REPORT 6 OF THE COUNCIL ON SCIENCE AND PUBLIC HEALTH (I-23) Marketing Guardrails for the "Over-Medicalization" of Cannabis Use (Reference Committee K)

EXECUTIVE SUMMARY

BACKGROUND. American Medical Association Policy D-95.958, "Marketing Guardrails for the "Over-Medicalization" of Cannabis Use," adopted by the House of Delegates (HOD) at the 2022 Interim Meeting, directed the Council on Science and Public Health (CSAPH) to study marketing practices of cannabis, cannabis products and cannabis paraphernalia that influence vulnerable populations, such as children and pregnant people. CSAPH has issued seven previous reports on cannabis.

METHODS. English language articles were selected from searches of PubMed and Google Scholar using the search terms "cannabis", "marijuana", "marketing", and "advertising". Additional articles were identified by manual review of the reference lists of pertinent publications. Searches of selected stakeholders, national, and local government agency websites were conducted to identify definitions, guidelines, regulations, and reports.

RESULTS. States have diverse regulations regarding cannabis marketing, with some completely prohibiting it, while others have established guidelines through state-based regulatory bodies. Research indicates advertising can normalize substance use and disproportionately targets youth, reflected in studies on alcohol and tobacco industries. The U.S. cannabis industry's rapid growth has seen increasing advertising expenditure, yet knowledge gaps persist in understanding and regulating these practices, particularly on platforms accessible to minors like social media. States' advertising, marketing, packaging restrictions and national public health campaigns aim to safeguard consumers, especially children, and promote safe behaviors.

CONCLUSION. Research on cannabis marketing regulation and enforcement is sparse, especially concerning its efficacy in safeguarding vulnerable groups, notably youth. While federal regulatory agencies oversee the marketing and advertising of hemp (including CBD), the regulation of cannabis and cannabis-derived products varies by state. The challenges in the field of cannabis products are accentuated by the lack of research and guidance on dosing and adverse effects, leading consumers to rely on potentially inaccurate marketing sources like dispensary staff or online sites, emphasizing the need to ensure accurate and consistent information in marketing despite the known harms posed by cannabis. A closer look at the marketing regulatory frameworks established for substances such as alcohol and tobacco could offer valuable insights into marketing and advertising practices for cannabis and its derived products.

REPORT 6 OF THE COUNCIL ON SCIENCE AND PUBLIC HEALTH

CSAPH Report 6-I-23

Subject: Marketing Guardrails for the "Over-Medicalization" of Cannabis Use

Presented by: David J. Welsh, MD, MBA, Chair

Referred to: Reference Committee K

BACKGROUND

American Medical Association (AMA) Policy D-95.958, "Marketing Guardrails for the "Over-Medicalization" of Cannabis Use," adopted by the House of Delegates (HOD) at the 2022 Interim Meeting, directed the Council on Science and Public Health (CSAPH) to study marketing practices of cannabis, cannabis products and cannabis paraphernalia that influence vulnerable populations, such as children and pregnant people. CSAPH has issued seven previous reports on cannabis. The most recent report, presented at the November 2020 HOD meeting, summarizes current state legislation legalizing adult cannabis and cannabinoid use, and reviews other pertinent information and developments in these jurisdictions to evaluate the public health impacts of legalization. This report investigates the marketing practices of cannabis products and serves as the Council on Science and Public Health's (CSAPH) findings and recommendations.

METHODS

English language articles were selected from searches of PubMed and Google Scholar using the search terms "cannabis", "marijuana", "marketing", and "advertising". Additional articles were identified by manual review of the reference lists of pertinent publications. Searches of selected stakeholders, national, and local government agency websites were conducted to identify definitions, guidelines, regulations, and reports.

INTRODUCTION

 As of April 24, 2023, 38 states, the District of Columbia (D.C.), Guam, Puerto Rico, and the U.S. Virgin Islands have legalized the use of cannabis for medical purposes through either a legislative process or ballot measure. As described in Council Report 5-I-17, these laws vary greatly by jurisdiction from how patients access the product (home cultivated or dispensary), to qualifying conditions, product safety and testing requirements, packaging and labeling requirements, the retail marketplace, and consumption method. In 2012, Colorado and Washington were the first U.S. jurisdictions to legalize the adult use of cannabis. As of June 1, 2023, a total of 23 states, D.C., Guam, and the Northern Mariana Islands have legalized cannabis for adult use, 15 through the ballot measure process, and 11 via legislation, with three more states expected to include ballot measures in upcoming elections (Ohio, Florida, and Nebraska).

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In 2021, cannabis was consumed by an estimated 52.5 million people, or 18.7 percent of the U.S. population aged 12 or older.³ Cannabis is a psychoactive substance consisting of distinctive compounds known as cannabinoids that include Cannabidiol (CBD) and Tetrahydrocannabinol (THC). Cannabis products containing THC remain Schedule I Controlled Substances, while CBD products are regulated as an agriculture commodity. THC is the primary psychoactive compound in cannabis that produces the "high" sensation, along with altering perception, mood, and cognition. CBD (cannabidiol), on the other hand, is non-psychoactive and does not cause a "high" that is associated with THC. Each state that has legalized cannabis for medical or adult-use has its own unique requirements for marketing, advertising, and sale, with the main standardized requirement being that purchasers must be 21 years of age or older. There are challenges in developing marketing regulations due to scientific uncertainty (due to lack of research because of scheduling) regarding benefits and risks associated with the use of cannabis. While millions of people in the U.S. use cannabis each month, evidence is mounting of harmful physical and mental health effects associated with heavy or long-term cannabis use and the negative impacts, particularly for vulnerable populations such as children, young adults, people with psychiatric disorders, and pregnant people.^{7–9}

AMA policy separates cannabis legalization for medicinal (D-95.969) or adult use (H-95.924) also known as non-medical, or recreational use. AMA policy opposes state-based legalization of cannabis for medical use (whether via legislative, ballot, or referendum processes) and supports the traditional federal drug approval process for assessing the safety and efficacy of cannabis-based products for medical use. Medical use is defined as the use of cannabis or its derivatives to treat medical conditions or symptoms under the supervision of a health care provider. Additionally, AMA policy notes that cannabis products that have not been approved by the FDA (but are marketed for human ingestion in many states) should carry the following warning label: "[Cannabis] has a high potential for abuse. This product has not been approved by the FDA for preventing or treating any disease process" (D-95.969).

Marketing is categorized as "any commercial communication or other activity, including advertising, promotion, and sponsorship, that is designed to increase the recognition, appeal and/or consumption" of the product being marketed. While the oversight of alcohol advertising and marketing falls under the jurisdiction of the Federal Trade Commission (FTC), a significant portion of alcohol advertisers voluntarily adheres to self-imposed codes and standards. These standards are primarily aimed at limiting the marketing exposure to vulnerable groups. Although the FTC oversees the adherence to these codes to pinpoint violations, the general public can lodge complaints about non-compliant advertising or marketing to industry-specific organizations, including the Distilled Spirits Council, Beer Institute, or Wine Institute.

 In the realm of tobacco, the landscape of marketing and advertising standards was largely shaped by the 1998 Master Settlement Agreement, where cigarette companies agreed to self-regulation. Currently, the marketing of tobacco is under federal jurisdiction, with the Federal Drug Administration (FDA) and FTC responsible for monitoring compliance. Contrastingly, the oversight of cannabis marketing predominantly falls to individual states, each governed by its respective regulatory body. This decentralized approach is largely due to cannabis's Schedule I status, which offers limited scope for federal regulatory bodies to provide consistent guidelines or oversight.

DISCUSSION

Controlled Substances Act Federal Implications

The U.S. Controlled Substances Act (CSA) of 1970 continues to categorize cannabis as a Schedule I controlled substance, citing its high potential for abuse, lack of currently accepted medical use, and unproven safety under medical supervision. The CSA bans "written advertisements that has the purpose of seeking or offering illegally to receive, buy, or distribute a Schedule I controlled substance." Despite federal law prohibiting the advertising of cannabis, most states have legalized cannabis advertising and marketing within their jurisdiction. Historically, the CSA exclusively prohibited written advertisements (e.g., magazines, newspapers, and publications). However more recently, the legislation was amended to prohibit advertising via the internet, resulting in conceptually stringent federal restrictions on cannabis marketing, particularly those activities extending beyond state lines, leaving significant potential conflicts with state-level marketing practices, though thus far enforcement of such restrictions has been limited.¹³

Federal Marketing Regulations

Both the FDA and FTC play crucial roles in regulating marketing and advertising practices in the U.S. and have specific areas of oversight. However, their roles often intersect, especially when it comes to consumer protection. The FDA is responsible for protecting public health by ensuring the safety and efficacy of drugs, food, supplements, and other products. As part of this mandate, it oversees advertising and promotion. As an example of FDA's enforcement of marketing, in 2021 they issued warning letters to companies for illegally selling over-the-counter CBD products for pain relief stating that the drugs had not gone through the FDA approval process to determine efficacy, safety, side-effects, or how they can interact with other drugs or products. Similarly, the FDA issued warning letters to companies for selling products containing CBD with claims that they can treat medical conditions, including opioid use disorder or as an alternative to opioids. Companies that are issued warning letters for their violation of the Federal Food, Drug and Cosmetic Act are subject to legal action, product seizure, and/or injunction if they fail to remedy the violations listed in warning letters.

In tandem, the FTC oversees consumer protection matters by ensuring that advertisements are not deceptive or misleading to the general public. As part of this, they oversee the use of endorsements and testimonials in advertising. While the FTC stipulates that advertising must adhere to standards of truthfulness, evidence-based support, and non-misleading content, with any limitations or disclosures being clearly articulated, FTC enforcement for marketing in the context of state-legalized cannabis products has been complex. ^{16,17} The FDA ensures that prescription drug advertisements provide a balanced presentation of both the risks and benefits of the drug and that the ads are not misleading. The FTC typically regulates over-the-counter (OTC) drug advertising, yet the FDA still plays a role, especially concerning labeling and ensuring claims are substantiated. Both the FDA and FTC have the authority to impose penalties on companies that breach marketing and advertising regulations. Due to the overlap in their regulatory domains, the two agencies frequently collaborate to maintain consistent and thorough oversight.

FDA approved cannabinoid products

 The FDA has approved several synthetic cannabinoid products for medical purposes, reflecting a growing recognition of their therapeutic potential. Specifically, the synthetic THC analogs dronabinol (Marinol® and Syndros®) and nabilone (Cesamet®) are approved for treating nausea and vomiting associated with chemotherapy, with dronabinol also approved for anorexia in patients with AIDS.¹⁸ The agency has also approved one cannabis-derived drug product cannabidiol (CBD) oral solution (Epidiolex®) for specific rare and severe forms of epilepsy.^{18,19} Because these products have received FDA approval, their marketing and advertising activities are

subject to federal regulations, just like other pharmaceutical drugs. Both the FDA and FTC oversee and enforce these regulations to ensure consumer safety and accurate information dissemination.

The Farm Bill: Impact on Cannabis and Hemp Marketing

The 2018 Farm Bill amended the CSA by exempting hemp and hemp-based products, a variant of cannabis with low THC content, from CSA jurisdiction, thereby recognizing it as an "agricultural commodity" and effectively legalizing the marketing of hemp by licensed growers. Research analyzing hemp marketing is limited, but there have been significant regional variations in state-based marketing channels. One study found that while Colorado hemp producers primarily market online (24 percent), Kentucky producers primarily use word of mouth (44 percent). See Table 1) However, it remains unclear whether the approach to cannabis marketing influences sales-related variables, such as buyer profiles, age groups, or demographics.

The Farm Bill legalized hemp and hemp-derived CBD on the federal level, it did not address other cannabis-derived products, such as delta-8 THC and delta-10 THC products. Nonetheless, there have been cases where both the FDA and FTC have taken regulatory action. On July 5, 2023, they sent warning letters to six firms for the unauthorized sale of imitation food items containing delta-8 THC. Such products, which closely resemble conventional foods like chips, cookies, candy, and gummies, have raised FDA concerns about the potential for inadvertent consumption, especially by children, or ingestion of higher doses than intended.

The Farm Bill mandates that hemp cultivation needs to be licensed and regulated under "state plans." However, the legalization and regulation of hemp and hemp-derived products, including CBD, brought these products under the authority of both the FDA and the Department of Agriculture, adding another layer of complexity.²⁴ This has led to the FDA using its authority over drug regulation to prevent unsubstantiated claims about the therapeutic efficacy of CBD-containing products.⁵

 Despite FDA warning letters to companies illegally selling products with CBD, marketers have found ways to adapt their messaging within the FDA regulatory framework.²⁵ Strategies include reliance on consumer reviews to support marketing rather than direct seller claims, referring to websites that promote but do not sell CBD, and conflating research on THC or whole cannabis with effects of CBD alone.⁵ Additional challenges have emerged leading to issues such as inaccurate labeling, inconsistent CBD formulation concentration, and unintentional product contamination from pesticides or insufficient purification processes.⁵

In January 2023, the FDA determined that the existing regulatory structures for foods and supplements are not suitable for CBD because they do not comprehensively cover the safety concerns that have been noted with CBD.²⁶ To address this, they plan to collaborate with Congress to develop a new regulatory pathway enhancing industry oversight of CBD, especially in marketing and advertising.²⁶ This new regulatory pathway would provide "safeguards and oversight to manage and minimize risks related to CBD products."²⁶ These risk mitigation strategies include among others clear labeling, content limitations, and minimum purchase age.²⁶

Cannabis Marketing

States have varying approaches to the marketing of cannabis and THC-containing products. While some states have completely banned marketing and advertising, other states have developed guidelines and regulatory bodies. In the majority of states where adult-use or medical use is legal, states have established regulatory bodies, officers, and/or programs that provide licensing and industry oversight to ensure compliance of existing cannabis laws, the development of marketing

- and advertising guidelines, and the enforcement of violation penalties. However, there are no federal standardized regulations, guidelines, or laws.
- The marketing and advertising landscape has changed over time as states have implemented legislation granting state-based regulatory bodies the authority to enforce cannabis marketing
- 5 guardrails. Given the scarcity of research dedicated to cannabis-specific marketing, many
- researchers have relied on studies conducted in the alcohol and tobacco industries for guidance.²⁸
- 7 Evidence from these industries suggests that advertising can contribute to the normalization and
- 8 increased likelihood of substance use, with adolescents and youth often being disproportionately targeted.^{29–31}

9 targeted.

The U.S. cannabis industry registered a record \$21.1 billion in sales in 2022, with expected annual sales of \$37 billion by 2026.³² Marketing and advertising have grown with the legalization of cannabis. However, there is currently no data available detailing the extent of this increase. As a proxy for evaluation, the cannabis industry spent approximately \$661 million on advertising in 2018 and is projected to spend \$2 billion in 2023 with a projected increase to \$4.5 billion by the year 2030.³³ Even though cannabis legalization is implemented across states, there is still a scarcity of knowledge about marketing and advertising practices, potentially leaving gaps in regulation that could expose vulnerable populations to substantial harm. As the legal adult-use cannabis market expands, an extensive retail landscape has evolved to meet consumer demand for various types of cannabis and THC-containing products including edibles, beverages, and concentrates.

State Approaches to Regulating Cannabis Marketing and Advertising

State-based regulations primarily focus on the content and placement of marketing to safeguard consumers, with special emphasis on protecting minors. Similar to the voluntary self-regulatory code followed by the alcohol industry, many states have adopted policies prohibiting cannabis advertising in media where it is expected that over 30 percent of the audience will be under 21 years old. ^{10,36,37} However, research from the alcohol industry suggests that such policies are not particularly effective in preventing youth from exposure or interaction with alcohol-related content, indicating potential analogous issues with cannabis. ^{10,29,38}

Certain states, such as Colorado, Washington, and New York, explicitly forbid direct cannabis marketing towards children, but this has not deterred the rise of online and social media advertisements easily accessible to underage individuals.²³ With dispensaries offering convenience features such as online pre-ordering and home delivery, there are growing concerns regarding the lack of consistent state guidance on online cannabis marketing and social media promotions.^{10,23,29} This concern is amplified by prior studies suggesting that minors have been able to successfully purchase other regulated products online such as cigarettes.^{23,39}

 The Network for Public Health Law conducted an extensive comparison of advertising and marketing regulations of adult-use cannabis in various states. ⁴⁰ This comparison includes advertising limitations across 17 distinctive jurisdictions, with some jurisdictions excluded due to the lack of developed advertising regulations or other specific variables. The analysis highlights the considerable variance between states in marketing and advertising standards and regulation, categorizing policy measures into three main areas: medium restrictions, content restrictions, and physical restrictions. ⁴⁰ Despite the existence of laws regulating cannabis marketing and advertising practices in many states, the actual enforcement of these laws has remained relatively unexplored. (See Table 3 for a companion to the State Regulation of Adult-Use Cannabis Advertising Table)

Medium Restrictions: Medium restrictions on cannabis advertising vary across states and are specific to certain advertising media, such as broadcast, print, or internet. The majority of states

surveyed have restrictions on broadcasting advertising, print-media advertising, and internet advertising for cannabis in order to limit exposure to minors. ⁴⁰ To a lesser extent, a few states have laws restricting cannabis event sponsorship and location-based marketing which leverages the geographic location of a mobile device to push notifications about products offered at a nearby establishment. ⁴⁰

Content Restrictions: Content restrictions address the specifications and limitations placed on the content within cannabis advertisements. The majority of states surveyed regulate therapeutic claims in cannabis advertising, but they all regulate it to varying degrees. While some ban therapeutic claims altogether, others list numerous conditions on their states' approved lists. For instance, hepatitis C, Crohn's disease, Parkinson's disease, and Tourette's syndrome are qualifying medical conditions by state law for the use of cannabis⁴¹, but the efficacy is supported only by low-quality evidence. Nevertheless, some dispensaries may be financially motivated to increase customer sales by citing these cases. Only six jurisdictions regulate safety claims in cannabis advertising, ranging from complete prohibition on safety claims to requirements for scientific evidence supporting the claims.

All states except one surveyed explicitly outlaw false and/or misleading statements in advertisements. ⁴⁰ Some states go further by defining what constitutes a misleading statement such as ambiguity and omission. ⁴⁰ All jurisdictions ban ads that target children; however the extent of these prohibitions varies by state. For example, while Michigan bans ads for individuals under the age of 21, New Jersey specifically bans the inclusion of elements such as toys or cartoon characters that might appeal to individuals under 21 (See Table 4). ⁴⁰ Along the same lines, the majority of states require a product warning on cannabis advertisements, while the warning required vary they generally inform about potential health risks, age requirements, and lack of FDA approval. ⁴⁰ Similar to warnings on cigarette packages, the discrepancies in cannabis labeling across states can create challenges for consumers in reading and identifying health warnings, particularly for first time users or people with vision impairment. (See Table 5) The warning label signs size, text, and color vary from state to state. ³⁴ (See Table 6) Lastly, more than half of the jurisdictions have varying regulations against offering gifts, prizes, or other inducements related to cannabis sales. ⁴⁰

Physical Restrictions: Physical restrictions focus on the physical characteristics and placement of cannabis outdoor advertising. The majority of states have exclusion zones around schools and other child-centric places (e.g., playgrounds, public parks) for advertising varying from 200 feet to 1,500 feet. However, less states have restrictions regarding advertising on public property, public transportation, or in general visibility zones such as on signs or billboards. One study that included a small sample (N=172) of adolescents in 6 states that have legalized adult-use cannabis found that the prevalence of billboard or storefront advertisements influences adolescents' usage patterns. These billboards may lead to increased likelihood of frequent use and symptoms of cannabis use disorder. (See Table 7) The marketing strategies employed by cannabis companies, particularly their branding techniques, could influence the frequency and manner of cannabis use among minors.

Packaging Restrictions: The design of cannabis product packaging is at the forefront of these regulatory measures, as it plays a pivotal role in minimizing the appeal of cannabis items, especially edibles, to children. With legalization, states have reported a surge in accidental cannabis ingestion by children. Many states have implemented packaging guidelines to mitigate such risks. For instance, nine states mandate opaque packaging and three states mandate plain packaging, with each having its unique definition. Furthermore, every state demands childresistant packaging, often based on standards from the Poison Prevention Packing Act of 1970, albeit implemented differently across states. Some states, like California, have detailed child-

resistant packaging systems with specific requirements for various types of cannabis products.³⁷ Tamper-evident packaging, which showcases visible signs if meddled with, is required in three states.³⁷

Most states, with a few exceptions, have a general directive prohibiting cannabis packaging that could entice children.³⁷ Some, such as Illinois, have explicit bans on packaging showcasing images appealing to minors, like cartoons or toys. Furthermore, 14 states strictly forbid packaging that imitates commercially available foods to minimize accidental ingestion by children.³⁷ Beyond general prohibitions, some states specify particular imagery or wording that cannot be used due to their potential allure to children. For instance, Maine prohibits the depiction of humans, animals, or fruit on the packaging.³⁷ A notable safety measure, the inclusion of the poison control number on cannabis packaging, is mandatory in four states.³⁷ The overarching objective across all these regulations is to safeguard children from the risks of accidental cannabis consumption and ensure public safety.

Marketing Through Social Media

The prominence of social media as a conduit for accurate information, disinformation. and misinformation about cannabis³⁸, coupled with social media-based cannabis promotion^{10,31,39,40}, poses a public health concern. The widespread engagement with these platforms among underage populations⁴¹, and the established associations between exposure to cannabis marketing and subsequent intentions, initiation, and frequency of use among both adolescents^{10,42} and adults^{43,44}, underscores the need for marketing regulations.¹⁶

In a study that investigated the correlation between adolescents' exposure to cannabis marketing in states where cannabis is legal, and their cannabis use in the past year found that exposure to cannabis marketing on social media platforms significantly increased the likelihood of the teens using cannabis. ²⁰ Specifically, exposure increased the odds by 96 percent for Facebook, 88 percent for Twitter, and 129 percent for Instagram. ²⁰ With each additional social media platform where exposure was reported, the odds rose by 48 percent. ²⁰ Despite existing restrictions on cannabis advertising via social media platforms, teens are still encountering this marketing, leading to cannabis use. The study suggests that states should further regulate and enforce regulations of cannabis marketing on these platforms.

In a similar study, 11 social media companies that are the most popular amongst youth in the U.S. (e.g., TikTok, SnapChat, Instagram, and Facebook) were analyzed based on their cannabis marketing policies. While all social media platforms prohibit cannabis sales, they had varying policies on advertising and promotion. ¹⁶ (See Table 2) Paid advertising on social media for cannabis and cannabis products were prohibited by nine of the 11 platforms, the remaining two companies allow paid advertising within jurisdictions where cannabis is legal. ¹⁶ In addition, four out of the 11 platforms have ambiguous policies prohibiting unpaid cannabis promotion, with seven of the platforms allowing varying degrees of promotion by proxy such as through a link in their biography or allowing cannabis content and discussion but not promotion. ¹⁶

Every social media platform mentioned limitations on cannabis-related content access for minors or underage individuals including age restrictions (thresholds set to either 18 or 21 years of age) or general age restrictions not specific to cannabis. However, researchers have highlighted concerns regarding age verification methods on social media platforms, noting their ambiguous effectiveness. ¹⁶ While one platform may set a threshold age of 21 years for exposure to cannabis, alcohol, and tobacco content, aligning with the legal age, other platforms may not, suggesting a need to adjust access based on legal ages, and improve age verification processes.

Another issue is the exposure to cannabis promotions in regions where cannabis is not legalized on the state-level. Regulating paid cannabis-related content on social media is challenging due to its vast volume and the difficulty in pinpointing the source's location. Additionally, the increasing prevalence of sponsored posts by influencers, indirect political promotions, and often undisclosed financial relationships make these posts hard to spatially identify and regulate. ¹⁶ Given the challenges of monitoring marketing on social media, there is a pressing need for both social media platforms and regulatory agencies to devise advanced strategies to automatically detect cannabis-related content. Implementing concrete advertising and marketing regulations on social media-based platforms and across the internet could serve to protect the health of vulnerable populations.^{29,45}

Public Health Campaigns

When states legalize adult-use cannabis, they often implement policies that earmark tax revenue from cannabis sales for health and social initiatives, including educational public health campaigns that highlight the health risks associated with cannabis use. 46,47 This funding approach, in which counter-marketing resources became available only after significant sales had taken place, often leaves governments and public health offices in a reactive position, attempting to counter preestablished industry marketing and associated narratives. Although counter-marketing has shown some efficacy in reducing harmful tobacco and alcohol consumption, its effectiveness in reducing cannabis use has vet to be extensively studied in the U.S. 48

The National Highway Traffic Safety Administration (NHTSA), in collaboration with the Ad Council, has launched a comprehensive campaign to raise awareness about the hazards of drugimpaired driving and encourage safer decisions. This campaign employs a multi-channel approach encompassing television, radio, banners, print media, out-of-home advertisements, and online videos. (See Table 8) The primary focus is to deter individuals from operating vehicles while under the influence of drugs, specifically cannabis. Scientific studies indicate that cannabis can adversely impact several critical driving skills, such as reaction time, distance judgment, and overall coordination. One Given these risks, the campaign specifically targets young men between the ages of 18 and 34. The campaign's core message is that alterations in perception after cannabis consumption can drastically change driving capabilities.

NHTSA is one of the many stakeholders that is continually researching the correlation between cannabis impairment and crash risks. Findings from their Drug and Alcohol Crash Risk Study have shown that cannabis users have a higher likelihood of being involved in accidents. ^{53,54} This elevated risk might be attributable, in part, to the demographic skew towards young men, who inherently have a higher crash risk. ⁵³ Recent studies by NHTSA in 2020 have highlighted a rising prevalence of drug use, especially alcohol, cannabinoids, and opioids, among seriously injured or fatally wounded road users during public health emergencies compared to previous times. ^{53,55}

EXISTING AMA POLICY

AMA currently has policy related to cannabis, research, and marketing. Policy H-95.924, "Cannabis Legalization for Adult Use" notes that states that have legalized cannabis should be required to take steps to regulate the product effectively in order to protect public health and safety including in marketing and promotion intended to encourage use, requiring legible and child-resistant packaging with messaging about the hazards about unintentional ingestion in children and youth. Policy H-95.952, "Cannabis and Cannabinoid Research" calls for more cannabis and cannabinoid research including into the long-term cannabis use among youth, adolescents, pregnant women, and women who are breastfeeding. Policy H-95.936, "Cannabis Warnings for Pregnant

and Breastfeeding Women" advocates for regulations requiring point-of-sale warnings and product 1 2 labeling for cannabis and cannabis-based products regarding the potential dangers of use during 3 pregnancy and breastfeeding wherever these products are sold or distributed. Policy H-95.911, 4 "CBD Oil Use and the Marketing of CBD Oil" supports banning the advertising of cannabidiol as a 5 component of marijuana in places that children frequent, and supports legislation that prohibits 6 companies from selling CBD products if they make any unproven health and therapeutic claims. In 7 addition, our AMA's advocacy team has been active in encouraging the FDA to regulate 8 inappropriate medical claims and direct-to-consumer advertising.

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CONCLUSION

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Research on cannabis marketing regulation and enforcement is sparse, especially concerning its efficacy in safeguarding vulnerable groups, notably youth. While federal regulatory agencies oversee the marketing and advertising of hemp (including CBD), the regulation of cannabis and cannabis-derived products varies by state. The challenges in the field of cannabis products are accentuated by the lack of research and guidance on dosing and adverse effects, leading consumers to rely on potentially inaccurate marketing sources like dispensary staff or online sites, emphasizing the need to ensure accurate and consistent information in marketing. A closer look at the marketing regulatory frameworks established for substances such as alcohol and tobacco could offer valuable insights into optimal marketing and advertising practices for cannabis and its derived products.

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RECOMMENDATIONS

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The Council on Science and Public Health recommends that the following recommendations be adopted and the remainder of the report be filed.

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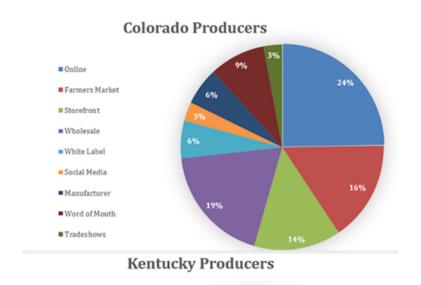
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- 1. Our AMA support and encourage federal, state, and private sector research on the effects of cannabis marketing to identify best practices in protecting vulnerable populations, as well as the benefits of safety campaigns such as preventing impaired driving or dangerous use. (New HOD Policy)
- 2. Our AMA encourage state regulatory bodies to enforce cannabis-related marketing laws and to publicize and make publicly available the results of such enforcement activities. (New HOD Policy)
- 3. Our AMA encourage social media platforms to set a threshold age of 21 years for exposure to cannabis advertising and marketing and improve age verification practices on social media platforms. (New HOD Policy)
- 4. Our AMA encourage regulatory agencies to research how marketing best practices learned from tobacco and alcohol policies can be adopted or applied to cannabis marketing. (New **HOD Policy**)
- 5. Our AMA support using existing AMA channels to educate physicians and the public on the health risks of cannabis to children and potential health risks of cannabis to people who are pregnant or breastfeeding. (New HOD Policy)
- 6. Our AMA reaffirm policies H-95.952, "Cannabis and Cannabinoid Research," and H-95.923, "Taxes on Cannabis Products." (Reaffirm Current HOD Policy)

Fiscal Note: Minimal – less than \$1,000

TABLE 1. Colorado and Kentucky Hemp Grower Marketing Channels

Hill R, Jablonski BBR, Van L, et al. Producers marketing a novel crop: a field-level view of hemp market channels. *Renewable Agriculture and Food Systems*. 2023;38. doi:10.1017/S1742170523000145



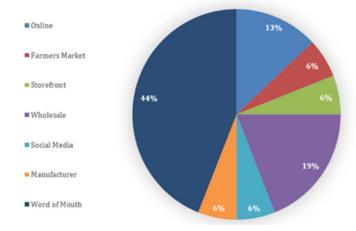


TABLE 2. Summary of Social Media Platform Policies Regarding Cannabis Promotion, as of October-November 2022

Berg CJ, LoParco CR, Cui Y, et al. A review of social media platform policies that address cannabis promotion, marketing and sales. *Subst Abuse Treat Prev Policy*. 2023;18(1):35. doi:10.1186/s13011-023-00546-x

	Specifies cannabis	Recognizes	Paid advertising		Unpaid promotion		Cannabis sales		Underage restrictions			
	cannabis	jurisdictional differences	Completely prohibited	Allowed but restricted	Completely prohibited	Allowed but restricted	Completely prohibited	Allowed but restricted	Age unspecified	< 18 years old	< 21 years old	Addresses cannabis
Discord	Х		Х	-	Х	-	X	-	-	X	-	-
Facebook	X*	-	Х	-	-	Х	Х	-	-	Х	-	-
Instagram	X	-	Х	-	-	Х	Х	-	Х	-	-	-
Pinterest	X*	-	Х	-	-	Х	Х	-	-	X	-	-
Reddit	X*	Х	Х	-	Х	-	Х	-	-	X	-	-
Snapchat	X*	Х	-	X	Х	-	X	-	Х	-	-	-
TikTok	-	Х	Х	-	Х	-	Х	-	-	X	-	Х
Tumblr	X*	Х	-	X	-	Х	Х	-	-		X	Х
Twitch	X*	-	Х	-	-	Х	Х	-	Х	-	-	-
Twitter	X*	Х	X	-	-	Х	X	-	-	X	-	Х
YouTube	X	-	X	-	-	X	X	-	-	X	-	Х

Notes: See also Supplementary Table 1 for more details. * Differentiates CBD from cannabis containing THC.

TABLE 3: State Regulation of Adult-Use Cannabis Legal Research Table

The Network for Public Health Law. State Regulation of Adult-Use Cannabis Advertising.; 2022. Accessed July 18, 2023. https://www.networkforphl.org/wp-content/uploads/2022/11/State-Regulation-of-Adult-Use-Cannabis-Advertising.pdf

			Medium Restrictions					CONTENT RESTRICTIONS							PHYSICAL RESTRICTIONS					
STATE	SOURCE	REQUIRING COMMISSION APPROVAL	Radio/Television (restriction- audience share over min. age)	Print (restriction- audience share over min. age)	Internet (restriction- audience share over min. age)	Event Sponsorship (restriction- audience share over min. age)	Location-Based Marketing Restrictions	Curative/Therapeutic Claims	Safety Claims	Content Targeting Children	Validity of Statements	Gifts/Prizes/Other Inducements	Product Warnings	Signs within Close Proximity to Schools	Signs on Public Property/Transp ortation	Signs Visible to General Public	Size/Other Features	Illuminated Signs		
Alaska	Alaska Admin. Code tit. 3 § 306.770	N	N	N	Y	Y (70%)	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N		
Arizona	Ariz. Rev. Stat. Ann. § 36-2859	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		
California	Cal. Bus. & Prof. Code § 26150- 26156 (2017)	N	Y (71.6%)	Y (71.6%)	Y (71.6%)	Y (71.6%)	Y	Y	N	Y	Y	Y	N	Y	N	N	N	N		
Colorado	Colo. Code Regs §212-3-3 R.700 Series	N	Y (71.6%)	Y (71.6%)	Y (71.6%)	Y (71.6%)	N	N	Y	Y	Y	N	N	Y	N	N	Y	N		
Connecticut	Conn. Gen. Stat. §21a-421bb (Public Act No. 22-103) (2022)	N	Y (90%)	Y (90%)	Y (90%)	Y (90%)	Y	Y	N	Y	Y	N	Y	Y	Y	Y	N	Y		
District of Columbia	No Advertising Provisions	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Illinois	410 Ill. Comp. Stat. 705/55-20 (2019)	N	N	N	N	N	N	Y	N	Y	Y	Y	N	Y	Y	N	N	N		
Maine	18-691-1 Me. Code R. § 52	N	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	N	N	N	N		
Maryland	Md. Code Ann.,Health-Gen. § 13- 3313.1 (2019)	N	N	N	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N		
Massachusetts	935 Mass. Code Regs. 500.105(4)	N	Y (85%)	Y (85%)	Y (85%)	Y	N	Y	Y	Y	Y	Y	Y	N	Y	N	N	Y		
Michigan	Mich. Admin. Code r. 420.507 (2020)	N	Y (70%)	Y (70%)	Y (70%)	Y	N	Y	N	Y	Y	N	N	N	N	N	N	N		
Montana	Mont. Admin. R. 42.39.123 (2021)	N	Y	Y	Y	N	Y	N	Y	Y	N	N	N	N	N	N	N	N		
Nevada	Nev. Rev. Stat. § 678B.520 (2021)	N	Y (70%)	Y (70%)	Y (70%)	Y (70%)	N	N	N	Y	Y	Y	Y	Y	Y	N	N	N		
New Jersey	N.J. Admin. Code § 17:30-14.2	N	Y (71.6%)	Y (71.6%)	Y* (71.6%)	Y (80.6%)	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N		
New Mexico	N.M. Code R. § 168.3.8 (2022)	N	Y	Y (70%)	Y (70%)	N	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	N		
New York	N.Y. Can. § 86 (2022)	N	Y	Y	Y	N	N	Y	N	Y	Y	Y	N	Y	Y	Y	N	N		
Oregon	Or. Admin. R. 845-025-8040 to 845-025-8060	N	Y (70%)	Y (70%)	Y (70%)	N	Y	Y	Y	Y	Y	N	Y	N	Y	N	N	N		
Rhode Island	Rhode Island Gen.Laws § 21- 28.11-5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	Vt. Stat. Ann. Tit. 7 § 864. (2021)																			

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Vermont	25-002 Vt. Code R. § 2.2.11 (2022)	Y	Y (85%)	Y (85%)	Y (85%)	Y (85%)	N	Y	N	Y	Y	Y	Y	N	N	N	N	N
Virginia	No Advertising Provisions	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Washington	Wash Admin. Code § 314-55- 155 (2013)	N	N	N	N	N	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N

TABLE 4: Cannabis Products that Appeal to Youth⁵⁶

Fair L. THC edibles that look like snacks popular with kids? FTC and FDA have something to say about that. Federal Trade Commission. Published July 3, 2023. Accessed August 7, 2023. https://www.ftc.gov/business-guidance/blog/2023/07/thc-edibles-look-snacks-popular-kids-ftc-fda-have-something-say-about









Some of the products cited in FDA-FTC cease and desist letters to companies selling THC products copying the look of snacks popular with children

TABLE 5. Massachussets Cannabis Warning Label⁵⁷

Line Packaging Supplies. Warning Label Massachusetts. Line Packaging Supplies. Accessed August 30, 2023. https://www.linepackagingsupplies.com/warning-label-massachusetts/

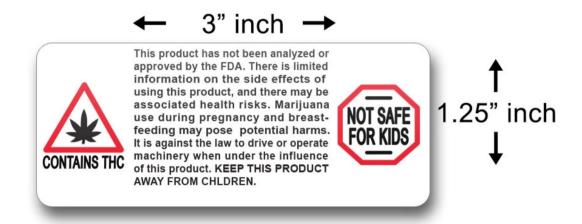


TABLE 6. Current Usage of the International Intoxicating Cannabis Products Symbol (IICPS) and Other Symbols

Doctors for Cannabis Regulation. Universal Cannabis Symbol. Accessed August 30, 2023. https://www.dfcr.org/universal-cannabis-symbol

Symbol design	Authorities having jurisdiction (AHJs) using the symbol	Shape of outline (conventional meaning)	Emphasized color (conventional meaning)	Number of colors (including white)	Graphical element (cannabis leaf)	Large graphical element for the visually impaired	Text excluded from interior of symbol	ISO & ANSI compliant
	IICPS: MT, NJ, SD, & VT	Triangle (warning)	Yellow (caution)	2	Yes	Yes	Yes	Yes
AM	AR	None	None	2	No	No	No	No
THC	AZ, CO, FL, & OH	Diamond (none)	Red (prohibition)	2	No	No	No	No
ÇA CA	CA	Triangle (warning)	None	2	Yes	No	No	No
CONTAINS THC	CT, MA, ME, & RI	Triangle (warning)	Red (prohibition)	3	Yes	Yes	Yes	No
THC	MD	Triangle (warning)	Red (prohibition)	2	Yes	No	No	No
AND COMPANY OF THE PROPERTY OF	MI	Inverted triangle (none)	Green (safe condition)	2	Yes	Yes	No	No
THC NM	NM	Diamond (none)	Red (prohibition)	2	No	No	No	No
THC	NV	Triangle (warning)	None	2	No	No	No	No
21.	NY	Square (none)	Yellow, red (caution, prohibition)	4	Yes	No	No	No
CONTAINS THC NOT SAFE FOR KIDS OR PETS	ОК	Rectangle (none)	Red (prohibition)	3	Yes	No	No	No
[]*	OR	Rectangle (none)	Red (prohibition)	3	Yes	Yes	No	No
21'	WA	Diamond (none)	Yellow, green (caution, safe condition)	4	Yes	Yes	No	No
THC	Canada	Octagon (stop)	Red (prohibition)	3	Yes	Yes	No	No

TABLE 7. Cannabis Billboards⁵⁸

Stanford University. Marijuana Billboards. Research into the Impact of Tobacco Advertising. Accessed August 30, 2023. https://tobacco.stanford.edu/marijuanas/billboards/





TABLE 8. Ad Council Drug-Impaired Driving Print Assets

Ad Council. Drug-Impaired Driving Campaign & Media Assets. Drug-Impaired Driving Prevention. Accessed August 21, 2023. https://www.adcouncil.org/campaign/drug-impaired-driving-prevention#print





REFERENCES

- 1. National Conference of State Legislatures. *State Medical Cannabis Laws.*; 2023. Accessed August 21, 2023. https://www.ncsl.org/health/state-medical-cannabis-laws
- 2. Pacula RL, Smart R. Medical Marijuana and Marijuana Legalization. *Annu Rev Clin Psychol.* 2017;13:397-419. doi:10.1146/annurev-clinpsy-032816-045128
- 3. NIDA. What is the scope of cannabis (marijuana) use in the United States? National Institute on Drug Abuse. Published January 23, 2023. Accessed July 25, 2023. https://nida.nih.gov/publications/research-reports/marijuana/what-scope-marijuana-use-in-united-states
- 4. Nagarkatti PN Mitzi. Cannabis-derived products like delta-8 THC and delta-10 THC have flooded the US market. University of South Carolina. Published April 28, 2023. Accessed July 28, 2023. https://www.sc.edu/uofsc/posts/2023/04/conversation cannabis derived products.php
- 5. Wiley JL, Gourdet CK, Thomas BF. *Cannabidiol: Science, Marketing, and Legal Perspectives*. RTI Press; 2020. doi:10.3768/rtipress.2020.op.0065.2004
- 6. Kees J, Fitzgerald P, Dorsey JD, Hill RP. Evidence-Based Cannabis Policy: A Framework to Guide Marketing and Public Policy Research. *Journal of Public Policy & Marketing*. 2020;39(1):76-92. doi:10.1177/0743915619848422
- 7. Centers for Disease Control and Prevention. Marijuana and Public Health Data and Statistics. CDC.gov. Published June 8, 2021. Accessed August 7, 2023. https://www.cdc.gov/marijuana/data-statistics.htm
- 8. Urits I, Gress K, Charipova K, et al. Cannabis Use and its Association with Psychological Disorders. *Psychopharmacol Bull.* 2020;50(2):56-67.
- 9. Brown QL, Shmulewitz D, Sarvet AL, Young-Wolff KC, Howard T, Hasin DS. Cannabis use, cannabis use disorder and mental health disorders among pregnant and postpartum women in the US: A nationally representative study. *Drug Alcohol Depend*. 2023;248. doi:10.1016/j.drugalcdep.2023.109940
- 10. Whitehill JM, Trangenstein PJ, Jenkins MC, Jernigan DH, Moreno MA. Exposure to Cannabis Marketing in Social and Traditional Media and Past-Year Use Among Adolescents in States With Legal Retail Cannabis. *Journal of Adolescent Health*. 2020;66(2):247-254. doi:10.1016/j.jadohealth.2019.08.024
- 11. Evans JM, Kelly RF. Self-Regulation in the Alcohol Industry: A Federal Trade Commission Report to Congress. Federal Trade Commission. Published September 1, 1999. Accessed August 30, 2023. https://www.ftc.gov/reports/self-regulation-alcohol-industry-federal-trade-commission-report-congress
- 12. 21 U.S. Code § 843.; 1970. Accessed August 21, 2023. https://www.law.cornell.edu/uscode/text/21/843
- 13. Allard NC, Kruger JS, Kruger DJ. Cannabis Advertising Policies in the United States: State-Level Variation and Comparison with Canada. *Cannabis and Cannabinoid Research*. 2023;8(3):505-509. doi:10.1089/can.2022.0068

- 14. U.S Food and Drug Administration. FDA Warns Companies Illegally Selling Over-the-Counter CBD Products for Pain Relief. FDA. Published March 22, 2021. Accessed August 15, 2023. https://www.fda.gov/news-events/press-announcements/fda-warns-companies-illegally-selling-over-counter-cbd-products-pain-relief
- 15. U.S Food and Drug Administration. FDA Warns Companies Illegally Selling CBD Products to Treat Medical Conditions, Opioid Addiction. FDA. Published March 22, 2021. Accessed August 15, 2023. https://www.fda.gov/news-events/press-announcements/fda-warns-companies-illegally-selling-cbd-products-treat-medical-conditions-opioid-addiction
- 16. Berg CJ, LoParco CR, Cui Y, et al. A review of social media platform policies that address cannabis promotion, marketing and sales. *Subst Abuse Treat Prev Policy*. 2023;18(1):35. doi:10.1186/s13011-023-00546-x
- 17. Federal Trade Commission. *How to Make Effective Disclosures in Digital Advertising*.; 2013. Accessed July 27, 2023. https://www.ftc.gov/sites/default/files/attachments/press-releases/ftc-staff-revises-online-advertising-disclosure-guidelines/130312dotcomdisclosures.pdf
- 18. U.S Food & Drug Administration. FDA and Cannabis: Research and Drug Approval Process. FDA. Published February 24, 2023. Accessed July 27, 2023. https://www.fda.gov/news-events/public-health-focus/fda-and-cannabis-research-and-drug-approval-process
- 19. D'hooghe M, Willekens B, Delvaux V, et al. Sativex® (nabiximols) cannabinoid oromucosal spray in patients with resistant multiple sclerosis spasticity: the Belgian experience. *BMC Neurology*. 2021;21(1):227. doi:10.1186/s12883-021-02246-0
- 20. Johnson R. 2018 Farm Bill Primer: Hemp Cultivation and Processing. Congressional Research Service; 2019. Accessed August 9, 2023. https://crsreports.congress.gov/product/pdf/IF/IF11088
- 21. Hill R, Jablonski BBR, Van L, et al. Producers marketing a novel crop: a field-level view of hemp market channels. *Renewable Agriculture and Food Systems*. 2023;38. doi:10.1017/S1742170523000145
- 22. Schuster WM. Cannabis Derivatives and Trademark Registration: The Case of Delta-8-THC. *98 Indiana Law Journal 177 (2022)*. 2022;98(1). https://www.repository.law.indiana.edu/ilj/vol98/iss1/4
- 23. U.S Food and Drug Administration. FDA, FTC Warn Six Companies for Illegally Selling Copycat Food Products Containing Delta-8 THC. FDA. Published July 6, 2023. Accessed September 1, 2023. https://www.fda.gov/news-events/press-announcements/fda-ftc-warn-six-companies-illegally-selling-copycat-food-products-containing-delta-8-thc
- 24. Gottlieb S. Statement from FDA Commissioner Scott Gottlieb, M.D., on signing of the Agriculture Improvement Act and the agency's regulation of products containing cannabis and cannabis-derived compounds. FDA. Published March 24, 2020. Accessed July 30, 2023. https://www.fda.gov/news-events/press-announcements/statement-fda-commissioner-scott-gottlieb-md-signing-agriculture-improvement-act-and-agencys
- 25. U.S Food and Drug Administration. FDA Warns Companies for Illegally Selling Food and Beverage Products that Contain CBD. *FDA*. Published online November 21, 2022. Accessed

- July 30, 2023. https://www.fda.gov/food/cfsan-constituent-updates/fda-warns-companies-illegally-selling-food-and-beverage-products-contain-cbd
- 26. U.S Food & Drug Administration. FDA Concludes that Existing Regulatory Frameworks for Foods and Supplements are Not Appropriate for Cannabidiol, Will Work with Congress on a New Way Forward. FDA. Published January 26, 2023. Accessed August 7, 2023. https://www.fda.gov/news-events/press-announcements/fda-concludes-existing-regulatory-frameworks-foods-and-supplements-are-not-appropriate-cannabidiol
- 27. Hammond CJ, Chaney A, Hendrickson B, Sharma P. Cannabis use among U.S. adolescents in the Era of Marijuana Legalization: a review of changing use patterns, comorbidity, and health correlates. *Int Rev Psychiatry*. 2020;32(3):221-234. doi:10.1080/09540261.2020.1713056
- 28. University of South Carolina Tobacco Center of Regulatory Science. CTP should actively integrate the relationship between cannabis and tobacco use into its tobacco regulation and proactively identify regulatory approaches from tobacco product regulation that can be applied to cannabis. Published online August 29, 2023. Accessed August 29, 2023. https://profglantz.files.wordpress.com/2023/08/6.-ucsf-comment-cannabis-and-tobacco-082523.pdf
- 29. Cavazos-Rehg PA, Krauss MJ, Cahn E, et al. Marijuana Promotion Online: an Investigation of Dispensary Practices. *Prev Sci.* 2019;20(2):280-290. doi:10.1007/s11121-018-0889-2
- 30. Anderson P, de Bruijn A, Angus K, Gordon R, Hastings G. Impact of alcohol advertising and media exposure on adolescent alcohol use: a systematic review of longitudinal studies. *Alcohol Alcohol.* 2009;44(3):229-243. doi:10.1093/alcalc/agn115
- 31. D'Amico EJ, Miles JNV, Tucker JS. Gateway to curiosity: Medical marijuana ads and intention and use during middle school. *Psychol Addict Behav*. 2015;29(3):613-619. doi:10.1037/adb0000094
- 32. Statista. Legal recreational cannabis sales U.S. 2021-2026. Statista. Published April 6, 2023. Accessed July 25, 2023. https://www.statista.com/statistics/933384/legal-cannabis-sales-forecast-us/
- 33. Navarro JG. Cannabis ad spend in North America 2030. Statista. Published January 6, 2023. Accessed August 9, 2023. https://www.statista.com/statistics/879805/cannabis-ad-spend-north-america/
- 34. Doctors for Cannabis Regulation. Universal Cannabis Symbol. Accessed August 30, 2023. https://www.dfcr.org/universal-cannabis-symbol
- 35. Trangenstein PJ, Whitehill JM, Jenkins MC, Jernigan DH, Moreno MA. Cannabis Marketing and Problematic Cannabis Use Among Adolescents. *J Stud Alcohol Drugs*. 2021;82(2):288-296. doi:10.15288/jsad.2021.82.288
- 36. Dilley JA, Graves JM, Brooks-Russell A, Whitehill JM, Liebelt EL. Trends and Characteristics of Manufactured Cannabis Product and Cannabis Plant Product Exposures Reported to US Poison Control Centers, 2017-2019. *JAMA Network Open.* 2021;4(5). doi:10.1001/jamanetworkopen.2021.10925

- 37. Swinburne M. *Cannabis Regulation Fact Sheet*. The Network for Public Health Law; 2022. Accessed August 21, 2023. https://www.networkforphl.org/wp-content/uploads/2022/11/Packaging-Regulation.pdf
- 38. Ishida JH, Zhang AJ, Steigerwald S, Cohen BE, Vali M, Keyhani S. Sources of Information and Beliefs About the Health Effects of Marijuana. *J Gen Intern Med.* 2020;35(1):153-159. doi:10.1007/s11606-019-05335-6
- 39. Moreno MA, Gower AD, Jenkins MC, Kerr B, Gritton J. Marijuana promotions on social media: adolescents' views on prevention strategies. *Substance Abuse Treatment, Prevention, and Policy*. 2018;13(1):23. doi:10.1186/s13011-018-0152-7
- 40. Spillane TE, Wong BA, Giovenco DP. Content analysis of instagram posts by leading cannabis vaporizer brands. *Drug Alcohol Depend*. 2021;218:108353. doi:10.1016/j.drugalcdep.2020.108353
- 41. Vogels EA, Gelles-Watnick R, Massarat N. *Teens, Social Media and Technology 2022*. Pew Research Center; 2022. Accessed July 27, 2023. https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/
- 42. Trangenstein PJ, Whitehill JM, Jenkins MC, Jernigan DH, Moreno MA. Active cannabis marketing and adolescent past-year cannabis use. *Drug Alcohol Depend*. 2019;204:107548. doi:10.1016/j.drugalcdep.2019.107548
- 43. Krauss MJ, Sowles SJ, Sehi A, et al. Marijuana advertising exposure among current marijuana users in the U.S. *Drug Alcohol Depend*. 2017;174:192-200. doi:10.1016/j.drugalcdep.2017.01.017
- 44. Kim Y, Vera L, Huang PhD J, Emery S. Marijuana Content on Digital Media and Marijuana Use among Young People in the United States. *Cannabis*. 5(2):16-29. doi:10.26828/cannabis/2022.02.007
- 45. Feeney KE, Kampman KM. Adverse effects of marijuana use. *Linacre Q*. 2016;83(2):174-178. doi:10.1080/00243639.2016.1175707
- Purtle J, Brinson K, Stadnick NA. Earmarking Excise Taxes on Recreational Cannabis for Investments in Mental Health: An Underused Financing Strategy. *JAMA Health Forum*. 2022;3(4). doi:10.1001/jamahealthforum.2022.0292
- 47. Warnick A. Protecting public health key as marijuana legalization grows: Colorado leading the way among states. *The Nation's Health*. 2019;49(6):1-10.
- 48. Palmedo PC, Dorfman L, Garza S, Murphy E, Freudenberg N. Countermarketing Alcohol and Unhealthy Food: An Effective Strategy for Preventing Noncommunicable Diseases? Lessons from Tobacco. *Annual Review of Public Health*. 2017;38(1):119-144. doi:10.1146/annurev-publhealth-031816-044303
- 49. Ad Council. Drug-Impaired Driving Campaign & Media Assets. Drug-Impaired Driving Prevention. Accessed August 21, 2023. https://www.adcouncil.org/campaign/drug-impaired-driving-prevention#print

- 50. Centers for Disease Control and Prevention. Marijuana and Public Health. Health Effects Driving. Published October 19, 2020. Accessed August 21, 2023. https://www.cdc.gov/marijuana/health-effects/driving.html
- 51. Hartman RL, Huestis MA. Cannabis effects on driving skills. *Clin Chem.* 2013;59(3):478-492. doi:10.1373/clinchem.2012.194381
- Desrosiers NA, Ramaekers JG, Chauchard E, Gorelick DA, Huestis MA. Smoked Cannabis' Psychomotor and Neurocognitive Effects in Occasional and Frequent Smokers. *Journal of Analytical Toxicology*. 2015;39(4):251-261. doi:10.1093/jat/bkv012
- 53. National Highway Traffic Safety Administration. Drug-Impaired Driving. Accessed August 21, 2023. https://www.nhtsa.gov/risky-driving/drug-impaired-driving
- 54. Lacey JH, Kelley-Baker T, Berning A, et al. *Drug and Alcohol Crash Risk: A Case-Control Study*. National Highway Traffic Safety Administration; 2016. Accessed August 21, 2023. https://www.nhtsa.gov/sites/nhtsa.gov/files/documents/812355 drugalcoholcrashrisk.pdf
- 55. U.S Department of Transportation. National Highway Traffic Safety Administration. Office of Behavioral Safety Research. *Update to Special Reports on Traffic Safety during the COVID-19 Public Health Emergency: Fourth Quarter Data [Traffic Safety Facts]*.; 2021. doi:10.21949/1526015
- 56. Fair L. THC edibles that look like snacks popular with kids? FTC and FDA have something to say about that. Federal Trade Commission. Published July 3, 2023. Accessed August 7, 2023. https://www.ftc.gov/business-guidance/blog/2023/07/thc-edibles-look-snacks-popular-kids-ftc-fda-have-something-say-about
- 57. Line Packaging Supplies. Warning Label Massachusetts. Line Packaging Supplies. Accessed August 30, 2023. https://www.linepackagingsupplies.com/warning-label-massachusetts/
- 58. Stanford University. Marijuana Billboards. Research into the Impact of Tabacco Advertising. Accessed August 30, 2023. https://tobacco.stanford.edu/marijuanas/billboards/