

Research finds dark web fentanyl-selling operations have grown rapidly, offer steep discounts

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Overdose deaths in North America have skyrocketed, primarily because of the spread of illegally manufactured fentanyl. In a new study, researchers have analyzed an early and prominent fentanyl-selling operation on the dark web. The organization sustained a significant growth rate, which allowed it to offer consumers steep discounts. In light of these findings, the authors conclude that it might be challenging to constrain supply by shuttering individual organizations since remaining

organizations could grow rapidly to fill unmet demand.

[The study](#) was conducted by researchers at Carnegie Mellon University, the University of Arizona, Tucson, and the University of Maryland, College Park. It appears in *Global Crime*.

"Internet drug sales have the potential to become more prevalent," explains Jonathan P. Caulkins, professor of operations research and [public policy](#) at Carnegie Mellon's Heinz College, who led the study. "This raises the question of how they differ from traditional in-person distribution systems; to answer that, we examined how the organization operated, how profitable it was, and what its vulnerabilities were."

For the first time, researchers used both detailed qualitative and large-scale transaction-level data to analyze more than 5,500 drug transactions involving more than 870,000 items sold for about \$2.8 million through AlphaBay; the AlphaBay marketplace operated from 2014 to 2017 and was considered the largest [dark web](#) marketplace, with more than 200,000 users.

Dark web marketplaces, like legal Internet marketplaces such as eBay and Amazon, allow vendors and buyers exchange currency for goods, with orders fulfilled primarily by contracting with parcel delivery services. However, dark web marketplaces (also called cryptomarkets) generally involve cryptocurrencies, which provide anonymity.

The study focused on a prominent organization based in Utah that primarily manufactured counterfeit prescription pills containing fentanyl and distributed them by U.S. mail. This organization is of particular interest because it allowed the researchers access to seller-level data, providing insights into organizational strategy. The study also analyzed court documents related to the prosecution of the organization. Operating at least between July 2015 and November 2016, the

organization used the storefront name Pharma-Master. Most of Pharma-Master's sales were of counterfeit oxycodone pills, which contained fentanyl but no oxycodone.

Pharma-Master sustained a sales growth rate of approximately 15% per week, the study found. Increasing order sizes by a factor of 10 reduced the price per pill by approximately 25% for oxycodone and 50% for Xanax, which the organization also sold. Those steep quantity discounts led to large price markups when selling further down the distribution chain.

The authors suggest that drug trafficking organizations' high growth rates and price markups make it hard for [law enforcement](#) to shut down organizations quickly enough to prevent other organizations from expanding to fill unmet consumer demand. They also conclude that:

- Organizations selling via internet drug markets can share characteristics with legal firms (e.g., they are profit-making entities that regularly produce and sell products to customers, their staff has specialized roles, and ownership operates separately from workers), but differ from organizations that sell drugs in traditional drug markets (e.g., they may recruit employees from an inner circle of friends and acquaintances who lack prior criminal convictions or connections to drug distribution).
- Internet drug traffickers can expand rapidly, in part because they are not limited by geography.
- Online selling can be profitable because of low costs and the ability to reach many customers at multiple levels of the market without having to conduct in-person meetings, which can be risky.

Among the study's limitations, the authors note that they are uncertain

what proportion of Pharma-Master's sales are represented in the data they analyzed, so these data may represent only about a quarter to a half of all the organization's actual transactions. In addition, Pharma-Master may have been atypical: Most online vendors are small and short-lived. Finally, market conditions have changed since 2016, with most fentanyl now entering the United States from Mexico, not directly from China.

"Pharma-Master was just one drug-trafficking organization and while it was a successful one, it was not long-lived," notes Philippe C. Schicker, who coauthored the study while he was a master's student in public policy and data analytics at Carnegie Mellon's Heinz College.

"But there is still significant value in studying this organization because it contributed to the early rise in manufacturing counterfeit prescription drugs containing [fentanyl](#), which has dominated [drug](#) overdose deaths in the United States and Canada for several years."

More information: Jonathan P. Caulkins et al, A detailed study of a prominent dark web fentanyl trafficking organization, *Global Crime* (2023). [DOI: 10.1080/17440572.2023.2291352](https://doi.org/10.1080/17440572.2023.2291352)

Provided by Carnegie Mellon University's Heinz College

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