

Pilot testing program in Maryland could save life and limb as new illegal drug danger emerges

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A young woman in a pink hoodie and a blond bun clutched a plastic bag filled with 20 fresh syringes and a box of naloxone, the antidote to opioid overdoses. Jason Bienert, a wound care nurse at a needle

exchange program in Cecil County, noticed her bandaged hand and offered to take a look at it. She declined and exited swiftly to a waiting car.

"That was the first time I met her," Bienert said. "I just gave her a little love and didn't push it." Bienert hoped over time the young woman would trust him and accept medical care.

He knows she'll need it because, thanks to a new federally backed testing program, he already knows what's causing her wounds.

He and nurses at seven other needle exchange programs in Maryland have been mailing swabs collected from users of street drugs to the National Institute of Standards and Technology in Gaithersburg since October. The findings have revealed a new scourge in the long-running [drug](#) epidemic: xylazine, an animal tranquilizer.

In every batch tested recently, xylazine has turned up as part of the drug mixture. It eats at the flesh on people's legs, arms, and most commonly, their hands.

"Knowing what we're dealing with is everything," Bienert said.

He's added supplies to clean and wrap wounds to the packets of syringes and naloxone distributed at Voices of Hope, the Elkton clinic where he works, as well as stocking them in the trunk of his car, which serves as a sort of mobile clinic.

Federal officials believe public health providers are gaining unique and detailed information from the program, which is operating just in Maryland as a pilot.

The process—called Rapid Analysis of Drug, or RAD—was used

initially only by law enforcement to determine in near-real time all the ingredients in [illicit drugs](#).

Heroin, the longtime drug of choice for many users, has been replaced nowadays with the potent painkiller fentanyl and the even more dangerous fentanyl analogs. The latter are powerful, lab-produced synthetic opioids, and their use has increased overdoses. Meanwhile, dealers often use cutting agents to extend or weaken their product. Sometimes it's caffeine or acetaminophen, but often it's now xylazine.

The pilot testing program focuses on helping to reduce harm. Its goal is to keep people alive until they get treatment.

The more powerful drugs claimed more than 100,000 U.S. lives last year. In Maryland, there were 2,129 intoxication overdoses in the first nine months of 2021, the most recent data available from the state health department. Fentanyl contributed to nearly 84% of them. Deaths dropped in 2019 after a yearslong climb, but resumed an upward trend after the coronavirus pandemic began the following year.

In particularly hard-hit Cecil, a rural county on the Maryland-Delaware border, there was a ninefold increase in deaths from 2008 to 2020.

Bienert asks people seeking clean needles in Cecil to return dirty syringes and the wrappings that held drugs, typically paper bags about the size of a pinkie finger. He swabs the wraps and mails the swabs to the federal lab, where chemists use a system called DART-MS, or direct analysis in real-time mass spectrometry. It's the same technology used to detect explosive residue at airport security checkpoints.

For the time being, Bienert knows what he's dealing with when he sees homemade stamps on the wraps. He writes their names on a whiteboard at the clinic entrance: Quick Game 8, Hooked, Peace Pike, Prada. Next

to each, he notes that tests have shown the blends contain xylazine.

Word has spread in Cecil that that's what's causing the progressively raw, black, and bloody wounds in people's hands. The hands are a popular place to inject drugs because veins are easier to spot there than in other areas of the body.

Bienert asks users to wipe needle tips after filling a syringe but before injecting it to reduce the amount of xylazine touching skin. He also recommends washing injection sites with soap and water, and using fresh bandages on wounds.

Many in the grip of addiction aren't put off by the injuries, reporting that xylazine can amplify the effects of fentanyl, "giving it legs," Bienert said.

But it also lowers their respiratory rate, threatening not only limbs, but also life. And the overdose antidote, naloxone, doesn't work on xylazine.

April Tabor didn't know initially what had been added to the drugs she used, but said addiction—and some embarrassment—kept her from getting treatment for the wounds on her hands.

The 41-year-old went down a common path years ago, taking prescription opioids for pain after a car collision and becoming addicted. When she could no longer afford the pills, a boyfriend introduced her to the street drugs fentanyl and methamphetamines, though she takes responsibility for using them.

She was living in a motel when she met Bienert. He drives 500 to 1,000 miles a month offering aid in motels, abandoned houses and alleys. He could see the damage to Tabor's hands. Without yet knowing the cause, he persuaded her to stop injecting drugs into her right hand because she

is right-handed. That hand eventually healed, though the skin looks like it melted in a fire.

She kept injecting drugs into the wounds on her left hand, then into muscle there once she could no longer find veins. By the time she sought treatment for her addiction and the injury, doctors had to amputate her left arm below the elbow.

Nine months later, Tabor remains in recovery from her addiction and the amputation. She is learning to use an electronic prosthetic hand and getting reacquainted with her three children, including a 5-year-old boy who never knew his mother before she used drugs.

Tabor is interested in resuming her career in customer service and training as a peer counselor like those at Voices of Hope, which supplied her with clean needles and eventually helped her get treatment.

"Seems simple enough," Tabor said. "But no matter how much or little time you've been doing it, it always seems like an impossible journey until you get there."

Ed Sisco, a chemist leading the testing project at NIST, wants to give Tabor and Bienert every bit of information in hopes it might help. The lab supplies the high-powered equipment to the state for free, with the Maryland Department of Health footing the bill to mail the envelopes.

Officials say conventional drug labs can't provide the same information.

The NIST lab accepts only swabs of the drug packaging; the bags that dealers wrapped around the drugs and the needles are considered hazardous and pose challenges to transport.

Sisco said the lab rarely finds heroin anymore, identifying instead

increasingly more powerful forms of fentanyl such as fluorofentanyl, methamphetamines, cocaine and other synthetic stimulants known as bath salts.

The lab has analyzed about 600 samples from the Maryland clinics so far. It takes only a minute or two, though turnaround time depends on the incoming mail delivery. Anonymous results are dropped in a spreadsheet by location for all the programs participating to see.

"We can get the information to them fast," Sisco said. "We can start providing information about new or more potent compounds so resources can be moved or alerts can go out that there is a new substance on the street."

Federal and [state officials](#) are considering how to further reduce turnaround time and expand use of the program within and outside Maryland, or even get portable lab equipment to the field.

That would augment other programs, such as ones that distribute simple test strips that identify fentanyl and an alert system in Baltimore City that texts providers and users about a so-called bad batch. That information comes from emergency responders who don't know precisely what's causing the overdoses they treat.

"There are different cutting agents and that is not something anybody has been looking at," Sisco said. "Turns out that information is almost as valuable as the information about the drugs we were seeing."

The state plans to do an analysis to understand how useful the information is to providers and users, said Robin Rickard, executive director for Maryland's Opioid Operational Command Center.

But already she believes knowing what is in the drugs at any moment can

have an impact. Officials can, for example, make sure resources are directed to the right places, such as ensuring naloxone is widely distributed in areas with deadly fentanyl.

Also, she said, some users may calibrate their dosage if they know they have stronger drugs—or at least prepare for the outcomes. With xylazine, she and Bienert warn users who won't stop taking the drugs that contain it to use them less, avoid open wounds and seek care for wounds.

"It became clear we needed a way to understand the unpredictable drug market, rather than getting information after someone has passed," Rickard said. "If we knew what was out there, we could help people before they overdosed."

The program is part of an overall strategy that includes education and treatment and recovery resources, as well as enforcement.

Rickard said overdose data is still being analyzed, but she expects it to show a slight drop in fatalities statewide by the end of 2021.

"We need everything in the toolkit," she said.

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