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Medical Affairs Committee
South Carolina Senate
Columbia, SC

RE: S.366

Chairman Verdin and committee members:

Thank you for the opportunity to provide the Committee with my testimony supporting the South Carolina Compassionate Care Act.

My name is Bryon Adinoff. I recently retired after 23 years as the Distinguished Professor of Alcohol and Drug Abuse Research at UT Southwestern Medical Center and over 30 years as an addiction psychiatrist in the Department of Veterans Affairs. Prior to that, it was my privilege to have been an Associate Professor at the Medical University of South Carolina for seven years. I have published and spoken widely on the biological effects and treatment of addictive disorders (1) and I am the Editor of *The American Journal of Drug and Alcohol Abuse* (2). My research has been funded by the National Institute on Drug Abuse (NIDA), the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the Department of Veterans Affairs. It is worth noting that my retirement has allowed me the freedom to provide testimony supporting medical cannabis; state universities typically frown upon this advocacy, so I anticipate you will not be hearing similar testimony from my academic colleagues in South Carolina.

Marijuana, or "botanical cannabis," has several known cannabinoids that are potentially useful in a number of additional debilitating conditions. In a recent report, the National Academies of Medicine, Engineering, and Sciences reported that there was *conclusive or substantial evidence* that cannabis or cannabinoids are effective for the treatment of chronic pain in adults and multiple sclerosis spasticity (3). *JAMA Internal Medicine* reported that states with medical marijuana laws saw a 25% decrease in opioid overdose deaths compared to states that did not have medical marijuana (4). This observation has been confirmed by other investigators. In states with medical cannabis, studies also show a decrease in Medicaid (5) and Medicare Part D (6) prescriptions for opioids and psychoactive drugs. A review in the *New England Journal of Medicine* by the director of NIDA states "clinical conditions with symptoms that may be relieved by treatment with marijuana or other cannabinoids" include chronic pain, inflammation, multiple sclerosis, AIDS-associated anorexia and wasting syndrome, glaucoma, and nausea (7). It is estimated there are now more than 1.2 million legal medical marijuana patients, and patient surveys consistently find that over half report using marijuana to reduce reliance on prescription drugs, primarily opioids (8).

From a pharmaceutical perspective, botanical cannabis is a very safe drug. In the U.S., tobacco kills almost 500,000 people last year, alcohol almost 90,000 (9,10). The opioid epidemic was

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responsible for over 70,000 overdose deaths in 2017 (11). In contrast, to my knowledge, even though medical cannabis was first legalized 23 years ago and the full plant is now legal in 33 states and the District of Columbia, nobody has ever died from a marijuana overdose. Although there were concerns that adolescent use would increase if medical cannabis was legalized, multiple studies have confirmed that adolescent use of cannabis does not increase states with medical cannabis compared to other states (12). In fact, a recent study in the *American Journal of Drug and Alcohol Abuse* found that the number of teenage cannabis smokers was one percent *less* in states that had enacted medical marijuana laws compared to those that hadn't, even when accounting for other important variables such as tobacco and alcohol policies, economic trends, youth characteristics and state demographics.[10]

The legislative process is an admittedly unusual pathway for providing legal access to a medication. This approach is often cautioned against while we await the findings from additional research. The exploration of cannabis therapeutics is, indeed, a very exciting area of investigation and many pharmaceuticals that utilize the human body's cannabinoid receptors are in development. However, the pathway to FDA approval is a long and arduous process; it will likely be at least a decade before many of these compounds are available for use. And despite the clarion call "we need more research," very little research in the U.S. is being funded in cannabis therapeutics; furthermore, this research is notoriously difficult to conduct due to government restrictions. Meanwhile, there is an *urgent need* to increase the availability of botanical cannabis for those presently suffering. Although I myself was initially skeptical of many of the claims of medical cannabis advocates, I can no longer ignore the hundreds of personal and heart-felt testimonies of changed lives, not possible with present pharmaceuticals, that I have heard over the past few years. I hope that you are similarly touched.

It is important that the ability of patients to obtain a potentially life-saving drug is not further delayed. I urge your support of the South Carolina Compassionate Care Act.

Sincerely,

Bryon Adinoff, M.D.

1. Adinoff publications
2. The American Journal of Drug and Alcohol Abuse
3. Committee on the Health Effects of Marijuana: An Evidence Review and Research Agenda (2017) *The health effects of cannabis and cannabinoids: a report from the National Academies of Sciences, Engineering and Medicine*. The National Academies Press: Washington, D.C.
4. 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.
5. Bradford AC, Bradford WD. Medical Marijuana Laws May Be Associated With A Decline In The Number Of Prescriptions For Medicaid Enrollees. Health Aff. (Millwood). 2017; 36 (5), 945-951.
6. Bradford AC, Bradford WD. Medical Marijuana Laws Reduce Prescription Medication Use In Medicare Part D. Health Aff. (Millwood). 2016; 35 (7), 1230-1236.

7. Volkow ND, Baler RD, Compton WM, Weiss SR (2014) Adverse health effects of marijuana use. N Engl J Med 370:2219-2227.
8. See 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)
9. CDC – Fact Sheets – Alcohol Use and Health – Alcohol
10. CDC – Fact Sheets - Smoking & Tobacco Use
11. CDC - https://www.cdc.gov/drugoverdose/
12. Coley RL, Hawkins SS, Ghiani M, Kruzik C, Baum CF. A quasi-experimental evaluation of marijuana policies and youth marijuana use. Am. J. Drug Alcohol Abuse 2019; 45 (3), 292-303. Ammerman S, Ryan S, Adelman WP. The impact of marijuana policies on youth: clinical, research, and legal update. Pediatrics. 2015;135(3):e769–85.