

ISSUE BRIEF **11.01.18**

The Drug Overdose Epidemic: Not Just About Opioids

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The rise in opioid-related overdose deaths in the last two decades is widely regarded as an epidemic that originated with the overprescribing of prescription pain relievers in the late 1990s. But a research study published in the September issue of *Science* suggests that the opioid overdose crisis is actually part of a larger trend that started 40 years ago.¹

In the study, researchers mapped drug overdose deaths in the U.S. from 1979 through 2016. The authors analyzed data from the National Vital Statistics System on 599,255 deaths in which the main cause of death was listed as accidental drug poisoning. The authors found that drug overdose fatalities have been increasing dramatically since 1979, stating that “this exponentially increasing mortality rate has tracked along a remarkably smooth trajectory for at least 38 years,” suggesting that “the current wave of opioid overdose deaths may just be the latest manifestation of a more fundamental longer-term process.”²

Within this broad trend of steady growth, there is significant variation in terms of the specific drugs involved and the populations most affected by drug overdose deaths. Currently, the population most at risk for cocaine overdose is aging black males living in urban counties, while methamphetamine-related deaths skew toward white and rural male populations. For opioid-related deaths, age is a defining feature of variation in risk patterns. Deaths involving heroin and synthetic opioids are higher for people between the ages of 20 and 40, especially white males living in

urban counties. In contrast, prescription opioid deaths are higher among those 40 to 60 years old, especially white females living in rural counties. Nearly every region of the country, except for the northern Midwest, has been a “hot spot” for drug overdose deaths in the last few years.

Despite some limitations,³ this analysis provides strong evidence for the existence of a protracted drug epidemic that requires both immediate and long-term interventions. The finding that the relatively recent increase in opioid-specific overdoses may be a particularly intense manifestation of a more persistent problem implies that a major feature of the government response to opioid-involved overdoses—restricting the supply of prescription painkillers—does little to stem the overall uptick in drug-related fatalities. The fact that the increase in overdose deaths has remained constant despite varying trends for specific drugs also suggests that factors often thought to drive the overdose epidemic, such as a rise in drug use or an overabundant drug supply, are not sufficient explanations.

OVERDOSE DEATHS VS. DRUG USE

Overdose deaths are a “relatively reliable” measure of the most serious consequences of drug epidemics because U.S. states count all overdose deaths.⁴ However, analysis of overdose death data does not capture other features of drug epidemics, such as patterns of drug use. One of the most reliable and longest serving sources of data on drug use patterns is the National Survey on Drug Use



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and Health (NSDUH), which surveys roughly 70,000 people annually about their drug use and mental health. These data suggest that rates of drug use have not kept pace with the rates of overdose deaths.

The total number of people aged 12 or older reporting past-month illicit drug use (including marijuana) increased from 25.4 million in 1979 to 28.6 million in 2016.⁵ As a percentage of the population, this is a decrease from 14.1 percent to 10.6 percent. For most drug categories, fewer people report past-month use in 2016 than in 1979. For example, even though more people now say they have tried cocaine at least once, fewer people use it with any regularity—there were an estimated 4.7 million past-month users in 1979 compared to 1.9 million in 2016.

This downward trend in past-month illicit use holds for all drug categories except heroin and prescription pain relievers. Only 0.2 percent of the population aged 12 or older misused heroin in the past month in 2016, but the total number of past-month users increased from 128,000 in 1979 to 475,000 in 2016. In addition, the total number of people who misused prescription pain relievers in the past month increased from 2.7 million in 1985 (1.2 percent of the population) to 3.4 million in 2016 (1.4 percent of the population), an increase roughly consistent with population growth.⁶ The number of past-month users of heroin and prescription pain relievers also has not increased steadily but has waxed and waned over the decades, albeit with a more constant increase since around 2002.

People with a substance use disorder (SUD) are at a higher risk of overdose than occasional or regular users, but SUD rates in the population have also been stable. The number of people with an SUD involving an illicit drug (including marijuana) has been relatively constant between 7.1 million in 2002 and 7.4 million in 2016.⁷ The number of people with an SUD involving either prescription opioids or heroin increased from 1.7 million in 2002 to 2.1 million in 2016, an increase of roughly 24 percent. By comparison, the rate of overdose deaths involving an opioid increased 254 percent during that same time period, from 11,920 in 2002 to 42,249 in 2016.⁸

Further analysis of the relationship between drug use patterns and overdose deaths is needed. It is possible that the NSDUH data underestimate rates of drug use and SUDs in the population. Trends identified in large data sets also tell us little about the specific circumstances of individuals who become addicted or have a fatal overdose. But the divergence in growth of drug overdose deaths compared to drug use and SUD rates suggests that this epidemic is less about overall drug use and more about specific patterns of drug use behavior that increase the risk of overdose.

REDUCING OVERDOSES: IMMEDIATE INTERVENTIONS

Current trends indicate that one of the biggest challenges to stemming overdose deaths is the ubiquity of powerful synthetic opioids, such as fentanyl and carfentanil, in the black market drug supply. To address this problem, elected officials are calling for enhanced efforts to reduce the amount of fentanyl and fentanyl analogs coming to the U.S. from overseas.⁹ Any reduction in the supply of these very deadly drugs could save lives, so it is reasonable to devote some resources to curtailing their availability. But the diversity of distribution outlets makes this an uphill battle, and drug manufacturers and traffickers will likely adapt to any successful efforts to restrict fentanyl by finding a drug alternative that is potentially just as lethal, if not more so. To be sure of the high likelihood of this scenario, we need look no further than the current spike¹⁰ in fentanyl-related overdose deaths, which is a consequence of government efforts to reduce the supply of prescription opioids in the early 2000s.

Given the dangers of today's illicit drugs, and the fact that their eradication is impossible, it is critical to focus on reducing the risk of overdose associated with their use. One risk factor for overdose that is becoming increasingly common is polydrug use.¹¹ The mixing of drugs that have synergistic effects, such as opioids and benzodiazepines, is especially toxic. In this case, both drugs are sedatives that restrict

breathing, which is one cause of overdosing. Over 30 percent of deaths involving opioids also involve a benzodiazepine, and over 95 percent of deaths involving a benzodiazepine involve at least one other drug, with opioids being the class of drugs most frequently mentioned.¹² The mixing of different opioids, of opioids and cocaine, and of opioids or cocaine with alcohol, can also be deadly; data indicate that for all three major classes of drugs (opioids, benzodiazepines, and stimulants), the majority of overdose deaths involves two or more drugs.¹³

Trends of polysubstance use evident in overdose fatality data highlight the need for policy responses that specifically target this pattern of drug use. Some people may be unaware of their exposure to multiple drugs; for example, they may not know that the Xanax (a commonly prescribed benzodiazepine) or the Vicodin (a commonly prescribed opioid) they purchased off the street or the internet are actually counterfeit pills containing fentanyl. One relatively new way of addressing this problem is to distribute fentanyl test strips, which allow people to test drugs prior to their use. A study of a program in Vancouver that hands out test strips found that users who got a positive result for fentanyl were 10 times more likely to lower their dose of drugs.¹⁴ In addition to providing such testing mechanisms, public health campaigns should discourage polysubstance use and encourage safe use practices, but many public officials still bristle at the idea of promoting drug-related information that is not abstinence-based.

Other methods of reducing opioid-related overdoses are well established. Providing users with access to the overdose reversal drug naloxone,¹⁵ safe consumption areas,¹⁶ and medication-assisted treatment¹⁷ are considered best practices by many drug addiction and public health experts. While there is more support for such interventions now compared to 20 years ago, they have been implemented unevenly across the U.S., and the federal government has yet to invest fully in such efforts.

At the same time, the finding that the increase in overdose deaths predates the rise in opioid-related deaths should serve as a warning to not focus reduction efforts exclusively on opioids. Yet most government-funded initiatives to address the overdose epidemic have targeted opioids specifically¹⁸ and have neglected other drugs that are increasingly implicated in overdoses, such as cocaine¹⁹ and methamphetamine. The ability to address cocaine and meth-related overdoses is limited by the fact that medical interventions do not exist for these drugs like they do for opioids. But the data make it apparent that policies to curb overdose deaths should focus less on a specific drug and more on the problem of heavy and risky drug use behavior.

REDUCING OVERDOSES: LONG-TERM SOLUTIONS

The decades-long upward trend in overdose deaths offers compelling evidence that complex forces are operating together to drive these deaths. That the increase has been so persistent, despite large variations in the trajectories of individual drugs, suggests that any successful efforts to reduce the drug supply are quickly offset by market adaptations and changes in consumer preferences.

Even though drug use and addiction rates have not grown as fast or as steadily as overdose rates, it is generally true that those who use more drugs more frequently are at greater risk of an overdose. Thus, part of the long-term approach to this problem must focus on factors driving demand, particularly for heavy and risky drug use that increases the chances of overdose.

Unfortunately, current public policies are remarkably ineffective at reducing both casual and compulsive drug use. There are few existing government interventions that can significantly reduce the extent to which people experiment with drugs, although public health campaigns that provide factual information on drug risks, especially to youths, are generally appropriate. Instead of treating all drug use behaviors, from

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Despite demographic variability in overdose deaths, the populations consistently at greatest risk for addiction are those living with economic insecurity,²⁰ a history of trauma,²¹ or mental illness.²² Policies intended to reduce problematic patterns of drug use, then, must address systemic issues underlying these problems, such as the loss of jobs that provide a livable income, the lack of adequate health care coverage for all ailments and for mental health in particular, and the increasing sense of isolation that people feel from community and civic life.²³ Government policies cannot solve all of the problems that may drive a person's desire to escape an unpleasant reality through drug use, but they can improve upon current conditions. Doing so will require a heavy investment, but one that is necessary if we are to protect against future drug-related deaths.

ENDNOTES

1. Hawre Jalal, Jeanine M. Buchanich, Mark S. Roberts, Lauren C. Balmert, Kun Zhang, and Donald S. Burke, "Changing dynamics of the drug overdose epidemic in the United States from 1979 through 2016," *Science* 361, no. 6408 (September 2018): 1218, <https://doi.org/10.1126/science.aau1184>.
2. Hawre et al., "Changing dynamics of the drug overdose epidemic," 1218.
3. Given the improvements in data collection since 1979 (the first year for which data on deaths from accidental drug poisoning are available), it is possible that the number of drug overdose deaths for the earlier years included in this analysis undercount the true number of deaths. Thus, it is possible that some of the exponential increase in deaths evident in the analysis can be explained by improved reporting. There is also significant variation in the quality of reporting across states and counties, but when the analysis is limited to the states that report better quality data from 1999 to 2016, the exponential trend still holds. It is also possible that overdose deaths involving more than one drug are counted more than once in the analysis. Data collection on specific drugs involved in accidental overdose deaths did not begin until 1999, so it is not possible to identify trends involving specific drugs prior to that year.
4. Hawre et al., "Changing dynamics of the drug overdose epidemic," 1218.
5. Center for Behavioral Health Statistics and Quality, *2016 National Survey on Drug Use and Health: Detailed Tables* (Rockville, Maryland: Substance Abuse and Mental Health Services Administration, 2017), <https://www.samhsa.gov/data/sites/default/files/NSDUH-DetTabs-2016/NSDUH-DetTabs-2016.pdf>.
6. "The Brian C. Bennett Drug Charts," The Baker Institute for Public Policy, last modified May 2018, <https://www.bakerinstitute.org/bennett-charts/>.
7. Center for Behavioral Health Statistics and Quality, *2016 National Survey*.
8. "Drug Overdose Deaths in the United States, 1999–2016," Centers for Disease Control and Prevention, https://www.cdc.gov/nchs/data/databriefs/db294_table.pdf.
9. J.D. Prose, "Toomey bill penalizes fentanyl exporters, specifically calling out China," *The Times Online*, September 23, 2018, <http://www.timesonline.com/news/20180923/toomey-bill-penalizes-fentanyl-exporters-specifically-calling-out-china>.
10. "Synthetic Opioid Overdose Data," Centers for Disease Control and Prevention, December 16, 2016, <https://www.cdc.gov/drugoverdose/data/fentanyl.html>.
11. Hawre et al., "Changing dynamics of the drug overdose epidemic," 1218.
12. "Benzodiazepines and Opioids," National Institute on Drug Abuse, March 2018, <https://www.drugabuse.gov/drugs-abuse/opioids/benzodiazepines-opioids>; Margaret Warner, James P. Trinidad, Brigham A. Bastian, Arialdi M. Miniño, and Holly Hedegaard, "Drugs Most Frequently Involved in Drug Overdose Deaths: United

States, 2010–2014,” *National Vital Statistics Reports* 65, no. 10 (December 2016): 1–15, https://www.cdc.gov/nchs/data/nvsr/nvsr65/nvsr65_10.pdf.

13. Methamphetamine, a stimulant, is the only drug for which a majority (55 percent) of overdoses does not involve another drug. Warner et al., “Drugs Most Frequently Involved in Drug Overdose Deaths,” 1–15.

14. Mike Stobbe, “Test strips used to avoid opioid overdoses,” *The Detroit News*, September 17, 2018, <https://www.detroitnews.com/story/news/nation/2018/09/17/opioid-test-strips-overdoses/37847379/>.

15. Rachael Rzasa Lynn and J.L. Galinkin, “Naloxone dosage for opioid reversal: current evidence and clinical implications,” *Therapeutic Advances in Drug Safety* 9, no. 1 (January 2018): 63–88, <http://journals.sagepub.com/doi/10.1177/2042098617744161>.

16. Lynn and Galinkin, “Naloxone dosage for opioid reversal,” 63–88.

17. “Methadone and buprenorphine reduce risk of death after opioid overdose,” National Institutes of Health, June 19, 2018, <https://www.nih.gov/news-events/news-releases/methadone-buprenorphine-reduce-risk-death-after-opioid-overdose>.

18. “State Targeted Response to the Opioid Crisis Grants,” Substance Abuse and Mental Health Services Administration, December 14, 2016, <https://www.samhsa.gov/grants/grant-announcements/ti-17-014>.

19. Puja Seth, Lawrence Scholl, Rose A. Rudd, and Sarah Bacon, “Overdose Deaths Involving Opioids, Cocaine, and Psychostimulants—United States, 2015–2016,” *Morbidity and Mortality Weekly Report* 67, no. 12 (March 2018): 349–359, <https://www.cdc.gov/mmwr/volumes/67/wr/mm6712a1.htm>.

20. Elizabeth Kneebone and Scott W. Allard, “A nation in overdose peril: Pinpointing the most impacted communities and the local gaps in care,” Brookings, September 25, 2017, <https://www.brookings.edu/research/pinpointing-opioid-in-most-impacted-communities/>.

21. Shane Darke, “Pathways to heroin dependence: time to re-appraise self-medication,” *Addiction* 108, no. 4 (April 2013): 659–667, <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1360-0443.2012.04001.x>.

22. Bridget F. Grant, Tulshi D. Saha, and W. June Ruan, “Epidemiology of DSM–5 Drug Use Disorder: Results From the National Epidemiologic Survey on Alcohol and Related Conditions–III,” *JAMA Psychiatry* 73, no. 1 (January 2016): 39–47, <https://jamanetwork.com/journals/jamapsychiatry/fullarticle/2470680>.

23. Michael J. Zoorob and Jason L. Salemi, “Bowling alone, dying together: The role of social capital in mitigating the drug overdose epidemic in the United States,” *Drug and Alcohol Dependence* 173, no. 1 (April 2017): 1–9, <https://www.ncbi.nlm.nih.gov/pubmed/28182980>.

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Cite as:

Harris, Katharine Neill. 2018. *The Drug Overdose Epidemic: Not Just About Opioids*. Issue brief no. 11.01.18. Rice University’s Baker Institute for Public Policy, Houston, Texas.