The Heritage Foundation

BACKGROUNDER

No. 3400 | APRIL 16, 2019

Drug Crises over the Horizon

Robert L. DuPont, MD

Abstract

Ending the modern drug epidemic may be impossible, but there are many good and practical ways to limit the damage caused by commercialized recreational drug use. The first crucial step is widespread recognition that recreational pharmacology—especially polydrug recreational pharmacology—is unhealthy and dangerous. A public health corollary is that national policy must aim to reduce the use of intensely brain-stimulating chemicals for personal pleasure. Recreational pharmacology, sadly, will claim many more victims, and its heightened commercialization must be avoided in the interests of the public health. This rapidly evolving drug epidemic will reshape our political decisions and test our nation's ability to deal successfully with commercialized recreational pharmacology for generations to come.

Two important aspects of the drug epidemic are at the forefront of national attention. The first is the legalization of the production, sale, and use of marijuana. The second is the explosion of drug overdose deaths that has resulted in overdose becoming the leading cause of death for Americans age 50 and younger[1] and has led to a remarkable decline in U.S. life expectancy for the third consecutive year.[2] These are the poles of drug policy: efforts to relax and even eliminate prohibition of marijuana on the one hand and increasing restrictions on opioids to discourage use and to reduce overdose deaths on the other. As we consider present and future drug crises, we can learn useful lessons both from expanding the focus beyond marijuana and opioids and from exploring the path that has led the nation to the current drug epidemic.

Heroin and cocaine were at the center of the nascent drug problem at the end of the 19th century. The United States led efforts to con-

Key Points

- In the long term, marijuana legalization may prove to be a more enduring and consequential drug threat than overdose deaths.
- The use of new psychoactive substances and illegal drugs more generally is a vast and destructive experiment by millions of people that no scientist or laboratory would ever conduct.
- The single most important take-home message from the past half-century of the modern drug epidemic is that 90 percent of adults with substance use disorders, including opioid addiction, initiated their substance use in adolescence.
- As we consider present and future drug crises, we can learn useful lessons both from expanding the focus beyond marijuana and opioids and from exploring the path that has led to the current drug epidemic.
- Strategies that deal with prevention, treatment, and drug-impaired driving hold the promise of sharp reductions in the use of recreational drugs and the negative consequences of this drug use.

This paper, in its entirety, can be found at **http://report.heritage.org/bg3400**

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214 Massachusetts Avenue, NE
Washington, DC 20002
(202) 546-4400 | heritage.org

front and contain this already serious global health problem by creating a strong international commitment to reduce drug supply. National efforts included the Food and Drug Act of 1906,[3] which focused on ensuring purity and accurate labeling of food and drug products, and the Harrison Narcotics Tax Act of 1914,[4] which separated legal medical use of drugs with abuse potential from their nonmedical illegal use. This arrangement worked reasonably well to limit the public health damage of heroin, cocaine, and other drugs in the U.S. until the 1960s. Dramatic cultural changes sparked an explosion of drug use, particularly among youth and especially—but not only—in the U.S. Those changes included an openness to recreational pharmacology, especially the recreational use of marijuana, which peaked among U.S. youth in 1978.[5]

All three of those drugs—heroin, cocaine, and marijuana—have agricultural sources: the opium poppy, the coca bush, and the cannabis plant, respectively. All three also have long histories of human use. Unlike early traditional use of these three drugs, which was limited to oral use of low-potency material for quasitherapeutic purposes, beginning in the late 19th and 20th centuries, patterns of drug use shifted to higher-potency products at higher doses used by intravenous and smoked delivery, all outside of medical practice. The quality of the users' experience with these three old drugs was not just new but entirely different. Additionally, nonmedical or recreational drug use had previously been restricted to small subsets of populations. Now, it suddenly became markedly more common.

Heroin and cocaine became prototypes for the creation of wholly new synthetic drugs such as fentanyl and Novocain. Synthetic drugs have effects that are similar to those produced by agriculturally based drugs and are widely used in medicine today. Use of agricultural product–based drugs, by contrast, has fallen off. Synthetic tetrahydrocannabinol (THC), the primary psychoactive component of marijuana, was created for medical use in the form of dronabinol (Marinol®). The synthesis for medical use of entirely new compounds with effects similar to ones derived from agricultural products is a major achievement of modern pharmacology. The synthetics have replaced virtually all earlier agricultural drugs in medical practice worldwide today.

Just as medically prescribed drugs evolved from a relatively few ancient agricultural products to a myriad of new synthetic products, drugs of abuse now are following the same pattern. Beyond the agricultural brain reward-stimulating templates, there increasingly is a virtually limitless explosion of brain reward-stimulating synthetic analogues.[6] As the number of drugs of abuse has increased, the routes of administration have expanded from intravenous use to smoking, snorting, and, most recently, vaping. Add to this powerful evolution a third step: the move to ever-more-potent chemicals.

New Psychoactive Substances

A prime example is the emergence of New Psychoactive Substances (NPS), "substances of abuse, either in a pure form or a preparation, that are not controlled by the 1961 Single Convention on Narcotic

1. Sheila Kaplan, "C.D.C. Reports a Record Jump in Drug Overdose Deaths Last Year." *The New York Times*, November 3, 2017, https://www.nytimes.com/2017/11/03/health/deaths-drug-overdose-cdc.html (accessed January 16, 2019).
2. Sherry L. Murphy, Jiaquan Xu, Kenneth D. Kochaneck, and Elizabeth Arias, "Mortality in the United States, 2017," National Center for Health Statistics *Data Brief* No. 328, November 2018, https://www.cdc.gov/nchs/data/databriefs/db328-h.pdf (accessed January 16, 2019).
3. Ch. 3915, 34 Stat.768 (1906).
4. Ch. 1, 38 Stat.785 (1914).
5. In 1978, 13 percent of Americans age 12 and older reported past-month use, and 37 percent of high school seniors reported past-month marijuana use. See U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality, *Results from the 2013 National Survey on Drug Use and Health: Summary of National Findings*, NSDUH Series H-48, HHS Publication No. (SMA) 14-4863, September 2014, https://www.samhsa.gov/data/sites/default/files/NSDUHresultsPDFWHTML2013/Web/NSDUHresults2013.pdf (accessed March 20, 2019), and Richard A. Miech, Lloyd D. Johnston, Patrick M. O'Malley, Jerald G. Bachman, John E. Schulenberg, and Megan E. Patrick, *Monitoring the Future: National Survey Results on Drug Use, 1975–2017, Volume I, Secondary School Students*, University of Michigan, Institute for Social Research, June 2018, http://www.monitoringthefuture.org/pubs/monographs/mtf-vol1_2017.pdf (accessed March 20, 2019).
6. For an overview of available drugs, see U.S. Department of Justice, Drug Enforcement Administration, *2018 National Drug Threat Assessment*, DEA-DCT-DIR-032-18, October 2018, https://www.dea.gov/sites/default/files/2018-11/DIR-032-18%202018%20NDTA%20final%20low%20resolution.pdf (accessed January 16, 2019).

Drugs or the 1971 Convention on Psychotropic Substances, but which may pose a public health threat."[7] NPS producers have the recipes for a myriad of novel drugs drawn directly from laboratory work and also possess new technology to produce those chemicals anywhere in the world.

In sharp contrast to the NPS used in recreational pharmacology, we have years-long, rigorous study in the development of synthetic medicines, first in animal studies and then in carefully controlled human studies. New drugs are studied for safety, effectiveness, and purity. *None* of that research is done for NPS and the rest of the illegal drug market. There is no testing of NPS for safety, efficacy, or purity. Producers simply make and sell NPS to gullible, paying drug users. There is no concern about what the drugs do to the users' minds or bodies. These new synthetic drugs can also have unpredictable effects on receptor sites other than the targeted ones. An almost unbelievable range of side effects can be seen only after recreational drug users make themselves the human guinea pigs in this reckless "experiment."

The use of NPS and illegal drugs more generally is a vast and destructive experiment by millions of people that no scientist or laboratory would ever conduct. Bodies, brains, and lives are put at risk. Incredibly, when a new drug produces fatalities, recreational drug users typically flock to the responsible drug sellers, seeing their product as "the good stuff."

Part of the appeal of NPS for producers and users is that their identification through drug tests is difficult, complex, and hugely expensive. Typical drug tests search for only a few drugs at a time. Even very sophisticated and prohibitively expensive drug testing technology is limited to a panel of about a hundred drugs.[8] In comparison, the options for addictive drugs of abuse including NPS are in the thousands and expanding daily.

The evolution of new chemicals and drug products and the changing pattern of nonmedical uses have been accompanied by an increase in the global production of addicting drugs with many actors eager to cash in on the massive worldwide demand for them. Consider the legal drug industry. In the U.S., annual revenue from cigarettes totals $93.4 billion,[9] and revenue from alcohol totals $71.6 billion.[10] Americans spend an estimated $100 billion a year on illegal drugs.[11] The sellers of drugs have been evolving rapidly to lower the costs of the drugs and to increase the ease of purchase. Most important, these commercial interests are tireless in normalizing the use of drugs by focusing on the many users who have no problems with their use and by aggressively impeaching evidence of problems caused by drug use.

The normalization of marijuana has been particularly successful with state-based legalization of commercial production and sale of the drug for medical and recreational purposes across the country. In the long term, marijuana legalization may prove to be a more enduring and consequential drug threat than overdose deaths given our nation's extensive and troubled history of struggles with alcohol and nicotine. The use of alcohol and use of nicotine are the two leading causes of preventable illness and death.[12]

7. United Nations Office on Drugs and Crime, "UNODC Early Warning Advisory on New Psychoactive Substances," https://www.unodc.org/LSS/Page/NPS (accessed January 16, 2019).
8. For a description of drug testing, see Gary M. Reisfield, Roger L. Bertholf, Bruce A. Goldberger, and Robert L. DuPont, "Practical Considerations in Drug Testing," in *The ASAM Principles of Addiction Medicine*, 6th ed., ed. Shannon C. Miller, David A. Fiellin, Richard N. Rosenthal, and Richard Saitz (Philadelphia: Wolters Kluwer, 2018), pp. 1724–1743.
9. Jennifer Maloney and Saabira Chaudhuri, "Against All Odds, the U.S. Tobacco Industry Is Rolling in Money," *The Wall Street Journal*, April 23, 2017, https://www.wsj.com/articles/u-s-tobacco-industry-rebounds-from-its-near-death-experience-1492968698 (accessed January 16, 2019).
10. Statista, "Supplier Gross Revenue of Alcoholic Beverages in the United States in 2017 by Beverage Type (in Billion U.S. Dollars), February 2018, https://www.statista.com/statistics/237868/us-revenue-of-alcoholic-beverages-by-type/ (accessed January 16, 2019).
11. B. Kilmer, S. Everingham, J. Caulkins, G. Midgette, R. Liccardo Paccula, P. Reuter, R. Burns, B. Han, and R. Lundberg, *What America's Users Spend on Illegal Drugs: 2000–2010* (Santa Monica, CA: RAND Corporation, February 2014), https://obamawhitehouse.archives.gov/sites/default/files/ondcp/policy-and-research/wausid_results_report.pdf (accessed January 16, 2019). Prepared for the Office of National Drug Control Policy, Office of Research and Data Analysis.
12. Goodarz Danaei, Eric L. Ding, Dariush Mozaffarian, Ben Taylor, Jürgen Rehm, Christopher J. L. Murray, and Majid Ezzati, "The Preventable Causes of Death in the United States: Comparative Risk Assessment of Dietary, Lifestyle, and Metabolic Risk Factors," *PLoS Medicine*, Vol. 6, No. 4 (April 2009), e1000058, https://journals.plos.org/plosmedicine/article/file?id=10.1371/journal.pmed.1000058&type=printable (accessed January 16, 2019).

Make no mistake: Marijuana is not a substitute for the use of either alcohol or nicotine; those who use marijuana use more (not less) alcohol and more (not less) nicotine than do those who do not use marijuana.[13] Marijuana users also use more opioids nonmedically than do nonusers of marijuana. Similarly, those who use alcohol and those who use nicotine use more marijuana than do those who do not use the two well-established legal drugs.

In the face of the overdose epidemic, which claimed more than 70,000 lives just in 2017,[14] there is a justified focus on the overprescription and diversion of opioid pain medicines, which, if misused, can be addictive and even fatal.[15] But it is synthetic opioids like fentanyl and related analogues that now are driving overdose deaths. Those synthetic medicines with abuse potential were developed alongside the NPS. They are commonly found in street-level heroin and other illegal drugs. Illegal drug supply traditionally was the product of isolated "kitchen chemists" and low-level criminals. Now, illegal drugs, including opioids, come from sophisticated laboratories all over the world that provide many different addictive chemicals, all at higher potency, lower cost, and more convenient delivery.[16]

The Core Threat: Polydrug Pharmacology

It is clear that the core threat facing the nation and the world is not limited to any one drug. It is recreational polydrug pharmacology. It hijacks the brain of addicts, producing long-lasting in some cases even permanent brain changes that lead to denial of the negative consequences of drug use and a drive to continue using destructive drugs despite their repeated negative consequences.[17]

Understanding the brain effects of drugs of abuse has been a defining achievement of science over the past half-century, with the National Institute on Drug Abuse (NIDA) leading the way. This new science shows that the brain is uniquely vulnerable to drugs of abuse. These chemicals produce a distinctive brain reward by diverse mechanisms. Animal studies show that animals experienced in drug stimulation of their brains will work harder to obtain drugs of abuse than they will for natural stimuli of brain reward such as food and sex.[18] While that vulnerability varies among individuals, it is not limited to a small subset of animals, including humans. This new biological research is important for many reasons but especially because it is cautionary about the wide vulnerability of human populations to the intense stimulation of brain reward produced by drugs of abuse.

Aggressive commercialization of recreational use heightens the public health challenge posed by addictive chemicals. Commercial interests dominate the public discussions and drive political decisions, especially for the legal drugs—alcohol, nicotine, and increasingly marijuana. Distorting those discussions are arguments that seek to justify and promote drug use by noting that not everyone who uses them suffers adverse consequences and that commercial industries selling addicting chemicals create tax revenue, jobs, and wealth for the community. The arguments favoring recreational pharmacology are commonly justified as protected personal choices. Down the road of personal freedom, however, are also millions of individuals, families, employers, and

13. See, for example, Robert L. DuPont, Beth Han, Corinne L. Shea, and Bertha K. Madras, "Drug Use Among Youth: National Survey Data Support a Common Liability of All Drug Use," *Preventive Medicine*, Vol. 113 (August 2018), pp. 68–73, https://www.researchgate.net/profile/Bertha_Madras/publication/325195580_Drug_use_among_youth_National_survey_data_support_a_common_liability_of_all_drug_use/links/5baa609145851574f7e62d64Drug-use-among-youth-National-survey-data-support-a-common-liability-of-all-drug-use.pdf?origin=publication_detail (accessed January 16, 2019).
14. Josh Katz, and Margot Sanger-Katz, "'The Numbers Are So Staggering.' Overdose Deaths Set a Record Last Year," *The New York Times*, November 29, 2018, https://www.nytimes.com/interactive/2018/11/29/upshot/fentanyl-drug-overdose-deaths.html (accessed January 16, 2019).
15. Robert L. DuPont, "A New Narrative to Understand the Opioid Epidemic," *The Journal of Global Drug Policy and Practice*, Vol. 12, Issue 1 (Winter 2018), https://www.dfaf.org/wp-content/uploads/2018/11/Opioid-Narrative-3.pdf (accessed January 16, 2019).
16. Roger Parloff, "Drug Policy Expert Robert DuPont: The Opioid Crisis Is Now About Synthetics and Polydrug Use," Opioid Research Institute *Opioid Watch*, May 8, 2018, https://opioidinstitute.org/2018/05/08/drug-policy-expert-robert-dupont-the-opioid-crisis-is-now-about-synthetics-and-polydrug-use/ (accessed January 16, 2019).
17. Robert L. DuPont, *Chemical Slavery: Understanding Addiction and Stopping the Drug Epidemic* (Rockville, MD: Institute for Behavior and Health, 2018).
18. Robert L. DuPont, Bertha K. Madras, and Per Johansson, "Drug Policy: A Biological Science Perspective," in *Lowinson and Ruiz's Substance Abuse: A Comprehensive Textbook*, 5th ed., ed. Pedro Ruiz and Eric Strain (Philadelphia: Lippincott Williams & Wilkins, 2011), pp. 998–1010.

communities that experience the tragic, often irreversible, consequences of the devastation of drug use. Drug addiction is modern chemical slavery.[19]

For a stunning example of the innovation of commercialized recreational pharmacology and how rapidly it can increase drug use, one need look no further than the recent introduction and promotion of "vaping." Taking drugs by vaporization is not new. For decades, some heroin addicts have heated heroin to be inhaled, a practice called "chasing the dragon." But only in the past few years has vaping gone mainstream with the introduction of a newly attractive vaping format. Vaping is sold as a safer way for cigarette smokers who did not choose to stop nicotine use to consume the drug. Vaping has also provided a new and more socially acceptable way to consume nicotine, and not just for cigarette smokers.

Today, vaping nicotine is more common than smoking cigarettes among youth,[20] with Colorado teens reporting the highest rates of use.[21] After years of decline, nicotine use by youth is now rising rapidly thanks to vaping, erasing much of the hard-won public health gain from efforts to denormalize cigarette smoking.[22] Similarly, commercialized legal marijuana has introduced new and more socially acceptable ways to consume THC, the psychoactive element in marijuana. In Colorado and other places where the sale of marijuana is now legal, edible marijuana products and waxes and concentrates are expanding the market for THC just as vaping is expanding the market for nicotine.[23]

Clash of Visions and Interests

This is what we can expect for the future of the illegal drug industry: (1) an increased number of addicting drugs, mostly synthetic; (2) higher-potency drug products; (3) lower prices for those products; and (4) more convenient delivery to users. The legal recreational drug market is equally innovative and able to reach far larger numbers of customers. Those trends feed into a global culture that is increasingly supportive both of personal choices about drug use and of the commercial production and promotion of drugs. As the negative results of these changes increase, we may see an engaged public that supports a new public health commitment to policies that discourage recreational drug use. These future efforts are likely to prohibit or limit the commercial promotion of drugs of abuse for recreational purposes. The extensive historical experience that the U.S. has with policies regulating and restricting alcohol and nicotine—and the current contentions over marijuana—are a prelude to this future clash of visions and interests in both the legal and illegal drug markets.

The single most important take-home message from the past half-century of the modern drug epidemic is that 90 percent of adults with substance use disorders, including opioid addiction, initiated their substance use in adolescence.[24] This is not surprising given the unique vulnerability of the developing adolescent brain. It emphasizes the clear importance of youth prevention.

There is evidence that offers hope. A recent analysis of national drug use trends shows that the percentage of U.S. high school seniors who have never used alcohol, cigarettes, marijuana, or other illegal drugs increased from 3 percent in 1983 to about 26 percent in 2014.[25] During that time, the percentage of high school seniors who refrained from any substance

19. DuPont, *Chemical Slavery: Understanding Addiction and Stopping the Drug Epidemic*.
20. Press Release, "National Adolescent Drug Trends in 2018," University of Michigan, Institute for Social Research, Monitoring the Future, December 17, 2018, http://www.monitoringthefuture.org/pressreleases/18drugpr.pdf (accessed January 16, 2019).
21. John Daley, "Why Is Colorado Tops in Teen Vaping? Many Suspicions Fall on Legal Marijuana," Colorado Public Radio, December 12, 2018, http://www.cpr.org/news/story/why-is-colorado-tops-in-teen-vaping-many-suspicions-fall-on-legal-marijuana (accessed January 16, 2019).
22. Jan Hoffman, "Study Shows Big Rise in Teen Vaping This Year," *The New York Times*, December 17, 2018, https://www.nytimes.com/2018/12/17/health/ecigarettes-teens-nicotine-.html (accessed January 16, 2019).
23. Adam Orens, Miles Light, Brian Lewandowski, Jacob Rowberry, and Clinton Saloga, *Market Size and Demand for Marijuana in Colorado: 2017 Market Update*, Marijuana Policy Group and University of Colorado Boulder, Lees School of Business, Business Research Division, August 2018, https://www.colorado.gov/pacific/sites/default/files/MED%20Demand%20and%20Market%20%20Study%20%20082018.pdf (accessed January 17, 2019). Prepared for the Colorado Department of Revenue.
24. National Center on Addiction and Substance Abuse at Columbia University, *Adolescent Substance Use: America's #1 Public Health Problem*, 2011, https://www.centeronaddiction.org/addiction-research/reports/adolescent-substance-use-america%E2%80%99s-1-public-health-problem (accessed January 17, 2019).
25. Sharon Levy, Michael D. Campbell, Corinne L. Shea, and Robert L. DuPont, "Trends in Abstaining from Substance Use in Adolescents: 1975–2014," *Pediatrics*, Vol. 142, Issue 2 (August 2018).

use in the past month increased from about 16 percent to 52 percent. That positive trend is more than three decades old. At the same time, an analysis of another nationally representative dataset showed that American youth aged 12–17 who had used alcohol, cigarettes, or marijuana in the prior 30 days were dramatically more likely to report also having used the other two drugs than were similar youth who refrained from using any one of the three.[26]

In other words, the crucial health decision for youth is not substance-specific; it is all-inclusive. An adolescent who does not use one of those three is far less likely to use the other two, which means that he or she is also far less likely to use harder drugs such as heroin as an adult. The health goal for youth is not to use any drugs.

It is no accident that the drugs that are legal for adults—alcohol, nicotine, and now marijuana in many states—as well as the drugs that are illegal for adults are all illegal for use by youth. Whatever differences exist in public opinion about recreational drug use by adults, the nation can unite on a drug-free health goal for the nation's youth. That clear prevention goal for youth under age 21 is known as "One Choice," the choice of no drug use.[27]

Addiction treatment is now widespread and growing rapidly. All treatments, both those that use and those that do not use medications, need to be evaluated on their ability to produce lasting recovery, meaning no use of alcohol, marijuana, or other drugs and significant character improvement.[28] The nation's five-decades-old system of care management for physicians addicted to alcohol, opioids, and other drugs provides a template for making lasting recovery the expected outcome of treatment.[29]

What Can Be Done to Reduce Drug-Impaired Driving

Finally, the nation's response to the problem of alcohol-impaired driving offers a good starting place for how to handle impaired driving caused by other drugs including marijuana. Unfortunately, however, because of stark differences in metabolism of drugs and the impact of tolerance, the legal standard fixing a 0.08 g/dL blood alcohol concentration (BAC) to define impairment as a matter of law cannot be applied to marijuana or other drugs.[30] Nevertheless, there are many good ideas to reduce drug-impaired driving. Among these ideas are the following six proposals:

- **Proposal #1:** Apply to every driver under 21 years old who tests positive for any illicit or impairing drug, including marijuana and impairing prescription drugs without personal prescriptions for those drugs, the same zero-tolerance standard specified for alcohol, the use of which in this age group is illegal.
- **Proposal #2:** Apply to every driver found to have been impaired by drugs, including marijuana, the same remedies and penalties that are specified for alcohol-impaired drivers, including administrative or judicial license revocation.
- **Proposal #3:** Test every driver involved in a crash that results in a fatality or a major traffic accident (including injury to pedestrians) for alcohol, marijuana, and a panel of commonly abused drugs including opioids.
- **Proposal #4:** Test every driver arrested for driving while impaired for alcohol and impairing drugs, including marijuana.
- **Proposal #5:** Use reliable oral fluid testing technology at the roadside for every driver arrested for impaired driving.
- **Proposal #6:** Develop national standardized testing, synchronize the testing with drug overdose testing, and develop a national database

26. DuPont, Han, Shea, and Madras, "Drug Use Among Youth: National Survey Data Support a Common Liability of All Drug Use."
27. See Institute for Behavior and Health, Prevent Teen Drug Use Website, www.OneChoicePrevention.org (accessed January 17, 2019).
28. Robert L. DuPont, Wilson M. Compton, and A. Thomas McLellan, "Five-year Recovery: A New Standard for Assessing Effectiveness of Substance Use Disorder Treatment," *Journal of Substance Abuse Treatment*, Vol. 58 (November 2015), pp. 1–5.
29. Robert L. DuPont, A. Thomas McLellan, William Lee White, Lisa J. Merlo, and Mark S. Gold, "Setting the Standard for Recovery: Physicians' Health Programs," *Journal for Substance Abuse Treatment*, Vol. 36, No. 2 (March 2009), pp. 159–171.
30. Gary M. Reisfield, Bruce A. Goldberger, Mark S. Gold, and Robert L. DuPont, "The Mirage of Impairing Drug Concentration Thresholds: A Rationale for Zero Tolerance per se Driving Under the Influence of Drugs Laws," *Journal of Analytical Toxicology*, Vol. 36, No. 5 (June 2012), pp. 353–356.

that collects the information for program and policy decisions.[31]

These three strategies—dealing with prevention, treatment, and drug-impaired driving—hold the promise of sharp reductions in the use of recreational drugs and the negative consequences of this drug use.

Conclusion

While ending the modern drug epidemic is impossible, there are many good and practical ways to limit the damage caused by commercialized recreational drug use. The first crucial step is widespread recognition that recreational pharmacology—especially polydrug recreational pharmacology—is unhealthy and dangerous. A public health corollary is that national policy must aim to reduce the use of intensely brain-stimulating chemicals for personal pleasure.

Just as the human brain's vulnerability to addiction is not limited to any particular subset of the population, the drug epidemic is not limited to any one nation. Drug-using behaviors and drug supply, both legal and illegal, also are global issues. Therefore, solutions to this modern public health threat must be global, based on the recognition of our shared vulnerability.

Recreational pharmacology, sadly, will claim many more victims. Heightened commercialization of recreational pharmacology must be avoided in the interests of the public health. This modern, rapidly evolving drug epidemic will reshape our political decisions. Our nation's ability to deal successfully with commercialized recreational pharmacology will be tested for generations to come—as it has been tested for generations past. May we think clearly and act wisely to prevent the harms that we bring upon ourselves.

—Robert L. DuPont, MD, *is President of the Institute for Behavior and Health, Inc., and former Director of the National Institute on Drug Abuse.*

31. Paul J. Larkin, Jr., Robert L. DuPont, and Bertha K. Madras, "The Need to Treat Driving Under the Influence of Drugs as Seriously as Driving Under the Influence of Alcohol," Heritage Foundation *Backgrounder* No. 3316, May 16, 2018, https://www.heritage.org/public-health/report/the-need-treat-driving-under-the-influence-drugs-seriously-driving-under-the.