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## Evidence of underage targeting of alcohol advertising on television in the United States: Lessons from the *Lockyer v. Reynolds* decisions

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### Abstract

Underage alcohol use is a global public health problem and alcohol advertising has been associated with underage drinking. The alcohol industry regulates itself and is the primary control on alcohol advertising in many countries around the world, advising trade association members to advertise only in adult-oriented media. Despite high levels of compliance with these self-regulatory guidelines, in several countries youth exposure to alcohol advertising on television has grown faster than adult exposure. In the United States, we found that exposure for underage viewers ages 18–20 grew from 2005 through 2011 faster than any adult age group. Applying a method adopted from a court in the US to identify underage targeting of advertising, we found evidence of targeting of alcohol advertising to underage viewers ages 18–20. The court's rule appeared in *Lockyer v. Reynolds* (The People ex rel. Bill Lockyer v. R.J. Reynolds Tobacco Company, GIC764118, 2002). We demonstrated that alcohol companies were able to modify their advertising practices to maintain current levels of adult advertising exposure while reducing youth exposure.

### Keywords

alcohol; self-regulation; television; advertising; underage drinking; Tobacco Master Settlement Agreement

### Introduction

Alcohol is the greatest risk factor for death and disease among persons ages 15–49 globally.<sup>1</sup> In the United States, alcohol is the drug most frequently used by teenagers and young adults under age 21, the legal drinking age in the US.<sup>2–4</sup> More than 40 per cent of college undergraduates report *heavy episodic drinking*, consuming more than five alcohol beverages in a short amount of time.<sup>3</sup> One in five college heavy drinkers meets criteria for alcohol dependence.<sup>4</sup> Consequences of heavy drinking extend beyond the drinker. As many as 87

per cent of non-heavy-drinking college students report harms caused by drinkers.<sup>5</sup> Research has shown that exposure to alcohol advertising and promotion is an independent risk factor for youth drinking.<sup>6,7</sup>

In several countries, concerns about the influence of alcohol advertising on youth drinking have recently led to policy discussions about advertising bans and other restrictions; these include Ireland, Russia, Finland and South Africa.<sup>8</sup> The World Health Organization (WHO) proposed reducing underage exposure to alcohol advertising as a component of its *Global Strategy to Reduce the Harmful Use of Alcohol*.<sup>9</sup> The US Centers for Disease Control and Prevention has funded efforts to monitor youth exposure to alcohol advertising in *measured media* in the United States and to develop methods that can be adopted globally to limit underage exposure to alcohol advertising. This paper proposes a set of methods for assessing targeting of alcohol advertising. The methods are based on a definition of targeting adopted by courts and applied to tobacco advertising in the United States.

In the United States, where commercial speech is protected under the free speech provision of the constitution, advertising bans are probably not feasible, and alcohol advertising is primarily regulated by the alcohol companies themselves.<sup>10–12</sup> Generally, alcohol advertisers propose to place advertising only in media where the adult audience is proportionate to the adult population. In the aggregate, compliance with these guidelines on television since 2005 has been high, with 92 per cent of all advertising placements meeting the *proportionate audience composition* guideline.<sup>12,13</sup> Yet, despite high levels of compliance, youth exposure to alcohol advertising on television has been growing faster than that of adults from 2005, when the implementation of the new advertising codes was complete, through 2011 in the United States.<sup>13</sup> Similarly, in some European countries, alcohol advertising for youth has been growing faster than for adults.<sup>14,15</sup>

The growth in television youth exposure relative to adults raises questions about both the efficacy of the self-regulatory guidelines and the intentions of alcohol advertisers. We addressed the efficacy of this standard in prior research. Our studies showed that alcohol companies can concentrate the youth proportion of advertising in any underage subgroup (for example, ages 12–20) without violating the standard.<sup>16</sup> We also showed that it may be more cost effective for alcohol companies to limit advertising placements to media in which youth are a smaller portion of the audience.<sup>16</sup> Thus, we wondered whether the growth in youth exposure relative to adult exposure might indicate targeting underage youth by alcohol advertisers.

Do major industries target children with their advertising for unhealthy products? This question cuts across the public health field. Concern about advertising of nutritionally poor foods to young children has prompted the food and beverage industry to adopt a definition of ‘child-directed’ advertising and to set minimum nutritional guidelines for foods advertised on such programming.<sup>17</sup> Because there has been no objective method of assessing the potential for intentional targeting of these vulnerable populations, public health researchers have responded largely by testing compliance with these self-regulatory placement standards.<sup>16–18</sup>

Insight into the issue of targeting of advertising in the United States comes from the experience in tobacco control, where case law established an objective, measurable definition of *targeting*. This happened in a 2001 lawsuit brought by the State of California against R. J. Reynolds Tobacco Company under the Tobacco Master Settlement Agreement.<sup>19,20</sup> The State of California claimed that Reynolds' placement of cigarette advertisements in magazines for the period 1999–2001 violated the ban on youth targeting in that Tobacco Master Settlement Agreement. The trial court concluded that there was evidence of 'indirect targeting', defined as advertising exposure to the underage group that was equal to the target group of adults, even if such exposure was unintentional or incidental.<sup>19</sup> The court went so far as to establish a standard, defining 'targeting' as exposure for youth that was 'not substantially different' from adults – this translated into a per-capita advertising exposure ratio of 0.89 for children and adults (measured as the ratio of gross rating points (GRPs), an advertising industry standard measure of per-capita exposure).<sup>19</sup> The appellate court strengthened support for this definition of targeting when it threw out the concept of 'indirect targeting', concluding that by definition 'targeting' could not be 'incidental' and must therefore be intentional.<sup>20</sup> The court also noted that alternate advertising schedules could be developed to maintain adult exposure while reducing youth exposure. Thus, the appellate court upheld the finding that Reynolds had targeted youth in their advertising because (1) data were available to the company to show that its advertising was exposing youth at effectively the same rate as adults per-capita,<sup>20</sup> and (2) the plaintiff provided evidence that 'Reynolds could implement alternative advertising schedules using different magazines to avoid targeting youth while maintaining effective targeting of young adults'.<sup>20</sup>

In this study, we extend this targeting definition from the *Lockyer v. Reynolds*<sup>19,20</sup> cases to the alcohol industry. We analyze television alcohol advertising data in the United States from 2005 through 2011 to (1) identify the reasons why youth exposure has been growing faster than adult exposure, (2) examine evidence of targeting of alcohol advertising to youth using the *Lockyer v. Reynolds* definition, and (3) determine if alternative advertising schedules could be deployed that would achieve the same levels of exposure for adults while reducing youth exposure.

## Methods

### Data

We licensed television advertising data for the years 2005–2011 from Nielsen<sup>21</sup> for the entire alcohol category. Details of our methods for processing and analyzing Nielsen data have been reported previously.<sup>13</sup> Briefly, occurrence and audience data were downloaded from Nielsen Monitor-Plus; coded to classify advertisements as product, 'responsibility', or other types of advertisements; standardized by brand names and alcohol types according to Impact Databank (New York, NY), a leading alcohol industry marketing research firm; and organized into a Microsoft SQL\*SERVER database (Microsoft Corporation, Redmond, WA). This study used data on 2 111 131 alcohol advertising placements on network, cable, and local television from 2005 to 2011, with a particular focus on 1 192 331 cable television placements.

## Measures

An advertising *impression* is a measure of advertising exposure, representing a single ad seen by a single viewer. The sum of advertising impressions over multiple ads is referred to as *gross impressions* and may represent multiple exposures for an individual. *Ratings* are the percent of a population that sees a single advertisement. Ratings may be summed across multiple advertisements to create *GRPs*, which are per-capita advertising exposure measures calculated by dividing gross impressions by the size of the population and multiplying by 100. We obtained both impressions and GRPs from Nielsen. A *GRP Ratio* is used to compare per-capita exposure between youth and adults, defined as Youth GRPs/Adult GRPs. A GRP Ratio greater than 1.0 indicates that youth see more advertising per-capita than adults. The trial court in the *Lockyer v. Reynolds* case used GRP ratios in the range of 0.89 or higher to indicate targeting.

## Analysis

**Determining why youth exposure grew faster than adult exposure**—GRPs for each year from 2005 through 2011 were summed for ages 2–11, 12–17, 18–20, 21–24, 25–29, and 35 and older. We calculated the growth in exposure as the least squares estimate of the linear trend of GRPs per year and compared the average growth of each age group. We conducted separate analyses for broadcast network television and cable television, because the latter media type is capable of much finer audience targeting than the former.

**Examining evidence of targeting by alcohol category**—We found that growth in youth exposure concentrated on cable television, driven by an increase in advertising exposure for underage viewers ages 18–20. Thus for the balance of our analyses, we focused on this medium and age group. For each year from 2005 through 2011, we calculated the GRP ratio of ages 18–20 versus all adult age groups (ages 21–24, 25–34, and 35 and older) in the manner of the trial court’s *Lockyer v. Reynolds* decision – comparing the ratio to the threshold of 0.89. We conducted this analysis separately for each alcoholic beverage type – alcopops (sweetened malt beverages often branded with spirits brand names such as Smirnoff Ice), beer, distilled spirits, and wine.

**Examining evidence of targeting by alcohol brand**—Previous research identified the top 25 brands consumed by underage drinkers.<sup>22</sup> We identified 17 of these 25 brands that advertised on cable television in each year from 2005 through 2011 (advertised in all seven years). For each of these 17 brands, we calculated the linear trend in exposure for underage viewers ages 18–20 and legal-age viewers ages 21–24. We also applied the *Lockyer v. Reynolds* definition of targeting and reported the number of years (out of seven years studied) for which the brand met the targeting requirement.

**Testing alternative ad placement strategies**—Using a process similar to one we published for analyzing audience and placement data from 2004,<sup>16</sup> we modified advertising placements using different placement guidelines to see if we could match adult exposure while reducing youth exposure. For youth audience composition thresholds (ages 2–20/ages 2 and older) from 30 per cent down to 10 per cent, we moved ads in programs that were above this threshold in 2011 to programs that were below the threshold. For each ad moved,

we attempted to match or surpass the ages 21–24 advertising exposure while limiting placements to programs with progressively lower ages 2–20 composition standards. We selected ages 21–24 as a target for matching adult exposure because this age group is the youngest and most narrowly defined age group of legal-age adults and therefore represents the most difficult target age group to reach without exposing underage viewers. We calculated 30 simulations and reported the average exposure. We calculated the change in exposure for underage viewers ages 18–20 and the change in exposure for the target group ages 21–24.

## Results

### Determining why youth exposure is growing faster than adult exposure

Alcohol companies are concentrating advertising exposure among underage viewers ages 18–20. As shown in Table 1, underage viewers ages 18–20 receive approximately 27 per cent of all underage advertising impressions but represent only 16 per cent of the underage television-viewing population. Viewers ages 12–17 receive 38 per cent of underage impressions, slightly higher than their proportion of the underage population (31 per cent). Viewers ages 2–11 receive only 34 per cent of underage impressions, substantially fewer than their 53 per cent proportion of the underage population.

Table 2 presents two views of the change in youth and adult exposure to alcohol advertising from 2005 through 2011. Table 2(a) demonstrates that exposure to alcohol advertising on broadcast network television has actually been declining during this time period. In contrast, Table 2(b) clearly shows that ages 18–20 exposure to alcohol advertising on cable television has been growing faster than all adult groups, averaging an increase of 2062 GRPs per year. Thus, it appears ages 18–20 exposure on cable television is driving the growth in youth exposure.

### Examining evidence of targeting by alcohol category

Table 3 shows the exposure of viewers aged 18–20 relative to legal-age adult exposure (GRP ratio) to alcohol advertising on cable television by alcoholic beverage type. Based on the 0.89 GRP ratio, the *Lockyer v. Reynolds* standard, we find that alcopop advertisers on cable television exposed underage viewers ages 18–20 to the same levels of advertising as legal-age adults ages 21–24 in 4 of the 7 years measured for this report, adults ages 25–34 in 3 of 7 years, and adults ages 35 and older in all 7 years. For beer advertisers, underage viewers saw the same levels as 21–24-year olds in 4 of 7 years, 25–34-year olds in 0 of 7 years, and those ages 35 and older in 4 of 7 years. For distilled spirits advertisers, 18–20-year olds saw the same level of advertising as those ages 21–24 in 4 of 7 years, 25–34-year olds in 2 of 7 years, and those 35 and older in all 7 years. In contrast, wine advertisers largely managed to avoid advertising to underage viewers on cable television, exposing 18–20-year olds to the same levels of advertising as 21–24-year olds in only 1 of 7 years.

### Examining evidence of targeting by alcohol brand

All 17 of the 25 brands most popular with underage drinkers that advertised on cable television in each year from 2005 to 2011 met criteria for targeting viewers ages 18–20 in at

least 1 of the 7 years (Table 4). All brands that met criteria for targeting ages 18–20 in at least 3 of 7 years also had youth exposure trends that were higher than adult exposure trends. This simple ranking analysis provides evidence of a nominal association between targeting criteria and the growth in youth exposure relative to adults by brands, although further research is required to characterize this association fully.

### Testing alternative ad placement strategies

We tested whether reducing underage composition placement guidelines would allow an advertiser to generate the same exposure to legal-age adults ages 21–24 while reducing exposure to underage viewers ages 18–20. Figure 1 shows that advertisers could reduce their composition placement guidelines to 15 per cent, the level recommended by the National Research Council/Institute of Medicine and 24 state and territorial attorneys-general, without any reduction in ages 21–24 exposure. Further, exposure of underage viewers ages 18–20 would be reduced by 31.7 per cent.

## Discussion

Youth exposure to alcohol advertising on television in the United States has been growing faster than adult exposure as a result of an increase in placement of advertisements on cable television programming with high concentrations of underage youth ages 18–20. From 2005 through 2011, exposure to alcohol advertising for underage youth ages 18–20 has grown faster than any other age group. Of particular note, exposure of viewers ages 18–20 has grown faster than that of viewers ages 21–24, suggesting that this result was not incidental ‘spillover’ of advertising to young legal-age adults. By the standards established in the *Lockyer v. Reynolds* case, there is evidence of targeting of 18–20-year olds relative to 21–24-year olds with alcopops, beer, and spirits advertisers in each year from 2008 through 2011. We demonstrated that alternative advertising strategies could be created that maintain exposure of legal-age adults ages 21–24 while reducing exposure of underage viewers ages 18–20. As our study demonstrates, it appears that the principles expressed in *Locker v. Reynolds* regarding tobacco advertising in magazines also apply to the current state of alcohol advertising on cable television.

We have demonstrated that ages 18–20 exposure to alcohol advertising can be reduced while maintaining exposure to adults as young as ages 21–24. We are not suggesting that this narrow age group be the standard for comparison in all cases. In prior research we have shown similar results for other adult age groups, including adults ages 21–34.<sup>16</sup> The courts in the *Lockyer v. Reynolds* case considered different adult age groups as reference groups; ideally the comparison group should match the intended target for each brand. Our use of ages 21–24 as a comparison group was intended only to demonstrate the feasibility of reaching this narrow and young adult audience.

In its 2008 review of alcohol advertising, the FTC noted that audience composition estimates based on media surveys are subject to sampling error, or ‘bounce’, and that there are limits to which the data can be reliably applied.<sup>12</sup> Industries have been publishing performance standards for many years and using *guardbanding* techniques to achieve a published standard despite measurement uncertainty. A *guardband* is a more restrictive internal standard that is

used in the production of a product or service to account for measurement uncertainty and process variation, so that when the product or service is delivered it achieves a published specification. There is no reason why the alcohol industry could not use such a technique. Issues about measurement error and data reliability also came up in the appellate decision in the *Lockyer v. Reynolds* case. The appellate court concluded that the data are ‘generally used and relied on as accurate in the course of business’ and therefore are reliable. The Nielsen data used in this analysis are relied upon for the placement and evaluation of close to US\$1 billion in alcohol advertising on television each year and thus meet the appellate court’s criteria for reliability.

This study has been limited by its focus on television advertising. Television advertising represents only about 26 per cent of alcohol industry spending on advertising and promotion, and thus cannot generally be used to assess a company’s overall targeting of advertising and promotion.<sup>12</sup> Television is, however, the largest single component of advertising and promotion spending, and it is the only medium with complete underage audience measurements. The study has been strengthened by its use of a complete census of television advertising over a 7-year period.

Ages 18–24 are peak years for alcohol abuse and alcohol dependence.<sup>23–26</sup> Alcohol advertising has been associated with binge drinking independent of other risk factors including age, sex, study region, socioeconomic status, parenting characteristics, school performance, average TV screen time, rebelliousness and sensation-seeking, and parent and peer drinking.<sup>27</sup>

Given the ease with which broadcast, cable, satellite, and digital media transcend national borders, the potential problems are truly global. Several countries have recently implemented or are considering new restrictions on alcohol marketing activities on television and in digital and social media. Given that underage viewers ages 18–20 appear to be receiving a disproportionate amount of alcohol advertising in the United States, that alternatives exist to reduce this group’s exposure while reaching legal-age adults, and that this age group is one of the highest risk groups for abusing alcohol, we believe alcohol companies can do more to reduce youth exposure to this age group. Ongoing independent monitoring is needed around the globe to ensure that they do so.

## Biographies

Craig S. Ross, MBA, is the Principal at Virtual Media Resources, Inc., Natick, Massachusetts, USA and a doctoral candidate in Epidemiology at Boston University School of Public Health.

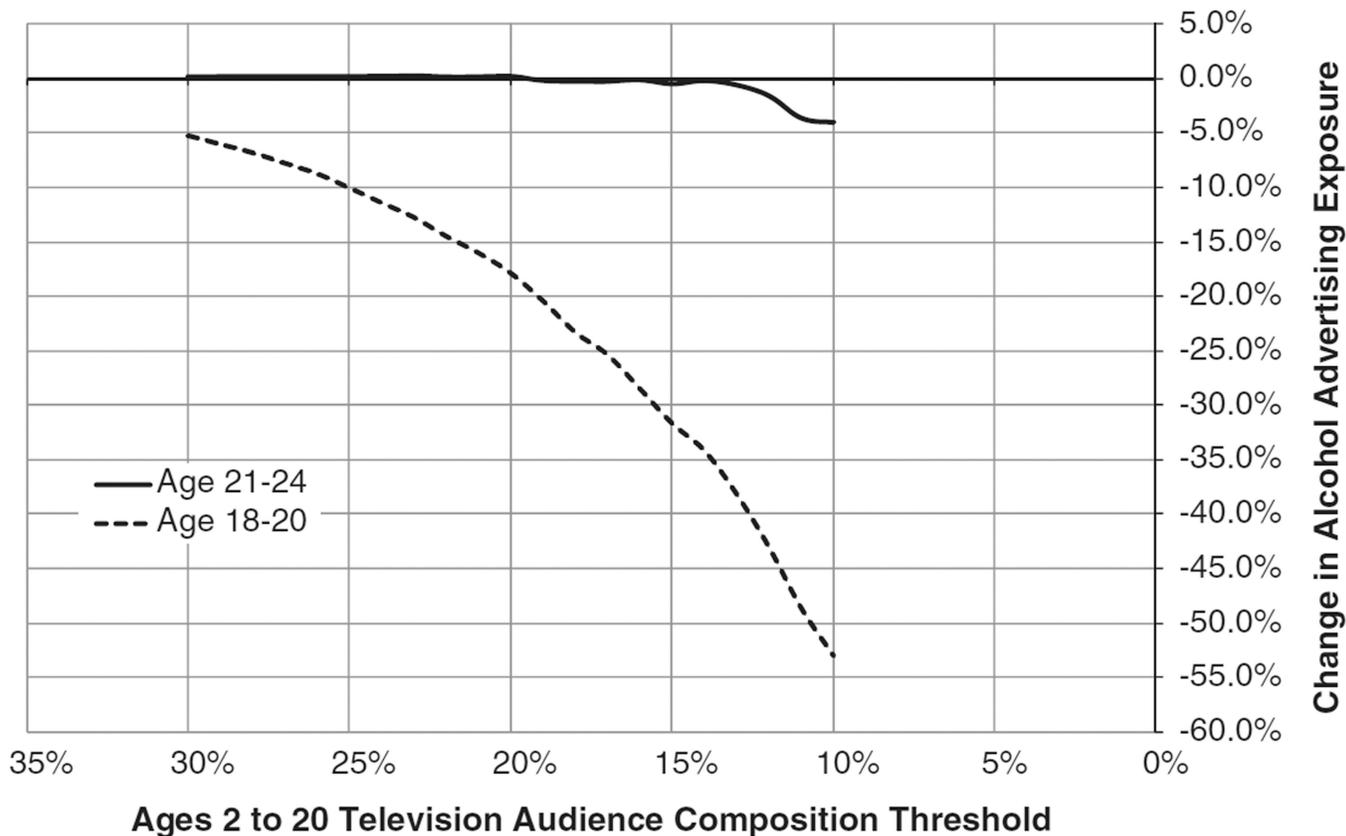
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**Figure 1.** Change in ages 21–24 exposure and ages 18–20 exposure at different underage composition thresholds, 2011.

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**Table 1**Per cent of underage<sup>a</sup> advertising exposure by age group on television, 2005–2011

Year	Percent of underage <sup>a</sup> impressions		
	Ages 2–11 (%)	Ages 12–17 (%)	Ages 18–20 (%)
2005	31.4	44.1	24.5
2006	31.9	43.3	24.8
2007	31.6	40.5	27.8
2008	31.5	40.8	27.6
2009	31.5	40.7	27.8
2010	33.1	40.0	26.9
2011	34.2	38.4	27.4

<sup>a</sup>Underage is ages 2–20. Note that ages 2–11 represent approximately 53 per cent of the underage television population, ages 12–17 represent 31 per cent, and ages 18–20 represent 16 per cent.

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**Table 2**  
Alcohol advertising exposure on network and cable television in the United States, 2005–2011

Year	<i>Exposure on network television (Gross rating points)</i>					
	<i>Ages 2–11</i>	<i>Ages 12–17</i>	<i>Ages 18–20</i>	<i>Ages 21–24</i>	<i>Ages 25–34</i>	<i>Ages 35 and older</i>
2005	3250	5016	5375	8691	11 241	13 829
2006	2747	4154	4479	6398	8822	11 152
2007	2417	3540	4650	6247	7740	10 189
2008	2474	3715	4778	6412	8027	10 275
2009	2813	4101	5467	7292	9538	12 435
2010	2730	3917	4660	6212	8287	10 933
2011	2377	3205	3927	5030	6806	8825
Growth <sup>a</sup>	-81	-191	-113	-368	-449	-472

Year	<i>Exposure on cable television (Gross rating points)</i>					
	<i>Ages 2–11</i>	<i>Ages 12–17</i>	<i>Ages 18–20</i>	<i>Ages 21–24</i>	<i>Ages 25–34</i>	<i>Ages 35 and older</i>
2005	7672	20 146	22 596	29 647	29 718	30 030
2006	7402	18 655	21 744	27 968	27 527	27 216
2007	8857	20 496	28 323	32 662	32 888	31 584
2008	9853	22 838	30 803	33 050	35 496	33 273
2009	10 511	24 860	33 249	34 901	37 353	35 190
2010	11 430	25 091	33 316	37 127	39 616	37 268
2011	11 258	22 996	32 482	35 901	38 810	36 197
Growth <sup>a</sup>	731	921	2062	1404	1997	1508

<sup>a</sup>Growth is the least squares estimate of a linear fit for the average change in exposure by year (GRPs per year).

Relative exposure<sup>a</sup> to alcohol advertising on cable television by alcoholic beverage type, 2005–2011

Table 3

Year	Alcopops			Beer		
	18–20/21–24	18–20/25–34	18–20/35+	18–20/21–24	18–20/25–34	18–20/35+
2005	0.78	0.85	1.00 <sup>b</sup>	0.72	0.70	0.69
2006	0.82	0.86	1.03 <sup>b</sup>	0.76	0.74	0.74
2007	0.84	0.90 <sup>b</sup>	1.22 <sup>b</sup>	0.87	0.84	0.91 <sup>b</sup>
2008	0.93 <sup>b</sup>	0.91 <sup>b</sup>	1.12 <sup>b</sup>	0.95 <sup>b</sup>	0.88	0.98 <sup>b</sup>
2009	0.95 <sup>b</sup>	0.94 <sup>b</sup>	1.17 <sup>b</sup>	0.95 <sup>b</sup>	0.88	0.97 <sup>b</sup>
2010	0.91 <sup>b</sup>	0.87	0.98 <sup>b</sup>	0.89 <sup>b</sup>	0.83	0.90 <sup>b</sup>
2011	0.92 <sup>b</sup>	0.84	0.95 <sup>b</sup>	0.89 <sup>b</sup>	0.82	0.87

Year	Distilled spirits			Wine		
	18–20/21–24	18–20/25–34	18–20/35+	18–20/21–24	18–20/25–34	18–20/35+
2005	0.83	0.87	0.93 <sup>b</sup>	0.71	0.59	0.36
2006	0.79	0.84	0.90 <sup>b</sup>	0.79	0.68	0.44
2007	0.88	0.91 <sup>b</sup>	0.95 <sup>b</sup>	0.55	0.50	0.34
2008	0.93 <sup>b</sup>	0.88	0.90 <sup>b</sup>	0.50	0.42	0.35
2009	0.97 <sup>b</sup>	0.92 <sup>b</sup>	0.94 <sup>b</sup>	1.07 <sup>b</sup>	0.83	0.57
2010	0.91 <sup>b</sup>	0.88	0.95 <sup>b</sup>	0.68	0.57	0.39
2011	0.93 <sup>b</sup>	0.87	0.99 <sup>b</sup>	0.52	0.46	0.40

<sup>a</sup>Relative exposure is measured in GRP ratios which are the ratio of per-capita exposure for underage viewers ages 18–20 over the per-capita exposure of legal-age adults ages 21–24, 25–34, and 35 and older.

<sup>b</sup>The GRP ratio exceeded 0.89 which was the minimum ratio reported as targeting in the *Lockyer v. Reynolds* trial case.

**Table 4**Adult and youth growth in brand<sup>a</sup> exposure and brand targeting<sup>b</sup> on cable television, 2005–2011

Brand	Linear trend exposure (GRPs per year)			Number of years targeting <sup>b</sup> 18–20
	Ages 18–20	Ages 21–24	Ages 18–20 > Ages 21–24?	
Jose Cuervo Tequilas	3.9	–2.0	Yes	6
Malibu Rums	2.8	–1.0	Yes	5
Mikes	91.0	90.7	Yes	5
Miller Lite	48.8	–59.9	Yes	5
Absolut Vodkas	–14.3	–28.7	Yes	4
Bacardi Rums	–189.5	–255.7	Yes	4
Budweiser Beer	42.2	22.7	Yes	4
Captain Morgan Rums	75.6	55.6	Yes	4
Coors Light	118.9	75.5	Yes	4
Corona Extra	–11.1	–35.4	Yes	4
Jack Daniels Whiskeys	27.2	19.3	Yes	4
Smirnoff Malt Beverages	–24.9	–43.8	Yes	3
Smirnoff Vodkas	30.3	13.6	Yes	3
Bud Light	390.4	400.5	No	2
Grey Goose Vodkas	76.8	80.3	No	2
Heineken	57.4	37.2	Yes	2
Baileys Irish Cream Liqueurs	–110.8	–145.6	Yes	1

<sup>a</sup>Seventeen of the 25 brands with the highest prevalence of consumption among underage drinkers that advertised on cable television each year from 2005 through 2011

<sup>b</sup>Evidence of targeting, based on the *Lockyer v. Reynolds* decision, is present when the ratio of ages 18–20 GRPs to ages 21–24 GRPs is 0.89 or higher.