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Vaporized - E-Cigarettes, Advertising, and Youth

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E-CIGARETTES, ADVERTISING, AND YOUTH



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E-CIGARETTES, ADVERTISING, AND YOUTH

MAY 2014



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EXECUTIVE SUMMARY

Electronic cigarettes (e-cigarettes) present a challenge for the public health community. On one hand, they hold the promise of greatly reducing the death and disease caused by traditional, combustible cigarettes. On the other hand, while they are much less harmful to individuals than using cigarettes, they are not without harm. It is important to note that these products may pose public health harms. They may encourage dual use of both cigarettes and e-cigarettes and thereby reduce quitting. They may also contribute to youth initiation by luring young people into trying them and then progressing to far more dangerous and addictive cigarettes. The recent rise of e-cigarette use among youth, the availability of e-cigarettes in kid-friendly flavors, and the entry of the major tobacco companies into the e-cigarette market have all raised additional concerns about these products and their appeal to young people.

At the present time, e-cigarettes are unregulated on the federal level. The U.S. Food and Drug Administration (FDA) has the authority to assert jurisdiction over e-cigarettes and has indicated its intent to do so. To date, however, no rule has been issued. While some states have restricted the sale of e-cigarettes to adults, no federal regulations prevent the sale and marketing of these products to minors.

Given concerns that e-cigarettes are being marketed to young people, Legacy recently commissioned two studies to expand the knowledge base regarding e-cigarette advertising and its impact on youth. The first study surveyed teenagers and young adults to learn more about their e-cigarette awareness, use, and advertising awareness. The second study analyzed e-cigarette media expenditure data to better understand whether and how e-cigarette advertising is reaching young people.

Together, these two studies paint a concerning picture. The first study found that the vast majority of teenagers and nearly all young adults are aware of e-cigarettes. A large number of young people have also used these products: 14% of 13- to 17-year-olds and 39% of 18- to 21-year-olds. Most young people report seeing e-cigarettes advertised with the highest awareness of ads in retail venues, followed by awareness of ads on television and online. This high level of awareness is not surprising given the advertising dollars being spent by the e-cigarette industry. Legacy's second study found that the industry spent \$39 million on advertising from June through November 2013, with the majority of ad dollars spent in magazines, followed by national TV ads. Lorillard Tobacco Company's blu brand spent far and away the most dollars on advertising—more than all other brands combined. The second study supports a key and disturbing finding from the first study: a significant majority of teenagers have been exposed to e-cigarette advertising. The blu brand dominated the field, with 73% of 12- to 17-year-olds exposed to blu's print and TV ads.

Despite the debate surrounding e-cigarettes, there is broad consensus that these products should not be sold or marketed to youth, with even the leading e-cigarette brands and manufacturers taking this position. These two studies demonstrate that e-cigarette advertising is currently reaching our young people, despite claims from some of the top brands, particularly blu, that they market only to adults.

Legacy hopes the FDA will carefully consider this new research. We believe these findings demonstrate a strong need for the agency to exert its jurisdiction over e-cigarettes that includes prohibiting these products from being sold and marketed to our nation's youth.

BACKGROUND

E-cigarettes pose both potential opportunities and risks to our nation's public health. Proponents claim these products provide smokers a much safer alternative to conventional cigarettes with the taste and feel of cigarettes without the deadly consequences, and thus show promise as an avenue to reduce tobacco-related death and disease.^{1,2,3,4,5} Critics express concern that these devices could pose unique public health harms.^{6,7} E-cigarettes could promote dual use by serving as an alternative product in places where smoking is prohibited. They could also lure young people into starting to use tobacco and lead to even more dangerous cigarette use. Accordingly, there is a vigorous debate about whether and how to regulate these relatively new tobacco products.

While some e-cigarettes look like traditional cigarettes, there is no tobacco smoke involved. Users inhale a mist created when a battery-powered heating element vaporizes a solution, which typically contains nicotine and flavoring.⁸ The level of claimed nicotine in the solution varies^{9,10,11,12} and most brands sell tobacco and menthol flavored cartridges,^{13,14,15} while some brands offer a range of other flavors including French Vanilla, Cherry Crush, and Watermelon Splash.^{16,17} These latter flavors are prohibited by federal law from being used in traditional cigarettes, because Congress found that they appeal to youth.^{18,19} Some argue that the use of such candy-like flavors in e-cigarettes is a marketing tactic to entice young people to start using these products.²⁰

One fact about e-cigarettes is undisputed: their popularity is exploding. Studies indicate a doubling of e-cigarette use from 2011 to 2012 among U.S. young adults ages 18-34,²¹ as well as among U.S. middle and high school students.²² A survey about American trends found that among "vices," such as alcohol and tobacco products, one of the only items to "trend up" from July 2012 to July 2013 was e-cigarettes. In 2013, 41% of teens and 61% of young adults reported that e-cigarettes were "in" or "on the way in." In contrast, the percentage of teens and young adults saying that traditional tobacco products such as cigarettes, cigars, and smokeless tobacco were "in" or "on the way in" declined from 2012 to 2013, as did the rates for alcohol and marijuana.²³

E-cigarettes are also becoming a big business. U.S. sales of these products, which debuted on the American market less than a decade ago, are estimated to surpass \$10 billion by 2017.²⁴ Spending on e-cigarette advertising has also risen sharply, increasing from \$5.6 million in 2010 to \$82.1 million in 2013, across all media channels.²⁵ Big Tobacco entered the e-cigarette market in 2012 when Lorillard, the manufacturer of Newport cigarettes, acquired the blu e-cigarette brand. The other two major U.S. tobacco companies followed, with Reynolds American (maker of Camel) launching its VUSE brand and the Altria Group (maker of Marlboro) debuting its MarkTen e-cigarette in select test markets in 2013 and national launches announced for some time in the second half of 2014. With the entry of these established tobacco companies into the marketplace, e-cigarette advertising is becoming more aggressive. Brands now use

celebrity endorsements, event sponsorships, and advertisements on cable television, print, and web media to promote their products.^{26,27,28} NJOY e-cigarettes ran television commercials during the 2013 and 2014 Super Bowls.²⁹ Some e-cigarette advertising imagery is reminiscent of 20th century cigarette ads, including cartoons and portrayals of rugged men and glamorous women,^{27,30} hearkening back to the heyday of Joe Camel and the Marlboro Man.

Unlike cigarettes and smokeless tobacco, which federal law prohibits from being sold or marketed to minors, e-cigarettes are currently unregulated on the federal level. The U.S. Food & Drug Administration (FDA) has the power to exert authority over these products and among other things, restrict their sale and marketing to youth. The agency has publicly stated that it intends to regulate e-cigarettes.³¹ When this paper went to press, however, it had yet to do so.

Despite the current debate over the public health effects of e-cigarettes, there is widespread support for restricting their sale to adults only. The three e-cigarette brands with the largest market share, blu, NJOY, and LOGIC,²⁹ have publicly taken the position that their products should not be sold to youth,^{29,32} claiming they market solely to adult smokers.^{29,32,33} Despite these assertions, rapidly increasing advertising budgets and increased youth e-cigarette use suggest that some e-cigarette advertising is very likely reaching young audiences.

To better understand e-cigarette advertising and its impact on young people, Legacy recently conducted two studies. The first study surveyed teenagers and young adults using an opt-in online panel to measure their use and awareness of e-cigarettes and e-cigarette advertising. The second study analyzed media expenditure data to estimate whether e-cigarette advertising is potentially reaching young people. Legacy hypothesized that, although some of the major e-cigarette companies state they are targeting adults, their ads are nevertheless reaching a large percentage of teenagers. Both data sets provided strong support for this theory.

USE AND AWARENESS AMONG TEENS & YOUNG ADULTS

To better understand e-cigarette awareness, use, and advertising awareness among youth, Legacy commissioned a study among an opt-in online panel of 13- to 21-year-olds in February 2014.ⁱ Current use of cigarettes and e-cigarettes was defined as use of these products within the last 30 days.³⁴ Ever use of cigarettes and e-cigarettes was defined as ever trying either product, even one puff.³⁴ Current and ever use of cigarettes refers to the use of traditional, tobacco cigarettes. Data was weighted to match national demographic estimates.

The study aimed to answer the following questions:

- 01 What is the level of **awareness of e-cigarettes** among 13- to 21-year-olds?
- 02 What are the rates of **ever and current use of e-cigarettes** among 13- to 21-year-olds?
- 03 What are the levels of **e-cigarette advertising awareness** across various channels among 13- to 21-year-olds?

ⁱ Research Now's online opt-in panels were surveyed for this study from February 13 through February 16, 2014. These panels are surveyed biweekly and are composed of a sample of 1,002 13- to 17-year-olds and 1,000 18- to 21-year-olds. One panel recruits users via social media, incentivizing those that join this panel and respond to surveys with virtual currency relevant to their social media user experience. The second panel uses a variety of panel enrollment sponsors who invite their database of loyalty members to enroll in the panel and take part in market research surveys, in return for which they receive e-Rewards currency that can be used to purchase a variety of items from enrollment sponsors (gift cards, magazine subscriptions, airline miles, etc.). Overall, there was a greater percentage of females than males, and the racial composition of the group was over 50% white, approximately 15% black, and about 10% Hispanic. More detailed demographic information is available in Appendix A.

USE AND AWARENESS AMONG TEENS AND YOUNG ADULTS — RESULTS

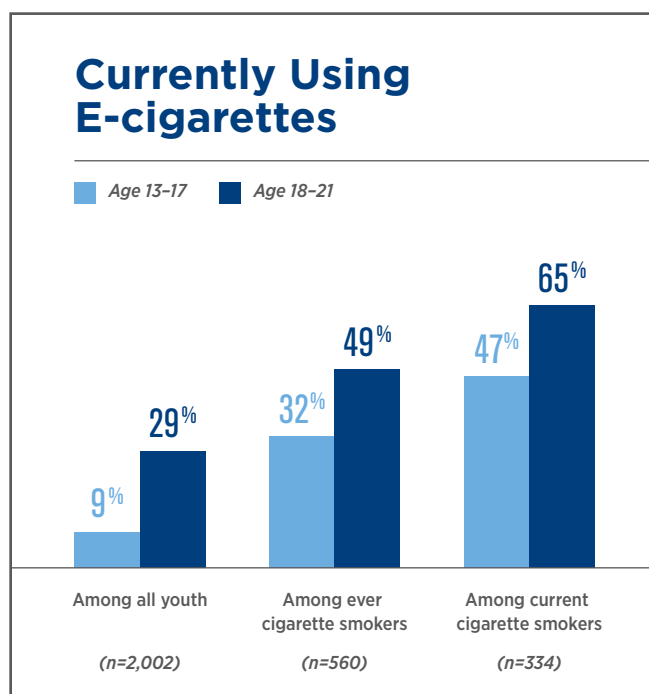
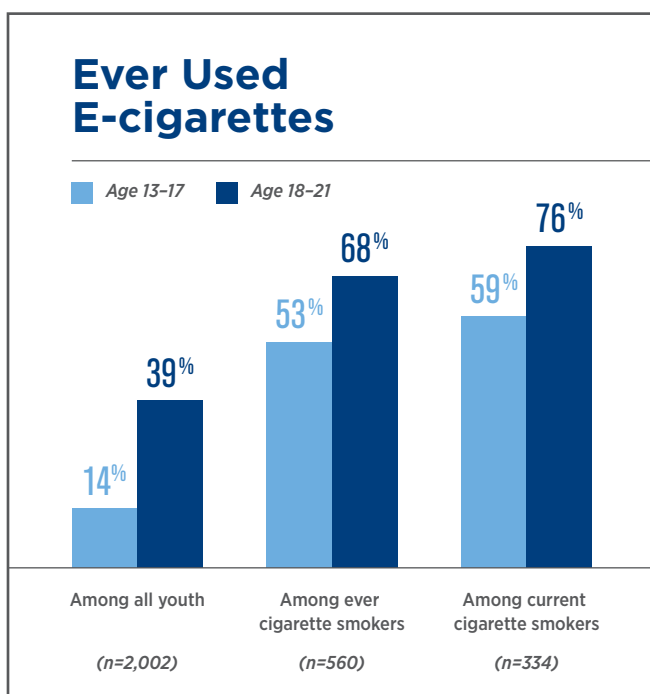
01 WHAT IS THE LEVEL OF AWARENESS OF E-CIGARETTES AMONG 13- TO 21-YEAR-OLDS?

Results indicate that awareness of e-cigarettes among young people is nearly ubiquitous, ranging from 89% for those ages 13-17 to 94% for young adults ages 18-21. Not surprisingly, among those ages 13-17, awareness was even higher among those who had either ever or currently used traditional cigarettes, at 95% and 96% respectively. A similar pattern was found for young adults ages 18-21, with 97% e-cigarette awareness among ever smokers and 98% awareness among current smokers. Analyses by race/ethnicity found that e-cigarette awareness was similar across racial/ethnic groups.

02 WHAT ARE THE RATES OF EVER AND CURRENT USE OF E-CIGARETTES AMONG 13- TO 21-YEAR-OLDS?

In addition to this extremely high awareness of e-cigarettes, ever use among these age groups is also high, with 14% of those ages 13-17 and 39% of those ages 18-21 reporting having ever used e-cigarettes. Among youth ages 12-17, those who had ever or currently smoked reported even higher rates of e-cigarette use, 53% and 59% respectively. Rates of e-cigarette ever use were higher among young adults who had ever smoked (68%) and current smokers (76%). Additional analyses by race/ethnicity indicate that ever and current use of e-cigarettes among 13- to 21-year-olds is highest among Hispanics.

Current e-cigarette use followed similar trends, with 9% of those ages 13-17 and 29% of those ages 18-21 saying they currently use e-cigarettes. Again, smokers were more likely to use e-cigarettes. Among 13- to 17-year-olds, 32% of ever smokers and 47% of current smokers were current e-cigarette users. Among young adults ages 18-21, 49% of ever smokers and 65% of current smokers were current e-cigarette users.



03 WHAT ARE THE LEVELS OF E-CIGARETTE ADVERTISING AWARENESS ACROSS VARIOUS CHANNELS AMONG 13- TO 21-YEAR-OLDS?

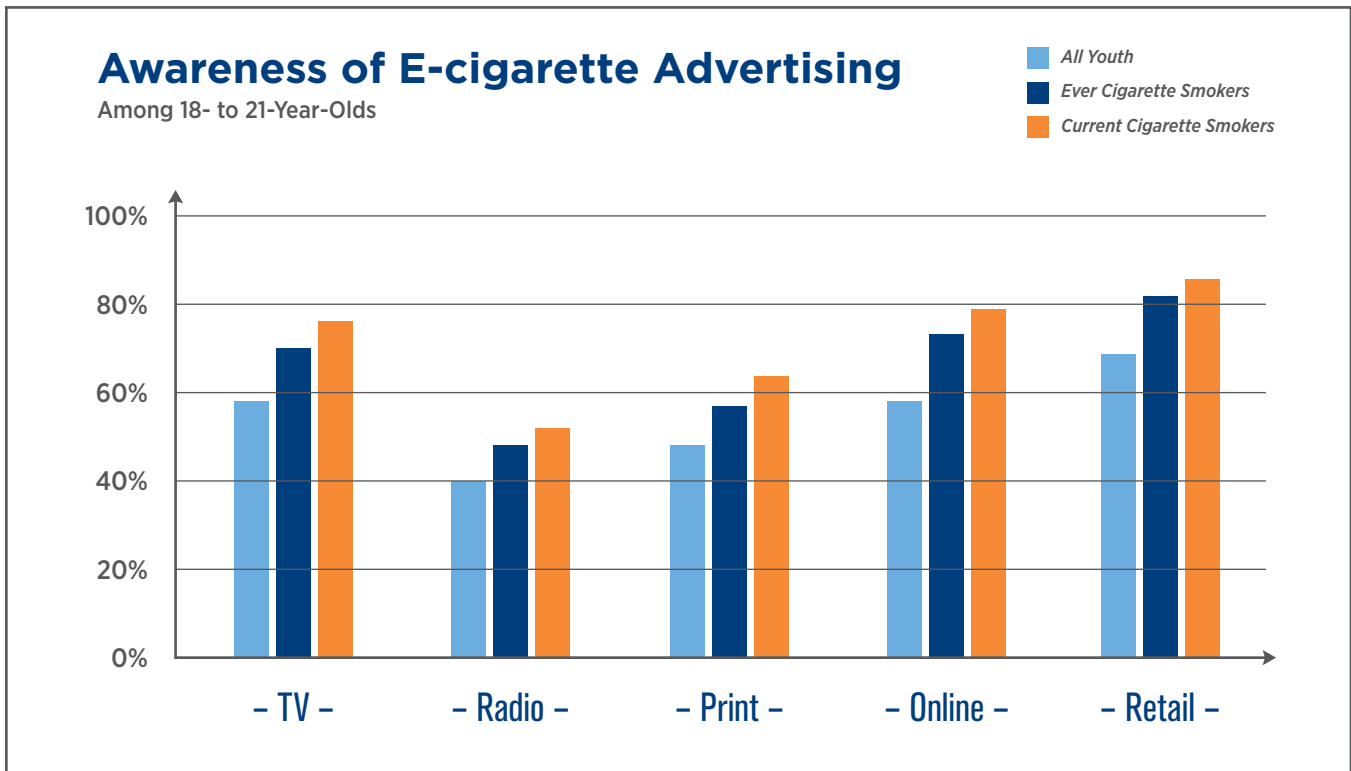
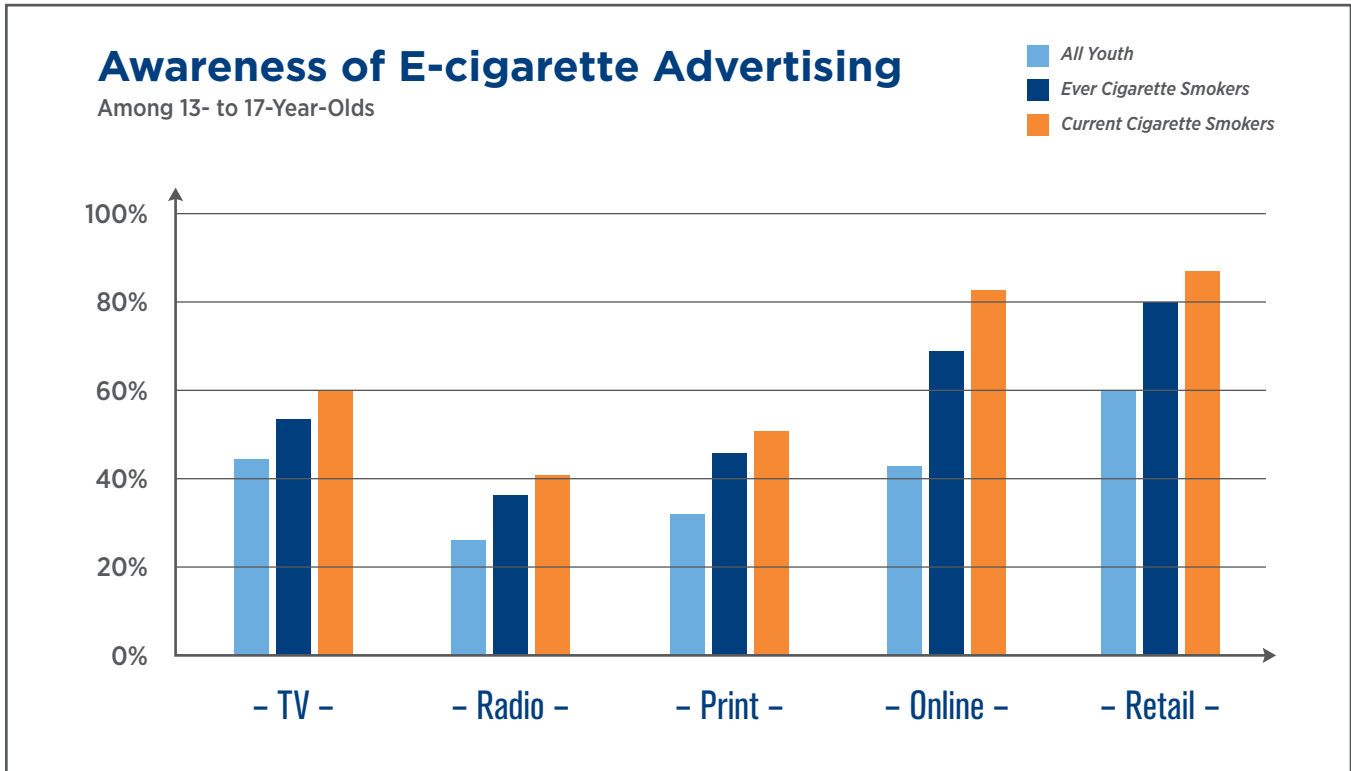
This study also examined awareness of e-cigarette advertising across most major channels—TV, radio, print, online, and retail—by asking respondents how often they see or hear e-cigarette ads through these different channels.

Results show that, among the major advertising channels, youth awareness of e-cigarette advertisements is highest at retail sites, with 60% of teens ages 13-17 and 69% of young adults ages 18-21 saying they always, most of the time, or some of the time see e-cigarette advertising at convenience stores, supermarkets, or gas stations. Young people also had high awareness of television and online e-cigarette advertising. A total of 45% of those ages 13-17 and 56% of those ages 18-21 said they saw e-cigarette advertising on TV always, most, or some of the time. Similarly, 43% of those ages 13-17 and 58% of those ages 18-21 said they saw e-cigarette advertising online always, most, or some of the time. E-cigarette advertisement awareness across each of these channels was even higher among ever and current cigarette smokers. Among racial/ethnic groups, Hispanics and Blacks had the highest e-cigarette advertising awareness across channels.

Limitations of this study include a limited ability to generalize results to the general population given the use of opt-in online panels. Based on past experience, such panelists tend to come from households with higher education and are more likely than others to be early adopters of new technologies.

Overall, awareness of e-cigarettes was nearly ubiquitous across both age groups surveyed. Ever and current use of e-cigarettes was high, with rates higher among young adults than teenagers and higher among ever and current smokers than youth overall. Across all channels and for both age groups, awareness of e-cigarette ads was also high, with the greatest awareness among current cigarette smokers, followed by ever cigarette smokers and youth overall. When analyzed by media channel, young people were most aware of e-cigarette advertising in the retail environment, followed closely by online and TV advertising.

USE AND AWARENESS AMONG TEENS AND YOUNG ADULTS — RESULTS



INDUSTRY ADVERTISING

Legacy conducted a second study to further understand if and how e-cigarette advertising is reaching young people.

Using the most recent data available, MediaCom Worldwide, Legacy's media partner, analyzed e-cigarette industry advertising expenditures and estimated audience exposure data for the 24 most popular brands (see Appendix B) over 6 months.ⁱⁱ Most data presented in this study are from June through November 2013, although some analyses required a longer time period for observing trends. Time frames are specified for each study aim.

The study aimed to answer the following questions:

- 01 In which **channels** did e-cigarette advertisers spend the most money?

- 02 Which **brands** spent the most money?

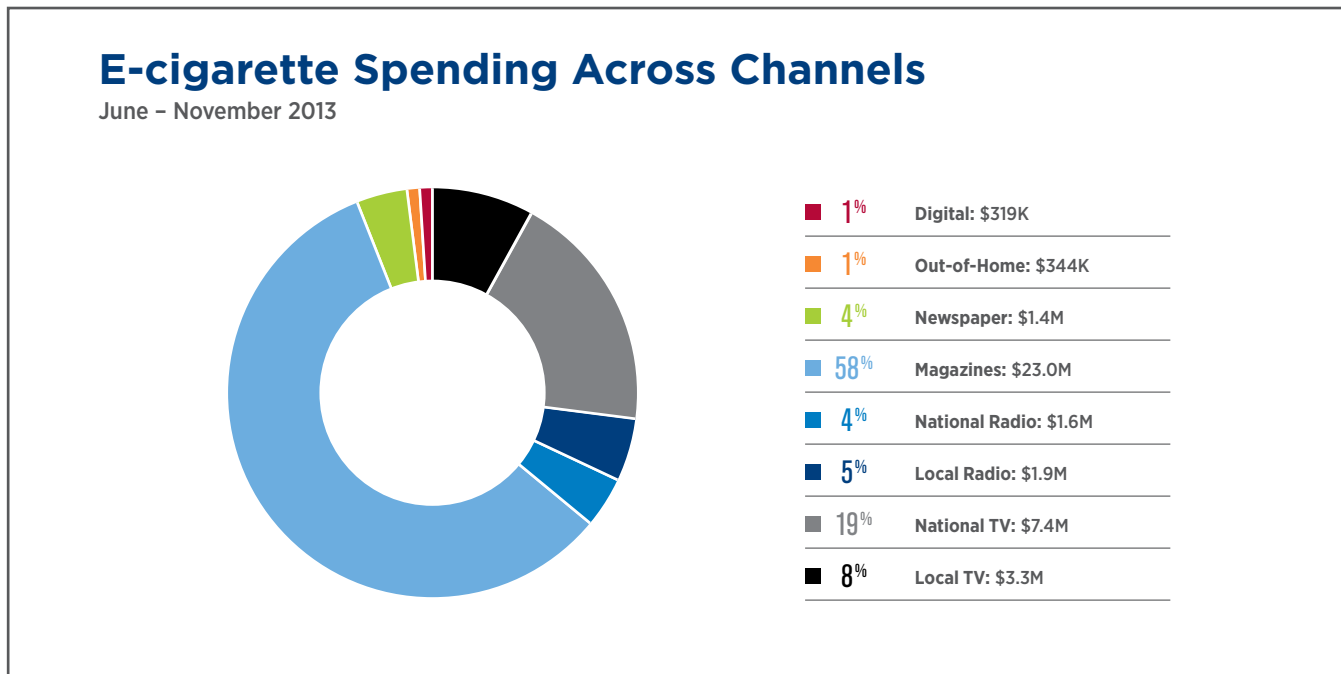
- 03 Were **teens and young adults exposed** to e-cigarette advertising during this timeframe?

- 04 Which **brands** would young people most likely see?

ⁱⁱ MediaCom analyzed spending by channel and brand as well as reach of advertising among youth. MediaCom obtained its data from the following sources: Kantar Media's Strategy research tool, a syndicated multi-media database that provides ad expenditure data across more than 20 different media, as well as occurrence data and creative viewing for certain media; and GfK MRI's Doublebase, TeenMark, and Admeasure survey products. Doublebase is comprised of four waves of surveys of adult consumers, TeenMark provides information about teenage consumers, and Admeasure provides ratings for magazine advertisements.

01 IN WHICH CHANNELS DID E-CIGARETTE ADVERTISERS SPEND THE MOST MONEY?

Overall, e-cigarette advertisers spent \$39 million from June through November 2013, with magazine and national TV accounting for more than three-quarters of dollars spent. Magazines made up the majority of the ad dollars spent (\$23 million; 58%) followed by national TV ads, which accounted for 19% of spending at \$7.4 million.²⁵



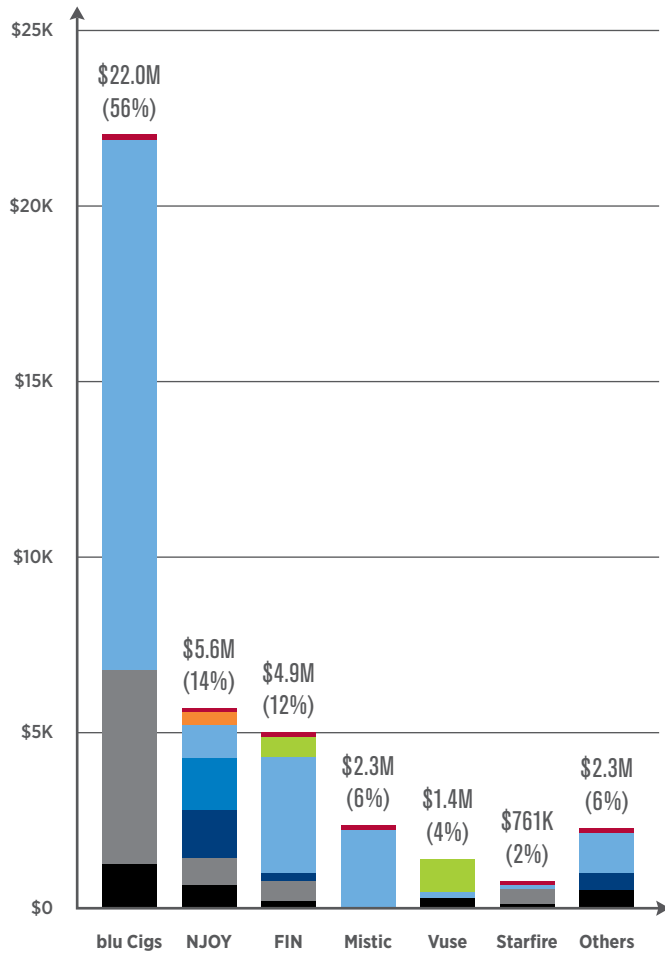
02 WHICH BRANDS SPENT THE MOST MONEY?

From June through November 2013, the blu, NJOY and FIN brands put the most money towards advertising, accounting for 86% of the overall category spend. blu spent \$22 million, followed by NJOY at \$5.6 million, and FIN at \$4.9 million. Mystic and VUSE were the next highest spenders at \$2.3 million and \$1.4 million, respectively. It is important to note that during the surveyed time period, VUSE was available only in Denver, Colorado as a test product. The brand’s advertising expenditures are expected to increase as it rolls out nationally in 2014.³⁵

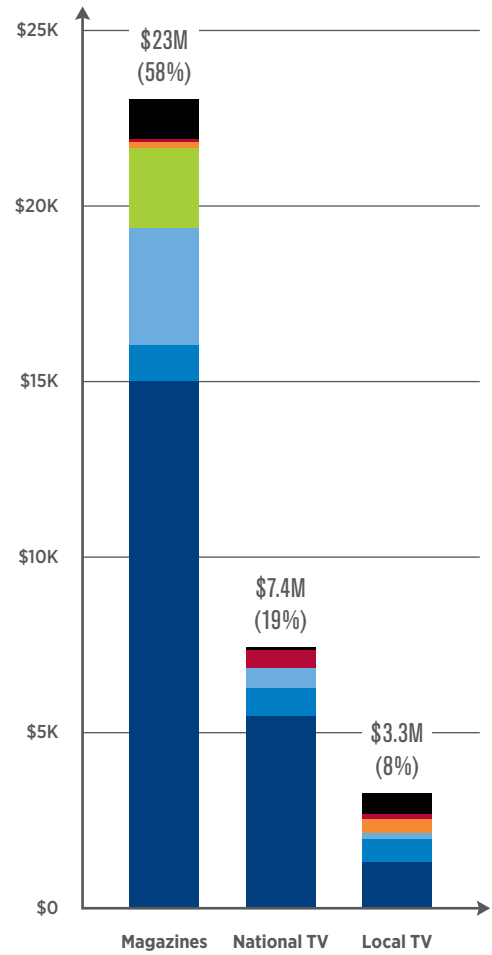
blu spent, far and away, the most money on paid e-cigarette advertising during this time, accounting for 56% of all e-cigarette ad spending—more than all other brands combined.²⁵ Additionally, blu was responsible for 65% of the total money spent in the top three media channels (magazines, national TV and local TV).²⁵ Allocating \$15 million to print advertising paid off in awareness for blu; according to Admeasure, 48.1% of respondents could recall a blu ad, the highest recall rate of all e-cigarette brands measured by the study.^{25,36} This is in comparison to a benchmark overall ad recall rate of 44.5% for all magazines in which blu ran ads.^{25,36}

E-cigarette Spending by Brand

Across Channels, June – November 2013



Across Magazines, National TV, and Local TV, June – November 2013



Local TV
 National TV
 Local Radio
 National Radio

Magazines
 Newspaper
 Out-of-Home
 Digital

blu Cigs
 NJOY
 FIN

Mistic
 Vuse
 Starfire
 Others

03 WERE TEENS AND YOUNG ADULTS EXPOSED TO E-CIGARETTE ADVERTISING DURING THIS TIMEFRAME?

MediaCom’s analysis found that both teens and young adults were heavily exposed to e-cigarette advertising, particularly television and print ads.

TV: E-cigarette TV ads reached 29.3 million teens and young adults from January through November 2013.³⁷ **Among teens ages 12-17, 58% or 14.1 million were exposed to e-cigarette ads on TV** while among

INDUSTRY ADVERTISING — RESULTS

young adults ages 18-24, 51% or 15.2 million were exposed. Ads ran on a broad range of networks including Comedy Central, USA, ABC Family, Bravo, E!, MTV, VH1, and Spike. Top programming where ads ran included a mix of mature cartoons such as *South Park* and *Futurama*, reality shows like *Bar Rescue* and *COPS*, and sitcoms like *The King of Queens*.

Print: Print ads in magazines reached 32.2 million teens and young adults from January through November 2013.³⁷ **Among teens ages 12-17, 39% or 9.5 million were reached through these ads** while 76% or 22.7 million young adults ages 18-24 were exposed to e-cigarette print ads. Based on the magazines tracked by Kantar Strategy, a total of 179 print insertions ran during this period; top magazines included tabloids like *Star* and *OK!*, weeklies like *Entertainment Weekly* and *US Weekly*, and men’s lifestyle titles like *Men’s Journal* and *Rolling Stone*.

E-cigarette advertising reach across TV and print among 12- to 17-year-olds		
	Number of individuals reached	Percent of population reached
TV	14.1 million	58%
Print	9.5 million	39%

E-cigarette advertising reach across TV and print among 18- to 24-year-olds		
	Number of individuals reached	Percent of population reached
TV	15.2 million	51%
Print	22.7 million	76%

04 WHICH BRANDS WOULD YOUNG PEOPLE MOST LIKELY SEE?

Between June and November 2013, teens and young adults were most likely to see ads from blu and FIN. Approximately 17.7 million or 73% of teens ages 12-17 were exposed to blu’s print and TV ads while 23% or 5.6 million teens in this age range were exposed to FIN’s print and TV ads. Among young adults ages 18-24, 25 million or 84% were exposed to blu print and TV ads while 17.3 million or 58% were exposed to FIN print and TV ads. NJOY reached fewer young people; during this time period, 3.2 million teens or 13% and 8 million young adults or 27% saw NJOY’s print and TV ads. This data suggests that the marketing strategy of NJOY is more focused on reaching an adult audience.

Limitations of our second study include reported expenditures can vary from actual spend by as much as 35% to 70%. Expenditures included in this study reflect published rate card rates. Since publisher costs are negotiated on an individual basis, the study is not able to account for the negotiated rates that each advertiser pays. However, this study’s reported gross rating points (GRPs), the measure used to estimate the number of individuals reached, is in line with overall trends. Another limitation is that certain categories of media spending—such as point-of-sale and certain types of digital advertising—were not captured by this study. Finally, this analysis does not consider the content or message of e-cigarette advertising across brands. There is evidence that some brands focus their message more responsibly on prompting smokers to quit combustible use.

CONCLUSION

These studies confirm that teens and young adults are heavily exposed to e-cigarette messaging. Thus, it is not surprising that young Americans are almost universally aware of e-cigarettes and that e-cigarette use is high, with rates higher among young adults and ever and current cigarette smokers.

To provide context for these findings, we compared e-cigarette awareness and use rates from our study to those from the most recent National Youth Tobacco Survey (NYTS), a national sample survey conducted in 2012. We found that our rates of awareness, ever use of e-cigarettes, and current use of e-cigarettes were consistently higher than what was reported in NYTS.³⁸ Since our study was conducted in 2014 and the NYTS was conducted in 2012, this difference may be partially accounted for by an actual increase in awareness. Other factors that could contribute to this difference include the way the question was asked (our study provided images of e-cigarettes, which may have increased reporting of use) and the sample (our study used an opt-in online panel, where participants tend to be from households who adopt technology earlier than the general population).

Additionally, according to our first study, e-cigarette advertising awareness was high across all channels, and highest in the retail environment, online, and on TV. In the analysis conducted by MediaCom, estimates of potential advertising exposure indicates that most teens would have seen a blu or FIN ad on TV or in a magazine. Although teens reported being more aware of e-cigarettes in a retail or online context, the MediaCom analysis did not include advertising within retail venues.

Of particular concern is the entry of major cigarette companies into the e-cigarette market. After finding success in test markets, VUSE and MarkTen, which are owned by Reynolds American and Altria, respectively, are unrolling national campaigns this year to promote their products. There is concern that their advertising will reach youth, especially given the findings in this survey that blu, an e-cigarette brand from Lorillard, a major tobacco company, is reaching millions of youth with its advertising. All of these companies have a long history of marketing their products to youth, while publicly denying doing so.³⁹

Overall, these research findings indicate that, despite their publicly stated intentions, some e-cigarette companies are reaching youth with their advertising. Moreover, the only national brand owned by a major tobacco company, blu, is reaching a significant portion of young Americans with its advertising. The effects of this are apparent, with nearly all young people aware of these products and use among young people rising rapidly.

Because the FDA has yet to assert jurisdiction over e-cigarettes, there is currently no federal regulation of the manufacturing, sale, or marketing of these products. Against this background, the FDA should assert its jurisdiction as soon as possible. In doing so, the FDA should bear in mind the potential public health benefits and harms that e-cigarettes may pose. Post-market surveillance is critical to ensure any FDA regulations effectively minimize the public health harms while maximizing the public health benefits of these products.

Despite the debate regarding the perils or promise of e-cigarettes, there is near unanimity around the notion that e-cigarettes should not be sold or marketed to those under the age of 18. A number of states have taken action to prevent the sale of these products to minors, but only federal regulation can ensure that all of our nation's youth are protected. We encourage the FDA to act swiftly to assert jurisdiction over e-cigarettes and to issue regulations regarding their manufacture and prohibiting their marketing and sale to youth.

APPENDIX

APPENDIX A:

DEMOGRAPHICS OF STUDY #1 PARTICIPANTS

	Unweighted %	Weighted %
Age - 13 to 17	50.05	50.00
Male	41.72	53.30
Female	58.28	46.70
White	54.79	66.48
Black	17.76	13.95
Hispanic	11.48	13.59
Other	15.97	5.99
Age - 18 to 21	49.95	50.00
Male	34.60	42.70
Female	65.40	57.30
White	60.80	69.93
Black	14.80	11.85
Hispanic	10.60	12.21
Other	13.80	6.01
Married	6.20	6.50
Living with Partner	10.80	11.06
Single, Never Married	81.20	80.58
Other	1.80	1.86
HS Graduate	70.80	71.42
College Graduate	18.80	18.47
Graduate School	3.20	3.07
Other	7.20	7.04
<\$25,000	30.90	31.66
\$25,000 to \$49,999	24.80	24.93
\$50,000 to \$74,999	20.40	20.37
\$75,000 to \$99,999	11.70	11.95
\$100,000 and above	12.20	11.09

APPENDIX B:

E-CIGARETTE BRANDS INCLUDED IN ANALYSIS

Blu	NJOY	Fin
MarkTen	Logic	Vuse
Vapor Shark	Starfire	Ploom
Vapor Zone	Apollo	Green Smoke
Smoke Away	Square 82	White Cloud
Volcano	V2Cigs	Cigirex
Zero Cig	Unique	American Blu Tip
Mistic	Ozone Smoke	Smoke Assist

FOOTNOTES

- ¹ Goniewicz ML, Knysak J, Gawron M, et al. Levels of selected carcinogens and toxicants in vapour from electronic cigarettes. *Tob Control*. Mar 2014;23(2):133-139.
- ² Bullen C, McRobbie H, Thornley S, Glover M, Lin R, Laugesen M. Effect of an electronic nicotine delivery device (e-cigarette) on desire to smoke and withdrawal, user preferences and nicotine delivery: Randomised cross-over trial. *Tob Control*. 2010;19(2):98-103.
- ³ Polosa R, Caponnetto P, Morjaria JB, Papale G, Campagna D, Russo C. Effect of an electronic nicotine delivery device (e-Cigarette) on smoking reduction and cessation: a prospective 6-month pilot study. *BMC Public Health*. 2011;11:786.
- ⁴ Caponnetto P, Campagna D, Cibella F, et al. Efficiency and Safety of an eLectronic cigAReTte (ECLAT) as tobacco cigarettes substitute: a prospective 12-month randomized control design study. *PLoS one*. 2013;8(6):e66317.
- ⁵ Bullen C, Howe C, Laugesen M, et al. Electronic cigarettes for smoking cessation: a randomised controlled trial. *Lancet*. Nov 16 2013;382(9905):1629-1637.
- ⁶ Benowitz NL, Goniewicz ML. The regulatory challenge of electronic cigarettes. *JAMA*. Aug 21 2013;310(7):685-686.
- ⁷ Etter JF, Bullen C, Flouris AD, Laugesen M, Eissenberg T. Electronic nicotine delivery systems: a research agenda. *Tob Control*. May 2011;20(3):243-248.
- ⁸ Kuchner WG, Reddy S, Mehrotra N, Paintal HS. Electronic cigarettes and thirdhand tobacco smoke: Two emerging health care challenges for the primary care provider. *International Journal of General Medicine*. 2011;4:11-120.
- ⁹ blu e-cigarette cartridges are sold in four nicotine levels: High (Approximately 13 - 16mg of nicotine), Medium (Approximately 9 - 12mg of nicotine), Low (Approximately 6 - 8mg of nicotine) and Non-nicotine (0mg). Unlike most of its rival brands, blu does not list nicotine levels in a percentage by volume. <http://www.blucigs.com/customer-service>. Accessed March 17, 2014.
- ¹⁰ NJOY e-cigarette cartridges are available in three nicotine levels: 0.6%, 1.2%, and 1.8%. <http://www.njoy.com/cartridge-refills/cartridge-refills.html>. Accessed March 17, 2014.
- ¹¹ Mistic e-cigarette cartridges are available in four nicotine levels: 0%, 1.2%, 1.8%, and 2.4% nicotine by volume. <http://www.misticcigs.com/faq/>. Accessed March 17, 2014.
- ¹² FIN e-cigarettes are available in three levels: 0.8% (mild), 1.6%, and 2.4% (bold). <http://www.fincigs.com/shop-now/cartomizer-refills.html>. Accessed March 17, 2014.
- ¹³ LOGIC e-cigarettes come in two flavors: Rich Tobacco and Menthol. <http://store.logicecig.com/faqs/#nine>. Accessed March 17, 2014.
- ¹⁴ NJOY e-cigarettes are available in Traditional and Menthol flavors. <http://www.njoy.com/cartridge-refills/cartridge-refills.html>. Accessed March 17, 2014.
- ¹⁵ FIN e-cigarettes come in Menthol and Tobacco flavors. <http://www.fincigs.com/shop-now/non-rechargeable-electronic-cigarettes.html>. Accessed March 17, 2014.
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FOOTNOTES

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