Now in its second decade, the opioid epidemic has claimed more than 800,000 lives in the US, more than the combined total of all deaths in all US wars and armed conflicts from the Revolutionary War to the present. Starting in approximately 2013, with the introduction of substantial quantities of the inexpensive and highly potent synthetic opioid fentanyl, the opioid epidemic entered a particularly lethal phase, with the death rate increasing more than 10-fold. In 2020, the most recent year for which the Centers for Disease Control and Prevention currently reports, the death toll from opioid overdose was the worst ever, at more than 100,000.1

In this issue, Whitley and colleagues2 have reported the possibility of using clinical drug test results from substance use disorder clinics to document time patterns in the frequency of drug detection via urine samples submitted for clinical testing. Spanning 2013 to 2020, their results provide a clear picture of the evolution of synthetic opioids (primarily fentanyl) into their position of dominance in the US illicit drug supply. The rapid increase in death rates associated with this proliferation of fentanyl is largely a consequence of the drug being approximately 50 times more potent than heroin, thus putting the unsuspecting user in great jeopardy of unintentional overdose.3 Fentanyl is also being found in the nonopioid drug supply and being sold with stimulants and even cannabis. This issue is especially concerning for patients whose intent is to use one of these nonopioid agents because they may be opioid naive.

As also clearly seen in the data presented by Whitley et al,2 methamphetamine detections have increased in parallel with those observed for synthetic opioids since 2013. The reasons for the emergence of methamphetamine over this period and the concurrent increase in methamphetamine-related deaths are complex and not completely understood. There has traditionally been a subset of opioid users who prefer to simultaneously use a stimulant, typically cocaine, together with an opioid in what has been colloquially referred to as a speedball. This combination was popularized by the belief that the resulting euphoria, or rush, would be intensified, and the post-euphoric central nervous system depression induced by the opioid would be reduced. There is also an unfounded belief that co-use of stimulants will counteract opioid-induced respiratory depression. Most recently, this concept has been applied to the simultaneous use of fentanyl and methamphetamine in a combination known as a goofball.

It is likely that there are several reasons for the parallel patterns in the detection of synthetic opioids and methamphetamine reported by Whitley et al2 and other researchers.4 While some cases are the result of intentional simultaneous use of stimulants with opioids, others are due to the inadvertent use of stimulants that have been contaminated or adulterated with opioids in the drug supply. People may also choose to use these drugs in combination to overcome the sedating effect of fentanyl.5 However, it cannot be concluded from urine drug test results that the presence of both a stimulant and an opioid in a urine sample signifies that there was co-use given that sequential use of these drugs would yield similar urine drug screening results.

Knowledge of the most current drug use patterns is important for many reasons. First, it allows clinicians to accurately counsel patients regarding the risks of drug use based on the effects of substances known to be currently present in the drug supply. Second, it informs testing and treatment decisions. Third, it forms the basis for public policy decisions, such as a need to increase access to harm-reduction techniques, including naloxone distribution, test dosing, staggered administrations, safe injection sites, or fentanyl testing strips.
Surveillance systems are an integral component of reducing morbidity and mortality associated with illicit drug use. On local, regional, and national levels, information of this type is needed to most efficiently allocate limited resources to maximize benefit and save lives. Currently available examples of such surveillance systems include data from poison centers, emergency departments, private laboratories, medical examiners, wastewater analyses, drug use surveys, public health laboratories, and clinical registries, such as the Toxicology Investigators Consortium.

As Whitley et al.² have suggested, use of private laboratory data provides a window to view real-time patterns in drug use from clinical specimens among a population that is likely to reflect contemporary drug use patterns. These data are complementary to those provided by the Center for Forensic Science Research and Education,⁶ which uses urine samples as well as blood and product samples to monitor the pattern of drug detection from multiple sources, including the detection of new substances that have not been previously identified in the illicit drug supply. The study by Whitley et al.² and the data generated by the Center for Forensic Science Research and Education⁶ jointly provide proof of concept that laboratories performing toxicological testing for illicit substance use can serve as real-time monitoring instruments for the contemporary landscape of drug use.

The history of the use of urine drug testing reveals that this testing has at times been punitive and stigmatizing rather than beneficial for either the individual using drugs or the community at large.⁷ In contrast, the use of urine drug testing for drug supply surveillance provides an opportunity that allows for collection of data that can benefit individuals and communities by increasing awareness of current and emerging risks, with the goal of reducing drug-related deaths. This risk awareness is particularly important for populations that use drugs because many opioid-related deaths have occurred among members of vulnerable populations with limited access to treatment and health care. Further development of these types of surveillance systems should be undertaken with the goal of continuing to inform patients and clinicians regarding drug use patterns while combating stigma against people who use drugs.

**ARTICLE INFORMATION**

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Corresponding Author: Jeffrey Brent, MD, PhD, University of Colorado School of Medicine, 26 W Dry Creek Dr, Ste 325, Denver, CO 80210 (jeffrey.brent@cuanschutz.edu).

Author Affiliations: Department of Medicine, School of Medicine, University of Colorado, Aurora (Brent); Department of Emergency Medicine, School of Medicine, University of Colorado, Aurora (Brent); Colorado School of Public Health, Aurora (Brent); Translational Addiction Medicine Branch, Intramural Research Program, National Institute on Drug Abuse, National Institutes of Health, Baltimore, Maryland (Weiss).

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