The Perils of Ignoring History: Big Tobacco Played Dirty and Millions Died. How Similar Is Big Food?

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Context: In 1954 the tobacco industry paid to publish the "Frank Statement to Cigarette Smokers" in hundreds of U.S. newspapers. It stated that the public's health was the industry's concern above all others and promised a variety of good-faith changes. What followed were decades of deceit and actions that cost millions of lives. In the hope that the food history will be written differently, this article both highlights important lessons that can be learned from the tobacco experience and recommends actions for the food industry.

Methods: A review and analysis of empirical and historical evidence pertaining to tobacco and food industry practices, messages, and strategies to influence public opinion, legislation and regulation, litigation, and the conduct of science.

Findings: The tobacco industry had a playbook, a script, that emphasized personal responsibility, paying scientists who delivered research that instilled doubt, criticizing the "junk" science that found harms associated with smoking, making self-regulatory pledges, lobbying with massive resources to stifle government action, introducing "safer" products, and simultaneously manipulating and denying both the addictive nature of their products and their marketing to children. The script of the food industry is both similar to and different from the tobacco industry script.

Conclusions: Food is obviously different from tobacco, and the food industry differs from tobacco companies in important ways, but there also are significant similarities in the actions that these industries have taken in response to concern that their products cause harm. Because obesity is now a major global problem,

the world cannot afford a repeat of the tobacco history, in which industry talks about the moral high ground but does not occupy it.

Keywords: Food, obesity, tobacco, industry, ethics, politics, public policy.

I N DECEMBER 1953, THE CEOs OF THE MAJOR TOBACCO companies met secretly in New York City. Their purpose was to counter the damage from studies linking smoking to lung cancer. A year earlier *Reader's Digest*—then the public's leading source of medical information—had printed an article entitled "Cancer by the Carton" (Norr 1952). After it appeared, cigarette sales plummeted for two years, the first such decline of the century except during the Great Depression.

Working closely with John Hill, the founder of the public relations giant Hill & Knowlton, the industry created "A Frank Statement to Cigarette Smokers" and paid to have it published in 448 newspapers on January 4, 1954. To give the industry a human face, the statement included the signatures of the nation's top tobacco executives and assured Americans that "we accept an interest in people's health as a basic responsibility, paramount to every other consideration in our business." Furthermore, they promised that "we always have and always will cooperate closely with those whose task it is to safeguard the public's health" (Tobacco Industry Research Committee 1954).

The "Frank Statement" was a charade, the first step in a concerted, half-century-long campaign to mislead Americans about the catastrophic effects of smoking and to avoid public policy that might damage sales. Unearthed later, industry documents showed the repeated duplicity of its executives. Everything was at stake. The industry wanted desperately to prevent, or at least delay, shifts in public opinion that would permit a barrage of legislative, regulatory, and legal actions that would erode sales and profits.

Today another industry is under attack for marketing products perceived by some to damage health, and it also faces legislative, regulatory, and legal threats that could fundamentally alter how it does business. Schools are banning soft drinks and snack foods; legislation requiring calorie labels on restaurant menus has been passed at state and local levels and is being considered nationally; restrictions in food marketing practices have been proposed around the world; and even radical measures such as taxing snack foods are part of the national debate. Such

actions invite comparison of the food and tobacco industries, exemplified by a *Fortune* magazine cover story in 2003 entitled "Is Fat the Next Tobacco?" The cover depicted a French fry lying in an ash tray as if it were a cigarette. The article did what is now common—debate the parallels between tobacco and food in the context of culpability for health damage and ask whether Big Food should be sued for the same reasons that Big Tobacco was.

There are, of course, differences between food and tobacco as substances. The most obvious is that humans must eat to maintain health and life, whereas the unnecessary activity of smoking is, in the words of former Secretary of Health, Education and Welfare Joseph Califano, "slow-motion suicide." Moreover, selling tobacco to children is illegal, but there currently are no restrictions on food sales. Tobacco has a well-chronicled addictive process, whereas research on food and addiction is just now maturing. And although the fight against tobacco coalesced around a single product made by a few companies, food and its industries are far more complex.

The more important issue is whether tobacco history is instructive in addressing the problems created by unhealthy diets. A half century of tobacco industry deception has had tragic consequences: Since the "Frank Statement," approximately 16 million Americans have died from smoking, and millions more have suffered from debilitating diseases ranging from emphysema to heart disease. Had the industry come clean in 1954—matching deeds with promises—many of these deaths would almost certainly have been prevented. No one knows how many. Perhaps 3 million. Maybe 5 million. Maybe 7 million—just in the United States. An honest approach by industry might have saved more lives than any public health measure taken during the past fifty years. Furthermore, if industry had made good faith efforts globally, rather than exploit and addict the developing world, the benefits could have been stunning.

Food, physical inactivity, and obesity may be in the same league. An astonishing two-thirds of the U.S. adult population is overweight or obese (Ogden et al. 2007). As with smoking, social justice issues are prominent, given that obesity rates are highest in the poorest segments of the population (Kumanyika 2006). But weight issues are hardly unique to the United States. The World Health Organization has declared obesity a global epidemic, now surpassing hunger as the chief nutrition problem, even in some developing countries (WHO 2004).

Obesity rates are especially troubling in children, rising at three times the rate of increase in adults (Ogden, Carroll, and Flegal 2008). Indeed, the term *adult onset diabetes* has now been scrapped and replaced with *Type 2 diabetes* because children as young as eight are developing the disease. Canadian researchers conducted a fifteen-year follow-up of children diagnosed with Type 2 diabetes and found an alarming rate in *young* adults of blindness, amputation, kidney failure requiring dialysis, pregnancy loss, and death (Dean and Flett 2002). Health experts now are asking whether America's children will be the first in the nation's history to live shorter lives than their parents (Olshansky et al. 2005).

Such statistics worry people, leading the press, parent groups, school officials, nutrition experts, health care providers, and government leaders to conclude that something must be done. Caught in the crosshairs, the food industry is reacting, sometimes with heavy ammunition. As an example, in response to menu-labeling initiatives, the restaurant industry has sued New York City, used its political might to weaken legislation in California, and successfully encouraged federal legislators to introduce weak national legislation that would preempt states and cities from acting more aggressively.

There are striking similarities, and some differences, in the way the food and tobacco industries have responded to public mistrust, damning scientific evidence, and calls for legal and legislative actions. As an important example of the similarities, food companies have issued their own versions of frank statements, stating their concern with the public's well-being and pledging to make changes to benefit public health. In this article we discuss what can be learned from tobacco and propose what might be done to avoid the repetition of a deadly history.

A Crossroads for Food

The food industry is on the defensive, hit hard by nutrition groups and public health professionals, the press, parent groups, child advocacy organizations, and state and national legislators sponsoring bills that could have a powerful impact on business. Popular books like *Fast Food Nation* (Schlosser 2001) and movies like *Supersize Me* have sensitized the public to industry practices. In turn, the industry has had to react to claims that it seduces children into a lifestyle of unhealthy eating, infiltrates schools, buys loyalty from scientists, and pressures administration officials into

accepting weak and ineffective nutrition policies (Brownell and Horgen 2004; Nestle 2002).

To the extent that these charges are fair, the analogy with the tobacco experience is inescapable. Seducing children? There is no better example than Joe Camel. Buying the loyalty of scientists? It happened time and again with tobacco. Using pressure to stall or prevent needed policy change? Few industries have been more effective than tobacco (Advocacy Institute 1998).

A first step is to understand the industry players. Unlike tobacco, with one major product and a handful of companies producing it, food involves an immense array of products made by thousands of companies worldwide. The industry is diverse and fragmented in some ways, counting as its players a local baker making bread for a few stores; a family running a convenience store; an organic farmer; mega companies like Kraft, McDonalds, and Coca-Cola; and even Girl Scouts selling cookies. The same company making fried foods laden with saturated fat might also sell whole-grain cereal.

In other ways, the industry is organized and politically powerful. It consists of massive agribusiness companies like Cargill, Archer Daniels Midland, Bunge, and Monsanto; food sellers as large as Kraft (so big as to own Nabisco) and Pepsi-Co (owner of Frito Lay); and restaurant companies as large as McDonald's and Yum! Brands (owner of Pizza Hut, Taco Bell, KFC, and more). These are represented by lobbyists, lawyers, and trade organizations that in turn represent a type of food (e.g., Snack Food Association, American Beverage Association), a segment of the industry (e.g., National Restaurant Association), a constituent of food (e.g., Sugar Association, Corn Refiners Association), or the entire industry (e.g., Grocery Manufacturers of America).

Common to all these players is an arresting logic: to successfully address the obesity epidemic, the nation must consume fewer calories, which means eating less food. Marion Nestle (2002) estimates that the number of daily calories created for the American food supply rose from 3,300 per person in 1970 to 3,800 in the late 1990s, far in excess of what the average person needs to maintain a healthy weight. If consumers' demand for food were to reflect what they needed to maintain a healthy weight, the market would contract. A shrinking market for all those calories would mean less money—a lot less.

Of course there will always be a need for food—people cannot stop eating. But the *types* and *amounts* of food people eat must change dramatically

if there is to be any hope of curbing obesity and other problems associated with unhealthy eating. The foods most at risk happen to be those most processed, dense in calories, highest in profit margin, and sold mainly by the major industry players.

Industry stands at a crossroads where one turn would mean fighting change, defending practices like targeting children, forestalling policy changes, and selling as much product as possible no matter the consequences, and the other would require retooling, working with the public health community, selling far fewer harmful products, and promoting healthier options with much greater urgency. Adopting the first option while laying claim to the second was the path taken by the tobacco industry. Is the food industry different, or is history repeating itself, this time with another substance?

In the remainder of this article we discuss the similarities to and differences from the general playbook/script adopted by the tobacco and food industries. Next we describe four areas in which the two industries share distinct similarities and make recommendations for constructive action by the food industry. These areas pertain to public relations and framing; influencing government and key organizations; disputing science, planting doubt, and creating conflicts of interest; and marketing products. Whether, and how much, the industry chooses to respond in a responsible manner will determine whether, and how much, formal governmental regulation of industry behavior will be required to redress challenges to the public's health posed by industry products and marketing behaviors.

The Playbook

The tobacco team had a playbook—a master plan and script that directed the behavior of industry executives, lobbyists, lawyers, scientists, and government officials friendly to the industry. In *A Question of Intent*, a former FDA commissioner, David Kessler (2001, p. xiii), wrote:

> Devised in the 1950s and '60s, the tobacco industry's strategy was embodied in a script written by the lawyers. Every tobacco company executive in the public eye was told to learn the script backwards and forwards, no deviation was allowed. The basic premise was simple—smoking had not been proved to cause cancer. Not proven, not proven,

not proven—this would be stated insistently and repeatedly. Inject a thin wedge of doubt, create controversy, never deviate from the prepared line. It was a simple plan and it worked.

The food industry appears to have a strategy as well, repeatedly carried to the public by spokespersons from food companies, trade associations, and their political allies. As noted by Brownell and Horgen (2004) and Nestle (2002) regarding the food industry specifically and by Mooney (2006) and Michaels (2008) about industries in general, its main features are the following:

- Focus on personal responsibility as the cause of the nation's unhealthy diet.
- Raise fears that government action usurps personal freedom.
- Vilify critics with totalitarian language, characterizing them as the food police, leaders of a nanny state, and even "food fascists," and accuse them of desiring to strip people of their civil liberties.
- Criticize studies that hurt industry as "junk science."
- Emphasize physical activity over diet.
- State there are no good or bad foods; hence no food or food type (soft drinks, fast foods, etc.) should be targeted for change.
- Plant doubt when concerns are raised about the industry.

These points play well in America—personal responsibility and freedom are central values—but they obscure the reality that some of the most significant health advances have been made by population-based public health approaches in which the overall welfare of the citizenry trumps certain individual or industry freedoms. Can one reasonably defend half a million deaths per year from cigarettes by provoking fears that freedom and choice are threatened by actions that might adversely affect the industry? In addition, disputing science has been a key strategy of many industries, including tobacco (Advocacy Institute 1998; McGarity and Wagner 2008; Michaels 2008; Mooney 2006). Beginning with denials that smoking causes lung cancer and progressing to attacks on studies of secondhand smoke, the industry instilled doubt. Likewise, groups and scientists funded by the food industry have disputed whether the prevalence figures for obesity are correct, whether obesity causes disease, and whether foods like soft drinks cause harm (e.g., Forshee, Anderson, and Story 2008; Grocery Manufacturers of America 2003).

Public Relations and Framing

A great deal of influence rests in the hands of parties who control the framing of a health issue. That is, a problem framed as a matter of personal irresponsibility will be addressed differently from one for which other factors, such as corporate misbehavior, environmental toxins, or infectious agents, are responsible. The tobacco industry devoted considerable resources to public relations as its primary weapon to influence public opinion and neutralize calls for government intervention.

The food industry, its trade associations, and its political front groups have been similarly aggressive in attempting to shape public and legislator opinion. At the heart of this strategy is a script built on values of personal responsibility.

The Personal Responsibility Script

At the 1996 shareholders' meeting of cigarette and food manufacturer RJR Nabisco, a woman in the audience asked company chairman Charles Harper whether he would want people smoking around his children and grandchildren. Mr. Harper responded, "If the children don't like to be in a smoky room . . . they'll leave." When the woman responded, "An infant cannot leave a room," Mr. Harper answered, "At some point they learn to crawl, okay? And then they begin to walk" (RJR Nabisco 1996).

Personal responsibility has been invoked to shield the food industry from criticism, legislation, and litigation. Legislation sponsored by Congressman Ric Keller (R-FL) in 2004 to ban lawsuits claiming health damages against fast-food restaurants is typical in emphasizing personal behavior: "We've got to get back to those old-fashioned principles of personal responsibility, of common sense, and get away from this new culture where everybody plays the victim and blames other people for their problems" (CNN 2004). When asked about the role of restaurants in contributing to the obesity problem, Steven Anderson, president of the National Restaurant Association stated, "Just because we have electricity doesn't mean you have to electrocute yourself" (Holguin 2002).

These assertions illustrate the execution of an organized corporate strategy that shifts responsibility from the parties who make and market products to those who use them (Hacker 2006). A variety of corollary messages are also typical of industry framing, namely, that companies

offer choices and pleasure, emphasize moderation, and do not encourage consumers to overuse their products.

Industry Self-Regulation as a Defense against Government Action

Industries under threat often claim that self-regulation is sufficient and that they deserve the public's and government's trust. Then they launch highly publicized pledges for change. Beginning with the "Frank Statement" made by tobacco companies in 1954 in which companies pledged, among other things, to "cooperate closely with those whose task it is to safeguard the public health," the industry did its best to fight calls for strict regulation. A modern-day version is the Philip Morris television campaign focused on preventing youth from smoking. An outside evaluation found that it did no such thing and in fact might affect children in ways that would make them *more* likely to smoke (Sebrie and Glantz 2007; Wakefield et al. 2006). Nonindustry antismoking efforts, in comparison, have been successful with both youth and adult smokers (Hyland et al. 2006; Warner 2006).

The food industry is in full-scale pursuit of self-regulatory authority (Sharma, Teret, and Brownell 2008). The American Beverage Association, in association with the Alliance for a Healthier Generation (2006), announced that it would reduce sales of traditional carbonated soft drinks in schools. Left untouched was an array of beverages whose sales are increasing (e.g., sports drinks), compared with the traditional carbonated beverages whose sales are declining. Another example is the announcement by a coalition of major food companies and the Council of Better Business Bureaus (2007) that their child-marketing practices would change.

The impact of these pledges on children's dietary practices has not been established objectively, but to the extent the tobacco experience applies, there is reason to be on high alert. The child market for the food companies is enormous. American children, counting only those aged five to fourteen, spend $20 billion annually and influence the spending of $200 billion to $500 billion more. Some ad agencies specialize in children's television marketing and others in product placements in children's media, handbooks and conferences on child marketing, and prizes for the best marketing campaigns.

In a book on industry self-regulation, Cashore, Auld, and Newsom (2004) note cases in which industry self-regulation has had beneficial effects, typically when an endangered resource is at stake and government *inaction* is a threat because rogue players threaten the industry's survival. Two examples are marine fisheries (Marine Stewardship Council) and forests (Forest Stewardship Council). When industries are under public relations threats and they worry that the government will be too active, self-regulation is imposed in a different context. Cashore and colleagues underscore the importance of objective evaluation, not funded or conducted by industry, to establish the impact of pledges.

Corporate Social Responsibility

Businesses often invest in their communities because it is considered good public relations and is used to burnish the company image. Contributing to the community thus can be especially important to companies battling tarnished reputations. Corporate social responsibility investments can also pay dividends in buying loyalty, or at least stifling opposition, from groups that might otherwise oppose a company's business practices.

For decades, the tobacco industry used perceptions of social responsibility to great effect. Contributions to minority and women's organizations offered implicit encouragement of leaders to target concerns other than smoking. Leaders of African American communities faced a very real conflict: either to help the community by accepting money or to speak out about the disproportionate toll of tobacco on the health of minority populations. Women's groups, heavily supported by Big Tobacco and buoyed by support for events like the Virginia Slims Tennis Tour, were silent on the rapidly escalating epidemic of lung cancer in women, focusing instead on breast cancer and other problems (Advocacy Institute 1998).

In addition to women's tennis, the tobacco companies have supported dance troupes, museums, and orchestras. Hard-pressed to fund their endeavors, members of the nation's cultural elite become vulnerable to the seduction of tobacco money and show their appreciation in statements of support for their benefactors' good deeds. In 2000, Philip Morris spent $115 million on worthy social causes, including, in addition to the arts, supplying flood victims with clean water and sheltering women

who were victims of abuse. The company spent $150 million on a national TV advertising campaign touting its beneficence. It is noteworthy that such "corporate social responsibility" comes cheap. Philip Morris's spending on good deeds that year constituted one-half of 1 percent of the company's $23 billion in domestic tobacco revenues (Warner 2002).

The food industry also does its share of charitable work and has developed inroads in key social institutions such as hospitals and schools. Ronald McDonald houses are one example. Fast-food restaurants also can be found in the lobbies of many of the nation's leading hospitals (Cram et al. 2007; Sahud et al. 2006), including McDonald's franchises in the lobbies of the Cleveland Clinic and the Children's Hospital of Philadelphia. One study found that fifty-nine of two hundred hospitals with pediatric residencies had fast-food restaurants and that families who made outpatient pediatric visits were four times more likely to eat fast food (at any time of the day) if they visited a hospital with a fast-food restaurant (Sahud et al. 2006). Likewise, schools remain a branding and sales opportunity for the beverage industry at the same time it pledges to protect children (e.g., American Beverage Association 2009).

Table 1 identifies some of the measures that the industry could take to rewrite its personal responsibility script and to make the food industry's behavior truly more socially responsible. Section A of the table lists those measures pertinent to public relations and framing, discussed earlier.

Influencing Government and Key Organizations

The Influence of Government

Decades ago, Big Tobacco adopted a political strategy quite similar to that now employed by the food industry, with tobacco industry spokespeople, paid scientists, and consultants attempting to influence many key decision-making bodies. Little appreciated today is that the government gave the tobacco industry veto power over the membership of the advisory committee that eventually produced the first surgeon general's report on smoking and health, published in 1964 (Public Health Service 1964).

The tobacco industry's insider roles have had a profound impact on public policy. As the former FDA commissioner David Kessler explained:

TABLE 1

Positions and Activities Common to Tobacco and Food Industries and Recommended Actions for the Food Industry

A: Public Relations and Framing	
Current and Past Industry Positions/Actions	Recommended Food Industry Actions
Issue public statements of concern about the health of their customers.	Do not use corporate giving to neutralize opposition of groups that may otherwise challenge industry practices.
Launch strong public relations efforts arguing that	Sell only healthful products and do not engage in branding (e.g., scoreboards, vending machines) in places such as schools and hospitals associated with the health and well-being of children.
■ Companies do not promote abuse of their products.	
■ Companies simply provide choice.	
■ The industry promotes moderation.	
■ Personal irresponsibility is at the root of health problems.	Use a science-based approach to establish responsibility (e.g., corporate vs. individual) for issues such as obesity and do not engage in unwarranted shifting of risk to individuals.
■ Holding companies responsible is unjust finger-pointing.	
■ Government action usurps freedom and choice.	
Fund civic activities as signs of social corporate responsibility.	

B: Influencing Government and Key Organizations	
Current and Past Industry Positions/Actions	Recommended Food Industry Actions
Exert strong political influence at federal and state levels by	Work with public health leaders to seek ground where profitability and public health coincide, or at least where public health is not harmed, and exert political influence in this territory (e.g., government programs or incentives for healthier food formulations, subsidy policies that encourage healthier eating).
■ Making large campaign contributions.	
■ Hiring major lobbying firms to block state and local actions.	

Participate in a "revolving door" between industry and government in key agencies such as USDA and DHHS.	Do not pressure governments from other countries or international bodies such as the WHO, the Pan American Health Organization, and the Food and Agriculture Organization to support policies that threaten public health.
Argue that industry self-regulation is sufficient.	
Resist regulation initially but when local and state actions turn against industry, urge weak federal or state action that preempts strong measures at lower levels.	
Pressure U.S. government officials to undermine global actions (e.g., activities of the WHO).	Support legislation and regulation that serve the public's health, and do not use legislative preemption as a means for weakening or preventing actions that states or local communities may wish to take.
Fund front groups with consumer-oriented names.	Cease funding front groups with consumer-oriented names. If lobbying for an industry-supportive position, do so honestly, taking ownership of the position.
Fund professional organizations.	

C: Disputing Science, Planting Doubt, Creating Conflicts of Interest

Current and Past Industry Positions/Actions	Recommended Food Industry Actions
Dispute links between product use and ill health.	Do not identify *for any public relations or legal purpose* the names or institutions of nonindustry scientists engaged as advisers or supported by industry to conduct research.
Characterize unfavorable studies as "junk science."	
Vilify and attack the messengers of bad news (e.g., scientists, advocacy groups).	
Use legal resources to challenge scientific assertions in court.	Fully and publicly disclose the names and amounts of money paid to nonindustry scientists who serve as advisers, consultants, speakers, etc., and make similar disclosures about research funding.
Fund science as a sign of goodwill and a means of generating data supporting industry positions.	
Pay leaders in science and health fields as advisers, consultants, etc.	Develop a means for meeting industry's legitimate need for research while keeping the research legitimate:

TABLE 1—*Continued*

C: Disputing Science, Planting Doubt, Creating Conflicts of Interest	
Current and Past Industry Positions/Actions	Recommended Food Industry Actions
Provide significant funding to professional organizations. Use advertising dollars as a method of getting recipients, e.g., magazines, to "go easy" on the industry.	■ Lobby government to increase science funding, thus decreasing the need of scientists to rely on industry money. ■ Work with government and scientists to create an independent nutrition equivalent of the Health Effects Institute through which science can be funded but not tied to specific industry players. Do not fund professional organizations that publish research, hold meetings, or issue statements that could directly affect product sales, and fully and publicly disclose the names of professional organizations that receive funding and the amounts of such funding. Respond responsibly to what is likely to become a difficult and challenging issue—whether food can trigger an addictive process. Reformulate foods to remove constituents found to produce effects such as tolerance and withdrawal, and do not manipulate these to maximize intake, particularly in children.

D: Product Marketing

Current and Past Industry Positions/Actions	Recommended Food Industry Actions
Market heavily to youth.	Market the benefits of foods in accordance with their actual health profile, and have experts engaged by nonindustry organizations such as the Institute of Medicine, Centers for Disease Control and Prevention, or American Public Health Association provide objective input on this health profile.
Use celebrities to endorse products.	Harness industry expertise and resources to market nutritious products with the aim of decreasing caloric density and increasing nutrition density.
Use "stealth" marketing such as product placements in movies and television.	Do not use celebrities or license characters to promote unhealthful foods.
Promote "safer" versions of products that may not be safer, either inherently or due to how consumers use them.	Divulge fully and explicitly when marketing is occurring (product placements, viral campaigns, advergaming, etc.).

When we launched our investigation of tobacco at the Food and Drug Administration, we had no idea of the power wielded by the tobacco companies. But we soon learned why the tobacco industry was for decades considered untouchable. Tobacco employed some of the most prestigious law firms in the country and commanded the allegiance of a significant section of the Congress. It also had access to the services of widely admired public figures ranging from Prime Minister Margaret Thatcher to Senator Howard Baker. (Kessler 2001, p. xii)

Kessler (2001) also noted the influence of the food industry when the FDA addressed issues of food labeling. The beef industry fought the FDA on labeling of fat and promoted a higher number than the FDA's proposed standard for how many calories a day the average person is expected to consume. Kessler recounted:

From the White House, the pressure moved down to the Office of Management and Budget, which had the power to block our regulations. As required, we had submitted draft after draft of the final rule to OMB and often had it returned to us with industry-sought changes. More than once, OMB's wording had been taken almost verbatim from food industry comments we had already carefully considered. (2001, p. 58)

In dealing with the obesity issue, one of Tommy Thompson's early acts as secretary of Health and Human Services (DHHS) in George W. Bush's administration was to meet with the board of directors of the Grocery Manufacturers of America (GMA), the world's largest food industry trade association. According to a GMA press release, Thompson applauded the industry for its efforts to deal with obesity, and when asked how to deal with critics who believed that the industry should change its practices, he encouraged the industry to "go on the offensive" (Grocery Manufacturers of America 2002).

Thompson figured prominently in another case in which public health and food industry priorities were at odds. In February 2003, the World Health Organization released a draft report outlining a global strategy to address issues of diet and physical activity (WHO 2004). Making recommendations considered tame by many, the report advocated such measures as reducing the intake of sugar and fat and creating a safer nutrition environment for children in schools. Six words in that report, "limit the intake of 'free' sugars," stimulated a remarkable series of

events. Free sugars are those added to foods—obvious ones like soft drinks, candy, and desserts but also foods less often thought of as sugar rich, including soups, ketchup, beef stew, and yogurt.

The food industry went to work within days of the draft's release. The sugar industry, through the Sugar Association, enlisted the support of officials high in the U.S. government and led a vigorous attack on both the report and the WHO (Brownell and Nestle 2004). Beginning with letters to the WHO's director general, the Sugar Association criticized both the science and the process by which the report was prepared and asked that it be stopped, or at the very least, delayed. Not receiving the desired response, the industry quickly raised the stakes when two U.S. senators, Larry Craig and John Breaux, co-chairs of the "U.S. Senate Sweetener Caucus," implored Thompson to use his "personal intervention" in blocking the report.

Thompson attempted to deliver. A DHHS assistant secretary sent a twenty-eight-page, single-spaced report to the WHO picking at the science and making the same three points promoted by the industry: personal responsibility should be the emphasis; there should be a stronger focus on physical activity; and there are no good and bad foods. Thompson dispatched this assistant to Geneva at the time of a key WHO meeting, pressuring constituent countries to block the report.

The Sugar Association simultaneously played its ultimate card. Expressing concern for "the hard working sugar growers and their families," its president again wrote the WHO, vowing to use "every avenue possible to expose the dubious nature" of the report, "including asking Congressional appropriators to challenge future funding of the U.S.'s $406 million contributions . . . to the WHO." This is the WHO that deals with AIDS, malnutrition, infectious disease, bioterrorism, and more, threatened because of its stance on sugar.

The tobacco history is similar. In its first-ever use of its international treaty-making authority, the WHO proposed, and eventually received, near-universal approval to adopt the Framework Convention on Tobacco Control (FCTC), an international treaty that would, among other things, result in higher cigarette prices, the abolition of most tobacco advertising, and global cooperation in combating cigarette smuggling (WHO 2003). The multiyear effort to develop the FCTC encountered serious opposition from only a handful of countries, with the U.S. delegation leading the charge. The United States' vocal resistance was noteworthy

in that the convention would have limited impact on this country, which had already achieved much success in tobacco control. Rather, the convention would attack the spread of tobacco in poor and middle-income countries, the principal targets of the industry's plans for future expansion. Success in the latter endeavor, of course, would affect the financial well-being of major multinational companies like Altria (parent of Philip Morris).

The FCTC experience gave the U.S. administration a black eye and fed perceptions that business interests are more important to the United States than the health of developing countries. The global community adopted the FCTC with such strong unanimity, however, that even the United States voted in favor, but only after the failure of its last-minute efforts to subvert the agreed-upon document. Nearly all the countries that approved the FCTC at the May 2003 World Health Assembly subsequently ratified the convention, making the FCTC one of the most widely and rapidly adopted treaties in history. As of August 2008, 160 countries had ratified the treaty. The United States remains one of the few holdouts. In fact, the Bush administration did not even forward the treaty to the Senate for its consideration.

The United States found itself similarly isolated in its attack on the WHO's diet and nutrition recommendations. Skewered by the international press and unsupported by food industry giants located outside the country (like Nestle and Unilever), the administration and industry nonetheless maintained their stance.

The idea that industry interests should trump public health has been institutionalized in regulatory agencies like the U.S. Department of Agriculture (USDA) by means of a "rotating door" that leads to the regulatory agency's "capture" by industry (Makkai and Braithwaite 1992). While working to promote healthy eating, the USDA at the same time has as its main objective the promotion of American agriculture (selling more food), so one goal typically prevails over the other when the two conflict. There is a long history of USDA leaders and leaders of other agencies being recruited from food and agriculture industries and then returning to businesses like lobbying firms when their government service ends. Tommy Thompson, a former secretary of DHHS, is now a partner with Akin Gump, a law firm that defended tobacco companies and food companies like Archer Daniels Midland. Daniel Glickman went to the same firm after serving as secretary of the USDA.

The Influence of Professional Organizations

The food industry enjoys influential positions in surprising places. The American Dietetic Association (ADA), which, in its own words, is devoted to "improving the nation's health," promotes a series of Nutrition Fact Sheets. Industry sources pay $20,000 per fact sheet to the ADA and *take part in writing the documents*; the ADA then promotes them through its journal and on its website. Some of these fact sheets are "What's a Mom to Do: Healthy Eating Tips for Families" sponsored by Wendy's; "Lamb: The Essence of Nutrient Rich Flavor" sponsored by the Tri-Lamb Group; "Cocoa and Chocolate: Sweet News" sponsored by the Hershey Center for Health and Nutrition; "Eggs: A Good Choice for Moms-to-Be" sponsored by the Egg Nutrition Center; "Adult Beverage Consumption: Making Responsible Drinking Choices" in connection with the Distilled Spirits Council; and "The Benefits of Chewing Gum" sponsored by the Wrigley Science Institute.

In March 2008, the ADA announced that the Coca-Cola Company had become an "ADA Partner" though its corporate relations sponsorship program. In promoting this program, the ADA states that becoming an ADA partner "provides partners a national platform via ADA events and programs with prominent access to key influencers, thought leaders and decision makers in the nutrition marketplace" (American Dietetic Association 2008). The ADA's press release also pointed out that "the Coca-Cola Company will share research findings with ADA members in forums such as professional meetings and scientific publications."

The ADA has taken a strong stand that there are no good foods or bad foods, a position that the food industry has then exploited. In its early years, the tobacco industry sounded a similar theme: smoking per se was not bad, only "excess" smoking.

Nonetheless, the food industry still has a chance to work with the public health community, professional organizations, and governmental organizations—both national and international—in a manner that promotes, not combats, public health. Section B of table 1 offers specific suggestions for appropriate industry actions. (Note that there is some overlap in the four sections. For example, public relations efforts, identified in section A, are intended both to frame issues and to influence governments and key organizations.)

Disputing Science, Planting Doubt, Creating Conflicts of Interest

Industry must often contend with research that questions the safety and healthfulness of its products and the impact of practices such as marketing. There is a long history, in both the tobacco and food industries, of their seeking to influence science.

Scientists, Conflicts of Interest, and Industry Front Groups

From the early days of research showing the harmful effects of tobacco on health, the industry paid prominent scientists to conduct studies and to act as advisers and consultants with the intent of countering the potentially damaging scientific evidence (Cummings, Brown, and O'Connor 2007). This practice continues today (Barnoya and Glantz 2006; Mars and Ling 2008; Schick and Glantz 2007). Michaels (2008), Kessler (2001), and Mooney (2006) all note that this may well be a deliberate strategy to buy loyalty and to instill doubt: to confuse the public, give ammunition to political allies, and stall or prevent government action. A case in point is the tobacco industry's behavior in undermining the science with respect to secondhand smoke (McGarity and Wagner 2008; Tong and Glantz 2007).

Similar concerns have been raised about the food industry (Brownell and Horgen 2004; Nestle 2001, 2002). Many of the major food companies have advisory boards composed of the field's most visible academics, pay scientists as consultants, and fund research. The question is what industry "buys" with these transactions. It is possible some scientists and professional organizations are not affected, but for others (1) the conduct or interpretation of science becomes biased; (2) scientists or professional organizations issue statements and take positions more favorable to industry; (3) well-placed scientists help industry in key strategic roles (e.g., membership on the Dietary Guidelines Committee); and (4) industry uses the funding of research as evidence it is seeking the "truth" about the dangers of its products (McGarity and Wagner 2008). Common sense argues that industry would not spend the money if there were no return, but more important are the data addressing the issue.

One example is the research on the connection between the consumption of soft drinks and health. A meta-analysis of available research showed clear relationships among the consumption of soft drinks, poor nutrition, and negative health outcomes (Vartanian, Schwartz, and Brownell 2007). Within this meta-analysis, which was not funded by industry, those studies with stronger methods were more likely to show these negative outcomes. Furthermore, a comparison of studies funded or not funded by industry showed that the former were more likely to find results favorable to industry. An analysis of studies of the health effects of secondhand smoke produced similar findings (Misakian and Bero 1998).

The soft drink industry, through the American Beverage Association (ABA), responded swiftly by supporting a group of researchers to conduct another review of the link between soft drinks and body weight. Two of the authors had conducted multiple industry-funded studies in the past, and one was employed by the ABA when the study was published. This study found that the consumption of soft drinks is not related to negative outcomes (Forshee, Anderson, and Story 2008).

There are a few signs that this conflict of interest may improve. "Sunlight" being trained on the issue by the press may shame conflicted scientists and professional organizations into behaving differently. A highly visible case occurred when the press documented that a prominent obesity researcher was paid by the restaurant industry to write a brief in its legal case opposing menu-labeling regulations in New York City (Nichols 2008; Saul 2008; Stark 2008).

Improvements also may follow when scientists recognize that the field's response to conflicts—disclosure—may actually make the situation worse. Cain, Loewenstein, and Moore (2005) found that an audience hearing information from a source who discloses a conflict of interest discounts what they hear, but only to a small extent. The source, however, feels emboldened to present his or her views more strongly, ultimately making the conflicted source more, rather than less, credible. This phenomenon may apply to organizations as well as to individuals, and as noted earlier, prominent organizations such as the American Dietetic Association and the Obesity Society receive considerable funding from industry.

Industry front groups provide another parallel between the industries. The tobacco industry created organizations that appeared at first glance to be grassroots groups seeking to protect smokers' rights and to fight

off government intrusion (Advocacy Institute 1998; Apollonio and Bero 2007). An industry, of course, has the right to promote its positions, but when money flows through such organizations, their nature and intent are not apparent to the general public. The food industry also funds groups with names that would not necessarily alert the public to the industry connection. The Center for Consumer Freedom is an example. Such front groups attack and instill doubt in published science and the scientists who do research, in concert with the industry script (McGarity and Wagner 2008; Michaels 2008).

Addiction Manipulation and Denial

The highly addictive nature of nicotine has been long known. Famously, in 1963 a Brown & Williamson executive wrote, "We are, then, in the business of selling nicotine, an addictive drug" (Brown & Williamson 1963). Less than ten years later, a Philip Morris research official wrote, "The cigarette should be conceived not as a product but as a package. The product is nicotine. . . . Think of the cigarette pack as a storage container for a day's supply of nicotine" (Dunn 1972).

Despite revelations such as these, there are questions even today about whether the industry fully admits to the problem (Henningfield, Rose, and Zeller 2006). A striking event occurred in 1994 when the CEOs of every major tobacco company in America stood before Congress and, under oath, denied believing that smoking caused lung cancer and that nicotine was addictive, despite countless studies (some by their own scientists) showing the opposite. Most troubling was the intentional manipulation of nicotine to increase the addictive potential of cigarettes (Hurt and Robertson 1998; Kessler 1994, 2001).

Much less research has been done on food and addiction, but the number of studies is growing. Animal studies have shown similarities in the way the brain responds to classic drugs of abuse (e.g., morphine, alcohol, nicotine) and to sugar (Avena, Rada, and Hoebel 2008). Human studies have shown similar findings and have examined how the same reward pathways affect the intake of food and drugs (Adam and Epel 2007; Kalivas and Volkow 2005; Kalra and Kalra 2004; Kelley and Berridge 2002; Volkow and Li 2005; Volkow and Wise 2005; Wang et al. 2004). In addition, scientists who study food and those who study addiction are now interacting (Rudd Center for Food Policy and Obesity

2007) and are systematically addressing the issue of whether food can create an addictive process.

Caffeine is interesting in this context of addiction. Often overlooked because of perceptions that caffeine produces only mild addiction, several findings are noteworthy:

1. The pharmacology of caffeine shows clear patterns of dependence, with signs of tolerance and withdrawal (Juliano and Griffiths 2004; Strain et al. 1994).

2. The range in amount of caffeine within product categories such as coffees, energy drinks, and carbonated sodas is very wide (McCusker, Goldberger, and Cone 2003, 2006).

3. Caffeine can sometimes be found in "decaffeinated" products (McCusker, Goldberger, and Cone 2006).

4. Industry claims to add caffeine because of its flavor-enhancing properties, but research has shown that individuals cannot detect caffeine in foods (Keast and Riddell 2007). Griffiths and Vernotica (2000, p. 732), finding that only 8 percent of people could detect caffeine in cola drinks, concluded that "the high rates of consumption of caffeinated soft drinks more likely reflect the mood-altering and physical dependence-producing effects of caffeine as a central nervous system-active drug than its subtle effects as a flavoring agent."

5. Food companies have added caffeine to unlikely foods, including potato chips, jelly beans, sunflower seeds, and candy bars (Brownell, Griffiths, and Gold 2008). We also should point out that nicotine has been added to food products as well, including fruit juices, bottled water, and lollipops, although unlike the case of caffeine, here the presence of nicotine is explicitly promoted (Warner 2005).

Caffeine may be an important player regarding poor nutrition and obesity because it is so often coupled with calories (Brownell, Griffiths, and Gold 2008). Soft drinks, energy drinks, coffee (with cream and sugar), and other foods to which caffeine is added deliver a great many calories to their consumers. The possibility of additive or synergistic addictive effects with caffeine and food substances like sugar thus should be explored. The degree to which industry intentionally manipulates caffeine to maximize consumption, especially by children, could emerge as an issue.

It is too early to know how the food industry will react to issues pertaining to food and addiction. Many scientific issues have yet to be addressed, and the press, public, and elected leaders have not yet challenged the industry on this matter. But for such a sensitive issue, and one with potentially important legal implications, one can imagine how threatening even the implication of addiction would be to the industry, as it was with tobacco. Table 1, section C, lists responsible industry practices.

Product Marketing and "Safer" Products

Another similarity between tobacco and food companies is the introduction and heavy marketing of "safer" or "healthier" products. When cigarette sales dropped in the early 1950s owing to health concerns, the industry introduced "safer" cigarettes that gave health-conscious smokers an alternative to quitting (Cummings, Brown, and Douglas 2006). Filtered cigarettes, sold with the explicit message that filters removed dangerous substances while preserving flavor, were marketed aggressively. Cigarette consumption then resumed its upward trajectory, and within a decade, filtered cigarettes came to dominate the market. Ironically, the filter of the first highly successful brand of filtered cigarettes, Kent, added to the smoking experience yet another dangerous substance: the asbestos in its filter (Slade 1993).

Fifteen years later, industry addressed the widespread fear of smoking by introducing low-tar and -nicotine cigarettes. Advertising explicitly conveyed the message that these new "light" cigarettes were safer. An ad for True cigarettes read, "All the fuss about smoking got me thinking I'd either quit or smoke True. I smoke True." Within a decade this new product dominated the market. Moreover, the cigarette companies enjoyed a windfall because they retained customers while selling them a product that required many of them to smoke even more cigarettes to accumulate their accustomed intake of nicotine. Industry analysts have observed that low-tar and -nicotine cigarettes were designed as public relations devices, not harm reduction products (Pollay and Dewhirst 2001). The industry knew that the cigarettes generated official machine-measured tar and nicotine yields far lower than they would when smoked by human beings (due to the location of ventilation holes, designed so that they would be blocked when held by fingers, but not

blocked when held at their very tip by a testing machine). Yet even today, smokers of "lights" believe, erroneously, that their risk of death from smoking is substantially below that of smokers of "full-flavor" cigarettes (Shiffman et al. 2001; Weinstein 2001). Smokers of low-tar cigarettes, who frequently pull harder on their cigarettes, are now developing cancers farther down in the lung than was the case with traditional cigarettes (Brooks et al. 2005). These "safer" products have had disastrous results for public health (Warner 2005).

For many years the food industry has marketed both products with smaller amounts of those ingredients thought to cause harm (e.g., sugar, fat, salt, trans fats) and products supplemented or fortified with ingredients purported to improve health (e.g., vitamins and minerals, oat bran, whole grains). Fueled in part by lax government regulation of marketing and health claims, there has been an explosion of such products in recent years. Some examples:

- Removing trans fats is a positive development, but the degree of health benefit depends on what is used as a replacement (saturated fats are more damaging replacements than polyunsaturated or monounsaturated fats).
- A KFC ad campaign depicted an African American family in which the father was told by the mother that "KFC has 0 grams of trans fat now." The father, in the presence of children, shouts, "Yeah baby! Whoooo!!" and then begins eating the fried chicken with abandon. Does such an ad imply it is now fine to eat fried chicken and potentially increase consumption in ways that contribute to obesity (there is no calorie advantage of switching one fat for another)?
- General Mills has an aggressive marketing and packaging campaign to tout the fact that its cereals are made with whole grains, including high-sugar products like Lucky Charms and Cinnamon Toast Crunch. Whether consumers, responding to the General Mills campaign, would overestimate the benefit of the grain change and increase their consumption of such cereals is not known.

At the center of this issue is whether industry can be trusted to make changes that benefit the public good and can be responsible with the accompanying marketing. The tobacco history is clear and is captured in a quotation from Cummings, Brown, and O'Connor (2007, p. 1070): "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." Where does the food industry fit in this picture? A number of motives encourage industry to introduce products perceived to be safer and healthier, including the possibility that consumers will buy these products in increasing numbers; public relations; less exposure to litigation; and a convincing case that industry can self-regulate, making government intervention unnecessary. These apply to both tobacco and food.

Objective evaluations will be needed to establish whether the "better for you" products promoted by the food industry are actually better for consumers' health. In addition, the validity of inferences that consumers draw from marketing of such products and consumers' actual responses will need to be evaluated objectively. A product slightly improved but marketed to imply a large benefit could lead consumers to eat more and hence have a damaging impact overall. These needs for evaluation, and possibly regulation, duplicate those identified by an Institute of Medicine committee regarding the contemporary proliferation of novel nicotine and tobacco products, all marketed as reducing risk (Stratton et al. 2001).

The food industry could indeed improve its products in ways that will be beneficial to the public's health. We suggest that the industry adopt marketing approaches that are consistent with the goal of serving the public's health. Our proposed approaches are presented in section D of table 1.

A Question of Priorities

Today 50 Americans will be murdered; 89 will take their own lives; 40 will succumb to HIV/AIDS; and 112 will die from motor vehicle injuries. This sums to 291 deaths, compared to the 1,200 people who will die as a result of their smoking. But one act might have saved even more lives: an honest approach by the industry, one consistent with the industry's pledge in the 1954 "Frank Statement" and precisely opposite the disastrous route it chose to follow (Cummings, Morley, and Hyland 2002).

Food industry versions of the "Frank Statement" and its aftermath are unacceptable. Americans now realize there is a serious problem with the

nation's diet, physical activity, and weight. There is growing awareness of who is selling what and to whom they are selling, coupled with mounting insistence on corporate accountability. A survey of California residents found that 92 percent believe childhood obesity is a serious problem. Eighty percent believe it has worsened more than other issues such as drinking and drug abuse; 65 percent believe that advertising for food and beverages contributes to the problem in important ways; 64 percent believe that advertising has a big impact on food choices of young children; and 66 percent feel the best way to solve the problem is through actions such as changes in school policies and labeling at fast-food restaurants, rather than leaving matters solely to parents and children (California Endowment 2003).

In the 1950s, cigarette advertisements claimed, "More doctors smoke Camel than any other cigarette." Ronald Reagan was well known for his endorsement of Chesterfield cigarettes. The world was not then aware of the havoc that cigarettes could visit on the body. Only recently have we become truly aware of the catastrophic impact of the modern food and physical activity environment. Now we must wonder how history will view Shaquille O'Neal promoting Burger King, Britney Spears and Beyoncé Knowles working with Pepsi, and Cedric the Entertainer, Michael Jordan, Kobe Bryant, Serena and Venus Williams, and Donald Trump all endorsing McDonald's.

To protect profits, the food industry must avoid perceptions that it is uncaring and insensitive, ignores public health, preys on children, intentionally manipulates addictive substances, and knowingly, even cynically, contributes to death, disability, and billions in health care costs every year. Stated another way, it cannot afford to look like tobacco. Whether it *is* like tobacco is a question of central importance.

The food industry is more complex than tobacco, with scores more players and thousands more products. Some companies, such as fruit and vegetable sellers, promote inherently good products, while some like the candy companies do the opposite. Most companies, especially the major players such as Nestle, Unilever, and Kraft (the world's three largest food companies), do a great deal of both. Such companies have many ways to leave a better health footprint on the world (reformulating their products, selling fewer calorie-dense foods and more healthy choices, curtailing marketing to children, and withdrawing from schools). The question is whether they will behave in honorable, health-promoting ways or will sink to the depths occupied by tobacco.

There are perils for both industry and the population of ignoring tobacco's history. The tobacco industry embraced political and public relations strategies that were effective initially and continue to thwart needed change, particularly in the developing world. However, the industry's deceit, its ostensible but not genuine commitment to public health, and its manipulation of scientists and politicians created an anti-tobacco mentality that swept the United States and opened the door for legal, public health, and legislative actions that have helped cut smoking in the United States by more than half.

That such strategies tempt the food industry is not surprising, and in fact we see many similarities in the behavior of tobacco and food industry players (table 1). The food industry playbook suggests maneuvers to thwart changes that would benefit public health—strategies that may ultimately be self-defeating. Laying claim to concern for the public while continuing its destructive practices (e.g., selling calorie-dense foods in schools and marketing unhealthy foods to children), paying scientists to do research that helps the industry, funding front groups, using money to influence professional organizations, failing to rein in trade associations that distort science and make doubt one of their deliverables, and perhaps formulating products in ways that maximize their addictive potential all make industry vulnerable but, most important, hurt the public.

A number of threats lie in the food industry's future. If the industry does not make change preemptively, public opinion may turn against it, as it did against Big Tobacco. The turn may occur more rapidly with food because of the cynicism bred by tobacco and a general anti-industry outlook inspired by players such as Enron, Tyco, WorldCom, and subprime lenders (Vogel 1989). Litigation could be one source of shifting opinion, with addiction potentially a looming target. Whether food companies are ever found responsible for health damages may be less important than the disclosure of internal documents generated by the discovery phase of the legal process. Tobacco was seriously wounded when its tactics became public knowledge. As an example, U.S. District Judge H. Lee Sarokin said in a 1992 pretrial ruling ordering the tobacco companies to turn over internal research documents:

> All too often in the choice between the physical health of consumers and the financial well-being of business, concealment is chosen over disclosure, sales over safety, and money over morality. Who are these persons who knowingly and secretly decide to put the buying public

at risk solely for the purpose of making profits and who believe that illness and death of consumers is an apparent cost of their own prosperity?

Above all, the experience of tobacco shows how powerful profits can be as a motivator, even at the cost of millions of lives and unspeakable suffering. There is ample indication that giving industry the benefit of the doubt can be a trap. To avoid this trap, industry must meet clear expectations, complete with benchmarks and timetables and with an objective evaluation of the impact of the industry's actions. Malfeasance should be addressed swiftly, so that change is made necessary within weeks or months, not years.

The food industry could make needed changes through voluntary self-regulation, or the changes could be mandated by regulation or legislation or prompted by litigation (or some combination of all three). Food industry players have promised a number of self-regulatory changes, including pledging to market better foods in schools and to scale back their marketing to children (Sharma, Teret, and Brownell 2008). Hard lessons were learned in the tobacco arena when voluntary actions by industry appeared helpful but were not and served to stall government action for many years. This reality suggests that the food industry should be held to a high standard, which includes nonindustry-determined benchmarks for success and an objective evaluation of their impact. Failure to achieve public health goals should trigger mandated action.

Will the food industry adopt a playbook that promotes public health, or will its future come to rival tobacco's past? Certainly there is an opportunity if the industry chooses to seize it—an opportunity to talk about the moral high ground *and* to occupy it.

References

Adam, T.C., and E.S. Epel. 2007. Stress, Eating and the Reward System. *Physiology and Behavior* 91:449–58.

Advocacy Institute. 1998. *Smoke & Mirrors: How the Tobacco Industry Buys & Lies Its Way to Power & Profits*. Washington, D.C.

Alliance for a Healthier Generation. 2006. Announcement of School Beverage Guidelines, May 3. Available at http://www.healthier

generation.org/uploadedFiles/For_Schools/School_Beverage_Guide lines/Beverage%20MOU.pdf (accessed January 6, 2009).

American Beverage Association. 2009. *Questions and Answers: Beverages in Schools*. Available at http://www.ameribev.org (accessed February 7, 2009).

American Dietetic Association. 2008. Press release: American Dietetic Association Welcomes the Coca-Cola Company as an ADA Partner, March 1. Available at http://www.eatright.org/cps/rde/xchg/ ada/hs.xsl/media_16174_ENU_HTML.htm (accessed June 28, 2008).

Apollonio, D.E., and L.A. Bero. 2007. The Creation of Industry Front Groups: The Tobacco Industry and "Get Government Off Our Back." *American Journal of Public Health* 97:419–27.

Avena, N.M., P. Rada, and B.G. Hoebel. 2008. Evidence for Sugar Addiction: Behavioral, and Neurochemical Effects of Intermittent, Excessive Sugar Intake. *Neuroscience and Biobehavioral Reviews* 32:20–39.

Barnoya, J., and S.A. Glantz. 2006. The Tobacco Industry's Worldwide ETS Consultants Project: European and Asian Components. *European Journal of Public Health* 16:69–77.

Brooks, D.R., J.H.M. Austin, R.T. Heelan, M.S. Ginsberg, V. Shin, S.H. Olson, J.E. Muscat, and S.D. Stellman. 2005. Influence of Type of Cigarette on Peripheral versus Central Lung Cancer. *Cancer Epidemiology Biomarkers and Prevalence* 14:576–81.

Brown & Williamson. 1963. Implications of Battelle Hippo I & II and the Griffith Filter (memo marked "Strictly Private and Confidential"), July 17. Available at http://legacy.library.ucsf.edu/ tid/xrc72d00/pdf (accessed July 15, 2008).

Brownell, K.D., R.R. Griffiths, and M.S. Gold. 2008. Caffeine as a Calorie Maximizing Substance: Implications for Nutrition, Obesity and Public Health. Unpublished paper.

Brownell, K.D., and K.B. Horgen. 2004. *Food Fight: The Inside Story of the Food Industry, America's Obesity Crisis, and What We Can Do about It*. New York: McGraw-Hill/Contemporary Books.

Brownell, K.D., and M. Nestle. 2004. The Sweet and Lowdown on Sugar (op-ed). *New York Times*, January 23.

Cain, D.M., G. Loewenstein, and D.A. Moore. 2005. The Dirt on Coming Clean: Perverse Effects of Disclosing Conflicts of Interest. *Journal of Legal Studies* 34:1–25.

California Endowment. 2003. *A Survey of Californians about the Problem of Childhood Obesity*. Available at http://www.calendow.org/ Collection_Publications.aspx?coll_id=16&ItemID=304# (accessed June 21, 2008).

Cashore, B., G. Auld, and D. Newsom. 2004. *Governing through Markets: Forest Certification and the Emergence of Non-State Authority*. New Haven, Conn.: Yale University Press.

CNN. 2004. Interview with Congressman Ric Keller, March 10. Available at http://transcripts.cnn.com/TRANSCRIPTS/0403/10/ltm.02.html (accessed June 20, 2008).

Council of Better Business Bureaus. 2007. Press release: Better Business Bureau Announces Food and Beverage Advertising Commitments from 11 Industry Leaders, July 18. Available at http://www.bbb.org/alerts/article.asp?ID=779 (accessed June 28, 2008).

Cram, P., B.K. Nallamothu, A.M. Fendrick, and S. Saint. 2007. Fast Food Franchises in Hospitals (letter). *Journal of the American Medical Association* 287:2945–46.

Cummings, K.M., A. Brown, and C.E. Douglas. 2006. Consumer Acceptable Risk: How Cigarette Companies Have Responded to Accusations That Their Products Are Defective. *Tobacco Control* 15(suppl. 4):iv84–iv89.

Cummings, K.M., A. Brown, and R. O'Connor. 2007. The Cigarette Controversy. *Cancer Epidemiology, Biomarkers & Prevention* 16:1070–76.

Cummings, K.M., C.P. Morley, and A. Hyland. 2002. Failed Promises of the Cigarette Industry and Its Effect on Consumer Misperceptions about the Health Risks of Smoking. *Tobacco Control* 11(suppl. 1):i110–i117.

Dean, H., and B. Flett. 2002. Natural History of Type 2 Diabetes Diagnosed in Childhood; Long-Term Follow-Up in Young Adult Years. Paper presented at the annual meeting of the American Diabetes Association, San Francisco, June.

Dunn, W.L., Jr. 1972. 1972 Philip Morris document. Available at http://legacy.library.ucsf.edu/action/document/page?tid=itb12a00 (accessed July 15, 2008).

Forshee, R.A., P.A. Anderson, and M.L. Story. 2008. Sugar-Sweetened Beverages and Body Mass Index in Children and Adolescents: A Meta-Analysis. *American Journal of Clinical Nutrition* 87:1662–71.

Griffiths, R.R., and E.M. Vernotica. 2000. Is Caffeine a Flavoring Agent in Cola Soft Drinks? *Archives of Family Medicine* 9:727–34.

Grocery Manufacturers of America. 2002. Press release, November 12. Available at http://www.gmabrands.com/news/docs/NewsRelease.cfm?DocID=1028 (accessed June 20. 2008).

Grocery Manufacturers of America. 2003. Press release, September 25. Available at http://www.gmabrands.com/news/docs/Testimony.cfm?docid=1209 (accessed June 28, 2008).

Hacker, J.S. 2006. *The Great Risk Shift: The New Economic Insecurity and the Decline of the American Dream*. New York: Oxford University Press.

Henningfield, J.E., C.A. Rose, and M. Zeller. 2006. Tobacco Industry Litigation Position on Addiction: Continued Dependence on Past Views. *Tobacco Control* 15(suppl. 4):iv27–iv36.

Holguin, J. 2002. *Battle of the Widening Bulge: Lawyers Who Battled Big Tobacco Size Up Fast Food Industry*, August 8. Available at http://www.cbsnews.com/stories/2002/08/08/eveningnews/main518023.shtml (accessed January 6, 2009).

Hurt, R.D., and C.R. Robertson. 1998. Prying Open the Door to the Tobacco Industry's Secrets about Nicotine: The Minnesota Tobacco Trial. *Journal of the American Medical Association* 280:1173–81.

Hyland, A., M. Wakefield, C. Higbee, G. Szczypka, and K.M. Cummings. 2006. Anti-Tobacco Television Advertising and Indicators of Smoking Cessation in Adults: A Cohort Study. *Health Education Research* 21:348–54.

Juliano, L.M., and R.R. Griffiths. 2004. A Critical Review of Caffeine Withdrawal: Empirical Validation of Symptoms and Signs, Incidence, Severity, and Associated Features. *Psychopharmacology* 176:1–29.

Kalivas, P.W., and N.D. Volkow. 2005. The Neural Basis of Addiction: A Pathology of Motivation and Choice. *American Journal of Psychiatry* 162:1403–13.

Kalra, S.P., and P.S. Kalra. 2004. Overlapping and Interactive Pathways Regulating Appetite and Craving. *Journal of Addictive Diseases* 23:5–21.

Keast, R.S.J., and L.J. Riddell. 2007. Caffeine as a Flavor Additive in Soft Drinks. *Appetite* 49:255–59.

Kelley, A.E., and K.C. Berridge. 2002. The Neuroscience of Natural Rewards: Relevance to Addictive Drugs. *Journal of Neuroscience* 22:3306–11.

Kessler, D.A. 1994. The Control and Manipulation of Nicotine in Cigarettes. *Tobacco Control* 3:362–69.

Kessler, D.A. 2001. *A Question of Intent: A Great American Battle with a Deadly Industry*. New York: Public Affairs.

Kumanyika, S. 2006. Nutrition and Chronic Disease Prevention: Priorities for US Minority Groups. *Nutrition Reviews* 64(2, pt. 2):S9–S14.

Makkai, T., and T. Braithwaite. 1992. In and Out of the Revolving Door: Making Sense of Regulatory Capture. *Journal of Public Policy* 12:61–78.

Mars, S.G., and P.M. Ling. 2008. Meanings and Motives: Experts Debating Tobacco Addiction. *American Journal of Public Health* 98:1793–1802.

McCusker, R.R., B. Fuehrlein, B.A. Goldberger, M.S. Gold, and E.J. Cone. 2006. Caffeine Content of Decaffeinated Coffee. *Journal of Analytical Toxicology* 30:611–13.

McCusker, R.R., B.A. Goldberger, and E.J. Cone. 2003. Caffeine Content of Specialty Coffees. *Journal of Analytical Toxicology* 27:520–22.

McCusker, R.R., B.A. Goldberger, and E.J. Cone. 2006. Caffeine Content of Energy Drinks, Carbonated Sodas, and Other Beverages. *Journal of Analytical Toxicology* 30:112–14.

McGarity, T., and W. Wagner. 2008. *Bending Science: How Special Interests Corrupt Public Health Research*. Cambridge, Mass.: Harvard University Press.

Michaels, D. 2008. *Doubt Is Their Product: How Industry's Assault on Science Threatens Your Health*. New York: Oxford University Press.

Misakian, A., and L. Bero. 1998. Publication Bias and Research on Passive Smoking: Comparison of Published and Unpublished Studies. *Journal of the American Medical Association* 280:250–53.

Mooney, C. 2006. *Republican War on Science*. New York: Basic Books.

Nestle, M. 2001. Food Company Sponsorship of Nutrition Research and Professional Activities: A Conflict of Interest? *Public Health Nutrition* 4:1015–22.

Nestle, M. 2002. *Food Politics: How the Food Industry Influences Nutrition and Health*. Berkeley: University of California Press.

Nichols, R. 2008. On the Side: Obesity Expert Sides with Chain Restaurants. *Philadelphia Inquirer*, February 21.

Norr, R. 1952. Cancer by the Carton. *Reader's Digest*, December, 7–8.

Ogden, C.L., M.D. Carroll, and K.M. Flegal. 2008. High Body Mass Index for Age among U.S. Children and Adolescents, 2003–2006. *Journal of the American Medical Association* 299(20):2401–5.

Ogden, C.L., M.D. Carroll, M.A. McDowell, and K.D. Flegal. 2007. *Obesity among Adults in the United States—No Statistically Significant Change since 2003–2004*. NCHS data brief no. 1. Hyattsville, Md.: National Center for Health Statistics.

Olshansky, S.J., D.J. Passaro, R.C. Hershow, J. Layden, B.A. Carnes, J. Brody, L. Hayflick, R.N. Butler, D.B. Allison, and D.S. Ludwig. 2005. A Potential Decline in Life Expectancy in the United States in the 21st Century. *New England Journal of Medicine* 352(11):1138–45.

Pollay, R.W., and T. Dewhirst. 2001. Marketing Cigarettes with Low Machine-Measured Yields. In *Risks Associated with Smoking Cigarettes with Low Machine-Measured Yields of Tar and Nicotine*. Smoking and Tobacco Control, Monograph no. 13, edited by D.R. Shopland, D.M. Burns, N.L. Benowitz, and R.H. Amacher, pp. 199–235. Bethesda, Md.: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health,

National Cancer Institute, NIH Publication no. 02-5074. Available at http://cancercontrol.cancer.gov/tcrb/monographs/13/ (accessed January 5, 2009).

Public Health Service. 1964. *Smoking and Health. Report of the Advisory Committee to the Surgeon General of the United States*. Washington, D.C.: U.S. Department of Health, Education and Welfare, Public Health Service, Center for Disease Control. PHS Publication no. 1103.

RJR Nabisco. 1996. Annual Meeting of Shareholders (proceedings). Winston-Salem, N.C., April 17, pp. 61–62. Available at http://legacy.library.ucsf.edu/action/document/page?tid=ygk01d00&page=61 (accessed July 14, 2008).

Rudd Center for Food Policy and Obesity. 2007. *Report from Yale University Conference on "Food and Addiction: Conference on Eating and Dependence."* Available at http://yaleruddcenter.org/resources/upload/docs/what/reports/RuddCenterAddictionMeeting.pdf (accessed January 6, 2009).

Sahud, H.B., H.J. Binns, W.L. Meadow, and R.E. Tanz. 2006. Marketing Fast Food: Impact of Fast Food Restaurants in Children's Hospitals. *Pediatrics* 118:2290–97.

Saul, S. 2008. Conflict on the Menu. *New York Times*, February 16.

Schick, S.F., and S.A. Glantz. 2007. Old Ways, New Means: Tobacco Industry Funding of Academic and Private Sector Scientists since the Master Settlement Agreement. *Tobacco Control* 16:157–64.

Schlosser, E. 2001. *Fast Food Nation: The Dark Side of the All American Meal*. New York: Houghton Mifflin.

Sebrie, E.M., and S.A. Glantz. 2007. Attempts to Undermine Tobacco Control: Tobacco Industry "Youth Smoking Prevention" Programs to Undermine Meaningful Tobacco Control in Latin America. *American Journal of Public Health* 97:1357–67.

Sharma, L., S. Teret, and K.D. Brownell. 2008. Self-Regulation and the Food Industry: Successes, Failures, and Needed Directions. Unpublished paper.

Shiffman, S., J.L. Pillitteri, S.L. Burton, J.M. Rohay, and J.G. Gitchell. 2001. Smokers' Beliefs about "Light" and "Ultra Light" Cigarettes. *Tobacco Control* 10(suppl. 1):i17–i23.

Slade, J. 1993. Nicotine Delivery Devices. In *Nicotine Addiction: Principles and Management*, edited by C.T. Orleans and J. Slade, pp. 3–23. New York: Oxford University Press.

Stark, K. 2008. Obesity Case Raises Questions about the Influence of Money on Science. *Philadelphia Inquirer*, February 15.

Strain, E.C., G.K. Mumford, K. Silverman, and R.R. Griffiths. 1994. Caffeine Dependence Syndrome: Evidence from Case Histories and Experimental Evaluations. *Journal of the American Medical Association* 272:1043–48.

Stratton, K., P. Shetty, R. Wallace, and S. Bondurant, eds. 2001. *Clearing the Smoke: Assessing the Science Base for Tobacco Harm Reduction*. Washington, D.C.: National Academies Press.

Tobacco Industry Research Committee. 1954. A Frank Statement to Cigarette Smokers. Available at http://legacy.library.ucsf.edu/cgi/getdoc?tid=zep91f00&fmt=pdf&ref=results (accessed July 14, 2008).

Tong, E.K., and S.A. Glantz. 2007. Tobacco Industry Efforts Undermining Evidence Linking Secondhand Smoke with Cardiovascular Disease. *Circulation* 116:1845–54.

Vartanian, L.R., M.B. Schwartz, and K.D. Brownell. 2007. Effects of Soft Drink Consumption on Nutrition and Health: A Systematic Review and Meta-Analysis. *American Journal of Public Health* 97:667–75.

Vogel, D. 1989. *Fluctuating Fortunes: The Political Power of Business in America*. New York: Basic Books.

Volkow, N.D., and T.-K. Li. 2005. The Neuroscience of Addiction. *Nature Neuroscience* 8:1429–30.

Volkow, N.D., and R.A. Wise. 2005. How Can Drug Addiction Help Us Understand Obesity? *Nature Neuroscience* 8:555–60.

Wakefield, M., Y. Terry-McElrath, S. Emery, H. Saffer, F.J. Chaloupka, G. Szczypka, B. Flay, P.M. O'Malley, and L.D. Johnston. 2006. Effect of Televised, Tobacco Company–Funded Smoking Prevention Advertising on Youth Smoking-Related Beliefs, Intentions, and Behavior. *American Journal of Public Health* 96:2154–60.

Wang, G.J., N.D. Volkow, P.K. Thanos, and J.S. Fowler. 2004. Similarity between Obesity and Drug Addiction as Assessed by Neurofunctional Imaging: A Concept Review. *Journal of Addictive Diseases* 23:39–53.

Warner, K.E. 2002. What's a Cigarette Company to Do? *American Journal of Public Health* 92:897–900.

Warner, K.E. 2005. Will the Next Generation of "Safer" Cigarettes Be Safer? *Journal of Pediatric Hematology and Oncology* 27:543–50.

Warner, K.E. 2006. Tobacco Policy Research: Insights and Contributions to Public Health Policy. In *Tobacco Control Policy*, edited by K.E. Warner, pp. 3–86. San Francisco: Jossey-Bass.

Weinstein, N.D. 2001. Public Understanding of Risk and Reasons for Smoking Low-Yield Products. In *Risks Associated with Smoking Cigarettes with Low Machine-Measured Yields of Tar and Nicotine*. Smoking and Tobacco Control Monograph no. 13, edited by D.R. Shopland, D.M. Burns, N.L. Benowitz, and R.H. Amacher, pp. 193–98. Bethesda, Md.: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute, NIH Publication no. 02-5074. Available at

http://cancercontrol.cancer.gov/tcrb/monographs/13/ (accessed January 5, 2009).

World Health Organization (WHO). 2003. *WHO Framework Convention on Tobacco Control*. Geneva. Available at http://www.who.int/tobacco/framework/WHO_FCTC_english.pdf (accessed January 6, 2009).

World Health Organization (WHO). 2004. *Global Strategy on Diet, Physical Activity and Health*. Geneva. Available at http://www.who.int/dietphysicalactivity/goals/en/index.html (accessed January 6, 2009).