

Public Health, Academic Medicine, and the Alcohol Industry's Corporate Social Responsibility Activities

Thomas F. Babor, PhD, MPH, and Katherine Robaina, MPH

We explored the emerging relationships among the alcohol industry, academic medicine, and the public health community in the context of public health theory dealing with corporate social responsibility. We reviewed sponsorship of scientific research, efforts to influence public perceptions of research, dissemination of scientific information, and industry-funded policy initiatives.

To the extent that the scientific evidence supports the reduction of alcohol consumption through regulatory and legal measures, the academic community has come into increasing conflict with the views of the alcohol industry.

We concluded that the alcohol industry has intensified its scientific and policy-related activities under the general framework of corporate social responsibility initiatives, most of which can be described as instrumental to the industry's economic interests. (*Am J Public Health*. 2013; 103:206–214. doi:10.2105/AJPH.2012.300847)

WE EXPLORED THE EMERGING relationships between the alcohol industry, academic medicine, and the public health community.

Current trends suggest increasing involvement of the alcohol beverage industry in areas that traditionally have been the main foci of public health and academic medicine, such as scientific research, alcohol education, prevention programs, and alcohol control policies.^{1,2} Many of these activities can be interpreted in terms of corporate social responsibility (CSR) initiatives that many large corporations practice.³ We define CSR as business practices that help companies manage their economic, social, and environmental impacts as well as their relationships in key areas of influence, such as the marketplace, the supply chain, the community, and the public policy arena.

To provide a context for an evaluation of the alcohol industry's CSR activities, we reviewed the most prominent health issues that threaten the viability of the alcohol industry as a whole and that represent points of contention with public health and academic medicine. We have described the industry's CSR activities and the risks involved for the academic community. We have provided an evaluation of the theoretical, scientific, and public health challenges that have emerged from industry involvement in alcohol-related health issues.

THE ALCOHOL INDUSTRY

The alcohol industry is a multinational business complex that

includes not only the producers of beer, wine, and distilled spirits but also a large network of distributors, wholesalers, and related industries, such as hotels, restaurants, bars, and advertisers. The largest producers of branded alcoholic beverages, which account for approximately 78% of beer and 40% of spirits consumption worldwide, tend to be large multinational corporations that rely on marketing for their survival.⁴ Several observers^{5,6} have described the increasing globalization of the alcohol industry from a public health perspective, particularly in the beer and spirits sectors, which a few large corporations have come to dominate.

In addition to the alcohol producers, the industry's interests have traditionally been promoted by trade associations that deal with commercial issues such as taxes, marketing, and regulation. Hundreds of trade associations with a primary focus on alcohol have been established throughout the world, representing the interests of brewers, distillers, winemakers, bartenders, importers, wholesalers, and the hospitality industry. There are 3 international confederations and more than 36 national trade associations devoted solely to beer.⁷

Besides the industry's trade associations, since 1980 there has been a steady increase in industry-funded "social aspects" and public relations organizations (SAPROs) that have been established to manage issues in areas that overlap with public health, such as alcohol control policies,

medical research findings, and underage drinking. More than 40 such organizations have been established in more than 27 countries, and several operate on the international level.^{6,8} The activities of these organizations are typically framed in terms of CSR.⁸

Because of the diverse nature of the alcohol industry and the organizations it supports, it cannot be assumed that all these organizations act in concert with the same goals and intentions, particularly in matters pertaining to health and disease. Nevertheless, there are common corporate interests across the spectrum of industry organizations, which sometimes conflict with public health and medical priorities but, at other times, are compatible with them.

To better understand how the interests of the alcohol industry intersect with those of the academic community, we reviewed 2 areas in which the industry's interests overlap with public health and academic medicine: (1) scientific research on health-related issues and on alcohol policies that threaten the industry's public image and profits, and (2) CSR activities dealing with scientific research and public health policy.

The source material for our review of CSR activities builds on a previous analysis that T. F. B. conducted,¹ which we updated through a comprehensive search of the medical, public health, and social science literature. We used the following key words: alcohol industry, public health, research, conflict of interest, and alcohol policy. We used solvents,

methanol, and methyl as exclusionary terms. We consulted 5 databases: MEDLINE, SCOPUS, Social Science Citation Index, Science Citation Index, and PsycINFO. We identified 38 articles and reviews, 6 editorials, and 47 commentaries and letters to the editor. To summarize the literature on alcohol policy, we consulted the same databases for systematic reviews of the alcohol policy literature in areas of greatest relevance to the alcohol industry and public health community: pricing and taxation, alcohol availability, alcohol marketing, primary prevention, secondary prevention, drunk driving countermeasures, and responsible beverage service. We obtained additional information from organizational Web sites, newspaper articles, books, book chapters, and unpublished documents. Because many documents relevant to the industry's CSR activities are proprietary, we have provided only an incomplete picture of important issues such as motivations, financial investments, and conflicts of interest.

ALCOHOL RESEARCH RELATED TO HEALTH AND POLICY ISSUES

Among the most prominent health issues that apply to the alcohol industry as a whole and that represent points of contention with the scientific community are the burden of disease attributable to alcohol, the amount of alcohol consumed by populations at risk, the health benefits of moderate alcohol use, and the effectiveness of different alcohol control policies.

Alcohol epidemiologists have long been interested in the health effects of alcohol consumption and, more recently, in estimating the extent to which the industry profits

from selling alcohol to underage drinkers and to those with alcohol use disorders. The most important individual harms related to alcohol are coronary heart disease, breast cancer, tuberculosis, motor vehicle accidents, liver cirrhosis, and suicide.^{6,9} Besides volume of drinking, which is linked to most disease outcomes through specific dose-response relationships, a heavy episodic drinking pattern contributes to morbidity.⁹

On an international level, the health and economic costs of alcohol consumption are estimated to be 3.8% of all global deaths and 4.6% of global disability-adjusted life years.⁹ The World Health Organization (WHO)¹⁰ now considers alcohol a leading risk factor for death and disability, although scientists that alcohol SAPROs¹¹ support have contested the methodology behind these estimates.

In the United States, underage drinkers consume 20% of the alcohol, representing an estimated \$22.5 billion in consumer expenditures.¹² The combined value of illegal underage drinking and adult pathological drinking to the alcohol industry was estimated at \$48.3 billion in 2001 dollars.¹²

In contrast to the literature on underage drinking and alcohol's burden of illness, an area of positive interest to the alcohol industry is research on the beneficial effects of moderate drinking. There is considerable evidence that regular light to moderate drinking has a beneficial effect on the cardiovascular system, and there is similar evidence for a positive effect on several other diseases as well as all-cause mortality.¹³ Much of the supporting research comes from physiological- and individual-level epidemiological studies, whereas aggregate-level, time-series analyses have failed to confirm this effect,⁶ and the protective effects

of alcohol on coronary heart disease have been questioned on methodological grounds.¹⁴

In addition to the epidemiological findings, a significant amount of policy research has direct implications for the producers and distributors of beverage alcohol. Research monographs^{6,15} and integrative reviews¹⁶⁻¹⁸ have focused on the most effective policy approaches to reducing alcohol-related harm, either through regulatory measures that target per capita alcohol consumption or through interventions targeted at high-risk drinkers. Pricing and taxation policies, availability controls, drunk driving countermeasures, restrictions on alcohol marketing, specialized treatment of alcohol dependence, and brief interventions for hazardous drinking have the most evidence of effectiveness.^{2,6,16-18} Many of the strategies are universal measures that restrict the affordability, availability, and accessibility of alcohol, and as such they come into conflict with industry interests.

Research has begun to question the market-based activities of the alcohol industry in evaluations of the effectiveness of voluntary self-regulation practice codes, which have been promoted as an alternative to advertising bans designed to protect vulnerable populations from exposure to alcohol marketing. Studies have found significant violations of industry self-regulation codes in sub-Saharan Africa,¹⁹ Australia,²⁰ Brazil,²¹ the United States,^{22,23} Canada,²⁴ the United Kingdom,²⁵ and the European Union.²⁶

ALCOHOL INDUSTRY'S HEALTH-RELATED CSR ACTIVITIES

The alcohol industry's profitability can be threatened by

restrictive alcohol policies, and its public image can be improved by scientific research on the benefits of moderate drinking. To the extent that CSR is often used to manage health-related issues, we reviewed 4 types of CSR activities that have been evaluated in the scientific literature on alcohol: (1) sponsorship of scientific research, (2) industry efforts to influence public perceptions of research findings, (3) dissemination of scientific information, and (4) industry-funded public policy initiatives.

Sponsorship of Scientific Research

The alcohol industry has sponsored scientific research in 3 ways: (1) support for grant-making organizations that pool donations from major producers, (2) direct funding to academic researchers by SAPROs or producers, and (3) ongoing support of research centers and other scientific organizations. Three grant-making organizations account for most of the industry-funded scientific research on alcohol: the European Foundation for Alcohol Research (established in 2003), the Alcoholic Beverage Medical Research Foundation (established in 1982), and the *Institut de recherches scientifiques sur les boissons* (established in 1971). These organizations each have a board of trustees that includes industry representatives, a scientific board that conducts grant reviews, and a secretariat that administers the research funds to independent scientists. In a commentary on these organizations, Babor¹ noted that these research institutes are similar to those set up by the tobacco industry and may be subject to the same limitations.^{27,28} Scientists receiving industry support and serving on their scientific advisory

boards have potential conflicts of interest, and the alcohol industry may use its scientific prestige for public relations purposes. Grant awards tend to be small (less than US \$100,000), and the investigators who receive funds are typically at an early stage of their medical or scientific careers. The research is primarily devoted to investigating the health effects of moderate and excessive drinking. As of 2007, more than 450 investigators had received support from the largest of these grant-making organizations, the Alcoholic Beverage Medical Research Foundation, and more than 1800 publications had cited its support.²⁹

In addition to industry-sponsored funding organizations providing indirect support, individual alcohol producers or their SAPROs provide direct support to university-based scientists engaged in alcohol research. A document compiled by the Worldwide Brewing Alliance⁷ lists 23 grants awarded in 13 countries between 2000 and 2006. The research covers population surveys of public opinion and alcohol consumption as well as the evaluation of prevention programs and media campaigns. Academic investigators conduct most of the research on such topics as the hazardous drinking of young adults³⁰ and college students,³¹ and the contribution of genetics to alcohol problems.¹

Although direct industry support of independent scientists is not extensive relative to government sponsorship, industry funding has become a contentious issue at some universities and in the scientific community because of the potential for conflict of interest. Just as some scientists have reacted to tobacco industry funding,^{28,32} concerned scientists have

begun to call for a moratorium on accepting funds from the alcohol industry.^{33–35} It is argued that industry funding could shape the research agenda, influence the selection of industry-favorable topics, and create pressures to report industry-favorable findings. For example, the International Center for Alcohol Policies (ICAP), whose funding is derived from the major alcohol producers, sponsored several international surveys of alcohol education,³⁶ concluding that school-based education on alcohol is a priority area for “partnerships” with the alcohol industry, especially in the developing world. The research of industry-supported organizations such as ICAP has been criticized for its poor methodological quality and its focus on industry-favorable positions, such as the health benefits of alcohol and the value of alcohol education programs.^{37,38}

Public Perceptions of Alcohol Policy Research

Some industry-funded organizations have been directly involved in questioning the findings of independent research that may have policy implications. The Portman Group, which the United Kingdom’s major alcohol producers established in 1989, obtained prepublication copies of a book on alcohol policy that the WHO sponsored³⁹ and then offered fees to several academics to write anonymous critiques of the book.³¹ In another controversy, the Portman Group helped the UK government draft an influential report on alcohol policies. Critics of the report noted that the alcohol control policies that research suggests as the most effective (e.g., alcohol taxes and limits on availability) were opposed, minimized, or ignored as prevention strategies in the report, whereas less

effective approaches, such as school-based education, were favored.^{40–43}

The alcohol industry has also been involved in shaping both professional and public interpretations of research findings. Anheuser-Busch supported a Harvard researcher who provided briefings to medical journalists on the health benefits of their low-carb beer products.⁴⁴ Distilled spirits trade organizations in Switzerland⁴⁵ and the United States^{46,47} paid academics to write letters to the editor critiquing peer-reviewed articles dealing with policy issues such as alcohol taxes and alcohol marketing. These examples suggest that industry-sponsored organizations have in some instances tried to influence public perceptions of research and to discredit peer-reviewed research that independent alcohol scientists conducted. Industry attempts to influence public perceptions of alcohol science have been criticized because of their potential to confuse public opinion about the health effects of alcohol, discredit independent scientists, damage the integrity of science, and discourage or delay effective alcohol policies.^{1,34}

Scientific Documents and Conference Support

Some industry-supported organizations produce scholarly publications. ICAP has published 10 books in its Alcohol and Society series, most dealing with scientific and public policy issues. The books tend to be coauthored or coedited by a combination of ICAP staff, academic researchers, and industry representatives.

In collaboration with another industry-supported organization, ICAP sponsored a special issue of the *Annals of Epidemiology* (May 2007; vol. 17, issue 5) that was

devoted to alcohol and coronary heart disease.¹³ Subsequent to its publication, 2 industry-funded researchers⁴⁸ wrote a nonrefereed summary of the symposium’s proceedings that was distributed free of charge to 66 000 subscribers to the *American Journal of Medicine* and the *American Journal of Cardiology*. In a letter published in the former journal, several of the participants⁴⁹ stated that the summary failed to convey the dissenting findings reported at the symposium and questioned the purported health benefits of moderate alcohol consumption. Consistent with this critique, others have noted that research the alcohol industry supports tends to report “more enthusiastically about the potential cardioprotective nature of moderate alcohol use”^{50(p99)} than do those not receiving industry funding. ICAP has sponsored 12 other conferences, involving a mixture of industry representatives, academics, and government officials, in Europe, Africa, and Asia between 2003 and 2006.⁷

In contrast to these 1-time initiatives, industry-funded organizations have established several periodicals in the United States and the United Kingdom to promote the health benefits of moderate alcohol use. The International Scientific Forum on Alcohol Research, for example, is an undertaking of Boston University’s Institute of Lifestyle and Health jointly with Alcohol in Moderation, a UK organization. The forum consists of an international group of physicians and scientists who provide commentaries on scientific publications, policy statements related to alcohol, and expert opinion on topics related to alcohol and health. The forum and the Institute of Lifestyle and Health regularly publish online

commentaries on scientific articles related to alcohol and health.

ICAP is also involved in information dissemination, translating many of its books and other publications into French, Spanish, Russian, and Chinese. The stated purpose of these publications is to inform policymakers, scientists, and the general public about the latest developments in alcohol research, demonstrate CSR, and contribute to the public health mission of the sponsoring organization. For example, *Drinking in Context: Patterns, Interventions, and Partnerships*⁵¹ was widely disseminated as a policy brief for policymakers in developing countries. The book has been criticized⁵² for misrepresenting the public health view on alcohol policies, advocating ineffective or inadequate policies, and creating a situation of “moral jeopardy” for scientists who contribute to edited volumes the alcohol industry promotes. The book was promoted at conferences and government consultations in a number of African countries where industry-invited representatives helped government officials draft national policy plans for their countries. In one analysis of this initiative,⁵³ the national plans designed to fit the specific needs of 4 African countries were found to be virtually identical, with all documents originating from the Microsoft Word document of a senior executive of SABMiller, one of ICAP’s funders. Subsequent to the publication of this analysis, one of ICAP’s chief consultants was sanctioned by his employer, the government of South Australia, for misrepresenting his government affiliation in the drafting of these reports.⁵⁴

As these examples suggest, conferences and scientific publications that the alcohol industry and its SAPROs produce, although

ostensibly designed to promote the dissemination of scientific information, have also been used to support industry-favorable policy initiatives.³⁸ In the case of ICAP in Africa, the major themes have been commercial alcohol as an alternative to illicit brews, the economic benefits of an expanded alcohol industry, and the value of allowing the alcohol industry to regulate its own marketing activities.

Scientific Research and Public Health Policy

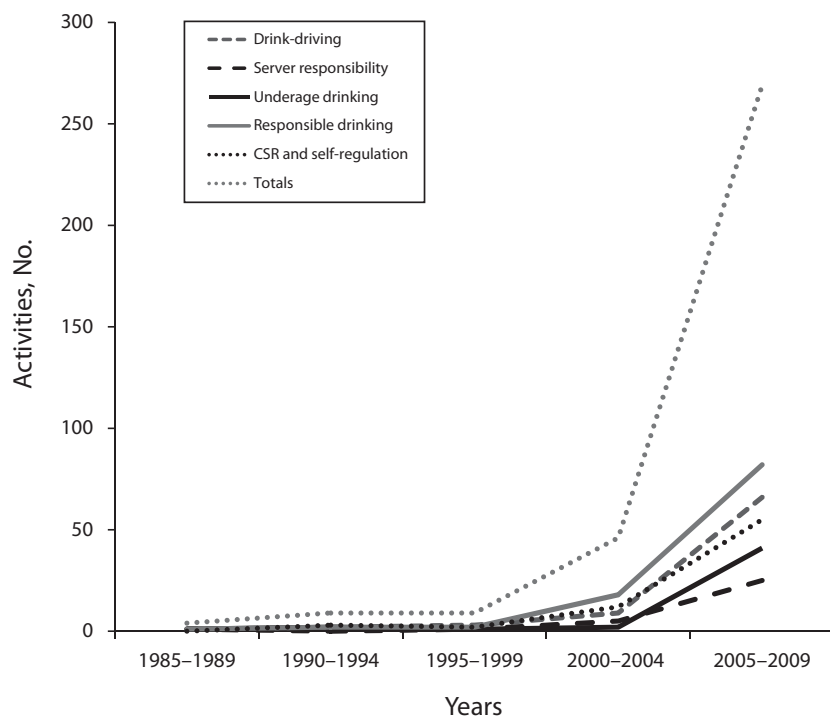
A final area in which the alcohol industry activity overlaps with public health and academic medicine is in their CSR activities related to public policy. A web-based compendium compiled by ICAP⁵⁵ lists 408 initiatives representing the efforts of 91 alcohol companies or organizations that

the alcohol industry funded, wholly or in part. Most of the initiatives are concentrated in Europe (51%) and North America (26%); 24% dealt with drink driving, 10% with server responsibility and training, 12% with the prevention of underage drinking, 31% with encouraging responsible alcohol consumption or discouraging alcohol misuse, and 23% with self-regulatory codes and practices.

Figure 1 shows the growth in the alcohol industry’s CSR activities over the past 25 years. The data indicate that there was a dramatic increase during the past 5 years, particularly with respect to responsible drinking, drunk driving, and self-regulation. Further analyses of these data (not shown) indicate that most of the increased activity occurred during 2007 and 2008, when the World Health

Assembly was preparing its Global Strategy on the Harmful Use of Alcohol.⁵⁶

We reviewed these activities to determine whether they include evidence-based practices that the WHO⁵⁷ and public health authorities^{6,15-18} recommend. Our review indicates that most of these programs reflect administrative changes of a particular company, training programs, media campaigns, and other activities that have not been evaluated or have not been found to be effective in preventing or reducing harmful drinking. For example, most of the 97 drink-driving initiatives were described as designated driver programs, public awareness campaigns, education activities for young drivers, and free ride programs for impaired drivers. According to a recent evaluation of the world scientific literature on



Note. CSR = corporate social responsibility.

FIGURE 1—Global actions on harmful drinking: 1985-2009.

alcohol policies,⁶ none of these strategies had evidence of effectiveness, except the possible use of driving while intoxicated courts to provide rapid disposition of drunk drivers (2 initiatives). None of the industry-sponsored programs were devoted to the most effective drink-driving countermeasures: random breath testing and lower blood alcohol concentration limits. Similarly, of the 52 underage-drinking initiatives, most dealt with parent education campaigns and age verification schemes that have not been evaluated for effectiveness. School-based alcohol information programs focusing on the consequences of excessive drinking have also been supported in these initiatives, despite evidence that the information programs typically employed in school settings are ineffective.^{6,18,58}

In summary, the global initiatives promoted by the alcohol industry are overwhelmingly derived from approaches of unknown or minimal effectiveness or approaches shown to be ineffective through systematic scientific research. Moreover, the industry initiatives only rarely include practices that the WHO and the public health community consider to have good evidence of effectiveness, and few have been evaluated in the low- and middle-income countries where they are now being disseminated.

CONCLUSIONS

We have described a variety of issues in which the interests of the alcohol industry intersect with those of academic medicine and public health. First, biomedical, epidemiological, and policy research has begun to document the global extent, costs, and consequences of alcohol misuse and the

evidence for different prevention and harm reduction approaches. To the extent that the most effective strategies involve the reduction of alcohol consumption at the population level through regulatory and legal measures, the academic community has come into increasing conflict with the views of the alcohol industry. This is reflected in literature reviews,^{15-17,59} expert committee reports,⁵⁷ and various scientific communications (e.g., editorials, letters to the editor, and commentaries).^{31,33,45,52,53,60}

Concurrent with these developments, the alcohol industry has intensified its scientific and policy-related activities under the general framework of CSR initiatives. In an article on CSR theory, Garriga and Mele³ classify CSR activities into 4 main groups: political, integrative, ethical, and instrumental. Without greater access to internal industry documents, it is not possible to determine which of the 4 best represents the recent initiatives of the alcohol industry. Although some of these activities can be interpreted as political (using business power in responsible ways), integrative (integrating social demands with business interests), and ethical (contributing to the common good by ethical conduct), there is growing evidence from this and other reviews^{18,40,60-62} that most of them are instrumental in nature (i.e., designed to maximize long-term profits). For example, Diego's chief executive officer explained its funding of a research project at University College Dublin as a way to discourage policymakers from imposing additional taxes on alcohol.⁶³ Hastings et al.²⁵ examined the strategic planning behind alcohol advertising by reviewing internal marketing

documents obtained from alcohol producers and their communications agencies. Contrary to the guidelines contained in the advertising codes of practice held up by the industry as a model of CSR, the authors found evidence that marketing practices of 4 major UK alcohol producers were targeting young people and promoting immoderate drinking. Other documents,^{38,62} obtained through the master settlement agreement with the tobacco industry, indicate that Miller Brewing Company, a subsidiary of Philip Morris at the time it helped to set up ICAP, saw its philanthropic activities as part of a public relations strategy to improve the corporation's leverage with legislators to promote industry-favorable policies.

These examples cannot be interpreted as representative of all segments of a heterogeneous industry. Many of the alcohol industry's CSR initiatives, such as its support of prevention programs and scientific research, are also consistent with a less instrumental form of "corporate citizenship" whereby partnerships with different constituencies serve a combination of social, economic, and political interests at both the local and global levels.³ And many of the industry's CSR activities dealing with responsible drinking could be interpreted as health-related social marketing if they had a greater public health orientation.

An important consideration in any evaluation of the alcohol industry's CSR activities is the public health benefit. Research funding, sponsorship of independent scientists, dissemination of scientific information, and the support of health interventions are the major areas in which the alcohol industry is involved in issues

related to public health, academic medicine, and alcohol science. Although the amounts the industry provides on a global level are relatively small compared with funding from governmental and philanthropic sources, the alcohol industry may realize significant benefits in terms of favorable press reports, alternative interpretations of negative research findings, and the courting of sympathetic scientists willing to support industry-favorable positions.¹ In addition, the industry's scientific activities may serve to confuse public discussion of health issues and policy options, raise questions about the objectivity of industry-supported alcohol scientists, and create dissension in the academic community.

The complex network of trade associations, SAPROs, academic institutes, and scientific consultants that the alcohol industry has mobilized to deal with policy issues has been characterized as a form of "science capture" designed to skew the scientific evidence and manage the scientific enterprise.⁶¹ Although there is no systematic evidence that financial conflicts of interest have biased the findings of alcohol research, several studies⁶⁴⁻⁶⁶ have shown that conflicts of interest in health research in general are associated with biased research findings that favor commercial interests at the expense of patient welfare and public health. Regardless of whether the industry's paying alcohol researchers constitutes a real conflict of interest, the public and policymakers can see it as an apparent conflict of interest that is inconsistent with their role as objective scientists.

In general, the evolving relationship between academic science and the alcohol industry can be characterized as dynamic,

complex, and increasingly contentious. The CSR activities we reviewed are similar to those the tobacco industry and other producers of harmful products^{38,61,62,67-70} use to protect their global financial interests. One industry response is to resist enactment of governmental regulations that might decrease the volume of sales or increase their production or marketing expenses.⁶⁸ A second approach is to delay the implementation of onerous laws or regulations for as long as possible through legal stratagems or to advocate their repeal.⁶⁷ Another tactic is to form organizations that emphasize the social values of the industries' products or activities.^{8,38,70}

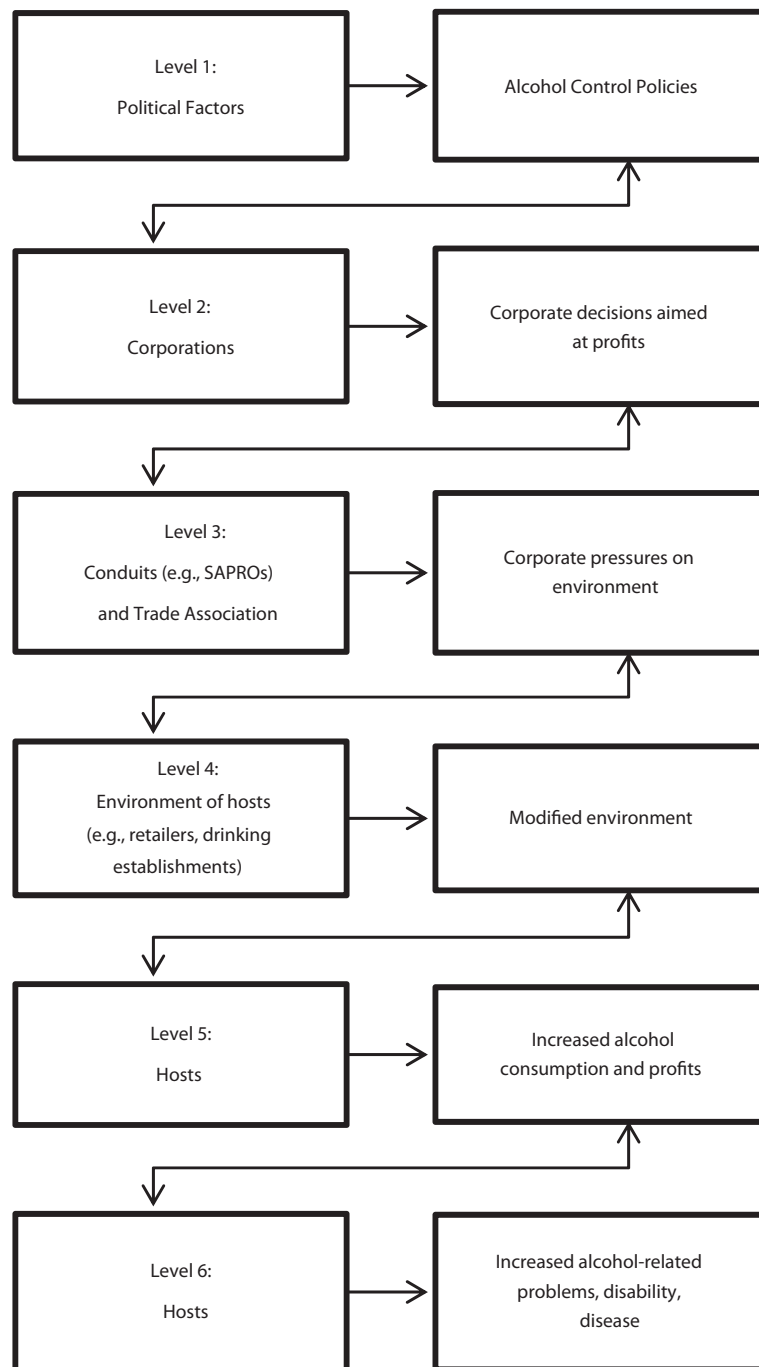
Given the emerging set of relationships with the alcohol industry, some representatives in the academic community have begun to define roles and responsibilities from an ethical perspective. Case studies and ethical analyses^{33,34,38,67} have suggested that active collaboration with the alcohol industry contributes little to the advancement of science or public health. For this reason academic scientists have been cautioned to avoid professional contacts with trade associations, social aspects organizations, and alcohol producers that have a record of questionable activities in relation to science.

It has also been suggested that professional organizations and scientific journals have a role to play not only in identifying conflict of interest situations but also in preventing them. Disciplinary, general medical, and addiction specialty journals that publish alcohol research could implement better conflict of interest declaration policies, including better definitions of third-party funding sources.⁷¹ Societies

devoted to the advancement of addiction science could support a declaration of principles that identifies alcohol industry practices

that create conflicts of interest and could provide guidance about the conditions under which collaboration with the alcohol

industry is neither warranted nor advisable. Ultimately, it will be important for both academic medical centers



Note. SAPRO = "social aspects" and public relations organization.

FIGURE 2—Epidemiological cascade applying Jahiel's corporation-induced disease theory to alcohol-related problems.

and the public health community to provide better surveillance, theory, and epidemiological inquiry to protect the public from the health hazards associated with the products and activities of the alcohol industry. Citizen watchdog groups^{22,68,69} and academic centers,⁷² which provide information about industry activities from legal, political, ethical, and public health perspectives, can facilitate industry surveillance.

Regarding research and theory, the alcohol industry should be monitored and evaluated as a potential disease vector, perhaps in the context of Jahiel's theory on "corporation-induced diseases,"^{67,73} which are defined as diseases of consumers, workers, or community residents who have been exposed to disease agents and other health risks contained in corporate products such as alcohol and tobacco. As illustrated in Figure 2, this new framework⁷³ is derived from a multilevel approach that posits an epidemiologic cascade starting with government-sanctioned corporate profit making and ending with individual-level health and social consequences. The explained variable at 1 level is also the explanatory variable at the next lower level, establishing a causal chain that can be followed along the epidemiologic cascade from the site of societal power (e.g., government policies and corporate marketing activities) down to the host.

At level 1, political factors such as industry lobbying for deregulation of alcohol are assumed to structure the policy environment of alcohol control policies. Public opinion, free market economics, and government involvement in health promotion may also influence the choice of policy options, such as alcohol excise taxes,

drink-driving laws, and marketing regulations.

At level 2, the actions (e.g., new alcohol products, aggressive marketing of alcohol to young consumers, opposition to marketing regulations) corporate decision makers initiate are passed on to corporate conduits, the next unit of analysis. Conduits are individuals or organizations, such as social aspects organizations, trade associations, and in some cases research scientists, acting in the interests of corporations that carry on the actions the corporations' decision makers initiate. They do not usually engage in direct interaction with the hosts, but their actions aim to modify the environment in specific ways, referred to as pressures on the environment, to promote sales of the product by making it more attractive to the consumer or otherwise facilitating and overcoming barriers to sales, such as neutralizing regulatory controls. The resulting modifications in the policy environment are likely to include increased alcohol availability, the proliferation of high-volume drinking establishments, and lower alcohol prices. This in turn translates into increased sales, greater alcohol consumption, and an increase in alcohol-related problems (levels 5 and 6).

Regardless of whether the alcohol industry's role in the epidemiological cascade constitutes CSR or science capture, current public health theory behind the management of health risk behavior, including alcohol consumption, relies heavily on regulation and law while neglecting the underlying philosophy of social marketing, which offers reinforcing incentives in an environment involving voluntary exchange.⁷⁴ Some of the effective interventions (e.g., brief interventions in primary

care to encourage moderate drinking) and many of the alcohol industry's responsible drinking campaigns can be interpreted in terms of social marketing,⁷⁵ and perhaps they could be strengthened and disseminated if the public health community managed them.

As an extension of the voluntary approaches the industry favors, social marketing may provide a less paternalistic alternative to education and regulatory policies that compete for health consumers in the same marketplace as the industry. Nevertheless, providing better theory and translational research in public health cannot be separated from the fact that public health advocates must articulate the social justice values motivating the changes they seek in specific policy areas, rather than allowing industry to frame issues in terms of their market-oriented values.⁷⁶ ■

About the Authors

Thomas F. Babor and Katherine Robaina are with the Department of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington.

Correspondence should be sent to Thomas F. Babor, Dept. of Community Medicine and Health Care, University of Connecticut School of Medicine, Farmington, CT 06030-6325 (e-mail: Babor@nso.uchc.edu). Reprints can be ordered at <http://www.ajph.org> by clicking the "Reprints" link.

This article was accepted April 4, 2012.

Contributors

T. F. Babor was the primary author; he directed the literature and document searches and wrote and edited the article. K. Robaina was involved in technical aspects of the review, including conducting the literature searches, coding articles, and reviewing industry Web sites, and assisted with the writing and editing of the article.

Acknowledgments

The writing of this article was supported in part by the Institute of Medicine as

a Professor, Columbia University; by T. F. B.'s Endowed Chair in Community Medicine and Public Health from the University of Connecticut.

We gratefully acknowledge the assistance of Deborah Talamini, who helped with the literature searches and the editing of the article.

Human Participant Protection

No institutional review was required for this research because it did not entail the use of human participants.

References

1. Babor TF. Alcohol research and the alcoholic beverage industry issues, concerns and conflicts of interest. *Addiction*. 2009;104(suppl 1):34-47.
2. Anderson P. Global alcohol policy and the alcohol industry. *Curr Opin Psychiatry*. 2009; 22(3):253-257.
3. Garriga E, Melé D. Corporate social responsibility theories: mapping the territory. *J Bus Ethics*. 2004;53(1-2):51-71.
4. Jernigan DH. The global alcohol industry: an overview. *Addiction*. 2009; 104(suppl 1):6-12.
5. Hill L. The alcohol industry. In: Heggenhougen HK, Quah S, eds. *International Encyclopedia of Public Health*. San Diego, CA: Academic Press; 2008:124-135.
6. Babor T, Caetano R, Casswell S, et al. *Alcohol: No Ordinary Commodity—Research and Public Policy*. 2nd ed. Oxford: Oxford University Press; 2010.
7. Worldwide Brewing Alliance. *Global Social Responsibility Initiatives*. 2nd ed. London, UK: British Beer and Pub Association; July 2007. Available at: http://ec.europa.eu/health/ph_determinants/life_style/alcohol/Forum/docs/alcohol_lib6_en.pdf. Accessed February 4, 2011.
8. Anderson P. The beverage alcohol industry's social aspects organizations: a public health warning. *Addiction*. 2004;99(11):1376-1377.
9. Rehm J, Mathers C, Popova S, Thavorncharoensap M, Teerawattananon Y, Patra J. Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. *Lancet*. 2009;373(9682):2223-2233.
10. Rehm J, Frick U. Alcohol use as a risk factor for burden of disease: methodological considerations. *Addict Res Theory*. 2009;17(1):99-103.
11. Gulbinat W. Discussion paper on alcohol and the burden of disease: reply to Rehm and Frick. *Addict Res Theory*. 2009;17(1):104-108.

12. Foster SE, Vaughan RD, Foster WH, Califano JA Jr. Estimate of the commercial value of underage drinking and adult abusive and dependent drinking to the alcohol industry. *Arch Pediatr Adolesc Med.* 2006;160(5):473–478.
13. Ellison RC, ed. Introduction to symposium. *Ann Epidemiol.* 2007;17(5 suppl):S1–S2. Available at: [http://www.annalsofepidemiology.org/article/S1047-2797\(07\)00003-8](http://www.annalsofepidemiology.org/article/S1047-2797(07)00003-8). Accessed January 20, 2011.
14. Chikritzhs T, Fillmore K, Stockwell T. A healthy dose of scepticism: four good reasons to think again about protective effects of alcohol on coronary heart disease. *Drug Alcohol Rev.* 2009;28(4):441–444.
15. Stockwell T, Gruenewald P, Toumbourou JW, Loxley W, eds. *Preventing Harmful Substance Use. The Evidence Base for Policy and Practice.* West Sussex, UK: John Wiley & Sons; 2005.
16. Room R, Babor TF, Rehm J. Alcohol and public health. *Lancet.* 2005;365(9458):519–530.
17. Anderson P, Chisholm D, Fuhr DC. Effectiveness and cost-effectiveness of policies and programmes to reduce the harm caused by alcohol. *Lancet.* 2009;373(9682):2234–2246.
18. Babor TF, Robaina K, Nilssen P, Kaner E, Li Q. *Rapid Review of Current Evidence for Health Promotion Actions for Hazardous and Harmful Alcohol Use, With Specific Reference to Low- and Middle-Income Countries.* Geneva, Switzerland: World Health Organization, Mainstreaming Project, Division of Non-communicable Diseases; 2011.
19. deBruijn A. *Monitoring Alcohol Marketing in Africa—MAMPA Project.* World Health Organization, Regional Office for Africa; 2011. Available at: <http://www.afro.who.int/en/clusters-a-programmes/hpr/health-risk-factors/diseases-surveillance/highlights/3032-monitoring-alcohol-marketing-in-africa.html>. Accessed June 11, 2011.
20. Jones SC, Donovan RJ. Self-regulation of alcohol advertising: is it working for Australia? *J Public Affairs.* 2002;2(3):153–165.
21. Vendrame A, Pinsky I, Souza e Silva R, Babor T. Assessment of self-regulatory code violations in Brazilian television beer advertisements. *J Stud Alcohol Drugs.* 2010;71(3):445–451.
22. Jernigan DH, Ross C. Monitoring youth exposure to advertising on television: the devil is in the details. *J Public Affairs.* 2010;10(1–2):36–49. doi:10.1002/pa.349.
23. Marin Institute. *Why Big Alcohol Can't Police Itself: A Review of Advertising Self-Regulation in the Distilled Spirits Industry.* San Rafael, CA; 2008. Available at: <http://alcoholjustice.org/resources/reports/118-why-big-alcohol-cant-police-itself.html>. Accessed January 21, 2011.
24. Fortin RB, Rempel B. *The Effectiveness of Regulating Alcohol Advertising: Policies and Public Health.* Toronto: ARAPO, OPHA; 2005. Available at: <http://www.ohpe.ca/node/7074>. Accessed January 24, 2011.
25. Hastings G, Brooks O, Stead M, Angus K, Anker T, Farrell T. Failure of self regulation of UK alcohol advertising. *BMJ.* 2010;340:b5650. doi:10.1136/bmj.b5650.
26. Dutch Institute for Alcohol Policy. *Report on Adherence to Alcohol Marketing Regulations.* Utrecht, Netherlands: National Foundation for Alcohol Prevention; 2007.
27. Hirschhorn N, Aguinaga-Bialous SA, Shatenstein S. Philip Morris' new scientific initiative: an analysis. *Tob Control.* 2001;10(3):247–252.
28. King J. Accepting tobacco industry money for research: has anything changed now that harm reduction is on the agenda? *Addiction.* 2006;101(8):1067–1069.
29. Foundation for Alcohol Research. *Alcohol and Health;* 2010. Available at: http://www.abmrf.org/alcohol_health.asp. Accessed January 24, 2011.
30. Babor TF, Diageo, University College Dublin and the integrity of alcohol science: it's time to draw the line between public health and public relations. *Addiction.* 2006;101(10):1375–1377.
31. Babor TF. Partnership, profits and public health. *Addiction.* 2000;95(2):193–195.
32. Cohen JE. Universities and tobacco money. *BMJ.* 2001;323:1–2.
33. Stenius K, Babor TF. The alcohol industry and public interest science. *Addiction.* 2010;105(2):191–198.
34. Miller P, Babor TF, McGovern T, Buringher G. Ethical issues related to academic relationships with the alcoholic beverage industry, pharmaceutical companies and other funding agencies: holy grail or poisoned chalice? In: Babor TF, Stenius K, Savva S, O'Reilly J, eds. *Publishing Addiction Science: A Guide for the Perplexed.* 2nd ed. London: Multi-Science Publishing Company; 2008:190–212.
35. Miller P, Kypros K. Why we will not accept funding from Drinkwise. *Drug Alcohol Rev.* 2009;28(3):324–326.
36. Houghton E. A comparative analysis of alcohol education programs sponsored by the beverage alcohol industry. *J Alcohol Drug Educ.* 1998;43(3):15–33.
37. Babor TF, Xuan Z. Alcohol policy research and the grey literature. *Nordic Stud Alcohol Drugs.* 2004;21(English suppl):125–137.
38. Jernigan DH. Global alcohol producers, science and policy: the case of the International Center for Alcohol Policy. *Am J Public Health.* 2012;102(1):80–89.
39. Edwards G, Anderson P, Babor TF, et al. *Alcohol and the Public Good.* Oxford: Oxford University Press; 1994.
40. Marmot M. The rising tide of alcohol. *Addiction.* 2004;99(9):1090; discussion 1092–1093.
41. Room R. Disabling the public interest: alcohol strategies and policies for England. *Addiction.* 2004;99(9):1083–1089.
42. Babor TF. Alcohol policy research: a quoi bon? *Addiction.* 2004;99(9):1091–1092; 1092–1093.
43. Drummond DC. An alcohol strategy for England: the good, the bad and the ugly. *Alcohol.* 2004;39(5):377–379.
44. Michigan Council on Alcohol Problems. Got beer? Anheuser-Busch plots health pitch. *MICAP Report;* February 13, 2006. Available at: <http://www.micap.org/March%202006%20MICAP%20RECAP.pdf>. Accessed January 20, 2011.
45. Gmel G, Heeb JL, Rehm J. Research and the alcohol industry [letter to the editor]. *Addiction.* 2003;98(12):1773–1774; discussion 1774–1775.
46. Smart R. Limitations of study on alcohol advertising effects on youth drinking. *Arch Pediatr Adolesc Med.* 2006;160(8):857–858.
47. Schultz DE. Challenges to study on alcohol advertising effects on youth drinking. *Arch Pediatr Adolesc Med.* 2006;160(8):857.
48. Ellison RC, Martinic M. The harms and benefits of moderate drinking: summary of findings of an international symposium. *Ann Epidemiol.* 2007;17(5):S1–S115.
49. Fillmore KM, Stockwell T, Chikritzhs T, Bostrom A, Kerr WC. Debate: alcohol and coronary heart disease. *Am J Med.* 2008;121(2):e25.
50. Sellman D, Connor J, Robinson G, Jackson R. Alcohol cardio-protection has been talked up. *New Zealand Med J.* 2009;122(1303):97–101.
51. Stimson G, Grant M, Choquet M, Garrison P. *Drinking in Context: Patterns, Interventions, and Partnerships.* New York: Brunner-Routledge; 2005.
52. Caetano R. The alcohol industry' smoke and mirrors. *Addiction.* 2008;103(7):1231–1232.
53. Bakke Ø, Endal D. Alcohol policies out of context: drinks industry supplanting government role in alcohol policies in sub-Saharan Africa. *Addiction.* 2010;105(1):22–28.
54. Shepherd T. Alcohol chief reprimanded for conflict of interests. *The Advertiser;* March 18, 2010. Available at: <http://www.adelaidenow.com.au/news/south-australia/alcohol-chief-reprimanded-for-conflict-of-interests/story-e6frea83-1225842056874>. Accessed April 1, 2010.
55. Global Actions on Harmful Drinking. *Global Social Responsibility;* February 2010. Available at: <http://www.global-actions.org/LinkClick.aspx?fileticket=DDaTHhZ6iRo%3D&tabid=285>. Accessed February 10, 2011.
56. Babor TF. Public health science and the global strategy on alcohol. *Bull World Health Organ.* 2010;88(9):643–643 [editorial].
57. World Health Organization. *Expert Committee on Problems Related to Alcohol Consumption;* 2007. WHO Technical Report Series 944.
58. Jones I, James M, Jefferson T. *A Review of the Effectiveness and Cost-Effectiveness of Interventions Delivered in Primary and Secondary Schools to Prevent and/or Reduce Alcohol Use by Young People Under 18 Years Old.* NICE: main report (PHIAC 14.3a); 2007. Available at: <http://www.nice.org.uk/nicemedia/pdf/AlcoholSchoolsConsReview.pdf>. Accessed March 2, 2008.
59. Casswell S, Thamarangsi T. Reducing harm from alcohol: call to action. *Lancet.* 2009;373(9682):2247–2257.
60. McCreanor T, Casswell S, Hill L. ICAP and the perils of partnership. *Addiction.* 2000;95(2):179–185.
61. Miller D, Harkins C. Corporate strategy, corporate capture: food and alcohol industry lobbying and public health. *Crit Soc Policy.* 2010;30(4):459–471.
62. Tesler L, Malone R. Ethical conduct in public and private arenas: corporate philanthropy, lobbying, and public health policy. *Am J Public Health.* 2008;98(12):2123–2133.
63. Profiting from social responsibility. *The Irish Times.* April 8, 2006
64. Jørgensen AW, Maric KL, Tendal B, Faursschou A, Gøtzsche PC. Industry-supported meta-analyses compared with meta-analyses with non-profit or no support: differences in methodological quality and conclusions. *BMC Med Res Methodol.* 2008;8:60.
65. Yank V, Rennie D, Bero LA. Financial ties and concordance between results and conclusions in meta-analyses: retrospective cohort study. *BMJ.* 2007;335(7631):1202–1205.

66. Brennan TA, Rothman DJ, Blank L, et al. Health industry practices that create conflicts of interest: a policy proposal for academic medical centers. *JAMA*. 2006; 295(4):429–333.
67. Jahiel RI, Babor TF. Industrial epidemics, public health advocacy and the alcohol industry: lessons from other fields. *Addiction*. 2007;102(9):1335–1339.
68. Powerbase. *Diageo: Corporate Crimes*. Available at: www.powerbase.info/index.php/Diageo:_Corporate_Crimes. Accessed January 24, 2011.
69. European Centre for Monitoring Alcohol Marketing. *The Seven Key Messages of the Alcohol Industry*. EUCAM Report; 2011. Available at: www.EUCAM.info. Accessed March 18, 2011.
70. Mosher JF. Joe Camel in a bottle: Diageo, the Smirnoff brand, and the transformation of the youth alcohol market. *Am J Public Health*. 2012;102(1):56–63. doi:10.2105/e1–e8.
71. Goozner M, Caplan A, Moreno J, Kramer BS, Babor TF, Husser WC. A common standard for conflict of interest disclosure in addiction journals. *Addiction*. 2009;104(11):1779–1784.
72. Corporations and Health Watch. *Alcohol*. Available at: <http://corporationsandhealth.org/?s=alcohol>. Accessed March 8, 2011.
73. Jahiel RI. Corporate-induced diseases, upstream epidemiologic surveillance, and urban health. *J Urban Health*. 2008;85(4):517–531.
74. Rothschild ML. Carrots, sticks, and promises: a conceptual framework for the management of public health and social issue behaviors. *J Mark*. 1999;63(4):24–37.
75. Gordon R, McDermott L, Stead M, Angus K. The effectiveness of social marketing interventions for health improvement: what's the evidence? *Public Health*. 2006;120(12):1133–1139.
76. Dorfman L, Wallack L, Woodruff K. More than a message: public health advocacy to change corporate practices. *Health Educ Behav*. 2005;32(3):320–336.

Effects of Smoke-Free Laws on Alcohol-Related Car Crashes in California and New York: Time Series Analyses From 1982 to 2008

We examined effects of New York and California's statewide smoke-free restaurant and bar polices on alcohol-related car crash fatalities. We used an interrupted time-series design from 1982 to 2008, with 312 monthly observations, to examine the effect of each state's law on single-vehicle-nighttime crashes and crashes involving a driver with a blood alcohol concentration of 0.08 grams per deciliter or greater.

Implementation of New York and California's statewide smoke-free policies was not associated with alcohol-related car crash fatalities. Additionally, analyses showed no effect of New York's smoke-free policy on alcohol-related car crash fatalities in communities along the Pennsylvania-New York border.

Statewide smoke-free restaurant and bar laws do not appear to affect rates of alcohol-related car crashes. (*Am J Public Health*. 2013; 103:214–219. doi:10.2105/AJPH.2012.300906)

Debra H. Bernat, PhD, Mildred Maldonado-Molina, PhD, Andrew Hyland, PhD, and Alexander C. Wagenaar, PhD

RESTRICTING SMOKING IN

public places has become an essential component of tobacco control worldwide. Smoke-free policies reduce secondhand smoke exposure,^{1–6} and may have other important public health benefits including reducing opportunities to smoke, changing smoking norms, and reducing smoking rates.^{7–10} Despite beneficial public health effects of smoke-free policies, a specific study has raised the possibility of serious deleterious side effects of smoke-free laws on alcohol-related car crashes. Using jurisdictions that implemented smoking bans between 2000 and 2005, Adams and Cotti found that smoke-free bars in the United States were associated with a 13% increase in annual traffic fatalities involving drivers with a blood alcohol content (BAC) of 0.08 grams per deciliter or greater.¹¹

There are several plausible mechanisms by which alcohol-related traffic crashes might

increase or decrease as a result of smoke-free restaurant and bar laws. First, studies suggest that policies that reduce smoking may also reduce alcohol consumption and related problems. In economic terms, alcohol and tobacco appear to be complements.¹² Dee, for example, showed that higher cigarette taxes were associated with reductions in adolescent alcohol use.¹³ Smoke-free laws may also increase the number of restaurant or bar patrons that are nonsmokers and decrease the number of patrons that are smokers. This change in patronage may lead to an overall reduction in alcohol use because nonsmokers are less likely to drink alcohol than are smokers, and also less likely to be heavy drinkers.¹⁴ Smoke-free laws, however, are not universal, and as such, patrons may travel further distances to patronize bars that do allow smoking (perhaps across a jurisdictional border to another city or state).¹¹ Because the majority of smoke-free laws

occur at the local and state levels, driving to another restaurant or bar that is not bound by a smoke-free law, or that has outdoor seating, is feasible in many situations. Because smokers are more likely to be drinkers, cross-border shopping could result in intoxicated individuals driving greater distances, increasing crash risk exposure, resulting in a greater number of alcohol-related crashes and fatalities.

The present study addresses the dearth of studies in the literature by examining the possible unintended consequences of smoke-free laws on alcohol-related car crashes. To date, only 1 study has examined this relationship and showed a 13% increase in alcohol-related fatal crashes associated with smoke-free bar policies.¹¹ This study, however, has several important limitations. First, states that enacted smoke-free policies prior to 2000, which provide the longest follow-up periods, were omitted from the study. Second,