

# Giving Drug Policy Decisionmakers the Data They Need

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*Giving Drug Policy Decisionmakers the Data They Need*

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Before the Caucus on International Narcotics Control  
United States Senate

June 22, 2022

The Office of National Drug Control Policy (ONDCP)'s position as the leading coordinating agency for federal drug policy makes it distinct; however, coordination is difficult. Outside the High Intensity Drug Trafficking Areas (HIDTA) and the Drug Free Communities Program which are funded by ONDCP, the agency has little control over budgets of the multiple federal agencies and departments tasked with implementing supply reduction, demand reduction, or harm reduction interventions. The agency also cannot dictate what data are collected. Federal drug policy is limited by concerns about the mixed quality and lack of timeliness of the data available for making decisions. Changes in the nature of U.S. drug problems—in particular, the increasing availability of new psychoactive substances and such potent synthetic opioids, including illegally manufactured fentanyl (IMF)—have not been matched by a broadening of available data for policymakers.

To put this into perspective, today's drug overdose crisis now claims twice as many lives each year as the HIV/AIDS epidemic did at its peak.<sup>3</sup> Although many federal agencies responded to the HIV crisis by collecting new sets of data, federal authorities have not responded similarly

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<sup>1</sup> The authors would like to acknowledge colleagues Jon Caulkins and Peter Reuter for input in drafting parts of this testimony. The opinions and conclusions expressed in this testimony are the authors' alone and should not be interpreted as representing those of RAND or any of the sponsors of its research.

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<sup>3</sup> HIV/AIDS deaths peaked around 50,000 annually in the mid-1990s. See Centers for Disease Control and Prevention (CDC), "HIV Surveillance—United States, 1981–2008," *Morbidity and Mortality Weekly Report*, Vol. 60, No. 21, June 3, 2011, pp. 689–693; and F. B. Ahmad, L. M. Rossen, and P. Sutton, "Provisional Drug Overdose Death Counts," National Center for Health Statistics, 2021.

to the overdose crisis.<sup>4</sup> As explained next, the federal drug policy data infrastructure weakened right when IMF started to emerge in the United States.

This statement offers three points about improving the U.S. drug policy data infrastructure. Previous versions of the ONDCP *National Drug Control Strategy* have mentioned the need to improve the data, but this year's *Strategy* elevates improving data collection and analysis to a standalone chapter. It outlines some very helpful ways forward, including sharing such information with research groups and institutions. Each point in the next section is related to an important need for informed policymaking because better data and analysis can improve responses.

## Counting Those Who Use Illegal Drugs<sup>5</sup>

The United States is largely flying blind when it comes to tracking the number of people using illegal opioids, cocaine, and methamphetamines. This makes it hard to determine whether public policy is changing the share of individuals using these drugs and how many of those with substance use disorder are receiving evidence-based treatment. This lack of knowledge also makes it difficult to efficiently allocate resources to tackle these problems. For example, it has been said that there are approximately 2 million individuals in the United States who experienced opioid use disorder (OUD) in the past year.<sup>6</sup> However, this figure is far too low. It is based on household surveys, such as the National Survey on Drug Use and Health (NSDUH), that miss most heavy heroin users who would meet clinical criteria for OUD. Although data from the 2016 NSDUH suggest there were on the order of 200,000 people who used heroin on a daily or near-daily basis, the national estimates RAND produced for ONDCP put that figure closer to 1.6 million.<sup>7</sup>

In contrast, the RAND estimates were based on several data sources, but the most important data set for these calculations was the Arrestee Drug Abuse Monitoring (ADAM) Program, which no longer exists.<sup>8</sup> ADAM not only collected rich self-reported drug use data and market

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<sup>4</sup> Bryce Pardo, Jirka Taylor, Jonathan P. Caulkins, Beau Kilmer, Peter Reuter, and Bradley D. Stein, *The Future of Fentanyl and Other Synthetic Opioids*, Santa Monica, Calif.: RAND Corporation, RR-3117-RC, 2019, [https://www.rand.org/pubs/research\\_reports/RR3117.html](https://www.rand.org/pubs/research_reports/RR3117.html).

<sup>5</sup> This section is reproduced from Beau Kilmer, *Reducing Barriers and Getting Creative: 10 Federal Options to Increase Treatment Access for Opioid Use Disorder and Reduce Fatal Overdoses*, Washington, D.C.: Brookings Institution, June 2020.

<sup>6</sup> See, for example, National Institute on Drug Abuse, "Opioid Overdose Crisis," webpage, March 11, 2021, <https://www.drugabuse.gov/drug-topics/opioids/opioid-overdose-crisis>; and National Safety Council, "Addressing the Opioid Crisis," webpage, undated, <https://www.nsc.org/home-safety/safety-topics/opioids>.

<sup>7</sup> Peter Reuter, Jonathan P. Caulkins, and Greg Midgette, "Heroin Use Cannot Be Measured Adequately with a General Population Survey," *Addiction*, Vol. 116, No. 10, 2021, pp. 2600–2609 and Gregory Midgette, Steven Davenport, Jonathan P. Caulkins, and Beau Kilmer, *What America's Users Spend on Illegal Drugs, 2006–2016*, Santa Monica, Calif.: RAND Corporation, RR-3140-ONDCP, 2019, [https://www.rand.org/pubs/research\\_reports/RR3140.html](https://www.rand.org/pubs/research_reports/RR3140.html).

<sup>8</sup> Some of the other data sources used to generate these estimates include the Uniform Crime Reports (Federal Bureau of Investigation), Treatment Episode Data Set (Substance Abuse and Mental Health Services Administration [SAMHSA]), National Survey of Substance Abuse Treatment Services (SAMHSA), NSDUH (SAMHSA), Multiple

transaction information from jail inmates, but it also included a voluntary urine test that most arrestees agreed to take after completing the interview. The program was active in approximately 40 counties in the early 2000s (costing on the order of \$10 million per year), and there were discussions about expanding it to 75 counties.<sup>9</sup> Unfortunately, the Department of Justice stopped funding the program after 2003. Understanding the value of this data source, ONDCP was able to bring it back in 2007, though only with enough funding for ten counties. Funding constraints reduced it to five counties in 2012 and, after 2013, ADAM was eliminated again.

Without the ADAM data, or something similar, it will be extremely difficult to credibly estimate the size of drug-using populations, and thus the total number of people with substance use disorder.<sup>10</sup> There are other benefits of collecting these data as well. For example, the survey questions about the amount spent on illicit drugs were essential for estimating total spending on drugs, and thus, how much money was being earned by drug trafficking organizations.<sup>11</sup> Furthermore, the urine test results could also be very useful for monitoring the consumption of novel drugs, such as fentanyl, that individuals might not even know they are using.

## Assessing Market Changes

Supply reduction continues to account for a large share of government expenditures on drug control. The Administration's budget request for fiscal year 2023 includes increases in several drug law enforcement areas. From a research and policy perspective, the critical outcomes are less about the easily measured outputs of enforcement—arrests, seizures, and incarcerations—and more about prices and availability across different formulations. The 2022 *Strategy* mentions the need to improve assessments of supply reduction effectiveness and efficiency.<sup>12</sup> Decisionmakers at both the federal and local level often lack any credible source of data on these indicators. More to that point, available supply indicators are limited to interpreting market evolution; the increased potency of synthetic drugs and their novelty confound traditional drug seizure data analyses, which often focuses on numbers and amounts of seizures.

For almost 40 years, the U.S. Drug Enforcement Administration (DEA) has operated a system that provides data on almost every seizure or undercover purchase that it makes. The system also includes entries provided by some nonfederal agencies. Long called System to

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Cause of Death Data (CDC), Drug Abuse Warning Network (SAMHSA), drug testing data from Quest Diagnostics, and socioeconomic and demographic data from the U.S. Census Bureau.

<sup>9</sup> Loren Data Corp., "Solicitation for Arrestee Drug Abuse Monitoring (ADAM) Program Management Services," webpage, January 26, 2001, [http://www.fbodaily.com/CBD/archive/2001/01\(January\)/29-Jan-2001/rsol006.htm](http://www.fbodaily.com/CBD/archive/2001/01(January)/29-Jan-2001/rsol006.htm).

<sup>10</sup> With respect to estimating the size of the population with OUD, the methods used by the following source are worth considering: Katherine M. Keyes, Caroline Rutherford, Ava Hamilton, Joshua A. Barocas, Kitty H. Gelberg, Peter P. Mueller, Daniel J. Feaster, Nabila El-Bassel, and Magdalena Cerdá, "What Is the Prevalence of and Trend in Opioid Use Disorder in the United States from 2010 to 2019? Using Multiplier Approaches to Estimate Prevalence for an Unknown Population Size," *Drug and Alcohol Dependence Reports*, Vol. 3, June 2022.

<sup>11</sup> E.g., see Beau Kilmer, Jonathan P. Caulkins, Brittany M. Bond, and Peter H. Reuter, "Reducing Drug Trafficking Revenues and Violence in Mexico: Would Legalizing Marijuana in California Help?" Santa Monica, Calif.: RAND Corporation, OP-325-RC, 2010, [https://www.rand.org/pubs/occasional\\_papers/OP325.html](https://www.rand.org/pubs/occasional_papers/OP325.html).

<sup>12</sup> White House, Office of National Drug Control Policy, *National Drug Control Strategy*, Washington, D.C., 2022, <https://www.whitehouse.gov/wp-content/uploads/2022/04/National-Drug-Control-2022Strategy.pdf>.

Retrieve Information from Drug Evidence (STRIDE) but renamed STARLIMS in the past ten years, this has been the staple of government reports of price and purity in drug markets and of the research literature on drug markets. But it has become harder for researchers, and even some government agencies, to get access to these data. The DEA has conducted its own analysis of the data to produce price and purity series as published in National Drug Threat Assessments.<sup>13</sup> However, purity-adjusted prices for such drugs as cocaine and heroin have not been reported in an annual DEA report since 2019, covering only through the calendar year of 2017.<sup>14</sup> In essence, authorities know little about how prices have trended since 2017 and what effect the introduction of IMF has had on such markets. One exception has been with respect to IMF. Using STARLIMS data provided to RAND as part of our work for the Commission on Combatting Synthetic Opioid Trafficking, we found large decreases in the purity-adjusted price of IMF powder at the lower wholesale level from 2016 to 2021.<sup>15</sup>

Since the late 1990s, DEA has also operated a system called the National Forensic Laboratory Information System (NFLIS), which provides data on the number and composition of seizures analyzed by state crime laboratories. NFLIS provides additional insights into drug seizures; however, there remains considerable variation in what is reported to the database by state and local authorities. Because NFLIS is a voluntary reporting system, DEA has little control over what and how state and local authorities report. That partly represents the problem of differences in state lab procedures but that might be improved with a modest grants program to standardize testing and reporting. The CDC continues to successfully address a similar problem with regard to the limitations and differences in overdose death reporting by local coroners and medical examiners.<sup>16</sup>

Both STARLIMS and NFLIS could provide the basis for credible estimates of price and purity and other insights into how markets are evolving. What is needed is better documentation, standardized data collection of observations at different levels of the market, and more-rigorous analysis of these systems. ONDCP could help solve some of these problems, perhaps by moving the dissemination and analysis of the data into ONDCP itself rather than keeping it exclusively at DEA. Because ONDCP's flagship publication, *The National Drug Control Strategy*, has traditionally (until 2016) had a much-referenced data appendix, that would not strain understanding of the agency's role. The hope is that ONDCP's data interagency workgroup can start to address these data collection and analysis matters.

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<sup>13</sup> The DEA publications do not report estimation methods; thus, it is hard to assess why, for example, the DEA's figures for the purity-adjusted prices for heroin differ from those that RAND calculated for the ONDCP-funded report, *What America's Users Spend on Illegal Drugs, 2006–2016* (Midgett et al., 2019). This is discussed in more detail in Pardo et al., 2019, Appendix B.

<sup>14</sup> U.S. Department of Justice Drug Enforcement Administration, *National Drug Threat Assessment 2019*, Springfield, Va., December 2019, [https://www.dea.gov/sites/default/files/2020-01/2019-NDTA-final-01-14-2020\\_Low\\_Web-DIR-007-20\\_2019.pdf](https://www.dea.gov/sites/default/files/2020-01/2019-NDTA-final-01-14-2020_Low_Web-DIR-007-20_2019.pdf).

<sup>15</sup> Beau Kilmer, Bryce Pardo, Toyya A. Pujol, and Jonathan P. Caulkins, "Rapid Changes in Illegally Manufactured Fentanyl Products and Prices in the United States," *Addiction*, May 11, 2022.

<sup>16</sup> See CDC, "Overdose Data to Action," webpage, March 3, 2022, <https://www.cdc.gov/drugoverdose/od2a/index.html>.

## Building Novel, Real-Time Warning Systems

Existing data systems are not well suited to the challenges presented by novel drugs. Though some states are moving to publish data faster, national drug overdose death and law enforcement drug seizure data often lag by a year or more. These time lags limit policy and research understanding of drug markets. In addition to the recommendations described earlier, which are useful for understanding and assessing drug demand and supply, there should be efforts to build near-real-time early warning systems. Such systems need not be accurate in measuring total demand or supply but could be used to alert authorities to the arrival of new drugs, helping them respond more quickly.

Some efforts are underway through the data-driven effort of a HIDTA-sponsored system known as Overdose Detection Mapping Application Program (ODMAP),<sup>17</sup> which allows first responders and other authorities to record the time, location, and nature of an overdose. As of this writing, ODMAP is not used everywhere, and jurisdictions have to opt in to the system. This is one such active real-time system to map and measure overdoses, but others could be developed.

One passive, relatively inexpensive, and tested early warning system is wastewater analysis (WWA). When an individual takes a drug, the body metabolizes it and excretes metabolites. Just as urine tests detect these metabolites for individuals, wastewater testing can reveal what drugs are being used in a city or region in the aggregate. Routine tests done at local water treatment facilities could indicate, as just one example, spikes in fentanyl consumption—but it would not pinpoint particular neighborhoods, households, or individuals.

This approach already is being applied in Australia and Europe to understand drug consumption patterns and to spot changes.<sup>18</sup> Other countries, such as Mexico and China, have piloted WWA to show variations in drug consumption across cities.<sup>19</sup> In European cities, water analyses are sophisticated enough to discern use in almost real time, showing the uptick of cocaine and ecstasy use on the weekends. In the United States, paired with drug use surveys and law enforcement seizures, wastewater drug analysis would provide a detailed understanding of the markets for illegal drugs and how they are evolving.

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<sup>17</sup> See ODMAP, homepage, undated, [odmap.org](http://odmap.org).

<sup>18</sup> See more about WWA in Europe from the European Monitoring Centre for Drugs and Drug Addiction, “Wastewater Analysis and Drugs—A European Multi-City Study,” webpage, undated, [https://www.emcdda.europa.eu/publications/html/pods/waste-water-analysis\\_en](https://www.emcdda.europa.eu/publications/html/pods/waste-water-analysis_en). Australian WWA for drug markets can be found at the Australian Criminal Intelligence Commission, “National Wastewater Drug Monitoring Program Reports,” webpage, undated, <https://www.acic.gov.au/publications/national-wastewater-drug-monitoring-program-reports>.

<sup>19</sup> Lizhou Feng, Wei Zhang, and Xiqing Li, “Monitoring of Regional Drug Abuse Through Wastewater-Based Epidemiology—a Critical Review,” *Science China Earth Sciences*, Vol. 61, No. 3, March 2018, pp. 239–255; and Copytzy Cruz-Cruz, Viviane Yargeau, Desiree Vidaña-Perez, Astrid Schilman, Marco Aurelio Pineda, Margarita Lobato, Mauricio Hernández-Avila, Jorge A. Villatoro, and Tonatiuh Barrientos-Gutierrez, “Opioids, Stimulants, and Depressant Drugs in Fifteen Mexican Cities: A Wastewater-Based Epidemiological Study,” *International Journal of Drug Policy*, Vol. 88, February 2021.

WWA in the United States has largely been limited to a few pilots or academic studies.<sup>20</sup> Yet, there is growing interest in WWA (especially as a method for tracking coronavirus disease), and it could be advanced under ONDCP guidance. Furthermore, WWA could be used to validate drug demand or supply measures from NSDUH or STRIDE (through the quantification of drug metabolite loads in sewer systems), but its greatest advantage is use as an early warning system to alert authorities to when IMF arrives in a market. From our own analysis of seizure and mortality data, IMF supply has been geographically concentrated in the eastern half of the U.S. Building out WWA in western cities could provide early alerts should metabolite loads increase dramatically in a short period of time, indicating a spike in supply. Further research is needed, but it might be possible to use WWA to detect the presence of such super-potent opioids as carfentanil. Nevertheless, protocols and funding would be needed to help localities stand up WWA.

Beyond timeliness, WWA has other benefits.<sup>21</sup> It does not rely on individuals to accurately recall their drug consumption, removing any concern over recall bias, and it is comparatively inexpensive. A 2017 study from the consulting firm Mathematica estimated that the cost could be as low as \$100 per sample collected at water treatment plants.<sup>22</sup> Depending on sampling intervals and other related protocols, twice-weekly testing for 100 municipalities could cost roughly \$1 million annually (plus any start-up costs). For comparison, the federal government spends close to \$50 million annually on household surveys to estimate the prevalence of drug use nationwide. WWA should be thought of as an adjunct, and not substitute, to surveys, given it cannot tell us about other important criteria, such as routes of administration, expenditures, or individual-level information about quantities of drugs consumed. Furthermore, WWA has its limits; it cannot be done in areas without municipal sewer systems, such as rural localities on septic systems.

## Conclusion

The United States used to have the best data infrastructure in the world to monitor drug problems and evaluate policy interventions; this is no longer the case. Right when IMF started to emerge in the United States, one of the most-valuable data systems authorities had to monitor drug use and understand drug markets was eliminated (ADAM). Bringing back some version of ADAM is necessary, but not sufficient, for providing decisionmakers with the data they need to make sound decisions about drug policy. Standardizing and making existing data systems (e.g., STARLIMS, NFLIS) more available to other federal agencies and researchers and investing in

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<sup>20</sup> Nicholas Bishop, Tammy Jones-Lepp, Miranda Margetts, Jordan Sykes, David Alvarez, and Deborah E. Keil, “Wastewater-Based Epidemiology Pilot Study to Examine Drug Use in the Western United States,” *Science of the Total Environment*, No. 745, 2020.

<sup>21</sup> For more discussion on WWA, see Bryce Pardo and Debra Knopman, “Want to Know if a New Drug Crisis Is Emerging?” *Scientific American*, March 23, 2020, <https://blogs.scientificamerican.com/observations/want-to-know-if-a-new-drug-crisis-is-emerging>.

<sup>22</sup> Aparna Keshaviah, “Can Wastewater Testing Improve Public Health and Well-Being?” presentation at the Mathematica Potential of Wastewater Testing for Public Health and Safety symposium, Washington, D.C., May 16, 2017.



new types of data collection (e.g., wastewater testing) is critical for addressing existing research gaps. With the appropriate funding, ONDCP, in collaboration with other federal agencies and research partners, could help rebuild and enhance the U.S. drug data infrastructure and ensure that drug policy is based on high-quality information. Decisionmakers should see these different data sources as complements; each provides unique insights about drug markets and/or people who use drugs.