

Analyzing street drugs points to potential early warning system in opioid crisis

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In just two years, the powerful opioid fentanyl went from nonexistent to detected in more than 1 in 7 stamp bags analyzed by the Allegheny County Office of the Medical Examiner, according to an analysis led by the University of Pittsburgh Graduate School of Public Health. Stamp bags are small wax packets that contain mixtures of illicit drugs, most commonly heroin, packaged for sale and sometimes stamped with a graphical logo by drug dealers to market their contents.

The findings, published in the journal *Public Health Reports*, suggest that real-time information about stamp bags can be used to supplement current [public health](#) surveillance measures and could serve as an early warning of new illegal drugs of high lethality available at the local level. It is the first robust and detailed public health report of a stamp bag surveillance system.

"We believe this way of examining [drug](#) evidence could be expanded upon for use in [public health surveillance](#) and monitoring in other regions," said lead author Kathleen Creppage, M.P.H., C.P.H., a doctoral candidate in Pitt Public Health's Department of Epidemiology. "It could be used to inform educational campaigns, allocate limited resources and devise prevention strategies. First responders also could benefit from knowing what drugs are in circulation so they can take proper precautions to protect themselves and be prepared with overdose reversal medications, such as naloxone."

In the U.S., fatal heroin overdoses have increased in the past decade by

300 percent, with fentanyl - a substance that is 20 to 50 times more potent than heroin - and its analogs increasingly contributing to overdoses. The drug often is implicated in clusters of overdose deaths when it is mixed with heroin and users do not realize what they are taking is more powerful than usual.

In Allegheny County, stamp bags seized as evidence by law enforcement authorities are submitted to the county's Office of the Medical Examiner for testing. The drugs are sorted into batches based on similar characteristics, such as the stamp and color of the drug, and a single bag is randomly selected from each batch for testing.

The research team compiled the medical examiner's drug chemistry laboratory test results of stamp bag contents from 2010 through 2016. A total of 16,594 stamp bags were tested by the lab during that period.

Before 2014, none of the tested bags contained fentanyl. By 2016 it was found in 15.5 percent of the tested stamp bags, with 4.1 percent containing fentanyl as the only controlled substance present.

Toxicology results from overdose victims take weeks or months, and state and national mortality data lag by about 18 months. Drug evidence testing is usually available much more quickly - in Allegheny County it is available for the current month.

"The face of the current opioid overdose epidemic changes quickly from month to month. The ability to rapidly analyze drugs causing these overdoses, and make that knowledge available to all stakeholders, is critical to efforts to deal with the crisis," said co-author Karl E. Williams, M.D., M.P.H., Allegheny County Medical Examiner. "This study of stamp bags results from a unique collaboration based on technical capabilities of my office and the analytic resources of the Pitt Graduate School of Public Health."

Stamp bag testing and monitoring should not replace other drug surveillance systems, such as [overdose](#) mortality data and toxicology reports, said Creppage, also an intern at the Allegheny County Office of the Medical Examiner.

"But it can be a powerful complement to these surveillance systems," she said. "The data are available, and we need to identify and explore these different data sources as part of our efforts in understanding and combatting the opioid epidemic."

Senior author Anthony Fabio, Ph.D., M.P.H., associate professor of epidemiology at Pitt Public Health, added that the work "is an important step in developing multi-disciplinary tools to quickly identify current and future sources of new drugs that enter the illegal market."

More information: *Public Health Reports*, [DOI: 10.1177/033354917753119](#)

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