Commentary

The Role of Public Health in Combatting Synthetic Cannabinoid Use in Adolescents

Katherine E. Warren, M.Phil., Shirli Tay, and Leana S. Wen, M.D., M.Sc.

Baltimore City Health Department, Baltimore, Maryland

Keywords: Public health; Health department; Local government; Synthetic drugs; Synthetic cannabinoids; Communications

ABSTRACT

As the country struggles to address an epidemic of alcohol and drug overdose, a wide-ranging category of chemical substances known as synthetic drugs have provoked a new sense of public urgency over the past decade. Synthetic cannabinoids, a heterogeneous and evolving set of synthetic compounds that act on endogenous cannabinoid receptors, have become particularly popular among adolescents due to their relative ease of access and reputation as a “legal high.” The Baltimore City Health Department has worked to combat the recent surge in synthetic drug use through a major public awareness campaign, legislative reform, and retailer engagement and compliance initiative. In doing so, the city has built a coalition of clinicians, advocates, retailers, educators, legislators, and community members to fight synthetic cannabinoid use in Baltimore City. In this commentary piece, we offer strategies from our work and from that of our colleagues across the country for clinicians and communities fighting to stem the tide of recreational synthetic cannabinoid use.

© 2017 Society for Adolescent Health and Medicine. All rights reserved.

A wide-ranging category of chemical substances known as synthetic or designer drugs have provoked a new sense of public urgency over the past decade [1]. Unlike better-known drugs such as nicotine, alcohol, marijuana, heroin, or cocaine, there is a dearth of literature and much misinformation on their psychoactive effects and potential toxicity [2–11]. Emerging evidence indicates that synthetic cannabinoids have become increasingly popular among adolescents and young adults [12–21]. Evidence continues to mount demonstrating the relationship between adolescent substance use and adult substance use disorders [22–24] and between adolescent cannabis use and adult mental health disorders [25–27]. As the United States struggles to address epidemic substance use disorders, the growth of synthetic cannabinoid use among adolescents is a worrisome trend that requires a full public health coalition to address.

Confl icts of Interest: The authors have no conflicts of interest to disclose.

Address correspondence to: Leana S. Wen, M.D., M.Sc., Baltimore City Health Department, 1001 East Fayette Street, Baltimore, MD 21202.
E-mail address: health.commissioner@baltimorecity.gov (L.S. Wen).

Synthetic Cannabinoids in the United States

Since synthetic cannabinoid products first became available in the early 2000s, they have grown in popularity and developed a reputation among young people seeking a “legal,” “safe,” and “natural” high [28]. In 2015, 5.2% of U.S. 12th graders reported using synthetic marijuana products over the past year [29]. These products can be purchased at gas stations, corner stores, and on the Internet [8]. Known by brand names such as Spice, K2, Black Diamond, and Mojo [30], these structurally heterogeneous compounds act on the same cannabinoid receptors as Δ⁹-tetrahydrocannabinol with two to 100 times the potency and longer duration [8,9,31,32]. Although more reliable toxicological detection methods are in development [11], the diversity and rapid evolution of active ingredients has made consistent toxicological screening difficult and posed new challenges for regulation, law enforcement, medicine, and public health [33]. This trend is far from limited to the United States; recreational use of synthetic cannabinoids has been reported in Germany [33], the United Kingdom [34], Australia [35], New Zealand [36], and Japan [37].
Recent data from the National Poison Data System indicate that the majority of reported synthetic cannabinoid cases involved young men with the most common reported clinical presentations of tachycardia (37.7%). In these select clinical cases in which a report was made to a participating poison data system, the most common therapeutic intervention was the provision of intravenous fluids (25.3%); a minority of cases resulted in more severe medical and psychiatric emergencies including seizures (3.8%) and even death (1%) [8]. In a study of adolescent synthetic cannabinoid exposures, the medical outcome was considered serious in 61% of cases [13]. Adverse effects in adolescents included tachycardia (41.6%), drowsiness and lethargy (24.3%), agitation and irritability (16.4%), vomiting (13.1%), hallucinations and delusions (11.5%), nausea (8.5%), confusion (8.2%), hypertension (7.5%), chest pain (6.9%), and dizziness or vertigo (5.2%) [13]. Case reports of acute kidney injury [38,39] and psychosis [18,28,40] have also been recorded. Most of the existing evidence based on synthetic cannabinoids consists of case series [9,14,18,40,41] given inconsistencies in drug testing and reporting nationwide [11]. This commentary aims to examine the role of public health in combatting synthetic drug use among youth through case studies from local jurisdictions.

Federal Regulation and Legislation

The Drug Enforcement Agency has encountered approximately 95 different synthetic cannabinoids marketed as “legal” alternatives to marijuana since 2009 [42]. Although these products often contain the synthetic cannabinoid JWH-018 as an active ingredient [8], a number of other cannabimimetic agents have been identified [37] and classified as Schedule I substances under the Controlled Substances Act by the Drug Enforcement Agency since 2011 [42]. In total, 22 synthetic cannabinoids have been controlled through either legislative or regulatory action, although more than 75 additional compounds exist in the U.S. marketplace [42]. To stem the flood of synthetic drugs in the market, the U.S. Congress passed the Synthetic Drug Abuse Prevention Act in 2012. Signed into law by President Obama, the Act placed 26 types of synthetic cannabinoids and cathinones into Schedule I of the Controlled Substance Act [43]. Federal legislators introduced the Protecting Our Youth from Dangerous Synthetic Drugs Act in 2013 and 2015, which proposed expanding the classification of synthetic drugs in Schedule I and increasing the regulatory and enforcement speed to counter a highly adaptive synthetic drug market [44]. The Synthetic Abuse and Labeling of Toxic Substances Act of 2015 was introduced to target deceptive marketing of synthetic drugs [45]. These bills remained in committee amid concerns about the implications of further scheduling certain synthetic substances on the federal criminal justice system and on medical research.

Local Level Public Health and Regulatory Efforts

Given the challenges of federal regulation and legislation, local public health initiatives have emerged to engage local adolescents and their communities in outreach around synthetic cannabinoids. Drawing from our own efforts in Baltimore City as well as best practices identified by other local public health jurisdictions, this commentary identifies a number of important steps that coalitions of clinicians, local legislators, public health providers, and community members can take to decrease access and educate adolescents on the dangers of synthetic cannabinoids.

Dispel common myths and misconceptions

Adolescents hold a number of misconceptions about synthetic cannabinoids, often called “synthetic marijuana.” Many believe it to be a legal, safe, and natural alternative to marijuana given its marketing as “herbal incense” or “potpourri” [42].
Washington, D.C. launched a public awareness campaign with the slogan, “Danger: Fake Weed + U = Zombie” to discourage young people from becoming “zombies” through synthetic cannabinoid use. The Minnesota Department of Human Services has launched a campaign called Know the Dangers to “start the conversation” on synthetic drugs while Pasco County, Florida has launched a “Synthetics Kill” campaign. In Baltimore City, the Health Department launched a public health campaign for adolescents called, “Don’t Roll the Dice with Spice,” (see Figure 1) with advice for parents and teachers on how to speak with children about the dangers of synthetic drugs. High school students played a key role in developing and disseminating the outreach campaign.

Proactively engage retailers

Many synthetic cannabinoid products are sold in gas stations and by local retailers, who may not know the risks or penalties of selling such products to adolescents. Proactively engaging these local businesses in the campaigns to target synthetic drug use can be a powerful mechanism to decrease the supply of synthetic cannabinoids. Pasco County, Florida has asked local retailers to sign a Synthetic Drug Community Protection Agreement. To educate retailers, the Baltimore City Health Department sent letters to 1,300 corner stores, detailing common packaging of synthetic drugs and urging them to post “Not a Drug Dealer” signs in their windows.

Harness local jurisdictions in regulation and control

Given the rapid evolution of active ingredients in synthetic cannabinoid products, local governments, law enforcement, and health departments are best placed to identify emergent trends and workable solutions in their communities. In Washington, D.C., the District Department of Health is now authorized to add newly identified synthetic cannabinoids to the list of illegal drugs in its jurisdiction. In 2016, the Baltimore City Council passed a bill that decreases the burden of proof necessary to impose both civil and criminal penalties on sellers and toughens penalties on local businesses caught selling these drugs. The bill also allows the Health Department to remove synthetic drug products from stores at the time of discovery.

Educate clinicians in drug detection and surveillance

One of the greatest challenges in tackling synthetic cannabinoid use has been the rapid evolution of active ingredients and difficulties of drug detection and surveillance. Educating hospitalists on common signs of synthetic cannabinoid toxicity and engaging primary care providers in verbally screening for synthetic cannabinoid use in their adolescent patients can serve as the first line of defense. Baltimore City brought together adolescents, leaders of community groups, and the heads of city emergency departments to launch and support the campaign against synthetic drugs and asked community members to sign a petition in support of the Baltimore City Statement on the Dangers of Synthetic Drugs. Emergency departments now have resource cards to distribute to young people presenting with synthetic cannabinoid exposures as well as a centralized reporting line to record suspected or documented synthetic cannabinoid exposures to the Maryland State Poison Center. Harnessing prevention as well as more robust detection and surveillance data has been key to formulating public health campaigns against synthetic drug use.

The rise of the recreational use of synthetic cannabinoids among adolescents epitomizes the kinds of public health crises facing federal, state, and local jurisdictions in a time of rapidly evolving synthetic compounds and ease of dissemination of misinformation. Building coalitions of high school students, clinicians, public health providers, legislators, businesses, law enforcement, and parents is a key step in tackling such emergent issues in our communities. This article offered a review of synthetic cannabinoid use among adolescents and a number of best practices that have been enacted in local jurisdictions across the country. Our hope is that other communities can learn from and contribute to the nationwide efforts to educate and protect our young people from the dangers of synthetic cannabinoids.

Acknowledgments

The authors would like to thank their colleagues at the Baltimore City Health Department, Behavioral Health Services, and other community organizations for their assistance in implementing the campaign against synthetic drug use in Baltimore City.

References

[16] fir

K.E. Warren et al. / Journal of Adolescent Health 60 (2017) 483–486