

Data Torturing, the Harms of Secondhand Smoking, and Why Disputing the Indisputable is still worth our while

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INTRODUCTION

Last February, smokers in New York City were left with even fewer options, as Mayor Bloomberg passed anti-smoking legislation that prohibits lighting up on beaches, in parks, and in pedestrian plazas such as Times Square.¹ This legislative initiative was just one in a series of nationwide attempts to clear the air for nonsmokers. In similar spirit, some companies, many in the medical sector, have begun adopting anti-tobacco policies, under which job applicants must undergo urine tests for nicotine and existing employees who smoke must quit, or face termination.² Even the courts are taking their cues from public health officials. Parents who are smokers must now prepare to bear the brunt of their nasty habits in custody disputes.³ The value of anti-tobacco has thus officially branded itself onto our national ethos—and besides evil Big Tobacco and those smelly smokers' groups, who's complaining?

ANALYSIS

The science on secondhand smoking, also known as environmental tobacco smoke (ETS), appears settled. According to a 2007 report by the World Health Organization, there is "indisputable evidence" that secondhand smoking causes disease and premature deaths in adults and children.⁴ The official websites of the Mayo Clinic and the Mount Sinai Medical Center reiterate the certainty of these risks.^{5,6}

Yet some experts in the realm of public health and epidemiology have taken it upon themselves to challenge the indisputable by analyzing the methodology and rigor of studies that anti-tobacco advocates have used in advancing their agenda.⁷

The work of these scientific watchdogs exposes the extent to which anti-tobacco health advocates have engaged in unethical practices like data torturing and publication bias. Many of these advocates have also been revealed to have close ties with pharmaceutical companies that manufacture smoking cessation medications. The media has rarely picked up on this, so let us examine a few of these ethically dubious practices.⁸

Data Torturing

Georgetown University law professor Robert A. Levy and Rosalind B. Marimont, formerly a mathematician at the National Institutes of Health (NIH), have documented the various ways in which "junk science has replaced honest science" in the battle against tobacco.⁹ In their article "Lies, Damned Lies, & 400,000 Smoking Related Deaths," they detail how over the years government agencies such as the Environment Protection Agency (EPA), the Centers for Disease Control (CDC), and the Surgeon General have engaged in data torturing.¹⁰ In data torturing, data are manipulated enough to "confess" the researcher's desired results.¹¹ Torturing techniques range from doing meta-

analysis, cherry-picking information, and faking the significance of the results to misclassification and statistical manipulation such as failing to control confounding variables. Data torturing is often difficult to detect, as it requires asking the right scientific questions and working through all of the raw data from a study, which may in part explain why these illegitimate practices quietly continue over time.

In fact, even though many of the government reports that created the initial impetus for smoking bans have been discredited, the false scientific theories originating from these works continue to be perpetuated. For example, in a 1993 report, the EPA declared ETS to be a dangerous carcinogen that kills 3,000 Americans yearly.¹² Five years later, Federal Judge William L. Osteen found that the EPA had “cherry-picked” its data and that “the Agency withheld significant portions of its findings and reasoning in striving to confirm its *a priori* hypothesis.”¹³

In his 2006 report, the United States Surgeon General ominously concluded, “There is no risk free level of exposure to secondhand smoke.”¹⁴ This is known as the “no threshold theory,” which proposes that a substance that is carcinogenic at high doses must also be proportionately carcinogenic at small doses. But scientists Claus and Bolander posit that this theory is at odds with “all the fundamental principles of cell biology.”¹⁵ According to Dr. Elizabeth Miller, former president of the American Association for Research on Cancer, “Chemical carcinogenesis is a strongly dose-dependent phenomenon.”¹⁶

In the same report, the Surgeon General also claimed, “even brief exposure to secondhand smoke can cause cardiovascular disease and could trigger acute cardiac events, such as heart attack.” But Michael B. Siegel, a professor of community health sciences at the Boston University School of Public Health, explains that “the surgeon general’s statement conflates the temporary negative effects of secondhand smoke on the circulatory system, which have been shown to occur with short-term exposure, with heart disease, a process that requires repeated exposure and recurring damage to the coronary arteries.”¹⁷ Despite the multitude of errors contained in the Surgeon General’s report, it continues to be referenced by public health officials and anti-smoking activists.

Publication Bias

Publication bias is another disconcerting trend that has plagued anti-tobacco advocacy. It tends to occur when researchers undertake a study with a hypothesis in mind (ETS causes lung cancer, for example), but then opt not to publish the data when they fail to lend credence to their initial hypothesis. The World Health Organization reportedly engaged in this practice in 1998 when it withheld the findings from the 12-center, seven-country European study it had commissioned to examine the link between ETS and lung cancer.¹⁸ It eventually did publish the findings, with a press release headlined “Passive Smoking Does Cause Lung Cancer,” even though the researchers had failed to find any statistically significant risk of lung cancer among spouses of smokers or those exposed to ETS in the workplace.¹⁹ The study also concluded that “no association between childhood exposure to environmental tobacco smoke and lung cancer exist.”²⁰

Another source of publication bias relates to the difficulties authors experience when publishing studies that question the assumptions about ETS’ potential dangers.²¹ Certain peer-reviewed journals have officially stopped considering papers about studies in which a tobacco company may have a financial interest, or whose authors have some link to the tobacco industry.²² Such policies cast doubt on the integrity of the peer-review process, which is supposed to be about judging a study on its scientific merits, not on its sources. Tobacco industry–sponsored studies may very well be biased, but the same can be said of government- or nonprofit–sponsored studies. Peer-review journals should not be expressing an affinity for one type of bias, and they should certainly not dismiss the potential utility of industry-sponsored studies.

Conflicts of Interest

Finally, while it is a well-known and increasingly talked about fact that pharmaceutical companies exert a considerable amount of financial pressure on physicians and the editors of peer-reviewed journals, Pharma's strong ties to anti-tobacco lobbyists and public health officials have, for the most part, evaded public scrutiny. Between 1992 and 2000, the Robert Wood Johnson Foundation, the philanthropic arm of Johnson & Johnson (but which owns Johnson & Johnson stock), invested more than \$300 million in the United States in financing anti-tobacco activities and "grass roots" antismoking groups and runs the Smoking Cessation Leadership Center.^{23,24} Similarly, Pharmacia Corporation and Glaxo Smith Kline, both major manufacturers of cessation therapies, have been very supportive of anti-tobacco health advocacy.²⁵ Even the World Health Organization has designated pharmaceutical companies as "its official partners," further illustrating how intertwined public health organizations are with the pharmaceutical industry.²⁶ More worrisome still, many public health officials involved in shaping standards and policies are financially conflicted. For example, it has been revealed that the chair of the Joint Commission (a body that sets standards for the accreditation of hospitals and health care facilities) has and is receiving grant funding from Nabi Pharmaceuticals, which is in the late stages of developing a nicotine vaccine.²⁷ The influence of this presumed conflict is already apparent: The newest standards stipulate that every patient should be treated with smoking cessation drugs.²⁸

Promoting disclosure may be the first step toward limiting the impact of potential conflicts. Prohibiting the participation of those with grant funding and other financial ties to the pharmaceutical industry in standard-setting procedures may be an even more effective solution, although politically less palatable.

CONCLUSION

Why Scientific Integrity Still Matters

Even if we air out all the dirty laundry on ETS research, it is clear that anti-tobacco laws are here to stay. But we should be honest about the reasons for their existence, which have as much to do with convenience and deterrence (or perhaps more) as with endangering the health of nonsmokers. The data on the impacts of secondhand smoke is vast, and certainly not all of it is bogus, but government action initiated in the name of the public good can take on increasingly coercive dimensions if public health officials are permitted to engage in unethical practices in a consistent manner, as has been the case among anti-tobacco researchers and advocates.

The rising antagonism toward smokers in our society should also concern us. Public health advocates should not be ostracizing a segment of our population in its clampdown on smoking. Instead of fear-based negative messaging, public health advocates should focus on limiting the hyperbole and reporting the facts. If they choose to do otherwise, then along with achieving the erosion of smoking in American society, they will succeed in losing the public's trust.

¹Ed Pilkington, "New York's Smoking Ban Extended to Parks and Beaches," *The Guardian Online*, May 23, 2011, last accessed October 25, 2011, <http://www.guardian.co.uk/society/2011/may/23/new-yorks-smoking-ban-extended>.

²A.G. Sulzberger, "Hospitals Shift Smoking Bans to Smoker Ban," *The New York Times Online*, February 10, 2011, <http://www.nytimes.com/2011/02/11/us/11smoking.html?pagewanted=all>.

³*Smith v. Smith*. 1996 WL 591181 (Tern. Ct. App. Oct. 11, 1996). See generally Sobie, Merrill. "Second Hand Smoke and Child Custody Determinations — A Relevant Factor or a Smoke Screen?" 1997, *Pace Law Faculty Publications*, Paper 364, <http://digitalcommons.pace.edu/lawfaculty/364>.

⁴“Policy recommendations on protection from exposure to second-hand tobacco smoke,” World Health Organization, 2007, last accessed October 25, 2011, http://www.who.int/tobacco/publications/second_hand/protection_second_hand_smoke/en/index.html.

⁵Mayo Clinic Staff, “Secondhand Smoke: Avoid dangers in the Air,” *Mayo Clinic Online*, May 6, 2010, last accessed October 25, 2011, <http://www.mayoclinic.com/health/secondhand-smoke/CC00023>.

⁶M.S. Krisha McCoy, “Secondhand Smoke Exposure,” The Mount Sinai Medical Center, Diseases & Conditions, last accessed October 25, 2011, <http://www.mountsinai.org/patient-care/health-library/diseases-and-conditions/tobacco-use-disorder#Secoosure>.

⁷See for example Michael Siegel, “A Smoking Ban Too Far,” *The New York Times Online*, May 5, 2011, <http://www.nytimes.com/2011/05/06/opinion/06siegel.html>.

⁸But see Gio Batta Gori, “The Bogus ‘Science’ of Secondhand Smoke,” *The Washington Post Online*, January 30, 2007, <http://www.washingtonpost.com/wp-dyn/content/article/2007/01/29/AR2007012901158.html>.

⁹Robert A. Levy and Rosalind B. Marimont, “Lies, Damned Lies, and 400,000 Smoking-Related Deaths,” *Regulation* 21, no. 4 (1998): 24, <http://www.cato.org/pubs/regulation/regv21n4/lies.pdf>.

¹⁰*Ibid.*

¹¹J.S. Mills, “Data Torturing,” *The New England Journal of Medicine* 329, (1993): 1196-9.

¹²Robert A. Levy and Rosalind B. Marimont, “Lies, Damned Lies, and 400,000 Smoking-Related Deaths,” *Regulation* 21, no. 4 (1998): 24, <http://www.cato.org/pubs/regulation/regv21n4/lies.pdf>.

¹³“The Osteen Decision,” July 17, 1998, <http://www.tobacco.org/Documents/980717osteen.html>.

¹⁴“The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General,” Office of the Surgeon General, U.S. Department of Health and Human Services, June 27, 2006, <http://www.surgeongeneral.gov/library/secondhandsmoke/>.

¹⁵C. Claus and K. Bolander, The threshold principle: A law of nature. *Environmental Carcinogenesis*, R.E. Olson (Ed.) Marcel Dekker, NY (in press). Cited in Edward Contoski, “Secondhand Smoke: the “no threshold” Scare,” http://amlibpub.blogspot.com/2008_01_01_archive.html.

¹⁶Cited in Edward Contoski, “Secondhand Smoke: the “no threshold” Scare,” http://amlibpub.blogspot.com/2008_01_01_archive.html.

¹⁷See for example Michael Siegel, “A Smoking Ban Too Far,” *The New York Times Online*, May 5, 2011, <http://www.nytimes.com/2011/05/06/opinion/06siegel.html>.

¹⁸Victoria Macdonald, “Passive smoking doesn't cause cancer – official,” *Sunday Telegraph*, March 8, 1998, <http://www.forces.org/articles/files/passive1.htm>. See also, the official report of the study which was eventually published: P. Boffetta, “Multicenter case-control study of exposure to environmental tobacco smoke and lung cancer in Europe” *Journal of National Cancer Institute* 90, no. 19 (1998): 1440-50, October 7, 1998. *Contra* see Chapman, Simon, “The hot air on passive smoking,” published March, 21 1998, *BMJ* 316: 945.

¹⁹Robert A. Levy and Rosalind B. Marimont, “Lies, Damned Lies, and 400,000 Smoking-Related Deaths,” *Regulation* 21, no. 4 (1998): 24, <http://www.cato.org/pubs/regulation/regv21n4/lies.pdf>.

²⁰*ibid.*

²¹Michael J. McFadden and David W. Kuneman, "A Study Delayed: Helena, MT's Smoking Ban and the Heart Attack Study," *American Council on Science and Health Online*, July 12, 2007, http://www.acsh.org/factsfears/newsID.990/news_detail.asp.

²²Jeff Stier, "Is There Such a Thing as an Objective Science Journal?" *American Council on Science and Health Online*, February 25, 2010, http://www.acsh.org/healthissues/newsID.1868/healthissue_detail.asp.

²³<http://www.pharmalot.com/2011/04/foundations-conflicts-of-interest-and-drugmakers/>.

²⁴W. Hamilton, *Pharmaceutical Multinationals: Buying Governments, Selling Antismoking*, 2000, <http://www.forces.org/evidence/money/introph.htm>.

²⁵<http://www.forces.org/evidence/pharma2/connection.htm>.

²⁶"WHO Launches Partnership With The Pharmaceutical Industry To Help Smokers Quit," World Health Organization, <http://www.who.int/inf-pr-1999/en/pr99-04.html>.

²⁷<http://www.jointcommission.org>.

²⁸Michael Siegel, "Chair of Panel Setting Joint Commission Standards on Smoking Cessation for Hospitals is Financially Conflicted," *The Rest of the Story: Tobacco News Analysis and Commentary*, October 17, 2011, <http://tobaccoanalysis.blogspot.com/2011/10/blog-post.html>.