Written Testimony of VADM Jerome M. Adams, M.D., M.P.H., U.S. Surgeon General and Nora D. Volkow, M.D., Director, National Institute on Drug Abuse
Caucus on International Narcotics Control
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Chairman Cornyn, Co-Chairwoman Feinstein and members of the Caucus on International Narcotics Control, we appreciate the opportunity to share the content of the recent Surgeon * H Q H U D O ¶ V $ G Y L V R U \ R Q 0 D U L M X D Q D 8 V H ³ Developing Brain Vulnerable to Marijuana´ and to join national experts to discuss this complex issue that demands our attention and action. Recent increases in access to marijuana and in its potency, along with misperceptions of its safety, endanger our most precious res R X U F H R X U Q D W L R Q ¶ V \ R X W K

Background

Marijuana, or cannabis, is the most commonly used illicit drug in the United States. In 2018, 43.5 million people reported using marijuana in the past year.[1] Marijuana acts by binding to cannabinoid receptors in the brain to produce a variety of effects, including euphoria, intoxication, and memory and motor impairments. These cannabinoid receptors are part of an extensive endocannabinoid system that regulates a wide range of functions, including brain development.

The endocannabinoid system appears relatively early during fetal development. As the fetal brain grows, this system influences how brain cells develop and connect with one another, and it plays a major role in the formation of brain circuits including those important for decision making, mood, and responding to stress.[2] Not surprisingly, animal studies have shown that in utero exposure to marijuana can interfere with the proper development and regulation of brain circuitry. Moreover, the endocannabinoid system is a critical regulator of the neuronal hardwiring that translates experience

doses of THC are more likely to produce anxiety, agitation, paranoia, and psychosis.[8] Use of edible marijuana can increase the risk of unintentional overdose due to its lengthy absorption time and delayed effect, often prompting the user to take a second dose. Edibles, which may have the appearance of desserts or snacks, are also increasingly a cause of accidental ingestion by children[9] and adolescents.[10] In addition, chronic users of marijuana with a high THC content are at risk for developing a condition known as cannabinoid hyperemesis syndrome, which is marked by severe cycles of nausea and vomiting.[11] The increase in the THC content of marijuana, combined with the growing availability of loosely regulated cannabis products, has led to a worrisome upward trend in the rate of calls to poison control centers and emergency department visits over the past decade.

Surgeon General's Advisory on Marijuana Use and

³ « D G Y L V H D O O D G R O H V F H Q W V D Q G \ R X Q J Z R P H Q W K D W L I W K H \ E
be used during pregnancy [18].

While cannabis use *during* pregnancy is associated with increased risk of adverse birth outcomes, later effects on the child due to exposure to THC through breastmilk are still unclear. This is in part due to challenges disentangling the long-term effects associated with marijuana exposure *in utero* versus during nursing. Although additional research is needed in this area, there is ample reason for caution, as THC has been detected in breastmilk for up to six days after the last recorded use. Additionally, marijuana smoke contains many of the same harmful components as tobacco smoke;[22] no one should smoke marijuana or tobacco around a baby.

Marijuana Use during Adolescence

Each day in 2018, 3700 adolescents aged 12 to 17 became new users of marijuana.[1] Although marijuana use declined among 8th graders and remains unchanged among 10th and 12th graders compared to five years ago, high school students ¶perception of the harm from regular marijuana use has been steadily declining over the last decade.[24] In 2018, only about a third (34.9 percent) of adolescents aged 12 to 17 perceived great risk from weekly marijuana use.[1] During this same period, a number of st0.00000912 ssg lodz1(ed)3( )-4(g)olart4( )] TJ ET Q q 0.00000912 0

brains; and the steps we can take together to understand more about and to mitigate those harms in order to protect our youth, the future of our nation. I am happy to answer any questions you may have.

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