



# FACING THE DRUG PANDEMIC PROBLEM IN THE UNITED STATES

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## An Epidemiological Approach to Assess Drug Use and Support Preventive Measures

**In 1990 about 10,000 people overdosed and died in the United States. Today, that many people die every month. That's about 300 deaths. Every day.**

The Drug Enforcement Administration (DEA) doesn't call it a drug overdose anymore. It is a drug poisoning, because people often die without even knowing they took an illicit drug. Drug dealers are selling a deadly synthetic opioid called fentanyl, in a tablet form, that looks exactly like Oxycodone, or Adderall or Xanax or Vicodin, and the DEA estimates that 60% of those fake pills have a potentially deadly dose (2mg). One pill can kill, and some young people are dying the very first time they use. Unintentional drug overdose, due to synthetic opioids, is now the leading cause of death in America for 18-to 45-year-olds.

Fentanyl, and the other man-made catastrophe, methamphetamine, are produced in hidden laboratories from chemicals that originate primarily in China and India. They have no plant-based origin, so the only limit to how much dealers can produce is how many of the precursor chemicals they can acquire. The global regulations governing the chemicals are lax.

The epidemic has its roots in the licensing of Oxycontin in the mid-1990s. Widespread abuse of heroin followed and Mexican cartels introduced fentanyl initially as a heroin additive, before mixing it into fake pharmaceutical pills which flood from Mexico into the U.S. today.

For every drug poisoning death, countless others are languishing, trapped in the grip of substance abuse.



## At InterOme, our mission is to save lives.

The goal is to improve public health by providing a systemic and comprehensive approach for actionable and specialized solutions. We were founded by global leaders with decades of experience in Life Sciences, Software Development, Large-scale System Integration, and Intelligent Analytics (statistics, AI, ML, ChatGPT, etc.). InterOme focuses on enabling global epidemiology and providing safety assessments and action plans in real time.

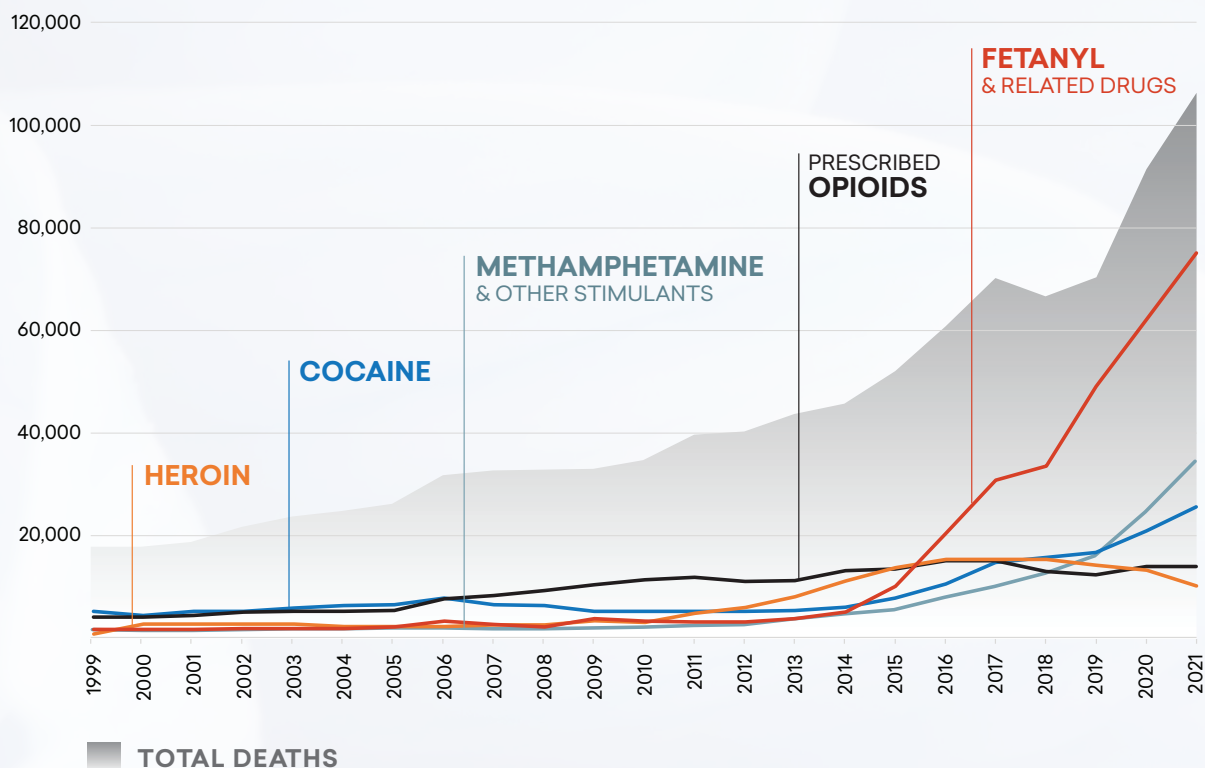
To meet this need, we developed “PULSE,” a user-friendly digital health platform that features secure web and mobile applications with customizable dashboards. PULSE uses cloud-based software for process management and data analysis. It integrates multidisciplinary individual, public, and asset health

data into a centralized geospatial database enriched with real-time public and proprietary health data. It will simplify the complex to help resolve our most intransigent public health challenges.

What is needed to staunch the flood of unnecessary deaths due to the inundation of illicit drugs that are pervasive everywhere in the community, but largely undetected until someone dies is an anonymous, continuous monitoring of wastewater from places likely to be areas of high risk for drug use and death. An obvious way to “feel the pulse” of the community’s exposure to drugs, is to offer a solution that is anonymous, non-intrusive, cost-efficient, and with immediate result. The PULSE platform offers this solution.

## DRUG-INVOLVED OVERDOSE DEATHS

From 1999-2021 in the U.S.





## Schools and college campuses are ideal places to identify substance use disorder.

They are the physical, social, and psychological, “home away from home” for most youths and should be safe havens to grow and learn. Unfortunately, a survey from the Center on Addiction found that fentanyl overdoses accounted for more than 80% of all drug-related deaths among California’s young people in 2021.

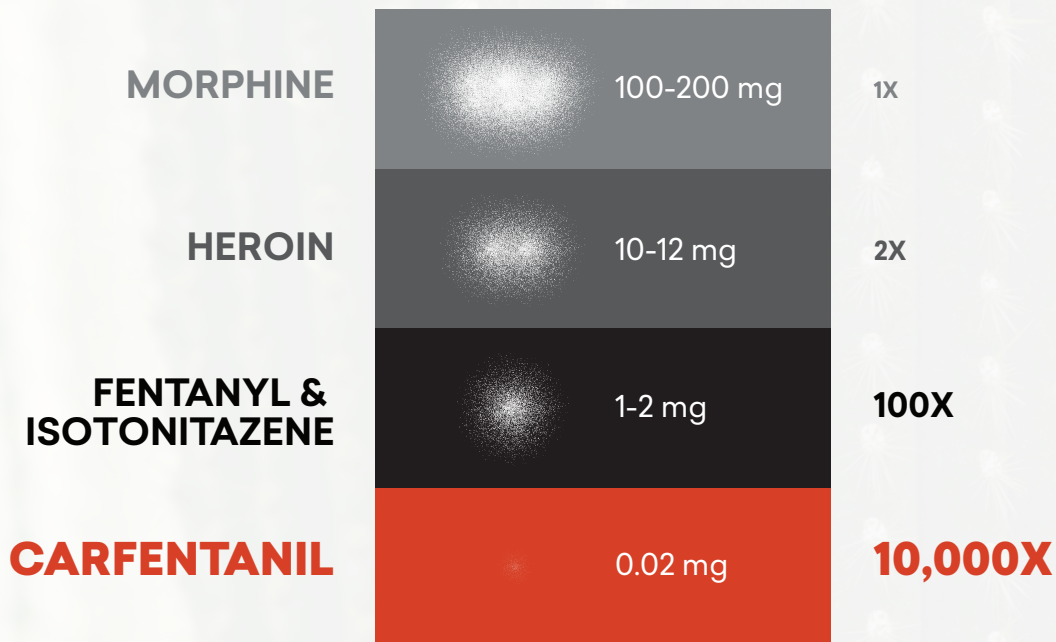
Teen substance misuse is also linked to impaired cognitive development, absenteeism and higher dropout rates. It is imperative that we act.

Historically we have relied on surveys to assess drug usage among our population. Survey

results are not timely and they are notoriously inaccurate. This lack of good data leaves public health officials, researchers, educators, parents, and even drug users unaware of the risks until it’s often too late to intervene. Addressing these limitations in data collection and analysis is essential in developing targeted and proactive measures to effectively combat the drug crisis and its underlying causes.

New methods and advanced technology are required to improve our effectiveness at curbing this deadly epidemic.

# OPIOID CRISIS LETHAL OPIOID DOSES





# WASTEWATER DRUGS & OPIOIDS TEST

## VIA OUR BREVI-T BIO LAB, A JOINT VENTURE WITH AVROK BIOSCIENCES

### Drugs on Panel (Currently 30 Drugs)\*

*\*We can add to our test new drugs or derivatives*

#### THC/Cannabis

#### Barbituates

Butalbital  
Butobarbital  
Phenobarbital  
(Amo, Pento) Barbitol  
Secobarbital

#### Amphetamines

Amphetamine  
Methamphetamine  
MDA/Sally  
MDM  
MDMA/Ecstasy/Molly  
MDEA/Eve

#### Opioids

Fentanyl  
Norfentanyl  
Normorphine  
Morphine  
Oxymorphone/Opana  
Hydromorphone/Morphine  
Metabolite  
Codeine  
Oxycodone  
Noroxycodone  
Hysrocodone  
6-MAM/Heroin metabolite  
Nobuprenorphine/Subutex  
Buprenorphine/Suboxone

#### Stimulants

Cocaine  
MDPV/Ivory Wave/Vanilla Sky  
Methylphenidate  
PCP

## Testing Models

### MODEL 1

#### Essential Test

Daily or weekly wastewater testing of the top 10 most prevalent drugs of abuse, including but not limited to Fentanyl, Cocaine, Meth, PCP, & THC.

### MODEL 2

#### Special Events

Special events such as a Winter Formal or on campus special occasions. Comprehensive test includes the drugs of abuse.

## ADDITIONAL NOTES

- We update our list of tested drugs according to needs and new trends. We have specialists in-house that track new findings.
- The comprehensive panel can be used in the days following a special event and will help determine if any new drugs such as Ecstasy (MDMA) were introduced in the school during or after the event.
- The goal is to detect, assess safety, and mitigate risks.



## A New Approach

In a joint venture between InterOme and Avrok Biosciences, named Brevi-T Bio, we co-developed a wastewater drug monitoring service that takes the unknown out of the drug usage equation and replaces it with empirical evidence to see the problem clearly.

This is key because accurate data helps leaders make good decisions and know what type of action should be taken. Good data turns the potentially scary unknown, into actionable information. For example, test results could support that you don't have a problem, and need not take any action – fantastic! Or, if results show a potential problem, this knowledge provides an intelligent way forward. InterOme can help customers craft appropriate action plans and courses of action, all of which will reduce costs, help with the allocation of limited resources and accurately evaluate programs to see if they are working. For example, in a university setting, if a potential emergency situation is presented in the data, officials can increase communication to kids, staff and parents; warn the campus medical facility and public safety departments to be prepared; distribute specialized education materials or invite expert speakers on campus; install Naloxone boxes on campus, or direct school counselors to a particular area of campus where they are most needed.

### In summary, these tests are:

#### **SIMPLE**

A single highly sensitive test that covers a broad range of drugs

#### **NON-INTRUSIVE**

Anonymously testing the presence of drugs across large groups to preserve privacy; does not target individuals

#### **FAST AND COST-EFFECTIVE**

Quickly know which programs are working: Serves as an early warning to identify drugs that put people at risk.



# INTEROME'S PIONEERING DIGITAL TECHNOLOGY

## BREVI-T'S UNIQUE ECOSYSTEM

PULSE customers obtain results and notifications in real-time and at regular intervals to meet individual organizational needs. PULSE identifies patterns, predicts trends, and provides context for public health authorities. Here's how it all integrates:

### AUTOMATED SAMPLE COLLECTION

A wide range of Drugs of Abuse are monitored via wastewater testing, and also through individual testing (if required).

### RAPID AND HIGHLY-SENSITIVE LABORATORY TESTS

The single-panel assessment can detect a broad range of abused and illicit drugs, amphetamines, barbiturates, opioids, and stimulants.

### STATE-OF-THE-ART SOFTWARE

PULSE is a state-of-the-art, highly scalable, and secure cloud-based software system.

### USER-FRIENDLY DASHBOARD

The platform connects with labs and customers to deliver accurate illicit drug results through a user-friendly dashboard interface viewable on both desktop computers and via Brevi-T's secure mobile app.

### REAL TIME DATA INTEGRATION

Sample results are integrated with real-time multidisciplinary environmental, demographic, and health data in one centralized platform, called PULSE.

### REAL-TIME ALERTS

Rapid reporting is delivered through a real-time alert system via email or SMS.

### ADVANCED ANALYTICS

Data enrichment, mapping, and advanced analytics identify patterns, predict trends, and provide context to school administrators and educators.





## Next Steps for InterOme

We just formed “Hopeful Life” a non-profit organization that aims to improve individual, organizational, and community health through accurate, timely, and actionable information.

We will support Hopeful Life’s mission through an array of advanced multi-disciplinary solutions reinforced by the latest advances in science, technology, and policy making.

## Conclusion

Public health data is most informative when combined with many different sources of information, and wastewater surveillance data is an element that scientists and health officials recognize as an important piece to the public health puzzle. The drug crisis may never be fully resolved, but through a systematic and comprehensive approach that gathers real-time and accurate information, we can greatly improve

our efforts and make meaningful change. Student safety is of highest concern – it creates a secure and nurturing place for learning and using all available tools demonstrates that school officials are serious about protecting student health and safety. Perhaps a wastewater drug monitoring service is something your organization wants to learn more about. If so, InterOme and Brevi-T Bio would love to hear from you!



HOPEFUL LIFE

