

The Extent of Global Alcohol Marketing and Its Impact on Youth

**David H. Jernigan PhD
Associate Professor
Department of Health, Behavior and Society
Johns Hopkins Bloomberg School of Public Health**

June 27, 2008

Acknowledgment: Support for development of an earlier version of this paper was provided by the World Health Organization.

Abstract

Alcohol marketing is a global phenomenon, in which an increasingly small number of companies spends considerable sums to establish and embed their brands in the lives and lifestyles of populations. Market research data offers insight into the size and extent of the global alcohol trade, and the magnitude of alcohol advertising expenditures. Recent examples of alcohol marketing in a variety of national contexts illustrate the techniques used by the global companies. The effects of this marketing on young people are described through a review of recent research studies (primarily from 2004 to the present) on youth exposure to alcohol marketing and the effects of that exposure, interpretive models to explain the effects of alcohol marketing on young people, whether alcohol advertising targets young people, and assessments of the effectiveness of regulatory restrictions on marketing and other counter-measures. Despite the failure of public health research to keep pace with newly developing marketing technologies, there is a growing body of evidence that alcohol marketing influences young people's drinking behavior. Measures to reduce that impact should be considered by national governments seeking to limit the public health burden caused by harmful use of alcohol.

Keywords: alcohol, advertising, youth, globalization, marketing.

Introduction

There is tremendous diversity in the kinds of alcohol available throughout the world. From communally-produced traditional beverages to globalized mass consumer products, alcohol takes many forms. Yet the globalized beverages play a particular role. They are of their essence marketed products (Jernigan 2000), and as such are often the most visible manifestation of alcoholic beverages in a society. In this sense they lead the market for alcoholic beverages, providing an affordable badge of participation in western culture. As socio-economic status rises in a developing nation, the likelihood of using these products tends to increase, along with western cultural orientation (Eide, Acuda et al. 1998). Globalized alcoholic beverages are branded products, and benefit from the latest developments in marketing technology designed to embed the brand in the lives and minds of the target consumers (Aaker 1996). Branding and marketing knowledge are critical to their globalization, because according to Lopes, “in non-science-based industries such as alcoholic beverages,...brands and marketing knowledge rather than technological innovation are central in explaining the growth and survival of multinational firms” (Lopes 2003). Using this marketing knowledge, the global brands gain ubiquity through traditional media, sponsorships, and on-premise promotions, as well as “new media” such as mobile phones, podcasting and the internet.

Research on the effects of these marketing strategies on alcohol consumption and harm has largely failed to keep pace with the technological innovations occurring in the marketplace. This paper will review the shape and size of the global supply of marketed alcoholic beverages, describe some of the forms this marketing is taking in developed and

developing societies, and offer an update to earlier reviews of the evidence on the effects of this marketing on youth.

I. The global alcohol market: an overview

According to *Impact Databank*, a leading market research firm serving the alcoholic beverage industry, globalized (branded) spirits account for approximately 30% of the total spirits products available around the world (Impact Databank 2005; Zwiebach 2005). The alcohol industry-funded International Center for Alcohol Policies reports that branded beer accounts for at least 38% of globally-available beer, and branded wine makes up at least 27% of the global wine supply (International Center for Alcohol Policies 2006). Global value of the branded sector is unknown; however, sales volume of a single market – the United States – was estimated at US\$154.9 billion in 2004 (Adams Beverage Group 2005). Advertising expenditures (on broadcast, in print and out-of-home) in that market in 2004 were US\$1.7 billion (Adams Beverage Group 2005). According to the U.S. Federal Trade Commission, total alcohol marketing expenditures in the United States are at least three times this figure – a minimum of US\$5.1 billion if “unmeasured” marketing activities such as sponsorships, product placements, campus promotions, and point-of-purchase advertising are included (Federal Trade Commission 1999). According to Adams, spirits and beer marketing account for more than 93% of measured advertising expenses in the United States. These two sectors likely dominate in the rest of the world as well, and this section will focus on the activities of global marketers in these two categories.

Within the global beer and spirits industries, a small number of companies dominates. As of 2006, 59 percent of global branded spirits were marketed by the ten

largest companies, as shown in Table 1. This level of concentration has remained stable over the past 15 years, through multiple waves of mergers that have increased the size of the top five companies (now with a market share nearing 50%) relative to the rest of the market.

Table 1: Ten Largest Global Distilled Spirits Companies, 1991 and 2006

Corporation	Country of HQ	Global Market Share 1991	Global Market Share 2006
Diageo (UDV)	UK	10.5% (1)	15.3% (1)
Pernod Ricard	France	5.7% (4)	11.6% (2)
United Spirits Ltd.	India	3.7%(8)	9.4%(3)
Bacardi	Bermuda	7.7% (3)	5.2% (4)
Beam Global Spirits & Wine	US	4.8% (6)	5.1% (5)
Suntory	Japan	4% (7)	2.6% (6)
V&S Group	Sweden	*	2.5% (7)
Brown-Forman	US	*	2.5% (8)
Gruppo Campari	Italy	*	2.4% (9)
Constellation Spirits	US	2.5% (10)	2.4% (10)
Total share of top ten		57%	59.0%

*Not in top ten in 1991.

(Source: Impact Databank 1995; Impact Databank 2007)

The majority of the market share for globally-branded beer, in contrast, has only recently concentrated in the hands of the ten largest brewers. The five leading brewers directly control half of the global market. As of 2008, four of those five also have ownership interests in other companies in the top ten: Anheuser-Busch has the majority ownership stake in Grupo Modelo but does not have management control, SABMiller has announced plans to combine with Molson Coors, and Carlsberg and Heineken have purchased the holdings of Scottish Courage, including Baltic Beverages Holding.

(Market share information after these mergers is not available at this writing – Table 2 reflects the most recent data available.)

Table 2: Ten Largest Brewers, 1979/80 and 2006

Corporation	Country	Global Market Share 1979/80	Global Market Share 2006
Inbev	Belgium	*	13.9% (1)
SABMiller	UK	4.8% (2-Miller) 0.9 (17-SAB)	11.8% (2)
Anheuser-Busch	USA	6.5% (1)	11.5% (3)
Heineken	Netherlands	2.8% (4)	8.3% (4)
Carlsberg	Denmark	1.3% (12)	4.5% (5)
Scottish Courage Ltd.	UK	0.8% (22)	3.6% (6)
China Resources Enterprise Ltd.	China	*	3.3% (7)
Grupo Modelo	Mexico	1.3% (13)	3.1% (8)
Molson Coors	USA	1.7% (8-Coors) 0.8% (21-Molson)	3.1% (9)
Baltic Beverages Holding	Russia	*	2.9% (10)
Total market share of top ten		28.00%	66%

* Not in the top 20 or did not exist in 1979/80

Sources: (Sources: Cavanagh and Clairmonte 1985; Impact Databank 2007)

According to *Advertising Age*, six of these alcoholic beverage producers are among the world's 100 largest advertisers (Wentz 2007). As Table 3 shows, the spending of these companies is heavily concentrated in the United States and Europe. Global advertising expenditures of these six companies alone totaled more than US\$2 billion in 2006.

Table 3: World's Largest Alcoholic Beverage Advertisers and Their Advertising Expenditures by Region, 2006

Company	Rank in Global 100	Spending (millions US\$)	USA	Asia	Europe	Latin America	Other
Anheuser-Busch	61	517	510	1	7	0	-1
Diageo	82	359	183	25	130	0	21
Heineken	84	338	129	5	193	0	0
SABMiller	85	321	241	0	27	0	53
MolsonCoors	96	367	185	0	25	11	146
Pernod Ricard	100	247	66	60	110	0	11

(Source: Wentz 2007. Other includes Canada, Africa and the Middle East.).

Advertising Age's figures are probably not complete, and they do not add spending of wholly- or majority-owned subsidiaries into the spending of the parent company. The publication provides data on advertising spending in 86 countries, but only provides the top 100 globally, and the top ten spenders by country. As shown in Table 4, the leading companies or their subsidiaries are among the top ten in 15 of the 86 countries – twelve developing countries, one emerging market, and two developed nations.

Table 4: Alcohol Marketers Among the Ten Largest Advertisers in a Country, by Region, 2006

Region	Country	Company (Parent Company)	Spending (millions US\$)
Africa	Ghana	Diageo	0.1
	Kenya	East Africa Breweries (Diageo)	6.0
	Nigeria	Heineken	10.0
		Diageo	9.0
	Tanzania	Tanzania Breweries	1.1
	Uganda	East African Breweries	2.0
		SABMiller	1.5
Asia and Pacific	Philippines	San Miguel Corp.	8.3
	Singapore	Carlsberg	9.0
		Tiger Beer/Asia Pacific Breweries	6.5
	Thailand	Boonrawd Brewery Co. Ltd.	21.5
	Vietnam	Vietnam Brewery	6.9
Europe	Denmark	Carlsberg	22.8
	Ireland	Diageo	25.1
	Serbia	Inbev	18.0
Carlsberg		14.2	
Latin America	Brazil	Ambev (Inbev)	69.8
	Colombia	SABMiller	18.8
	Peru	SABMiller	4.1

(Source: Wentz 2007)

II. The Shape of Contemporary Alcohol Marketing

As branded products, alcoholic beverages build their identities with a complex mix of marketing technologies. As a leading marketing theorist has written, “The presence of a brand (or even the attitudes held toward it) can serve to define a person with respect to others...” so that the “...brand becomes an extension or an integral part of the self” (Aaker 1996). Marketers accomplish this extension of the self by embedding brands in the lives and lifestyles of the target consumers, positioning them as an integral part of cultural and sporting events, as well as cultures, lifestyles and even value systems (Fleming and Zwiebach 1999; Klein 1999). The mix of technologies employed to accomplish this include traditional advertising as well as sponsorships, sweepstakes, couponing, product placement, new product development, point-of-purchase materials

and promotions, person-to-person and viral marketing, distribution and sale of branded merchandise, and the use of new and emerging technologies such as mobile phones and the internet.

The advertising spending figures above are for traditional or “measured” advertising activity alone. In this arena, alcohol marketing gains enormous exposure to the population, both those of legal drinking ages and those below those ages. Researchers in China have estimated that a city-dwelling young person who watches an average of two hours of evening television will see more than 900 alcohol ads a year (Zhang 2004). In Australia, a Curtin University research group used advertising industry data to compare the exposure of underage and young adult drinkers to alcohol advertising on television. The researchers found that 13- to 17-year-olds were exposed to the same level of alcohol advertising as 18- to 24-year-olds (the legal drinking age in Australia is 18), and that 90% of alcohol ads, mostly for beer and premixed “alcopop” drinks, were screened when more than 25% of the viewing audience was underage (MacNamara 2006).

In Spain, researchers analyzed alcohol advertising in youth-focused written mass media from 2002 to 2006. The study found that alcohol advertising comprised 3.8% of all magazine advertising and 8.6% of the advertising in magazines which permitted alcohol advertising in their pages. Three out of six youth-oriented magazines identified permitted alcohol advertising (Montes-Santiago, Muniz et al. 2007).

In the United States, the Center on Alcohol Marketing and Youth at Georgetown University has also used market research databases to find, for example, that U.S. television advertising for alcohol in 2007 reached 96% of the adult population (defined in

the U.S. as those 21 and over) an average of 446 times. At the same time, the advertising reached 89% of youth under the legal drinking age (i.e. ages 12 to 20) an average of 436 times (Center on Alcohol Marketing and Youth 2008). Magazine advertising for alcohol in 2006 reached 94% of the adult population an average of 77 times, and 90% of youth ages 12 to 20 89 times (Center on Alcohol Marketing and Youth 2007). On radio, analysis of a sample of 67,404 airings of advertisements for the 25 leading brands of alcohol found that nearly half (49%) of the advertisements were placed in programming with disproportionate numbers of listeners below the legal drinking age, while 14% of the placements violated the 30% voluntary maximum for youth audience composition set by alcohol industry trade associations (Jernigan, Ostroff et al. 2006). Because of disparities in access to health care, youth of Hispanic and African heritage in the U.S. are at higher risk of alcohol problems if they drink (Galván and Caetano 2003). They are also often exposed to substantially more alcohol advertising than youth in general: in English-language national magazines in 2004, Hispanic youth saw 20% more advertising per capita and African-American youth were exposed to 34% more alcohol advertising per capita than was the average for youth in general (Center on Alcohol Marketing and Youth 2005; Center on Alcohol Marketing and Youth 2006). Analysis of Nielson television ratings data from September 1998 to February 2002 confirmed that young African-American males (ages 6 to 17) were exposed to 31% more alcohol advertising on television than white youth, and that young African-American females were exposed to 77% more television advertising for alcohol than their white peers. Furthermore, the racial differences in levels of exposure appeared to be increasing over time (Ringel, Collins et al. 2006).

As stated above, this “measured” marketing activity is only a fraction of what the global alcohol marketers spend each year. According to Klein (1999), in the early 1990s the amount of money spent by marketers on “unmeasured” activities increased dramatically. In 2008, the U.S. Federal Trade Commission (FTC) reported for the first time on the measured and unmeasured marketing expenditures of 12 of the largest companies, accounting for approximately 73% of sales of alcohol in the U.S (Federal Trade Commission 2008). According to the FTC, these manufacturers spent 44% of their marketing dollars on the traditional measured media of print, radio, television and outdoor. Other significant categories included point-of-sale advertising and promotions (18.8%), sponsorship of sporting events, sports teams or individual athletes (10.9%), and promotional allowances to wholesalers and retailers (7.5%). The balance between measured and unmeasured activities may vary by company as well: in its 2005 Annual Report, Diageo reported spending £1,023 million (US\$1,760 million) on marketing, far more than the US\$409 million reported by *Advertising Age* as its expenditure on advertising for 2004.

Alcohol companies typically employ a mix of unmeasured activities, tailored to the brand as well as to the cultural, religious and regulatory context. For example, sponsorship is a huge area of activity. Within this category, sponsorship of sporting events is widespread. Anheuser-Busch, for instance, sponsors the FIFA World Cup, while nearly every team in World Cup competition has an alcohol sponsor. In fact, Anheuser-Busch is the second highest spender on sponsorships in the U.S., behind PepsiCo, Inc., spending US\$260-265 million in 2004 (Sparks, Dewhirst et al. 2005). Beer company sponsorship of sports in China is increasing, with Anheuser-Busch

sponsoring the Budweiser University League Soccer Games, amateur soccer tournaments, the 2004 Chinese Olympic Team and the 2008 Beijing Olympic Games, while Heineken sponsors the Heineken Open Shanghai tennis tournament (Sparks, Dewhirst et al. 2005).

Such sponsorships increase the televised visibility for alcohol brands. Various researchers in the U.S. have monitored alcohol advertising during televised sporting events every five years since 1990-1992. The most recent study, covering the years 2000-2002, found an increase from ten years earlier in the number of alcohol commercials airing during professional sports telecasts, the appearance of ads for “alcopops” only during college sporting events, as well as substantial numbers of alcohol-themed on-screen graphics such as “Bud Play of the Day” or “Busch Racing Leaders” appearing at the same time that the amount of alcohol signage within stadiums themselves has declined (Zwarun 2006).

Sports are not the only events receiving sponsorship dollars from alcohol producers. For example, the two leading breweries in Nigeria – one controlled by Guinness/Diageo, the other by Heineken – sponsor the National Annual Essay Competition, fashion shows and beauty contests on university campuses, university sporting events, musical segments of radio programs, radio call-in shows about particular alcohol brands in which correct answers win prizes, tours of foreign musical stars, and end of year carnivals at beaches or in parks (Jernigan and Obot 2006). Faced with marketing restrictions, alcohol producers have also carried their alcohol brand names into other areas, such as the Carlsberg *Hot Trax* stores selling comic books, sports trading cards and compact disks in Malaysia in the mid-1990s (Jernigan 1997).

Point-of-purchase is another important form of marketing. Researchers in the United States studied 3,961 retail outlets selling alcohol in 329 communities across the country. The majority of the stores (94%) had some form of point-of-purchase alcohol marketing, while close to half (44%) had interior alcohol marketing materials placed at low heights, that is, within 3.5 feet of the floor, where it would be more likely to be seen by children and adolescents than by adults (Terry-McElrath, Harwood et al. 2003).

Product placement in film and television is another means to increase the visibility of alcohol brands. According to Anheuser-Busch's website, in the past 20 years it has placed its products in *Wedding Crashers*, *Batman Begins*, *Seabiscuit*, *Spider Man*, *Oceans Eleven*, *Terminator 3*, *Dodgeball*, *Collateral*, *Good Will Hunting*, *As Good As It Gets*, *Jerry Maguire*, *Children of a Lesser God*, *Mission Impossible*, *Ace Ventura: Pet Detective*, *Forrest Gump*, *The Silence of the Lambs*, *Platoon*, *Dirty Dancing*, *Working Girl*, *Top Gun*, *Rain Man*, *Erin Brockovich* and *Close Encounters of the Third Kind*. These placements ripple into theaters all over the world, and then onto television, where they promote alcohol brands even in markets with restrictions on broadcast advertising of alcohol. Product placement has also become common in popular music, particularly rap and hip-hop. A recent study of alcohol mentions in rap music found that from 1979 to 1997 such references increased five-fold, with a particular increase in appearances of liquor and champagne brands after 1994. From 1994 to 1997, 71% of the rap songs that mentioned alcohol in this study's sample named a specific alcohol brand (Herd 2005). Content analysis of 1,000 of the most popular songs from 1996 and 1997 revealed that this phenomenon is far more pronounced in rap music (47% of rap songs in the sample studied had alcohol references) than in country-western (13%), top 40 (12%), alternative

rock (10%) or heavy metal (4%) (Roberts 1999). These mentions were not always paid placements, but some certainly were according to news reports (Campbell 2006).

In Africa, Diageo went one step further than product placement in films. In 1999, the company introduced a fictional spokesman, Michael Power, for its Guinness Stout brand. Power appeared in billboards and in a series of mini-adventures on radio and television, culminating in a starring role in a full-length feature film, *Critical Assignment*, which Diageo offered for free throughout the continent, spending \$42.4 million on the brand in 2003 alone. The company's commercial director for Africa credited this campaign with increasing sales of Guinness in Africa by 10% in 2003, five times the increase the brand enjoyed worldwide that year (Jernigan and Obot 2006).

Mobile phones are a new frontier for alcohol marketing. Market research firms estimate that by 2010, spending on mobile phone advertising and marketing will total €700 million in Europe and \$1.3 billion in the United States (Pfanner 2006). According to *Advertising Age*, 81% of 18 to 21 year-olds, 68% of 16 to 17 year-olds, and 49% of 13 to 15 year-olds in the United States have cell phones, with the latter group the most likely to use their phones to participate in TV or radio polls, purchase ringtones, play games and send text messages. Despite these statistics, Anheuser-Busch recently announced its intention to broadcast 18 ads per hour in programming from ESPN, Fox, ABC and MSNBC distributed over MobiTV's 30 channels of programming for cell phone users (Mullman 2006).

For years, in the United States Anheuser-Busch has run its own sports programming production unit, filming sporting events that feature the company's logo prominently for broadcast on commercial outlets such as ESPN (Buchanan and Lev

1989). In August 2006, the company announced the establishment of its own entertainment programming production unit to produce humorous shorts and sitcom-type programs. The company announced a new distribution channel for this programming in September 2006, “BudTV”, a new on-line entertainment network that would carry at least six types of programming, including comedy, reality, sports and talk. According to company vice president Anthony T. Ponturo, going forward “the Internet will be equal to or better than television,” particularly in reaching the company’s target audience of males 21 to 34 (Elliott 2006). The company announced it would double its annual spending on internet advertising, to an estimated US\$90 million.

Alcohol marketing on the web easily transcends national boundaries (and regulations). Research in the U.S. has found large numbers of underage persons making in-depth visits (i.e. visits beyond the age verification screens at the front end of many alcohol web sites) to branded alcohol web sites (Center on Alcohol Marketing and Youth 2004). According to a survey of alcohol web sites in 2003, the sites were filled with “sticky content” that may be attractive in particular to youth: video games, downloadable audio and video files and screensavers, make-your-own-music-video features, opportunities to create an on-line avatar and interact with others, practical joke post-cards and humorous customizable e-mail features that have the advantage of turning users into marketers, engaging in “viral” marketing that makes them inadvertent promoters of the brand to their friends by sending branded e-cards and the like.

III. **Update on the evidence on the effects of this marketing on youth**

When the U.S. Federal Trade Commission looked at the issue of alcohol advertising and youth in 1999, it concluded that “while many factors may influence an underage person’s drinking decisions, including among other things parents, peers and media, there is reason to believe that advertising also plays a role.” (Federal Trade Commission 1999) In 2000, a special report to the U.S. Congress on alcohol decried the lack of longitudinal studies assessing the effects of alcohol advertising on young people’s drinking behavior, and concluded that, “...survey studies provide some evidence that alcohol advertising may influence drinking beliefs and behaviors among children and adolescents. This evidence, however, is far from conclusive.” (U.S. Department of Health and Human Services 2000) However, the intervening years have witnessed an outpouring of new studies, looking particularly at alcohol advertising’s impact on youth. The most recent published review of the research concluded that, “There is now sufficient evidence on the constituent elements of this [alcohol] marketing to say that the balance of probabilities now favours the conclusion that it is having an effect.” (Hastings, Anderson et al. 2005)

This section is based on a systematic search of electronic databases covering the alcohol, public health and social science fields. Five databases – PsychInfo, PUBMed, WebScience, Ingenta and Sociological Abstracts – were searched, using the keyword alcohol combined with the key word advertising. Articles were identified from 1984 to the present. Because preceding reviews have already summarized the earlier literature, this review will focus on research published since 2004, although earlier studies will be described when needed to provide context for the recent work. Most of the recent articles

identified in the literature search describe studies done in the United States. The recent research may be grouped into the following categories: youth exposure to alcohol marketing and the effects of that exposure, interpretive models to explain the effects of alcohol marketing on young people, whether alcohol advertising targets young people, and assessments of the effectiveness of regulatory restrictions on marketing and other counter-measures. Research on youth exposure to alcohol marketing has already been described above. The following sections will review developments since 2004 in each of the remaining categories.

Effects of youth exposure to alcohol marketing. Perhaps the most significant research development in recent years has been the publication of the findings of several new longitudinal studies of alcohol marketing's effects on young people. In 1998, the National Institute on Alcohol Abuse and Alcoholism (NIAAA), the principal government funding body for alcohol research in the United States, issued a special request for applications offering five years of funding for longitudinal studies on this topic. Three projects were ultimately funded from this RFA, and a fourth project was subsequently funded through NIAAA's normal funding process.

Ellickson et al. (2005) followed a cohort of 3,111 South Dakota middle school students from grade 7 to grade 9 (roughly ages 11 through 14). Drinking behavior as well as exposure to four types of alcohol advertising – television, in-store displays, magazines and concession stands – were measured at baseline. The first published finding from the study disproved the contention that other factors such as positive expectations about alcohol use or peer effects predicted awareness of alcohol advertising, and showed instead that what best predicted awareness of alcohol advertising was actual

exposure to that advertising (Collins, Schell et al. 2003). Other work by the same group has suggested that this awareness is evident in children as young as age 9, and prevalent among 14-year-olds (Collins, Ellickson et al. 2005). In one longitudinal study, after controlling for a variety of other variables including social influences, social bonds, problem behavior, alcohol beliefs, television exposure and demographics, the researchers found that exposure to in-store beer displays in grade 7 predicted onset of drinking by grade 9, and exposure to magazine advertising for alcohol and to beer concession stands at sports or music events predicted frequency of drinking in grade 9. The study also found that participation in a school-based curriculum designed to mitigate the effects of alcohol advertising did in fact reduce drinking among participants and counter the impact of in-store beer displays. The study did not find a relationship in multivariate analyses between exposure to television advertising for alcohol in grade 7 and drinking behavior in grade 9. However, one published critique of the study suggested that this may have been due to the use of overall television viewing as a proxy for exposure to alcohol advertising on television (Casswell 2005).

A second longitudinal study by Collins, Ellickson and colleagues (2007) used a similar exposure proxy but a different year, resulting in a different program mix. The study began measurement in grade 6 of a sample of 1,786 young people in South Dakota, and found significant effects on drinking behavior by grade 7 of exposure to beer advertising on sports television, exposure to beer advertising on non-sports television, exposure to beer advertising via radio listening, and ownership of beer promotional items.

In contrast to the findings of Ellickson et al., Stacy and colleagues (2004) at the University of Southern California looked only at the exposure to alcohol advertising on

television of a sample of 2,998 7th grade students in Los Angeles public schools, and found significant results. One year later, a one standard deviation increase in viewing of television programs containing alcohol advertising was associated with a 44% excess risk of drinking beer, a 34% excess risk of drinking wine or liquor, and a 26% excess risk of engaging in 3-drink episodes (the authors' working definition of binge drinking for this physically smaller population). A possible explanation for the discrepancy in the findings of the two studies may lie in the different means the studies used to estimate adolescent exposure to television advertising for alcohol.

Leslie Snyder and her colleagues at the University of Connecticut worked from the only national sample among the four projects. Starting with a sample of 1,872 persons aged 15 to 26 in 24 U.S. media markets, and following them over four waves of data collection from April 1999 to January 2001, Snyder's study used as its key independent variables self-reported measures of exposure to print, broadcast and outdoor alcohol advertising as well as a more objective measure of the level of advertising spending in each of the media markets in which her subjects resided. She found that youth exposure to every additional alcohol ad above a monthly average of 23 predicted a 1% increase in youth drinking, while every additional dollar spent per capita on alcohol advertising above an average of \$6.80 predicted a 3% increase in youth drinking. Analysis of only the underage portion of her sample (15 to 20 year-olds) produced similar results. Further, the study found that the impact of exposure to alcohol advertising was cumulative, which helps to explain the failure of earlier experimental studies to produce clear results. Also, in markets with greater availability of alcohol advertising, youth were more likely to continue to increase their drinking as they moved into their mid-20s, while

drinking declined after age 23 in markets with less alcohol advertising, even when controlling for alcohol sales at the market level.

The Distilled Spirits Council of the United States paid a marketing professor and a retired alcohol researcher to write critical letters to the journal in which the Snyder study was published (Schultz 2006; Smart 2006). Both criticized the attrition in the study sample (from 1,872 at wave one to 588 at wave four), and for confusing correlation with causality. In the original article, Snyder and colleagues had reported that attrition was greatest among the heaviest drinking segment of their sample (suggesting under-estimation in her findings), and in their response to the two letters they wrote that impact of attrition had been minimized by using all available data on each person. Regarding the correlation versus causality issue, they agreed that the study provided “associational, prospective evidence on alcohol advertising effects on youth drinking,” (Snyder and Slater 2006), but argued that it addressed limitations of earlier research (particularly the unreliability of exposure measures based on self-reporting) and “...in so doing provides substantial additional support to the body of research suggesting that alcohol advertising does influence adolescent alcohol use behavior.” (Snyder and Slater 2006)

The fourth NIAAA-funded longitudinal study focused on the question of how alcohol advertising appeals to youth, and will be discussed in the next section. Other longitudinal studies have examined the effects of youth exposure to other forms of alcohol marketing. One recent study used a measure of receptivity to alcohol marketing developed from research on tobacco marketing. This survey of 1,080 6th – 8th graders in Tracy, CA with one year follow-up developed a measure of “receptivity” that included

ownership of alcohol promotional item, wanting to own such an item, and having favorite brand of alcohol commercial. Young people receptive to alcohol marketing were 77% more likely to have initiated drinking at follow-up, and 75% more likely to be current drinkers at follow-up (Henriksen, Feighery et al. 2008).

Another recent study examined the effects of exposure in grade 6 to outdoor alcohol advertisements near schools, including retail signage, and alcohol use, intentions, norms and attitudes in grade 8. Researchers inventoried and coded all outdoor advertising for alcohol within 1,500 feet of 63 Chicago schools, and then surveyed 2,586 young people who had been 6th grade students in those schools two years later. Exposure to outdoor advertising for alcohol around schools was associated with intentions to drink, even among non-drinking students, suggesting that those who are not yet using alcohol are also affected by alcohol advertising (Pasch, Komro et al. 2007).

While not all alcohol use or alcohol brands appearing in films are the result of paid placements, some clearly are. Hanewinkel and colleagues (2007) surveyed 5,581 German adolescents in 27 schools about what movies they had seen and then matched this with data on depictions of alcohol use in these films. In cross-sectional analysis, exposure to movie alcohol use was associated with greater likelihood of binge drinking and of drinking without parental knowledge. Sargent and colleagues (2006) combined a school-based cross-sectional survey of 4,655 adolescents between the ages of 10 and 14 from New Hampshire and Vermont with longitudinal follow-up of the 2,406 respondents who reported never drinking to assess the impact of exposure to alcohol use in motion pictures on early onset of teen drinking. The researchers found alcohol use in 92% of a sample of 601 contemporary films, with median screen time for such use of 2.5 minutes.

After controlling for sociodemographics, personality characteristics, school performance, parenting style, and smoking experimentation, they found a direct linear relationship in the cross-sectional survey between exposure to movie alcohol use and prevalence of early-onset drinking. This linear relationship held for the longitudinal analysis as well, with the effect strongest at the lower levels of exposure. According to the authors, this strengthened the case for an independent effect of exposure to alcohol use in films on early-onset drinking, as opposed to the observed relationship being simply an artifact of the frequent movie-watching of poorly supervised or academically disengaged young people. The same survey also looked at ownership of alcohol-branded merchandise and its relationship to early-onset drinking. Alcohol producers distribute branded clothing, toys, game equipment and so on as part of embedding their brands in daily life. After adjusting for the confounders described above, young people who owned alcohol-branded merchandise were significantly more likely to have started to drink alcohol compared with students who did not own any such merchandise (McClure, Dal Cin et al. 2006). Henriksen and colleagues (2008) also found a strong relationship between ownership of alcohol promotional items and subsequent drinking. A prospective study following 5,511 adolescents found that 611 girls and 384 boys initiated alcohol use between 1998 and 1999. Possession of or willingness to use alcohol promotional items were again strong predictors of initiation of alcohol use among the girls in the study but not the boys (Fisher, Miles et al. 2007).

Sargent and colleagues (Sargent, Wills et al. 2006) mention as a limitation of their work that they did not control for exposure to television programming. A longitudinal study of young people in Flanders, Belgium looked at the effects of television viewing in

general as well as viewing of music videos in specific on adolescent alcohol use when going out (Van Den Bulck and Beullens 2005). Analysis of two waves of data collection from a random sample of 1648 first and fourth year secondary students revealed that overall television viewing per day at baseline was predictive of the amount of alcohol consumed while going out at follow-up, after controlling for alcohol use at baseline, gender, smoking behavior, and level of pubertal development. After controlling for overall television viewing, an independent relationship was identified between viewing of music videos specifically and alcohol use when going out. The magnitude and significance of both relationships were on a par with the relationships between drinking behavior and smoking, and between drinking behavior and level of pubertal development, two more traditional explanatory variables in research on the epidemiology of youth alcohol use.

Interpretive models to explain the effects of alcohol marketing on young people. If alcohol advertising affects young people's decision making regarding alcohol use, how does this occur? According to a recent review of the neuroscience, psychology and marketing literatures relevant to this question (Pechmann, Levine et al. 2005), understanding the biological and psychosocial context of adolescence is critical to understanding this interaction. These authors identify three distinctive vulnerabilities of adolescence: impulsivity, linked to a temporal gap between the onset of hormonal and environmental stimuli into the amygdala and the more gradual development of inhibitory control through the executive planning and decision-making functions of the pre-frontal cortex; self-consciousness and self-doubt, attributable at least in part to the emergence of abstract thinking, but evident in the greater frequency and intensity of negative mood

states during adolescence; and elevated risk from product use, including impulsive behavior such as drinking and driving, but also greater susceptibility to toxins because of the plasticity of the developing brain as well as greater sensitivity to the brain's "stamping" functions identifying pleasure and reward. These vulnerabilities lead the authors to conclude that "adolescents may be especially attracted to risky branded products that, in their view, provide immediate gratification, thrills, and/or social status." Because of this, the authors recommend the development of regulatory regimes that protect adolescents from advertising and promotions for high-risk, addictive products as much as is feasible given constitutional constraints." (Pechmann, Levine et al. 2005)

Early work on alcohol advertising and youth tended to rest on a simple theoretical basis: exposure to alcohol advertising influences youth drinking behavior. However, more recent studies have pointed to the importance of alcohol advertising in shaping youth attitudes, perceptions and particularly expectancies about alcohol use, which then influence youth decisions to drink. Thus in addition to measuring exposure and drinking behavior, researchers have increasingly included measures of attitudes and expectancies about alcohol use, integrating these variables into media effects models. For example, the Message Interpretation Process (MIP) model posits that children process media messages using a combination of logic and emotion or wishful thinking, and that the latter may override the former, a viewpoint consistent with the neurobiological evidence described above. In the case of alcohol advertising, the MIP model has been shown in cross-sectional research to suggest a cognitive progression from liking of alcohol ads (an affective response associated with the desirability of portrayals in the ads and a resulting identification with characters in the ads) to positive expectancies about alcohol use, to

intentions to drink or actual drinking among young people (Austin and Knaus 2000; Austin, Pinkleton et al. 2000). What young people appear to like in alcohol advertising is elements of humor and story, with somewhat less appreciation of music, animal characters and people characters. Liking of these elements significantly contributed the overall likeability of specific advertisements, and then to greater likelihood of intent to purchase the product and brand advertised (Chen, Grube et al. 2005). The same study also found that young people are not interested in alcohol advertising stressing product attributes or discouraging underage drinking, and exposure to these was associated with less desire to purchase the product.

Testing of the MIP model on cohorts of young people (defined as ages 15 to 20) and young adults (ages 21 to 29) provided further evidence of the validity of this model for describing youth decision-making processes. While exposure to alcohol advertising shaped attitudes and perceptions about alcohol use among both cohorts, these attitudes and perceptions predicted only the young people's positive expectancies about alcohol and intentions to drink, but did not affect the young adults' expectancies and alcohol consumption (Fleming, Thorson et al. 2004).

While improved specification of the model of how alcohol advertising may affect young people's drinking has in turn strengthened the statistical relationships found in this body of research, the studies thus far have continued to be hindered by their cross-sectional designs, which render conjectures about causality more difficult than longitudinal surveys. The fourth group funded by the NIAAA to study alcohol advertising and youth is focused on this question of how young people's interpretive processes might explain the influence of alcohol advertising on them. A cross-sectional

analysis of the first wave of data collection from the study confirmed that adolescents progressively internalize messages about alcohol, and that these messages affect their drinking behaviors. Subjects who watched more primetime television found portrayals of alcohol in alcohol advertising more desirable, and showed greater desire to emulate the persons in the ads. These were associated with more positive expectancies about alcohol use, which then positively predicted liking beer brands as well as alcohol use (Austin 2006).

Early analysis of longitudinal data from the work of this research group has revealed a positive relationship between liking of alcohol ads at baseline and alcohol consumption over a follow-up period of three years, among a cohort of 9- to 16-year-olds from nine counties in the San Francisco Bay Area. The effects of liking the ads were mediated through expectancies about alcohol use, as well as through normative effects of the exposure to alcohol advertising. Young people who liked alcohol advertising not only believed that positive consequences of drinking were more likely, but also were more likely to believe that their peers drank more frequently, and that their peers approved more of drinking. All these beliefs interacted to produce greater likelihood of drinking, or of intention to drink within the next year. Furthermore, the causal arrows all pointed in one direction – that is, positive expectancies about alcohol use did not predict greater liking of the alcohol ads, nor did assumptions about peer drinking or peer opinions of drinking (Chen and Grube 2004).

While most alcohol advertising on television is for alcohol products, alcohol companies also place substantial amounts of what are dubbed “responsibility” ads, which may discourage drinking-driving or underage drinking, or otherwise encourage people to

use alcohol responsibly and in moderation. According to the Center on Alcohol Marketing and Youth, from 2001 to 2003 alcohol companies placed 21,461 such ads, compared with 761,347 product ads. Youth were substantially more likely to be exposed to product than to responsibility ads: in 2003, they were 96 times more likely to see a product ad than an industry-funded ad about underage drinking, and 43 times more likely to see a product ad than an industry ad about drinking-driving (Center on Alcohol Marketing and Youth 2005). A recent study attempted to assess the impact of these messages on young people, and concluded that the advertisements were examples of strategic ambiguity, defined as “the strategic and purposeful use of messages with high levels of abstraction to simultaneously accomplish multiple, and often conflicting, organizational goals” (Smith, Atkin et al. 2006). More so with teens (age 16 to 18 in the study’s sample) than with young adults (age 19 to 22), young people drew diverse messages from the advertisements. In the context of little evidence that such advertising is effective in encouraging responsible drinking behavior (DeJong, Atkin et al. 1992), the study found that young people’s evaluative responses about the brewers who placed the ads were predominantly favorable, while interpretations taken from the ads were mostly pro-drinking.

Grube and Waiters (2005) recently reviewed the evidence on the content of alcohol messages in the mass media and their effects on drinking beliefs and behaviors among youth. They begin by pointing to the largely positive message environment about alcohol that exists in the mass media outside of paid advertising, including television programming, film, popular music and music videos, internet content (as opposed to paid internet advertising, and including alcohol company web sites), and magazine content.

The impact of this content on young people's drinking behavior has mostly gone unexamined in the scientific research literature. Their review of the evidence regarding alcohol advertising's effects concludes that "survey research studies on alcohol advertising and young people consistently indicate that there are small, but significant, correlations between awareness of and liking of alcohol advertising and drinking beliefs and behaviors among young people." (Grube and Waiters 2005)

Whether alcohol advertising targets young people. Even if there is a relationship – which a small but growing number of longitudinal research studies suggests may be causal – between youth exposure to alcohol advertising and youth drinking behaviors, is the level of youth exposure to alcohol advertising in the mass media the result of intentional targeting, or simply incidental to the alcohol industry's efforts to reach its principal target (usually identified in the United States as young adults age 21-34 (Theodore 2001; Riell 2002))? Answering this question is the subject of a highly contested body of recent research from the United States.

In 2003, an article appeared in the *Journal of the American Medical Association* alleging that magazine advertising by beer and liquor companies is associated with adolescent readership (Garfield, Chung et al. 2003). Based on a census of the alcohol advertising in 35 major U.S. magazines appearing from 1997 to 2001, the study used market research data to estimate adolescent (ages 12 to 19), young adult (ages 20 to 24) and older adult (ages 25 and above) readers of those magazines, and found that, after adjusting for magazine characteristics, every additional million adolescent readers predicted a sixty percent increase in the rate of beer or distilled spirits advertising appearing in the magazine.

An economist who has worked as a consultant to law firms representing tobacco and alcohol interests has published two efforts at rebutting this finding. The first of these used data from the same time period as Garfield et al., and sought to address the use in the model of several variables highly correlated with each other (Nelson 2005). The second (Nelson 2006) sought to improve further on the earlier analyses by using more recent data, by allowing the explanatory variables to vary over time (thereby including the temporal variation missing in both earlier studies), and by including more explanatory variables, including measures of audience size, magazine sales outlets, and cost of advertising in each magazine in each year. Both studies failed to find any relationship between youth audiences and placement of alcohol advertising in magazines.

However, Siegel et al. (2008) found that Nelson himself used two variables in his model – median age of adult readership, and magazine subject category – that were themselves highly correlated with his youth readership variable. They also found that Nelson had made numerous errors in compiling his data set. They re-ran his models, first using a replication of his data set and then using a corrected data set. In both cases, they found higher rates of alcohol advertising placements. As Nelson had found, running the replicated data set with the variables for median age of adult readers or dummy variables indicating specialty magazine categories included in the model produced no significant effect of youth readership on advertising. However, omitting these variables led to a significant relationship between higher volumes of alcohol advertisements and higher percentage of youth readership. The effect of percent of youth readership on the rate of alcohol advertising occurrences in the magazines was substantial, and persisted and actually grew stronger after controlling for number of young adult readers.

Another study recently attempted to assess whether alcohol advertising targets youth by using the tools of content analysis (Austin and Hust 2005). Compared to a similar content analysis conducted in 1982 (Strickland, Finn et al. 1982), the authors found that alcohol advertising content had improved, particularly with regard to depictions of risky behaviors. Eight pairs of expert coders analyzed a sample of 338 unique alcoholic beverage advertisements. Required to reach consensus within their pairs, the coders found that young adults were the most frequent target of the advertising, but that 1 of 6 magazine ads and 1 in 14 television ads appeared to target underage drinkers. The authors point out, however, that trained coders may reliably determine that advertisements contain content that may influence youth, but there is no guarantee that youth will interpret the content of the ads in the same way.

Assessments of the effectiveness of regulatory restrictions on marketing and other counter-measures. Whether bans on alcohol advertising are effective in reducing youth drinking is another highly contested area of the scientific literature. The literature is dominated by two authors and their colleagues. On the one hand, Nelson and colleagues have consistently found that advertising bans, whether studied in the United States or cross-nationally, do not lead to reductions in alcohol consumption (Nelson 1999; Nelson 2003; Nelson and Young 2003). However, Saffer and colleagues have found the opposite, sometimes using virtually identical data in their analyses (Saffer 1991; Saffer 1993; Saffer 2002). The most recent contribution to this debate examines the impact of alcohol advertising on drinking among American youth between 1996 and 1998 by combining market-level data for alcohol advertising in five media with data from two major surveys of underage drinking behavior in the United States: Monitoring the

Future, an annual survey of drinking among schoolchildren in the 8th, 10th and 12th grades, and the National Longitudinal Survey of Youth 1997 (Saffer and Dave 2006). Based on these data, the authors estimate (using NLSY97 data) that a 28% reduction in alcohol advertising would reduce the percentage of adolescents who drink monthly from 25% to between 24 and 21%, and the percentage who engage in binge drinking monthly from 12% to between 11 and 8%.

Chisholm et al. (2004) estimated the impact of several evidence-based personal and environmental interventions on disability-adjusted life years (DALYs) averted in 12 different WHO epidemiologic regions. The interventions included brief physician advice, taxation, roadside random breath testing, restricted sales access and advertising bans. In regions with a high prevalence of heavy drinkers (such as Europe and North America), taxation was estimated to be the most effective and cost-effective intervention. Where heavy drinking was less prevalent, however, more targeted strategies such as brief physician advice, roadside breath testing and advertising bans were considered to be more effective.

Another recent study looked at the impact of various interventions on years of life lost in the U.S. population. Using systematic reviews of the literature and expert informants, Hollingsworth et al. (2006) estimated the effects of several interventions – increased alcohol excise taxes, restriction of alcohol advertising, counter advertising, school-, community-, and college-based programs, family-based interventions, and interventions to prevent driving while intoxicated – on youth drinking behavior, and thence on alcohol-attributable future mortality in the U.S. population. According to their analysis, although increased taxation of alcohol was the second strongest step, the most

effective intervention would be a complete ban on alcohol advertising, which would reduce deaths from harmful drinking by 7,609, equivalent to a 16.4% decline in alcohol-related life-years lost. A partial advertising ban (defined as a reduction in total alcohol advertising expenditures of one-third) would result in a 4% reduction in alcohol-related life-years lost.

Other potential measures for countering the influence of alcohol advertising on youth include public health-oriented media campaigns and school-based media literacy curricula. A recent evaluation of a mass media campaign in Vermont, U.S.A. used a case/control design at the community level to assess the impact of paid placement of radio and television ads directed to youth and seeking to increase positive expectations for non-drinking and negative expectations for drinking, provide more realistic perceptions of drinking prevalence among peer groups, increase perception of support for non-drinking behavior among peers, increase confidence in avoiding alcohol use, and raise perception of reduced access to alcohol (Flynn, Worden et al. 2006). Radio ads directed to parents were also broadcast, and a training video was produced for retail clerks. Unfortunately, limited funding and availability of widely-viewed or heard media outlets resulted in only 43% of youth seeing any of the television messages, and only 37% hearing the radio messages. Only 41% of parents surveyed had even listened to the radio stations on which messages directed towards them aired. Although adolescent alcohol use dropped considerably during the study period in both experimental and control communities, the evaluation was able to discern no effect of the media campaign on either alcohol use or the mediating variables targeted.

In conjunction with their longitudinal study of the effects of various forms of alcohol marketing on youth drinking among a cohort of South Dakota middle school students, Ellickson et al. (2005) implemented and evaluated the effects on youth drinking of ALERT Plus, a prevention curriculum that includes specific lessons about alcohol marketing and countering alcohol advertisers' persuasive appeals as well as more traditional components aimed at motivating students against using drugs and giving them the skills to translate that motivation into effective resistance behavior. Their longitudinal analysis found that participation in the curriculum reduced future drinking both for students who were drinkers at baseline and for non-drinkers. The curriculum also weakened the impact on non-drinkers of in-store beer displays, the type of marketing that best predicted subsequent drinking in this group, but did not appear to counter the marketing types that most affected students who had already begun drinking at baseline. A case-control study of inner-city adolescents in New York City over a two year period also found that media resistance skills training, combined with drug skill refusal techniques teaching young people how to say no to alcohol or drug use, produced negative effects on likelihood of alcohol use at the two-year follow-up (Epstein and Botvin 2008).

Conclusion

Globalized alcoholic beverages depend heavily on marketing to make their impact and maintain the competitive position of their multinational parent companies in the global alcohol market. As a result, alcohol marketing abounds world-wide. Although few efforts have been made to document alcohol marketing systematically throughout the world, case studies that have been produced describe national contexts where the

marketing of alcohol is pervasive, widespread in the traditional media of television, radio, print and out-of-home as well as in film, television and music content, at sport and cultural events and festivals, and at point-of-purchase (Jernigan 1999; Jernigan and Indran 1999). Corporate announcements also indicate that the marketing is moving rapidly into newer forms of mass media such as mobile phones and the internet.

Although there are both neurobiological and psychosocial explanations for why this marketing might influence young people, the research literature on this question is highly contested, and is likely to continue to be so, as alcohol trade associations and affiliated law firms have illustrated their willingness to fund rebuttals to public health research on this topic. The strongest research evidence of this effect comes from several recent longitudinal studies of the impact of various forms of alcohol marketing – looking at exposure to alcohol advertising in traditional media as well as in the form of movie content, ownership of alcohol-branded merchandise, exposure to alcohol marketing at sporting events and at point of purchase, and so on – which have all found small but significant effects on youth drinking.

The gaps in this research literature are legion. The recent literature comes entirely from developed countries, and mostly from the United States. Even this literature has largely failed to keep up with developments in alcohol marketing technologies. While numerous “natural experiments” occur worldwide each year in the form of introduction of new marketing techniques into new or existing markets, the impact on youth drinking of techniques such as sponsorships, internet and viral marketing, sweepstakes, introduction of new and possibly youth-oriented products such as alcopops or caffeinated alcoholic beverages, couponing, and the use of on-line avatars and social networking sites

as opportunities for alcohol promotion has not yet been examined with solid research designs.

Nonetheless, there is a growing body of evidence showing that alcohol marketing does indeed influence young people's drinking behavior, indicating that measures to reduce that impact should be part of the mix of regulatory strategies considered by national governments seeking to limit the public health impact of alcohol use on young people and thence on the whole of the population.

REFERENCES

- Aaker, D. A. (1996). Building Strong Brands. New York, The Free Press.
- Adams Beverage Group (2005). Beer Handbook 2005. Norwalk, CT, Adams Beverage Group.
- Austin, E. W. and S. J. Hust (2005). "Targeting adolescents? The content and frequency of alcoholic and nonalcoholic beverage ads in magazine and video formats November 1999-April 2000." Journal of Health Communication 10(8): 769-785.
- Austin, E. W. and C. Knaus (2000). "Predicting the potential for risky behavior among those "too young" to drink as a result of appealing advertising." Journal of health communications 5: 13-27.
- Austin, E. W., B. E. Pinkleton, et al. (2000). "The Role of Interpretation Processes and Parental Discussion in the Media's Effects on Adolescents' Use of Alcohol." Pediatrics 105(2): 343-349.
- Austin, E. W. C., M.J.; Grube, J.W. (2006). "How does alcohol advertising influence underage drinking? The role of desirability, identification and skepticism." Journal of Adolescent Health Care 38(4): 376-384.
- Buchanan, D. R. and J. Lev (1989). Beer and Fast Cars: How Brewers Target Blue-Collar Youth Through Motor Sports Sponsorships. Washington, D.C., AAA Foundation for Traffic Safety.
- Campbell, D. (2006). Hip-hop pops a bubbly. Philadelphia Inquirer. Philadelphia: A01.
- Casswell, S. (2005). "TV Advertising of Alcohol is not in the interests of Public Health: Comments on Ellickson et. al." Addiction 100(2): 258-259.

- Cavanagh, J. and F. Clairmonte (1985). Alcoholic beverages: dimensions of corporate power. New York, St. Martin's Press.
- Center on Alcohol Marketing and Youth (2004). Clicking with kids: alcohol marketing and youth on the internet. Washington, DC, Health Policy Institute, Georgetown University.
- Center on Alcohol Marketing and Youth (2005). Alcohol Industry "Responsibility" Advertising on Television, 2001 to 2003. Washington, D.C., Center on Alcohol Marketing and Youth.
- Center on Alcohol Marketing and Youth (2005). Exposure of Hispanic Youth to Alcohol Advertising, 2003-2004. Washington, D.C., Center on Alcohol Marketing and Youth.
- Center on Alcohol Marketing and Youth (2006). Exposure of African-American Youth to Alcohol Advertising, 2003 to 2004. Washington, D.C., Center on Alcohol Marketing and Youth.
- Center on Alcohol Marketing and Youth (2007). CAMY Monitoring Report: Youth Exposure to Alcohol Advertising On Television and in National Magazines, 2001 to 2006. Washington, D.C., Center on Alcohol Marketing and Youth.
- Center on Alcohol Marketing and Youth (2008). Youth Exposure to Alcohol Advertising on Television, 2001 to 2007. Washington, D.C., Center on Alcohol Marketing and Youth.
- Chen, M.-J. and J. W. Grube (2004). Alcohol advertising and adolescent alcohol use: A latent growth analysis of the message interpretation process. Research Society on Alcoholism, Miami, Florida.
- Chen, M. J., J. W. Grube, et al. (2005). "Alcohol advertising: what makes it attractive to youth?" Journal of Health Communication 10(6): 553-565.
- Chisholm, D., J. Rehm, et al. (2004). "Reducing the global burden of hazardous alcohol use: a comparative cost-effectiveness analysis." Journal of Studies on Alcohol 65(6): 782-793.
- Collins, R. L., P. L. Ellickson, et al. (2007). "Early adolescent exposure to alcohol advertising and its relationship to underage drinking." Journal of Adolescent Health 40(6): 527-534.
- Collins, R. L., P. L. Ellickson, et al. (2005). "Saturated in beer: Awareness of beer advertising in late childhood and adolescence." Journal of Adolescent Health Care 37(1): 29-36.
- Collins, R. L., T. Schell, et al. (2003). "Predictors of beer advertising awareness among eighth graders." Addiction 98: 1297-1306.

- DeJong, W., C. K. Atkin, et al. (1992). "A critical analysis of "moderation" advertising sponsored by the beer industry: Are "responsible drinking" commercials done responsibly?" The Milbank Quarterly 70: 661-678.
- Eide, A. H., S. W. Acuda, et al. (1998). "Cultural orientation and alcohol-type preferences among adolescents in four sociocultural groups in Zimbabwe." Journal of cross-cultural psychology 29(2): 343-357.
- Ellickson, P. L., R. L. Collins, et al. (2005). "Does alcohol advertising promote adolescent drinking? Results from a longitudinal assessment." Addiction 100(2): 235-246.
- Ellickson, P. L., R. L. Collins, et al. (2005). "Does alcohol advertising promote adolescent drinking? Results from a longitudinal assessment: Corrigenda." Addiction 100(8): 1201.
- Elliott, S. (2006). This Web TV Is for You, Especially if You're a Male Aged 21 to 34. The New York Times. New York City: C4.
- Epstein, J. A. and G. J. Botvin (2008). "Media resistance skills and drug skill refusal techniques: What is their relationship with alcohol use among inner-city adolescents?" Addictive Behaviors 33(4): 528-537.
- Federal Trade Commission (1999). Self-Regulation in the Alcohol Industry: A Review of Industry Efforts to Avoid Promoting Alcohol to Underage Consumers. Washington, D.C., Federal Trade Commission.
- Federal Trade Commission (2008). Self-Regulation in the Alcohol Industry. Washington, D.C., Federal Trade Commission.
- Fisher, L. B., I. W. Miles, et al. (2007). "Predictors of initiation of alcohol use among US adolescents - Findings from a prospective cohort study." Archives of Pediatrics & Adolescent Medicine 161(10): 959-966.
- Fleming, D. and P. Zwiebach (1999). "UDV unveils global campaign for Johnnie Walker, its first ever." Impact 29(23): 1, 18-19.
- Fleming, K., E. Thorson, et al. (2004). "Alcohol Advertising Exposure and Perceptions: Links with Alcohol Expectancies and Intentions to Drink or Drinking in Underaged Youth and Young Adults." Journal of Health Communication 9: 3-29.
- Flynn, B. S., J. K. Worden, et al. (2006). "Mass Media and Community Interventions to Reduce Alcohol Use by Early Adolescents." Journal of Studies on Alcohol 67(1): 66-74.
- Galván, F. and R. Caetano (2003). "Alcohol Use and Related Problems Among Ethnic Minorities in the United States." Alcohol Research and Health 27(1): 87-96.

- Garfield, C. F., P. J. Chung, et al. (2003). "Alcohol advertising in magazines and adolescent readership." Journal of the American Medical Association 289(18): 2424-2429.
- Grube, J. W. and E. Waiters (2005). "Alcohol in the media: content and effects on drinking beliefs and behaviors among youth." Adolescence Medicine Clinics 16(2): 327-343.
- Hanewinkel, R., S. E. Tanski, et al. (2007). "Exposure to alcohol use in motion pictures and teen drinking in Germany." International Journal of Epidemiology 36(5): 1068-1077.
- Hastings, G., S. Anderson, et al. (2005). "Alcohol marketing and young people's drinking: A review of the research." Journal of public health policy 26: 296-311.
- Henriksen, L., E. C. Feighery, et al. (2008). "Receptivity to alcohol marketing predicts initiation of alcohol use." Journal of Adolescent Health 42(1): 28-35.
- Herd, D. (2005). "Changes in the prevalence of alcohol use in rap song lyrics, 1979-1997" Addiction 100: 1258-1269.
- Hollingsworth, W., B. E. Ebel, et al. (2006). "Prevention of Deaths From Harmful Drinking in the United States: The Potential Effects of Tax Increases and Advertising Bans on Young Drinkers." Journal of Studies on Alcohol 67: 300-308.
- Impact Databank (1995). Impact worldwide distilled spirits report, 1995 edition. New York, M. Shanken Communications.
- Impact Databank (2005). The Global Drinks Market: Impact Databank Review and Forecast. New York, M. Shanken Communications, Inc.
- Impact Databank (2007). The U.S. Beer Market: Impact Databank Review and Forecast, 2006 Edition. New York, M. Shanken Communications.
- Impact Databank (2007). The U.S. Spirits Market: Impact Databank Review and Forecast, 2007 Edition. New York, M. Shanken Communications.
- International Center for Alcohol Policies (2006). The Structure of the Beverage Alcohol Industry. Washington, D.C., International Center for Alcohol Policies.
- Jernigan, D. (2000). "Applying commodity chain analysis to changing modes of alcohol supply in a developing country," Addiction 95 supplement 4:465-475, 2000." Addiction 95(supplement 4): 465-475.
- Jernigan, D. and I. S. Obot (2006). "Thirsting for the African Market." African Journal of Drug & Alcohol Studies 5(1): 57-70.

- Jernigan, D., J. Ostroff, et al. (2006). "Youth Exposure to Alcohol Advertising on Radio - United States, Summer 2004." Mortality and Morbidity Weekly Report 55(34): 937-940.
- Jernigan, D. H. (1997). *Thirsting for markets: the global impact of corporate alcohol*. San Rafael, The Marin Institute for the Prevention of Alcohol and Other Drug Problems.
- Jernigan, D. H. (1999). Country profile on alcohol in Zimbabwe. Alcohol and public health in 8 developing countries. L. Riley and M. Marshall. Geneva, Substance Abuse Department, Department of Social Change and Mental Health, World Health Organization (WHO/HSC/SAB/99.9): 157-175.
- Jernigan, D. H. and S. K. Indran (1999). Country profile on alcohol in Malaysia. Alcohol and public health in 8 developing countries. L. Riley and M. Marshall. Geneva, Substance Abuse Department, Department of Social Change and Mental Health, World Health Organization, (WHO/HSC/SAB/99.9): 61-73.
- Klein, N. (1999). No logo: taking on the brand bullies. New York, Picador.
- Lopes, T. D. S. (2003). "The Growth and Survival of Multinationals in the Global Alcoholic Beverages Industry." Enterprise & Society 4(4): 592-598.
- MacNamara, L. (2006). Booze ads hit early teenagers. The Australian. Sydney: 24 April, p. 3.
- McClure, A. C., S. Dal Cin, et al. (2006). "Ownership of alcohol-branded merchandise and initiation of teen drinking." American journal of preventive medicine 30(4): 277-283.
- Montes-Santiago, J., M. L. A. Muniz, et al. (2007). "Alcohol advertising in written mass media in Spain." Anales De Medicina Interna 24(3): 109-112.
- Mullman, J. (2006) "A-B Under Fire for Cellphone Advertising." Advertising Age 2006, available at http://adage.com/print?article_id=108342, accessed September 9.
- Nelson, J. P. (1999). "Broadcast Advertising and U.S. Demand for Alcoholic Beverages." Southern Economic Journal 66: 774-790.
- Nelson, J. P. (2003). "Advertising Bans, Monopoly, and Alcohol Demand: Testing for Substitution Effects Using State Panel Data." Review of Industrial Organization 22: 1-25.
- Nelson, J. P. (2005). "Advertising, Alcohol, and Youth." The Cato Review of Business and Government 29: 40-47.
- Nelson, J. P. (2006). "Alcohol Advertising in Magazines: Do Beer, Wine and Spirits Ads Target Youth?" Contemporary Economic Policy 24(3): 357-369.

- Nelson, J. P. and D. Young (2003). "Do Advertising Bans Work? An International Comparison." International Journal of Advertising 20: 273-296.
- Pasch, K. E., K. A. Komro, et al. (2007). "Outdoor alcohol advertising near schools: What does it advertise and how is it related to intentions and use of alcohol among young adolescents?" Journal of Studies on Alcohol and Drugs 68(4): 587-596.
- Pechmann, C., L. Levine, et al. (2005). "Impulsive and self-conscious: Adolescents' vulnerability to advertising and promotion." Journal of Public Policy and Marketing 24(2): 202-221.
- Pfanner, E. (2006). On advertising: Pitching via cell. International Herald Tribune. Paris.
- Riell, H. (2002). "Half full or half empty?" Beverage Dynamics 112(3): 8.
- Ringel, J. S., R. L. Collins, et al. (2006). "Time Trends and Demographic Differences in Youth Exposure to Alcohol Advertising on Television." Journal of adolescent health 39: 473-480.
- Roberts, D. F. (1999). Substance Use in Popular Movies and Music, Office of National Drug Control Policy and Department of Health and Human Services, Substance Abuse and Mental Health Services Administration.
- Saffer, H. (1991). "Alcohol advertising bans and alcohol abuse: an international perspective." Journal of Health Economics 10(229-234).
- Saffer, H. (1993). "Alcohol advertising bans and alcohol abuse: a reply." Journal of health economics 12: 229-234.
- Saffer, H. (2002). "Alcohol advertising and youth." Journal of Studies on Alcohol Suppl. 14: 173-181.
- Saffer, H. and D. Dave (2006). "Alcohol advertising and alcohol consumption by adolescents." Health Economics 15(6): 617-637.
- Sargent, J. D., T. A. Willis, et al. (2006). "Alcohol Use in Motion Pictures and Its Relation with Early-Onset Teen Drinking." Journal of Studies on Alcohol 67(1): 54-65.
- Sargent, J. D., T. A. Wills, et al. (2006). "Alcohol use in motion pictures and its relation with early-onset teen drinking." Journal of Studies on Alcohol 67(1): 54-65.
- Schultz, D. E. (2006). "Challenges to Study on Alcohol Advertising Effects on Youth Drinking." Archives of pediatrics and adolescent medicine 160: 857.
- Siegel, M., C. King, et al. (2008) "Comment: Alcohol Advertising in Magazines and Youth Readership: Are Youths Disproportionately Exposed?" Contemporary

- Economic Policy, available at <http://www.blackwell-synergy.com/doi/full/10.1111/j.1465-7287.2007.00088.x>, accessed June 27, 2008.
- Smart, R. G. (2006). "Limitations of Study on Alcohol Advertising Effects on Youth Drinking." Archives of pediatrics and adolescent medicine 160: 857.
- Smith, S. W., C. K. Atkin, et al. (2006). "Are "Drink Responsibly" Alcohol Campaigns Strategically Ambiguous?" Health Communication 20(1): 1-11.
- Snyder, L. and M. Slater (2006). "In Response." Archives of pediatrics and adolescent medicine 160: 858.
- Sparks, R., T. Dewhirst, et al. (2005). Historical Hangovers or Burning Possibilities: Regulation and adaptation in global tobacco and alcohol sponsorship. Global Sport Sponsorship. J. M. Amos and T. B. Cornwell. New York, Berg: 19-66.
- Stacy, A. W., J. B. Zogg, et al. (2004). "Exposure to televised alcohol ads and subsequent adolescent alcohol use." American Journal of Health Behavior 28(6): 498-509.
- Strickland, D. E., T. A. Finn, et al. (1982). "A content analysis of beverage alcohol advertising. I. Magazine advertising." Journal of Studies on Alcohol 43(7): 655-682.
- Terry-McElrath, Y. M., E. M. Harwood, et al. (2003). "Point-of-purchase alcohol marketing and promotion by store type - United States, 2000-2001." Morbidity and mortality weekly report 52(14): 307-310.
- Theodore, S. (2001). "Beer's on the up and up." Beverage Industry 92(4): 18.
- U.S. Department of Health and Human Services (2000). Alcohol advertising: what are the effects? 10th special report to the U.S. Congress on alcohol and health. Washington, D.C., U.S. Department of Health and Human Services: 412-414.
- Van Den Bulck, J. and K. Beullens (2005). "Television and Music Video Exposure and Adolescent Alcohol Use While Going Out." Alcohol and Alcoholism 40(3): 249-253.
- Wentz, L. (2007). "Who spends the most worldwide? As usual, it's Procter & Gamble." Advertising Age 78(46): November 19.
- Zhang, J. F. (2004). Alcohol advertising in China. Presentation to the Asia Pacific NGO Meeting on Alcohol Policy, September 24-25. Auckland.
- Zwarun, L. (2006). "Ten Years and 1 Master Settlement Agreement Later: The Nature and Frequency of Alcohol and Tobacco Promotion in Televised Sports, 2000 through 2002." American journal of public health 96(8): 1492-1497.

Zwiebach, P. (2005). "World's Top 10 Spirits Companies Aim Even Higher." Impact 35(22): 1, 6-12.