobacco industry has worked to undermine scientific evidence,” said Tong, an assistant professor of internal medicine at the UC Davis School of Medicine and lead author of the study. “It's not just about fighting smoke-free regulations. Our analysis of the documents indicates an industry that also wants to influence the debate about how 'reduced-harm' tobacco products should be evaluated.”

Search through tobacco documents

Tong conducted a computerized search involving millions of pages of tobacco-industry materials, including memos, letters and scientific reports. The documents are publicly available as part of several major legal settlements in recent years. Of the 5,000 documents ultimately reviewed, she identified 47 closely tied to secondhand smoke and cardiovascular disease issues. Co-author Glantz, a professor of medicine in the cardiology division at UCSF and director of the university's Center for Tobacco Control Research and Education, helped analyze the information and develop a detailed picture of tobacco-industry practices.

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— Elisa K. Tong, UC Davis assistant professor and study co-author

The documents show how tobacco companies funded epidemiological and biological research that was designed to support claims that secondhand smoke posed little or no harm. The Circulation article identifies a pattern within the studies that misclassified study subjects as nonsmokers when they were actually “passive smokers,” who were being exposed to background air filled with secondhand smoke. This type of misclassification helped bias study results against finding an effect from secondhand smoke. The results were used to call into question other evidence linking secondhand smoke to the increased risks of cardiovascular disease.

Such studies, the authors also say, were often published in scientific journals that had industry representatives on their editorial boards. In one case cited by Tong and Glantz, the manuscript by RJ Reynolds' scientists was reviewed for Inhalation Toxicology by an employee of RJ Reynolds before its publication in 1998.

“The process was presented to the outside world as having peer review,” noted Glantz. “The true level of the tobacco industry's involvement in such studies was rarely disclosed in an adequate manner.”

Suppressing unfavorable results

Unfavorable research results also were suppressed by the tobacco industry, according to Tong and Glantz. Their report cites a 1995 industry study that found nonsmokers exposed to more than seven hours of secondhand smoke suffered statistically significant changes in blood lipids, inflammatory markers, pulmonary function tests and urinary mutagenicity. Those findings, say Tong and Glantz, appear to have been briefly revealed at a conference and only partially published elsewhere.

The pair note in their report that when tobacco-funded studies in the early 1990s demonstrated that secondhand smoke increased atherosclerosis, the industry criticized the findings and withdrew funding. Tong and Glantz also point to several industry studies that attempted to provide alternative explanations for the direct cardiovascular effects of secondhand smoke by attributing findings to an unproven “stress” response in individuals from the odor of smoke rather than its inherent toxicity.

Tong and Glantz suggest one of the key reasons why tobacco companies have hindered efforts to ban smoking in public places is to maintain corporate viability in the marketplace. They note that smoke-free workplace rules can reduce cigarette consumption among smokers by approximately three cigarettes per day, or about 30 percent.

“What the documents we reviewed show is an industry strategy that, in their own words, will continue to question the evidence about secondhand smoke as a way 'to keep controversy alive,'” said Tong. “Tobacco companies want to debate this forever because it helps challenge no-smoking policies. And since such policies diminish cigarette consumption, it obviously strikes at the heart of corporate revenue.”

The next scientific battle: “Reduced-harm” tobacco

The Circulation report suggests the tobacco industry is preparing for another scientific battle, this one involving the allegedly “reduced-harm” tobacco products. Policy makers, tobacco companies and their critics are currently debating claims about the possibility of a less-harmful cigarette and whether the U.S. Food and Drug Administration should regulate such products.

Tong and Glantz describe an industry executive as stating that the research priorities in developing biomarker assays for the so-called “reduced-harm” products are not to establish any real effects or long-term clinical impacts from secondhand smoke. They suggest such efforts by the industry are being done to demonstrate the elimination of potential elements, such as odor or a chemical compound, in cigarette products without admitting existing health impacts.

The two authors emphasize that their overall analysis of the industry's memos, letters and reports indicates the need for caution in the current debates about tobacco-industry regulation and the potential development of what the industry claims are “reduced-harm” products.

“The tobacco industry's efforts at manipulating scientific literature as a way to serve their economic and political needs continues to this day,” said Glantz. “Despite the overwhelming and unbiased epidemiological and biological evidence, our analysis of industry documents shows how tobacco companies are continuing to market a dangerous product in any way they can.”

The Circulation study was funded by an American Heart Association Western States Postdoctoral Fellowship and a grant from the National Cancer Institute. The primary source for tobacco industry documents was UC San Francisco's Legacy Tobacco Document Library.