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Public safety and
public health
officials worldwide
should be aware of
an emerging threat
of diverted liquid
pharmaceutical
fentanyl, and other
liquid forms.

This threat could
have severe
implications for
the introduction
of fentanyl into a
country's illicit drug
supply, or make
an existing
fentanyl epidemic
worse.

EMERGING THREAT:

Injectable Liquid Fentanyl

- Fentanyl misuse or abuse typically involves injection or smoking of illicitly manufactured fentanyl (IMF). Illicit fentanyl is most commonly sold on the street as counterfeit tablets or as powders in folded glassine papers.
- Recently, however, diverted injectable solutions of pharmaceutical fentanyl have been reported in countries where IMF has not yet become established, such as Nigeria, Colombia and El Salvador (see details over); in addition to Argentina (500 vials), Brazil (72 vials), and Costa Rica (25 vials). Furthermore, there are reports of fentanyl injectable solutions being stolen or diverted from hospitals, clinics and medical supply houses in Panama (19,000 vials), the United States, and Europe.
- Pharmaceutical fentanyl citrate injection solution typically contains 50 micrograms of fentanyl citrate in each milliliter of solution (50 mcg/mL); a non lethal dose. However, injection of 5-10mL of these solutions can cause intoxication, and may lead to death in susceptible individuals or users without opioid tolerance.
- Diversion of pharmaceutical grade fentanyl in medicinal (non-lethal) doses has the potential to introduce fentanyl into local drug supplies in many countries that currently do not have a major illicit opioid problem, without attracting the attention of police and public health authorities following large overdose outbreaks.
- Not only can diverted medical fentanyl lead to opioid addiction, but when the source of diverted pharmaceutical fentanyl is shut off through interdiction or enforcement, local drug distributors and users may turn to the more dangerous powders and pills being produced by Mexican cartels to fill the demand, thereby increasing the risk of fatal overdose.
- IMF in powder and pill forms have been demonstrated to be difficult to produce consistently in non-lethal doses. The fentanyl content of these illicit pill and powder dosage forms has been shown to be highly variable which can lead to higher overdose death rates and lethal outbreaks.
- More recently, IMF in liquid (solution) form has also been seized in the United States in bulk quantities which are easier to conceal, transport and package for sale. These liquid solutions, however, can be as lethal as the standard powder and pill forms of the drug.
- Fentanyl can be recovered and concentrated in powder form from these IMF or diverted injectable solutions by chemical extraction or by evaporation, for example in a microwave, or the solutions can be directly injected. Recent U.S. seizures, however, indicate intent is for intravenous use in liquid form.
- Drug dealers may also mix adulterants (xylazine) and other drugs (e.g. cocaine, fentanyl analogs) into liquid fentanyl solutions creating complex lethal drug mixtures to mimic the effects of similarly adulterated fentanyl powders and pills.
- This health alert provides details of some of the liquid dosage forms that have been reported in international illicit drug markets. They may represent an emerging threat in countries that have not historically been exposed to illicit opioid use, or may exacerbate an existing IMF crisis like in the United States.

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Acknowledgements: This report was prepared by Thom Browne, MA, Barry K. Logan, Ph.D., and Amanda LA Mohr, MS, MJ Menendez JD. Funding for this document was received by the Fredric Rieders Family Foundation from the Colombo Plan via the US Department of State/INL under 2019-RG-061, 2020-RG-061, and 2021-RG-001, and other Colombo Plan funding sources. Information for this report was also obtained both during and after on-line calls for the State Department's Global Coalition to Address Synthetic Threats under sub-working groups 1.1 (Manufacturing of Synthetic Drug and their Precursors) and 2.1 (Data Collection, Analysis, and Trends Including Early Warning). The opinions, findings, recommendations, and conclusions expressed in this publication are those of the authors and do not necessarily reflect those of the U.S. Department of State.

International Reports of Injectable Liquid Fentanyl

| COUNTRY | REPORTED ACTIVITY |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>NIGERIA (May 2023)</p> | <ul style="list-style-type: none"> • NDLEA reported the seizure of diverted pharmaceutical am-poules of fentanyl in an open-air shopping market. Each ampoule contained 50 micrograms of fentanyl in 1 ml of so-lution. The initial source of the fentanyl was a pharmaceu-tical firm in the United Kingdom. • THREAT: These individual ampoules represent non-lethal doses that could introduce illicit fentanyl use in countries not previously exposed to this substance. |
| <p>COLOMBIA (2023)</p> | <ul style="list-style-type: none"> • Colombian National Police Antinarcotics teams intercepted shipments of medicinal fentanyl citrate in glass amber am-poules. The source of the fentanyl was a phar-maceutical manufacturer in Chile. Each ampoule contained 0.5 mg / 10 ml or 50 mcg / 1 ml of liquid fentanyl. Ampoules have been seized in Bogota, Medellin (280 vials), Tulua, and Cucuta. • THREAT: These individual ampoules represent non-lethal doses that could introduce illicit fentanyl use in countries not previously exposed to this substance. |
| <p>EL SALVADOR (May 2023)</p> | <ul style="list-style-type: none"> • El Salvador National Police seized 500 ampoules of medici-nal fentanyl citrate along their border with Honduras. The source of the fentanyl was a health agency in Guatema-la. Each ampoule contained 0.1 mg / 2 ml or 50 mcg / 1 ml of liquid fentanyl. • THREAT: These individual ampoules represent non-lethal doses that could introduce illicit fentanyl use in countries not previously exposed to this substance. |



International Reports of Injectable Liquid Fentanyl

| COUNTRY | REPORTED ACTIVITY |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>HONDURAS (2023)</p> | <ul style="list-style-type: none"> In November, Honduran authorities seized 48,600 ampoules of medicinal-grade fentanyl packed into dozens of sealed cardboard boxes. The shipment originated in the UK. THREAT: These individual ampoules represent non-lethal doses that could introduce illicit fentanyl use in countries not previously exposed to this substance.  |
| <p>UNITED STATES (2023)</p> | <ul style="list-style-type: none"> In October & November 2023, large quantities of liquid injectable fentanyl solutions were seized in Arizona. The first seizure totaled 54 gallons, while the latter totaled 64 gallons. Intent was for intravenous use, to be further broken down into vials for individual sale and consumption. In July 2023, 1.58 kg of liquid fentanyl was seized in Kentucky. THREAT: Uniform individual doses of IMF liquid fentanyl would be extremely difficult to safely produce, resulting in similar risks for overdose as with traditional tablet or powder forms. <p>The DEA estimates that only 16g of fentanyl out of the 691kg U.S. 2022 fentanyl manufacturing quota was diverted from the medical supply. U.S. fentanyl nitrate injection solution typically contains 50 mcg / ml solution.</p>  |
| <p>EUROPE (May 2021)</p> | <ul style="list-style-type: none"> In 2021, European Union member states reported to the EMCDDA approximately 140 deaths associated with fentanyl. A significant portion of these, however, were thought to be associated with fentanyl diverted from medicinal use rather than fentanyl from illicit production. <p>https://www.emcdda.europa.eu/publications/European-drug-report/2023/drug-situation-in-europe-up-to-2023_en</p>  |

International Reports of Injectable Liquid Fentanyl

REFERENCES

[Stanley TH. The Fentanyl Story. J Pain. 2014 Dec;15\(12\):1215-26](#)

[Vardanyan RS, Hruby VJ. Fentanyl-related compounds and derivatives: current status and future prospects for pharmaceutical applications. Future Med Chem. 2014 Mar;6\(4\):385-412](#)

<https://www.kiiitv.com/article/news/local/nueces-county-traffic-stop-turns-into-largest-liquid-fentanyl-drug-bust-in-us-history/503-80e7b86d-0f82-420f-bb0b-f1c8d244aebc>

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Questions? Please email Barry.Logan@cfsre.org.