

Expert Insights

SPECTIVE ON A TIMELY POLICY ISSUE

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Illegal synthetic opioids: Can Europe prevent a crisis?

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Abbreviations

| ACMD | Advisory Council on the Misuse of Drugs | |
|---------|---|--|
| CDC | Centers for Disease Control and Prevention | |
| EMCDDA | European Monitoring Centre for Drugs and Drug Addiction | |
| EU | European Union | |
| SCS | Supervised Drug Consumption Sites | |
| UNODC | United Nations Office on Drugs and Crime | |
| UK | United Kingdom | |
| US | United States | |
| WEDINOS | Welsh Emerging Drugs & Identification of Novel Substances Project | |

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otent illegally manufactured synthetic opioids have ravaged North America (Humphreys et al., 2022) and are beginning to appear in Europe (BBC News, 2023). Given the massive harms associated with the opioid crisis in the US and Canada – including a dramatic increase in the number of overdose deaths (Friedman & Shover, 2023; Pardo et al., 2019) – it is critical that European leaders understand the urgent challenges that synthetic opioids pose. In 2021, the death rate attributed to opioid overdoses in Europe was 18.3 deaths per 1 million residents, whereas in the US there were 324 deaths per 1 million residents (CDC, 2023; EMCDDA, 2023). That means the problem in Europe currently appears far smaller; it also means that the problem in Europe could get much worse.

Synthetic opioids are much less expensive to produce than heroin, which is primarily why drug dealers started mixing illegally manufactured fentanyl imported from China into the US and Canadian heroin supply circa 2014 (Pardo et al., 2019).¹ Traditionally, those supplying illegal opioids to Europe continued to rely on heroin produced from Afghan poppies. However, their incentives for switching to synthetic opioids has grown since the Taliban drastically curtailed Afghan heroin production (Greenfield, 2023; EMCDDA, 2024).

In this paper, we provide an overview of the current synthetic opioid situation in Europe, consider lessons from previous and ongoing crises involving synthetic opioids, and reflect on the possible challenges ahead. We conclude with some ideas for improving preparedness in this area.

The challenges of synthetic opioids

Some synthetic opioids are medicines that can be used in the management of pain and as an anaesthetic.² Due to their risks, the use of synthetic opioids is heavily restricted. Internationally, these medicines can typically only be accessed legally in a controlled medical setting or through a prescription. Legal synthetic opioids are produced by pharmaceutical companies, distributed to pharmacies and healthcare providers, and administered at the hospital or healthcare facility or provided on prescription to take at home. In the case of the US, an overprescription of legally manufactured painkillers contributed to the onset of the synthetic opioid crisis (Volkow & Blanco, 2021; Alpert et al., 2022).

Synthetic opioids are also sometimes used in quantities above what was prescribed or for nonprescribed purposes. Consumers may seek out synthetic opioids directly (e.g. diverted medicines such as Tramadol, or synthetic opioids illegally produced and supplied)³ or be consuming them unintentionally (e.g. illegal fentanyl being mixed with their usual heroin or cocaine supply). If producers introduce illegally manufactured synthetic opioids into the supply chain of other drugs, the consumer may have little choice or even awareness in consuming these highly potent products.

Some synthetic opioids are much more potent than morphine or heroin, and smaller doses may produce greater effects. For example, fentanyl is about 50-100 times the potency of morphine⁴ (Suzuki & El-Haddad, 2017) and isotonitazene is up to 500 times the potency of morphine (ACMD, 2023). The illegal production of synthetic opioids can be dangerous to the consumer as the purity and dose Some synthetic opioids are much more potent than morphine or heroin, and smaller doses may produce greater effects.

can be unpredictable and vary from batch to batch, further increasing harms and the risk of overdose (Ciccarone, 2019). This is especially problematic when synthetic opioids are mixed with other substances and users do not know they are consuming them (Pardo et al., 2019). The higher potencies of synthetic opioids also make it cheaper to distribute per dose,⁵ creating further challenges for drug enforcement agencies.

The production of synthetic drugs is less geographically bound than that of other substances (such as, for instance, heroin, which is derived from opium poppies that are cultivated only in specific regions; see more below). Synthetic drugs can be produced anywhere in the world if the necessary precursors are available. The three main producers of illegal synthetic opioids supplied to Europe are believed to be China, India and Russia (EMCDDA, 2024). Some production of illegal synthetic opioids is said to occur within the EU, but it is thought to be minimal compared to what is being produced outside the EU.

What are synthetic opioids?

Opioids are generally classified into three broad groups: natural opioids, which are compounds found in or derived from the opium poppy; semi-synthetic opioids, which are opioids that are made from compounds in the opium poppy; and synthetic opioids. Synthetic opioids⁶ produce similar effects to plant-based opiates⁷ but derive entirely from human-made chemicals rather than from opium poppies (Rang et al., 2012). The main groups of synthetic opioids are the piperidines (e.g. fentanyl), the methadone-like drugs, the benzomorphans (e.g. pentazocine) and the thebaine derivatives (e.g. buprenorphine). However, in recent years other groups of synthetic opioids have come onto the scene in Europe, in particular benzimidazole opioids or 'nitazenes' (EMCDDA, 2023).

Examples of natural, semi-synthetic and synthetic opioids:



The shared effects of opioids – natural, semi-synthetic or synthetic – are analgesia (pain-relief), euphoria, respiratory depression, depression of cough reflex, nausea and vomiting, pupillary constriction, and constipation. The strength of these effects varies among opioids (Rang et al., 2012).

What is happening now in Europe?

Heroin remains the most commonly used illegal opioid in Europe, but there are concerns about the emerging use of other opioids

Given the possible supply issues affecting the European heroin market (more on this below), as well as the potential for polydrug use and substitution of heroin and other opioids with synthetic opioids, it is important to take stock of current patterns of use of those substances in Europe. The population currently using heroin might be particularly vulnerable to a market shock affecting the supply of that substance, especially if heroin availability is reduced. The 2023 European Drug Report (drawing on data through to the end of 2022) confirms that heroin continues to be the most commonly used illegal opioid in Europe, and that levels of use remain stable (EMCDDA, 2023a). It is estimated that about 1 million people were high-risk opioid consumers in 2021 (EMCDDA, 2023a). Heroin is still involved in the majority of opioid-related deaths, but the number of European countries in which this is the case has declined.

The rates of opioid use and opioid-related deaths vary across Europe. In an analysis that examined 19 European countries between 2010 and 2018, Scotland had the highest rates of high-risk opioid consumers,⁸ opioid-related hospital admissions and deaths (Pierce et al., 2021). To help put this in perspective, Scotland had 16 high-risk opioid consumers per 1,000 population, whereas the Netherlands had the lowest rate, with only 1 high-risk opioid consumer per 1,000 population. Nitazenes have never been used nor approved for medical use, and so the nitazenes seen in the European market are illegally produced.

Synthetic opioids currently have a relatively small presence in the European drug market as a whole, though they pose important challenges in certain countries (Griffiths et al., 2023). There is evidence to suggest that the availability and harms associated with synthetic opioids, including drug-related deaths, have increased in Europe in recent years, particularly in the UK and some northern and Baltic countries (EMCDDA, 2023a). While the availability and use of fentanyl derivatives have been major concerns in those countries, the emergence of highly potent benzimidazole opioids ('nitazenes'), such as protonitazene, metonitazene and isotonitazene, has also been observed (EMCDDA, 2023a).

Nitazenes have never been used nor approved for medical use, and so the nitazenes seen in the European market are typically illegally produced (ACMD, 2023). The number of countries, including European nations (e.g. Latvia, Estonia, the UK, Sweden and Germany), reporting nitazenes to the United Nations Office on Drugs and Crime Early Warning Advisory on New Psychoactive Substances has been increasing since 2019 (UNODC, 2024). In Estonia and Latvia, there has been an increase in the prevalence of nitazenes in the illegal drug supply since 2019, as well as in reported drug-related deaths since 2022 (Giraudon et al., 2024). In Estonia, nitazenes were reported in over a third of drug-related deaths in 2022 (32 of 82 drug-related deaths) and about half of drug-related deaths in 2023 (56 of 117 drug-related deaths) (Giraudon et al., 2024). The UK government banned 24 nitazenes in 2023, alongside other synthetic opioids (Home Office, 2023). Before 2021, nitazenes were not detected in fatal overdoses, prison samples, seizures, or those submitted anomymously for testing in the UK (e.g. to the Welsh Emerging Drugs & Identification of Novel Substances Project, a drug testing service in Wales)⁹; however, the National Crime Agency reported 54 fatal overdoses linked to nitazenes between June and December 2023 (Holland et al., 2024; Homer & Johal, 2023). In March 2024, the first overdose death from nitazenes was reported in the Netherlands (Neven, 2024).

Supply-related changes have the potential to affect the illegal opioid market in Europe

Illegal opium production takes place in a relatively small number of countries worldwide (notably Afghanistan, Myanmar, Laos, Mexico and Colombia). The European heroin market in particular tends to be supplied by opium poppies cultivated in Afghanistan (EMCDDA, 2024) – see Figure 1.

According to the UNODC, Afghanistan was the main producer of illegal opium poppies and opium until 2022, with an estimated 233,000 hectares of opium poppy

Figure 1. Flows of heroin trafficking



SOURCE: Adapted from The United Nations Office on Drugs and Crime (UNODC), 2023b; 2023c.

cultivation (UNODC, 2023a). However, the situation substantially changed in 2023, following the Taliban ban on poppy cultivation in 2022. Recent reports suggest that the ban may have led to a 95 per cent drop in production in the country (EMCDDA, 2024; UNODC, 2023b), as shown in Figure 2. However, the drop in production does not appear to have resulted in heroin shortages in Europe, yet (EMCDDA, 2024). There are also economic incentives for supply systems to short first the markets where retail markets are lower (Caulkins & Hao, 2008), which may have protected European supplies from early effects of the ban. At the same time, it is likely that there are still remaining stocks of opium and/or heroin along the supply chain.



Figure 2. Estimated opium production in Afghanistan (2013-2023)

SOURCE: The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), 2024.

It is uncertain whether the ban will continue to be enforced, and there is approximately a 12-month delay before the opium harvest from Afghanistan enters the European drug market as heroin (UNODC, 2023c). It is also expected that those involved in the production and supply chain have been keeping stocks of this substance. However, should the ban be sustained, it could have spillover effects on heroin availability in Europe. Past experiences with reduced drug supply have been associated with changes in drug trafficking and use patterns – as was the case with the previous shortage in heroin supply in Europe, where fentanyl emerged to some extent as well, as we discuss next. At the same time, criminal networks are able to adapt to changing circumstances, and we may see other market changes. For instance, production may be displaced to other countries. Though production of heroin is rare in Europe, there have been some indications that the processing stages (i.e. the transformation of morphine into heroin) have also occurred in Europe in recent years: at least 15 sites were detected between 2018 and 2021, particularly in the Netherlands (EMCDDA, 2024). Other market changes are possible, including a shift towards increased production of synthetic opioids in an attempt to fill in the gap and overtake heroin. As noted above, the market for synthetic opioids seems to be growing in Europe, and it is plausible that some production of those substances may also occur in the EU. Currently, most of the illegally produced synthetic opioids available in the European market are sourced from other regions, but the EMCDDA reported on the recent dismantling of laboratories used for the production of fentanyl in France, Estonia and Latvia. Seizures of fentanyl precursors have also occurred in Belgium, Estonia, France and the Netherlands (EMCDDA, 2024). In some European countries (e.g. the Netherlands) there is already infrastructure, including equipment and access to chemical precursors, as well as knowledge to illegally produce other synthetic drugs, particularly amphetamine (EMCDDA & Europol, 2023). The process of manufacture of synthetic opioids may be relatively less complex than the production of other synthetic drugs (Pardo & Reuter, 2020), and, given its potency, a very small quantity is sufficient to produce a large amount of doses (Mounteney et al., 2015). A shift to the manufacturing of synthetic opioids could be another likely scenario worth monitoring (more on this below). Furthermore, Mexican criminal networks have been connected to illegal synthetic drug production in Europe, and are the key supplier of fentanyl to the US market (EMCDDA, 2024). Given the cheaper production costs of synthetic opioids (in comparison to heroin), it is possible that criminal networks could become more involved in manufacturing and/or supplying synthetic opioids in the European market.

What can we learn from previous and ongoing crises involving synthetic opioids?

Synthetic opioids are not entirely new in Europe

So far synthetic opioids have not entered the European drug markets to the extent observed in North America. However, this is not the first time that the Taliban have banned poppy cultivation, with implications for European drug markets (Caulkins et al., 2024). The early 2000s ban may have contributed to a heroin shortage in Europe, and synthetic opioids – and in particular, fentanyl – emerged in several European countries at that time (Mounteney et al., 2015). Estonia was particularly affected. The country saw fentanyl use emerging in 2003 and faced nearly two decades of fentanyl and elevated overdose death rates (Uusküla et al., 2020; Pardo et al., 2019). Other countries, including the UK, Germany, Finland, Sweden and Lithuania, also had outbreaks of fentanyl-related deaths during that period (Mounteney et al., 2015; Pardo et al., 2019).

In Estonia, in an initial phase, fentanyl seemed to have been marketed as heroin and replaced heroin among the long-term opioid-using population, but it subsequently extended to new drug-using groups, leading to an overdose surge (Uusküla et al., 2020). Fentanyl was not the only synthetic opioid present – several analogues were also detected, especially from 2015 onwards (Pardo et al., 2019). There is mixed evidence as to the sources of the fentanyl, suggesting that it might have been produced in Russia, China or Estonia (Pardo et al., 2019).

Several factors converged in the emergence of fentanyl at this time: 1) there was already an established opioid user population; 2) the supply of traditional opioids was disrupted; 3) users were vulnerable to mixed substances and might not have been aware of what they were buying; 4) there were limited detection and monitoring capacities. Though the primary source of this market shock was the same (i.e. the heroin shortage associated with the ban of poppy cultivation in Afghanistan), the size of the shock and its repercussions were different across European countries. In Finland, heroin seems to have mainly been replaced with buprenorphine (Pardo et al., 2019) - often diverted from legal medical supplies obtained outside of Finland (e.g. France) - which was a more favourable substitution to heroin, as it has a lower risk of overdose (Caulkins et al., 2024; Pardo et al., 2019). These contrasting examples

Synthetic opioids have had a devastating impact in the US



show how different markets, even if geographically close, may respond differently to a market shock, and suggest that it might be worth preparing for a range of plausible scenarios.

If the increase in synthetic opioids is not initially driven by demand, do we have a 'poisoning crisis' in the making?

In analysing the previous poppy ban and how it affected Europe as well as the development of the US opioid crisis, it became evident that supply-related factors were important drivers for increased use in synthetic opioids. There is evidence to suggest that in Estonia illegal drug distributors responded to a drop in the supply of natural opioids by adulterating the substances they were selling, introducing and exposing users to more potent synthetic opioids in the absence of heroin. In the US, fentanyl was initially mixed with heroin (Ciccarone, 2017), and it has also more recently been found mixed into non-opioids like methamphetamine and cocaine. This can be particularly harmful because individuals consuming these drugs often do not have a tolerance to opioids (Mars et al., 2018).

In both North America and Europe, synthetic opioids have been found in other substances reported by drug-testing services, such as in Canada (Toronto's Drug Checking Service, 2023a; 2023b) and Wales (WEDINOS, 2024). WEDINOS's 2022/2023 annual report (WEDINOS, 2023) notes that out of 6,656 samples analysed, 36 samples contained nitazenes – and none of those purchasers reported nitazenes as the intended purchase.¹⁰ Likewise, early in the North American fentanyl crisis, in a study comparing urine samples to self-reported drugs consumed in a harm The intentional or unintentional mixing of synthetic opioids with other substances is dangerous. Even for those who know that their synthetic opioids could be mixed, there is a risk of overdose because of the variation in products and their potency.

reduction site in British Columbia, Canada, a considerable proportion of clients tested positive for the consumption of fentanyl but did not report consuming fentanyl (Amlani et al., 2015).

The intentional or unintentional mixing of synthetic opioids with other substances is dangerous. Even for those who know that their synthetic opioids could be mixed, there is a risk of overdose because of the variation in products and their potency. Counterfeit prescription drugs containing synthetic opioids have also been associated with an increase in overdose deaths in the US, particularly among younger populations (who may be more likely to experiment with pharmaceutical substances) (Daniulaityte et al., 2022; Palamar et al., 2022). In an early phase, this was most likely driven by dealers mixing synthetic opioids with other substances, and has been described by some as a 'poisoning crisis'; in a subsequent phase, demand for synthetic opioids increased. Exposing naive consumers without tolerance to synthetic opioids will increase the risk of overdose. Moreover, the inclusion of synthetic opioids in non-opioid drugs can introduce the drug to those who do not use opioids.

Plausible future scenarios for Europe

Illegal drug markets can be highly adaptable and responses may differ across countries; thus, it is possible to imagine several plausible future scenarios based on past and recent opioid market changes (e.g. Caulkins et al., 2024). Of course, no one can see the future, so these scenarios are not predictions. Rather, they are meant to illustrate the potential scale of harms that could result. They may also provide a point of departure for analysts tailoring them to specific contexts by taking into account country-specific nuances (e.g. current drug-trafficking routes; scale and actors involved in the production of illegal substances; existing treatment and response infrastructures).

We distinguish six plausible future avenues (see Figure 1), some where the current ban on poppy cultivation in Afghanistan is interrupted, and others assuming that the current ban is maintained for a longer period. As we note below, even if the current ban is interrupted, the economies of illegally manufactured synthetic opioids may have ongoing appeal to those involved in illegal drug supply (scenario 2). The six are not mutually exclusive and scenarios 4–6, in particular, might all occur in varying proportions.

Figure 1. Six scenarios for future opioid market developments in Europe

| SCENARI | 0S: | | POTENTIAL EFFECTS ON DRUG CONSUMPTION: |
|---------|---|---|---|
| | | | |
| 1 | There are sufficient stockpiles of heroin along the supply chain to last throughout the duration of the ban (assuming that the ban is temporary) | - | No major change in levels or type of opioid consumption in Europe |
| | | | |
| 2 | Heroin is sourced from a different producing country or countries | - | Initial disruption to supply until different source country creates volume required for European market, but then no major change in levels or type of opioid consumption in Europe (assuming stable/similar purity) |
| | | | |
| 3 | Regardless of availability of stockpiles or alternative sources, distributors use the ban as an opportunity to introduce synthetic opioids into the market (likely mixed with other substances) due to cheaper production costs | - | Increased consumption of illegally supplied opioids – potentially not driven by demand in an initial phase ('poisoning crisis') |
| | | | |
| 4 | There is a heroin shortage, users shift to legally supplied opioids through treatment services and/or diverted from healthcare contexts | | Increased consumption of legally supplied opioids and increased treatment access |
| | | | |
| 5 | There is a heroin shortage, users shift to illegally supplied non-opioid drugs (e.g. benzodiazepines, methamphetamine, cocaine) | - | Increased consumption of other illegal substances |
| | | | |
| 6 | There is a heroin shortage, users shift to illegally supplied synthetic opioids – driven by supply and/ or demand (e.g. 'poisoning crisis', a potential shift of illegal production of synthetic opioids to Europe) | | Increased consumption of illegal synthetic opioids |

How to improve preparedness in Europe

It is not too late for Europe to prepare for a possible onslaught of synthetic opioids in the wake of the disruption to Europe's main illegal opioid supply. While synthetic opioids are already in the illegal opioid supply in Europe to a degree, it is not yet at levels anywhere near what has been seen in the US and Canada. Policymakers can, therefore, try to get ahead of the curve. If synthetic opioids emerge in response to a shortage of heroin or another reason, synthetic opioid harms might emerge initially among long-term opioid users, rather than representing an addiction crisis driven by new demand. Below we highlight some ways that individual countries as well as the EU can improve preparedness.

Focus surveillance on early detection. Many places in Europe - but not all - have excellent wastewater analysis programmes that monitor consumption of illegal drugs by testing for metabolic products (EMCDDA, 2024). It is important to test not only for traditional drugs like heroin, but also for novel synthetic opioids, such as nitazenes. This data could be combined and triangulated with other indicators, including hospital emergency data, seizures, testing price and purity and data from drug-checking services (e.g. those testing in the night-time economy, such as in clubs, festivals or city-centres) (The Loop, 2024; WEDINOS, 2023), to identify changes to the synthetic opioid market. A combination of these approaches could be part of the early-warning system as well as protecting those voluntarily submitting drugs to drug-testing services from potential overdose (Giommoni, 2024). Indeed, a combination of these approaches forms the basis of the UK's Crime and

Access to naloxone and training to use it needs to reach first responders and emergency medicine workers, as well as people who use drugs and their families.

Policing minister's proposed surveillance system using wastewater analysis (Dathan & Woode, 2024).

Reduce the probability that an overdose is fatal. Overdose rescue protocols may need to be updated to adjust for synthetic opioids' greater potency. Naloxone availability is not homogeneous throughout Europe. A 2020 report from the EMCDDA noted only 12 countries with naloxone distribution initiatives, with a wide variation in how accessible naloxone is within those countries (i.e. whether it is available without a prescription or not) (EMCDDA, 2020). Multiple doses of the rescue drug naloxone are sometimes needed to counteract fentanyl overdoses (Moss & Carlo, 2019). Access to naloxone and training to use it needs to reach first responders and emergency medicine workers, as well as people who use drugs and their families.

Quick responses are essential when someone stops breathing. That is one goal of the supervised drug consumption sites (SCS) that operate in some European cities across 10 countries (EMCDDA, 2018), but those sites tend to cover a small proportion of a country's drug-use sessions (Kilmer et al., 2018). Scotland, which has one of Europe's highest overdose rates, approved their first safe injection facility in September 2023, with plans to open in late March 2024 (EMCDDA, 2021). Brick-and-mortar facilities staffed by paid professionals can be expensive, may require specific regulation or a suitable location, and exist mainly in centre cities. Other forms of supervision - whether it be hotlines people call when using drugs (Rutherford, 2022), new technological approaches (Lombardi et al., 2023), or public education campaigns warning people not to use opioids alone - can complement SCS.

Be strategic about law enforcement. Reducing the supply of synthetic opioids is very challenging once they are entrenched in the market (Caulkins & Reuter, 2023). European law enforcement officials still have time to try preventive 'focused deterrence' strategies (Pardo & Reuter, 2020), such as tactically engaging with actors in the illegal market and making them aware that the introduction of synthetic opioids into a country or city will move them up their enforcement priority list. Focused deterrence is a pragmatic crime-reduction strategy that has been adapted to different goals and contexts, such as reducing group violence, reducing crime through drug market interventions and targeting individuals at high risk for repeat offending (Kleiman, 2009; Braga et al., 2018). This strategy may only be possible to implement in a minority of locations, but even temporarily delaying the arrival of these substances

to domestic markets could be valuable from a public health perspective.

Expand treatment capacity. Because opioid use produces pleasurable effects for the consumer, many longterm users are ambivalent about entering treatment (Hall et al., 2021a; Hall et al., 2021b; Roberts et al., 2011). If overdoses soar, that may motivate more to seek treatment. There must be sufficient treatment availability to meet that demand. Traditional treatment medications used in European settings, such as methadone and buprenorphine, reduce population-level mortality risk (Santo et al., 2021), but don't work for everyone, so officials may want to initiate or expand other alternatives (Kilmer et al., 2018). For instance, there has been recent interest in Europe in the expansion and roll-out of depot-buprenorphine, a long-lasting opioid-substitution therapy in which the consumer receives an injection every 28 days rather than every day. A systematic review of the efficacy of Buvidal (a brand of depot-buprenorphine) reported increased efficacy compared to the control group (sublingual buprenorphine or placebo) (Williams & Saima, 2023). Indeed, the uptake of depot-buprenorphine in local areas in the UK was supported in the UK government's 10-year drug strategy (Home Office, 2021). In addition to medication, access to supportive services - such as peer-support networks and outreach services - that help people enter and remain in recovery could be expanded and encouraged.

Strengthen prevention programs. Discouraging people from initiating opioid use in the first place is infinitely preferable to trying to limit the harms associated with continued use. This requires investment in community and developmental prevention programmes (Stein et al., By acting in advance and thinking about the problem as a 'poisoning crisis', Europe has a priceless opportunity to prepare and implement a sensible response.

2023), as well as public service announcements that are not hysterical in tone.

Sadly, if no policies are employed to prevent the spread of synthetic opioids, they will claim many lives. But by acting in advance and thinking about the problem as a 'poisoning crisis', Europe has a priceless opportunity to prepare and implement a sensible response. Proactive and timely action is crucial to prevent further harm.

Notes

¹ While this wasn't the first outbreak involving illegally manufactured synthetic opioids in the US, it was by far the deadliest. For more on this, see Pardo et al. (2019).

 $^2\;$ In addition, longer-lasting synthetic opioids (e.g. methadone) can be used to replace short-acting opioids (e.g. heroin) in treatment for opioid use disorder.

³ In the US, there was a transition from consumers seeking legally produced synthetic opioids (i.e. oxycodone) to seeking illegally manufactured heroin. This was attributed, in part, to the reformulation of oxycodone, which made it difficult to crush or dissolve (Powell & Pacula, 2021).

⁴ Morphine is an opioid-based analgesic, often considered the standard against which other opioids are measured.

 $^5\;$ The average price per gram of fentanyl declined in the US between 2016 and 2021 (Kilmer et al., 2022).

⁶ Opioids are any substances that produce morphine-like effects and can be blocked by antagonists (e.g. naloxone).

⁷ Compounds found in the opium poppy.

⁸ High-risk opioid use is defined by Pierce and colleagues by using the EMCDDA's definition: 'recurrent drug use that is causing actual harms to the person (including dependence, but also other health, psychological, or social problems) or is placing the person at a high probability/risk of suffering such harms (e.g. intense use of substances or use of risky combinations and/or risky routes of administration)' (EMCDDA, 2018).

⁹ It is worth noting that the lack of detection may be because samples were not being tested for nitazenes prior to 2021. While drug-checking services tend to test for all substances, other testing facilities may choose what to test and therefore not directly check for nitazenes.

¹⁰ When a sample is provided to a drug-checking service, the 'expected drug' (i.e. the drug that the consumer intended to purchase) is recorded. This is then compared to the sample's actual results.

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About this paper

This paper was written in light of recent developments concerning the illegal markets for synthetic opioids, which pose growing public health risks for Europe. This paper is intended to highlight key lessons from past and ongoing opioid crises (in Europe and in the United States), offer an overview of recent trends in Europe, and reflect on the challenges that lie ahead. We also explore potential strategies for enhancing preparedness in this area.

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