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Thank you for the opportunity to address this committee. I am Jennifer Harris, Director of Marketing Initiatives and Senior Research Scientist at the Rudd Center for Food Policy and Obesity at Yale University. I also have twenty years experience as a marketing executive and consultant. The Rudd Center seeks to improve the world's diet, prevent obesity, and reduce weight stigma by establishing creative connections between science and public policy, carrying out research that addresses key questions in nutrition policy, and serving as an information resource to leaders around the world on matters of food and nutrition. For the past five years, I have been conducting research to document the amount and impact of food marketing to children and teens and identify opportunities to reduce its harmful effects on children's diets and health.

In 2011, I led a team of researchers at the Rudd Center to evaluate the nutritional quality and marketing of sugary drinks, including energy drinks, to children and teens. Soda and fruit drinks were our primary concern when we started. Numerous research studies have shown that young people consume these products in large quantities, contributing to obesity and other diet-related diseases, such as type 2 diabetes and cardiovascular disease. However, as we gathered our data, we soon became alarmed by what we were learning about energy drink products – including energy drinks such as Red Bull and Monster Energy, and energy shots such as 5-Hour Energy – and how they are marketed. Key findings include:

- **Most energy drinks contain unhealthy levels of sugar, sodium, and caffeine for young people.**[1] Sugar and calories in energy drinks are comparable to sugar-sweetened sodas, but

[1] Harris JL, Schwartz MB, Brownell KD, et al. (2011). Sugary Drink FACTS: Evaluating fast food nutrition and marketing to youth. Retrieved from http://www.sugarydrinkfacts.org/resources/SugaryDrinkFACTS_Report.pdf.

sodium levels are three times as high. The median amount of caffeine in energy drinks is 80 mg per 8 ounces – comparable to one cup of coffee. However, energy drinks often come in large, non-resealable cans (that must be consumed at one time), which contain up to 325 mg of caffeine,[2] while energy shots contain as much as 280 mg of caffeine per 2.5-ounce bottle.[3] These amounts are six to seven times the caffeine in a can of cola.

- **Information about caffeine content and other ingredients in energy drinks can be difficult to find**.[4] Just over half of products fully disclosed caffeine and other ingredients on the labels. Even after repeated calls to company customer helplines, researchers were unable to obtain caffeine content for 46% of energy drinks, including 5-Hour Energy and Monster products.

- **Energy drink brands spent more on media advertising in 2010 than all other sugary drink brands except soda**.[5] Spending on media advertising for energy drinks and shots, including 5-Hour Energy, Red Bull, and Amp, totaled $165 million, an increase of 36% from 2008 and comparable to the $189 million spent on fruit juices.

- **Both children and teens often are often exposed to energy drink advertising on TV**. In 2010, all children (ages 6-11) in the United States viewed on average more than one energy drink advertisement per week.[6] They saw more ads for 5-Hour Energy than for any brand of sugary drink, except Capri Sun children's fruit drink. And teens (defined by advertisers as 12- to 17-year-olds) see even more. They viewed 124 energy drink ads on average in 2010 – more ads than any other drink category including soda, fruit drinks, and sports drinks.

- **While sales of most other categories of sugary drinks are decreasing, sales of energy drinks continue to grow**. From 2007 to 2012, gallon sales of energy drinks increased by 53%, compared with a decline of 9% for carbonated soft drinks.[7] In 2010, U.S. energy drink sales equaled approximately $20 per capita, surpassing sales of both sports and fruit drinks and approximately half of sugar-sweetened soda sales.[8] Total sales of energy drinks reached $6.9 billion in 2012, an increase of 19% over the previous year, and sales of energy shots increased by 9% to reach $1.1 billion.[9]

- **Despite risks and concerns about energy drink consumption by youth under age 18, teens appear to be an important target market for many energy drink brands.** Our research shows that many energy drink brands reach teens through targeted media and marketing messages that disproportionately appeal to this age group.[10]

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[2] Harris et al. (2011).
[3] SKEnergyShots.com
[4] Harris et al. (2011).
[5] *Ibid*.
[6] *Ibid.*
[7] Beverage World (2013, June 7). State of the Beverage Market. Webcast.
[8] Harris et al. (2011).
[9] BeverageIndustry.com. (2012, July 18). 2012 State of the Industry: Energy Drinks. Retrieved from www.bevindustry.com/articles/85655-consumers-seek-out-energy-boosts.
[10] Harris et al. (2011).

Targeted marketing of energy drinks to teens

Our research utilizes syndicated market research data (including Nielsen and comScore) and other publicly available information to measure where companies place their advertising, as well as age and other demographic information about individuals who see or hear this advertising. Advertisers use these same data to measure the effectiveness of their own campaigns and monitor those of their competitors. While our analysis did not include proprietary industry documents detailing companies' marketing strategies, our findings are comparable to results of a recent Congressional investigation.[11] Responses by fourteen energy drink companies confirmed that adolescents are frequent targets of their marketing efforts.

The following summarizes our findings on teen-targeted marketing by energy drink brands in 2010,[12] and Exhibit 1 provides examples of their marketing communications.

- **Energy drink ads frequently appeared on cable networks with more teen viewers than adults**, including Adult Swim (80-90% more teen viewers), MTV and MTV2 (88-199% more teen viewers), and Comedy Central (20-30% more teen viewers).[13] Overall, teens viewed 18% more TV ads for energy drinks than adults viewed, even though they spend 25% less time watching TV.[14]

- **Energy drink brands have been early adopters of social media marketing**, with a strong presence on Facebook, Twitter, and YouTube.[15] Red Bull had more than 20 million Facebook fans in 2011 and Monster had 11 million; Coca-Cola was the only sugary-drink brand with a larger fan base (31 million). Teens comprised 38% of unique visitors to Monster's Facebook page and 11% of Red Bull's visitors.[16] 5-Hour Energy and Red Bull tweeted more frequently than any other sugary drink brand: 42.1 and 32.5 times per week, respectively. Red Bull posted an astounding 447 videos to its YouTube channel in 2010 and received 158 million views by June 2011. Monster Energy's YouTube channel was also popular with 121 videos uploaded and almost 11 million views. Teens and even children under age 12 are frequent users of these social media.[17]

- **Energy drink brands offered popular smartphone applications and advertised on mobile websites.**[18] Red Bull offered 18 different smartphone apps, primarily games and

[11] Markey EJ, Durbin RJ, Blumenthal R. (2013). What's all the buzz about? A survey of popular energy drinks finds inconsistent labeling, questionable ingredients and targeted marketing to adolescents. Retrieved from clerk.house.gov/member_info/vacancies_pr.aspx?pr=house&vid=83
[12] Harris et al. (2011).
[13] Yale Rudd Center for Food Policy and Obesity (2012). Adolescent-targeted television advertising for energy drinks. Retrieved from yaleruddcenter.org/resources/upload/docs/what/advertising/TVAdvertising_EnergyDrinks_2010.pdf
[14] Harris et al. (2011).
[15] *Ibid*.
[16] Pomeranz, JL, Munsell CR, and Harris JL (2013).Energy drinks: an emerging public health hazard for youth. *J. PublicHealthPolicy, 34*, 254–271.
[17] Harris et al. (2011); Harris JL (2013). The new hidden persuaders: The digital world of food marketing to children and teens. In A Place at the Table, 106-P Pringle (Ed), 106-122, Public Affairs: NY.
[18] Harris et al. (2011).

music, and teens under 18 represented 25% to 41% of individuals who downloaded three of these apps. Amp was a frequent advertiser on mobile websites, including VH1 Mobile and MTV Mobile.

- **Energy drink brands were active sponsors of local events**, primarily music concerts and extreme sports, such as Monster Energy AMA Supercross, AMP World Extreme Cagefighting, and Red Bull rallycar jumping.[19] Monster Energy, Rockstar, Red Bull and Amp all aired advertising on local television to support their sponsorships, and sponsorships were featured prominently on company websites and YouTube videos. Of note, there are typically no age restrictions on who may attend these events and energy drink sponsors often provide free samples to spectators.

- **Messages on energy drink websites frequently targeted young males and often contained highly questionable messages**.[20] For example, MonsterEnergy.com included references to extreme sports, alcohol and drug use, and sexual objectification of women, and Rockstar69.com featured scantily clad women in sexually suggestive poses. RedBull.com focused on extreme sports and youth culture. MonsterEnergy.com had the most teen visitors (averaging 23,300 per month), followed by 5HourEnergy.com (13,200) and RedBull.com (11,800). Teens were 2.5 times more likely to visit MonsterEnergy.com than adults and 1.7 times more likely to visit Rockstar69.com.

- **Retail practices encourage impulse purchases and provide easy access for minors**. The majority of energy drinks (79%) are sold in convenience stores.[21] They typically are stocked in coolers together with sugary drinks or alcoholic beverages. This placement implies that these products are similar to sodas and other non-alcoholic beverages and may encourage their consumption with alcohol. Energy shots often are featured in free-standing displays near the checkout counter, and 79% of sales occurred in stores with special displays of these products.

Why energy drinks should not be marketed to teens

Increasing consumption of high-sugar energy drinks and potential effects on obesity and other diet-related diseases in young people is an obvious concern. However, concerns extend far beyond excess sugar consumption, as evidence of severe immediate adverse effects of energy drink consumption by minors grows. Emergency room visits involving energy drinks increased tenfold from 2005 to 2009, and 11% of ER visits related to energy drink consumption involved 12- to 17-year-olds, mostly due to energy drink intake alone.[22] The U.S. Food and Drug

[19] Harris et al. (2011).
[20] *Ibid.*
[21] *Ibid*.
[22] Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality (2011, November 22). The DAWN Report: Emergency Department Visits Involving Energy Drinks. Rockville, MD.

Administration (FDA) is investigating adverse effects related to the intake of energy drinks and shots, including deaths.[23]

The medical community and parents do not believe that children under 18 should consume these products.

- In 2008, 100 scientists and physicians wrote a letter to the FDA requesting increased regulation of energy drinks due to the risk of caffeine intoxication and alcohol-related injuries when consumed by youth.[24]

- The American Academy of Pediatrics (AAP) concluded in 2011 that "energy drinks have no place in the diet of children and adolescents" due to their "stimulant content."[25] An article in *Pediatrics in Review* counsels pediatricians to screen teenagers for energy drink use and provide appropriate counseling due to heavy energy drink consumption among some patients that can cause significant morbidity.[26]

- The American Medical Association (AMA) adopted a policy to support a ban on the marketing of energy drinks and shots to adolescents under age 18. According to an AMA board member, "Energy drinks contain massive and excessive amounts of caffeine that may lead to a host of health problems in young people, including heart problems, and banning companies from marketing these products to adolescents is a common sense action that we can take to protect the health of American kids."[27]

- The Institute of Medicine (IOM) will hold a two-day workshop next month to "examine cardiovascular and central nervous system (CNS) effects and other important health hazards of caffeine that may arise in at-risk populations consuming varied amounts of caffeine" including in dietary supplements or conventional foods, "alone or in combination with other substances in products commonly referred to as 'energy products.'"[28]

- The Rudd Center conducted a survey of 985 parents of children under age 18 in 2011.[29] The majority of parents agreed that energy drinks should not be marketed or sold to children and

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[23] Food and Drug Administration [FDA] (2012, November 16). Energy "drinks" and supplements: Investigations of adverse event reports. Retrieved from www.fda.gov/Food/NewsEvents/ucm328536.htm.
[24] Weise E (2008, October 22). Petition calls for FDA to regulate energy drinks. USA Today. Retrieved from Usatoday30.usatoday.com/news/health/2008-10-21-energy-drinks_N.htm.
[25] American Academy of Pediatrics [AAP]. (2011). Sports drinks and energy drinks for children and adolescents: Are they appropriate? *Pediatrics*, *127*(6), 1182-1189.
[26] Blankson KL, Thompson AM, Ahrendt DM, Patrick V (2013). Energy drinks: What teenagers (and their doctors) should know. *Pediatrics in Review*, *34*(2),55-62.
[27] American Medical Association [AMA]. (2013, June 18). AMA adopts new policies on second day of voting at annual meeting. Press release. Retrieved from www.ama-assn.org/ama/pub/news/news/2013/2013-06-18-new-ama-policies-annual-meeting.page
[28] Institite of Medicine, National Academies of Sciences (2013). Planning committee for a workshop on potential health hazards associated with consumption of caffeine in food and dietary supplements. www.iom.edu/Activities/Nutrition/PotentialHazardsCaffeineSupplements.aspx.
[29] Yale Rudd Center for Food Policy & Obesity. (2012) Parents' attitudes about energy drinks. Retrieved from www.yaleruddcenter.org/resources/upload/docs/what/policy/SSBtaxes/SSB_Parent_Attitudes_Energy_Drinks.pdf

adolescents (78% and 74%, respectively). In addition, 86% supported caffeine disclosures and 85% supported warnings on labels about potential adverse effects. Almost half of parents (48%) agreed that youth under 18 should not be allowed to consume energy drinks.

How energy drink companies have responded

Energy drink manufacturers and the American Beverage Association (ABA) have responded to the AAP, the Rudd Center, and others who have raised concerns about their products with statements such as "We do not market our products to children and other caffeine sensitive people" (Red Bull, June 2011)[30] or "Caffeine is safe for all ages and is among the most studied ingredients in the food supply today" (ABA, October 2011).[31] The ABA has produced guidelines for its members on the responsible labeling and marketing of energy drinks.[32] In its guidance document, the ABA encourages its members who produce and market energy drinks to disclose caffeine content and include a warning, "Not (intended/recommended) for children, pregnant or nursing women (and/or persons/those) sensitive to caffeine" on product labels. It also encourages members to not market energy drinks as sports drinks and not market them to children "as set forth in ABA's commitment to the Global Policy on Marketing to Children."

However, these statements fail to address most concerns about energy drink products and their marketing practices.

- **Not all energy drink companies belong to the ABA, and all products on the market do not abide by their guidelines.** Labeling across energy drinks is inconsistent,[33] and products labeled as supplements (including energy shots) are not subject to these requirements.[34] In Presently, Coca-Cola, PepsiCo, Dr Pepper Snapple Group, Red Bull, Monster, and Rockstar are ABA members.[35]

- **Most energy drinks contain caffeine in higher concentrations than has been determined to be safe.** In 1977, the FDA determined that caffeine is Generally Recognized as Safe (GRAS) for "cola-type beverages" in quantities up to .02% (71 mg per 12 ounces),[36] significantly less caffeine than contained in most energy drinks.[37] Caffeine's GRAS status was granted 40 years ago at a time when the food supply was very different, and energy drinks did not exist in the marketplace.

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[30] BeverageDaily.com (2011, June). Red Bull denies child marketing claims in new study. Retrieved from http://www.beveragedaily.com/Regulation-Safety/Red-Bull-denies-child-marketing-claims-in-new-study.
[31] American Beverage Association. (2011, October 31). Beverage Industry Responds to Latest Rudd Report. Press release. Retrieved from www.ameribev.org/files/news/253_ABA%20Responds%20to%20Rudd%20Report.pdf.
[32] American Beverage Association. ABA Guidance for the Responsible Labeling and Marketing of Energy Drinks. Retrieved from www.ameribev.org/files/339_Energy%20Drink%20Guidelines%20%28final%29.pdf
[33] Harris et al. (2011).
[34] Pomeranz et al. (2013).
[35] American Beverage Assocation. Active Members. Retrieved from www.ameribev.org/members/active-members/.
[36] Food and Drug Administration [FDA] (2003). Substances generally recognized as safe. Code of Federal Regulations. Title 21 volume 3, Sec. 182.1180. Retrieved from www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=182.1.
[37] Reissig CJ, Strain EC, and Griffiths RR. (2009). Caffeinated energy drinks – A growing problem. Drug and Alcohol Dependence, *99*(1–3), 1–10; Markey et al (2013).

- **Energy drinks often contain ingredients, such as guarana and taurine, which energy drink companies have self-determined to be safe**.[38] If an ingredient added to beverages has not been designated as GRAS by the FDAs, companies may self-determine its GRAS status, as long as the FDA is notified.[39] Further, beverages are not required to disclose the amount of these ingredients on product packages.

- **The ABA's policy on marketing to children does not address marketing to children 12 years and older**. The International Food & Beverage Alliance (IFBA) Global Policy on Marketing and Advertising to Children, to which the ABA guidance document refers, only limits advertising to children under 12 years old and commercial communication to students in primary schools.[40] IFBA defines advertising to children as "advertising to media audiences with a majority of children under 12 years." In effect, the only marketing guidance the ABA has provided its members is to encourage them not to advertise on children's television programs (e.g., Nickelodeon, Cartoon Network) or in elementary schools. These guidelines do not even cover children's websites (including Nickelodeon.com and CartoonNetwork.com)[41] or most food-company child-targeted websites (including HappyMeal.com and FrootLoops.com) because their audiences consist of 30% or fewer children under 12.[42] Further, marketing that occurs in non-measured media – including social media, mobile devices, local events and signage, retail displays and product packaging – are not covered by the IFBA policy.

- **Despite ABA guidelines, marketing for many energy drinks implies that they are appropriate for use in connection with sports**.[43] For example, companies commonly feature sports themes in advertising, sponsor sporting events and high school athletics, hire professional athletes as brand ambassadors, and explicitly encourage consumption during physical activity.[44] One Coca-Cola brand (NOS) recently introduced an energy drink sub-brand called "Active" which resembles a traditional sports drink in packaging and presentation.[45] Apparently many energy drink companies have chosen not to comply with the ABA's "encouragement" in this regard.

Recent developments in energy drink marketing to teens

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[38] Pomeranz, Munsell, & Harris (2013); Markey, Durbin, & Blumenthal (2013).
[39] Markey, Durbin, & Blumenthal (2013).
[40] International Food and Beverage Alliance. (2010). IFBA Global Policy on Marketing and Advertising to Children. Retrieved from www.ifballiance.org/sites/default/files/IFBA%20Global%20Policy%20on%20Marketing%20and%20Advertising%20to%20Children%20%28June%202010%29.pdf.
[41] Harris JL, Speers SE, Schwartz MB, Brownell KD. (2012). US food company branded advergames on the internet: Children's exposure and effects on snack consumption. *Journal of Children and Media*, *6*(1), 51-68.
[42] Ustjanauskas AE, Harris JL, Schwartz MB (2013). Food and beverage advertising on children's websites. *Pediatric Obesity*. [published online ahead of print]. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.2047-6310.2013.00185.x/pdf.
[43] Harris et al (2013); Markey, Durbin, & Blumenthal (2013).
[44] Red Bull. Q&A. Retrieved from http://energydrink.redbull.com/when-to-consume.
[45] NOS. Energy Drink Products. Retrieved from http://www.drinknos.com/products.do.

We recently updated our data on energy drink marketing practices from 2011 through early 2013 to evaluate how energy drink manufacturers' marketing practices have changed following increased attention to potential dangers of their products. Exhibit 2 (Rudd Report, *Energy Drink Marketing to Teens: 2010 to 2103*) details many of these findings.[46]

We found a few positive developments.

- **ABA-member energy drinks now disclose caffeine content on product labels.** Visits to convenience stores and other retail outlets indicate that all ABA companies also are compliant with the guideline to include warning labels on cans. However, the problem of inadequate disclosure and inconsistent labeling from non-ABA companies, including 5-Hour Energy and smaller energy drink brands, remains.

- **A few brands significantly reduced marketing in 2012**.[47] Two products, Venom (Dr Pepper Snapple Group), and Full Throttle (Coca-Cola), appear to have stopped most marketing practices observed in 2010. In addition, Amp (PepsiCo) reduced traditional advertising, although the brand remains active on social media.

However, we found significantly *more* cause for continued concern. Two new energy products have been introduced since 2010 that present significant risks for youth consumption.

- **Street King Energy** "was founded to fight childhood hunger, using the SK Energy Shots brand as a launch pad to unite the world's best athletes and performers and prove that energy, health, and philanthropy can exist in one amazing package."[48] SK Energy is promoted by sports figures, such as Erin Andrews (Fox Sportscaster) and pro football and basketball players. The company spent $6 million on advertising in 2012 and also maintains Facebook, Twitter, and YouTube pages. The product is touted as "a better source of energy" because it does not contain "controversial industry ingredients like taurine, guarana and ginseng" and because "We added in beneficial ingredients like antioxidants and Vitamins A, B6, B12, C and E." However, the product also contains a very high 280 mg of caffeine in one 2.5-oz shot and directly claims to help improve sports performance.

- Kraft Foods introduced **Mio Energy** "drops" as part of its Mio drink mix line to be added to other beverages.[49] The company spent $16 million to advertise in 2012. Consumers are instructed to use one "squirt" of Mio in 8 ounces of liquid. Although one drop contains a relatively small amount of caffeine (60 mg), each bottle contains 18 servings totaling 1,080 mg of caffeine, and consumers may purposely or inadvertently use more than one drop. The product also contains B vitamins, taurine, guarana, and ginseng. Further, Mio Energy is stocked in the drink mix aisle with non-caffeinated Mio products – together with Kool-Aid, lemonade, and iced tea mixes – creating the risk of consumer confusion and inadvertent caffeine intake.

[46] Rudd Report (2013). Energy drink marketing to teens: 2010 to 2013. Available at yaleruddcenter.org/energydrinks.
[47] *Ibid.*.
[48] SK Energy. Retrieved from www.skenergyshots.com.
[49] MiO Liquid Water Enhancer. MiO Energy. Retrieved from www.makeitmio.com/mio-energy.

Further, most leading energy drink manufacturers have not taken any actions to reduce teens' exposure to their marketing messages. On the contrary, they appear to have increased marketing in venues where young people are highly likely to view them.

- **Advertising spending on all energy drink brands combined totaled $282 million in 2012, an increase of 71% versus 2010 and 2.5 times 2008 spending.** [50] Three existing brands increased advertising spending in 2012 over 2010 levels. Spending on 5-Hour Energy reached $194 million, an increase of 82% versus 2010 and almost 4 times the amount spent in 2008. Red Bull spent $56 million, more than twice its spending in 2010. NOS spent significantly less than the others ($5.2 million), but this was twice the amount spent in 2010.

- **Teens' exposure to energy drink advertising on TV increased by 33% in 2012 compared with 2010**.[51] In addition to TV advertising for new products, teens viewed 8% more ads for 5-Hour Energy, twice as many ads for Red Bull, and three times as many NOS ads in 2012 than they had in 2010. Teens also saw 31% more ads for Red Bull than adults saw and 44% more ads for Street King. Examination of the networks where these ads appeared confirms that 5-Hour Energy, Red Bull, and Street King placed a high proportion of advertising on programs viewed significantly more often by teens than adults.

- **Some brands increased teen-targeted marketing on the internet**.[52] Average monthly teen visitors to 5HourEnergy.com and RedBull.com increased by 47% and 7%, respectively. Teen visitors to DrinkNOS.com increased 4.5-fold, and teens were 50% more likely to visit the site compared with adults. Three brands that had not used display advertising in 2010 began to advertise on other websites, including NOS, Monster, and Street King; Facebook was the most common site where these ads appeared. Although Full Throttle reduced display advertising in 2012, 27% of these ads were placed on youth-targeted websites.

- **But most energy drink brands shifted their internet marketing focus to social media,** evidenced by enormous growth in Facebook, Twitter, and YouTube reach across the board.[53] For example, the number of Facebook likes for Red Bull and Monster doubled to 39 million and 23 million, respectively. These two brands rank #5 and #12 in number of likes for corporate brands on Facebook.[54] Red Bull and Monster also have approximately 1 million followers on Twitter. Red Bull tweets 68 times per day and 53% of tweets are retweeted by its followers. These numbers are comparable to Twitter followers of Coca-Cola (1.2 million) and McDonald's and Subway (1.4 million each). Red Bull dominates corporate-sponsored videos on YouTube. Its videos have been viewed on YouTube 598.6 million times; this number does not include videos viewed on other websites. One Red Bull video, "Felix Baumgartner's supersonic freefall from 128k'," has been viewed 34.5 million times since it was posted in October 2012. The company posted 520 new videos to its YouTube channel from January to July 2013.

[50] Rudd Report (2013).
[51] *Ibid.*
[52] *Ibid.*
[53] *Ibid.*
[54] Fan Page List. Top Corporate Brands on Facebook. Retrieved from Fanpagelist.com/category/corporate_brands/.

- **Energy drink brands continued to be active sponsors of extreme sports and music events in many local markets**. Events with teenage athletes include Street League 2013 Skateboarding World Tour (Monster Energy), 27th Annual US Open Snowboarding Championships (Amp Energy), and Vans US Open Surfing and X Games (Red Bull). One Rockstar-sponsored event, Nautique WWA Wakeboard National Championships, has a junior competition for boys aged 9 and under.

- **Red Bull introduced eleven new smartphone apps since 2010.** One Red Bull game app (Kart Fighter) includes a parental advisory: "This game has cool stuff to purchase with your iTunes account." A new Rockstar app promoted its Mayhem Festival. 5-Hour Energy introduced one app that asks users to confirm that they are 17 before downloading.

Regulating energy drinks marketed and sold to youth

Recent developments in energy drink marketing practices clearly indicate that current industry self-regulatory guidelines are inadequate to protect teens from exposure to marketing of these potentially dangerous products. We support recommendations by Congressman Markey and Senators Durbin and Blumenthal that energy drink manufactures immediately take steps to provide additional information and warnings on product labels, report all serious adverse events to the U.S. Food and Drug Administration (FDA) (which is not currently required for products labeled as beverages), and cease marketing to teens under age 18.[55]

Effective self-regulation of energy drink marketing would require manufacturers to acknowledge that energy drink consumption by children under 18 is much more dangerous than consumption of soda. There are many options to substantially reduce energy drink marketing to teens, with minimal effects on brands' access to adult consumers.

- **Discontinue advertising in teen-targeted media**. At a minimum, energy drink manufacturers should not advertise in media with an audience of 30% or more children and teens (approximately 50% more youth viewers than the average television and internet audience) or with large audiences of children and teens. Alcohol industry self-regulation does not allow advertising in media with an audience comprising more than 30% minors under 21.[56] The National Research Council (NRC) and IOM,[57] and 19 state attorneys general[58] have recommended tighter regulatory standards for the alcohol industry, but these standards are significantly more restrictive than ABA guidelines that limit energy drink advertising only in media where the majority of the audience (i.e., >50%) is children under 12.

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[55] Markey, Durbin, & Blumenthal (2013).
[56] Federal Trade Commission [FTC] (2008). Marketing Food to Children and Adolescents. A Review of Industry Expenditures, Activities, and Self-Regulation. *A report to Congress*. Retrieved from www.ftc.gov.
[57] National Research Council [NRC] & Institute of Medicine [IOM]. (2004). *Reducing Underage Drinking: A Collective Responsibility*. R.J. Bonnie and M.E. O'Connell, eds. (Washington, DC: The National Academies Press.
[58] National Association of Attorneys General Youth Access to Alcohol Committee. (2006, May 8). RE: Alcohol reports: Paperwork comment RE: FTC file no. P064505. Washington, DC: Federal Trade Commission. Retrieved from http://www.ftc.gov/os/comments/alcoholmanufacadstudy/522852-01287.pdf

- **Discontinue other marketing practices that disproportionately appeal to children under 18.** For example, energy drink companies could block Facebook users under 18 from accessing energy drink pages. Cap'n Crunch currently does this, and alcohol manufactures do so for minors under 21. They could require age verification for visitors to energy drink websites and downloads of mobile apps. They also could cease sponsorship of athletic events that include teenage participants.

- **Comply with ABA guidelines to not market energy drinks as sports drinks,** including ABA members and non-members.

- **Agree to independent review of marketing practices**. The NRC and IOM have recommended establishing an independent review board to monitor alcohol marketing practices.[59] Independent review would verify that energy drink marketing does not encourage consumption of energy drinks by children under 18.

Given that effective limits on teen-targeted marketing of energy drinks would restrict a successful strategy for continued sales growth and conflict with companies' obligations to shareholders and private owners, government regulation may be required. My colleagues and I recently examined the regulatory structure for energy drinks in the United States and present a number of possible strategies to protect young consumers from these potentially dangerous products (see Exhibit 3).[60] Following is a summary of our recommendations.

- **Revise GRAS**. The FDA should reevaluate GRAS standards, add limitations on problematic ingredients in energy drinks, and take enforcement action against manufacturers that add unapproved ingredients.

- **Update labeling**. The FDA should update regulations for the Nutrition Facts Label. The update should include establishing daily reference values for caffeine and added sugar and disclosures of caffeine, added sugar, and novel ingredients (e.g., taurine, guarana) on all energy drinks and shots. In addition, FDA should mandate labeling for all energy products, requiring more explicit warnings on labels and compliance with the Nutrition Labeling and Education Act of 1990 (NLEA), and taking enforcement action against products mislabeled as dietary supplements.

- **Enforce marketing regulations**. The Federal Trade Commission (FTC) could take enforcement action against marketing of mislabeled products or products with false or deceptive claims.

- **Establish age limits.** The U.S. Congress, state or local governments could require age limits for purchase of energy products and establish excise taxes on products with sugar and/or caffeine.

[59] NRC & IOM (2004).
[60] Pomeranz, Munsell, & Harris (2013).

- **Establish sales restrictions**. State and local governments could restrict where energy products may be located in retail establishments (e.g., separated from other alcoholic and non-alcoholic beverages or behind the counter) and prohibit the sale of the most problematic products.

- **Enforce consumer protections**. Attorneys general also could take many of these actions under state consumer protection laws.

- **Establish monitoring of energy drink consumption** among youth to provide the public health community with the necessary tools to address this crisis. For example, the U.S. Centers for Disease Control and Prevention (CDC) could include consumption of energy drinks and shots in its Youth Risk Behavior Surveillance System[61] and obtain separate results for energy drink consumption in the National Health and Nutrition Examination Survey (NHANES).[62] Current NHANES questionnaires combine sports drinks and energy drinks in the "Energy drinks" category.

In conclusion

Energy drink products are dangerous for children and teens to consume, but many manufacturers continue to aggressively market these products to teens, and sales are growing rapidly. While the industry has initiated some modest improvements in product labeling, they have evaded the issue of marketing to teens and in fact seem to be increasing teen-targeted marketing. It is clear that the current self-regulatory efforts on the part of energy drink companies are insufficient. Unless such efforts are strengthened, federal, state, and local government efforts aimed at limiting the sales and marketing of energy drinks to children under 18 may be warranted. And such oversight would be supported by parents, the medical community, and others who advocate for children's health.

I thank the Committee for this opportunity to share our research and increase awareness of the dangers posed by continued aggressive marketing of energy drinks to children. I also would like to thank my colleagues at the Rudd Center and Berkeley Media Studies Group who conducted much of this research and the Robert Wood Johnson Foundation and the Rudd Foundation for their funding of our research.

[61] Centers for Disease Control and Prevention [CDC]. Adolescent and School Health: Youth Risk Behavior Surveillance System. Retrieved from www.cdc.gov/HealthyYouth/yrbs/index.htm.
[62] Centers for Disease Control and Prevention [CDC]. National Health and Nutrition Examination Survey. Retrieved from www.cdc.gov/nchs/nhanes.htm.

Exhibit 1

YALE RUDD CENTER
FOR FOOD POLICY & OBESITY

Energy drinks and shots: Current marketing practices

Prepared by Jennifer L. Harris, PhD, MBA
Director, Marketing Initiatives

July, 2013

5-Hour Energy (Innovation Ventures)

Marketing FACTS

Advertising spending (2012): $194.6 mill (+82% vs. 2010)

TV advertising (2012)

- Av'g ads viewed by children: 47
- Av's ads viewed by teens: 133 (+8% vs. 2010)
- Ads viewed by teens vs. adults: +2%

Internet advertising (2012)

- Av'g monthly teen website visitors: 19,400 (+47%)
- Teen composition index: 102

Social media (July, 2013)

- Facebook likes: 73,200 (+127% vs. 2011)
- Twitter followers: 6,400 (+327%)

TV ads

5HourEnergy.com

Red Bull (Red Bull GMBH)

Marketing FACTS

Advertising spending (2012): $56.1 mill (+116% vs. 2010)

TV advertising (2012)

- Av'g ads viewed by children: 11
- Av'g ads viewed by teens: 29 (+100% vs. 2010)
- Ads viewed by teens vs. adults: +31%

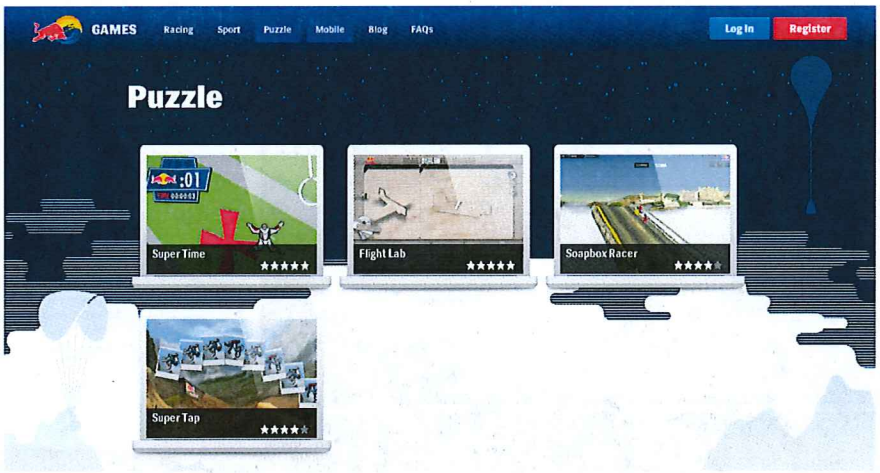
Internet advertising (2012)

- Av'g monthly teen website visitors: 12,600 (+7% vs. 2010)
- Teen composition index: 73
- Av'g monthly ads viewed on third-party websites: 65.1 mill (-86% vs. 2010; 28% on Facebook)

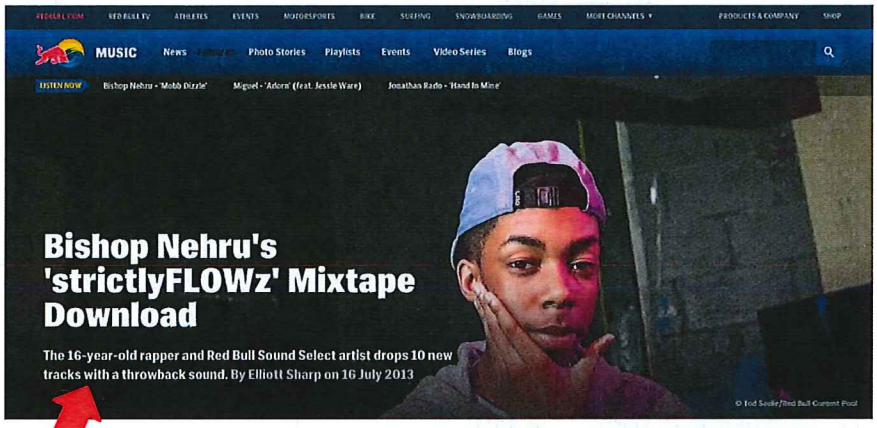
Social media (July, 2013)

- Facebook likes: 39.3 mill (+92% vs. 2011)
- Twitter followers: 1.1 mill (+385%)
- YouTube upload views: 598.6 mill (+278%)

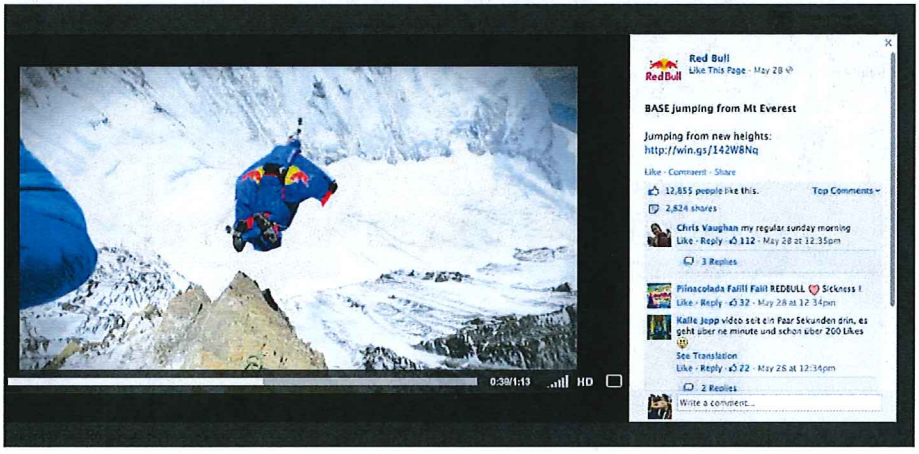
RedBull.com



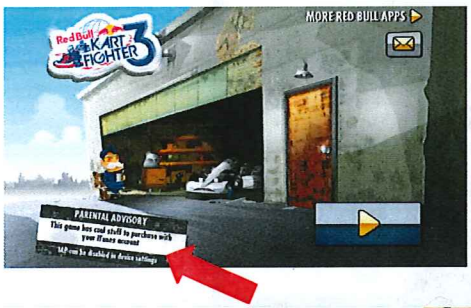
Sponsored events with teen artists and athletes



Facebook page (#5 most popular brand on Facebook)



iPhone applications



Monster Energy (Hansen Beverage)

Marketing FACTS

Advertising spending (2012): $0

Internet advertising (2012)

- Av'g monthly teen website visitors: 19,500 (-16%)
- Teen composition index: 107
- Av'g monthly ads viewed on 3rd-party websites: 1.9 mill (no 2010 ads; 37% on Facebook)

Social media (July, 2013)

- Facebook likes: 23.3 mill (+108% vs. 2011)
- Twitter followers: 758,000 (+904%)
- YouTube upload views: 53.7 mill (+398%)

About

Most companies spend their money on ad agencies, TV commercials, radio spots, and billboards to tell you how good their products are. Instead, we support the scene, our bands, our athletes and our fans!

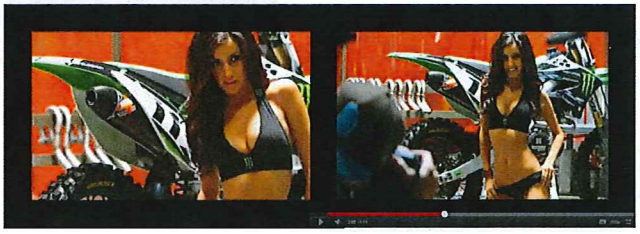
Mission

At Monster, all of our guys walk the walk in action sports, punk rock music, partying, hangin' with the girls, and living life on the edge. Monster is way more than an energy drink. Led by our athletes, musicians, employees, distributors and fans, Monster is a lifestyle in a can!

Company Overview

Most companies spend their money on ad agencies, TV commercials, radio spots, and billboards to tell you how good their products are. At Monster, we choose none of the above. Instead, we support the scene, our bands, our athletes and our fans. We back athletes so they can make a career out of their passion. We promote concert tours, so our favorite bands can visit your home town. We celebrate with our fans and riders by throwing parties and making the coolest events we can think of a reality.

Facebook (#12 brand) and YouTube



Mio Energy (Kraft Foods)

Marketing FACTS

Advertising spending (2012): $16.3 mill (new product)

TV advertising (2012)

- Av'g ads viewed by children: 6
- Av'g ads viewed by teens: 14.1
- Ads viewed by teens vs. adults: -28%

No Internet or social media advertising for Mio Energy alone

Street King (SK Energy Shots)

Marketing FACTS

Advertising spending (2012): $6.2 mill (new product)

TV advertising (2012)

- Av'g ads viewed by children: 2
- Av's ads viewed by teens: 8
- Ads viewed by teens vs. adults: +44%

Social media (July, 2013)

- Facebook likes: 524,000
- Twitter followers: 38,300
- YouTube upload views: 168,000

About

Voted #1 in Energy.
Used by the World's Best Athletes.

Mission

Create energy shot that's better for you and better for the world.

Company Overview

SK Energy Shots are a new breed of energy shots. SK is a better source of energy. We have beneficial ingredients like antioxidants and Vitamins A, B6, B12, C and E and 100% natural flavors. And we left out common, controversial ingredients like taurine, guarana and ginseng. SK is a smooth rush of energy that tastes great and really works. SK is for performers, those that care about working harder and smarter, and beating the competition. We promise energy that gives them the boost they need to be their best. And the best part? SK gives back, and we're on a mission to fight hunger and poverty. Make the switch to a better source of energy today.

Description

SK is a better source of energy.

What we put in: We added in beneficial ingredients like antioxidants and Vitamins A, B6, B12, C and E. Made with 100% natural flavors and no artificial flavors, sugar, carbs or calories.

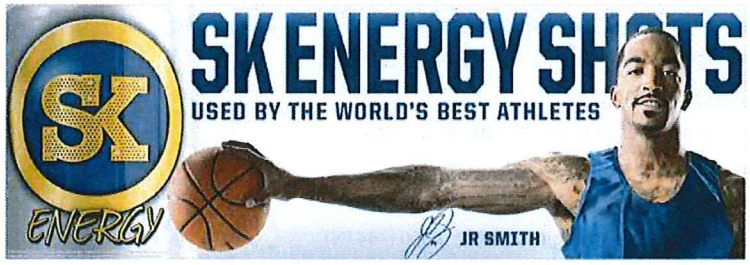
What we left out: We left out common, controversial industry ingredients like taurine, guarana and ginseng. And we have no sugars or calories, so you never feel the jitters or crash.

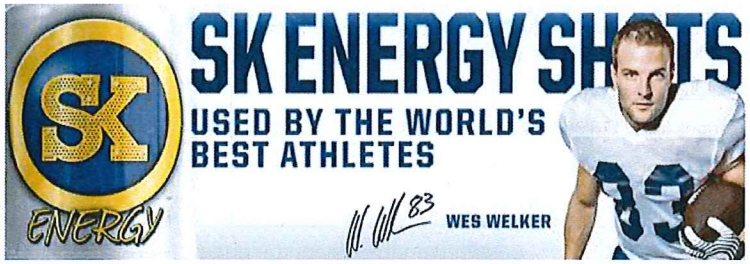
Best taste: Preferred in 9 out of 10 taste tests, available in 100% natural Berry, Grape and Orange flavors.

SK gives back: Every energy shot sold provides a meal to a hungry child through the United Nations World Food Programme (WFP).

LEGALESE: www.skenergyshots.com/facebookterms

Athlete endorsements





Facebook page

NOS (Coca-Cola)

Marketing FACTS

Advertising spending (2012): $5.2 mill (+185% vs. 2010)

TV advertising (2012)

- Av'g ads viewed by teens: 1 (+200% vs. 2010)
- Ads viewed by teens vs. adults: -58%

Internet advertising (2012)

- Av'g monthly teen website visitors: 9,300 (+447%)
- Teen composition index: 154
- Av'g monthly ads viewed on third-party websites: 16.9 mill (no 2010 ads; 60% on Facebook)

Social media (July, 2013)

- Facebook likes: 176,300 (+204% vs. 2011)
- Twitter followers: 5,500 (no 2010 acct)
- YouTube upload views: 3.0 mill (+331%)

DrinkNOS.com

Rockstar (Rockstar)

Marketing FACTS

Advertising spending (2012): $0

Internet advertising (2012)

- Av'g monthly teen website visitors: 3,200 (-37%)
- Teen composition index: 95

Social media (July, 2013)

- Facebook likes: 2.0 mill (+114% vs. 2011)
- Twitter followers: 114,300 (+539%)
- YouTube upload views: 4.9 mill (no 2011 channel)

Facebook page

Facebook page

Amp (PepsiCo)

Marketing FACTS

Advertising spending (2012): $1.4 mill (-90% vs. 2010)

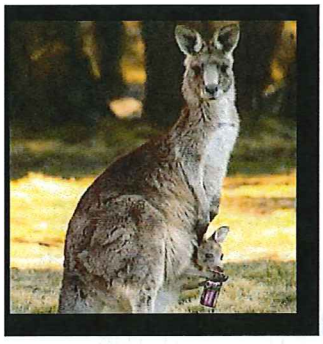
Internet advertising (2012)

- Av'g monthly ads viewed on third-party websites: 2.5 mill (-99% vs. 2010; 74% on Facebook)

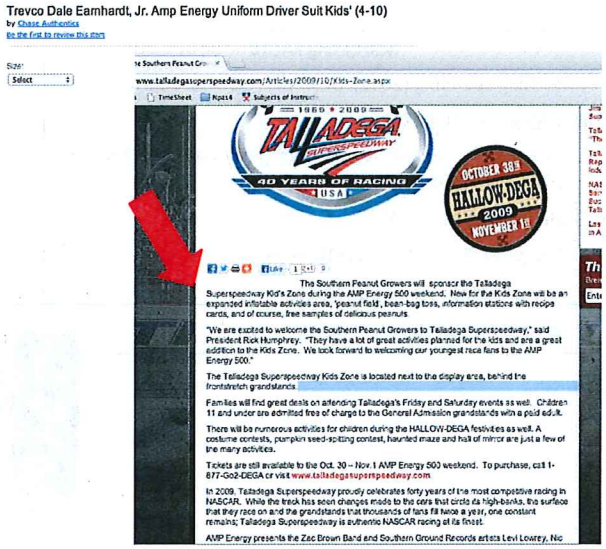
Social media (July, 2013)

- Facebook likes: 543,800 (+160% vs. 2011)
- Twitter followers: 15,500 (+96%)
- YouTube upload views: 904,000 (+173%)

Facebook page



Nascar sponsor



References

For additional information and description of methods see:

Harris, Schwartz, Brownell, et al. (2011). Sugary Drink FACTS: Evaluating sugary drink marketing to youth. Available at www.sugarydrinkfacts.org

Rudd Center (2013). Update on energy drink marketing to teens: 2010 to 2013. Available at yaleruddcenter.org/energydrinks

YALE RUDD CENTER
FOR FOOD POLICY & OBESITY

ENERGY DRINK MARKETING TO TEENS: 2010 TO 2013

July 29, 2013

In 2011, researchers at the Rudd Center for Food Policy & Obesity conducted a comprehensive analysis of beverage marketing, *Sugary Drink FACTS: Evaluating Sugary Drink Nutrition and Marketing to Youth*.[1] That study identified significant amounts of energy drink marketing targeted to teens (ages 12-17). Due to recent evidence of substantial health hazards for teens who consume energy drinks,[2,3] the American Medical Association adopted a policy to support a ban on marketing of high stimulant/caffeine drinks to adolescents under age 18.[4] This report examines data on energy drink marketing to teens in 2012 and early 2013[5] and compares them to findings from the 2011 report to determine whether companies have changed their marketing practices in light of these concerns.

Advertising spending in all media

Advertising spending on all energy drink brands totaled $281.8 million in 2012, an increase of 71% versus 2010 and 2.5 times 2008 spending. Three existing brands increased spending – 5-Hour Energy, Red Bull, and NOS – and two new brands advertised in 2012. Kraft Foods introduced Mio Energy "drops" as part of its Mio drink mix line to be added to other beverages.[6] Although one drop contains a relatively small amount of caffeine (60 mg), each bottle contains 18 servings totaling 1,080 mg of caffeine. Another new product, Street King Energy, is touted as "a better source of energy," but contains a very high 280 mg of caffeine in one 2.5-oz shot.[7]

Advertising spending by energy drink brands: 2008 to 2012

		Advertising spending ($000)			% change
Company	**Brand**	**2008**	**2010**	**2012 (% TV)**	**2010-2012**
Innovation Ventures	5-Hour Energy (shots)	$51,545	$107,010	$194,620 (96%)	+82%
Red Bull GMBH	Red Bull	$41,719	$25,974	$56,086 (94%)	+116%
Kraft Foods	Mio Energy (drink mix)	--	--	$16,347 (99%)	New product
Street King LLC	Street King	--	--	$6,239 (99%)	New product
Coca-Cola	NOS	$79	$1,828	$5,218 (99%)	+185%
PepsiCo	Amp	$18,882	$13,608	$1,389 (0%)	-90%

Source: Nielsen, 2013

Other brands with less than $1 million in TV advertising in 2012 include: Zipfizz (Enfission Inc., $603k); Full Throttle (Coca-Cola Co, $588k), Hydrive (Inov8 Beverage Co, $434k); Monster (Hansen Beverage Co, $158k); Rockstar (Rockstar Inc, $56k); RevHoney (RevHoney Inc, $45k); and Turbo Power Energy (Biorite Nutritionals, $10k).

Advertising on television

Teens' total exposure to energy drink advertising on TV increased by 33% in 2012 compared with 2010. In addition to advertising for new products, teens viewed more ads for 5-Hour Energy, Red Bull, and NOS in 2012 than they had in 2010. Teens also saw 31% more ads for Red Bull than adults saw, 44% more ads for Street King, and approximately the same number of 5-Hour Energy ads, even though teens watch 25% less television than adults do.

Teen exposure to TV advertising for energy drink brands: 2008 to 2012					
	Avg # ads viewed by teens (12-17 years)			% change	Teen:adult[8] ratio
Brand	**2008**	**2010**	**2012**	**2010-2012**	**2012**
5-Hour Energy	60.3	104.6	113.2	+8%	1.02
Red Bull	22.5	14.5	29.0	+100%	1.31
Mio Energy	--	--	14.1	New product	.72
Street King	--	--	7.7	New product	1.44
NOS/Full Throttle	--	0.2	0.6	+200%	.42

Source: Nielsen, 2013

Children's (ages 2-11) total exposure to TV ads also increased in 2012 versus 2010. Children saw on average 47 ads for 5-Hour Energy, 11 ads for Red Bull, 6 ads for Mio Energy, and 2 ads for Street King.

Examination of the networks where energy drink ads appeared confirms that 5-Hour Energy, Red Bull, and Street King continued to place a high proportion of advertising on programs viewed by most by teens, including Adult Swim, MTV, and MTV2.

Youth exposure to TV advertising for energy drink brands by distributor in 2012[9]					
		Ads viewed			
Brand	**Distributor[10]**	**2-11 years**	**12-14 years**	**15-17 years**	**Teen:adult ratio[11]**
5-Hour Energy	Total	45.9	104.6	121.5	1.02
	Adult Swim	13.5	33.6	31.6	2.33
	MTV	2.3	11.4	14.3	2.04
	20th Television (syndicated)	5.2	11.3	13.1	1.10
	Comedy Central	1.5	7.8	11.9	1.20
	MTV2	0.9	4.0	5.2	2.26
	Spike	2.2	3.7	4.8	0.73
	BET	1.6	3.3	4.0	1.23
	TBS	1.2	2.8	3.7	0.72
	ESPN	1.4	2.2	3.6	0.51
	Warner Brothers (syndicated)	1.7	3.0	3.3	0.67
	NBC	0.8	1.1	2.3	0.40
	History Channel	1.1	1.9	2.2	0.56
	FX	0.7	1.4	1.9	0.76
	TRU	0.9	1.8	1.8	0.81
	USA	1.4	2.1	1.7	0.90
	NBC Universal (syndicated)	0.8	1.3	1.6	0.51
	ESPN2	0.6	0.8	1.4	0.37
Red Bull	Total	10.6	26.4	31.1	1.31
	20th Television (syndicated)	2.8	6.0	6.1	1.36
	Adult Swim	2.6	6.0	5.4	2.39

	MTV	0.7	3.8	4.9	1.93
	MTV2	0.5	2.0	3.3	2.14
	TBS	0.7	1.9	2.6	0.93
	Comedy Central	0.3	1.2	1.8	1.18
	ESPN	0.5	0.8	1.3	0.58
Mio Energy	Total	6.2	12.2	15.9	0.72
	FX	0.6	1.1	1.7	0.84
	MTV	0.3	1.1	1.5	1.12
	Spike	0.6	1.0	1.5	0.69
Street King	Total	1.8	6.8	8.5	1.44
	MTV	0.6	2.4	2.8	2.02
	Comedy Central	0.2	1.5	2.2	1.34
	MTV2	0.2	1.0	1.2	2.44

Source: Nielsen, 2013

Advertising on the internet

Average monthly teen visitors to 5HourEnergy.com, RedBull.com, and DrinkNOS.com increased from 2010 to 2012, while teen visitors to MonsterEnergy.com and Rockstar.com declined. Teens were 50% more likely to visit DrinkNOS.com compared with adults and also more likely to visit MonsterEnergy.com and 5HourEnergy.com.

Teen visitors to energy drink websites: 2010 to 2012

		Avg # unique visitors per month (12-17 years)			
Company	**Website**	**2010**	**2012**	**% change 2010-2012**	**Composition index: Teens**
Hansen Beverage Co.	MonsterEnergy.com	23.3	19.5	-16%	107
Innovation Ventures	5HourEnergy.com	13.2	19.4	+47%	102
Red Bull GMBH	RedBull.com	11.8	12.6	+7%	73
Coca-Cola Co	DrinkNOS.com	1.7	9.3	+447%	154
Rockstar	Rockstar69.com	5.1	3.2	-37%	95

Source: comScore, 2013

Numbers of children (2-11 years) visiting these websites were low, averaging 1,200 unique child visitors per month (to MonsterEnergy.com) or less. RedBull.com had the highest number of average monthly visits per visitor (1.4), while MonsterEnergy.com had the highest average minutes per visit (4.8).

Three brands that had not used display advertising in 2010 began to advertise on other websites: NOS, Monster, and Street King. However, all brands that had advertised on third-party websites in 2010 reduced their display advertising, and Venom eliminated internet advertising altogether. Although Full Throttle reduced display advertising in 2012, 27% of these ads were placed on youth-targeted websites.

Display advertising for energy drink brands on third-party websites: 2010 to 2012						
		Avg # ad views per month (000)		% change	% ads viewed in 2012 on	
Company	**Brand**	**2010**	**2012**	**2010-2012**	**Youth websites[12]**	**Facebook**
Red Bull GMBH	Red Bull	456,915	65,088	-86%	2%	28%
Coca-Cola	NOS	--	16,869	No 2010 ads	0%	60%
PepsiCo	Amp	186,667	2,460	-99%	0%	74%
Hansen Beverage Co	Monster	--	1,915	No 2010 ads	1%	37%
Coca-Cola	Full Throttle	8,683	1,314	-85%	27%	0%
SK Energy Shots	Street King	--	198	New product	--	--
Dr Pepper Snapple Group	Venom	20,938	--	-100%	--	--

Source: comScore, 2013

One-third of all display advertisements for energy drinks (averaging 31.2 million per month) appeared on Facebook. ESPN.com was the second most common placement for energy drink ads (averaging 7.8 million per month), followed by Google sites, including YouTube.com (averaging 6.4 million per month).

Social media marketing

Most energy drink brands have shifted much of their internet marketing to social media, evidenced by enormous growth in Facebook, Twitter, and YouTube reach for all brands. In all three social media, Red Bull was by far the most active, followed by Monster.

Social media activity for energy drink brands: 2011 to 2013						
	Facebook likes (000)			Twitter followers (000)		
Brand	**June, 2011**	**July, 2013**	**% growth**	**June, 2011**	**July, 2013**	**% growth**
Red Bull	20,462.1	39,291.4	+92%	223.5	1,082.9	+385%
Monster	11,238.5	23,331.4	+108%	75.5	758.3	+904%
Rockstar	924.7	1,975.2	+114%	17.9	114.3	+539%
Amp	209.1	543.8	+160%	7.9	15.5	+96%
Street King	--	524.3	New product	--	38.3	New product
NOS	57.9	176.3	+204%	--	5.5	No 2010 acct
5-Hour Energy	32.3	73.2	+127%	1.5	6.4	+327%
Full Throttle	--	--	--	--	5.8	No 2010 acct
	YouTube upload views (000)			YouTube videos posted		
Brand	**June, 2011**	**July, 2013**	**% growth**	**2011**	**2012**	**2013**
Red Bull	158,344.0	598,593.5	278%	n/a	528[13]	520
Monster	10,776.9	53,693.7	398%	241	36	14
Rockstar	--	4,914.2	No 2010 site	116	102	44
Amp	330.7	903.7	173%	3	28	9
Street King	--	168.3	New product	2	6	0
NOS	699.2	3,011.2	331%	7	6	3
5-Hour Energy	199.3	40,268.7	20,100%	8	15	14
Full Throttle	--	166.3	No 2010 site	104	0	0

*Source: Analysis of social media websites as of July, 2013

Energy drink brands posted to their Facebook pages on average 244 times each from January 1 to July 15, 2013 (1.3 times per day). The most active Facebook pages were Monster (437 posts), Rockstar (389 posts), and 5-Hour Energy (345 posts), whereas Street King and NOS posted just twice per week (62 and 70 posts, respectively). Most brands were more active on Twitter. From June 16 to July 15, 2013, Red Bull tweeted 2,040 times (68 tweets per day); Rockstar, 5-Hour Energy, and Monster each tweeted 5 to 8 times per day; and all others tweeted 2 to 3 times daily. Of note, Full Throttle has not tweeted since November 2012.

Conclusion

Energy drinks and shots can be dangerous for children and teens to consume, but many manufacturers continue to aggressively and inappropriately market these products. In fact, many brands appear to have increased marketing in venues where teens are likely to view them. Regulations to limit the sales and marketing of energy drinks to children under 18 may be warranted, and such oversight would be supported by parents, the medical community, and others who advocate for children's health.[14]

This document was prepared by Jennifer L. Harris, PhD, MBA. The research was funded by grants from the Robert Wood Johnson Foundation and the Rudd Foundation.

Endnotes

[1]Harris JL, Schwartz MB, Brownell KD, Javadizadeh J, Weinberg M, et al. (2011). Sugary Drink FACTS: Evaluating sugary drink marketing to youth. Available at www.sugarydrinkfacts.org.
[2] Pomeranz JL, Munsell CR, Harris JL (2013). Energy drinks: An emerging public health hazard for youth. *Journal of Public Health Policy*, 34(2), 254-271.
[3] American Academy of Pediatrics (2011). Sports drinks and energy drinks for children and adolescents: Are they appropriate? *Pediatrics*, 127(6), 1182-1189.
[4] American Medical Association (2013, June 18). AMA adopts new policies on second day of voting at annual meeting. Press release. Available at http://www.ama-assn.org/ama/pub/news/news/2013/2013-06-18-new-ama-policies-annual-meeting.page.
[5] Data were obtained and analyses conducted using the same methods as the 2011 Sugary Drink FACTS report. For a detailed description of these methods, please refer to pp. 19-31 of that report. Available at www.sugarydrinkfacts.org.
[6] www.makeitmio.com/mio-energy
[7] www.skenergyshots.com
[8] Ads viewed by teens (12-17 years)/Ads viewed by adults (18-49 years)
[9]For details of the methods used in this analysis, please refer to the Yale Rudd Center for Food Policy & Obesity fact sheet, Adolescent-targeted television advertising for energy drinks. Available at yaleruddcenter.org/resources/upload/docs/what/advertising/TVAdvertising_EnergyDrinks_2010.pdf
[10] Includes all distributors with >1.25 ads viewed (125 GRPs) by individuals in any youth age group
[11] Ads viewed by teens (12-17 years)/Ads viewed by adults (18-49 years)
[12] Youth websites met one of two conditions: 1) comScore identified it as an entertainment website for youth (2-17 years) during the first three quarters of 2012; or 2) the proportion of youth visitors to the website exceeded the total percent of youth visitors to the internet in the given month.
[13] Due to the high number of videos on Red Bull's YouTube channel, the site only listed videos uploaded in the past year (since July, 2012).
[14] Pomeranz et al. (2013).

Original Article

Energy drinks: An emerging public health hazard for youth

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*Corresponding author.

Abstract Energy drinks are emerging as a public health threat and are increasingly consumed by youth internationally. Energy drinks contain high levels of caffeine, sugar, and novel ingredients, and are often marketed through youth-oriented media and venues. We review these practices and the current inconsistent state of labeling. We also examine international support for regulation of these products, including a survey showing that 85 per cent of United States parents agreed that regulations requiring caffeine content disclosure and warning labels on energy drinks are warranted. We then examine the regulatory structure for energy drinks in the United States, analyzing legal and self-regulatory strategies to protect consumers, especially youth, from these potentially dangerous products. Recommended government interventions include revised labeling requirements, addressing problematic ingredients, and enacting retail restrictions. We conclude by identifying areas for future research.
Journal of Public Health Policy (2013) **34,** 254–271. doi:10.1057/jphp.2013.6; published online 14 March 2013

Keywords: child and adolescent health; energy drinks; marketing; regulation; law

Introduction

The consumption of sugary beverages is an established public health concern,[1] with *energy drinks* emerging as a unique and independent risk for youth. Sales of energy drinks are rising at a steady pace.[2] In 2011, they increased by 12.5 per cent overall, and by 15–30 per cent for the category leaders, Red Bull and Rockstar.[3] In a study of 600 nationally advertised beverage products in the United States, the sale of energy drinks surpassed that of either sports or fruit drinks.[4]

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The products in this category typically have the word 'energy' in the product name and contain high levels of caffeine plus additional ingredients not found in sodas and juice drinks. (Energy drinks differ from sports drinks which are marketed to accompany physical activity and contain electrolytes.) The energy drink category includes two types of products: drinks and shots. Drinks are sold in 8–32 oz. containers. Many are available in large, non-resealable cans that produce one serving, despite the number of servings listed on the container.[4,5] Shots come in 2–2.5 oz. single serving containers.[4] Because there are few data on youth consumption of energy shots, this article focuses primarily on energy drinks.

A recent study of US high school students revealed that energy drinks represented 8.8 per cent of sugar-sweetened beverages they consumed, and more than 10 per cent of drinks consumed by males and Hispanic students.[6] Another US study indicated that 31 per cent of 12–17 year olds regularly consume energy drinks.[7] Similarly, a study of German adolescents found that 53 per cent tried energy drinks and 26 per cent of adolescents consumed them regularly.[8] Internationally, Thailand was reported to be the highest per capita consumers of energy drinks in 2007, with the United States, Austria, Ireland, New Zealand, Slovenia, and Kuwait rounding out the top seven countries.[9]

Energy drink consumption is a potential health hazard for the general population and especially alarming for youth due to high levels of caffeine and novel ingredients not normally found in the food supply.[10,11] The American Academy of Pediatrics (AAP) stated that 'energy drinks have no place in the diet of children and adolescents' due to their 'stimulant content',[12] but energy drink manufacturers continue to advertise directly to adolescents in media also viewed by children.[12] A study by the US Department of Health and Human Services revealed that emergency room (ER) visits involving energy drinks (alone or mixed with other substances) increased tenfold from 2005 to 2009.[13]

The mixing of energy drinks with alcohol is an obvious public health concern,[14] but adolescent consumption of energy drinks alone also poses considerable health risks. Eleven per cent of total ER visits related to energy drink consumption involved youth aged 12–17 years and 75 per cent of those visits were due to energy drink intake alone.[13] Similarly, calls to the Australian poison information center revealed increasing reports of caffeine toxicity from energy drink consumption among adolescents. The median age of callers was 17 years and more than half of all calls were due solely to energy drink consumption.[15]

The first part of this article builds on previous research about negative health effects of energy drink consumption among youth,[7,9] by discussing the potential health effects of problematic ingredients, inconsistent labeling practices, and the marketing of energy drinks to adolescents. Then it describes international support for increased regulation of energy drinks; we also report on a survey of US parents that indicates such support to protect youth. We review current regulatory structure for energy drinks and analyze legal strategies to protect consumers, especially youth, from these potentially dangerous products. We conclude by identifying areas for future research, in particular the need for more information about energy shot consumption and its effects.

Inconsistent Labeling

US Food and Drug Administration (FDA) regulations contain certain requirements for beverage labels but not all manufacturers of energy drinks designate their products as 'beverages', thus labels are inconsistent across companies. Manufacturers that label energy drinks as beverages comply with the Nutrition Labeling and Education Act of 1990 (NLEA). Others mislabel their products as dietary supplements and comply with labeling required by the Dietary Supplement Health and Education Act of 1994 (DSHEA). However, DSHEA has significantly more lax requirements and manufacturers can list ingredients on *supplement facts panels* that would not be permitted under the NLEA.[16] If there are no macronutrients in a product, manufacturers of dietary supplements can eliminate disclosure of the macronutrient list on the supplements fact panel, unlike beverage manufacturers who must list the amount as zero.[17]

The Food, Drug, and Cosmetic Act (FDCA) does not require caffeine disclosure for beverages or supplements. American Beverage Association (ABA) member companies and some independent ones disclose caffeine voluntarily,[18] but as many manufacturers do not, consumers would have to call these companies directly to obtain information about the caffeine content.

Ingredients and Health Risks

Energy drinks are generally composed of sugar and/or artificial sweeteners, caffeine, and additional ingredients, many of them in high

quantities or novel for beverages, such as guarana and taurine. Under the FDCA, ingredients added to beverages are considered food additives, and must be pre-approved by the FDA if they have not already gained status as *GRAS* (Generally Regarded as Safe).[19] If a food additive is not proven safe by the entity seeking to introduce it into the food supply, beverages containing such additives are considered 'adulterated' and may be condemned by the FDA.[20] Conversely, manufacturers of dietary supplements are responsible for determining their products' safety without any DSHEA requirement to obtain pre-approval for an ingredient unless it is new. Thus, ingredients not designated GRAS are found in some energy drinks labeled as dietary supplements.

Owing to these labeling issues, it is difficult to determine amounts of many ingredients contained in energy drinks. Table 1 summarizes calorie, sugar, caffeine, and sodium content of prominent, nationally advertised sugar-sweetened energy drinks identified in a 2010 study.[4] On the basis of the labels of these products, the most common additional ingredients are sodium compounds, guarana, panax ginseng, and taurine.

Sugar and sugar substitutes

A comprehensive study of energy beverages reported that the median sugar content of sugar-sweetened energy drinks was 27 g per 8 oz. serving, comparable to sodas and fruit drinks, and higher than sports drinks and flavored water.[4] With one exception, all energy drinks in this analysis were available in large, non-resealable containers, providing excessive sugar and calories in a single serving. Sixty-nine per cent of energy products also contained artificial sweeteners in lieu of or *in addition* to sugar.[4] More than half of these were not labeled as diet products; diet labels would normally alert consumers to the presence of artificial sweeteners.

Consumption of sugary beverages is associated with increased risk for dental caries, weight gain, overweight, obesity, diabetes, and heart disease.[21] In 2008, sugary beverages made up 31 per cent of added sugar in the diet of 6–11 year olds and 44 per cent of the added sugar consumed by 12–17 year olds in the United States.[22] Although added sugar intake derived from sugary beverages in total, such as soda, has decreased since 1999, added sugar intake from energy drinks has increased.[22] Consistent with sales data, youth may be substituting energy drinks for other sugary beverages.[2,3]

Table 1: Caffeine, calorie, sugar, and sodium content of common sugar-sweetened energy drinks[a]

Product[b]	*Additional varieties*[c]	*Manufacturer*	*ABA member company*	*Can size (oz.)*	*Caffeine per can (mg)*	*Calories per can (kcal)*	*Sugar per can (g)*	*Sodium per can (mg)*
Amp Energy	4	PepsiCo	X	16	142	220	58	140
AZ Energy	3	Arizona	—	15	188	188	49	20
Full Throttle (Red Berry)	2	Coca-Cola	X	16	200	230	58	160
Monster Energy	24	Hansen Beverage Company	—	16	160	200	54	180
Monster Energy	24	Hansen Beverage Company	—	24	240	300	81	270
Monster Energy	24	Hansen Beverage Company	—	32	320	400	108	360
NOS	4	Coca-Cola	X	16	260	210	54	410
Red Bull	0	Red Bull	X	8.4	80	110	27	99
Red Bull	0	Red Bull	X	12	114	160	39	142
Red Bull	0	Red Bull	X	16	154	220	54	189
Red Bull	0	Red Bull	X	20	192	275	68	237
Rockstar	11	Rockstar	—	8	80	140	31	40
Rockstar	11	Rockstar	—	16	160	280	62	80
Rockstar	11	Rockstar	—	24	240	420	93	120
Venom Energy (Black Mamba)	3	Dr. Pepper Snapple	X	16.9	170	250	57	320

[a]Nutrition information as of September 2012 for each available can size for nationally advertised energy drink brands identified in the 2011 Sugary Drink FACTS report from the Rudd Center for Food Policy & Obesity.
[b]Information given for original variety of drink brand. For those brands that do not have an original variety, the flavor is specified.
[c]Number includes additional sugar-sweetened unique flavor varieties within each listed brand, not including multiple can sizes.

Caffeine

Energy drinks are touted for high caffeine content, but manufacturers do not always report the amount in each container. In the 2010 study of sugary drinks, 54 per cent of 83 total energy drink products reported their caffeine content with a median of 80 mg per 8 oz. serving or shot, more than double the median caffeine in 8 oz. of soda.[4] Two products contained extreme levels and were available in 20 oz. containers, providing 245 mg and 325 mg of caffeine.[4] Another study found that energy drinks may contain up to 505 mg of caffeine per container.[9]

Caffeine toxicity is a concern for youth. In 2007, there were 5448 caffeine overdoses reported in the United States and a striking 46 per cent of them occurred in persons younger than 19 years.[8] The AAP raised additional concerns for children because of caffeine's effect on developing neurological and cardiovascular systems, plus a risk of physical dependence and addiction.[12] Caffeine binds to cell membranes in place of adenosine, an inhibitory neurotransmitter, causing changes in normal physiological processes. Specific effects of caffeine consumption include disturbed sleep, increased body temperature and gastric secretions, increased blood pressure and heart rate, as well as a risk of physical dependence and addiction. This is especially problematic for youth because they are still growing. The AAP specifically cautioned that dietary intake of caffeine can produce harmful adverse effects in youth and should be 'discouraged for all children'.[12]

Sodium and other ingredients

Energy drinks contain surprisingly high levels of sodium. In the 2010 study, the median sodium level was 123 mg per 8 oz. serving or shot, more than three times the amount in soda.[4] Several energy drinks had even more extreme levels, with one containing 340 mg per 8 oz. serving.[4] Diets high in sodium can result in high blood pressure and increased risk for heart disease and stroke.[23]

Energy drinks often contain *specialty* ingredients with purported health benefits, but that can have negative effects on young people. Table 2 provides information on three of the most common ingredients: guarana, taurine, and panax ginseng. Many of the same novelty ingredients found in energy drinks are also ingredients in over-the-counter diet drugs.[27] As consumption of energy drinks increases, these ingredients raise

Table 2: Common energy drink ingredients

Ingredient	*Intended effects*[8]	*Generally recognized as safe (GRAS)*	*Comments from the American Academy of Pediatrics clinical report*[24]	*Other notes*
Guarana	Stimulant (caffeine-containing)	Yes	Guarana is concerning for youth because it increases the total amount of caffeine in the product	Contains 40 milligrams of caffeine per gram
Taurine	Amino acid believed to assist with cell metabolism, thought to improve athletic performance	No	Amino acids in energy drinks should be discouraged in children	Mayo Clinic study found no evidence that it produces advertised benefit[25]
Panax ginseng	Thought to improve athletic performance	No	Not Available	Potential negative side effects include insomnia, menstrual problems, increased heart rate, and blood pressure disturbances[26]

significant concerns because it is unclear what combined health impact they may have on consumers, especially youth.

Marketing

A comprehensive analysis of marketing practices and youth exposure to this marketing in the United States confirmed that several energy drink manufacturers market their products using media and techniques aimed at adolescents.[4] In 2010, US adolescents saw on average 124 television ads for energy drinks and shots, which is the equivalent of one ad every 3 days.[4] This is similar to adolescents' viewing of regular soda ads (122), and more ads for energy drinks and shots than seen by adults.[4] Adolescents viewed 9–16 per cent more ads than adults for three energy drink brands.[28] The majority of energy drink ads viewed by adolescents appeared on youth-targeted cable networks including Adult Swim (80–90 per cent more adolescent than adult viewers), MTV and MTV2 (88–199 per cent more adolescent viewers), and Comedy Central (20–30 per cent more adolescent viewers).[28]

Energy drink brands also sponsor extreme sports competitions and are prominent in digital media that disproportionately appeals to adolescents. Adolescents were approximately twice as likely to visit the Monster and Rockstar energy drink websites compared to adults,[4] and youth under age 18 often visited Facebook pages of popular energy drinks, comprising 11 per cent of unique visitors for Red Bull and 38 per cent to Monster's page.[29] Although it does not appear that energy drink companies directly market to children less than 12 years of age, many children view the same media as adolescents. As a result, children in the United States saw on average 62 energy drink and shot ads in 2010, which is on par with the number of ads they saw for the children's drinks Capri Sun and Kool-Aid.[4]

Support for Regulation

In 2008, scientists and physicians wrote to the FDA requesting increased regulation of energy drinks because their high caffeine content puts youth at risk for caffeine intoxication and alcohol-related injuries.[30] France, Denmark, and Norway attempted to ban Red Bull because of concerns about excessive caffeine and other novel ingredients in the product,[31] but the European Court of Justice found it to be an improper trade restriction.[32]

In 2011, Canada officially designated energy drinks as subject to regulation as food; they established specific criteria, including composition restrictions and labeling requirements.[33] Canada determined the maximum amount of caffeine permitted per single-serve container to be 180 mg and designated all non-resealable containers *one serving*.[33] Canada also requires labels to disclose the amount of caffeine per serving and to include warnings for use by children and certain sensitive adults.[33]

The Rudd Center for Food Policy & Obesity conducted a nationally representative online survey of 985 US parents of 2–17 year olds in 2011, seeking to understand attitudes about energy drinks, beliefs about appropriateness of these drinks for their children, feelings regarding caffeine and other common ingredients, and attitudes toward energy drink labeling and regulation.[34] They found that 67 per cent of parents were concerned about the caffeine content of beverages for their children, 78 per cent agreed that energy drinks should not be marketed to children and adolescents, and 74 per cent agreed these drinks should not be sold to children or adolescents. In addition, 85 per cent of parents

agreed that regulations requiring reporting of caffeine and warning labels were warranted for energy drinks.

In 2012, US Senators Durbin and Blumenthal asked the FDA for increased regulation of energy drinks, including clarifying labeling requirements, directly regulating the amount of caffeine permitted in products, and an FDA determination of the safety of other additives and ingredients.[35]

Regulatory Recommendations

The FDA has primary authority over the safety, labeling, and ingredients of energy drinks.[36] Federal law preempts state and local governments from addressing issues in the FDA's domain. State and local governments (collectively states), via their legislatures and agencies, can, however, exercise authority over public health and safety to regulate the sale of these products and protect consumers.[37] If a government entity determines that increased regulation of energy drinks is warranted, several options are available, summarized in Table 3 and discussed below.

Designation as beverages

The FDA issued a non-binding draft guidance document in 2009 distinguishing beverages from liquid dietary supplements,[16] and the agency is currently finalizing the guidance document.[35] The FDA has explained that even if a manufacturer characterizes a product as a dietary supplement, it may be a beverage for regulatory purposes. Beverages can be distinguished by packaging, volume, advertising, name, and similarity to other beverages (for example, soda),[16] whereas a dietary supplement is defined as 'a product taken by mouth that contains a "dietary ingredient" intended to supplement the diet'.[16] According to the FDA, energy drinks labeled as supplements are mislabeled.

Ingredients

The FDA expressed concern that energy drinks contain some GRAS ingredients 'at levels in excess of their traditional use levels', which 'raises questions regarding whether these higher levels and other new conditions of use are *safe*'.[16] The FDA granted GRAS status to added sugar[38] and caffeine (at levels of 0.02 per cent of the product) in the

Table 3: Potential interventions to reduce underage consumption of liquid energy products

Topic	*Intervention*	*Actor*
Ingredients	● Reconsider GRAS status for problematic ingredients (including caffeine, sugar, and guarana), especially in large quantities	FDA
	● Add limitations to permissible amounts of GRAS ingredients	FDA
	● Take enforcement action against manufacturers that add unapproved ingredients	FDA, AGs
Labeling	● Require caffeine disclosures on all products regulated by FDA	FDA
	● Establish Daily Reference Value (DRVs) for caffeine and added sugar	FDA
	● Require warning labels for liquid energy products	FDA
	● Require liquid energy products comply with the NLEA	FDA
	● Take enforcement actions against products mislabeled as dietary supplements	FDA, AGs
	● Take enforcement action against the marketing of mislabeled products or products with false or deceptive claims	FTC, AGs
Retail	● Require age limits for purchase	Congress, State, Local
	● Establish location restrictions in retail establishments	State, Local
	● Prohibit the sale of the most problematic products	State, Local, AGs
	● Establish excise taxes on highly sugared products	Congress, State, Local (to extent authorized)
Marketing	● Stop marketing to adolescents, including on programming and in events that appeal to them	ABA, Manufacturers
Research	● Measure population caffeine consumption and youth consumption of energy drinks and shots	Public Health Community
	● Identify best practices to reduce sales to underage consumers	Policy Advocates

1970s.[39] During the approval process, the Select Committee on GRAS substances recognized potential health hazards associated with consuming added sugar at levels higher than at that time and caffeine in doses larger than used in cola-type beverages.[38,40] Energy drinks contribute to high *added sugar* consumption, which exceeds the levels at the time of GRAS approval, and they contain far more caffeine than cola-type beverages.[22] Further, although the stimulant guarana is GRAS up to a specified amount, it is unclear exactly how much guarana is in energy drinks and how much would be considered safe when it is added to an already highly caffeinated product.

The FDA has the authority to revise GRAS status for sugar, caffeine, and guarana and to regulate the amount of each ingredient permitted to be added to beverages. The agency can mandate maximum levels of these ingredients in single-serving containers.

The FDA also expressed concern that other ingredients in energy drinks are not GRAS and are not being used in accord with existing food additive regulations.[16] Taurine and panax ginseng, among other potential ingredients, are not approved for use in beverages. The FDA has the authority to designate these products as *adulterated* and unsafe for the food supply.[16] The agency can reprimand manufacturers or condemn the products outright.

Labeling

The US government has several labeling options that should be considered to protect and inform consumers about the ingredients and risks associated with energy drinks. Congress can amend the FDCA and the FDA can issue binding regulations that energy drinks must be labeled as beverages and that caffeine content must be disclosed on all products under the FDA's purview.[41]

Some or all energy drinks should contain warnings about caffeine toxicity and the introduction of ingredients not normally found in the food supply. Today, when caffeine is added to stimulant drug products, the package must bear a specific warning label stating that the product is for 'occasional use only' and not intended for children under 12 years of age.[42] US law requires a warning when 'foreseeable risks of harm posed by the product could have been reduced or avoided by the provision of reasonable instructions or warnings' and the omission of such a warning 'renders the product not reasonably safe'.[43] ER data from visits involving energy drinks, show these products may be regarded as not reasonably safe without warnings.

Consumer protection actions

The Federal Trade Commission (FTC) and state attorneys general (AGs) have authority to institute consumer protection actions to address labeling and ingredient violations identified above. The FTC can bring an action against manufacturers for unfair and deceptive marketing practices. The state AGs have similar authority over questionable marketing and

labeling and can additionally bring actions to protect citizens from particularly problematic products.[44] In 2012, for example, New York's Attorney General started an investigation into whether energy drink manufacturers were misleading consumers about caffeine content and potential health risks.[45]

Retail restrictions

State governments in the United States may enact retail regulations. Seventy-nine per cent of energy drinks are sold from convenience stores, and thus subject to a variety of potential regulations.[4] States can, for example, restrict the sale of energy drinks to youth under a certain age; an option supported by parents. In 2010, a New York county legislator proposed a ban on the sale of energy drinks to minors younger than 19 years.[46] Lawmakers can determine which age is appropriate. Implementation would be straightforward, because retail outlets are already legally required to verify the age of customers purchasing alcohol and tobacco.

Another option would be to regulate the location of problematic products in the retail environment, akin to state requirements that tobacco be sold from behind the counter. Energy drinks are generally offered in a refrigerator case near alcoholic or other sugary beverages. This placement may imply that they are similar to sugary beverages and/or encourage consumers to mix them with alcohol. Research might help determine how revised placement of drinks could have a positive impact on public health by discouraging purchases and the mixing with alcohol. Research can answer the question whether the top shelf of coolers or aisles, the back of the store, or behind the counter would help protect consumers.[21]

Another retail restriction would ban the sale of certain energy drinks, such as those in large non-resealable containers or with the highest caffeine content. A bill proposed in Oregon sought to ban sale of 'high-calorie' beverages in single-serving containers larger than 12 oz.[47] The same type of restriction could be placed on the sale of highly caffeinated products in large containers.

Finally, it is noteworthy that an excise tax placed on sugary beverages would surely apply to sugary energy drinks. The underlying rationale and potential benefits of such a tax have been discussed elsewhere; the goal is to decrease consumption.[1] Both federal and state governments can institute excise taxes. Local jurisdictions can sometimes also enact

taxes or fees – to the extent permitted by the state's laws governing localities.[21]

Marketing restrictions

Tighter regulations on the marketing of energy drinks to adolescents are warranted, but in the United States a substantial barrier exists to government enacting such regulations. The Supreme Court has interpreted the First Amendment of the Constitution to protect marketing, or *commercial speech*, from government interference. Thus, the United States has focused on self-regulation, hoping to maintain some control over marketing directed at youth.

The ABA established guidelines for the sale and marketing of energy drinks, under which member companies agree to refrain from marketing products to children (ages 2–11) and selling them in schools (grade levels K–12).[18] The guidelines also state that energy drinks should not be promoted as sports drinks or in connection with alcohol consumption. In response to criticism of marketing that promotes energy drinks to youth, both Red Bull[48] and the ABA,[49] as a spokes-organization for its member companies, reiterated that they do not market energy drinks to children under age 12. But these self-regulatory pledges do not prohibit marketing targeted directly to adolescents and, as noted, despite these restrictions, children and adolescents continue to be exposed to large numbers of advertisements for energy drinks.

Self-regulation of alcohol marketing to minors (20 years and younger) provides a potential blueprint for reducing energy drink marketing to youth. The FTC has recommended a self-regulatory approach to reduce underage exposure to alcohol marketing. Major alcohol suppliers agreed that they would not advertise in media with an audience comprising more than 30 per cent minors and have largely complied.[50] The National Research Council (NRC), Institute of Medicine (IOM),[51] and 19 state AGs[52] recommended tighter self-regulatory standards, including no alcohol advertising in media with an underage audience share of 15 per cent (approximately their share of the US population) and restrictions on marketing practices with substantial underage appeal. The NRC and IOM also recommended establishment of an independent review board to monitor alcohol marketing practices. A similar protocol would work well for energy drinks.

Companies that belong to the ABA currently comply with their self-regulatory commitments, but this program has limitations. Several of the highest selling energy drink brands do not belong to the ABA. At a minimum, these companies should agree to abide by ABA guidelines. However, to address the majority of youth-targeted marketing of energy drinks, all energy drink manufacturers should also agree to discontinue their marketing practices that disproportionately appeal to adolescents, including advertising on television programming with a higher-than-average proportion of youth in the audience and the use of social media and sponsored events.

Discussion and Conclusion

Existing evidence points to significant public health issues arising from youth consumption of energy drinks, but further research and analysis are needed:

- More comprehensive measurement of youth consumption of caffeine and energy drinks, separate from other sugary beverages. Because energy drinks are relatively new products in the American marketplace, ongoing dietary measurement panels do not adequately monitor and report on these products.
- Research to determine consumer understanding of ingredients and claims on energy drink labels would help us understand the extent to which current practices mislead or deceive.
- Studies of *energy shots* are also warranted. We know little about energy shot consumption by youth; but 82 per cent of the energy product ads viewed by children and adolescents promoted one shot: 5-Hour Energy.[4] Of all products examined in the 2010 study, a 2.5 oz. shot had the highest per-serving caffeine content overall, 200 mg.[4] Manufacturers designate energy shots as dietary supplements so they are located with other dietary supplements in pharmacies, which may send an unwarranted health message to consumers. In other retail outlets, shots are often located in free-standing displays at the check-out[4] further encouraging purchase. The FDA should pay particular attention to categorization and labeling of shots because companies market them in media viewed by youth and they contain extreme levels of caffeine that could be dangerous for children and adolescents.

- To identify best policies, research might help local jurisdictions determine the best location in retail establishments to require problematic products to be placed to discourage purchase by youth. Alternatively, locales can experiment with product placement restrictions to determine which locations work best.

* * *

Consumption of energy drinks is a public health concern especially for young people. Increased regulation is warranted to inform and protect consumers by addressing problematic ingredients, clarifying labeling requirements, and restricting youth access. At a minimum, increased self-regulatory efforts should be instituted to protect youth from marketing. Energy drinks are a unique beverage and should be regulated accordingly.

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