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New Denver Health Research Highlights Better Methods for Accurate National Drug Use Estimates

Study suggests fentanyl has increasingly been used via oral routes

DENVER (Nov. 7, 2025)— Research conducted by Denver Health’s Rocky Mountain Poison & Drug Safety (RMPDS) suggests new methods of estimating drug use will provide more accurate reporting, particularly evaluating the use of illicitly manufactured fentanyl. The study was published today in JAMA Health Forum.

The study, “Proactive Bias Mitigation When Using Online Survey Panels for Self-Reported Use of Illicitly Manufactured Fentanyl,” analyzed survey responses from more than 175,000 U.S. adults collected between 2022 and 2024 to examine self-reported use and routes of administration of illicitly manufactured fentanyl.

The RMPDS study team found that applying advanced bias correction techniques reduced fentanyl-use estimates by more than 70 percent, underscoring how essential it is to identify and correct for survey bias when using self-reported data.

“Accurate data is the foundation of effective public health action,” said Joshua Black, PhD, Senior Scientist of Statistical Research at RMPDS. “Our findings show that when we account for hidden sources of bias in online surveys, we get a clearer, more truthful picture of drug use in our communities. This helps ensure that prevention and treatment resources are directed where they’re truly needed.”

RMPDS employed the most comprehensive bias mitigation methods to date, including:

- Five validated detection techniques to identify and remove careless or inattentive responses
- Advanced calibration weighting to correct for both demographic and health-related factors — going beyond traditional statistical adjustments

Key findings from the study include:



- Correcting for bias, self-reported fentanyl use increased modestly from 0.7% in 2022 to 1.1% in 2024. Oral use also increased, surpassing both injection and smoking routes of use.
- The shift towards oral use, which has lower bioavailability than other forms, may explain why mortality rates have decreased despite increased use.

“When we use the right statistical tools, we get cleaner numbers that in turn provide insight we can act on,” Black said. “These corrected data reveal a shift toward oral fentanyl use, which carries different risks than injection or smoking. Understanding those patterns helps public health and clinical partners respond more precisely.”

The study reinforces RMPDS’ role as a national leader in data-driven public health surveillance that can inform public health policy and resource allocation to be driven by the most reliable evidence available.

[Read the full article in JAMA Health Forum here.](#)

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About Rocky Mountain Poison and Drug Safety

Rocky Mountain Poison and Drug Safety, a department within Denver Health, provides specialized services spanning the lifecycle of a drug or consumer product to public health, government agencies, and the pharmaceutical and consumer products industries. Our Poison Center and Health Information and Drug and Consumer Product Services groups provide 24/7/365 contact center communication, exposure management, and toxicology consulting. We offer research, analysis and surveillance, and consulting through our Research & Consulting Services group, including our industry-leading RADARS® system.

About Denver Health

Denver Health is a comprehensive health and hospital system that provides high-quality care and proudly serves as the city’s safety-net hospital. For more than 160 years, Denver Health has been guided by its mission to serve the people of Denver, to educate the next generation of health care professionals and to engage in research and community partnerships to better



deliver the services that meet our patients health care needs while strengthening our community.