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House Committee on Human Services
Vermont House of Representatives
Montpelier, VT

Re: Testimony in support of H.170, An act relating to possession and cultivation of marijuana by a person 21 years of age or older.

Dear Chairwoman Pugh and members of the committee:

My name is Bryon Adinoff. I am a member of the faculty at University of Texas Southwestern Medical Center, but am here strictly as private citizen expressing my own opinions. I have published and spoken widely on the biological effects and treatment of addictive disorders¹ and I am the Editor of *The American Journal of Drug and Alcohol Abuse*.²

Speaking as an addiction neuroscientist, there is no doubt that the chronic, heavy use of marijuana has potentially harmful effects. But the vast majority of people who use marijuana do not develop a problem with marijuana use. For these users, the most dangerous effect of marijuana is getting arrested for marijuana possession. While some users develop a problem with marijuana use, there is far less of a risk of developing an addiction to marijuana compared to other drugs, such as alcohol or tobacco. The risk of developing a substance use disorder, or addiction, from a single use of tobacco is one out of three (one person develops an addiction for each three people that try it) and for alcohol it is one out of six, but for marijuana it is one out of nine. Furthermore, the harm that occurs if an addiction occurs is far less from marijuana than other addictive substances, such as tobacco, alcohol and opioids. In the U.S., tobacco killed over 480,000 people last year.³ Alcohol killed almost 90,000.⁴ The opioid epidemic caused 33,000 overdose deaths last year.⁵ In comparison, I know of no deaths – ever – from marijuana. In fact, in a very important study published in *JAMA Internal Medicine* in 2014, it was found that states with medical marijuana laws saw a 25% decrease in opioid overdose deaths compared to states that did not have medical marijuana.⁶ A number of other studies also indicate that marijuana is used as a substitute for both prescription drugs and alcohol.⁷

As an addiction psychiatrist, I do not know of any clinical benefit that is associated with punishing adult marijuana consumers. It is my understanding that you have already seen this in Vermont — Vermont wisely reduced the penalties for the possession of small amounts of marijuana to a civil violation in 2013, and there has been little change in rates of use. Many studies now confirm that states with medical marijuana laws did not see an increase in marijuana use in adolescents or young adults after these laws were implemented.⁷ The same is true of decriminalization laws, and recent data from Colorado also do not detect notable increases in marijuana use in adolescents or young adults following marijuana legalization.

Laws against marijuana possession used to be far harsher. These laws did not stop marijuana use back then and they do not stop it now. I have never had a marijuana user tell me that the

penalty for marijuana possession influenced their decision as to whether to use it or not. What influences marijuana use or addiction (like all other substance use and addiction) is the drug's cost, the perception of its harm, and its availability, as well as a user's genetic make-up, personality, environment and co-occurring medical and psychiatric problems. The penalty for use plays little role in this decision.

There has also been concern that marijuana may be a "gateway" drug; that is, the use of marijuana leads to the use of other drugs, such as cocaine or heroin. A report on marijuana from the Institute of Medicine in 1999⁹ states that there is no conclusive evidence that marijuana is a gateway drug, a view echoed by the most recent opinion from the National Institute of Drug Abuse (NIDA)¹⁰ and a review of the literature by the Drug Enforcement Agency.¹¹ As the DEA notes, "Overall, research does not support a direct causal relationship between regular marijuana use and other illicit drug use."

I understand that there have been recommendations to this committee that the state needs more drug prevention services before this law should be passed. It appears that these prevention services are already offered in schools. However, the law would not affect the penalty for possession in those of school age and the lessening of the penalties in Vermont and other states has not affected use rates in adolescents. So the rationale for withholding support for H170 is not clear to me.

Thank you for your attention to this important issue. I hope that you will join me in concluding that removing penalties marijuana for adults' use is the best approach.

Sincerely,

Bryon Adinoff, M.D.

1. Adinoff publications: <https://www.ncbi.nlm.nih.gov/pubmed/?term=adinoff+b>
2. The American Journal of Drug and Alcohol Abuse:
<http://www.tandfonline.com/toc/iada20/current#.VafsK7ftTwQ>
3. <https://www.cdc.gov/alcohol/fact-sheets/alcohol-use.htm>
4. https://www.cdc.gov/tobacco/data_statistics/fact_sheets/fast_facts/
5. <https://www.cdc.gov/drugoverdose/>
6. Bachhuber MA, Saloner B, Cunningham CO, Barry CL (2014) Medical cannabis laws and opioid analgesic overdose mortality in the United States, 1999-2010. *JAMA internal medicine* 174:1668-1673. <http://www.ncbi.nlm.nih.gov/pubmed/25154332>
7. See, i.e.: Amanda Reiman, "Cannabis as a substitute for alcohol and other drugs," *Harm Reduction Journal* (2009) Philippe Lucas et al, "Cannabis as a substitute for alcohol and other drugs: A dispensary-based survey of substitution effect in Canadian medical cannabis patients," *Addiction Research and Theory* (2012); Donald Abrams et al., "Cannabinoid-opioid interaction in chronic pain," *Clinical Pharmacology & Therapeutics* 90, no. 6 (2011).
8. Martins SS, Mauro CM, Santaella-Tenorio J, Kim JH, Cerda M, Keyes KM, Hasin DS, Galea S, Wall M (2016) State-level medical marijuana laws, marijuana use and perceived availability of marijuana

among the general U.S. population. *Drug Alcohol Depend* 169:26-32.
<https://www.ncbi.nlm.nih.gov/pubmed/27755989>

9. Watson SJ, Benson JA, Jr., Joy JE (2000) Marijuana and medicine: assessing the science base: a summary of the 1999 Institute of Medicine report. *Arch Gen Psychiatry* 57:547-552.
<https://www.ncbi.nlm.nih.gov/pubmed/10839332>
10. <https://www.drugabuse.gov/publications/research-reports/marijuana/marijuana-gateway-drug>
11. Denial of Petition to Initiate Proceedings to Reschedule Marijuana, Federal Register, Doc. # 2016-17954, 8/12/16.